



## **IMPACT OF AI ON BUSINESS AND SOCIETIES IN SMART CITIES**

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**Abstract:** The goal of this research is to investigate the relationships that exist between artificial intelligence (AI) and business and societies in smart cities. By analysing 20-25 relevant articles collected through various websites, this article presents the evolution of research on AI in business and societies over time. It aims to provides a classification of scientific research relating to the topic and also to identify the directions of future research. Nowadays, AI has become basic need of everyone whether it's a student or businessman. To understand the concept thoroughly and easily, the article is being divided into two parts.

**Keywords – AI, Business, Smart cities, Technology, Automation.**

### **I. INTRODUCTION**

Artificial Intelligence (AI) is changing the way businesses work in today's world and has created history through its performance. AI emerged in 1956 but developed slowly through because of the immature computational technologies. AI has become a powerful tool for businesses. Many businesses are using AI to save time, reduce costs, and make smarter decisions. At the same time, some businesses face challenges, such as the high cost of adopting AI, the need to train employees, and concerns about privacy and ethics. Artificial Intelligence (AI) is playing a big role in shaping the future of smart cities. Smart cities use technology and data to improve the quality of life for people, make services more efficient, and solve urban problems like traffic, pollution, and energy use. AI is at the heart of this paper looks at how AI is impacting businesses and societies in both positive and challenging ways. It explores how companies can use AI to improve their work, stay competitive, and prepare for the future and how societies are being affected by it.

### **II. IMPACT OF AI ON BUISNESS**

The emergence of artificial intelligence (AI) has changed the dynamics of the business world. Artificial Intelligence (AI) is changing the way businesses work, helping them become faster, smarter, and more efficient. AI refers to technologies that can think, learn, and make decisions, just like humans. In businesses, AI is used for many tasks, such as automating routine jobs, predicting future trends, and improving customer experiences. In recent years, Artificial Intelligence (AI) has emerged as a powerful tool shaping the future of businesses across the globe. From streamlining operations to enhancing customer experiences, AI is transforming the way companies operate and compete. By mimicking human intelligence, AI enables machines to learn, analyze, and make decisions, helping businesses improve efficiency and uncover new opportunities. For example, companies use AI to manage their supply chains, recommend products to customers, and analyze large amounts of data to make better decisions. It also helps businesses save time and reduce costs by handling repetitive tasks that once required human effort. However, while AI brings many benefits, it also raises challenges. These include concerns about job loss, data privacy, and the need for employees to learn new skills to work alongside AI

systems. This research explores how AI is impacting businesses, both positively and negatively, and discusses how companies can use AI responsibly to stay competitive and innovative.

### AI in marketing and sales:

- AI can analyze what you like and show you ads or product suggestions based on your interests. For example, when you watch a video on YouTube or browse products on an online store, AI notices your preferences and suggests similar content or items.  
Example: If you search for sneakers online, you might start seeing ads for shoes on social media or other websites. This happens because AI tracks your activity and shows ads that match your interests
- Many companies now use chatbots to answer customer questions. These chatbots use AI to understand what people are asking and give helpful responses instantly. This saves time for both the customer and the company.  
Example: When you visit a website and see a chat window that says, "How can I help you?"—that's a chatbot. It can help you find products, answer your questions, or even place orders.
- AI can predict what products people might want to buy in the future by looking at their past behaviour. This helps businesses plan better and keep the right products in stock.  
Example: If a clothing store notices that many people bought jackets in October last year, AI might suggest stocking more jackets before October this year.
- AI tools help marketers create content like social media posts, email campaigns, and even videos. They can suggest catchy headlines, choose the right time to post, and even write personalized messages for different groups of people.  
Example: AI might help a company send personalized emails to customers with names like "Hey Alex, check out our new collection!" This feels more personal and increases the chances of people buying something.
- AI helps businesses manage their social media by suggesting when to post, what to post, and even automatically replying to comments. It can also analyze what type of content gets the most likes and shares.  
Example: If AI notices that funny memes get more likes than serious posts, it might suggest posting more memes to increase engagement.

## III. HOW AI ENHANCES BUSINESS FUNCTIONS

AI's capabilities extend across various aspects of business operations which are described below -

- **Task automation:** by handling routine tasks, AI frees up valuable human resources for more strategic, creative endeavours.
- **Data-driven decision making:** AI's ability to process and analyze vast amounts of data leads to more informed, timely decisions.
- **Customer experience enhancement:** through personalization and predictive analytics, AI helps businesses create more tailored, engaging customer interactions.
- **Operational efficiency:** AI-driven process optimization can significantly reduce costs and improve productivity.
- **Risk management:** in areas such as fraud detection and cybersecurity, AI provides more robust, real-time protection.
- **Innovation acceleration:** AI enables rapid prototyping and testing, speeding up product development cycles.

## Some keys statics of significance of impact of AI on business:

- 77% of companies are either using or exploring the use of AI in their businesses.
- 83% of companies claim that AI is a top priority in their business plan.
- AI could increase labor productivity growth by 1.5 percentage points over the next ten years.
- Globally, AI-driven growth could be nearly 25% higher than automation without AI.
- 56% of businesses are using AI to improve and perfect business operations.
- 51% are turning to AI to help with cybersecurity and fraud management. 47% harness AI tools in the form of digital personal assistants.
- 46% are using AI for customer relationship management.
- 40% are turning to AI for inventory management.

## IV. AI IN RETAIL

- AI helps online stores suggest products based on what customers have bought or searched for before. This makes it easier for customers to find what they want without spending too much time searching.
- Some retail stores, especially those selling clothes or cosmetics, use AI to let customers try things on virtually. With the help of a camera or smartphone app, you can see how a pair of glasses, a shirt, or even makeup would look on you without actually wearing them.
- AI helps retail stores keep track of what products are in stock and predict what products will be in demand. This way, stores don't run out of popular items and can avoid wasting money on things that don't sell.
- Some stores use AI-powered systems that allow customers to pay for their items without waiting in line at a cashier. The system uses sensors and cameras to detect what items the customer picked up and automatically charges them when they leave the store.
- AI helps stores set prices that attract more customers while still making a profit. It can analyze competitors' prices, demand trends, and customer behavior to recommend the best price for each product.

## V. FUTURE TRENDS OF AI ON BUSINESS

- In the future, more businesses will use AI to automate tasks that humans currently do. This could include things like answering customer questions, processing orders, or even analyzing data. As a result, many repetitive jobs might disappear, but new jobs will be created to manage and work with AI systems. Businesses will need to train workers to adapt to these changes.
- AI will make customer service even better by using voice assistants and chatbots that understand human emotions and context. These AI systems will not just answer questions, but also predict what the customer wants next, making interactions feel more personalized. Businesses will be able to offer 24/7 support with minimal human involvement.
- In the future, businesses will use AI to help them become more environmentally friendly. AI can help companies reduce waste, use energy more efficiently, and find better ways to recycle. This trend will grow as more companies focus on being sustainable and reducing their carbon footprint.
- Businesses will use AI to create even more personalized experiences for their customers. This could mean receiving ads, product recommendations, or content that are perfectly tailored to your needs, based on your behavior, preferences, and past purchases. The future of shopping will feel unique to each customer.
- As AI becomes more powerful, there will be a bigger focus on making sure it's used ethically. Companies will need to address issues like data privacy and AI biases. There will be more laws and rules in place to make sure AI doesn't hurt people or invade their privacy, especially when it comes to collecting personal information.

## VI. BENEFITS OF USING OF AI IN BUSINESS

- **Automation:** Automation in business means using technology, machines, or software to do tasks that people used to do manually. It helps businesses save time, reduce mistakes, and work more efficiently. Automation can be as simple as setting up automatic email replies or as advanced as using robots to assemble products in factories.
- **Decision-making:** One of the noted pros of AI is decision-making. AI enhances decision-making by leveraging vast data to identify patterns and trends often invisible to humans. AI's ability to process information at high speeds reduces the time required for decision-making, thus providing a competitive advantage in dynamic environments.
- **Digital Assistance:** Digital assistants are employed by some of the most advanced companies to interact with users, reducing the need for human personnel. Many websites use digital assistants to deliver content based on user requests, enabling us to have conversational searches.
- **Efficiency:** Artificial Intelligence (AI) helps businesses work faster, smarter, and more efficiently. AI can handle repetitive tasks, analyze large amounts of data quickly, and even make predictions to help businesses make better decisions. This saves time and reduces errors, allowing companies to focus on more important tasks.
- **Improved customer experiences:** Artificial Intelligence (AI) is making customer experiences better and more personalized in many ways. Businesses use AI to understand what customers need, solve their problems faster, and provide services that feel tailor-made.
- **Scalability and Flexibility:** AI solutions are all about scalability and flexibility. They help businesses adapt to changing needs and grow seamlessly. Whether it's handling a flood of customer inquiries or crunching massive amounts of data, AI has your back. These systems can scale up or down on the fly to meet demand. And with cloud-based AI platforms, scalability gets even better. They offer instant access to computing power and no need for pricey infrastructure.

## VII. DEMERITS OF AI IN BUSINESS

- **Costly implementation:** AI needs special software, powerful computers, and sometimes robots or other equipment, which are all expensive to buy and set up.
- **Lack of emotion and creativity:** AI lacks genuine emotions, making it difficult to connect with customers on a personal level. For example, chatbots or virtual assistants might struggle to comfort an upset customer or understand subtle emotional cues.
- **No improvement with experience:** AI systems only improve when explicitly trained with new data. Unlike humans, they don't naturally "learn" from day-to-day interactions or unexpected situations unless updated. AI systems are designed for specific tasks and cannot expand their skills or adapt to new tasks without additional development.
- **Less job opportunities:** This is yet another disadvantage many people know immediately. AI becomes more commonplace at companies, it may decrease available jobs, since AI can easily handle repetitive tasks that were previously done by workers. AI can likely create just as many jobs as it makes obsolete.
- **Incorrect information:** AI systems rely heavily on the data they are trained on. If the data is incomplete, outdated, or biased, the AI can produce inaccurate results. AI models can misinterpret incorrect or noisy data, leading to faulty conclusions. In business, this can impact everything from sales forecasts to inventory management.

## VIII. IMPACT OF AI ON SOCIETIES IN SMART CITIES

Artificial Intelligence (AI) is playing a key role in building smart cities, making urban areas more efficient, sustainable, and comfortable for people. AI uses advanced technologies to analyze data, predict patterns, and help cities solve problems like traffic congestion, energy waste, and public safety. In smart cities, AI helps improve transportation systems by managing traffic lights, suggesting faster routes, and even supporting self-driving vehicles. It is also used in energy management, ensuring resources like electricity and water are used

efficiently. AI-powered cameras and sensors enhance security by identifying potential threats and responding quickly to emergencies. However, while AI offers many benefits for smart cities, challenges such as data privacy, high costs, and the need for skilled workers must be addressed. This research examines how AI is shaping the future of cities, exploring both its advantages and the hurdles that must be overcome to create smarter, safer, and more sustainable urban environments.

## Societal Impacts of AI on Societies

- **Personalized Public Services:** AI systems in smart cities enable personalized services like healthcare, education, and social welfare based on citizen needs.
- **Safety and Security:** AI-powered surveillance systems, facial recognition, and predictive policing help reduce crime rates and improve public safety.
- **Better Transportation:** AI helps improve traffic flow by predicting where traffic jams might happen and suggesting better routes. Self-driving cars are also being tested, which could reduce accidents caused by human error.
- **Safer Communities:** AI helps improve safety by analyzing data from cameras and sensors in real-time. This can help the police respond faster to emergencies and prevent crimes.

In summary, AI can make smart cities cleaner, safer, and more efficient, but it also brings challenges like job changes and privacy concerns. By using AI in the right way, we can create better cities for everyone to live in.

## Challenges and Concerns

- **Job Losses:** As machines and robots take over tasks like cleaning, delivering goods, or driving vehicles, some people might lose their jobs, leading to unemployment.
- **Privacy Issues:** With so many cameras and sensors tracking people's movements, there are concerns about personal privacy. Some people feel uncomfortable knowing they're always being watched.
- **Inequality:** Not everyone in a smart city might have access to advanced AI technologies, creating a gap between rich and poor. Some may benefit more than others, leading to social inequalities.
- **Dependence on Technology:** Over-reliance on AI could make people less independent. For example, if a city's AI system fails, it might cause major disruptions in transportation, healthcare, or electricity.
- **Security Risks and Cyberattacks:** As smart cities rely on AI systems to control things like traffic lights, electricity and water supply, these systems become attractive targets for hackers. If AI systems are not well-protected, they could be hacked and cause chaos such as disrupting transportation or power grids, leading to serious consequences for residents.

In conclusion, while AI brings many advantages to smart cities, it's important to address the challenges to ensure everyone benefits equally and lives safely. AI systems can sometimes be biased, especially if they are trained on data that reflects existing social prejudices. This can result in unfair decisions, like AI systems giving lower priority to certain neighborhoods for services like healthcare or policing. If not carefully managed, AI can perpetuate inequality instead of reducing it. As AI systems become more involved in decision-making, questions about ethics arise. For example, should AI be used to make decisions about who gets a job, a loan, or access to healthcare. The challenge is ensuring that AI systems make fair, transparent, and ethical decisions, without favoring certain groups over others.

## Positive Effects of AI on Smart Cities

- **Security:** Security camera footage is typically reviewed when a crime has been reported, this doesn't prevent or stop crime. Security cameras that use artificial intelligence have the ability to analyze footage in real time and detect criminal behavior which can then be instantly reported and dealt with. These cameras can also detect people from their clothes, allowing the technology to find suspects quicker than ever.
- **Maintenance:** A company called RoadBotics has developed a technology using artificial intelligence that has the ability to analyze road imagery to then assess issues and produce cost effective solutions. This allows cities to know when and where repairs need to take place, and

deal with them while saving money. This type of technology also improves safety within cities as problems will not go unnoticed.

- **Controlling Pollution:** Scientists have developed technology which uses AI and machine learning to analyse the current pollutants and predict the pollution levels for the next 2 hours. This type of technology allows authorities to make decisions in advance to reduce their effect on the environment.
- **Parking Systems:** Using license plate recognition technology, car parks are able to detect cars that have stayed hours, this can also enforce payments and tickets. When AI systems are integrated throughout car parking areas space availability is able to be presented to awaiting users, some more advanced technology has the ability to recommend spaces depending on the car.
- **Waste Management:** Smart cities are beginning to use artificial intelligence within their waste management, this type of technology allows cities to track recycling, and identify what can be recycled in the area. Some cities in Sydney take this a step further and use AI powered robots to sort rubbish, as well as clean areas such as lakes and rivers.
- **Environment:** Smart cities can use artificial intelligence to see their effect on the local environment, global warming, as well as the pollution level. Using AI and machine learning within pollution control and energy consumption, allows authorities and cities to make well informed decisions that are best for the environment. Smart cities also use AI to detect CO<sub>2</sub> which can then lead to decisions around transportation.

### Negative Effects of AI on Smart Cities

- **Privacy Concerns:** AI relies on collecting and analyzing large amounts of data, which often includes personal information. This raises concerns about data privacy and how information is stored, shared, and used. Residents may feel uncomfortable with constant surveillance through AI-powered cameras and sensors.
- **Cybersecurity Risks:** As smart cities become more connected, they become more vulnerable to cyberattacks. Hackers could target AI systems that control critical infrastructure, such as transportation, energy grids, or public safety systems, leading to widespread disruptions.
- **Job Loss:** AI automation can replace human workers in various roles, such as traffic management, waste collection, and customer service. This can lead to job losses, especially for low-skilled workers, increasing economic inequality.
- **High Costs:** Developing and maintaining AI systems in smart cities is expensive. Not all cities have the budget or resources to implement these technologies, potentially widening the gap between advanced and less-developed regions.
- **Bias and Inequality:** AI systems can sometimes be biased, as they rely on data that may reflect existing social inequalities. This can result in unfair treatment or unequal access to smart city services for certain groups.
- **Over-reliance on Technology:** Heavy dependence on AI systems can make smart cities less resilient. If these systems fail due to technical issues or cyberattacks, essential services like transportation and emergency response may be severely disrupted.

### IX. CONCLUSION

AI is transforming businesses and societies in smart cities, making them more efficient, connected, and innovative. It helps businesses improve productivity, reduce costs, and offer better services, while also enhancing urban living through smarter transportation, energy management, and public safety systems. However, this progress comes with challenges. Issues like data privacy, cybersecurity risks, job displacement, and inequality need careful attention. To fully unlock AI's potential in smart cities, it is essential to adopt responsible practices, prioritize transparency, and ensure that the benefits are shared fairly among all members of society. By addressing these challenges and focusing on sustainable development, AI can help create smart cities where businesses thrive, societies prosper, and technology works for everyone. This balanced approach will ensure that AI continues to drive positive change while minimizing its negative effects. While the integration of AI in smart cities holds promising potential for transforming urban life, it is also accompanied by a series of challenges related to data security, privacy, and regulatory compliance. Future research needs to

grapple with these issues to unlock the full potential of AI and facilitate sustainable growth and advancement of these technologies.

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