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Title of research article

Concept of Electronic Consumer Protection and Means of Safeguarding It Amid Artificial Intelligence Applications

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Abstract

Consumer protection is one of the most complex issues facing nations in the era of the digital economy and artificial intelligence. It is therefore essential to explore various possible solutions to prevent the violation of consumer rights. This study aims to achieve that goal by adopting a descriptive and analytical approach. It seeks to define the concepts of artificial intelligence and consumer protection and to extract key mechanisms and suitable solutions that could minimize the negative effects of AI on electronic consumers. The study proposes several potential solutions. Among the most important are the implementation of comprehensive legislation, the promotion of legal awareness, and the establishment of international cooperation to ensure a safer and fairer digital environment.

INTRODUCTION

With the rapid technological transformations witnessed worldwide, the digital economy has become a central part of daily life. E-commerce, digital services, and changes in the way goods and services are delivered have opened new opportunities for both consumers and producers.

However, these opportunities have also introduced new challenges. Consumers in the digital world now face a variety of risks that require increased protection. As a result, consumer protection has become a prominent issue on political, social, and economic agendas. It is a central topic in conferences and research discussions, driven by the harmful and unethical practices that many electronic consumers face during online transactions.

501 – www.imcra.az.org, | Issue 11, Vol. 8, 2025
Concept of Electronic Consumer Protection and Means of Safeguarding It Amid Artificial Intelligence Applications
Bouzaher Sonia

The growing use of artificial intelligence has further complicated this reality. AI is one of the most advanced technologies, now playing a key role in several fields, including marketing. It has become a powerful tool that helps marketers analyze consumer behavior and meet their needs more effectively. At the same time, it raises new concerns about consumer data, rights, and autonomy.

Research Problem

Consumer protection stands as one of the most critical challenges in the context of the digital economy and artificial intelligence. There is a clear lack of responsible and effective systems to safeguard consumers from the potential harms of AI technologies. This makes it necessary to explore and propose realistic solutions. This study addresses the following central question:

What are the key factors and measures that should be adopted to prevent the negative impacts of artificial intelligence on consumers before they occur?

Significance of the Study

The importance of this study lies in the growing need to protect consumers, especially as they represent the weaker party in online transactions. The increasing infringement of consumer rights through digital platforms has raised significant concerns. This is particularly true with the expanding use of AI technologies. As a result, there is a rising demand for legal, regulatory, and institutional measures that ensure effective consumer protection.

Objectives of the Study

This study aims to present a clear understanding of consumer protection and artificial intelligence. It also seeks to explore practical solutions to address the current negative challenges posed by AI that may affect consumer rights.

Previous Studies

Due to the growing importance of the topic, driven by increasing violations targeting electronic consumers in the virtual space, several studies have aimed to propose solutions to safeguard their rights and provide a safe and transparent environment—especially with the expanding use of artificial intelligence applications. The following are notable among them:

- **Nassima Derrar (2017), "Consumer Protection**

  in the Cyber-Digital World": This study addressed the challenge of defining consumer protection rules throughout all stages of electronic contracting. Using a descriptive and analytical method, it reached several findings. One of the key conclusions was that consumers face new challenges arising from the widespread availability of online information and communication technologies. The study recommended adopting proactive measures, both in terms of public policy and regulatory action. It also highlighted the need for joint regulatory efforts and self-regulation, as well as educational initiatives to empower consumers—seen as essential for protecting users in the digital world.

- **Hisham Jadallah Mansour Shakhatrah (2023), "Legal Protection of the Consumer Amid Artificial Intelligence Use":** This study explored the legal challenges that stem from the use of artificial intelligence technologies and software. It assessed the adequacy of existing laws in addressing the risks introduced by AI. The research focused on the legal nature of responsibility arising from AI applications and emphasized the need to update legal frameworks. These updates should aim to regulate how AI is used and ensure protection for all parties involved. The study followed a descriptive and analytical method and identified major consumer-related challenges, such as privacy concerns and algorithmic bias. It concluded with a

502 – www.imcra.az.org, | Issue 11, Vol. 8, 2025
Concept of Electronic Consumer Protection and Means of Safeguarding It Amid Artificial Intelligence Applications
Bouzaher Sonia

recommendation for the Jordanian legislator to develop specific legal texts to regulate liability arising from AI usage.

- **Ezzedine Gheish (2023), "Electronic Consumer Protection Amid Cybercrime":**This study focused on how to protect electronic consumers from risks associated with digital transactions, especially as these transactions are increasingly exposed to cybercrimes—considered among the most serious modern challenges (fraud, deception, forgery, etc.). The study identified multiple mechanisms and means of protection, including administrative, technical, and legal tools. It also made several recommendations, such as enhancing oversight of electronic transactions and agreements, enacting international laws regulating electronic commerce, and securing business data and digital payments to better protect consumers from various types of fraud.

- **Soumiya Al-Mutayti (2025), "Legal Protection of the Consumer in Confronting AI Technologies: The Challenge of Moroccan Legislation in Smart Agent Contracting and Liability Issues":** This research addressed the challenge of protecting consumers in light of the growing use of artificial intelligence, particularly when contracting with smart systems that act as "intelligent agents." It examined whether existing Moroccan legal frameworks are sufficient to deal with new challenges posed by these advanced technologies. Through a critical legal analysis, the study found that AI raises complex legal questions related to liability and self-regulation in contracts involving intelligent systems. It concluded that the current legal provisions are insufficient to address these issues. The study recommended legal reforms to strike a balance between encouraging technological innovation and ensuring the fundamental rights of consumers when AI is used.

Based on the above literature, it is evident that the issue of consumer protection in the digital environment, especially under the use of artificial intelligence, remains unresolved. This is largely due to the wide range of risks consumers face—most notably privacy violations, data security breaches, and the unclear attribution of responsibility for such violations. These concerns demand further research and practical solutions to minimize harm while allowing consumers to benefit from the advantages of digital environments and AI technologies as tools of daily use.

This study aims to contribute to that effort by searching for general solutions to protect consumers in the context of information technologies and artificial intelligence. It draws upon the experiences of leading countries and previous studies in the field, following a conceptual and analytical approach to define both artificial intelligence and electronic consumer protection.

Methodology

To achieve the objectives of this study, the descriptive-analytical method was employed. This approach helps in clarifying the concepts of artificial intelligence and consumer protection and in identifying the key mechanisms or solutions that can reduce the negative impacts of AI on consumers—whether nationally, regionally, or globally.

Structure of the Study

The research is organized into the following main sections:

- **Section One:** The Concept of Artificial Intelligence
- **Section Two:** Risks of Artificial Intelligence for Consumers
- **Section Three:** Electronic Consumer Protection
- **Section Four:** Proposed Solutions for Consumer Protection in the Era of Information Technology and Artificial Intelligence

Section One: The Concept of Artificial Intelligence

Artificial Intelligence (AI) is an advanced field within computer science. It aims to develop technological

503 – www.imcra.az.org, | Issue 11, Vol. 8, 2025
Concept of Electronic Consumer Protection and Means of Safeguarding It Amid Artificial Intelligence Applications
Bouzaher Sonia

Sci. Educ. Innov. Context Mod. Probl.| ISSN p (e): 27900169; 27900177

≪IMCRA

systems capable of performing tasks that require human-like intelligence. These systems rely on machine learning, natural language processing, and data analysis to understand, interpret, and make decisions based on information.

AI has been defined as "the human effort to create systems that can reason, learn, and act independently without constant human input. This includes the development of robots that interact with their environment and make decisions based on available data" (Russell & Norvig, 2016).

It is also described as "the ability to construct computer models that represent real-life domains, identify essential relationships within those domains, and produce appropriate responses to various events and situations" (Dahyat, 2019, p. 21).

Another definition describes AI as "a machine's capacity to reproduce human-like skills, such as thinking, learning, planning, and creativity" (Al-Yousef, 2019, p. 131).

In this context, AI relies on advanced tools linked to high-end information technologies. These include the internet, computer systems, and vast data networks. These technologies offer broad access to databases and knowledge systems, enabling machines to simulate aspects of human intelligence (Bilal, 2021, p. 16).

These systems possess the ability to access, retrieve, and store data in real-time. They can also make accurate predictions about future events using advanced forecasting capabilities (Al-Omari, 2021, p. 307).

Therefore, AI is the result of continued efforts to build systems that think and behave similarly to humans. These systems are expected to perform tasks in a coordinated and integrated manner, drawing from experience, knowledge, and learned concepts to support decision-making processes. The core purpose of AI is to design machines that act "intelligently" (Al-Noor, 2019, p. 45).

Benefits of Artificial Intelligence Applications (Muamar, 2024, p. 107):

- AI improves customer service by personalizing user experiences and segmenting clients using analyzed data. Machine learning algorithms generate ongoing consumer insights based on behavior and purchase patterns.
- AI supports business growth by helping identify goals, needs, and suitable technologies that serve business objectives.
- The use of AI in companies boosts value, enhances competitiveness, and secures long-term growth. It also reduces operational costs through resource optimization and predictive models that help prevent system failures.
- AI-powered decision-making technologies assist in achieving faster and more precise choices. This is essential, especially since humans cannot process large data volumes in real time.

Despite these advantages, society must examine the use of intelligent systems carefully. A mature understanding of the real impact of AI on industries is essential. Concerns and risks must be addressed transparently to avoid harmful consequences.

Section Two: The Risks of Artificial Intelligence for Consumers

Artificial intelligence presents several risks to consumers. The most significant include the following (Al-Naqeeb, 2024):

- **Privacy Violations:** AI systems collect and process personal data. This can result in the exposure of sensitive information and breaches of consumer privacy.

504 – www.imcra.az.org, | Issue 11, Vol. 8, 2025
Concept of Electronic Consumer Protection and Means of Safeguarding It Amid Artificial Intelligence Applications
Bouzaher Sonia

- **Bias and Discrimination:** AI decision-making may reflect embedded biases, leading to unfair treatment or discrimination against certain groups of consumers.
- **Job Loss:** The widespread use of smart technologies may replace human labor, increasing the risk of unemployment in various sectors.
- **Lack of Understanding:** In some cases, the advanced nature of AI systems can hinder effective communication with users. This affects the quality of interaction between consumers and intelligent platforms.
- **Safety Concerns:** Errors in AI systems can lead to serious consequences. Examples include self-driving car accidents or medical mistakes linked to AI-based tools.
- **Social Impact:** The integration of AI technologies may deepen existing social inequalities, creating a digital divide between different segments of society.

Section Three: Electronic Consumer Protection

In recent years, significant developments in information and communication technologies have brought major changes to the economic lifestyle of consumers, both in developed and developing countries. Today, a consumer can shop and conduct various commercial and banking transactions from anywhere, at any time, 24 hours a day. These changes have led to the emergence of a new term in the digital environment: the "electronic consumer."

It is important to note that the consumer in electronic transactions is essentially the same as the one in traditional transactions. The key difference lies in the medium. The electronic consumer engages through digital platforms, receiving advertisements, purchasing goods, or requesting services via electronic means such as the internet or other networks (Hijazi, 2008, p. 18).

Therefore, the electronic consumer holds the same rights as any consumer in traditional contracts. However, certain specific rules apply when a contract is concluded through electronic media, especially those formed remotely via online networks (Maamer, 2024, p. 333).

The electronic consumer can be defined as:
"A person who enters into electronic contracts of various types—such as purchase, lease, loan, or use—aimed at satisfying personal or family needs, without intending to resell the product or having the technical expertise to modify it" (Assaf, 2018, p. 210).

The Saudi legal system defines this consumer as:
"An individual who engages in electronic commerce with the aim of obtaining goods or services provided by the service provider," where the person may be "either a natural or legal entity" (Al-Rahman, 2023, p. 2066).

In Algeria, the electronic consumer is defined in Article 5, paragraph 3 of Law No. 18-05 on Electronic Commerce as:
"Any natural or legal person who, for consideration or free of charge, obtains goods or services via electronic communication from an electronic supplier for final use" (Law No. 18-05, Article 6, 2018).

This consumer enjoys rights guaranteed both nationally and internationally. The International Consumer Rights Charter affirms eight fundamental rights: the right to safety, the right to choose, the right to information, the right to express opinions, the right to compensation, the right to basic needs, the right to education, and the right to live in a healthy environment.

Additional rights have emerged due to the digital context. Law 18-05 on electronic commerce highlights both general and specific rights. Among the most important is the right of withdrawal, which is a unique right given to electronic consumers. This right, uncommon in traditional contracts, aims to protect the consumer in a virtual environment.

505 – www.imcra.az.org, | Issue 11, Vol. 8, 2025
Concept of Electronic Consumer Protection and Means of Safeguarding It Amid Artificial Intelligence Applications
Bouzaher Sonia

In practice, this right is a key legal tool that ensures effective protection for the electronic consumer, especially as the weaker party in the transaction. The law allows the consumer to withdraw from a purchase within four working days from the actual delivery of the product, with a clear reason provided. The supplier must return the full payment within 15 days of the product's return. The consumer also retains the right to compensation in case of any damages (Law No. 18-05, Article 6, 2018).

Electronic consumer protection may be defined as: "A natural person who receives goods or services from a professional, for non-commercial purposes, whether for a fee or free of charge, through an electronic communication network" (Saeed, 2012, p. 2).

It is also described as: "Preserving the consumer's rights and protecting them from fraud, deception, or the purchase of counterfeit goods by using digital tools, which often have a broader impact than traditional methods" (Guich, 2022, p. 92).

Moreover, it may be understood as: "A service provided by the government or civil society to shield the consumer from commercial fraud, exploitation, or poor service due to monopolistic practices or unfair conditions" (Al-Baqour, Jaaija, & Nouman, March 30–31, 2021, p. 5).

Because the Electronic Consumer Is the Weaker Party

The electronic consumer is often seen as the weaker party in a contractual relationship. They usually seek to satisfy personal or family needs. This status makes it necessary to provide them with legal protection. Several reasons reinforce the importance of protecting their interests and rights, including the following (Al-Rumilat, p. 12):

- **Rising consumer demand** for goods and services that align with personal preferences. This increase is due to higher income levels, improved living conditions, and better education. However, producers often target a broad market without customizing their offerings for individual consumers. This leaves many consumers unsatisfied.
- **Consumers expect high quality**, but face decreasing real income and reduced purchasing power due to rising prices. This gap leads to frustration and dissatisfaction.
- **Lack of clear and sufficient information** about product features, service quality, or pricing often leaves consumers unable to make informed choices.
- **Low-income consumers** are more vulnerable. They often face fraud, price inflation, and low-quality goods.
- **Legal and political shifts** have made consumer protection a public interest. Governments are now more willing to intervene. Politically, supporting consumer rights has also become a way to gain voter support.
- **Psychological harm** may occur when consumers use certain products or services that cause emotional distress or harm.
- **Limited legal awareness** among many consumers prevents them from knowing their rights or understanding the legal tools available to protect them.

United Nations Principles for Online Consumer Protection

To respond to the global nature of the internet, the United Nations outlined a set of principles for consumer protection in digital environments. These principles support the creation of frameworks to safeguard consumers globally (Guich, 2022, pp. 97–98):

- **Fairness and equity:** Companies operating in virtual spaces must act with honesty. They should work to build consumer loyalty across all stages of the relationship, especially with vulnerable or marginalized groups. These values must be part of the company's core culture.

506 – www.imcra.az.org, | Issue 11, Vol. 8, 2025
Concept of Electronic Consumer Protection and Means of Safeguarding It Amid Artificial Intelligence Applications
Bouzaher Sonia

- **Fair business practices**: Online businesses must avoid illegal, unethical, or misleading practices. This includes aggressive sales tactics or unjustified harm to consumers.
- **Transparency and communication**: Businesses must provide full, accurate, and non-deceptive information about products and services. This is especially important for terms of sale and pricing. Such information must be easily accessible, regardless of the technology used.
- **Consumer education:**Companies should, when necessary, offer programs and tools that help consumers understand the risks associated with digital transactions. This is crucial in payment processes. Businesses must also offer relevant advice and support.
- **Privacy protection**: Companies must safeguard consumer privacy through clear policies and security measures. They should obtain consent before collecting or using personal data.
- **Complaint handling and dispute resolution**: Online businesses must provide fair, timely, and low-cost mechanisms to resolve consumer complaints. Disputes should be settled amicably whenever possible, and customer satisfaction should be a core aim.

Objectives of Electronic Consumer Protection

The main objectives of online consumer protection include the following (Al-Bakri, 2006, p. 237):

- **Protecting consumers** from fraud and deception practiced by producers or intermediaries during sales and exchanges.
- **Upholding consumer rights** and defending them from manipulation or exploitation in the market for goods and services.
- **Supporting low-income groups** by helping them access necessary goods and services.
- **Improving coordination** with business organizations. This allows such entities to access important consumer data, which they may otherwise lack due to limited communication capabilities.

Concluding Note

Protecting consumers online requires addressing the unique vulnerabilities of the digital environment. This includes defending their rights against cybercrime, securing their personal data, and ensuring that payments made by consumers reach the sellers without fraud or loss (Qadri, 2014, p. 116).

Section Four: Innovative Solutions for Consumer Protection in the Age of Information Technology and Artificial Intelligence

- **A Call to Technology Companies to Adopt Fair AI Practices**
As the reliance on intelligent systems grows in decision-making processes that directly impact individuals, it becomes essential to ensure these systems are developed to serve consumer interests and protect their rights. This approach supports the creation of a more just and sustainable consumer society.
- **Establishing a Strong Legal and Regulatory Framework**
There is a need for comprehensive regulation that protects consumers from potential exploitation or discrimination caused by artificial intelligence. Laws must be introduced to address the risks of AI, protect privacy, and secure consumer rights in AI-related interactions.
- **Promoting Consumer Self-Awareness** Many consumers lack awareness of their digital rights due to limited knowledge of new laws and regulations. Therefore, consumers must also take responsibility for educating themselves and others. This can be done by:
  o Learning about the risks associated with artificial intelligence and how it is used in products and services.
  o Supporting companies that demonstrate fairness, transparency, and accountability in their use of AI.
  o Voicing concerns about unfair AI practices and raising awareness about ethical AI use.
  o Participating in campaigns that promote fair AI and educate others on its dangers.

507 – www.imcra.az.org, | Issue 11, Vol. 8, 2025
Concept of Electronic Consumer Protection and Means of Safeguarding It Amid Artificial Intelligence Applications
Bouzaher Sonia

《IMCRA

o   Sharing knowledge and experiences with family, friends, and community members to improve system performance and ensure their needs are met.

• **Investing in Research and Development** Adequate investment is needed to support the development of AI algorithms that are guided by principles of fairness and consumer protection. These algorithms should help machines learn how to respect consumer rights and apply those learnings in real-world scenarios.

• **Awareness Campaigns and Specialized Platforms** Institutions and relevant authorities should run awareness campaigns to educate the public about the risks of AI and the importance of fair practices. This includes public media initiatives, educational programs, and collaborations with non-governmental organizations and private companies. Creating dedicated websites, guidebooks, and platforms can help consumers make informed decisions. Such efforts must be continuous and use both traditional and digital channels.

• **Government Oversight and Private Sector Accountability** Governments must monitor the use of smart technologies and ensure compliance with ethical and legal standards. Oversight mechanisms must be in place to regulate the development and application of AI systems in consumer markets.

• **Enhancing Collaboration Between Government, Private Sector, and Civil Society** Effective consumer protection requires cooperation between public institutions, private enterprises, and civil society. Through joint efforts, the fair and responsible use of AI in the public interest can be achieved.

• **International Cooperation** Cross-border collaboration is essential as digital transactions increasingly take place beyond national boundaries. Countries must work together to develop a unified legal framework for consumer protection in e-commerce. This would strengthen trust in the global digital economy.

• **Building a Flexible Legal Structure and Ensuring Practical Enforcement** From a legal perspective, protecting consumers in the digital age requires a dynamic framework that can adapt to rapid technological developments. The challenge is not only to draft new legislation, but also to create mechanisms that ensure effective enforcement. Legal gaps in some countries must be addressed with comprehensive laws that guarantee full transparency in digital transactions and safeguard consumer rights in technologies such as AI and blockchain.

In addition, practical enforcement of legal mechanisms is necessary. Institutions must be trained to apply the law efficiently. Legal awareness is also key. It is not enough to have regulations in place—there must be clear communication with the public to ensure every consumer knows their rights in the digital environment.

Section Four: Innovative Solutions for Consumer Protection in the Age of Information Technology and Artificial Intelligence

• **Harmonizing International Legal Systems for Consumer Protection** Most international transactions today are conducted over the global internet, which knows no borders. This worldwide reach highlights the need for a unified international legal framework. Such harmonization would help align the legal positions of contracting parties and extend legal protection to consumers globally.

• **Strategic Investment in Data Collection and Management** The performance of artificial intelligence depends heavily on the quality of the data it processes. To ensure reliable AI-driven outcomes, companies must invest in accurate data collection, proper organization, and secure storage. Inaccurate, insufficient, or biased data can lead to misleading outcomes, such as flawed customer segmentation, incorrect product targeting, or inappropriate pricing.

• **Ensuring Data Security Through Safety Programs** Collecting and using consumers' personal data is essential for many AI-based services, such as personalized content and product recommendations. However, this data raises serious privacy concerns for both consumers and regulators. Companies that rely on AI must comply with data protection regulations and ensure customer information is handled in a secure and ethical manner.

CONCLUSION

508 – www.imcra.az.org, | Issue 11, Vol. 8, 2025
Concept of Electronic Consumer Protection and Means of Safeguarding It Amid Artificial Intelligence Applications
Bouzaher Sonia

«IMCRA

Artificial intelligence has emerged as a key driver of innovation and growth. As a branch of computer science, AI seeks to develop systems capable of imitating human cognitive functions such as learning, reasoning, perception, and adaptation. These systems can perform complex tasks without human intervention.

By encouraging investment in AI, societies can promote technological advancement and foster innovation. This can help build a future where technology and humanity work together to improve quality of life. AI-based services will become more integrated and efficient, enhancing the consumer experience and contributing to a more prosperous and advanced society.

However, the use of AI has also introduced significant challenges in consumer protection. These challenges demand greater legal and regulatory attention. Consumers now face new threats such as privacy breaches, misuse of personal data, and deceptive product information.

Consumer protection has long been a concern for both experts and governments. It is closely tied to social development, especially in the context of the digital economy and information-driven markets. The rise of AI has created an urgent need to study the risks faced by online consumers and identify appropriate protection measures. This is especially important given that many consumers lack access to sufficient information about the products and services they use. Without that knowledge, they cannot make informed choices or use these services effectively.

Therefore, a balance must be struck between technological innovation and the protection of consumer rights. AI should be guided in a way that benefits consumers and aligns with human values. When used responsibly, intelligent technologies can help meet essential needs, improve service delivery, and open new opportunities in vital sectors such as healthcare, education, and commerce.

Key Recommendations:

- **Enforce Legal Mechanisms Practically** Authorities must ensure that legal protections for consumers are applied effectively. Regulatory bodies should receive proper training to implement these laws with precision.
- **Raise Legal Awareness Among Consumers** Legal awareness is essential. It is not enough to have laws in place—consumers must be informed about their rights. Clear and consistent communication with the public is critical to ensure that everyone understands their position in the digital world.
- **Enhance International Cooperation** As cross-border digital transactions increase, countries must work together to establish a unified legal framework for consumer protection. Such cooperation would help build trust in the digital economy.
- **Develop Flexible Legal Regulations** Legal frameworks must evolve to reflect the rapid changes in AI and digital technologies. Laws should be adaptive and continuously updated to remain relevant in a fast-changing technological environment.
- **Provide Continuous Training for Users** Ongoing training is essential to help users understand how to use AI tools responsibly and effectively. This also reduces the risk of misuse and ensures safer digital engagement.

In conclusion, there are continuous efforts to improve the digital space in general and AI applications in particular. However, existing legal gaps and challenges in law enforcement—especially regulatory oversight—remain major obstacles. To address these issues, it is crucial to pass comprehensive legislation, promote legal awareness, and strengthen international cooperation. Only through such measures can we ensure a safer and more just digital environment for future consumers—one in which artificial intelligence plays a positive and constructive role.

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509 – www.imcra.az.org, | Issue 11, Vol. 8, 2025
Concept of Electronic Consumer Protection and Means of Safeguarding It Amid Artificial Intelligence Applications
Bouzaher Sonia

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510 – www.imcra.az.org, | Issue 11, Vol. 8, 2025
Concept of Electronic Consumer Protection and Means of Safeguarding It Amid Artificial Intelligence Applications
Bouzaher Sonia