MOGUĆNOST PRIMENE BULOVE ALGEBRE U KREIRANJU RAČUNOVODSTVENOG INFORMACIONOG SISTEMA

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Apstrakt

Kreiranje računovodstvenog informacionog sistema predstavlja višedimenzionalni problem sa kojim se suočavaju savremene poslovne organizacije. Prisustvo matematike u rešavanju ovakvih problema često je nužnost, zbog čega, u ovom slučaju matematičke relacije primenom Bulove algebre predstavljaju osnov za razrešenje problema u vezi izrade i funkcionisanja adekvatnog računovovodstvenog informacionog sistema.

Ključne reči: *računovodstveni informacioni sistem, Bulova algebra, računovodstvene funkcije, finansije.*

JEL: *M41, M49.*

Uvod

Uvođenje i primena računara u preduzeće dovode i do odgovarajućih organizacionih promena. Ove promene se odnose i na finansijsku i na računovodstvenu funkciju. Stepen organizacionih promena uslovljen je veličinom i organizacionim specifičnostima preduzeća (Weber, 2020). U zavisnosti od toga opredeljuje se na prvom mestu i uloga organizacionog dela u kojem se obavljaju informatički poslovi odnosno poslovi obrade podataka (Milojević et al., 2013).

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Upravljanje poslovanjem preduzeća u savremenim uslovima, bez adekvatne informatičke osnove nezamislivo je u savremenim uslovima poslovanja. Današnje vreme koje se karakteriše informacijama, kao osnovom uspeha to višestruko dokazuje, posebno imajući u vidu da su znanje i informacije moćan i neophodan resurs bez kojeg nema napretka.

U zavisnosti od toga kako se informacije iskazuju moguće je govoriti o kvantitativnim i kvalitatitivnim informacijama. I jedne i druge su bitne za donošenje poslovnih odluka. Kvantitativne finansijske informacije su u osnovi vezane za računovodstveni informacioni sistem(Asatiani, et al., 2019; Tingey-Holyoak, et al., 2021; Mihajlović & Vidić, 2019).

Računovodstveni informacioni sistem se sastoji od finansijskog računovodstva, računovodstva troškova i upravljačkog računovodstva koji su inkorporirani u jednu zaokruženu celinu koja koja ima za cilj prikupljanje, obradu generisanje informacija primarno vezanih uz finansijske transakcije(Stević, 2018). Ovaj sistem je deo ukupnog informacionog sistema preduzeća u okvir kojeg su primarno evidentirane sve poslovne transakcije koje se mogu kavntitativno izraziti.

Osnovne komponente računovodstvenog informacionog sistema

Računovodstveni informacioni sistem je podsistem poslovnog informacionog sistema, koji obuhvata više različitih komponenti, a najčešće(Kocsis, 2019):

- Finansijsko knjigovodstvo
- Kupce
- Dobavljače
- Knjogovodstvo osnovnih sredstava
- Materijalno knjigovodstvo
- Knjigovodstvo gotovih proizvoda
- Pogonsko knjigovodstvo i
- Obračun plata.

Finansijsko knjigovodstvo konsoliduje podatke iz svih ostalih aplikacija i periodično generiše finansijske izveštaje preduzeća. Poslovne pronmene se najpre hronološki registruju u dnevniku, a zatim se transferišu u odgovarajuće analitičke evidencije. Sumari iz analitičkih evidencija se prenose u finansijsko knjigovodstvo, odnosno predstavljaju osnovne inpute(Mihajlović, et al., 2020).

Finansijsko knjigovodstvo je sačinjeno od podataka o svakom kontu iz kontnog plana i to: broj konta, naziv konta, klasifikacija konta, promet, tekući saldo i saldo prethodnog perioda.

Podaci unutar finansijskog knjigovodstva se stalno ažuriraju.

Aplikacija kupci obuhvata podatke o potraživanjima iz poslovnih odnosa. Inputi su podaci o izlaznim fakturama, zatim podaci o naplati i podaci o usaglašavanju iznosa potraživanja sa kupcima koja nastaju zbog grešaka u fakturisanju, vraćanje robe, otpisu potraživanja i dr(Mihajlović et al., 2021).

Osnovni podaci u ovoj aplikaciji odnose se na kupce, pri čemu se ažuriranje vrši unošenjem podataka iz novih faktura i podataka o naplati i usaglašavanju salda.

Dobavljači su aplikacija koja obuhvata podatke o obavezama preduzeća nastalim iz poslovnih odnosa. Ulazne podatke predstavljaju podaci o ulaznim fakturama, zatim podaci o izmirenju obaveza i podaci o usaglašavanju iznosa obaveza sa dobavljačima. Ovde se nalaze podaci o svakom dobavljaču. Ažuriranje baze podataka obavlja se unošenjem podataka iz novih faktura i podataka o izmirenju obaveza i usaglašavanja salda.

Knjigovodstvo osnovnih sredstava je aplikacija koja obuhvata podatke o imovini preduzeća koja ima karakter osnovnog sredstva. Osnovne inpute u ovu aplikaciju čine podaci o nabavci o nabavci osnovnih sredstava, o njihovoj prodaji i o obračunu amortizacije(Parnicki & Marić, 2020).

Bazu podataka ove aplikacije čine podaci o svakom osnovnom sredstvu. Ažuriranje baze podataka obavlja se unošenjem podataka o nabavci i prodaji osnovnih sredstava, kao i podataka o obračunatoj amortizaciji.

Materijalno knjigovodstvo je aplikacija koja obuhvata podatke o karakteristikama, količinama, cenama i vrednosti svih vrsta sirovina, materijala, sitnog inventara i energenata. Osnovne ipute u ovu aplikaciju čine podaci o prijemu na zalihe, izdavanju sa zaliha i popisu zaliha(Kumar, et al., 2020; Ilić & Tasić, 2021). Ažuriranje baze podataka obavlja se unošenjem podataka o prijemu na zalihe i izdavanju sa zaliha, kao i podataka o popisu stvarnog stanja.

Knjigovodstvo gotovih proizvoda je aplikacija koja obuhvata podatke o gotovim proizvodima na zalihama. Osnovne inpute u ovu aplikaciju čine podaci o prijemu na zalihe i izdavanju sa zaliha svih vrsta gotovih proizvoda. Ažuriranje baze podataka obavlja se unošenjem podataka o novim primanjima i izdavanjima(Maksimović, et al., 2020).

Pogonsko knjigovodstvo je aplikacija koja obuhvata podatke o troškovima. Osnovne inpute u ovu aplikaciju čine podaci o proizvodnji, o pojedinim vrstama direktnih trškova, o amortizaciji i o troškovima upravno-prodajne režije.

Obračun plata je aplikacija koja obuhvata podatke o zaposlenim radnicima injihovim platama. Osnovne inpute u ovu aplikaciju čine podaci o svakom zaposlenom i podaci potrebni za obračun plate(Milojević, Mihajlović, 2020).

S obzirom da je preduzeće, čiji je računovostveni sistem sastavni deo, dinamičan i stohastičan sistem, stalno se dešavaju promene unutar i oko preduzeća. Zato se računovodtsvnei informacioni sistem nakon razvijanja mora prilagođavati stalnim promenama.

Metodologija istraživanja

U problemu se pojavljuje varijabla (x) koja je diskontinuirana, jer se broj modula uzima kao ceo broj. (Đurković V., i dr. 2018.) Varijable su povezane u opsegu kako i u kom rasponu se menjaju, odnosno kakve relacije i odnosi postoje između varijabli.

Zavisnost varijable (y) od druge varijable (x) gde su vrednosti određene, i kada su poznate vrednosti te druge varijable uspostavlja se međuzavisnost koja se označava kao funkcija.

Za rešavanje postavljenog problema koristiće se iskazni račun, u kome se iskazi klasifikuju u tri grupe zavisno od istinitosti u tabličnoj koloni, na taj način imamo: tautologiju, ako je tačnost u poslednjoj koloni tablice bez obzira na tačnost sastavnih iskaza; kontradikciiju ako je netačnost u poslednjoj koloni iskaz je lažan bez obzira na tačnost sastavnih iskaza i iskazi čija tačnost zavisi od tačnosti komponenata (Stojanović i Stanojević, 2017).

Prulikom rešavanja problema polazi se od pretpostavki odnosno hipoteza, a kao rezultat dobija se iskaz.

Pretpostavke proizilaze iz praktične primene računovodstvenog informacionog sistema, i one glase: svaki modul unutar sistema se razvija nezavino od ostalih, ali si moduli zajedno treba da čine integrisani sistem (Trigo, et al., 2016).

Izvođenje rešenja

Kroz primer Bulove algebre i njene definicija, doći će se do zaključka da li je moguća primena algebre u kreiranju i uspostavljanju računovdstvenog informaciong sistema.

Primenom logike i samim procesom zaključivanja kroz upotrebu tvrdnji koje mogu biti istinite, odnosno tačne ili neistinite odnosno netačne, na jedan složen i kompleksan način se dolazi do ogvora da je primena Bulove algebre moguća i u računovodstveni informacioni sistem. Kako je primarna upotreba ove algebre, odnosno njenih logičkih funkcija u računarskim naukama, naročito onim koje se

bave programskim jezicima, sledećim primerom se može potvrditi upotreba logičkih funkcija i u računovodstvenim informacionom sistemu.

Logički operator za funkciju ILI je $\cup$ ili +, pa se funkcija ILI sa n promenljivih može iskazati kao:
$Y \cup x_1 \cup x_2 \cup x_3 \cup x_3 \cup ... \cup x_n$, ili u obliku

$$Y \cup x_1 \cup x_2 \cup x_3 \cup x_3 \cup ... \cup x_n$$

Iz ovog se zaključuje da izraz za ovu funkciju glasi: Output će imati stanje 1, ako je bar jedan od inputa u stanju 1 ili output će imati stanje 0, ako su svi inputi u stannju 0. (E. Mendelson, 1970).

Logički operator za funkciju I je $\wedge$ ili $\cdot$, pa se funkcija I sa n promenljivih može iskazati kao:
$Y \wedge x_1 \wedge x_2 \wedge x_3 \wedge x_3 \wedge ... \wedge x_n$, ili u obliku

$$Y \wedge x_1 \wedge x_2 \wedge x_3 \wedge x_3 \wedge ... \wedge x_n$$

Iz ovog se zaključuje da izraz za ovu funkciju glasi: Output će imati stanje 1, ako su svi inputa u stanju 1 ili output će imati stanje 0, ako je bar jedan od ulaza u stannju 0. (Z. Mijajlović, 1977)

Logički operator za funkciju negacije ili komplementa je $\overline{\ }$ pa se ona može iskazati kao: $\overline{Y} = A$.

Iz ovog se zaključuje da izraz za ovu funkciju glasi: Output će imati stanje 1, ako je inputa u stanju 0 ili output će imati stanje 0, ako je ulaza u stannju 1. (K. Gilezan & B. Latinović, 1977)

Uvedimo u Bulovu algebru (B, $\cup$, $\bullet$, $-$) binarnu relaciju 6 (manje ili jednako) na sledeći način:
Za elemente x, y iz B kažemo da je x 6 y ako i samo ako x $\cup$ y = y.
Sada ćemo pokazati relacije koje se odnose na ovu Bulovu algebru.
x 6 y $\Leftrightarrow$ x $\bullet$ y = x
($\Rightarrow$): x 6 y $\Rightarrow$ x $\bullet$ y = x
(1) x 6 y (pretpostavka od koje polazimo kako bismo dokazali implikaciju)
(2) x $\cup$ y = y (direktno sledi iz definicije algebre)
(3) x $\bullet$ y = x $\bullet$ y (identitet koji važi: a = a)
(4) x $\bullet$ (x $\cup$ y) = x $\bullet$ y (u drugi korak ubacujemo x sa leve strane to jest zamenjujemo (2) u (3))
(5) x = x $\bullet$ y (primenjujemo identitet I8* na korak (4))
($\Leftarrow$): x 6 y $\Leftarrow$ x $\bullet$ y = x

(1) x = x • y (pretpostavka od koje polazimo kako bismo dokazali implikaciju)
(2) x ∪ y = x ∪ y (identitet koji važi: a = a)
(3) x ∪ y = (x • y) ∪ y (zamena (1) u (2))
(4) x ∪ y = y ∪ (y • x) (komutacija identiteta I1 i I1*)
(5) x ∪ y = y (primenjujemo identitet I8 na korak (4))
(6) x 6 y (direktno sledi iz definicije) (J. Đorđević, Z. Radivojević, D. Drašković, Ž. Stanisavljević, M. Punt, K.Milenković, 2017)

Na osnovu primene ovako iznetih funkcija Bulove algebre potrebno je u toku kreranja računovodstvenog informacionog sistema uvažiti veliki broj faktora. Treba uzeti u obzir delatnost, veličinu i lokaciju preduzeća, te ih na odgovarajući način dovesti u vezi i primenom funkcija zaključiti kakav će razultat biti. Za mala preduzeća je karakteristično da nemaju zaposlene računovođe, pa i nemaju mogućnost za organizaciju RIS-a, te je to potrebno Bulovom algebrom potvrditi. Ovakva preduzeća za računovodstvene usluge su oslenjena na razne knjigovodstvene servise. Kada se sa druge strane posmatraju velika preduzeća, u okviru njihove organizacije RIS-a nalaze se značajno složenije organizacione strukture sa velikim brojem zaposlenih. Takođe, preduzeća koja su svoju delatnost proširila unutar jedne države, pa čak i van granica iste imaće drugačiju organizacionu strukturu RIS-a nego li kada se delatnost obalja na jednom mestu. Posebno značajni faktori koji uslovljavaju razvoj i strukturu RIS-a unutar preduzeća su finansijska moć i tehnička osposobljenost jer od njih zavisi mogućnost unapređenja ovog sistema. Veoma često, savremeni načini poslovanja i odgovarajuća finansijska moć, podržana tenološkom osposobljenošću omogućavaju racionalnije poslovanje, a samim tim i racionalnije obavljanje računovodstvenih poslova (Mamić Saćer & Žager, 2008).

Činioci kvaliteta RIS-a

Polazeći od činjenice da je RIS sastavni deo celokupnog poslovnog sistema preduzeća, od njegovog kvaliteta zavisi ukupni kvalitet proizvoda i usluga tog preduzeća(Hadid, Al-Sayed, 2021). Kvalitet RIS-a postiže se celokupnim usvajanjem pozitivnih performansi i otklanjanjem nepravilnosti u preduzeću. Prilikom ocene kvaliteta sistema najčešće se polazi od koristi, odnosno od merenja pozitivnih vidljivih efekata sa jedne strane i ograničavajućih faktora sa druge strane. Postoji veliki broj činilaca koji utiču na kvalitet RIS-a(Milojević et al., 2019).

Ostvarivanje određenog stepena kvaliteta RIS-a neophodno je u preduzeću uspostaviti određeni sistem upravljanja kvalitetom. Iz kvaliteta RIS-a proizilazi kvalitet celokupnog preduzeća, kroz niz elemenata(Vukša, 2017).

Kvalitet RIS-a doprinosi povećanju ukupne vrednosti preduzeća, kroz smanjenje troškova i skraćenja potrebnog vremena za obradu dovoljne količine podataka. Upotrebom informacionih tehnologija u računovodstvu obezbeđuje se kontinuirano stvaranje ažurnih, tačnih pravovremenih i dostupnih informacija.

Zaključak

Računovodstveni informacioni sistem treba pre svega da obezbeđuje za korisnike pouzdane i značajne informacije. Kreiranje velike količine različitih informacija, uz korišćenje adekvatne informaciono-tehnološke osnove obezbeđuje se u kratkom vremenskom periodu. Posebno je značajno da informacija koja je kreirana u ovakvom sistemu bude i značajna za korisnike RIS-a. Ovakva informacija mora da poseduje određene karakteristike i to da bude pravovremena, da obezbeđuje mogućnost da se na osnovu nje predvidi određeno stanje kao i dobijanje značajnih pokazatelja kojima će se ukazati na eventualna odstupanja. Upravo su ovakve informacije osnova za donošenje pravovremenih poslovnih odluka svakog preduzeća.

Imajući u vidu sve navedeno kvalitet dobijenih računovodstvenih informacija zavisi pre svega od kvaliteta organizacije RIS-a. Uspešno poslovanje preduzeća zahteva odgovarajuću informacionu osnovu koja mora da uvažava tokove informacija i informacionih zahteva. Samo takav RIS obezbeđuje donošenje dobrih poslovnih odluka.

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POSSIBILTY OF APPLYING BULL ALGEBRA IN CREATING AN ACCOUNTING INFORMATION SYSTEM

Original scientific paper

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Abstract

Modern business organizations are facing a multidimensional problem of creating an accounting information system is a multidimensional problem. The presence of mathematics in solving such problems is often a necessity, which is why, in this case, mathematical relations

Presence of mathematics in solving such problems is often a necessity, which is why, in this case, mathematical relations using Boolean algebra represent the basis for solving problems related to the development and functioning of an adequate accounting information system.

Key words: *accounting information system, Boolean algebra, accounting functions, finance.*

JEL: *M41, M49.*

Introduction

Introduction and application of computers in the company also leads to appropriate organizational changes. These changes apply to both the financial and accounting function. The degree of organizational change is conditioned by the size and organizational specifics of the company (Weber, 2020). Depending on that, the role of the organizational part in which IT tasks are performed, ie data processing tasks, is determined in the first place (Milojević et al., 2013).

Business management of a company in modern conditions, without an adequate IT basis is unthinkable in modern business conditions. Today's time, which is characterized by information, as a basis for success, proves it many times over,

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especially having in mind that knowledge and information are a powerful and necessary resource without which there is no progress.

Depending on how information is expressed, it is possible to talk about quantitative and qualitative information. Both are essential for making business decisions. Quantitative financial information is basically related to the accounting information system (Asatiani, et al., 2019; Tingey-Holyoak, et al., 2021; Mihajlović & Vidić, 2019).

The accounting information system consists of financial accounting, cost accounting and management accounting which are incorporated into one complete unit which aims to collect, process and generate information primarily related to financial transactions (Stević, 2018). This system is part of the overall information system of the company, within which all business transactions that can be expressed quantitatively are primarily recorded.

Basic components of the accounting information system

Accounting information system is a subsystem of business information system, which includes several different components, and most often (Kocsis, 2019):

- Financial accounting
- Customers
- Suppliers
- Bookkeeping of fixed assets
- Material accounting
- Bookkeeping of finished products
- Operating bookkeeping i
- Payroll calculation.

Financial accounting consolidates data from all other applications and periodically generates financial statements of a company. Business changes are firstly defined chronologically in the diary, and then transferred to the appropriate analytical records. Summaries from analytical records are transferred to financial accounting, ie they represent basic inputs (Mihajlović, et al., 2020).

Financial accounting is made up of data on each account from the chart of accounts, namely: account number, account name, account classification, turnover, current balance and balance of the previous period.

Data within the financial accounting is constantly updated.

Customer application includes data on receivables from business relationships. Inputs are data on outgoing invoices, then data on collection and data on reconciling the amount of receivables with customers that arise due to errors in invoicing, return of goods, write-off of receivables, etc. (Mihajlović et al., 2021).

Basic data in this application refers to customers, whereby the update is done by entering data from new invoices and data on collection and balance adjustment.

Vendors are an application that includes data on a company's obligations arising from business relationships. Input data is data on incoming invoices, then data on settlement of liabilities and data on reconciliation of the amount of liabilities with suppliers. Information on each supplier is found here. The database is updated by entering data from new invoices and data on settlement of liabilities and balance adjustment.

Fixed asset accounting is an application that includes data on assets of a company that has the character of a fixed asset. Basic inputs to this application is data on procurement of fixed assets, their sale and the calculation of depreciation (Parnicki & Marić, 2020).

This application's database consists of data on each fixed asset. The database is updated by entering data on the purchase and sale of fixed assets, as well as data on calculated depreciation.

Material accounting is an application that includes data on characteristics, quantities, prices and values of all types of raw materials, small inventory and energy. Basic instructions in this application are data on receipt of stocks, issuance from stocks and inventory (Kumar, et al., 2020; Ilić & Tasić, 2021). The database is updated by entering data on receipt of stocks and issuance from stocks, as well as data on the inventory.

Finished goods bookkeeping is an application that includes data on finished products in stock. Basic inputs in this application are data on receipt of stocks and issuance of all types of finished products. The database is updated by entering data on new receipts and issues (Maksimović, et al., 2020).

Operating bookkeeping is an application that includes cost data. The basic inputs in this application are data on production, on certain types of direct costs, on depreciation and on the costs of administrative and sales overheads.

Payroll calculation is an application that includes data on employees and their salaries. Basic inputs in this application are data on each employee and data needed for salary calculation (Milojević, Mihajlović, 2020).

Since the company, of which the accounting system is an integral part, is a dynamic and stochastic system, changes are constantly happening within and around the company. Therefore, the accounting and information system must be adapted to constant changes after development.

Research methodology

Variable (x) appears in the problem and is discontinuous, because the module number is taken as an integer. (Đurković V., et al. 2018.) Variables are related in the extent of how and in what range they change, i.e. what relations and connections exist between variables.

Dependence of variable (y) on another variable (x) where the values are determined, and when the values of that other variable are known, an interdependence is established which is denoted as a function.

To solve the set problem, a statement of accounts will be used, in which statements are classified into three groups depending on the truth in the table column, thus we have: tautology, if the accuracy is in the last column of the table regardless of the accuracy of constituent statements; contradiction, if the inaccuracy in the last column of the statement is false regardless of the accuracy of the constituent statements and statements whose accuracy depends on the accuracy of the components (Stojanović and Stanojević, 2017).

When solving the problem, we start from assumptions, i.e. hypotheses, and as a result we get a statement.

Assumptions arise from the practical application of the accounting information system, and they read: each module within the system is developed independently of the others, but the modules together should form an integrated system (Trigo, et al., 2016).

Deriving a solution

Through the example of Boolean algebra and its definition, it will be concluded whether it is possible to apply algebra in the creation and establishment of an accounting information system.

By applying logic and the very process of reasoning through the use of statements that can be true or correct and untrue or incorrect, in a complex way we come to the conclusion that the application of Boolean algebra is possible in the accounting information system. As the primary use of this algebra, i.e. its logical functions in computer science, especially those dealing with programming languages, the following example can confirm the use of logical functions in accounting information systems.

Logical operator for function "OR" is $\cup$ or $+$, so the function or with *n* variables can be expressed as:
$Y \cup x_1 \cup x_2 \cup x_3 \cup x_3 \cup ... \cup x_n$, or in the following form

$$Y \cup x_1 \cup x_2 \cup x_3 \cup x_3 \cup ... \cup x_n$$

From this it can be concluded that the expression for this function reads: Output will have state 1, if at least one of the inputs is in state 1 or output will have state 0, if all inputs are in state 0 (E. Mendelson, 1970).

Logical operator for function "AND" is $\wedge$ or $\cdot$, so the function and with *n* variables can be expressed as:
$Y \wedge x_1 \wedge x_2 \wedge x_3 \wedge x_3 \wedge ... \wedge x_n$, or in the following form

$$Y \wedge x_1 \wedge x_2 \wedge x_3 \wedge x_3 \wedge ... \wedge x_n$$

From this, it can be concluded that the expression for this function reads: Output will have the state 1, if all inputs are in state 1 or output will have the state 0, if at least one of the inputs is in state 0 (Z. Mijajlović, 1977).

Logical operator for the negation or complement function is $\overline{\ }$ so it can be expressed as: $\overline{Y} = A$.

From this it can be concluded that the expression for this function reads: Output will have the state 1, if the input is in state 0 or output will have the state 0, if the input is in state 1 (Gilezan & Latinović, 1977).

Let's introduce the binary relation 6 (less than or equal to) into Boolean algebra $(B, \cup, \bullet, -)$ in the following way:
For elements x, y from B we say that it's x 6 y if and only if $x \cup y = y$.
We will now show the relations relating to this Boolean algebra.
$x \ 6 \ y \Leftrightarrow x \bullet y = x$
$(\Rightarrow)$: $x \ 6 \ y \Rightarrow x \bullet y = x$
(1) x 6 y (the assumption we start from to prove implication)
(2) $x \cup y = y$ (directly follows from the definition of algebra)
(3) $x \bullet y = x \bullet y$ (valid identity: a = a)
(4) $x \bullet (x \cup y) = x \bullet y$ (n the second step we insert x on the left side, that is, we replace (2) in (3))
(5) $x = x \bullet y$ (we apply identity I8 * to step (4))
$(\Leftarrow)$: $x \ 6 \ y \Leftarrow x \bullet y = x$
(1) $x = x \bullet y$ (the assumption we start from to prove the implication)
(2) $x \cup y = x \cup y$ (valid identity: a = a)

(3) x ∪ y = (x • y) ∪ y (replacing (1) into (2))
(4) x ∪ y = y ∪ (y • x) (identity commutation I1 and I1*)
(5) x ∪ y = y (we apply identity I8 to step (4))
(6) x 6 y (directly follows the definition) (J. Đorđević, Z. Radivojević, D. Drašković, Ž. Stanisavljević, M. Punt, K.Milenković, 2017).
Based on applying the functions of Boolean algebra presented in this way, it is necessary to take into account a large number of factors during the creation of the accounting information system (AIS). It is necessary to take into account activity, size and location of the company, and bring them in connection in an appropriate way and, by applying the functions, conclude what the result will be. It is characteristic of small companies that they do not have employed accountants, so they do not have the opportunity to organize AIS, so it is necessary to confirm this with Boolean algebra. Such accounting services companies rely on various bookkeeping services. When looking at large companies on the other hand, within their AIS organization there are significantly more complex organizational structures with a large number of employees. Also, companies that expanded their activities within one country, and even outside the borders of the same, will have a different organizational structure of AIS than when the activity is located in one place. Particularly important factors that determine the development and structure of AIS within the company are financial strength and technical capacity, because the possibility of improving this system depends on them. Often, modern ways of doing business and appropriate financial power, supported by technological ability, enable more rational business operations, and thus more rational performance of accounting tasks (Mamić Saćer & Žager, 2008).

AIS quality factors

Starting from the fact that AIS is an integral part of the entire business system of the company, the overall quality of products and services of that company depends on its quality (Hadid, Al-Sayed, 2021). Quality of AIS is achieved by the overall adoption of positive performance and elimination of irregularities in the company. When assessing the quality of the system, the starting point is usually the benefit, i.e. the measurement of positive visible effects on one hand and limiting factors on the other. There are a number of factors that affect the quality of AIS (Milojević et al., 2019).

Achieving a certain level of AIS quality is necessary to establish a certain quality management system in the company. The quality of the entire company derives from the quality of AIS, through a number of elements (Vukša, 2017).

Quality of AIS contributes to increasing the total value of the company, by reducing costs and shortening the time required to process a sufficient amount of data. The use of information technology in accounting ensures the continuous creation of up-to-date, accurate, timely and accessible information.

Conclusion

Accounting information system should, above all, provide reliable and relevant information for users. Creation of a large amount of different information, with the use of an adequate information-technological basis is provided in a short time period. It is especially significant for the information created in such a system to be important for AIS users. Such information must have certain characteristics and be timely, provide the possibility to predict a certain situation on the basis of it, as well as to obtain significant indicators that will indicate possible deviations. Such information is the basis for making timely business decisions of every company.

Having in mind the aforementioned, quality of the obtained accounting information depends primarily on the quality of the organization of the AIS. Successful operation of a company requires an appropriate information base that must take into account the flow of information and information requirements. Only such AIS ensures good business decisions.

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