



Elektronsko plaćanje

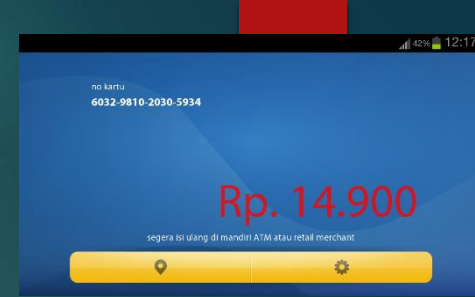
PROF. DR ZVONIMIR IVANOVIĆ

Elektronski novac



- ▶ Elektronski novac je digitalna zamena za gotov novac kojim kupac plaća proizvode i usluge. Elektronski se drži na virtuelnim računima na serveru, na čipu, ili magnetnoj traci platne kartice. Da bi uopšte imali elektronski novac, građani moraju prethodno da uplate novčana sredstva onome ko izdaje elektronski novac (pomoću platne kartice, prenosom sa računa ili neposrednom uplatom)

E - novac



- ▶ E-novac je elektronski (uključujući magnetni) pohranjena novčana vrednost koja čini novčano potraživanje prema izdavaocu tog novca, a izdata je nakon prijema novčanih sredstava radi izvršavanja platnih transakcija i prihvata je fizičko i/ili pravno lice koje nije izdavalac tog novca.

Najčešći oblici e-novca su:



- ▶ Pre-funded personalizovane online šeme: – online i – dostupne preko Interneta ili mobilnog telefona (primeri su PayPal i Google Checkout).
- ▶ Card-based e-money (e-novčanici): – smešten na čipu koji je ugrađen na kartici, a kartica se ne koristi za informaciju o računu već za autentifikaciju.
- ▶ Elektronski novac u Republici Srbiji mogu da izdaju: 1. banka, 2. institucija elektronskog novca, 3. javni poštanski operator, 4. Narodna banka Srbije i 5. Uprava za trezor ili drugi organi javne vlasti.

Odnosi



- ▶ Međusobni odnosi izdavaoca elektronskog novca i imaooca elektronskog novca kome se izdaje elektronski novac – uređuju se ugovorom. Izdavalac elektronskog novca – dužan je da odmah nakon prijema novčanih sredstava izda elektronski novac u visini primljenih novčanih sredstava. Platne transakcije u dinarima u našoj zemlji moraju se obaviti istog poslovnog dana, tako da nema više zadržavanja novca.
- ▶ Zakon ne dozvoljava davanje kamate za elektronski novac.
- ▶ Elektronski novac može prihvatiti svako fizičko ili pravno lice koje sa izdavaocem elektronskog novca zaključi ugovor o prihvatanju tog novca.

Elektronski novac



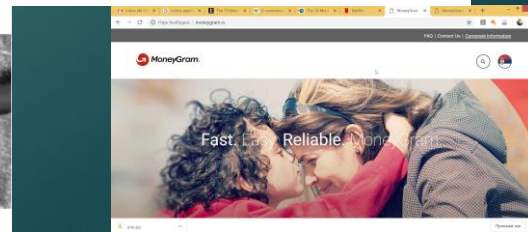
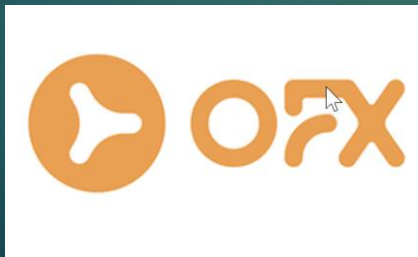
- ▶ Onaj ko izdaje elektronski novac dužan je da odmah nakon prijema novčanih sredstava izda elektronski novac. Sigurnost tog novca koji su građani uplatili je obezbeđena tako što je firma koja izdaje elektronski novac dužna da u svakom trenutku na depozitnom računu raspolaže novčanim sredstvima čiji iznos odgovara izdatom elektronskom novcu. Takođe, ova sredstva, u slučaju finansijskih poteškoća firme, ne mogu biti predmet izvršenja ili prinudne naplate, niti ulaze u njenu stečajnu ili likvidacionu masu - kažu za "Blic" u NBS.
- ▶ Kada se izdaje elektronski novac, građani sa ovom firmom zaključuju u ugovor, koji se smatra zaključenim predajom gotovog novca ili uplatom novčanih sredstava na račun firme ili distributera.

Institucija elektronskog novca

- ▶ Institucija elektronskog novca može biti isključivo privredno društvo, u skladu sa zakonom kojim se uređuju privredna društva.
- ▶ Institucija elektronskog novca ovlašćena je da izdaje elektronski novac po dobijanju dozvole Narodne banke Srbije za izdavanje elektronskog novca.
- ▶ Početni kapital institucije elektronskog novca ne može biti manji od 350.000 evra u dinarskoj protivvrednosti.
- ▶ Institucija elektronskog novca dužna je da, radi stabilnog i sigurnog poslovanja i ispunjenja obaveza prema poveriocima, tokom svog poslovanja održava kapital koji ni u jednom trenutku ne može biti niži od iznosa početnog kapitala.
- ▶ Institucija elektronskog novca dužna je da novčana sredstva primljena od imaoaca elektronskog novca bez odlaganja zameni za elektronski novac i ne može se baviti primanjem depozita.

Mogući oblici plaćanja

- ▶ Elektronskim putem
- ▶ Plaćanjem preko nekih od platnih servisa na daljinu – moneygram, paysera, ofx, western union i sl
- ▶ Keš, čekovi, traveler čekovi
- ▶ Havala sistemi...



Oblici elektronskog plaćanja

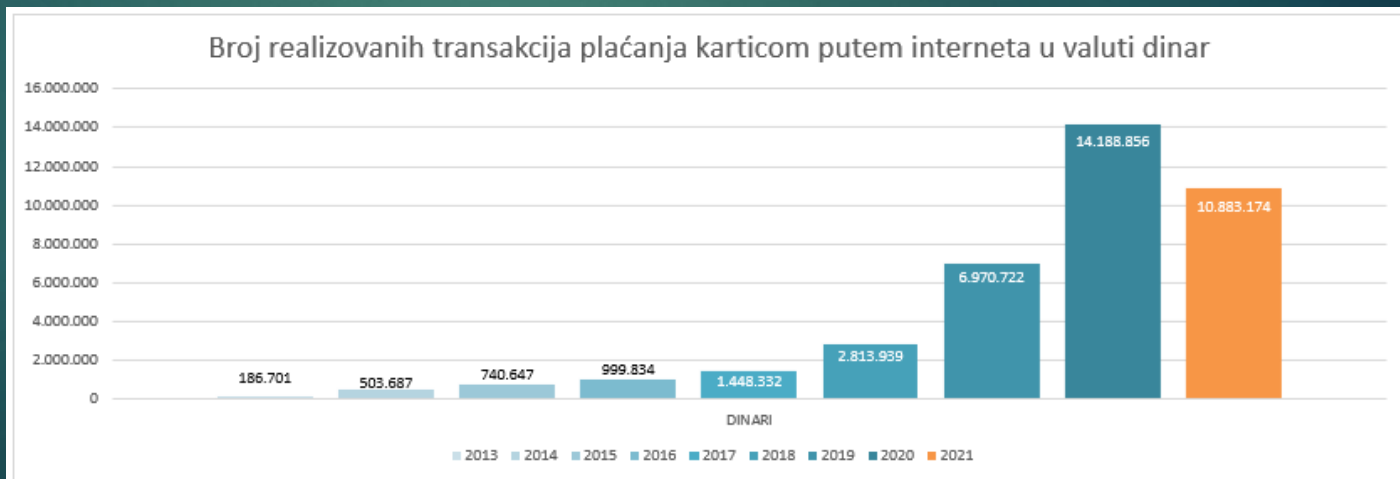
- ▶ Karticama – uz card not present sistem
 - ▶ Uslužnim aplikacijama online kartičnih procesora – MasterCard (MasterSecureCode) VISA (Payment platform 1.0 radi i 2.0 - 2020) i sl
- ▶ Posredno putem nekih uslužnih aplikacija online – PayPal, Skrill, Due, Payoneer, AliPay, YandexMoney, Stripe, Dwolla, Apple Pay, Amazon Payments, Google Wallet, We Pay.
- ▶ Mobilne platforme – Android Pay, NFC i sl.
- ▶ Blokčejn valute – Bitcoin, ETHEREUM i sl
- ▶ Brain tree

Kartice

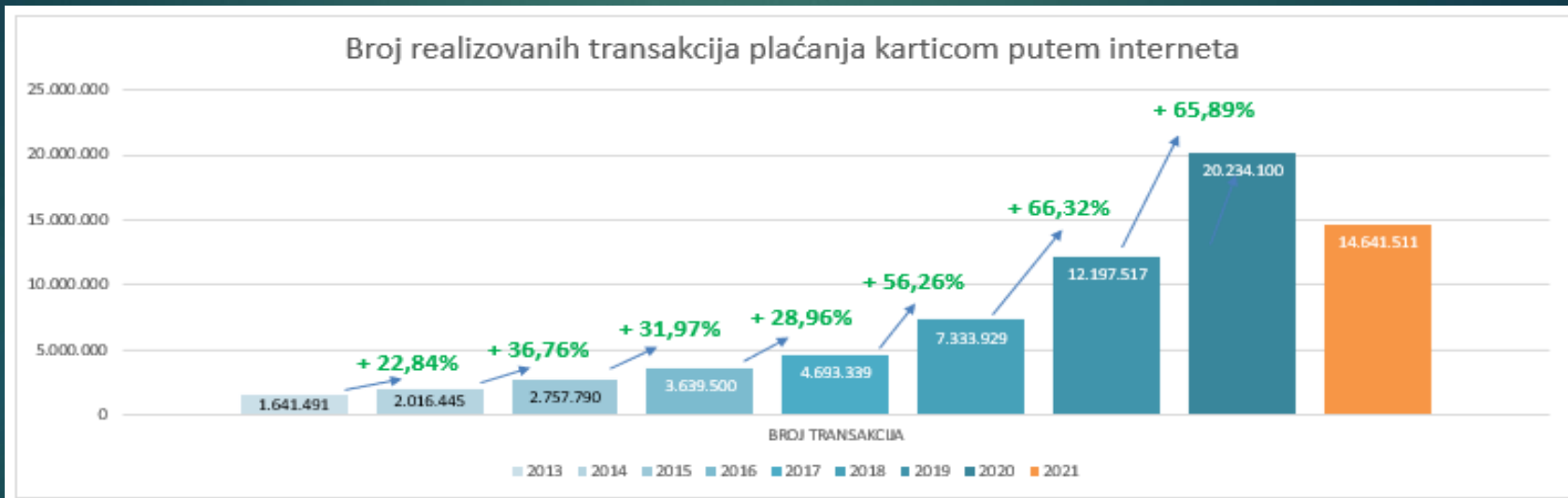
- ▶ Debitne i kreditne
- ▶ [card verification number \(CVN\)](#)
- ▶ Smart cards 8-bit microprocessor and uses electronic cash – VISA Smartcard
- ▶ [Stripe](#) credit cards processing, [Smartpay](#) za direktne online bankarska plaćanja and [PayPal](#) za alternativne platne metode prilikom odjavljivanja checkout

Podaci NBS

- ▶ Prema podacima Narodne banke Srbije, u prvoj polovini 2021. godine, broj dinarskih transakcija plaćenih karticom putem interneta je veći za 91,07%, a vrednost dinarskih transakcija plaćenih karticom putem interneta veći za 98,58%, u poređenju sa istim periodom 2020. godine.



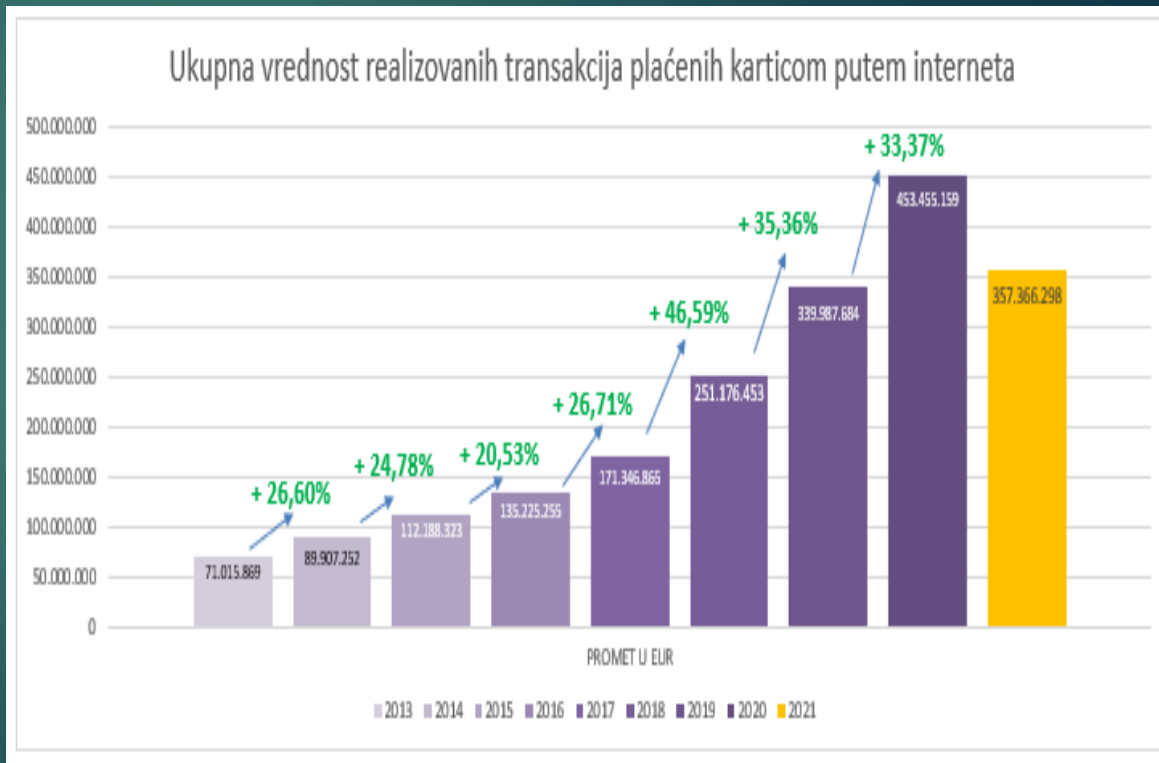
Podaci NBS



Za prvih šest meseci u 2021. godini dostigli smo 72% rezultata koji smo napravili u celoj 2020. godini po pitanju broja transakcija, odnosno 78% rezultata u domenu vrednosti transakcija, pa samim tim ove godine možemo očekivati nove rekorde.

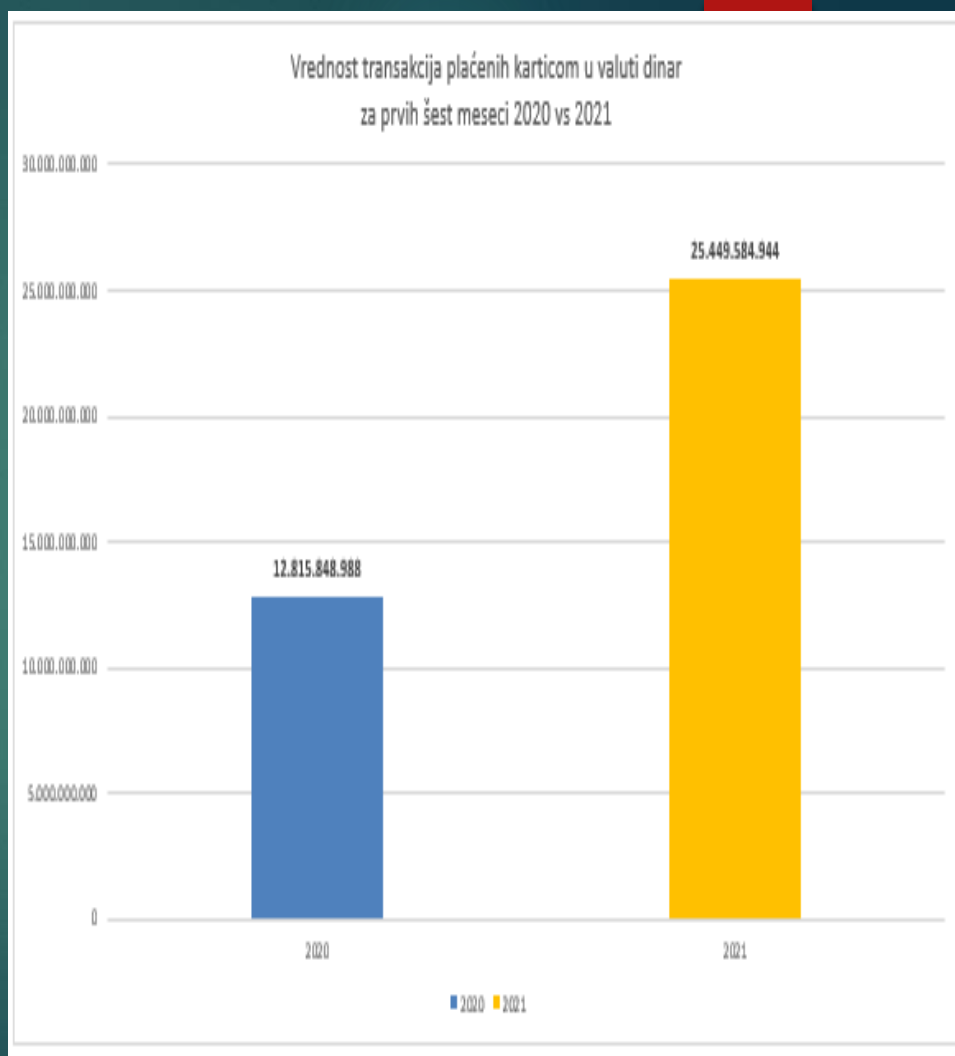
Podaci

- ▶ Broj transakcija plaćanja karticom putem interneta u Srbiji u 2020. godini je prešao cifru od 20 miliona transakcija, dok smo za samo prvih šest meseci 2021.godine napravili 14,5 miliona.
- ▶ Pored navedenog rasta broja transakcija u prvoj polovini godine u domaćoj valuti dinar, zabeležen je rast i kod ostalih valuta: EUR (+27,19%), USD (+37,77%), GBP (+30,52%), i CHF (+14,79%).



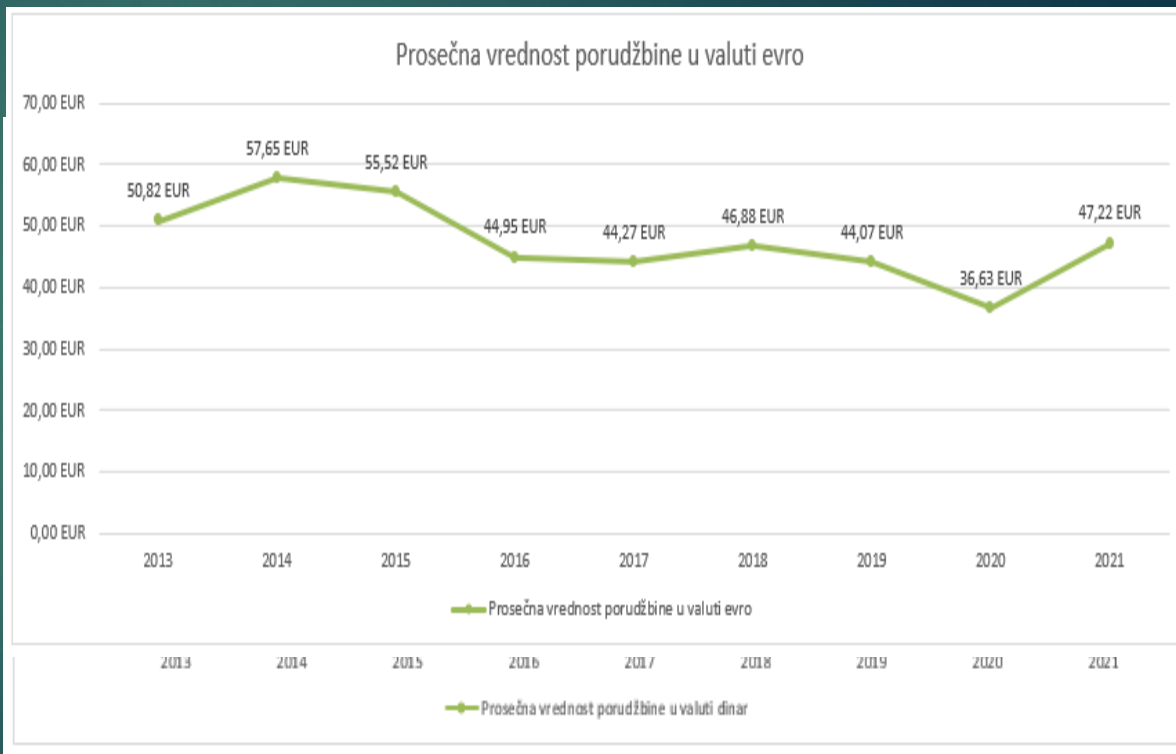
Podaci

- ▶ Što se vrednosti navedenih transakcija tiče, ukoliko uporedimo prvu polovinu 2020. i 2021. godine, dolazimo do zaključka da je 2021. godina u istom periodu napravila rezultat bolji za 88,93%. (Slika 3.)
Izvor: Narodna banka Srbije
- ▶ Vrednost transakcija kreiranih u dinarima je u prvih šest meseci 2021. godine skoro duplirana! Naime, u prvoj polovini prošle godine vrednost transakcija u dinarima je bila 12,8 miliona dinara, dok smo u prvih šest meseci ove godine kupili robu putem interneta u vrednosti od 25,4 miliona dinara.



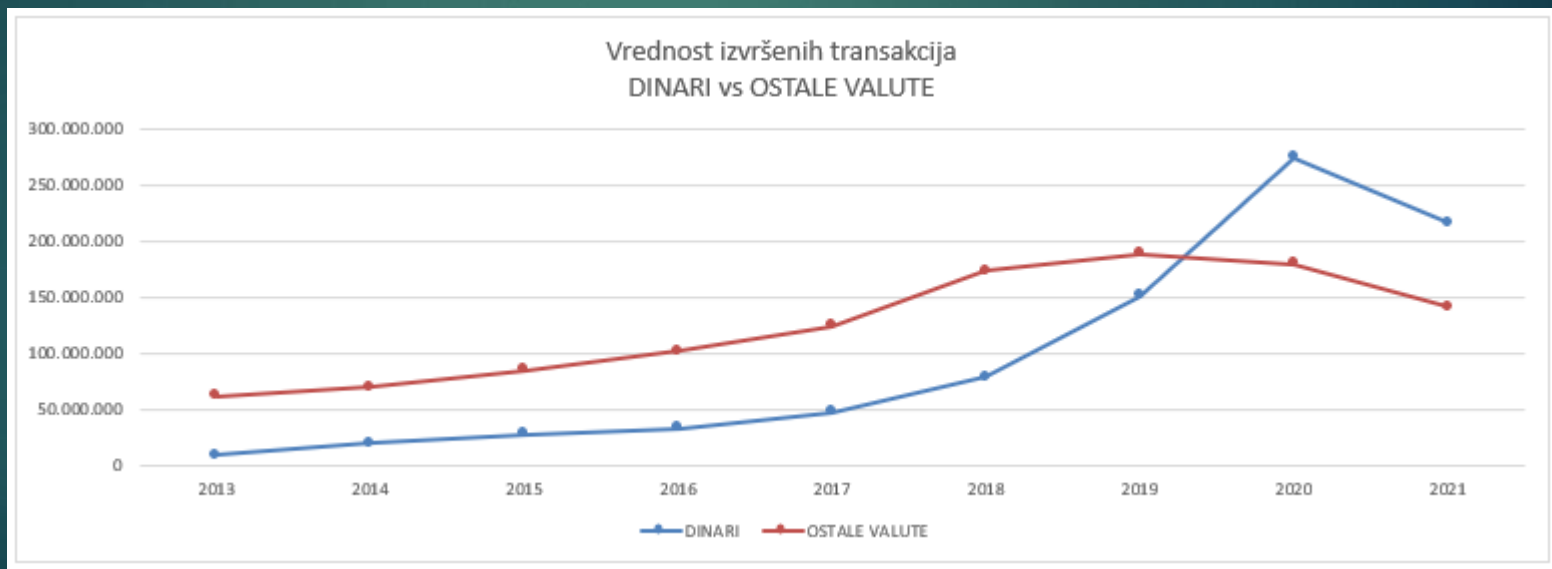
Podaci NBS

- ▶ Pored lošeg trenda kojeg smo svi svedoci, a koji traje već godinama, konačno primećujemo da je prosečna vrednost porudžbine plaćene karticom u valuti dinar u blagom porastu.
- ▶ Prosečna vrednost transakcije napravljene putem interneta u valuti dinar u prvoj polovini 2021. godine iznosi 2.338,43 dinara, što je u poređenju sa prvom polovinom 2020. godine bolji rezultat za skoro 4% (Slika 5.), dok u valuti evro iznosi 47,22 EUR (Slika 6.) što je 29,21% bolji rezultat u poređenju sa istim periodom prethodne godine.

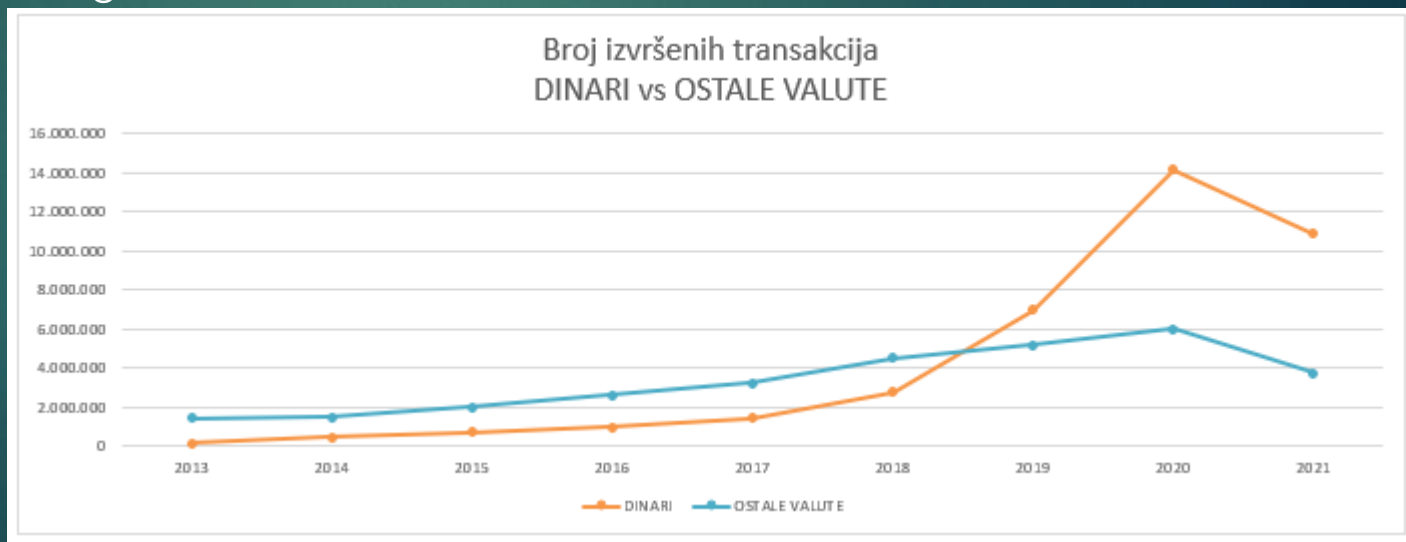


Podaci NBS

- ▶ Učešće potrošnje platnih kartica u valuti dinar na internetu nastavlja svoj rast u odnosu na ostale valute.

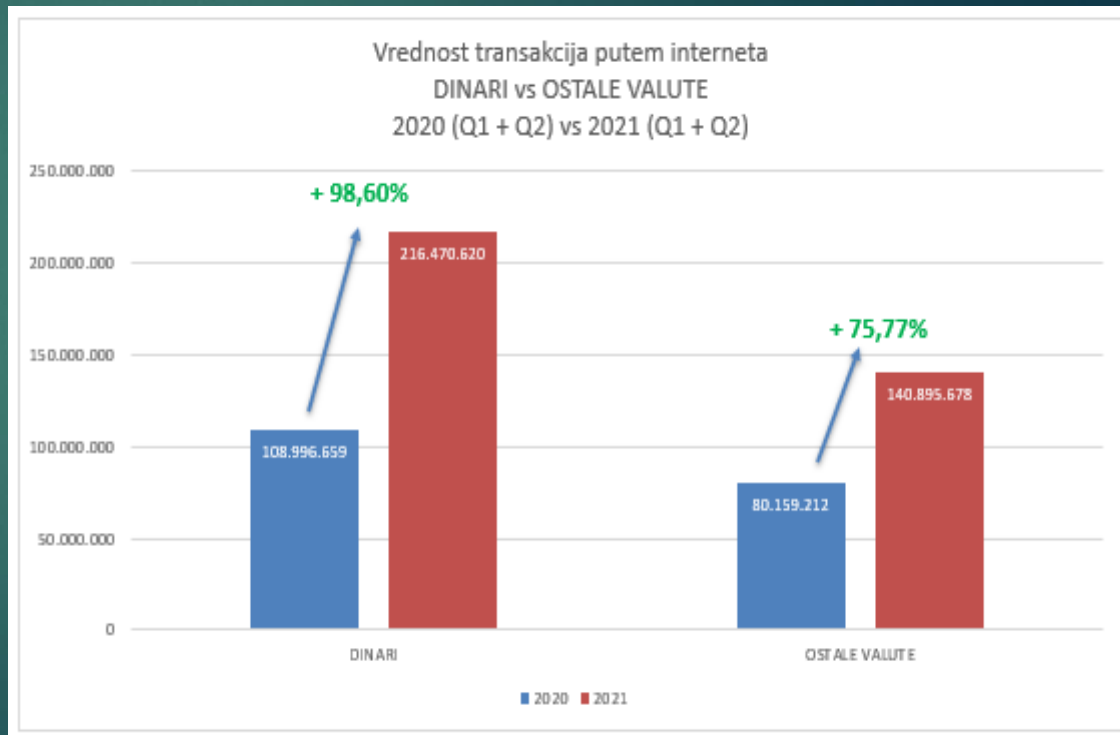


- ▶ U prvoj polovini 2021. godine broj i vrednost porudžbina putem interneta, plaćenih u valuti dinar je veći od broja i vrednosti porudžbina u svim ostalim valutama zbirno u poređenju sa istim periodom 2020. godine.

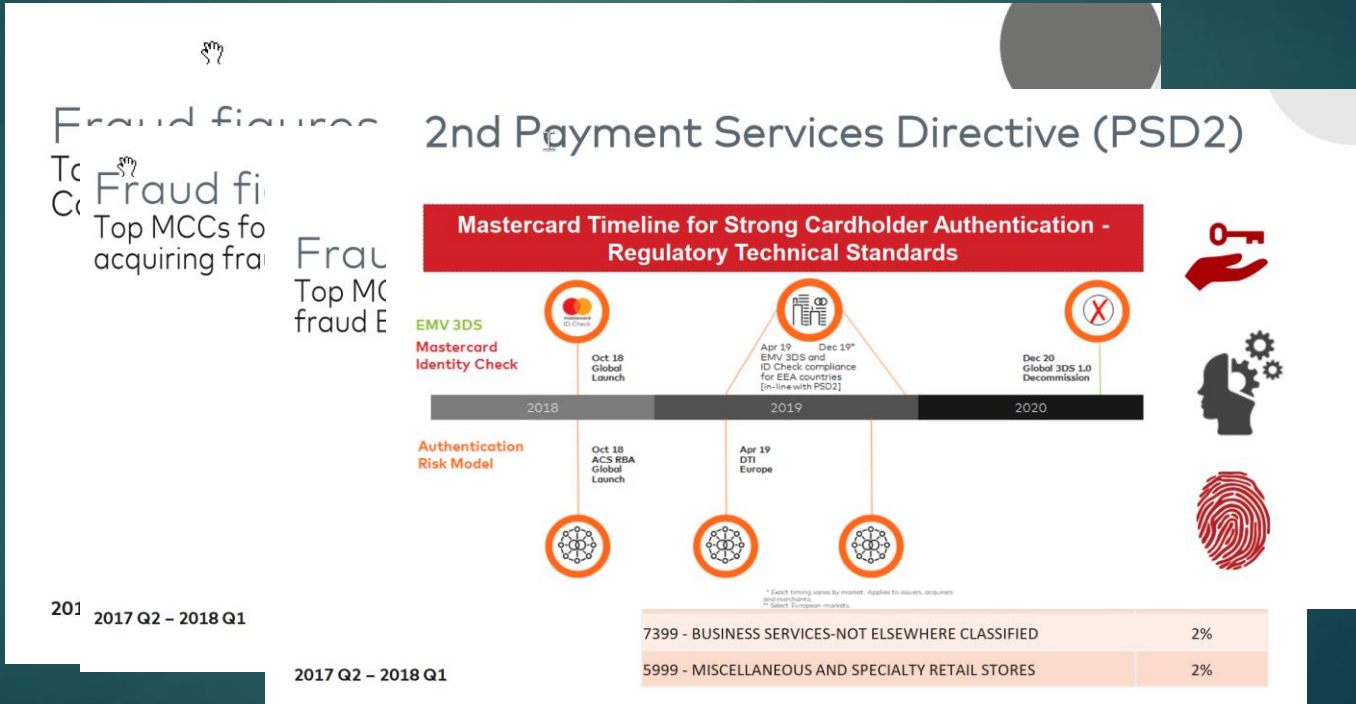


Podaci NBS

- ▶ U prvoj polovini 2021. godine ostvareno je oko 3,75 miliona transakcija kupovine roba i usluga karticama u inostranstvu. Od toga je je oko 1,9 miliona transakcija kupovine robe i usluga karticama u stranim internet prodavnicama u kojima je prodaja izvršena u valuti evro, 1,7 milion transakcija u stranim internet prodavnicama u kojima je prodaja izvršena u valuti dolar, odnosno 81.500 transakcija u ostalim stranim valutama.
- ▶ U istom periodu, ostvareno je i 10,8 miliona transakcija u valuti dinar, što je apsolutni dosadašnji rekord.



Neke zvanične brojke prevara



Načini autentifikacije

Chip Migration Roadmaps

B Mastercard Symbol

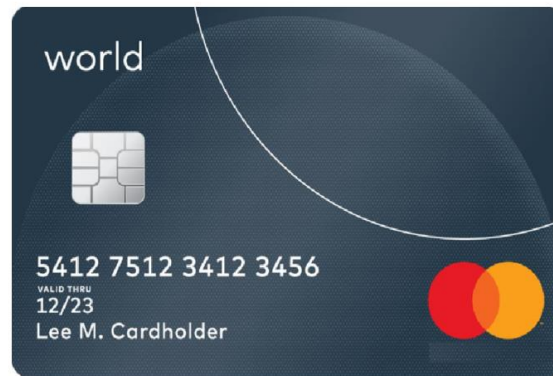
Colored circles only, no words

Available 1 January 2019

AN 2061

M
6

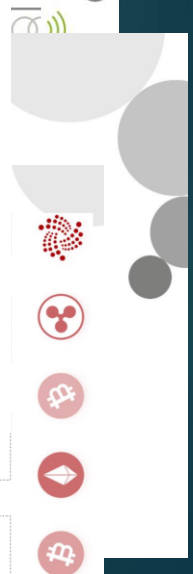
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Merchants that sell cryptocurrency are added to **BRAM** be registered (AN 1695) – 12 April and 12 Oct 2018

Normal currency, such as cryptocurrency, must be converted to fiat currency before it is loaded on a card or used for transactions.

AN 1683
Mastercard Rule 3.19



Zaštita

Application-based Payment Example

3-DS 2.0 improves Streamline 3-D Secure with Biometrics (In Progress)

3DS 2.0 protocol improves the user experience Proof of concept

How 3-D S



Empowered by risk-based intelligence using available data from merchant

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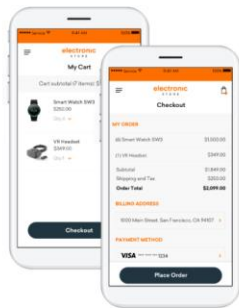
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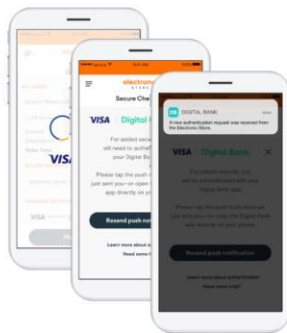
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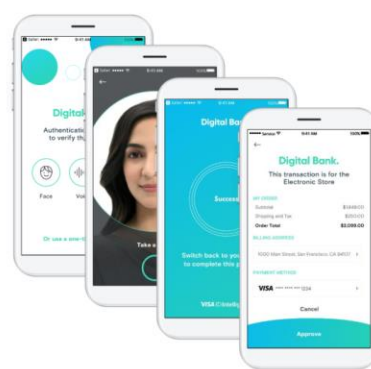
Place order



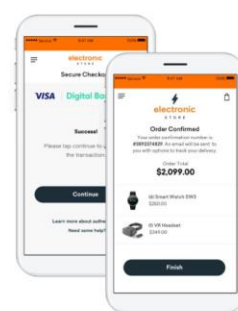
Notification opens issuer app



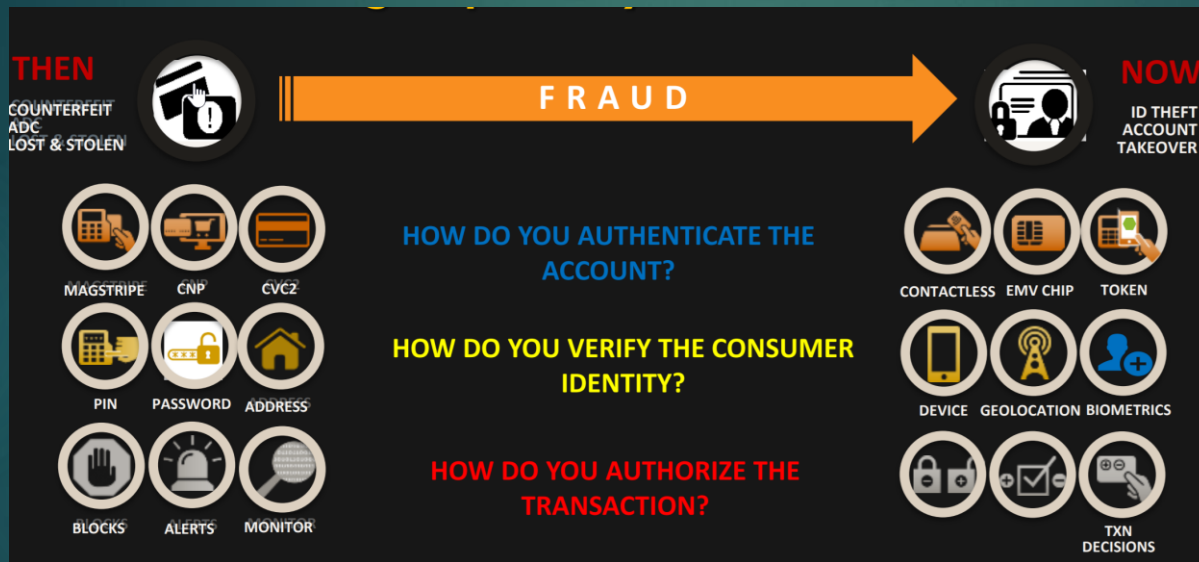
Authenticate with Biometrics



Merchant Success



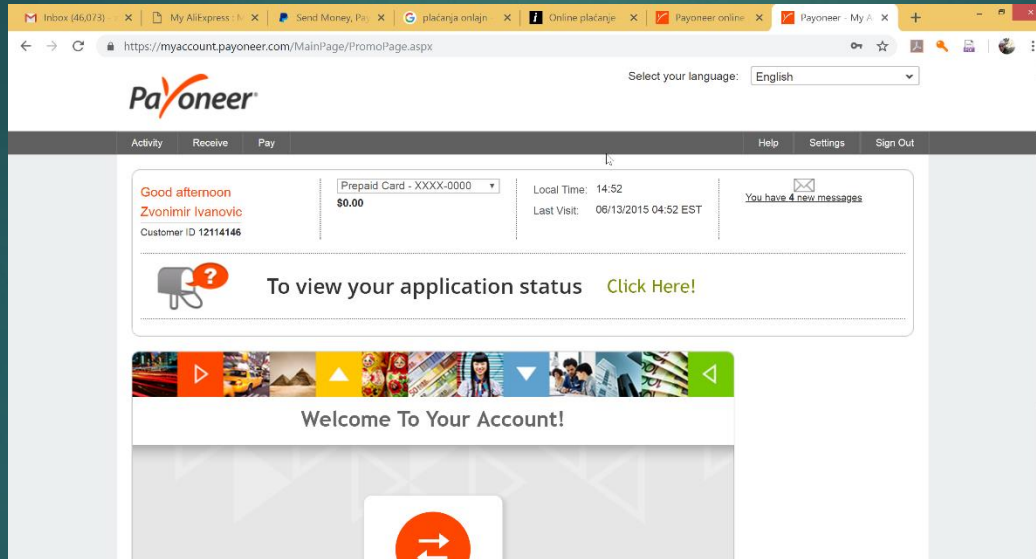
Nekad i sad



Prevare su učinile da se unapređuju i aktivnosti:

- Kako autentifikovati račun
- Kako verifikovati identitet korisnika
- Kako autorizovati transakciju

Kako to izgleda? payoneer



The screenshot displays the Payoneer user interface in a web browser. The browser's address bar shows the URL <https://myaccount.payoneer.com/MainPage/PromoPage.aspx>. The page features the Payoneer logo at the top left and a language selection dropdown set to "English" at the top right. A navigation bar includes links for "Activity", "Receive", "Pay", "Help", "Settings", and "Sign Out".

The main content area displays the following information:

- Greeting: "Good afternoon"
- User Name: "Zvonimir Ivanovic"
- Customer ID: "12114146"
- Account Type: "Prepaid Card - XXXX-0000" (with a dropdown arrow)
- Balance: "\$0.00"
- Local Time: "14:52"
- Last Visit: "06/13/2015 04:52 EST"
- Message Notification: "You have 4 new messages" (with an envelope icon)

Below this information is a call-to-action box with a question mark icon and the text: "To view your application status [Click Here!](#)".

A horizontal banner with various icons is positioned below the call-to-action. Underneath the banner is a white box with the text "Welcome To Your Account!". At the bottom center, there is a red circular button with a white double-headed arrow icon.

Skrill

The screenshot shows a web browser window displaying the Skrill support page for Two Factor Authentication (2FA). The browser's address bar shows the URL: <https://www.skrill.com/en/support#/path/ACCOUNT/Two-Factor-Authentication/905761532/Two-Factor-Auth...>

The website header includes the Skrill logo and navigation links: TRANSFER MONEY, PAY ONLINE, VIP PROGRAMME, EXCLUSIVE OFFERS, LOGIN, and REGISTER. Below the header, there are four main service categories: ACCOUNT, PAYMENTS, SECURITY, and PREPAID CARD.

The main content area is titled "Two Factor Authentication (2FA)". It includes a breadcrumb trail: Home - ACCOUNT - Two-Factor Authentication. The article text explains that 2FA is an extra security layer requiring a password, email address, and a 2FA code sent to a mobile device or a software security token. The visible text includes:

1. What is 2-factor authentication (2FA)?

The two Factor Authentication, also known as 2FA, is an extra that requires not only a password and email address but also s that user has on them, i.e. a 2FA code sent to their mobile dev software security token.

Using an email address and password together with a 2FA cod

On the left side, there is a "HELP TOPICS" section with a list of categories and their respective counts:

- Verifications (13)
- Password (3)
- Updates (2)
- Balance (1)
- Limits (1)
- Two-Factor Authentication (1)

An Avast security notification is overlaid on the bottom right of the page. It reads: "Pametno skeniranje je pokrenuto" (Smart scanning is running) with a progress bar at 13% and a "DETALJI" (Details) button.

Ali Pay



Hello, zvonko31@gmail.com

My account

History

zvonko31@gmail.com



Dear Customer, we regret to inform you that due to January 1, 2017 (PDT),
If you have remaining balance, please [click here](#) to
Please accept our sincere apologies for any inconvenience.

Transaction summary

[See all transactions](#)

Trans. date	Post date	Status	
2018.12.08 05:36:41 PST		Paid	A 2
2018.11.24 14:09:11 PST	2018.11.28 20:44:05 PST	Order complete	A 2

[Show all payment methods](#)

The screenshot shows the AliExpress shopping cart page. At the top, there are browser tabs for an email inbox, AliExpress orders, and the current shopping cart. The URL is <https://shoppingcart.aliexpress.com/order/payOnlineSuccess.htm?orderId=97091341657313&paymentMethod=&accountNo=undefined&...>. The page features a 'Thank you' message and a list of recommended products, including various power adapters and cables. There are also links for help, multi-language sites, and the Alibaba Group.

PayPal

The image shows a screenshot of the PayPal website interface. The top navigation bar includes links for Summary, Activity, Send & Request, Wallet, Offers, and Help, along with a notification bell, settings gear, and a LOG OUT button. The main content area is divided into several sections:

- PayPal balance:** Shows a balance of 0,00 EUR. A message states: "You don't need a balance to shop or send payments." There is a "Withdraw funds" link and a "Details >" link.
- Bank accounts:** A section titled "Bank accounts" with a large "+" button and the text "Link a bank account".
- Credit cards:** A section titled "Credit cards" showing two cards: "MasterCard x-9532" and "MasterCard x-6151". There is a "+" button below them.
- Completed:** A table of recent transactions:

Date	Merchant	Type	Amount
DEC 06	JD	Payment	
DEC 03	Sportsdirect.c	Payment	
NOV 24	JD	Payment	
NOV 22	JD	Payment	- 38,16 EUR
SEP 26	Telecomer OU	Refund	+ 0,75 EUR
SEP 26	Telecomer OU	Refunded - Payment	- 15,00 EUR

At the bottom of the "Completed" section, there is a "View all" link. The URL at the bottom of the page is <https://www.paypal.com/myaccount/transactions>.

DUE

The screenshot shows a web browser window with the URL `https://app.due.com/settings?tab=account`. The browser's address bar and tabs are visible at the top. The page content is divided into a left sidebar and a main content area. The sidebar, under the heading "Account", lists several menu items: "Contact Info", "Legal", "Payments", "API", "Emails", "Team", and "User". The main content area is titled "Account Information" and contains a form for business details. The form includes fields for "Where is your business located?" (with a dropdown menu currently set to "International"), "Business Type" (with a dropdown menu), "Business Name", "UCPS", "Account Email" (pre-filled with "zvenko31@gmail.com"), "Business Address" (with sub-fields for "Street 1", "Street 2", "City", "State", "Select Country", and "Zip Code"), "Website", and "Support Website". At the bottom of the browser window, a small "ene.zip" icon is visible on the left, and a button labeled "Прикажи све" (Show all) is on the right.

Account Information

Business Account

Where is your business located?

International x v

Business Type

x v

Business Name

UCPS

Account Email

zvenko31@gmail.com

Business Address

Street 1

Street 2

City State

Select Country Zip Code

Website

Support Website

Stripe

The screenshot shows the Stripe dashboard for an 'Unnamed account'. The browser address bar displays 'https://dashboard.stripe.com/test/dashboard'. The left sidebar contains navigation links: Home, Activate your account, Payments, Balance, Customers, Radar, Billing, Connect, Orders, Developers, Viewing test data, and Business settings. The main content area features a 'Get started with Stripe' section with a 'TEST DATA' indicator and a 'Close' button. This section includes six onboarding cards: 'Read the basics before starting on Stripe', 'Accept your first Payment', 'Build a marketplace using Connect', 'Bill your customers using Billing and Invoices', 'Use Radar to fight fraud', and 'See the 300+ integrations that work with Stripe'. At the bottom, a summary bar shows 'Today \$0.00' and 'Yesterday \$0.00' with a 'Gross volume' dropdown menu.

Stripe dashboard interface showing the "Get started with Stripe" onboarding guide. The interface includes a sidebar with navigation options (Home, Activate your account, Payments, Balance, Customers, Radar, Billing, Connect, Orders, Developers, Viewing test data, Business settings) and a main content area with a search bar and a "TEST DATA" indicator. The onboarding guide lists several steps:

- Read the basics before starting on Stripe
- Accept your first Payment
- Build a marketplace using Connect
- Bill your customers using Billing and Invoices
- Use Radar to fight fraud
- See the 300+ integrations that work with Stripe

The summary bar at the bottom shows "Today \$0.00" and "Yesterday \$0.00" with a "Gross volume" dropdown menu.

Mobilna plaćo

11:24

RSD 22.109

RSD 22.109

RSD 22.109

Platna kartica

DETALJI O KARTICI

Broj kartice

Ime na platnoj kartici

Datum isteka (MM-YYYY)

CVC

POTVRDI

10:38

uiservices.netpay.rs/Hosted/

Vip mobile d.o.o.

UKUPNO DIN 2,776.52

PREGLED PLAĆANJA

LIČNI PODACI
Zvonimir Ivanović

PODACI KARTICE
Visa ■ 438163XXXXX5472 ■ XXX ■ 03-2021

MERCHANT DETAILS
Vip mobile d.o.o. ■ Milutina Milankovića 1ž
■ Beograd, 11070, RS ■ 0601234

MOLIM SAČEKAJTE DOK SE
TRANSAKCIJA OBRAĐUJE

11:30

secure7.arcot.com/acspage/cap?RID=2

KOMERCIALNA BANKA

MasterCard.
SecureCode.

Zaboravili ste svoj SecureCode™?

Zaboravljeni SecureCode možete da resetujete nakon što potvrdite svoj identitet.

Unesite sledeće:

JMBG*

Aktivacioni kod*

Da bi završili transakciju, unesite svoje podatke i kliknite Nastavi.

Nastavi

1 2 3 4 5 6 7 8 9 0

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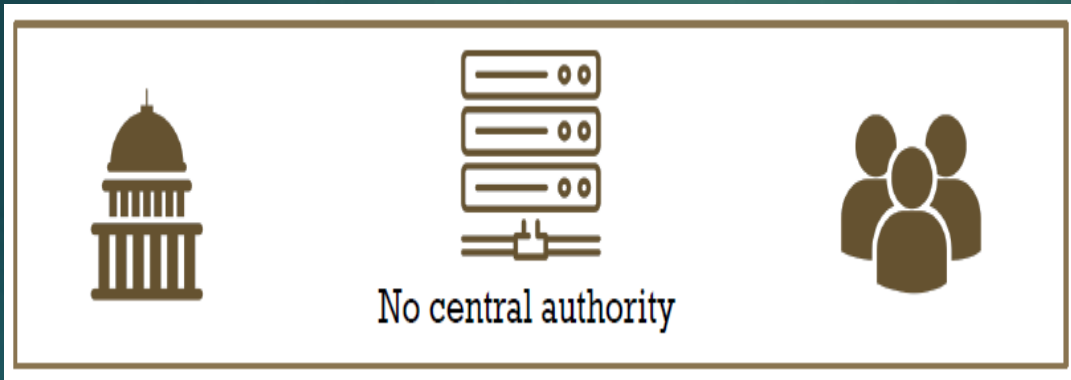
a s d f g h j k l

↑ ↓

123 ↓

<Srpski/English (UK)>

Sredstvo razmene



- ▶ *Kripto valuta je digitalna ili virtuelna valuta koja je obezbeđena kriptografskim metodom, a što je čini skoro nemogućom za falsifikovanje ili višestruku zloupotrebu“*

Sredstvo razmene



- ▶ Kako se transakcije odvijaju i verifikuju?
- ▶ Na koji način se ova sredstva razmene vrednuju?
- ▶ Odakle pokriće?

Ethereum

The image shows a browser window displaying the Ethereum website. The browser's address bar shows 'ethereum.org'. The website header includes the Ethereum logo and navigation links for 'JOIN THE COMMUNITY' and 'DONATE'. The main content area features a diagram illustrating a crowdfunding process. Five diverse individuals are shown at the top, each with an arrow pointing towards a central figure of a person holding a stack of Ethereum coins. Below this central figure is a diamond-shaped icon containing a question mark, with arrows pointing to a single individual at the bottom right. A blue button at the bottom of the diagram reads 'Kickstart your project'. To the right of the diagram, the text reads: 'Kickstart a project with a trustless crowdsale. Do you already have ideas that you want to develop on Ethereum? Maybe you need help and some funds to bring them to life, but who would lend money to someone they don't trust? Using Ethereum, you can create a contract that will hold a contributor's money until any given date or goal is reached. Depending on the outcome, the funds will either be released to the project owners or safely returned back to the contributors. All of this is possible without requiring a centralized arbitrator, clearinghouse or having to trust anyone. You can even use the token you created earlier to keep track of the distribution of rewards.'

Kickstart a project with a trustless crowdsale

Do you already have ideas that you want to develop on Ethereum? Maybe you need help and some funds to bring them to life, but who would lend money to someone they don't trust?

Using Ethereum, you can create a contract that will hold a contributor's money until any given date or goal is reached. Depending on the outcome, the funds will either be released to the project owners or safely returned back to the contributors. All of this is possible without requiring a centralized arbitrator, clearinghouse or having to trust anyone.

You can even use the token you created earlier to keep track of the distribution of rewards.

YOU CAN BUILD:

- A crowdfund to pre-sell a product
- A crowdsale to sell virtual shares in a blockchain organization
- An auction of a limited number of items

Bitcoin

The screenshot shows the Bitcoin.com website in a browser window. The address bar displays "bitcoin.com". The main navigation bar includes links for "Buy Bitcoin" and "Mining". The page features two primary promotional banners: "Bitcoin.com Wallet" with a "DOWNLOAD FOR FREE" button and "Bitcoin.com Pool" with a "START MINING BITCOIN" button. Below these are three buttons: "BUY BITCOIN", "BITCOIN DEBIT CARD", and "CHOOSE A WALLET". A section for "Bitcoin Cash Developer Tools" is visible, along with a "Latest News" section containing four news items with images and titles.

Comparison_of_payment_system | Bitcoin.com | Bitcoin News and | +

bitcoin.com

Radi brzo pristupa, postavite obeleživane ovdje na traku sa obeleživacima. [Uvoz obeleživaca je u toku...](#)

Bitcoin.com [Search](#) [News](#) [Forum](#) [Games](#) [Buy Bitcoin](#) [Mining](#) [The North American Bitcoin Conference](#) [FAQ](#) [Bitcoin](#) [About](#) [Privacy](#) [Terms](#)

Bitcoin.com Wallet
Simple & Secure
3,242,199 Wallets Created
[DOWNLOAD FOR FREE](#)
Android, iOS, Windows, Linux

Bitcoin.com Pool
Join the Bitcoin Mining Revolution
Cloud Mining • Pool Mining
[START MINING BITCOIN](#)

[BUY BITCOIN](#) [BITCOIN DEBIT CARD](#) [CHOOSE A WALLET](#)

Bitcoin Cash Developer Tools
Ready to build amazing Bitcoin Cash products? Check out our developer tools for detailed tutorials and information about developing with Bitcoin Cash. [DEVELOPER TOOLS](#)

Latest News

- [Bitstamp Launches Voting Platform to Screen New Cryptocurrencies](#)
- [Eight Reasons to Use Cryptocurrency Payments in 2019](#)
- [Korean Court Case Alleges ICO Ban is Unconstitutional](#)
- [Australian Company Issues Loans Backed by Cryptocurrencies](#)

Bitcoin

- ▶ Tržišni kapital od oko 130 milijardi \$
- ▶ Obim dnevnog protoka transakcija \$300 Miliona
- ▶ Oko 300,000 transakcija
- ▶ Max pokrće: **30,000,000** trenutno : **24,820,750**
- ▶ Najviša vrednost ostvarena na tržištu **\$19,920.53**

Bitcoin



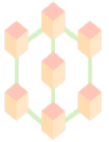
Okt 2008
Satoshi Nakamoto publishes Bitcoin whitepaper



Dec 2009
Bitcoin genesis block is mined



May 2010
First real world transaction (10.000 BTC for a pizza)



Aug 2015
After mentioned by Bloomberg, blockchain is a hype



Nov 2013
Bitcoin reaches over \$1,000



Feb 2011
Bitcoin reaches parity with US dollar



2017
Amount of buisnesses accepting bitcoin continues to increase



Dec 2017
Bitcoin reaches \$19,783.06

Vrednost 12.12.2020

Bitcoin BTC

CoinDesk 20

PRICE 24 HOUR % CHANGE MARKET CAP VOLUME (24H)

\$18,418.42 ▲ **3.25%** **\$341.79B** **\$24.82B**

USD ▾

Linear ● Log ⌵ ● ▮

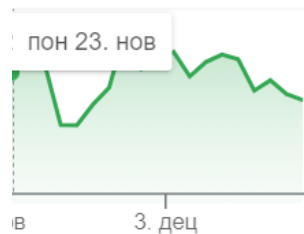
12/11/2020 to 12/12/2020

1h 12h 1d 1w 1m 3m 1y all



coindesk

1 г 5 г Макс.



Neke druge kriptovalute



Litecoin

Nearly identical to Bitcoin, but processes transactions 4 times faster than the Bitcoin network



Verge

Claims to offer anonymous transactions by obfuscating IP address through TOR



Auroracoin

Created as an alternative currency for Iceland, intended to replace the Icelandic króna.

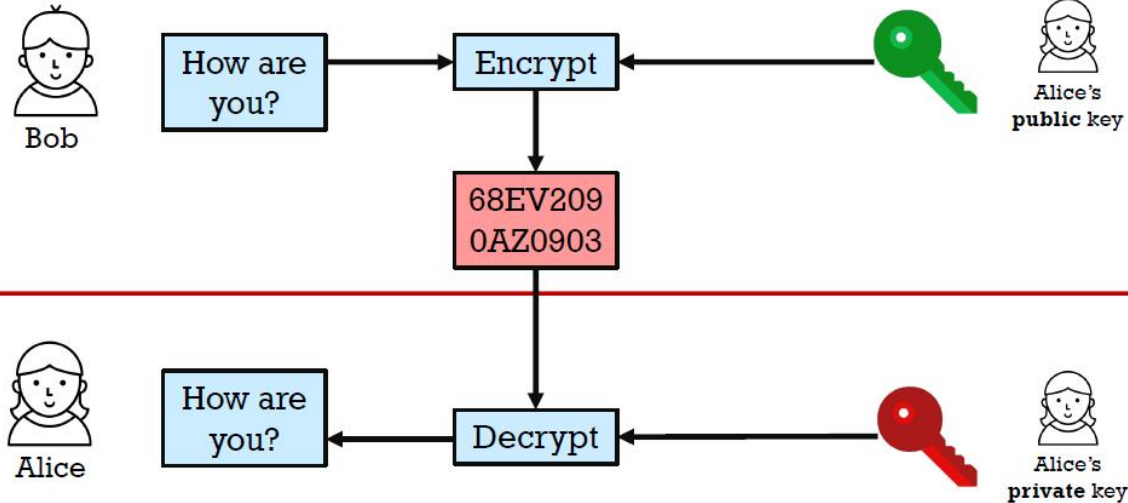
Ima ih...

> 2.500



Kako funkcioniše?

PUBLIC KEY CRYPTOGRAPHY



Kako funkcioniše?

PUBLIC KEY CRYPTOGRAPHY

Private key

#

A very large
secret prime
number

A very large
secret prime
number



x # =

Public key

#

Product of the two
very large secret
prime numbers,
which is very hard
to reverse

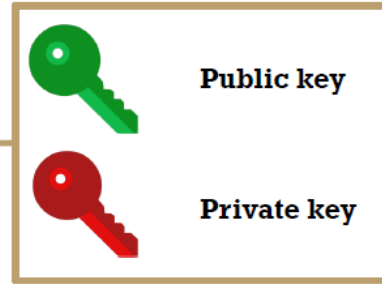
Hashing



Bitcoin address: 1BvBMSEYst...

Elektronski novčanik - wallet

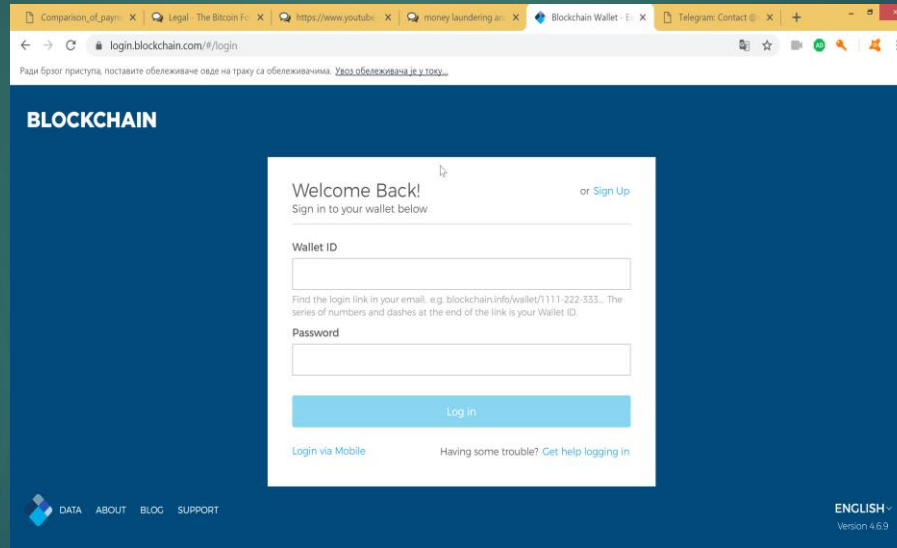
- ❑ Storage for addresses
- ❑ History
- ❑ Keeps track of balance
- ❑ Send/recvie



Kako realno izgledaju adrese

Cryptocurrency	Public Address viewable
Bitcoin	1AKDDsfTh8uY4X3ppy1m7jw1fVMBSMkzjP
	34nSkinWC9rDDJiUY438qQN1JHmGqBHGw7
Dash (altcoin)	XH2Yndjv6Ks3XEHGASMDhUMTAMZTTWv5nEN958Y7VMYQXBCJVQmM
	7rrvBZkJhrx6zJd9U3kbnM2oRgCSOTy37eeWDcYwWzHRv8KbEHk
Ethereum	0x0eb81892540747ec60f1389ec734a2c0e5f9f735
Litecoin (altcoin)	LKKSCYdyWP7fJDMZ1KUDbj3yPmQ22MQRv
	3MidrAnQ9w1YK6pBqMv7cw5bGLDvPRznph
Monero (altcoin)	48Y3H2eSZ6C4EUJY1B5viSGCbCLPcmMiy7aD69yqUsaHR8GLE3rvSwordJtpZYG1peC3oipCqfUvCcF89i86kuEjVVr5GCd
Ripple (altcoin)	rUhxZNAQdefp6utCGJkQ7CcpWqbPgjm653
Zcash (altcoin)	t1aZvxRLCGVeMPFXvqfnBgHVEbi4c6g8MVa
	t3Vz22vK5z2LcKEdg16Yv4FFneEL1zg9ojd
	starts with "zc..."
Zcoin (altcoin)	a7JD6SWS2PVpefUFrhtYNk3dMTs2G2wz5n

Blockchain



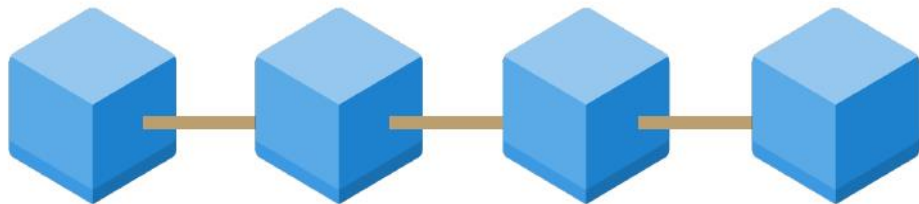
The image shows a browser window with the URL `login.blockchain.com/#/login`. The page has a dark blue background with the word "BLOCKCHAIN" in white at the top left. A white login form is centered on the page. The form contains the following elements:

- Greeting: "Welcome Back!" with a link "or Sign Up" to the right.
- Instruction: "Sign in to your wallet below".
- Form field: "Wallet ID" with a text input box.
- Text: "Find the login link in your email. e.g. blockchain.info/wallet/1111-222-333. The series of numbers and dashes at the end of the link is your Wallet ID."
- Form field: "Password" with a text input box.
- Button: "Log in" in a blue box.
- Links: "Login via Mobile" and "Having some trouble? Get help logging in".

At the bottom left, there is a navigation menu with a logo and links for "DATA", "ABOUT", "BLOG", and "SUPPORT". At the bottom right, it says "ENGLISH" with a dropdown arrow and "Version 4.6.9".

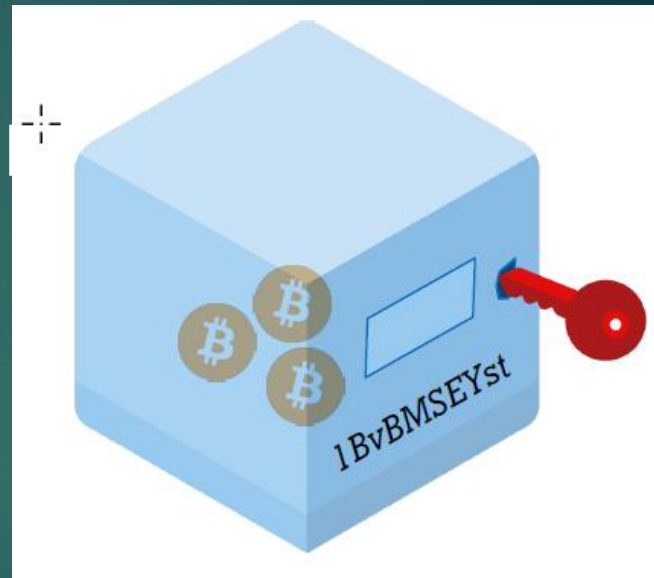
Blokčejn

BLOCKCHAIN



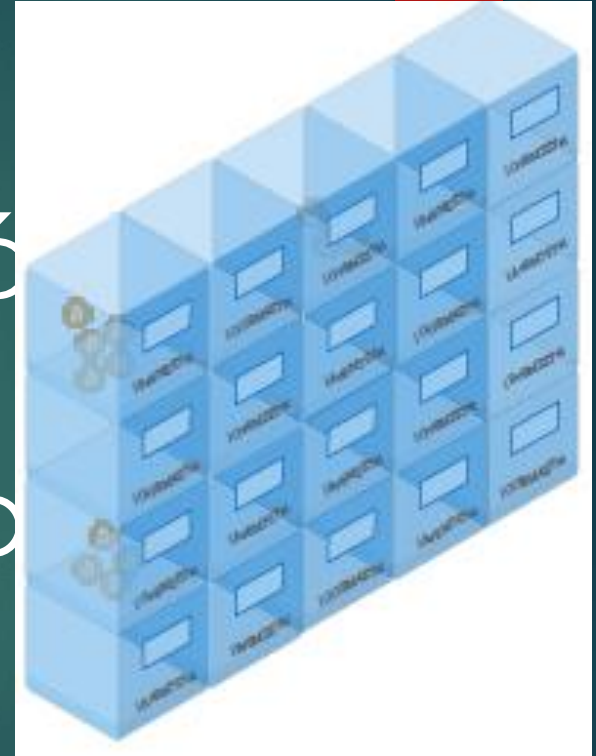
Objašnjenje

- ▶ Adrese su postavljene kao poštansko sanduče
- ▶ Svako može bitkoine kroz otvor
- ▶ Samo vi ih možete izneti



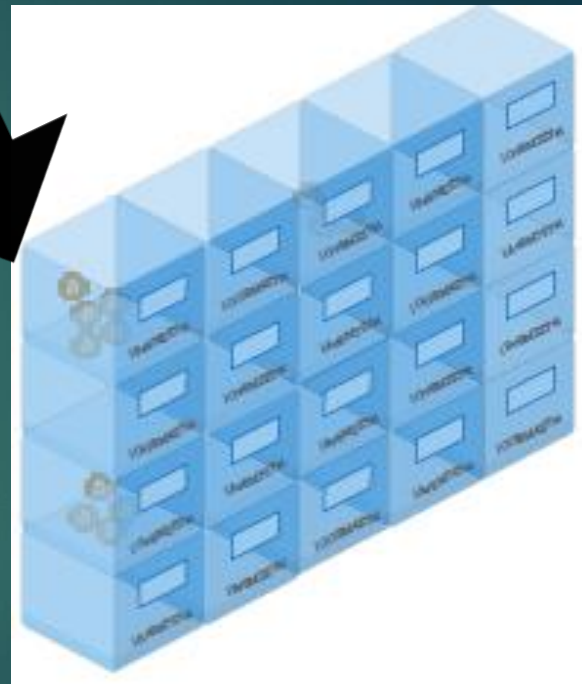
Objašnjenje

- ▶ Mnoštvo sandučića u javnom mestu
- ▶ Svi snimaju i p... transakcije
- ▶ Blok u blokčejnu



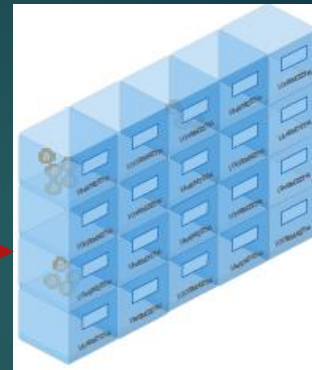
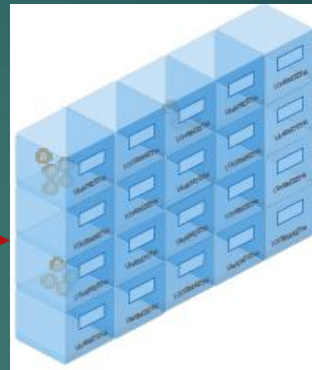
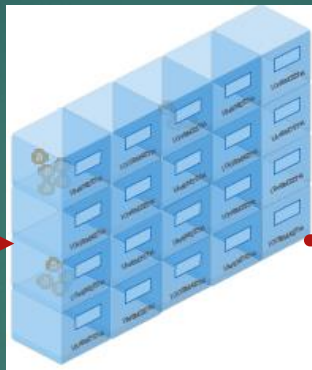
Ledger – knjigovodstvo - čítap

- ▶ 01/01/09
- ▶ • IDFN4380snSn930Amdmie
- ▶ • I3anBkSo590aS082Nj2lf3m
- ▶ • I03Mna3n5i02AMS1n2j4oc
- ▶ • I12kmnUbaogmOnd044ns
- ▶ • I2i2n8mMMAni4ny0vmak2
- ▶ • ImNansdun820AckLig0231
- ▶ • INAS371m50cNu21n03Mk0
- ▶ • Inbmi2n1v031mKinBA9341
- ▶ •

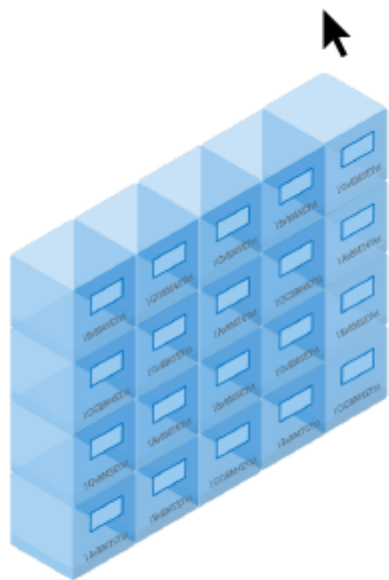


Blokčejn objašnjenje

- ▶ 01/01/09
- ▶ • IDFN4380snSn930Amdmie
- ▶ • l3anBkSo590aS082Nj2lf3m
- ▶ • l03Mna3n5i02AMS1n2j4oc
- ▶ • l12kmnUbaogmOnd044ns
- ▶ • l2i2n8mMMAni4ny0vmak2
- ▶ • lmnansdun820AckLig0231
- ▶ • lNAS371m50cNu21n03Mk0
- ▶ • lnbm12n1v031mKinBA9341
- ▶ •



Objašnjenje

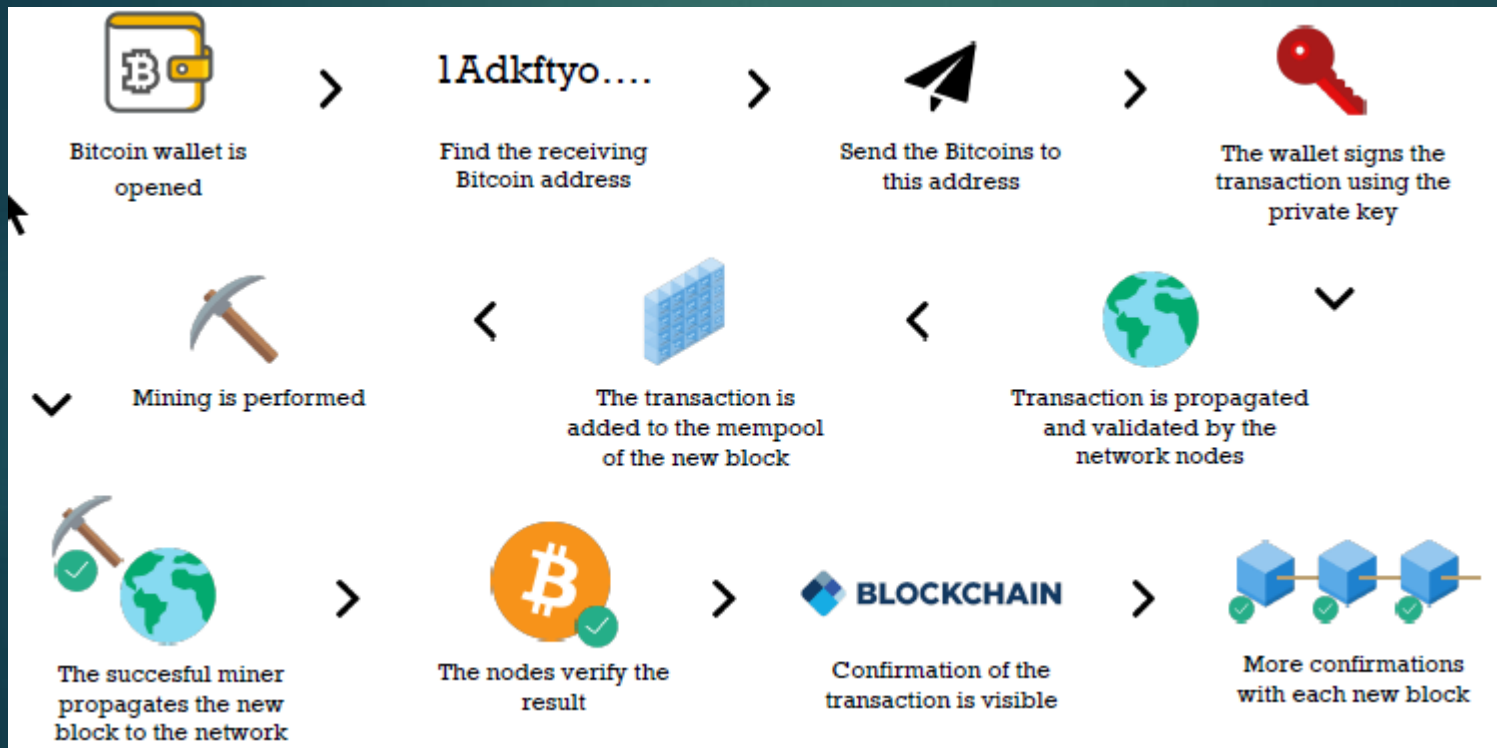


Block size	4 bytes
Block header	80 bytes
Number of transactions	1-9 bytes
The transactions	~ 2 megabytes

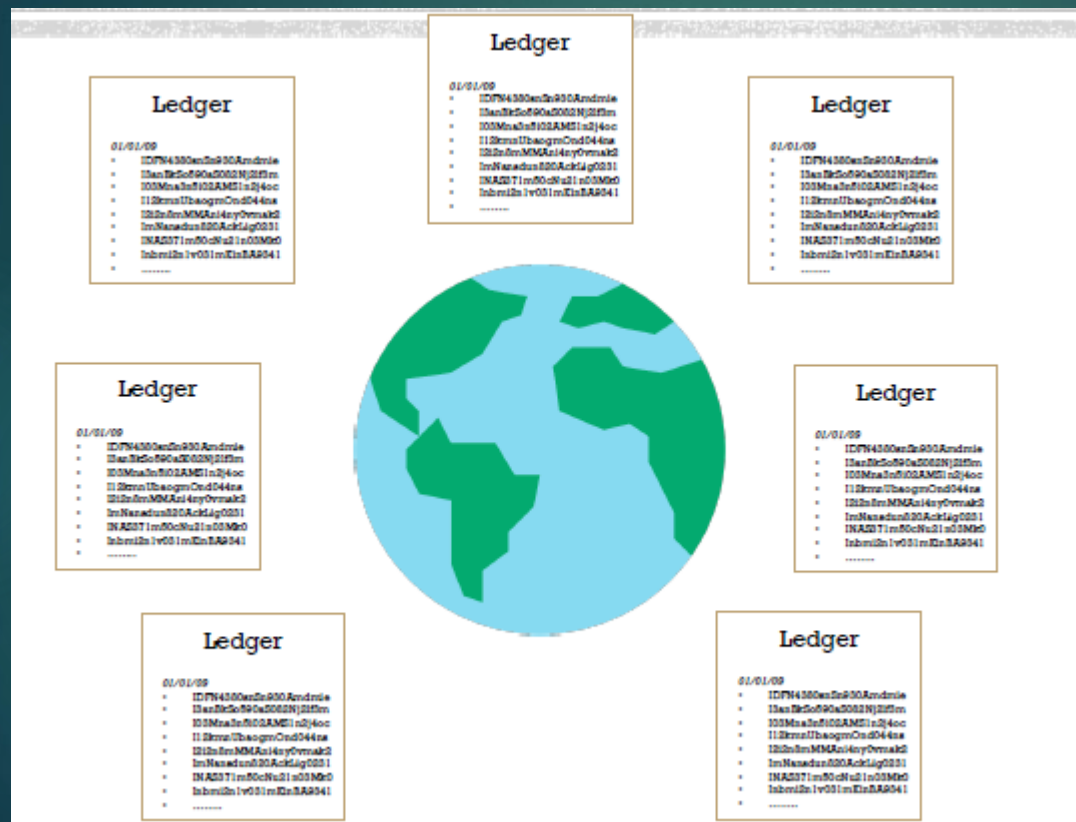
Transakcije

- ▶ *Transakcija predstavlja transfer vrednosti bitkoina koji je objavljen mreži i prikupljen u blokove*
- ▶ *1. Inicijalno predstavlja nameru koja je objavljena mreži*
- ▶ *2. Onda ta transakcija mora biti potvrđena:*
 - ▶ *Da li imam dovoljno sredstava za transakciju?*
 - ▶ *Nisam li već poslao ova sredstva nekome?*
- ▶ *3. Računari u mreži preračunavaju ove obračune – potvrde*
- ▶ *4. Transakcija se prihvata ili odbacuje u mreži*

Životni ciklus transakcije



Objašnjenje



Studija slučaja

▶ Žrtva



Case study – Studija slučaja

The screenshot displays the Ipooc website interface, divided into two main browser windows. The top window shows the 'Order Information' page for order #2586, with the URL www.ipoo.com/index.php?main_page=account_history_info&order_id=2586. It features a navigation menu with 'HOME', 'WHY SO CHEAP', 'REVIEWS', 'CONTACT US', and 'WARRANTY', along with 'MY ACCOUNT' and 'LOG OUT' buttons. A sidebar on the left lists 'New Products' including various Artisan® Mini 3.5 Quart and Design Series 5 Quart Tilt-Head Stand Mixers. The main content area displays 'Order Information - Order #2586' and 'Order Date: Thursday 19 October, 2017'. The bottom window shows the 'Track your order' page for the same order, with the URL www.ipoo.com/index.php?main_page=track&entry_track=zvonko31%40gmail.com. It includes a 'TRACK YOUR ORDER' section and a table of order activities.

LOCATION	DATE	ACTIVITY
United States, Connecticut	2017-10-19	Seller received order
	2017-10-23 08:21:31	Item accepted by courier
	2017-10-24 10:18:45	Collection scan
	2017-10-25 16:49:34	Arrived at sorting center
	2017-10-26 10:25:26	Left sorting center
Serbia	2017-10-27 15:47:34	Arrival at Airport
	2017-10-28 15:05:12	Delay: Temporary volume surge
	2017-10-29 17:10:31	in progress
	2017-11-01 08:14:48	Arrived overseas
	2017-11-02 09:29:19	Into customs
	2017-11-04 09:24:11	Clearance in Progress

Order Status: Pay_failure
VIEW

Order Status: Pay_success
VIEW

Order Status: Pay_pending
VIEW

5

Izvod sa računa

KOMERCIJALNA BANKA
Najbolji poslužitelj

Promet u periodu

Račun: 0062100073396
Datum od: 15.10.2017
Datum do: 21.10.2017

Datum autorizacije	Datum valute	Iznos u korist	Iznos na teret	Iznos u lokalnoj valuti	Mesto korišćenja	Status
19.10.2017	18.11.2017		-2.002,80 CNY	-256,46 EUR	AIP*FJNTLCW CO	Izvršen

Export PDF
Adobe Export PDF
Convert PDF Files to Word or Excel Online
Select PDF File
CmsAccoun...205647.pdf
Convert to
Microsoft Word (*.docx)
Document Language:
English (U.S.) Change
Convert
Store and share files in the Document Cloud
Learn More

Izvod

KOMERCIJALNA BANKA AD BEOGRAD

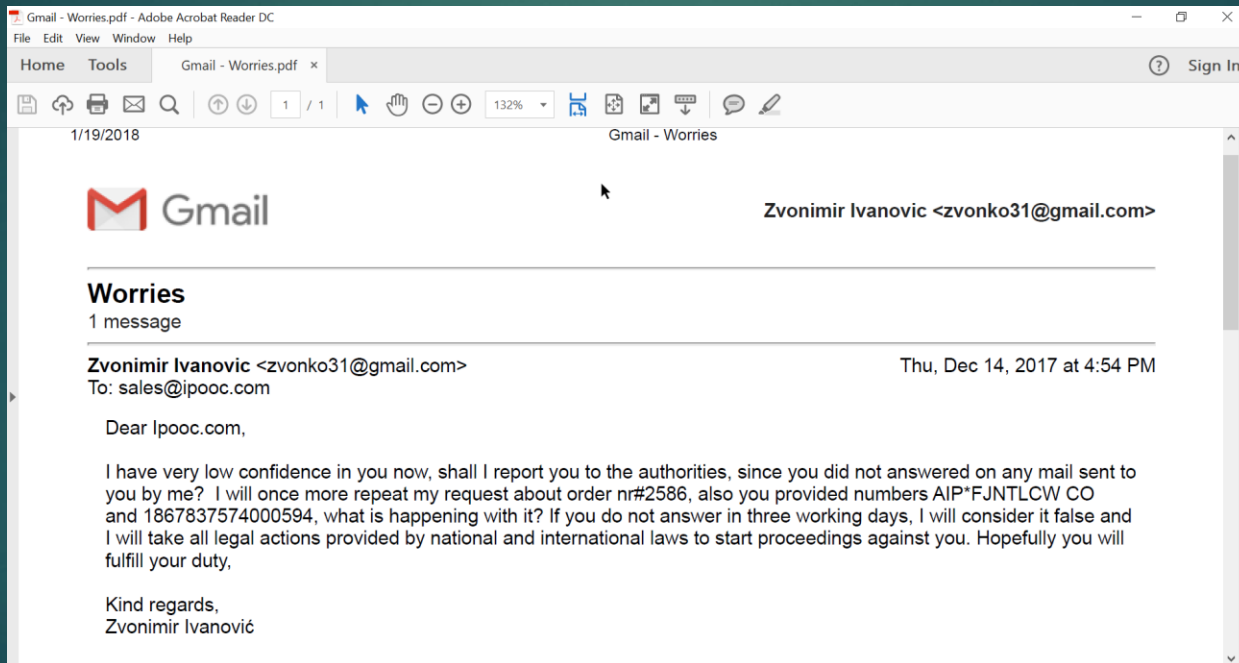
XXXXXXXXXX
XXXXXXXXXX
XXXXXXXXXX
XXXXXXXXXX

Datum izvoda: 31.10.2017
Partija kartice: 0062100073396
Period: 01.10.2017 - 31.10.2017

Pregled promena po Master standard kartici broj 5309****76151 za period 01.10.2017 - 31.10.2017

Datum transakcije	Opis	Originalni iznos	Originalna valuta	Iznos EUR	Iznos DIN	Datum dospeća
18.10.2017	81016 So I Coffee 2 T2	145.00	203	5.64		17.11.2017
19.10.2017	AIP*FJNTLCW CO	2,002.80	156	256.46		18.11.2017

komunikacija



7:36



< -KOMBANK-



1 19-10-2017 13:05

Kartica: Master standard

5309*****6151 Datum: 19.10.17

Vreme: 19:05:47 Iznos: 2.002,80 CNY

Mesto: AIP*FJNTLCW CO 000

CN

Mladenovac RS

1 19-10-2017 16:53

Kartica: Master standard

+ Text message



Uslovi koji pogoduju

- ▶ Lakovernost korisnika, siromaštvo ponuđenih proizvoda, siromašnost ponude uopšte, opcija za korisnike, neobraćanje pažnje na način, i okolnosti naplate, nepraćenje pošiljke, nedobijanje broja pošiljke, nepostojanje konstantnog nadzora nad poslatom stvari – odnosno ne nuđenje ovakve opcije, i sl.
- ▶ Vaše razmišljanje

Hvala na Pažnji!!!

- ▶ Pitanja?
- ▶ Kontakt
- ▶ zvonko31@gmail.com
- ▶ +381606146866
- ▶ skype: zvonko311

