

# Accountancy for E-Business Enterprises Based on Cyber Security

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## ABSTRACT

E-businesses (EBEs) may commit legal offenses due to perpetrating cybercrime while doing the commercial activity. According to the findings, various obstacles might deter cybercrime throughout accounting. The study examined the present laws for accounting policy elements and determined those aspects that should be included in the administrative document for e-business enterprise accounting policies. E-businesses must avoid cyber-crime (CC), which has a detrimental influence on the company's brand and diminishes client loyalty to ensure their success. According to the study's findings, the use of information and control functions of accounting can help prevent cyber-crime in the bookkeeping system by increasing the content of individual internal rules. The authors intended to make online payments for EBE-CC as safe, easy, and fast as possible. However, the internet is known for making its users feel anonymous. E-commerce (EC) transactions are vulnerable to cybercrime, resulting in considerable money and personal information losses.

## KEYWORDS

E-Business, Cyber Security, Enterprise, Finance

## OVERVIEW OF THE E-BUSINESS ENTERPRISES

E-enterprise has become a predictable development as the Internet and e-business environment have grown rapidly (Hamour et al., 2021). Based on this circumstance, e-management is only an idea (Attia, 2022). Globalization has made it impossible for any organization to lose contact with the global flow in today's economy and networks (Hashem et al., 2021). In the 21st century and beyond, e-technology and e-management have become the norm for businesses to adapt to the new economy and grow their core competencies or competitive advantages (Kabirlyants et al., 2021). A rising majority of enterprises are shifting their operations to the Internet (Suprpto, 2021). A worldwide audience and a larger market proportion are goals for certain companies (Wynn et al., 2021). Many view it as a method to improve efficiency and reduce expenses (Saffanah et al., 2020). Make sure that consumers understand what an e-business is before jumping on the bandwagon (Alshirah et al., 2021). Consumers must have faith in e-business as an alternative to conventional brick and mortar

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enterprises, not just in the short-term and over time (Xie et al., 2021). Businesses and governments alike have taken action to combat the rise of online crime and restore consumer confidence in using Web-enabled technology as a way to do business (Ravi et al., 2021). The term “cybercrime” refers to any illegal behavior using a computer, networked device, or online network. Some cybercrimes are committed not for financial gain but rather to cause harm to the victim’s computer or another electronic device. Databases offer businesses a convenient way to store their records in one place, but that doesn’t mean they should keep everything there. It is recommended to schedule daily or weekly backups of your company’s data, depending on how busy things tend to be. Data loss due to cyber-attacks is common, but it can be mitigated with regular backups

Online storefronts and online marketplaces are two of the most common venues for doing e-business (Ziara et al., 2021). There are advantages to these e-commerce solutions, and the best one will depend on the company and the target market (Hendra et al., 2021, Arun et al., 2022). Digital information and communication technologies can support and improve company operations under the umbrella of e-business (Muravskiy et al., 2021). When it comes to the online exchange of products and services, E-commerce is only a subset of e-business (Gosal et al., 2021). A business transaction that involves sharing data from the Internet is referred to as e-business (Sun et al., 2021). Businesses, organizations, and consumers all engage in commerce, which can be seen as one of the core operations of every company (Goraya et al., 2021). Consumers, organizations, and other businesses can connect with a firm through e-commerce, leveraging information and communication technologies. E-business, on the other hand, refers to online business. Inbound and outbound logistics, manufacturing, operations, marketing, sales, and consumer support are all carried out inside the value chain utilizing internal or external networks, depending on the organization’s needs (Primarosan et al., 2021).

Transactions involving the electronic exchange of goods and services are called e-commerce. E-commerce improves productivity and expands options through cost savings, competitiveness, and a more efficient manufacturing process (Prabowo et al., 2021). To retain consumer trust in the Internet as an alternate way of buying, corporations must recognize that these dangers to their online companies have strategic consequences and take appropriate efforts to remove or considerably diminish these concerns. Consumers can purchase with confidence due to the development of these countermeasures, dubbed cybersecurity (Ljubisavljević et al., 2021). Corporations need to establish models that enable them to assess the impact of cybercrime on online consumer trust and to respond by making use of the newest cybersecurity advancements. Due to these two concerns, businesses must ensure that the security measures they have put in place will successfully keep consumers from abandoning online shopping (Miremedi et al., 2021).

This paper’s major contribution is that cybercrime is a critical concern for creating and maintaining an online presence. There are many ways to explain the enterprise’s operations and profitability, and this is the most common approach to express it. In addition, it specifies how a business will develop and adapt to new markets or technology. A business to be successful relies on its components working together. Cybercrime impacts the safety of consumers when they buy products and services over the Internet, and EBE-CC will study several models and ideas to explain how cybersecurity can alleviate these hazards.

The remainder of EBE-CC can be arranged accordingly. In section 2 describe the related study on E-business enterprises. In section 3 summarize the proposed study that has been utilized in this paper. The simulation outcomes and discussion are described in section 4. Finally, section 5 concludes this paper with a detailed discussion of the observation and outcomes.

## **BACKGROUND STUDY**

Technology advancements had a major impact on many aspects of modern lives, notably in the business sector currently. Electronic business information systems (EBIS) were devices, techniques, or procedures that employ technical hardware, software, networks, and brain ware to handle a wide variety of business activities without regard to time or place (Setyowati et al., 2021). An important

part of achieving national and worldwide commercial success was e-business information systems (EBIS). There was an increase in the use of Cloud Computing in industrialized nations, even though this technology could speed up digitization. A company's e-business systems consist of the software, hardware, and networks it employs to perform transactions via the Internet. There was an increase in the use of Cloud Computing in industrialized nations, even though this technology could speed up digitization. Industry data archives, stock lists, and demand statistics find a great home on the cloud. A sophisticated scheduling and planning software foundation can use the data gathered to organize production. Emerging economies' public and commercial sectors benefit from greater productivity, innovation, and service delivery with on-demand access to scalable data and computing resources. They examined the influence of mimetic, coercive, and normative institutional constraints on adopting cloud computing (ACC) outcomes in the area (Adjei et al., 2021). The studies provide light on the factors that influence the adoption of CC in situations where there was a lack of CC adoption and institutionalized constraints.

Contextual elements define an organization's operational environment. It is a term that describes the various internal components that might affect how well a business operates. These elements are thought to be within an organization's sphere of influence and can be changed or modified. Each external factor that might help a business is considered part of its external environment. The external environment is broad, including global, national, and local economies. Population and social factors, the political system, technology, the public's perspective on business, energy sources, raw materials, and other resources are all elements that make up the external environment. It examines the market's ICT infrastructure, legislative framework, and economic conditions. Sampled companies' managers and owners were analyzed as the primary decision-makers and information and knowledge repositories in their respective businesses, respectively (Tsikirayi et al., 2021). In institutions, experience in information and communication technology (ICT) should be mandated to produce future technoliterate generations capable of guiding any sector's ICT program. E-buyer experience and loyalty should be at the center of every business strategy, given the recent developments in online customer behavior. Transaction cost economics (TCE) and marketing research come together in this study to show how e-buyer pleasure and loyalty were affected by online retail transaction cost factors (De Meyer-Heydenrych et al., 2021). In light of these findings, TEC could be improved to meet better the needs of online retail customers who were loyal to a brand while emphasizing the importance of asset uniqueness and the role of uncertainty.

There was a need for digital and employable skills in today's modern corporate sector. There has been a surge in demand for cloud computing specialists as more and more businesses migrate their operations to the "cloud" (a term referring to the worldwide network of distant computers). Cloud engineers create and maintain these remote servers to simplify end users' file storage and backup (Prajitha et al., 2022). This study's main goal was to provide a new framework for the employability skills (NFES) required by consumers in the digital business age (Suarta et al., 2021). Personal qualities and generic digital abilities were integrated into a new employment framework. Digital generic abilities include digital communication, digital collaboration, digital problem solving, digital creativity and innovation, self-management, and digital learning skills. The EBE-CC has been suggested to overcome the existing methods has recommended improving the product's quality, demand forecast, consumer behavior, loyalty, and development ratio. The EBE-CC has been suggested to overcome the existing methods and has recommended improving the product's quality, demand forecast, consumer behavior, loyalty, and development ratio. The research looked into different ways to create existing methods to overcome the above difficulties

## **PROPOSED METHOD:E-BUSINESS ENTERPRISES BASED ON CYBERCRIME**

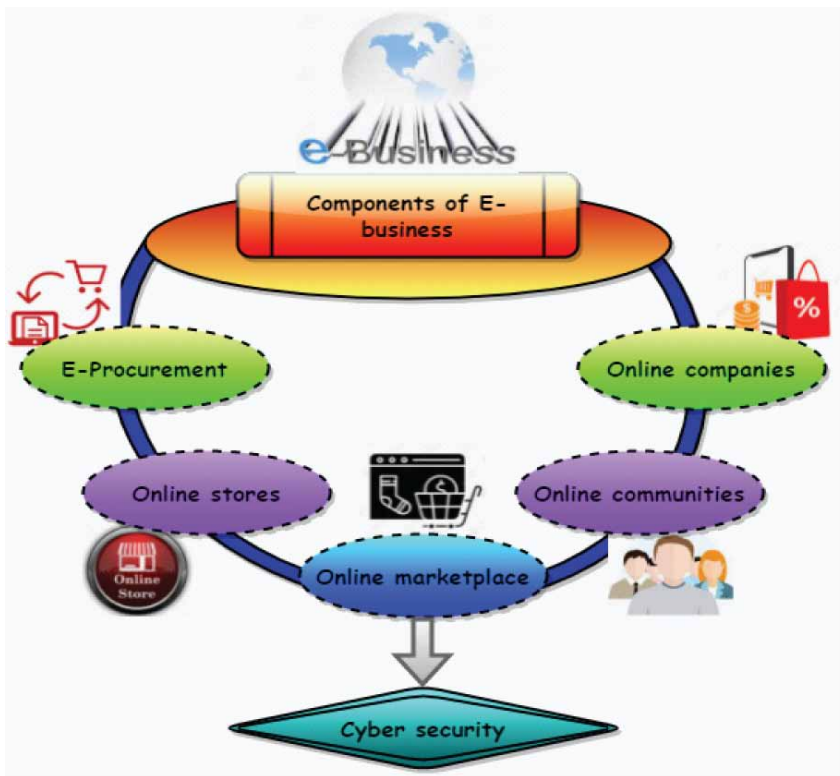
Internet, extranet, web, and intranet business management is called e-business. Buying and selling products and services online and offering consumer and technical assistance over the Internet are

examples of this. E-business and E-commerce are closely related, and E-business includes more than simply online transactions for the purchase and sale of products and services. Many corporate procedures can be sped up using digital information and current communication technology. Online business encompasses many operations, including customer relationship management (CRM), supply chain management (SCM), and many more.

Fig 1 shows the components of E-business. These include BI (Business Intelligence), CRM (Customer Relationship Management), ERP (Enterprise Resource Planning), SCM (Supply Chain Management), Collaboration and online activities, as well as electronic transactions inside the corporation's e-business. It relies heavily on the three sectors listed below: E-Procurement is known as supplier exchange, and it involves the use of the Internet to do business between companies, between businesses and governments, between businesses and consumers, and to conduct business in the selling of services. SCM is incomplete without proper attention to the management of the relationships with customers. Boosting client retention, contentment, and loyalty is a sure way to add more green to your bottom line. In addition to increasing sales and income, CRM helps streamline operations throughout the supply chain. It allows for more precise and effective marketing and sales efforts. Product quality to cost ratio is widely employed in the wine industry. It boils down to comparing the pleasure from something to the action it takes to acquire it.

Businesses use e-procurement to save money and time by acquiring goods and services online. An online shopping store, for example, is an electronic source for products. E-shop, online store, web-shop, e-commerce, and online storefront are just some terms used to describe an online vendor. Consumers' time and money are the key objectives of these online stores. Online purchases of goods

Figure 1.  
Components of E-business



and services can be made by anybody using various payment options, including credit cards, cash on delivery, and more. The PCI SSC (Payment Card Industry Security Standards Council) mandates that anybody who accepts online payments do so on a server that complies with PCI SSC security standards.

An online marketplace connects consumers and sellers through the Internet regarding electronic commerce. It's important to remember that an online marketplace's operator does nothing more than display other people's products and facilitate transactions. Online communities connect with shared interests or objectives in the digital world, and it's a tool used by both people and businesses to plan out transactions. When two or more businesses work together online, they establish a virtual company with a shared transaction offer. When anything is purchased or sold through the Internet, it is referred to as e-commerce. All parties involved in the supply chain, from the producers to the consumers, need to be in constant communication with one another to achieve maximum efficiency. Maintaining open communication between all parties in the supply chain, from the manufacturer to the retailer, is essential for developing and maintaining healthy, long-lasting partnerships that benefit all parties involved. Team efficiency and effectiveness will both increase as a result of increased opportunities for collaboration.

Upstream and downstream organizations exchange opportunities and expertise in vendor relationship modeling by linking industries to comprehend shared remuneration and the advantages of collaborative production  $T^{(k)}$  is defined as:

$$T^{(k)} = \exp\left(\frac{(G^{(k)} + g)^2}{2l^2}\right) \quad (1)$$

As shown in equation (1), a particular forecast scoring ideal  $G^{(k)}$  that can be created using the coefficients. In terms of online purchasing choices,  $g$  represents a visual interface design, and  $l^2$  indicates fast product delivery.

A discrete control method is a representation of the product's objective function  $E(k)$  is given as:

$$E(k) = UE(k+1) - VX(k) - B(k) \quad (2)$$

As shown in equation (2), the current state of the system is  $B(k)$ , and the former state of the system is represented by  $E(k+1)$  and  $X(k)$ . The limitations are denoted by  $U$  and  $V$ . Properties of the dynamic structural matrix  $B(k)$  in e-commerce serve as constant values for basic implementations.

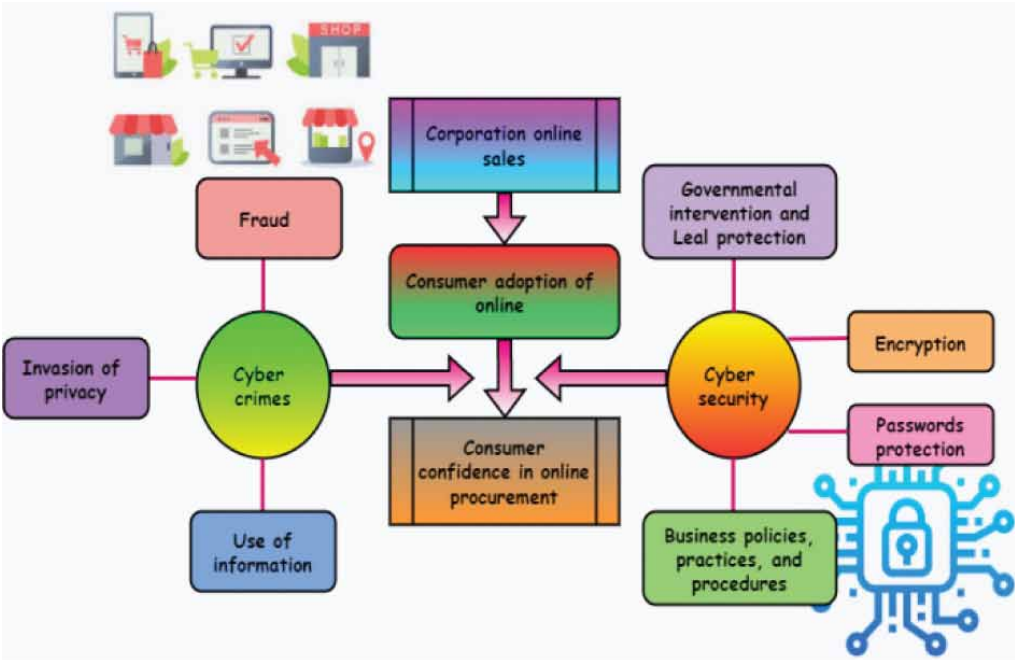
E-commerce refers to transactions between companies that take place through the Internet. Internet marketing, online payment processing, supply chain management, electronic funds transfer (EDI), electronic data exchange (EDI), inventory management systems, and automated data collecting systems are all examples of e-business technologies that can be combined. The term "e-commerce security" describes the cybersecurity principles that make it possible to conduct safe financial transactions over the Internet. When a solid security architecture protects all parties, e-commerce becomes a safe and convenient way for individuals to buy and sell goods and services online. E-commerce fraud, theft, and security breaches are perpetrated by criminals exploiting the Internet in an unethical manner. Its dangers come in a variety of shapes and sizes. Accidental, deliberate, and human mistakes play a role in some of them. Data breaches, credit card fraud, and other forms of financial identity theft are all threats to e-cash and digital currency. Threats to online businesses can take various forms. Some are caused by human error, some by malice, and others by accident. Many common forms of fraud involve electronic payment systems, e-cash, data misuse, credit card fraud, and debit card fraud.

Fig 2 shows the E-Business Enterprises based on cybercrime. Cybercrime and related activities significantly affect consumer confidence on the Internet as a reliable means of procuring goods and services. As a consequence of cybercrime and the counter e-security measures and regulations enacted to increase consumer trust, below are some of the most important linkages between these repercussions. This figure describes how the forces encouraging Internet usage are balanced against those preventing it (cybercrime/cyberterrorism) using the force-field idea. A wide range of distinctions and parallels exist between physical and online consumers.

In contrast to those who purchase in stores, online shoppers are apprehensive about the dangers of doing business online. Business-to-customer (B2C) criminal conduct has been offline. For many consumers, a lack of technology and greater face-to-face engagement with their business rivals makes them feel more comfortable purchasing. Due to these dangers, internet shoppers are more concerned about credit card theft or a lack of return procedures. The findings show that views on cybercrime, trust in online media, behavioral attitudes, subjective norms, and perceived behavioral control are all crucial determinants of e-commerce purchase intentions. The results shed light on how consumer trust and fear of cybercrime affect purchasing decisions, providing valuable insight for businesses and other stakeholders. More than ever, this highlights the importance of strengthening the safety of online marketplaces.

Consumers' views regarding making purchases through the Internet have been proven to suffer the effects of these worries. When consumers feel more comfortable purchasing online rather than physically, they are more likely to turn to the Internet for their online needs. When consumers are confident that their personal information is safe, they are more likely to use online services. Consumers' trust in the Internet and their use of it would suffer, which in turn will lead to a decline in sales if the dangers of cybercrime outweigh the benefits of current e-security measures and regulations. Consumer trust and online sales will rise if e-security measures have a stronger impact than expected. As we

Figure 2.  
E-Business Enterprises based on cybercrime



have seen, the Expectancy Theory of Motivation is built around the trifecta of effort, performance, and results. This theory has three main parts that describe the interplay between the supplied factors: expectation, instrumentality, and valence. The underlying assumptions of the Expectancy Theory can serve as the key motivating factors in achieving this state of equilibrium.

A variety of strategies  $D$ , such as e-commerce, are available throughout the production process. The emphasis of e-commerce  $z$  operations is now on the real end-market manufacturing processes  $\tau$  are stated as:

$$D(z|\tau + 1, \rho) = \rho z^k (1 + \tau - 1_k) \quad (3)$$

As shown in equation (3), in the case of online purchasing, the variables  $\rho$  and  $\tau - 1_k$  represent demand and behavior, respectively. In the workspace, each patch is computed using  $z^k$  in correlation, taking into consideration the manufacturing process approach.

This individual has deemed a poor consumer if they don't respond to marketing  $J_k$  and don't purchase a product  $UTB_k$  is described as:

$$UTB_k = J_k \frac{rz_k}{rn_k} \quad (4)$$

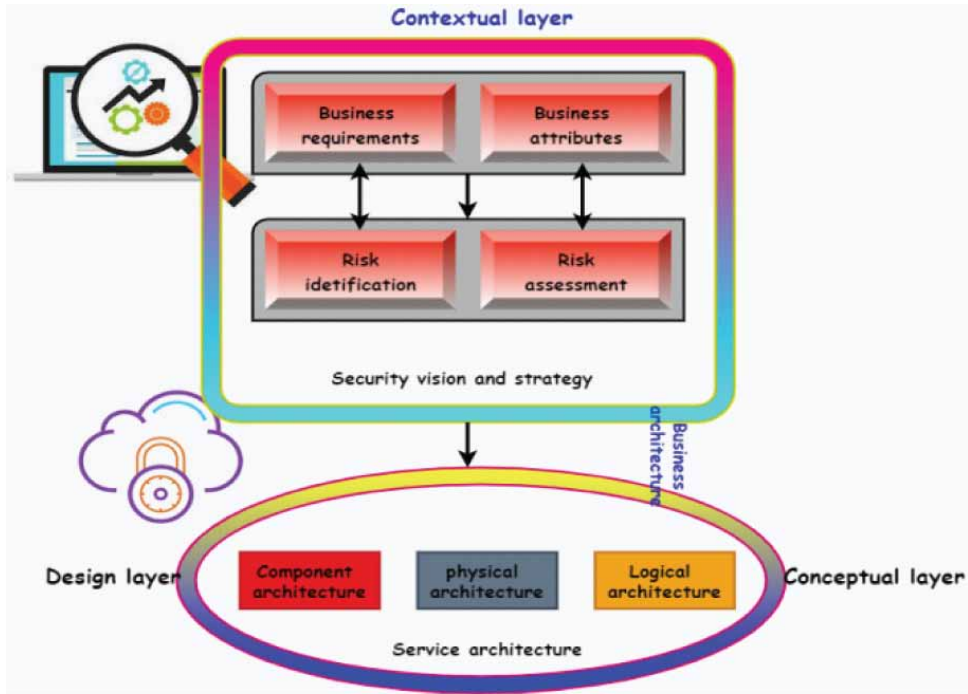
As shown in equation (4), each category has a unique  $rz_k$ , which reflects the number of responding consumers in that group, and  $rn_k$  which represents the overall number of responding consumers.

According to Expectancy Theory, a person's predisposition to behave a specific way is based on the belief that a favorable and appealing consequence can follow an act to the individual. When individuals are encouraged to perform because they believe that their efforts will yield a worthwhile result and that their efforts will be rewarded for their efforts, they are more likely to perform to the best of their abilities. It can be shown that consumers are more motivated when they believe that the effort they invest can provide a satisfactory level of performance, that their efforts can produce a specified outcome, and that their efforts can produce an outcome they value personally.

Fig 3 shows the security strategy of the enterprise. The process of putting in place a security architecture can be perplexing for companies. Various traditional security measures protect an enterprise's infrastructure and applications. Adding directive controls, such as rules and procedures, improves the security architecture of certain organizations. In the minds of many information security experts, the security architecture is nothing more than a collection of rules and controls. Security is no longer the same as it was in the past. These days, there are many more potential hazards than in the past. A lot has changed in how firms function, what they concentrate on, and how they respond to new developing technologies and opportunities, such as the Internet of Things. All security experts need to understand the business goals and endeavor to help them by adopting adequate controls that can be easily explained for stakeholders and related to the business risk.

When building an e-business design, several things to keep in mind. There are several factors to consider, such as consumer loyalty, organizational structure, and the ratio of in-house manufacturing to outsourcing, whether the firm is a process-oriented or a function-oriented corporation, and how to sell and distribute products. Contextualization is accomplished using a global schema, which identifies all of the dispersed elements inside an environment. Data mapping refers to relationships across data sets by establishing mappings between fields. This is the first step in making data management tasks like data migration and integration easier. Business insights can't be gleaned from data unless it's first normalized so decision-makers can understand it. Data mapping techniques and access pathways

Figure 3.  
The security strategy of the enterprise



are maintained in a global catalog. It is a discipline in the business sector, business architecture. It provides comprehensive, multidimensional business perspectives of capabilities, value delivery, information, organizational structure, and links between these views and strategies, products, policies, and initiatives.

The logarithm of the fraction of non-responsive consumers in the current grouping of responsibility consumers are defined as:

$$UTB_k = J_k \left( \frac{Hz_k / Hz_m}{Hn_k / Hn_m} \right) = J_k \left( \frac{Hz_k / Hn_k}{Hz_m / Hn_m} \right) \quad (5)$$

As shown in equation (5), non-responding consumers are represented by  $Hz_k$ , responding consumers  $Hn_k$  and the proportion of non-responsive consumers  $Hz_m$  in the group  $Hn_m$  respectively. Consumer involvement patterns and predictive analytics employs machine learning or statistics. Predictive analytics' usefulness in marketing extends across the entire customer journey, from pre-purchase research to post-purchase follow-up. Predictive marketing communication is discuss in equation 6.

Predictive marketing communication forecasts  $\rho_{kmt}$  are more accurate when IBS uses a device to calculate an ideal approximation  $\overline{W_{kmt}}$  based on system predictions  $\beta_k$  and observations  $Z_{kmt}$  are given as:



$$\overline{W}_{kmt} = \exp\left(s_k \overline{T}_{kmt}\right) + Z_{kmt} \beta_k - \rho_{kmt} \quad (6)$$

As shown in equation (6), the originating message  $s_k$  is recognized, and  $T_{kmt}$  indicates that signals are interfering with the transmission.

A service-oriented architecture (SOA) is best described as a set of services facilitating communication across various systems. The services are collections of software components that assist a corporation in carrying out crucial business tasks. The term SOA refers to a specific pattern of software design and architecture in which individual software modules offer their capabilities to other software modules in the form of “services.” Think about the various parts of an e-commerce platform, such as order management, invoicing, payment processing, user profiles, etc. These parts are self-contained and can be used separately. For a visual representation of an application with decoupled details, see figure 4. Component architecture refers to a design approach in which an application comprises modular, self-contained building elements that can be reused. One of the main advantages of using components is that it decreases code fragmentation while increasing development speed. Visualizing and communicating the application’s logical and functional elements is easier with a logical architecture that illustrates the architecture’s future state. A country or organization’s primary security challenges and strategies for dealing with them are outlined in a Security Strategy document, which is created regularly. Cybersecurity is a significant concern for everyone, from private companies to national governments. One of the most critical difficulties of Cyber Security is keeping our data secure in a world where nearly everything—from adorable kitten videos and our vacation diaries to our credit card information—is online. Ransomware, phishing, malware, and other types of attacks are just a few examples of the many problems that can arise in cyber security.

Fig 5 shows the systems for the management of transactions. It is the company’s transaction processing system that is at the basis of its integrated information system. The TPS accepts data from both internal and external sources, which processes it before storing it. Data storage is handled by a single enormous database that contains all of the company’s most critical information. It can be shown that the logarithm of a fraction is just the logarithm of the numerator minus the logarithm of the denominator. Integrated marketing communications (IMC) aids marketing groups in coordinating their various communication methods to maintain a unified brand reputation. The TPS accepts data from both internal and external sources, which processes it before storing it. Data storage is handled

Figure 4.  
Service-Oriented Architecture (SOA) Component in Ecommerce

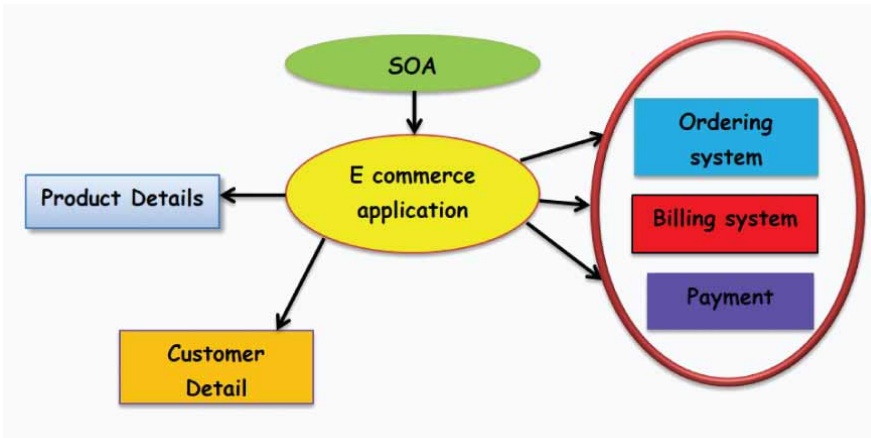
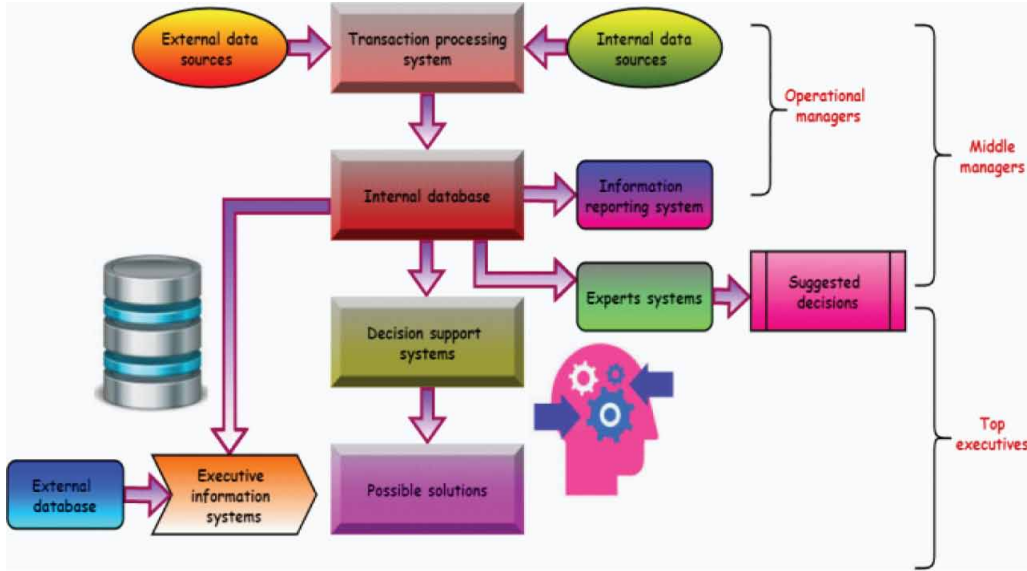


Figure 5.  
Systems for the management of transactions



by a single enormous database that contains all of the company's most critical information. Data can be stored, retrieved, and queried using specialised software called database management systems (DBMS). Users can add, edit, and remove information from a database using a database management system (DBMS). Users can query the database using the database management system to get their information. There are two ways to update the database: batch processing, where data is acquired over time and processed as a group, and real-time or online processing, which processes data as it becomes available. Batch processing is a good alternative to continuous processing for applications such as payroll processing. As long as the company's information is stored online, it will always be up-to-date. An e-mail confirmation is sent to consumers when the company has put the reservation information into their system.

Organizations must evaluate the costs and advantages of online processing before determining whether or not to use it. Real-time inventory and other time-sensitive needs can be handled in real-time, although accounting data can be processed in batches overnight. Accounting, order processing, and financial reporting are automated via transaction processing systems. Administrative costs are reduced, and fundamental operating information is provided rapidly. It is possible to undertake high-level analyses that assist managers in making better choices with the help of management support systems (MSS). A decision support system (DSS) aids managers in making decisions through the use of interactive computer models that mimic real-world processes.

Separate processes make up the business communication process  $W_{kmt}$ , just a few of them are problematic is stated as:

$$W_{kmt} = G \left[ \exp \left( s_k \overline{T_{kmt}} \right) + Z_{kmt} \beta_k - \rho_{kmt} \right] \quad (7)$$

As shown in equation (7), IBS propagates a portion of the business mix's influence  $G$  on consumer behavior.

Consumer response hierarchies  $\overline{H}_{kmt}$  are crucial for a firm to understand to develop strategies to suit the needs of each level  $W$  is stated as:

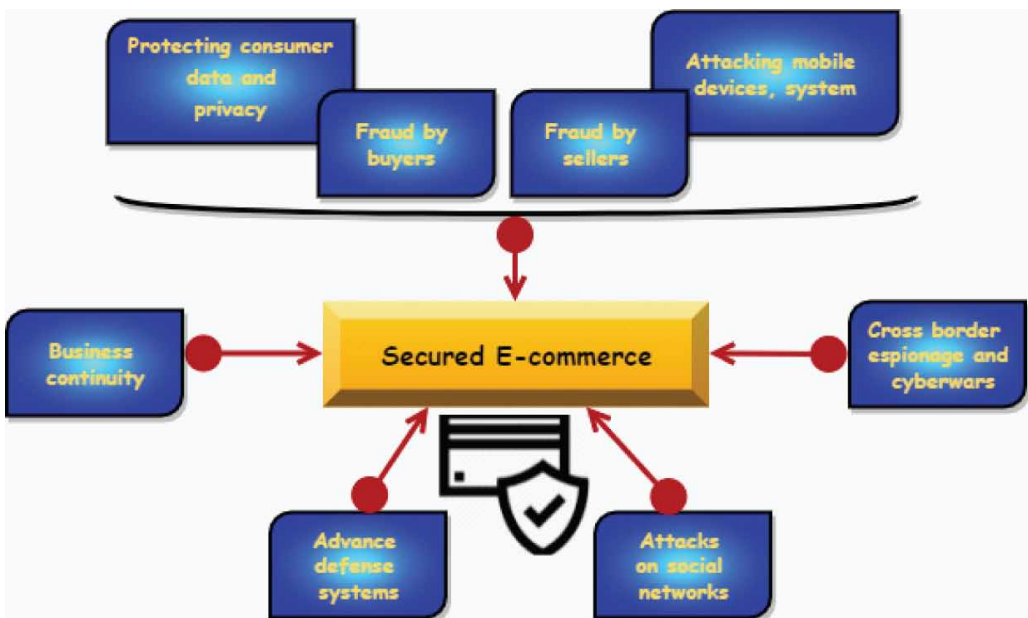
$$\overline{H}_{kmt} = \frac{\sum_s \overline{H}_{kmt}}{uh_{kmt}} \sim W \left( R_{mk}, \frac{\rho_{B_1}^2}{uh_{kmt}} \right) \quad (8)$$

As shown in equation (8), there is a unique projection  $uh_{kmt}$  scoring model refers to complicated decision making,  $R_{mk}$  denotes consumer demand, the monitoring of online purchasing activity  $\rho_{B_1}^2$  and shows product satisfaction.

In addition, the DSS utilizes data from the company's internal database and focuses on finding relevant information. It is a technique for determining what can happen if the management makes specific adjustments. A manager can experiment with numbers by creating a spreadsheet and playing with them. Quantitative data and predictive models provided by business decision support systems aid in problem-solving. In the same way, a human consultant would provide advice; an expert system does the same for managers. Artificial intelligence allows computers to think and learn like humans, utilizing what-if reasoning to solve issues. An executive information system (EIS) is comparable to a DSS, except it is tailored to a certain executive. The data provided by these systems can guide strategic choices.

Fig 6 shows the concerns about EC cybersecurity. Data, networks, computer programs, computer power, and other computerized information system components are all protected by computer security. There are several ways to attack and defend this area, making it diverse. Hackers can target people, companies, nations, or even the Internet with their assaults and countermeasures for computer systems. Attacks can be prevented, repaired, or minimized by computer security measures. Many nations

Figure 6.  
Concerns about EC cybersecurity



consider information security as one of their top management issues. A company's cybersecurity strategy lays out how it intends to safeguard its assets against cyberattacks at the highest level. Typically, this entails transitioning from a reactive to a proactive security posture. They concentrate more on avoiding cyber assaults and events rather than responding to them after the fact.

Individuals are the primary target of online scams. A lack of security puts people at risk from sex predators who use the Internet to locate their prey. Device loss, malware infection, theft of data, malicious app downloads, user identity theft, and other user personal losses are the most common threats to mobile devices' security. The term "consumer privacy" refers to protecting the privacy of personal data collected from people who buy goods or services from a company. The relationship between the public's possible expectation of privacy and firms' collecting and distributing data raises a slew of social, legal, and political challenges. Data privacy specifies who has access to data, whereas data protection offers methods and procedures for restricting access to the data itself. Individuals' personal health information (PHI) and other forms of personally identifiable information (PII) are protected under federal and state law (PII).

Use stolen credit cards, exploit return policy gaps, or generate phony purchase events to commit purchase fraud in smartphone apps. According to this agreement, any fraudulent activity perpetrated by the seller will be considered Seller Fraud. An assault against mobile devices, such as smartphones and tablets is a mobile device attack. It is recommended that organizations adopt portable security rules and examine mobile applications before authorizing them to safeguard the corporate network from such threats. The chance of being a victim of digital fraud increases when a mobile app is infected with malware or when a user installs an unofficial, malicious program before it has been officially released. 1. Vulnerabilities in network defense that let malicious software. 2 Inadequate 3 Untrusted, malicious software.

A contingency plan in a crisis is critical to ensuring that your business functions as smoothly as possible. Whatever the kind of company users run, one needs to know how to stay going no matter what happens. It's common for social media assaults to target websites with substantial user bases like Facebook and LinkedIn. When people log in to a social media network, their authentication credentials are often stolen. The recommended method enhances the product's quality, demand forecast, consumer behavior, loyalty, and development ratio.

## **SIMULATION RESULTS**

Direct visits to the retailer's website or the use of shopping search engines to look for e-businesses with the same product availability and pricing for multiple merchants help customers discover a product they're interested in. Laptops, tablets, and smartphones can all be used by consumers to purchase online. Cheaper processing and internet accessibility are two factors that have led to an increase in data storage capacity. Virtually all of today's transactions take place on the Internet, whether it's exchanging data or making a purchase. Marketing goods and services through e-commerce companies took advantage of easy access to the Internet, more sales, and greater awareness of the company's brand. While gathering consumers' data is critical, the processing is of most value to e-commerce businesses. Digitalization can help e-commerce enterprises understand their customers' purchasing habits in light of current industry developments.

Fig 7 shows the product's quality to cost ratio. Consumers have a long list of requirements before they purchase just about anything for the most part. Product quality, security, and performance are essential than the price in certain businesses. According to a quality standard definition, a product or service must fulfill stated or inferred standards to meet consumers' needs. Consumers are more happy with a high-quality product, resulting in increased sales. Consumers satisfied with a product's quality are more likely to return and promote it to their friends and family.

Compared to the existing approach, the suggested method achieves (98.9%) in product quality because of high-quality goods and consumer satisfaction. Product quality is crucial in marketing communications to keep consumers pleased and limit fixing defective items. The enterprise's best consumers will not purchase its substandard goods. Concerns about product quality must be addressed for internet shopping to continue developing and improving.

Figure 7.  
The product's quality to cost ratio

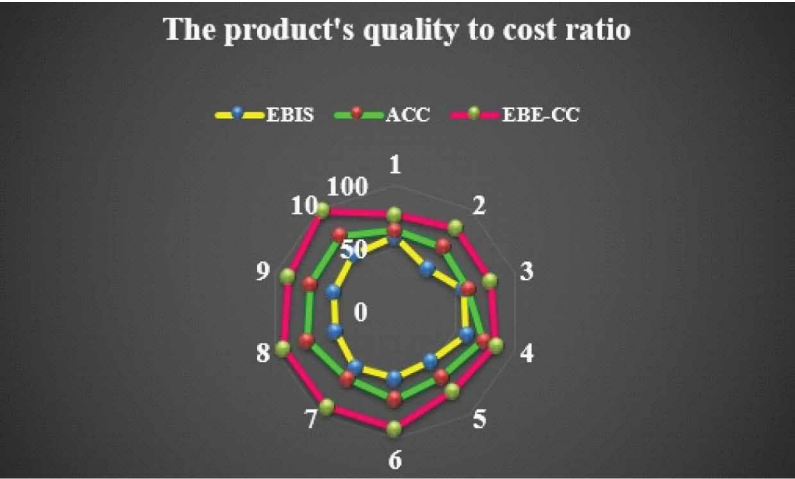


Table 1 shows the demand forecast ratio. Using statistical data is the greatest approach to predict demand. Those who break into the command and control system or other data sales channels can discover patterns and trends. These can be brand-new products that consumers have been selling for years. Their predictions will take into account both expected benefits and potential losses. For enterprises in the field, accurate demand forecasting is essential. Maintaining the right inventory level can only be achieved by meticulously analyzed data and well-reasoned decision-making.

When a product’s demand is estimated over time using observational data, demand prediction is called. Uninitiated customers can plan their inventories based on anticipated future sales. In 2021, demand is expected to increase by a factor of (94.4%). An EBE-CC is used in the suggested technique to obtain the maximum performance of other existing methods.

Table 2 shows the consumer behavior ratio. It relates to an individual’s buying habits, including societal trends, frequency patterns, and impacts on their purchase choice. Businesses study consumer behavior to understand their target population better and generate better products and services. An

Table 1.  
Analyzing the demand forecast ratio

Number of Consumers	EBIS	ACC	EBE-CC
10	48.9	66	78.4
20	50.2	70.4	80.9
30	55	64	79
40	58	77	88
50	52	62	94
60	56	63.7	85.7
70	60.8	63	97
80	52.7	68.4	89
90	53	72	93
100	62.4	69.7	94.4

individual's pre-purchase conduct is their consumer purchasing behavior (online and offline). Search engines, social media, and various other methods are often used in this step. Companies need to explore this method because it helps organizations adjust their marketing strategies to marketing activities that positively impact customers. Consumer behavior analysis investigates how a consumer decides to buy a product, service, or organization. As online communication progresses, customers will increasingly encounter advertisements for many companies on the Internet.

Compared to the existing methods, the suggested strategy enhances customer behavior by 95.6%. It quickly adapts to clients' buying behavior and is a major source of advertising for specialized markets and established e-businesses. This is the current approach of the digital revolution, and corporations have been conscious of its significance throughout the globe.

Fig 8 shows the consumer's loyalty ratio. Consumers can acquire a wide variety of goods and services from online shops and companies that provide online products. However, even though consumer contentment does not guarantee an enterprise's repeat business, it is essential to consumer happiness. When conducting a customer satisfaction survey, one of the key objectives is to get honest and trustworthy customer feedback to develop marketing strategies to attract new customers and keep current ones engaged. Consumers often seek products that provide the greatest value for money. Because of this, corporations attempt to meet consumers' needs by offering a wide variety of products and services at reasonable costs.

Companies evaluate consumer happiness, and IBS indicates that definitions have been thoroughly disputed in the suggested technique. Consumers will receive products and services in a wide range of circumstances. The proposed method enhances the loyalty ratio by 96.1% compared to existing methods. As a result, it is very subjective and greatly influences consumer preferences.

Table 3 shows the development ratio. A wide range of company activities can be carried out electronically, from acquiring and selling to consumer service and payment processing to maintaining production control and sharing information with business partners. When it comes to establishing systems, or business tools, that automate business operations, e-business is defined as the process of doing so. As part of an e-business development endeavor, it's important to consider the type of enterprise and how it's operated. The suggested strategy improves e-business by 98.2% in 2021 compared to 2016. In the last several years, the world of e-business technology has seen a massive expansion. Companies use technology to get a competitive edge in today's business environment. The proposed method evaluated the product's quality, demand forecast, consumer behavior, loyalty, and development ratio.

**Table 2.**  
**Analyzing consumer behavior ratio**

Number of Consumers	EBIS	ACC	EBE-CC
10	56.9	72.8	84.4
20	43.5	63	78
30	59	76	84
40	60	65	89
50	52	78	79.2
60	55	69.2	85.8
70	58.9	77	91
80	51	71	94
90	59	73.8	87
100	63	67.5	95.6

Figure 8.  
Consumers loyalty ratio

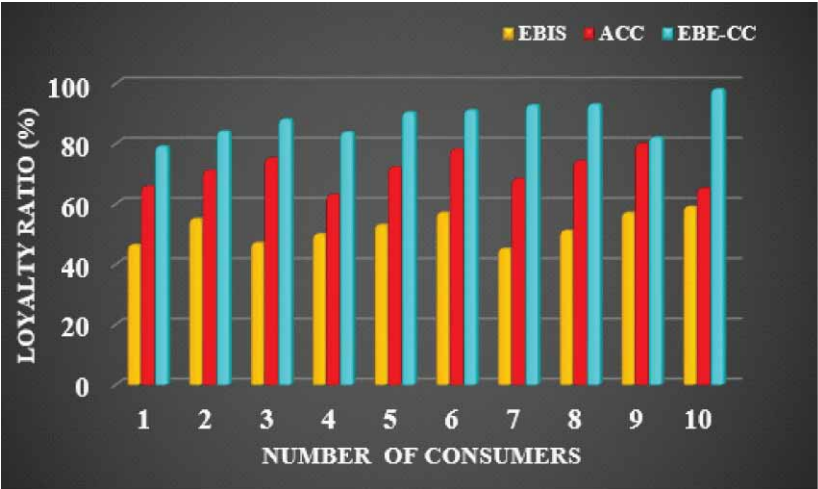


Table 3.  
Development ratio

Year	EBIS	ACC	EBE-CC
2016	50.4	65.5	83
2017	54	67	79.8
2018	51	70.9	84
2019	46	63	90
2020	53	66	81
2021	49.7	60.3	98.2

CONCLUSION

Companies must take necessary efforts to remove or considerably limit these hazards to their online businesses based on EBE-CC to sustain customer trust in the Internet as a substitute for traditional methods of buying. There is a big risk to e-commerce’s development because of the growing attention paid toward cybercrime, and increasing e-security funding is the only way to protect customers from this danger. Consumers’ awareness of contemporary Internet difficulties and the dangers they entail has grown dramatically, and as a consequence, they now have far higher expectations for the services they get. The e-enterprise and e-management should be a smart option for any company looking to gain new competitive advantages or core competency in an increasingly severe competitive environment. Many online businesses have devised methods to address the rising awareness of e-privacy and e-security policies, procedures, and processes and boost consumers’ trust in Internet usage. To ensure that their B2C transactions are safe and secure, more and more consumers are turning to trusted retailers with secure websites. The simulation outcome of the proposed method improves the product’s quality (98.9%), demand forecast (94.4%), consumer behavior (95.6%), consumers loyalty (96.1%), and development ratio (98.2%).

## REFERENCES

- Adjei, J. K., Adams, S., & Mamattah, L. (2021). Cloud computing adoption in Ghana; accounting for institutional factors. *Technology in Society*, 65, 101583. doi:10.1016/j.techsoc.2021.101583
- Arun, M., Sivagami, S. M., Raja Vijay, T., & Vignesh, G. (2022, October 17). Experimental Investigation on Energy and Exergy Analysis of Solar Water Heating System Using Zinc Oxide-Based Nanofluid. *Arabian Journal for Science and Engineering*, 1–2.
- Attia, A. (2022). The Drivers Of E-Business Implementation And The Effect On Organizational Performance. *Journal Of Management Information And Decision Sciences*, 25, 1–14.
- De Meyer-Heydenrych, C. F., & Struweg, I. (2021). The influence of transaction cost variables on e-buyer satisfaction and loyalty: An e-business-to-consumer retailer context. *Journal of Economic and Financial Sciences*, 14(1), 10. doi:10.4102/jef.v14i1.565
- Goraya, M. A. S., Jing, Z., Shareef, M. A., Imran, M., Malik, A., & Akram, M. S. (2021). An investigation of the drivers of social commerce and e-word-of-mouth intentions: Elucidating the role of social commerce in E-business. *Electronic Markets*, 31(1), 181–195. doi:10.1007/s12525-019-00347-w
- Gosal, B., & Kamase, R. (2021). Identification of Financial Literacy level–Case Study of Small Business Owner or Manager in Gowa Regency. *JManagER*, 1(1), 87–98.
- Hashem, F., & Alqatamin, R. (2021). Role of Artificial Intelligence in Enhancing Efficiency of Accounting Information System and Non-Financial Performance of the Manufacturing Companies. *International Business Research*, 14(12), 65. doi:10.5539/ibr.v14n12p65
- Hendra, F., Supriyono, S., Efendi, R., Rosalinda, R., & Indriyati, R. (2021). A Business Feasibility Analysis Of Small And Medium Enterprises For Product Strategy Determination. *Scientific Journal of Reflection: Economic, Accounting, Management And Business*, 4(3), 421–431.
- Kabrilyants, R., Obeidat, B., Alshurideh, M., & Masadeh, R. (2021). The role of organizational capabilities on e-business successful implementation. *International Journal of Data and Network Science*, 5(3), 417–432. doi:10.5267/j.ijdns.2021.5.002
- Ljubisavljević, L., Milačić, D., & Ninković, M. (2021, September). Development of a web shop based on augmented reality. In *E-business technologies conference proceedings (Vol. 1, No. 1, pp. 40-43)*. Academic Press.
- Miremadi, A., Kenarroudi, J., & Ghanadiof, O. (2021). Evaluation on Role of Electronic Word of Mouth (EWOM) Ads in Customers' Emotions and Choices in E-Shops. *International Journal of Industrial Marketing*, 6(1), 56–80. doi:10.5296/ijim.v6i1.18561
- Muravskiy, V., Muravskiy, V., & Shevchuk, O. (2021). Classification of stakeholders (users) of accounting information for the enterprise cybersecurity purposes. *Herald of Economics*, (1 (99)), 83–96. doi:10.35774/visnyk2021.01.083
- Prabowo, H., & Yuniarty, E. N. (2021). Strategic Empowerment Of Smes For Global Competitiveness Growth Through E-Business Adoption Intention. *Palarch's Journal Of Archaeology of Egypt/Egyptology*, 18(1), 216–229.
- Prajitha, C., Sridhar, K. P., & Baskar, S. (2022, March 10). Variance Approximation and Probabilistic Decomposition Noise Removal Framework for Arrhythmia Detection and Classification on Internet of Medical Things Environment. *Wireless Personal Communications*, 125(1), 1–21. doi:10.1007/s11277-022-09585-2
- Primarosan, X., & Yulianto, K. (2021). Competitive Advantages Of Financial Companies On The Indonesian Stock Exchange. *Palarch's Journal of Archaeology of Egypt/Egyptology*, 18(1).
- Ravi, M., Devi, G. N. R., & Velliangiri, S. (2021, July). An investigation and analysis of methods and applications of skein mining. In *AIP Conference Proceedings (Vol. 2358, No. 1, p. 070001)*. AIP Publishing LLC. doi:10.1063/5.0057966
- Saffanah, N. A., Fadillah, F., Delvia, F., Ilham, M., & Bayunitri, B. I. (n.d.). The Influence Of Entrepreneurship Knowledge And E-Commerce Toward Entrepreneurial Interests In Accounting Students At Widyatama University. *Turkish Journal of Physiotherapy and Rehabilitation*, 32, 3.



- Setyowati, W., Widayanti, R., & Supriyanti, D. (2021). Implementation Of E-Business Information System In Indonesia: Prospects And Challenges. *International Journal of Cyber and IT Service Management*, 1(2), 180–188. doi:10.34306/ijcitsm.v1i2.49
- Suarta, I. M., & Suwintana, I. K. (2021, March). The new framework of employability skills for digital business. *Journal of Physics: Conference Series*, 1833(1), 012034. doi:10.1088/1742-6596/1833/1/012034
- Sun, Y., & Wang, P. (2021). The E-Commerce Investment and Enterprise Performance Based on Customer Relationship Management. *Journal of Global Information Management*, 30(3), 1–15. doi:10.4018/JGIM.20220701.0a9
- Suprpto, A. T. (2021, April). The impact of e-business on competitive advantage through innovation organization on financial company listed at Indonesia stock exchange. *IOP Conference Series. Earth and Environmental Science*, 729(1), 012135. doi:10.1088/1755-1315/729/1/012135
- Tsikirayi, C. M. R. (2021). Influence of Contextual Factors on e-Business Diffusion in the Small-to-Medium Enterprise Sector in Zimbabwe. *International Journal of Progressive Sciences and Technologies*, 27(2), 784–794.
- Wynn, M., & Olayinka, O. (2021). E-Business Strategy in Developing Countries: A Framework and Checklist for the Small Business Sector. *Sustainability*, 13(13), 7356. doi:10.3390/su13137356
- Xie, L., Garcia Diaz, V., & Enrique Montenegro-Marin, C. (2021). Hybridized Computational Predictive Framework (HCPF) for Organizational Management in E-business Transformation. *Journal of Multiple-Valued Logic & Soft Computing*, 36.
- Ziaran, P., Fedorko, R., Gavurova, B., & Bačík, R. (2021). Motivational factors at work of e-commerce and e-business employees. What is the difference between genders? *Entrepreneurship and Sustainability Issues*, 9(1), 23–36. doi:10.9770/jesi.2021.9.1(2)