International Journal of Psychosocial Rehabilitation, Vol. 24, Issue 03, 2020
ISSN: 1475-7192

Improving electronic payment system controls to reduce theft and fraud in merchandise marketing

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Abstract:

The development of telecommunications has led to the fact that nowadays individuals and companies around the world are connected with each other through electronic communication channels.

The Internet, being a tool for organizing a single information space, has allowed business to enter a new stage of development on the one hand, it provided manufacturers with access to a maximum audience of consumers with all their varied preferences on the other hand, it gave customers the opportunity to enter their orders into a well-functioning production management system using electronic interfaces. Thus, in recent years, e-business and e-commerce have entered the life of large and small firms as well as individuals.

Business is an entrepreneurial activity aimed at the systematic receipt of profit from the use of property, the sale of goods, the performance of work or the provision of services, and carried out by subjects at their own risk and under their responsibility in accordance with applicable law.

Electronic business (e-business) is a business that uses the capabilities of global information systems. In other words, this is a form of doing business in which a significant part of it is carried out using information technology. As the main components of e-business, it is customary to distinguish internal organization of the company on the basis of a single information network (intranet) and external interaction with partners, suppliers and customers through extranet networks and the Internet. The main goal of creating an intranet (local area network) is to increase the efficiency of employee interaction and optimize company management processes.

Keywords: *electronic payment, e-business, merchandise marketing*

I. Introduction:

Elements of electronic business began to appear in the activities of companies since the 60s of the twentieth century. These are automatic systems for doing business, such as:

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• means of electronic data exchange (Electronic Data Interchange, EDI);

• means of electronic transfer of funds (Electronic Fund Transfer, EFT);

• Enterprise resource planning tools (Enterprise Resource Planning, ERP).

Thus, e-business is all forms of e-business activity of production and organizational relations between employees of one enterprise, between various enterprises, government bodies, institutions of science, culture, education, non-profit and public organizations.

"The transformation of key business processes through the use of Internet technologies", which means "transformation of key business processes using Internet technologies."

It means that all aspects of business relationships, including internal work planning and management, marketing, sales, financial analysis, payments, employee search, customer and partner support, have been transferred to the Internet.[1]

The main types of e-business include:

• Trading platforms (Internet exchanges, auctions, catalogs of goods and services);

• Electronic procurement management;

• Portals (corporate, informational, commercial, personal);

• Organization, maintenance and maintenance of public global networks (carried out by network operators);

• Financial services (internet payment systems, exchange offices, internet banking, online trading);

• Investment funds (consolidated investment funds or buffer funds and mutual funds);

• Internet shops;

• Content projects (sites with free and in-demand information to attract visitors in order to conduct an advertising business);

• Information intermediaries (catalogs, ratings, search engines);

• Information business on the Internet (periodical Internet publishing houses, news sites, etc.);

• Internet marketing (website promotion in search engines);

• Advertising business;

• Communication services and means of communication;

• WEB-mastering (website development, web programming, web design, website promotion);

• MLM or network marketing (a form of out-of-store retailing);

• Development of software and digital goods;

• Services of service providers (network service providers, hosting providers, domains);

• Provision of services (distance learning, online libraries, e-health, internet consulting, etc.);

• Online gambling business (virtual casinos, bookmakers, sweepstakes, lotteries);

• Labor exchanges (employment agencies);[2]

• Affiliate programs (affiliate programs, etc.);

• Internet franchising;

• Internet leasing.

E-commerce

To understand what e-commerce is, it is necessary to turn to the etymology of the word "commerce". The word "commerce" in translation from French, from where it got into Russian, means "trade".

Electronic commerce or electronic commerce (e-commerce) is the process of buying, selling, transferring or exchanging products, services and information using electronic means of communication.

There are other definitions of e-commerce, for example, it is a commercial activity with the aim of making a profit and based on complex automation of the commercial cycle through the use of computer networks.

Economists define e-commerce as "an area of the national economy that encompasses all business processes associated with transactions, financial and trade transactions carried out using computer networks."

In the draft Federal Law "On Electronic Commerce", it is interpreted as "the implementation by the parties to the transaction of actions and operations provided for by the legislation in the execution and execution of transactions for the sale / supply of goods, the performance of work, the provision of services, as well as other actions aimed at making a profit, based on the execution of electronic procedures ".[3]

It should also be noted that there are two interpretations of the concept

E-commerce is narrow and broad.

In a narrow sense, e-commerce refers to the advertising and sale of goods using telecommunication networks.

In a broad sense, as defined by the United Nations Commission on International Trade Law (UNCITRAL), e-commerce can be used to carry out sales, purchases, factoring, leasing, consulting, engineering and other transactions in the field of industrial and business cooperation.

Thus, e-commerce is an essential component of e-business, which represents a new way of organizing, managing and executing business transactions using computers and communication networks, i.e. any form of business transaction in which the parties interact electronically, rather than through physical transactions of exchange or direct physical contact.[4]

E-business systems, unlike e-commerce systems, may or may not have a commercial component.

E-commerce or e-commerce enables companies to be more efficient and flexible in their internal operations, to work more closely with their suppliers and to respond quickly to the needs and expectations of customers. Moreover, it allows companies to select the best suppliers regardless of their geographic location and sell on the global market.

The main types of e-commerce include:

• electronic trading (e-trade);

• electronic money (e-cash);

• electronic marketing (e-marketing);

• electronic banking (e-banking);

• electronic insurance (e-insurance).

The first experience in creating an e-commerce system dates back to 1960, when American Airlines and IBM began to create a system for automating the procedure for booking seats for flights - SABER (Semi-Automatic Business Research Environment - semi-automatic equipment for commercial research). The SABER system made air travel more accessible to ordinary citizens, helping them navigate the ever-increasing number of fares and flights. By automating the process of calculating tariffs when booking seats, the cost of services was reduced.

One of the leaders in e-commerce, Cisco Systems, has now automated its sales activities in such a way that 90% of orders from customers are processed without employee participation.

Prerequisites for the emergence of e-commerce

There are economic and technical prerequisites for the emergence of e-commerce.

Economic preconditions

The twentieth century was characterized by a constant desire to reduce the standard time for the execution of technological operations in production due to:

• in the first quarter of the twentieth century - the introduction of the principles of mass production;[5]

• in the second quarter of the twentieth century - expanded mechanization of production;

• in the third quarter of the twentieth century - production automation;

• in the 4th quarter of the twentieth century - flexible automated control of design and production of products.

Thus, over the past century, there has been an increase in labor productivity hundreds of times, which has significantly reduced the share of costs for socialized labor in the structure of the cost of socialized products. But, the end consumer did not fully feel these achievements. What caused this? This happened due to the fact that the

concentration of production, objectively associated with its automation and mechanization, led to the separation of the producer from the consumption markets. The nature of this distance is not only geographic, but also structural. Therefore, trade structures are needed that perform the functions of promoting goods from manufacturer to consumer. Therefore, the higher the concentration of production, the more complex the trade structures and the more stages the commercial cycle has in the movement of goods.[6]

The main stages of the commercial cycle:

• research of the market for goods and services;

• managing the properties of goods and services;

• notifying the market about the properties of goods and services;

• preparation of the market for the use of the specified properties of goods and services;

• acceptance, processing and execution of orders for goods and services;

• optimization of commodity flows and warehouse stocks;

• mutual settlements with customers and suppliers;

•after-sales service.

As a result, by the end of the twentieth century, mankind had and still has satisfactory automation of production cycles and a low level of automation of commercial cycles that does not correspond to it.

Thus, the economic prerequisite was the objective need to reduce costs arising in commercial cycles, and their approximation to the standards achieved as a result of the automation of production cycles.[7]

Technical prerequisites

One can name only one fundamental technical prerequisite for e-commerce - this is the emergence and development of the Internet, since thanks to this, as well as the development of telecommunication networks, the possibility of complex automation of commercial activities has opened.

Often, when analyzing the relationship between EC and the Internet, e-commerce is presented as a set of methods provided by the World Wide Web for solving specific commercial problems: conducting marketing research, advertising, automated ad reception, etc.

It should be noted that the prerequisites for the emergence of e-commerce are not on the Internet - they lie in the objective laws of economic and social development. The Internet is only a means of realizing long-overdue objective needs in the automation of the commercial cycle and a tool for reducing the share of costs incurred in them in the structure of the selling price of products. The presence of such a tool as the Internet is only a technical prerequisite for the emergence of e-commerce, but not its foundation.

Benefits of e-commerce

E-commerce companies have a number of advantages over “real” commerce businesses:

• expansion of the sales market with the prospect of entering foreign markets;

• round-the-clock availability;

• automation of marketing information using CRM systems (Customer Relationship Management), which allows collecting information about site visitors, which they always leave about themselves.

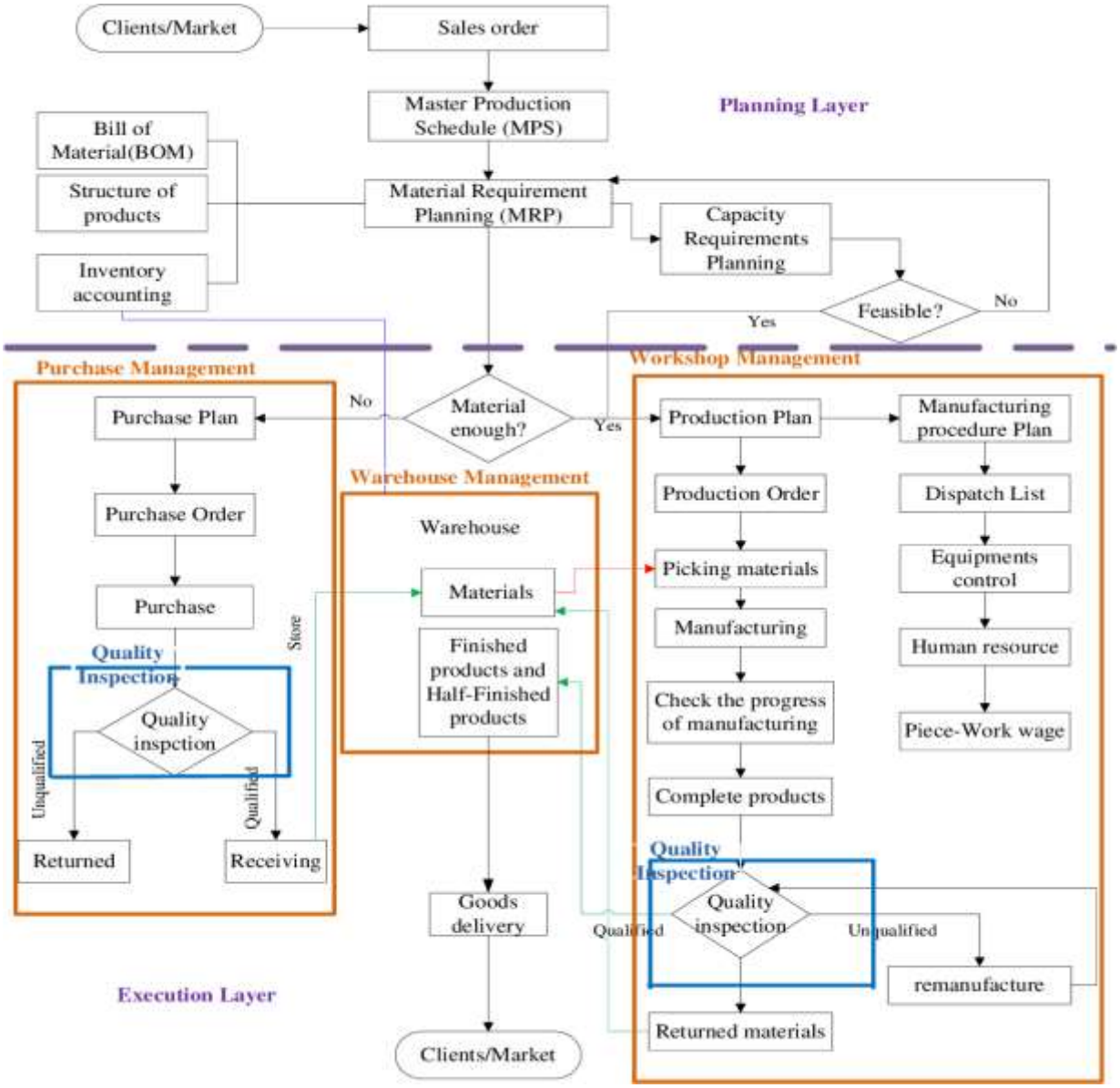

Figure 1 - Payment scheme using electronic checks

Electronic money

Performance metrics for an online store

Website traffic

Measure traffic to your site in terms of daily audience, weekly and monthly. This will allow you to evaluate drops and surges in website traffic and identify their causes.

Set a goal for yourself for the average number of visits you want to achieve, and work on a strategy for attracting visitors to the site based on this number

To determine the goal for traffic, analyze your competitors, they may have open statistics counters that will show the traffic to their site. You will be able to analyze the channels that competitors are using to drive traffic and use this data to increase traffic to your site.

By analyzing the exit points of site visitors, you can better understand the reasons for low conversions and optimize your site so that users stay on the site and complete their purchases.

Problems in ordering can be indicated by exits from the pages:

- check in;

- basket;

- ordering.

This means that users start to make a purchase on the site, but face problems and do not complete the ordering process.

Principles of creating an information security system for e-commerce

The principles of creating and operating a security system can be divided into three main blocks:

• general principles of safety assurance;

• organizational principles;

• principles of security system implementation. General safety principles:

• the principle of uncertainty is due to the fact that while ensuring protection, it is not known who, when, where and how will try to violate the security of the protected object;

• the principle of impossibility of creating an ideal protection system follows from the principle of uncertainty and limited resources, which, as a rule, have a safety system;

• the principle of minimum risk is that when creating a protection system, it is necessary to choose the minimum degree of risk, based on the characteristics of threats to the security of available resources and

the specific conditions in which the protected object is located at any time;

• The principle of protecting everyone from everyone implies the need to protect all subjects of relations against all types of threats.

Organizational principles:

• - the principle of legality, the importance of which can hardly be overestimated in the context of the emergence of new legal relations in Russian legislation - "private property", "intellectual

property ",“ commercial secret ", etc. However, the regulatory legal framework governing security issues is still imperfect;

• the principle of personal responsibility implies the responsibility of each employee of the company for ensuring the security regime within the framework of their authority. Responsibility for violation of the security regime must be specified and personified in advance;

• The principle of separation of powers allows to reduce the likelihood of violation of commercial secrets or the normal functioning of the enterprise, since it is directly proportional to the number of informed persons with information. Therefore, no one should be introduced to confidential information unless it is required for the performance of his official duties;

• the principle of interaction and cooperation presupposes the existence of a trusting relationship between employees at the enterprise on the basis of everyone's understanding of the need to carry out measures to ensure information security in their own interests.

Principles of implementation of the protection system:

• the principle of complexity and individuality presupposes ensuring security by a set of complex, interrelated and overlapping measures, implemented with an individual reference to specific conditions;[8]

• the principle of the sequence of lines allows to detect in a timely manner an encroachment on security and to organize consistent counteraction against the threat in accordance with the degree of danger;

• The principle of protecting protective equipment is a logical continuation of the principle of protecting everyone from everyone. In other words, any

the protective measure itself must be adequately protected. For example, a means of protection against attempts to make changes to the database must be protected by software that implements the differentiation of access rights.

The implementation of these principles and the construction of an integrated system for the protection of objects is, in general, an individual task, which is due to economic considerations and the state in which the object of protection is located, as well as many other circumstances.[9]

II. Results

The indisputable advantages of electronic money are:

• convenience, speed of settlements (operations in them occur almost in real time);

• easy exchange and interoperability with other payment systems;

• anonymity;

• durability (all money is stored on several independent servers that duplicate each other, so they can be stored indefinitely), etc.

However, this currency also has disadvantages:

• lack of well-established legal regulation (in many countries there is still no stable legal regulation of non-cash funds);

• electronic money needs special storage and handling tools (terminals, ATMs, plastic cards, payment systems themselves);

• impossibility to restore the monetary value of the owner's funds in case of destruction of the electronic money carrier;

• insufficient maturity of security technologies, which leads to the theft of electronic money through innovative methods.

	Pay method					Preferred Paymethod				
	Direct Payment	Credit Cards	Prepaid Cards	Others	Non	Direct Payment	Credit Cards	Prepaid Cards	Others	Non
No. of People sample	38	47	136	112	974	366	264	615	122	39

Table 1: Current and preferred payment methods

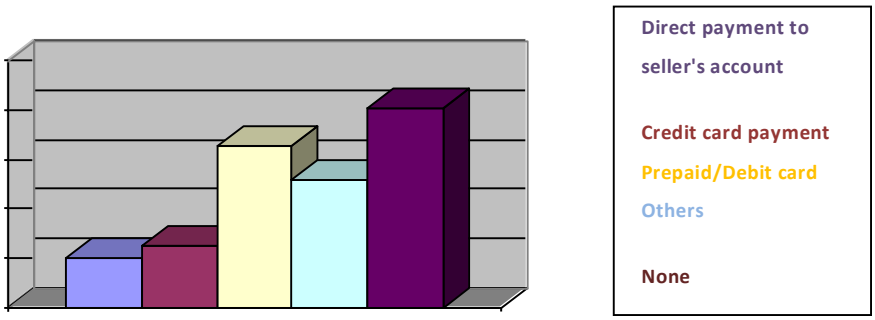

Figure 1: Payment method used by online buyer/seller Organization of secure data transmission

Using SSL for Reporting Over the Internet

Although Russia is already in the process of transferring organizations to submitting reports in electronic form, it is still far from perfect [5]. European countries also use a variety of options for submitting reports to government agencies, but one and the same pattern is clearly visible: all states are now striving to receive most of the documents from taxpayers in electronic form.

In the UK, accounting records are usually secured using SSL, with client authentication by password or by certificate authentication.

In Germany, electronic invoices and other documents related to taxation are generally only accessible to the tax authorities; the type of access is defined as "remote". The data must be stored on a non-modifiable medium.

In France, companies are required to electronically declare VAT. When submitting this declaration online, it must be digitally signed. The connection is made over a secure channel (via the https protocol), and client authentication (by certificate) is used.

In Italy, companies must annually submit financial statements to the relevant chamber of commerce exclusively electronically, signing them with a qualified electronic signature. Other documents related to taxation issues are entrusted to the authorized body (tax service). Customs declarations must be signed with a signature corresponding to point 5 (2) of directive 1999/93 / EC.

In Spain, companies can electronically, securely submit their accounting data and annual reports (balances) to the Business Register (BPR). Submission of documents is carried out annually. The data exchange uses a secure channel (SSL). Electronic documents are signed by the sender to protect their integrity and identify the sender using a certificate issued by the SCR Certification Authority.

Government agencies file (securely) signed expense reports and receive signed reports, authorizing such

expenses or indicating potential problems in the submitted documents.

Using HTTPS for online stores

The HTTPS protocol must be used by sites where users enter their payment information. Services and online stores that do not want to lose customers and care about their reputation have been doing this for a long time.

But often online stores use SSL encryption technology only on the registration page or in the shopping cart, where the customer enters personal information. The rest of the site uses the old, insecure HTTP protocol.

Now everyone needs to switch to HTTPS and use this protocol for each page of the site for the following reasons:

1. New versions of popular browsers Google Chrome and Firefox began to mark sites that work without an SSL certificate as insecure.

Currently, the gray icon is not visible, but in the future, browsers plan to change the security indicator to a red triangle for HTTP pages. Users are likely to be afraid to buy on such a site.

2. The Google search engine now ranks higher on HTTPS sites.

3. Large payment services (for example, Yandex.Kassa) may refuse to work with the site without HTTPS. Others (like Apple Pay) already work only on HTTPS.

4. People trust the store more when they see that their data is protected here

III. Conclusion:

Currently, the use of information retrieval systems is one of the main methods for conducting preliminary searches. Its application is based on keywords that are transmitted

system as a search argument. The result is a list of Internet resources.

After receiving the request, the ISS analyzes the information that was collected earlier and is located in the index, that is, in the ISS database.

Pros - the request processing speed increases many times over.

Cons - the search area is limited by the internal resources of the ISS, and the information in the database quickly becomes outdated.

Links to documents in the search result (search results) are sorted (ranked) as they match the query. To rank pages in search results, search engines use the following criteria:

• text;

• reference;

• criteria for user assessment.

Text criteria determine the relevance of a document by matching words and their combinations:

• on the one hand - in the request;

• on the other hand - in the text and heading of a web page.

The relevance of a document is an indicator that reflects how closely the content of a document corresponds to a specific search engine query. For each word or phrase in the query, the search engine finds in the indexes all web pages that contain them. There can be tens of thousands of such pages, and therefore the next task of the system is to display them in descending order of relevance. It is necessary to ensure that, regardless of the construction of the query, the web page falls into the first rows of search results, and the range of words and phrases by which it can be found is wide enough. Search engines, as a rule, display pages found by request in parts of 10-20 links.

You can also say that relevance is the correspondence of search results to a formulated query.

A request is a set of words in a specific sequence. If the request contains interjections and prepositions (the so-called stop words), then they are not considered by the IRS. In the search results returned by the IRS, the words from the query will appear in a different sequence. In addition, when searching, the IRS uses all word forms of the entered words, i.e. noun in various cases, adjectives based on a noun, etc.

According to market research data, about 60% of users limit themselves to the first page of search results and almost 90% to the first three pages. From here comes the challenge - to ensure that the pages of the website are in the first 10-20 search results. To solve it, you need to know the principles of displaying search results in search engines.

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