

A CURRENCY FOR WESTERN COUNTRIES

Why the Market Economies of the Western World Need a Jointly Coordinated Digital Central Bank Currency

Abstract

So far, the discussion about digital money has focused mainly on new forms of cashless payments, their benefits for consumers and the resulting regulatory challenges for central banks. The ECB, in particular, has so far pursued its efforts to introduce a digital euro mainly from this perspective. This paper argues that a digital monetary policy should instead be designed primarily with the growing trade on the internet in mind, and meanwhile under the systemic rivalry of the "West" with China. In this context, different tasks arise for internet-based B2C trade and B2B business. In the B2B market in particular, the requirements for digital internet money are highly complex and they can only be solved in parallel with the research and development of industrial automation and Internet of Things systems. Unlike in B2C trade, a DLT-based solution in combination with previous EDI processes is imperative for this. In both markets (B2B and B2C), however, the economic weight of the EU or the euro is too small to secure the EU's digital sovereignty. For payments on the internet, the ECB should therefore create a "digital daaler" together with the USA and other Western partners instead of a digital euro and regulate its use jointly.

"Bitcoins are only good for two things: speculation and ransom payments," said Agustín Carstens, head of the Bank for International Settlements (BIS).¹ In his speech at the Hoover Institution, however, Carstens also emphasised: "If digital currencies are needed, central banks should be the issuers"². My question is therefore first: What about the "if" in this sentence: Are digital currencies needed at all, and if so, for what? And is it justified that Carstens puts the subject of his sentence in the plural: "central banks"? Does the mere fact that there are different central banks justify the consequent assumption that economic subjects need different digital currencies?

Until mid-2002, the German Bundesbank in particular did not see any urgent need for any digital currency. The Bundesbank did not want to "rush things", since there are already various digital payment systems. At least this is what Dirk Schrade, payments expert at the Deutsche Bundesbank, said on 10 June 2020 at a webinar of the Friedrich Naumann Foundation for Freedom, which the author of this text attended³. The occasion of the webinar was the publication of a study by the Naumann Foundation Office in Hong Kong on the progress of the Chinese central bank in creating a "Crypto RMB"⁴. At this event, Professor Dr. Philipp Sandner of the Frankfurt School Blockchain Center emphasised that "China has a head start of 6 to 8 years compared to other central banks"⁵.

Finally, on 12 Oct 2020, the ECB launched a public consultation process on the creation of a "digital euro"⁶. Meanwhile, privately mined monetary derivatives are on the rise⁷.

"In total, the market volume of all around 8,400 cryptocurrencies now amounts to around 1.4 trillion US dollars, which is roughly equivalent to one third of the German economy."⁸

¹ Cited from Keese <2021>; Source: Carstens, <2021>

² Carstens <2021, Summary>

³ Schrade <2020>

⁴ Work <2020>

⁵ Sandner <2020>

⁶ Panetta <2020>

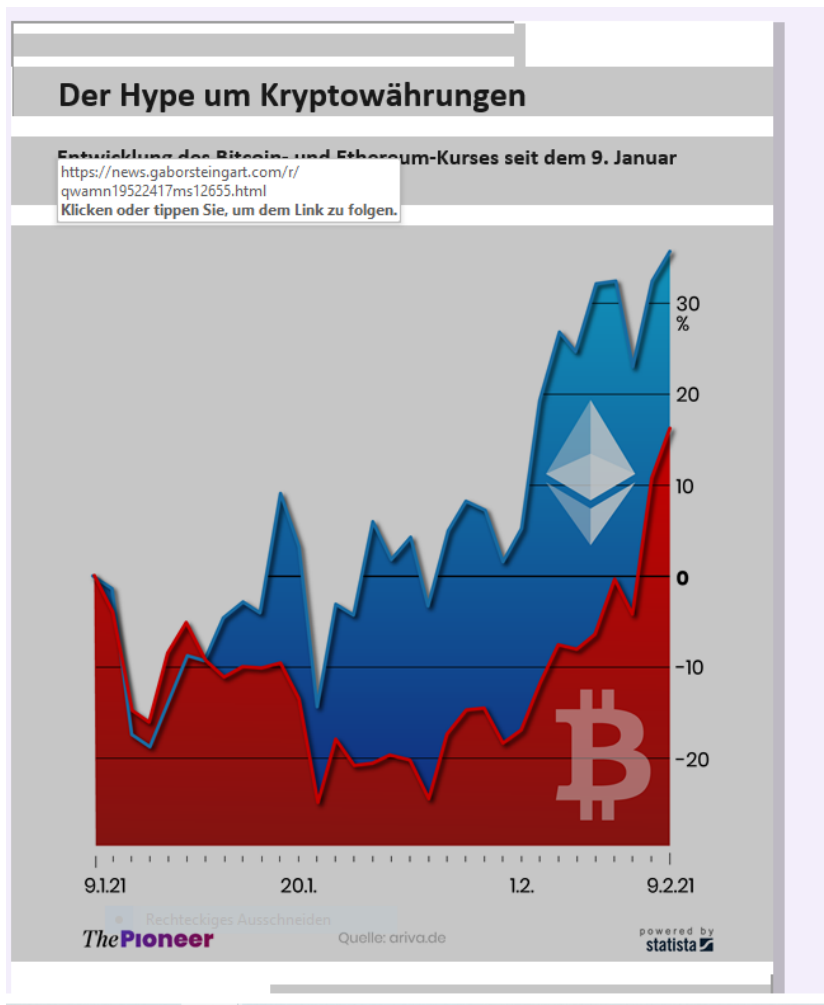
⁷ Pioneer, Morning-Briefing 10. 02. 2021: "The price of the cryptocurrency Bitcoin is heading for an all-time high of 50,000 US dollars, breaking the records set only the day before. The trigger was initially the announcement by the US electric car manufacturer Tesla that it had invested 1.5 billion US dollars in the currency. Tesla also announced that it would accept payments in Bitcoin for its cars in the future. This raised investors' hopes that other companies could follow suit. Microsoft already accepts Bitcoins in the store of its Xbox game console and the US home improvement retailer Home Depot also accepts payments in the cryptocurrency."

And:

Pioneer, Morning Briefing, 11. 02. 2021: "Now the credit card provider Mastercard is also betting on cryptocurrencies: Before the end of this year, the company wants to support some, not all, cryptocurrencies by opening up its global network. With this, the payment service provider is following a push by Tesla boss Elon Musk: His company is investing 1.5 billion dollars in the cryptocurrency Bitcoin and wants to accept the digital currency as a means of payment soon. Asset manager BlackRock and payment companies Square and Paypal have also recently agreed to use cryptocurrencies."

⁸ Pioneer, Morning Briefing, 10.02.2021

Development of Bitcoin and Ethereum-Price between 09. 01. 2021 and 09. 02. 2021
Source: Pioneer Morning-Briefing, 10. 02. 2021:



It is now obvious that the world of money is in a digital race between private money creators and state regulators. However, it is still unclear in the discussions whether we are talking about digital currencies or digital means of payment. ECB Director Fabio Panetta used the terms "means of payment" and "currency" synonymously in his call for the consultation procedure: "Should we offer a digital currency in the euro area parallel to the euro banknotes? We already have digital means of payment, such as electronic bank transfers."⁹ As an example of the benefits of a digital euro, he cited: "The introduction of a digital euro may be necessary in various scenarios, such as when people no longer want to pay with cash or in extreme situations such as natural disasters or pandemics where other traditional payment services no longer work".¹⁰

Digital Trouble for El Salvador

The conceptual ambiguity has already caused serious economic difficulties for the Republic of El Salvador. The country's parliament decided on 8 June 2021 that El Salvador would be the first country in the world to introduce Bitcoin as a legal means of payment.¹¹

⁹ Panetta <2020>

¹⁰ Panetta <2020>

¹¹ CNBC <2021>

The established payment service providers promptly reacted with a boycott: "Payment service providers do not want to make Bitcoin available to their customers, even though it is a legal, official means of payment. Apart from an increase in compliance fees, they fear that the Bitcoin could erode the high fees that are practically the basis of their business model. El Salvador relies heavily on remittances, which play a large role in the local economy ... as 25 percent of Salvadorans go abroad. Remittances account for about 20 percent of the country's economy. In 2020, Salvadorans remitted about \$4 billion home from abroad."¹²

Therefore, while economist Steve Hanke predicts a total economic collapse for the country due to the Bitcoin decision¹³, the Paraguayan government is considering following El Salvador's lead.¹⁴ Meanwhile, the World Bank refused to support El Salvador in its monetary policy experiment.¹⁵ In the meantime, the EL Salvadorian president had to clarify that the Bitcoin money valid in his country from 7 September will only be an optional, but not the sole legal tender.¹⁶

Abstract Concepts differ from Historical Truths

All economists know the definition of money as a medium of exchange and store of value as well as a unit of account from the standard textbooks. It is not necessary to go into this further here. However, this abstract theoretical definition also includes the knowledge that money and payment systems have developed historically. This historical view is not always present in monetary policy discussions. Who remembers, for instance, that Facebook's LIBRA, conceived as a private currency, had a historical predecessor? "Charlemagne (ordered) coinage by stipulating that from one pound (libra) of silver 20 solidi should be cut, from each of which in turn 12 denar should be minted. This gave the Latin Middle Ages the widespread proportion of value of libra, solidus and denar of 1 : 20 : 12, which was only abolished in England with its pound and its sub-units shilling and penny in 1972."¹⁷ The Venetian LIBRA dominated foreign trade in the late medieval world. From the 16th century onwards, the "Taler" struck from the silver mines in Joachimstal in Tyrol became the new world coin.

From the Dutch >daaler< finally comes the American dollar."¹⁸

Nor have central banks always been state institutions with the task of being the sole issuers and custodians of currency: "The Swedish Riksbank is considered the oldest central bank still in existence today. In 1656, Stockholms Banco was licensed by the Swedish government as a private institution; nevertheless, it was subject to strong state control. The government placed most of its assets in the bank. At the same time, it demanded that any profits that arose be shared with the city of Stockholm and the state."¹⁹ Even the creation of a legally prescribed gold standard to secure the value of money issued (by private banks) preceded (in England) the "Bank of England" as a central bank in today's sense.

¹² Msoh <2021>

¹³ Nagarajan <2021>

¹⁴ Lyanchev <2021>

¹⁵ Farzan <2021>

¹⁶ Kharpal <2021>

¹⁷ Hübner <1998/2012>

¹⁸ Kulischer <1976>

¹⁹ Wikipedia, Zentralbanken <2021>

New Money accompanies the Rise of New Powers

All these developments took place against the backdrop of systemic economic changes, the expansion of national and transnational trade and the rise and fall of the great powers.²⁰

The two major changes since the beginning of the 21st century are the triumph of the internet and the rise of China as a major geopolitical power that is now perceived as systemic competition by the "Western" democratically structured market economies.

The first thing to understand here is the influence of the internet as a globally networked trading centre. It is the possibilities and requirements of this trading place that place new demands on the processing of exchange transactions backed by "money".

On the one hand, these requirements consist of the increased speed of payment transactions: Orders on the net are immediately paid electronically, triggering an automated process of delivery of goods and commodities. However, the numerous private payment service providers such as Paypal easily meet this requirement. In particular, private households are generally satisfied with their services for their isolated purchases or even for remittances to relatives in the home country.

In the case of transnational payment transactions on the internet, which require a currency exchange based on a current exchange rate, the established payment service providers also perform this task efficiently. For the mostly relatively small sums involved in household commercial transactions, private buyers are satisfied with the exchange rate applied by the chosen payment service provider, especially since new technologies and competition often also allow lower fees for monetary transactions. The fact that payment service providers can rake in considerable profits in the background through efficient currency management is not relevant from the point of view of the individual consumer, even if in aggregate economic terms saved costs of currency exchange would of course represent a gain in prosperity.

Sufficient Services for Cashless Payments

Tobias Adrian and Tommaso Mancini-Griffoli (both serving as IMF-experts) have analysed the emergence of new payment systems and forms of money (b-money, e-money, i-money and cryptocurrencies) in several IMF publications with a view to consumer benefits and the need for central banks to act.²¹ These considerations do not need to be repeated here. In my view, the only thing that remains to be said is that all "new" forms of money are ultimately based on central bank money and therefore do not require any fundamentally new regulations. The only exception is i-money backed by real gold. Examples of this are Novem or Digital Swiss Gold. However, the expansion possibilities of these providers are of course just as limited as was made clear by the abandonment of the gold backing for the dollar in 1971/73: Physical gold is simply too scarce to keep up with the necessary money supply of growing economies.

As long as the buyer and seller are located in the same currency area, the various payment services offered by banks and other "new financials", "narrow banks" or "FinTechs" are sufficient in terms of reliability and/or speed in developed economies, so there is really no reason to replace this task with additional services offered by central banks. This also applies to cashless payments in stationary retail, even if the payment process at the checkout is managed via mobile phone wallets.

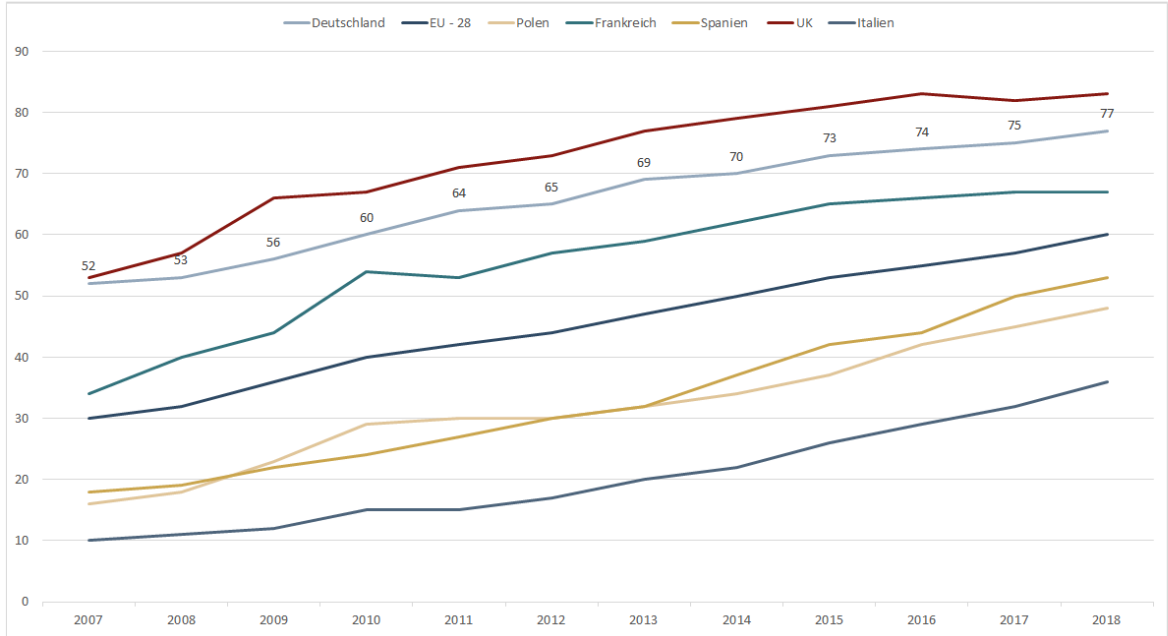
²⁰ Compare: Kennedy <1996/1987>

²¹ Adrian and Griffoli-Mancini <2019>, <2021>

Instead of stationary purchases in physical business premises, however, online retail shopping is becoming increasingly popular with consumers worldwide. In selected EU countries, it has developed as follows:

Use of Online-Trade in Selected EU-Countries

Anteil der Personen im Alter von 16 bis 74 Jahren, die in den vergangenen 12 Monaten über das Internet eingekauft haben, in Prozent



Share of persons aged between 16 and 74 years shopping by internet within the last 12 months²²

Many of the orders placed in this context are with merchants located in a foreign currency area. A single means of payment as a unit of account independent of exchange rates or simply as a predominantly used means of payment can facilitate these transactions. As the volume of internet trade continues to grow, a means of payment that is predominantly used on the internet can also establish itself as the standard for "physical" transactions and thus replace the dollar, for example, as the previous reserve currency. This hope is likely to spur Chinese efforts to create a crypto-renminbi.

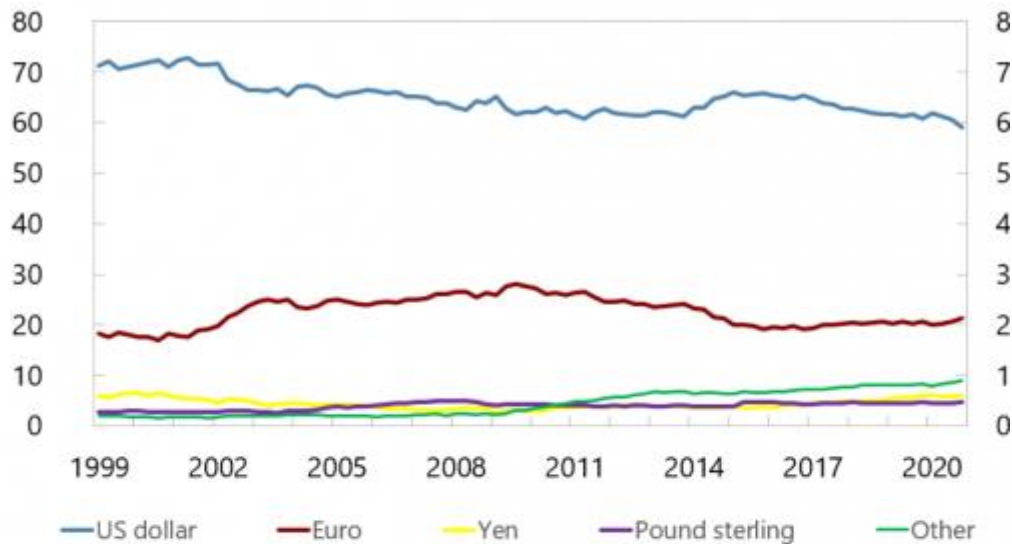
Moreover, a creeping de-dollarisation of the financial system has already begun:²³

²² Engels <2019>
²³ Arsalalp and Simpson-Bell <2021>
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Demand for dollars by central banks

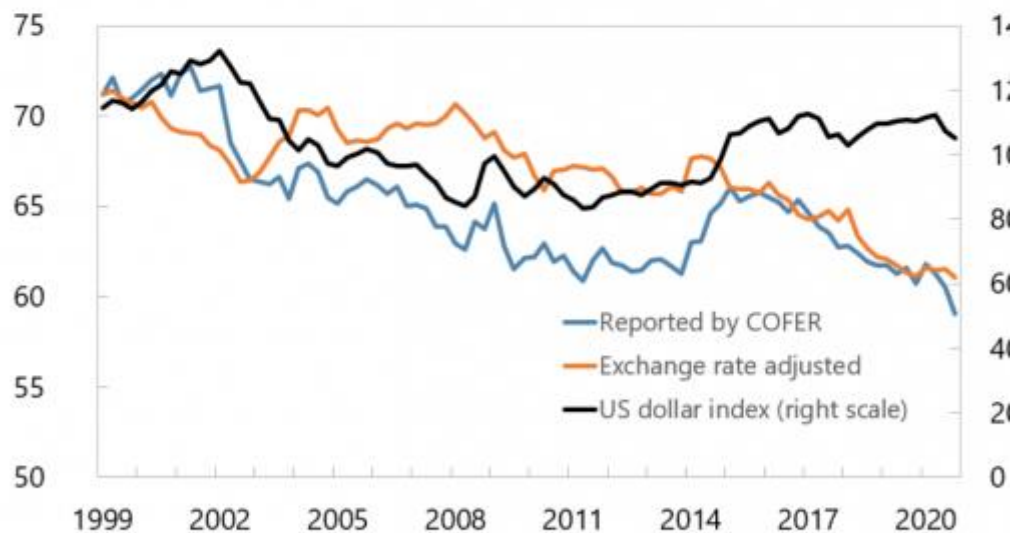
The US dollar's share in global foreign exchange reserves fell to its lowest level in 25 years in the fourth quarter of 2020, driven by exchange rates in the short term and central bank actions in the long term.

(currency composition of global foreign exchange reserves, percent)



(US dollar share of foreign exchange reserves, percent)

(US dollar index, January 2006 = 1)



Sources: IMF Currency Composition of Official Foreign Exchange Reserves (COFER), US Federal Reserve Board, and IMF staff estimates.

Note: The "other" category contains the Australian dollar, the Canadian dollar, the Chinese renminbi and other currencies not listed in the chart. China became a COFER reporter between 2015 and 2018. See Arslanalp and Tsuda (2015) for an application of the methodology. Interest rate changes may also affect currency shares although these effects tend to be smaller. The US dollar index is the Federal Reserve's Advanced Foreign Economic Dollar index. The bottom panel uses a different scale to focus on the US dollar share.

B2B is Bigger Than B2C

From a technical point of view, the payment systems used so far for B2C transactions on the internet now hardly pose a challenge. Nevertheless - or perhaps precisely because of this - most discussions about digital money so far take the benefit perspective of consumers and ask from this perspective about the necessary adaptation of central banks.

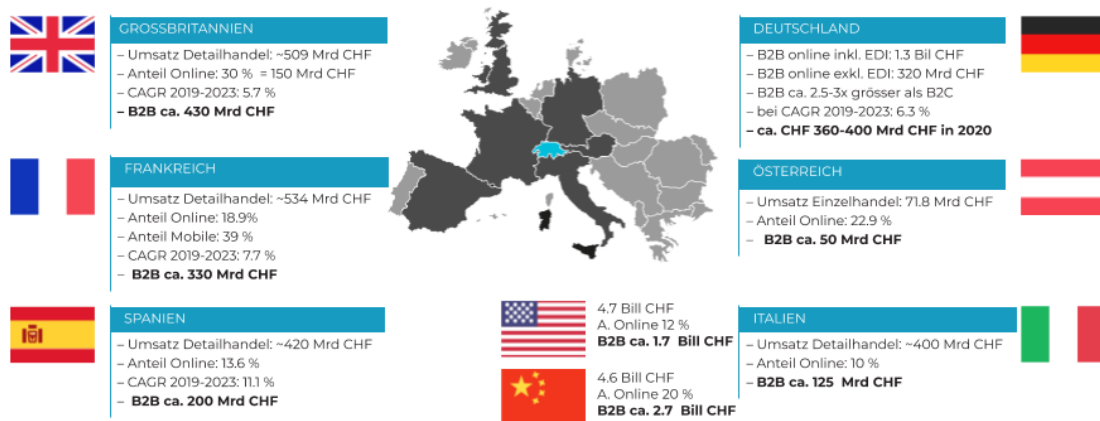
B2B transactions between companies, on the other hand, present a completely different set of requirements. Moreover, they usually involve individual trading transactions of considerable magnitude.

"While the sales figures of retail trade, especially in the online sector, are part of the media coverage almost every day, B2B trade rather ekes out a niche existence in the media world. But this is completely unjustified, because e-commerce in the B2B sector plays a role in many countries that is nearly as large as B2C. In some countries, **the volume of B2B commerce is even significantly higher than that of B2C.**

The two largest e-commerce markets in the world by far are the USA and China. The B2C market in the USA has a volume of CHF 4.7 trillion. With CHF 4.6 trillion, the Chinese market ranks only close behind in second place.

On the other hand, the B2B market in China, with a size of CHF 2.7 trillion, is significantly larger than the US market, with a market volume of only CHF 1.7 trillion."²⁴ ... "In Germany, conservative estimates assume that B2B e-commerce sales are approx. 2.5-3x larger than B2C e-commerce sales. ... Attention, including EDI it would be even 4x bigger!"²⁵

Projection B2B turnover 2020 (without EDI)



²⁴ Gasser <2019>

²⁵ Gasser <2019>

EDI versus Blockchain

The reference to the transaction system EDI, which has been in existence for a long time, requires explanation.

"EDI is the English acronym for Electronic Data Interchange.

EDI is a sub-area of electronic data processing (EDP) and describes the exchange of data between application systems of different companies (external exchange) or between individual sub-areas within a company (internal exchange) using electronic transfer procedures.

Business documents created according to international standards (in structure and format) can be transmitted electronically between participating offices. No re-entry of key information is necessary with EDI, thus errors in the database are significantly reduced or in some cases completely prevented."²⁶

EDI thus fulfils a need that is also addressed by cryptocurrencies based on blockchain technology (or more precisely: on distributed ledger processes)²⁷: the transmission of information associated with a business transaction about the properties of the traded goods and the circumstances accompanying the exchange, such as transport data and insurance certificates.

"Both technologies deal with data exchange. So, it is easy to think that EDI is "old hat" and blockchain is the new saviour. ...In both "camps" - Blockchain and EDI - there was for a long time no precise imagination about whether and how both technologies could interact with each other. ...Above all in electronic communication, the global EDI standard format EANCOM[®] has established itself. With over 100,000 companies, it is by far the most widely used EDI standard format in practice. And this has been the case for about 30 years. Especially in the area of transaction messages, such as in the O2C (Order-To-Cash) process, all participants in the value chain benefit from the efficient electronic interfaces. In contrast, the new blockchain technology ... is a decentralised distributed database technology. ...

Blockchain and EDI are technologies on different functional levels. ... The two technologies complement each other or can be combined with each other. ... Blockchain is particularly suitable if several participants are to receive the same tamper-proof information."²⁸

Combined applications can be found in particular in the forfaiting, factoring and letter of credit business of the foreign trade financing of established commercial banks. BPO Bank Payment Obligations are a modern instrument in this context:

„The BPO is an inter-bank instrument to secure payments against the successful matching of trade data. As per the Uniform Rules for Bank Payment Obligations, the Bank Payment Obligation (BPO) means ‘an irrevocable and independent undertaking of an Obligor Bank to pay or incur a deferred payment obligation and pay at maturity a specified amount to a Recipient Bank following Submission of all data sets required by an Established Baseline and resulting in a Data Match or an acceptance of a Data Mismatch’ (URBPO, ICC Publ. No. 750E).”²⁹

²⁶ Gasser <2019>

²⁷ Rau <2018>

²⁸ GS1-Germany <2019>

²⁹ GSCFF <undated>

The difference between EDI and B2B e-commerce

"I recently visited a Volvo manufacturing plant. When I saw the assembly line, I realised why the automotive industry is one of the best examples of the indispensability of automated order processing.

Today's production processes in the automotive industry are based on the customised delivery of parts or the seamless exchange of information between car manufacturers and suppliers. This is exactly what EDI is used for.

Electronic data interchange has proven to be of great value to companies because the automatic and digital processing of data increases the speed, accuracy as well as efficiency of business processes.

EDI also serves a specific type of customer: A customer large enough to have the resources to implement the system. EDI is also designed for large recurring orders. Since the products ordered are already "known", product information such as descriptions, pictures or prices are not needed.

Now imagine you are looking for a very specific spare part. Unlike EDI, you will want as much product information as possible. Unfortunately, finding the right product and possibly ordering it by phone or e-mail can be tedious and time-consuming.

This is exactly where e-commerce comes in. Although, like EDI, also processed online, orders for e-commerce, as in the example above, have a more 'occasional' nature."³⁰

"The global electronic data interchange (EDI) software market size is projected to reach USD 3,451.3 million by 2028, exhibiting a CAGR of 10.7% during the forecast period. Increasing adoption of EDI solutions in the healthcare sector will act as one of the pivotal factors driving the growth of this market. ... As per the report, the global market value stood at USD 1,547.2 million in 2021."³¹

"With a volume of almost 1,300 billion euros, the entire B2B e-commerce market (in Germany) reached a share of around 24 per cent of the total turnover of all economic sectors considered in 2018. The average growth since 2012 has been 6.6 percent. The majority of e-commerce still takes place via automated processes (EDI).

Growth is primarily generated via websites, online shops and marketplaces (without EDI). With an average growth of 15.4 per cent p.a. (2012-2018), a sales volume of around 320 billion euros can be achieved in this area. With 180 billion euros, 56 percent of the turnover via website/online shop/marketplace is accounted for by industry and wholesale (B2B internet trade)."³²

Traded goods change to immaterial values and services

Healthcare-data transmission is supposed to be one of the most growing EDI- applications in many countries.

³⁰ Schipperus <2015>

³¹ Fortune Business Insides <2021>

³² IFH <2019>

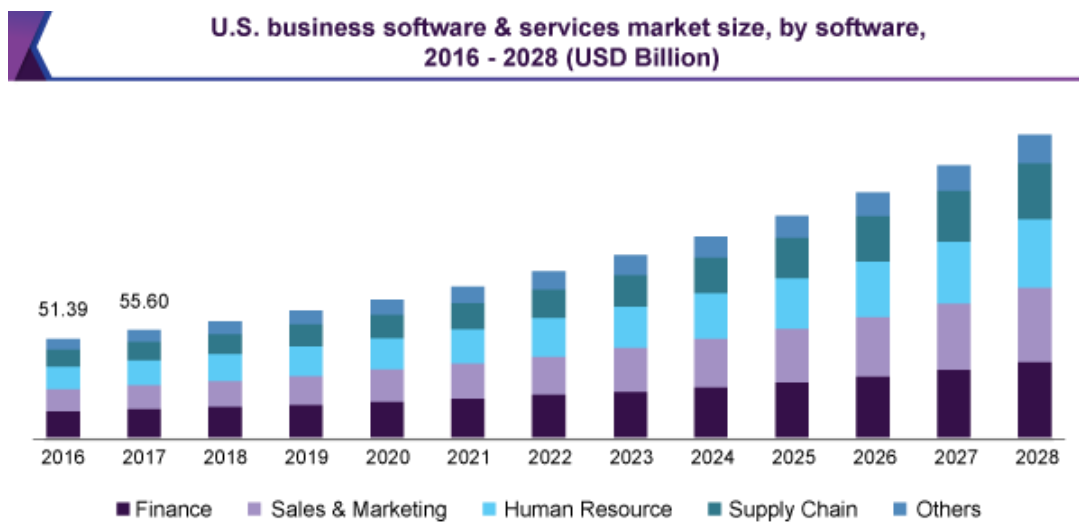


Quelle: IFH Köln, B2B-E-Commerce 2019

B2B-Commerce in Germany by EDI, online-shops and industrial online market places

Moreover, the available statistics underline the importance of B2B trade that has been achieved in the meantime in another way. Namely, in addition to physical goods, more and more intangible goods are being traded on the internet. It is rarely clear whether or to what extent these transactions are also included in the trade overviews.

A significant part of online trade consists of the transfer and licensing of software and related services. This type of trade is virtually predestined for transmission on the Internet. In the USA, for example, this market is developing as follows³³:

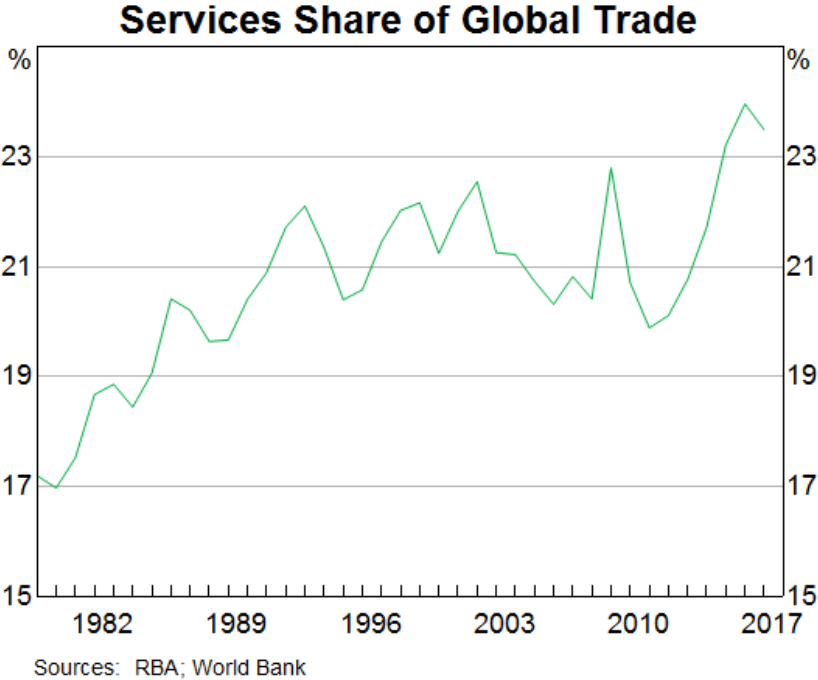


Source: www.grandviewresearch.com

³³ Grandviewresearch <2021>

„The global business software and services market size was valued at USD 389.86 billion in 2020. It is expected to expand at a compound annual growth rate (CAGR) of 11.3% from 2021 to 2028. ... Based on software, the market has been further segmented into finance, sales & marketing, human resource, supply chain, and others. The finance segment accounted for the highest market share of over 20% in 2020. The increasing importance of financial management tools across businesses and enterprises for planning, budgeting, analysis, and reporting is expected to drive the growth of the finance segment. Financial management software is extensively adopted in the BFSI industry in North America owing to the need for risk compliance and improvements in efficiency & productivity of operations.”³⁴

Internationally, trade in services is becoming increasingly important. Nevertheless, it currently still accounts for less than a quarter of world trade. Apart from travel and the physical transport of goods, much of the trade in services is conducted via the internet. The corresponding statistics may include sales of software products, but usually mainly record other services such as telecommunications services, the offerings of banking and insurance companies, all kinds of business services such as access to online consultations, research or the transfer of patents and licensing rights.



“Services trade is dominated by the large advanced economies (the United States, United Kingdom, Japan and the euro area) (Graph below). These four economies account for 50 per cent of exports and 40 per cent of imports of services, which is larger than their share of global output and goods trade (around one-third). In contrast to goods trade – where large advanced economies are net consumers, often importing manufactured goods from emerging economies – large advanced economies are net providers of services. These are often high-value professional and intellectual property services exported to emerging economies. The advanced economies also trade large volumes of services with each other.”³⁵

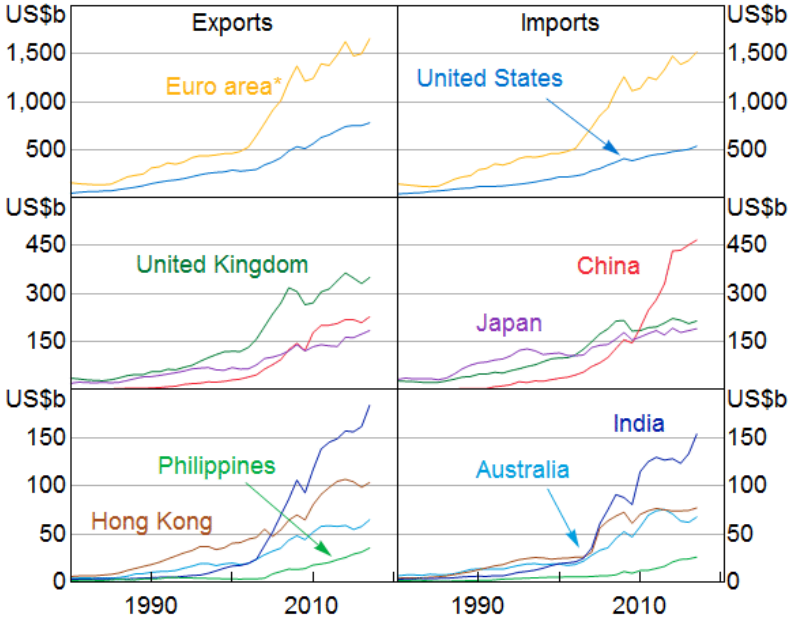
³⁴ Grandviewresearch, <2021>

³⁵ Rickards, <2019>; the presented graphs on trade in services were taken from this source as well.

China is currently still primarily an importer of services on a rapidly increasing scale.

World Trade in Services

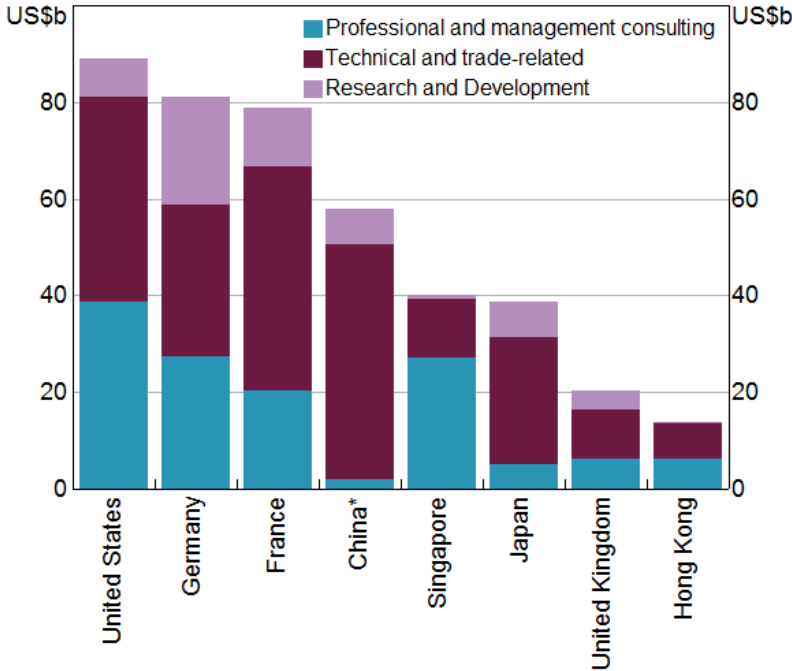
By country, annual



* Includes intra-regional trade
Sources: RBA; UN

Business Service Exports

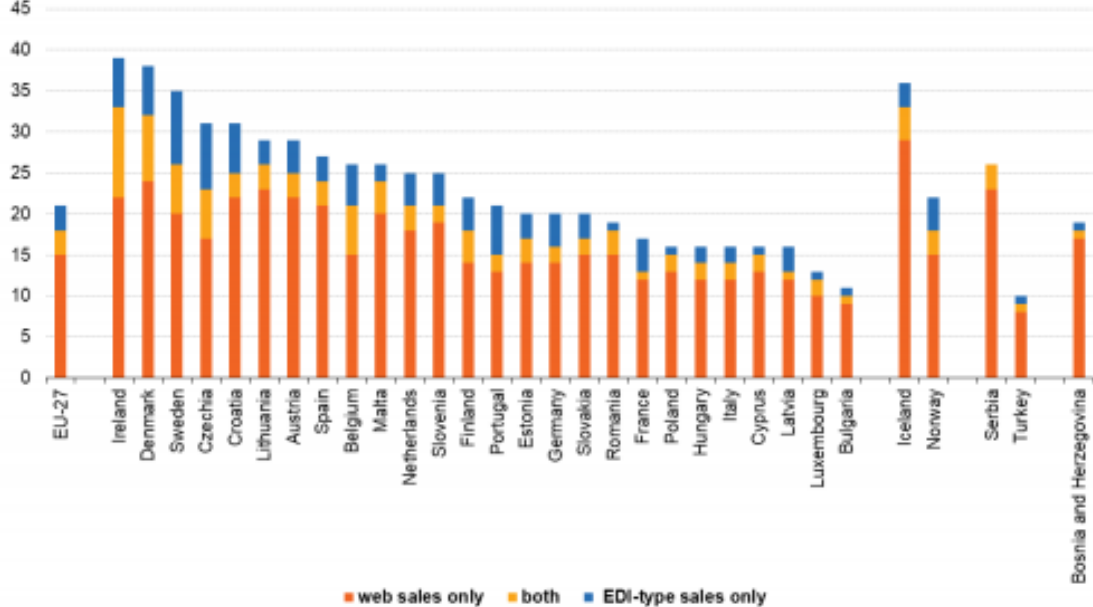
2016



* Split is based on 2016 total business services and component breakdown at 2002
Sources: IMF; RBA; UN

On average, more than 20% of all companies in EU countries now generate digital revenues.³⁶

E-sales broken down by web sales and EDI-type sales, 2019
(% enterprises)



Only countries having both web sales and EDI-type sales are displayed.
 Note: EDI-type sales for Serbia are less than 1% and not visible in the graph
 Not available: E-sales, web sales and EDI-type sales for Greece (unreliable), web sales and e-sales for Montenegro (unreliable), EDI-type sales for North Macedonia (confidential)
 Source: Eurostat (online data code: isoc_ec_eseln2)



Let's return to the organisational and technical requirements associated with a commercial transaction in the corporate sector:

“On average, businesses process 7 documents during each purchasing cycle. The larger your business is, the more complex payment becomes. You’ll likely see more errors or missing documents. A company sending an invoice would go through the following steps:

1. Supplier types up and prints invoice
2. Supplier mails invoice to customer
3. Customer receives and manually marks up the page
4. Customer enters invoice information into its company system
5. Supplier reaches out for confirmation of receipt
6. Supplier sends confirmation of receipt

While this can take several days, an EDI manages the process in a manner of hours or minutes. Your supplier enters invoice details using a standardized method, that invoice information instantly appears in your system, and the system sends a confirmation of receipt. When it comes to purchase orders, the same idea applies.”³⁷

Between the listed 4th and 5th process step, the payment of the customer takes place. This payment must be recorded by the supplier's technical systems as an incoming account and assigned to the delivery transaction. Payment transactions in the B2B area are therefore much more complex than

³⁶ Eurostat <2021>

³⁷Bowles <2020>

processing a cashless payment at the supermarket checkout, even if a connection with the merchant's merchandise management system may still take place there.

A Battle Between Seven Layers

A digital means of payment must, at least on the organisational-technical level, harmonise with such business processes that have so far been controlled by various EDI procedures. It is foreseeable that the technical requirements in this area will increase considerably. For example, if large amounts of data are transmitted between companies in real time and these data deliveries are also to be paid for digitally in parallel in real time, the issue of data speed is addressed. Typically, large amounts of data are generated in production processes or transmitted by electronically controlled high-value capital goods such as automobiles or satellites. This directly connects digital payment systems in the B2B sector with the automation of industrial processes, G5-speed telecommunications and the Internet of Things.

The urgently needed technical standardisation of these processes requires international cooperation and, in the best case, aims at specifications by international standardisation bodies such as the IEC International Electrotechnical Commission. The paper "Babylon in Industry" describes the difficulties encountered in the attempt to implement the industrial automation standard OPC-UA, which was mainly developed in Germany and the EU, internationally, and concludes:

„The ISO/OSI standard ... distributes machine communication over seven layers - just as the Tower of Babylon was once constructed. Since then, the battle between China, the USA and Europe for technological leadership in the factory has taken place in the finest ramifications of these layers. ...

Germany and the EU thus find themselves in a complicated dilemma in the existentially important field of industrial automation: while it is difficult, if at all, to reach agreements with the USA, a tug-of-war is beginning in Asia between Japan and China. Even if the Japanese prevail over China and establish OPC-UA as a quasi-binding standard in Asia, Europe will be increasingly drawn into the maelstrom of Asian markets. If China succeeds in spreading OPC UA with Chinese deviations in Asia, Europeans will suffer disadvantages in both America and ASEAN. Rapid agreement between the EU and the US at a high political and technical level is therefore essential. This could then also strengthen the Japanese and thus actually establish a global industrial standard that allows all nations industrial compatibility and fair competition. Otherwise, the world threatens to further disintegrate into the spheres of influence of three major blocs at the economic level.”³⁸

In order to provide a deeper understanding of the future requirements for payment methods for the internet, I would like to describe the following real-life business process:

An Italian start-up company received an offer from an African government to market the monthly yield of a state-owned gold mine. This marketing licence was offered under the condition that the equivalent value of the gold in dollars had to be credited to the government within a very short period of time. Now, however, no elemental gold is mined in a mine, but rather lumps of rock are extracted that only contain a certain average proportion of gold, which still has to be smelted out. When the rock is handed over to the Italian contractor, the latter must first make sure in a calibrated chemical-physical testing process that he has actually received earths with the promised typical gold content. At the same time, the mine operator issues a confirmation that the gold was extracted in compliance with the strict requirements of the London Bullion Market Association (LBMA) in

³⁸ Hollweg, <2020>

London.³⁹ The raw material is then transported by plane to the Dubai Multi Commodities Center (DMCC), where trading in physical gold takes place on a large scale. The goods are purchased there by a gold trader, but are still in their raw state. The chemo-physical testing procedure is applied again and compared with the initial results from the delivery of the goods to ensure that it is an unaltered shipment. The trader in Dubai calculates the achievable gold yield and instructs his bank, which is involved in international payments, to pay the expected proceeds from the gold smelting, which has yet to take place, directly to the government of the country of origin in dollars. The raw material is then transported on to Germany, where a smelter refinery again carries out a calibrated incoming inspection of the delivery, again compares it with the previous documents and smelts out the elemental gold. The refinery, which at the same time holds a trading licence on the LBMA, the world's leading market for elemental gold, now buys this gold from the trader in Dubai and confirms receipt of the goods to the pre-paying bank, but does not yet make a transfer. This will only take place when exactly the gold from the African mine has actually been sold at the LBMA. However, the goods are no longer transported there physically, but are settled digitally with the licensed seller. If the price achieved is lower than the estimate of the trader in Dubai, the Arab has to make an immediate compensation payment to the bank, in the opposite case he books a profit. The Italian transporter either receives a commission only now or, depending on the agreement, he has already been paid by the dealer in Dubai. If the gold sale at the LBMA was in British pounds, the bank still has to make exchange rate adjustments in euros for the German refinery and in UAE dirhams. Since the physical transport of goods already takes a relatively long time, all parties involved have an interest in ensuring that the verification of the accompanying documents and the payment transactions take place as quickly as possible.

One can see from the description of the process how closely the payment transactions are linked to the document management. All entities involved in the process must have firm confidence in the immutability of these documents. Distributed ledger processes allow this:

„With many cryptocurrencies, ..., there is no need for a trusted central agent. Instead, they rely on distributed ledger technology, such as blockchain, to construct a ledger (effectively a database) that is maintained across a network. To ensure that the same cryptocurrency is not spent twice, each member of the network verifies and validates transactions using technologies derived from computing and cryptography. Once a decentralized consensus is achieved among members of the network, the transaction is added to the ledger, which is validated. The ledger provides a complete history of the transactions associated with a particular cryptocurrency that is permanent and cannot be manipulated by a single entity. This ability to achieve consensus on the validity of transactions between accounts in a distributed network is a foundational technological shift”⁴⁰

In addition, it can be seen that various exchange rate transactions take place.

In B2B trade, the exchange rates to be used in foreign trade with foreign currency areas therefore play a significant role. It is extremely disadvantageous for the trading partners if - unlike in invoice

³⁹ ³⁹ LBMA <2018>: “The [Responsible Sourcing Programme](#) ensures the continuous improvement of Responsible Sourcing business practices and reassure clients that all of the metal sourced from LBMA Good Delivery Refiners is **free from threat financing**. The Programme follows the five-step due diligence framework set out in the [OECD Guidance](#) and requires GDL refiners to demonstrate their efforts to combat money laundering, terrorist financing and human rights abuses, and respect the environment globally. ... The current Responsible Gold Guidance, launched in 2018, marked a major strategic expansion to include Environmental, Social and Governance (ESG) issues. The latest version of the RGG builds on this, as well as reflecting the strategic priorities identified as part of [LBMA’s IBC Recommendations](#). After undergoing a thorough public stakeholder consultation, Version 9 will be released later this year and will be applicable for refiners from Saturday, 1 January, 2022.

⁴⁰ Bouveret / Haksar, <2018>

transactions - they cannot influence the exchange rate to be applied in the case of immediate digital payment. This gives rise to the need for a means of payment that can be used transnationally, which has an exchange rate with the various national central bank currencies, but which functions as an unchanging unit of account within the Internet control loop, i. e. is not subject to exchange rate fluctuations itself. Put simply:

Transnational trade by means of the internet calls in principle for a digital world currency.

This need was also clearly expressed in the ECB's consultations on the requirements for a digital euro: "About a quarter of respondents felt that a digital euro should make cross-border payments faster and cheaper. They wanted the digital euro to be able to be used outside the euro area, albeit with restrictions."⁴¹

This need is met by the various cryptocurrencies based on blockchain technology or DTL. It is therefore wrong to claim that these means of payment have no independent utility. And what has utility also has a value and a price.

When we read that the ECB does not want to base its digital euro on distributed ledger technology, but on an Italian payment provider⁴², three critical questions arise:

- Does this system enable exchange rate-free payments?
- Does this system allow for non-manipulable accompanying processes of such payments?
- Does this system not only have ISO/OSI interfaces to the Internet (TCP/IP) but also to the standards for industrial automation and the Internet of Things (IoT)?

Both those responsible at the ECB and the submissions in the consultation so far seem to be thinking primarily of the use of a digital euro for B2C payments. Accordingly, a high priority is given to an anonymous use of internet money. This is certainly also in contrast to the plans of the government of the People's Republic of China and the Chinese Communist Party to strengthen social control with the crypto-RMB for foreign trade or a crypto-yuan for domestic uses.

Already for a long time, China's efforts have been directed towards the creation of a national internet structure and, from there, towards the enforcement of Chinese usage standards as an international norm. This is true both in terms of freedom of expression and in terms of technical specifications. The race for the introduction of an internet currency is accordingly to be understood as part of the system rivalry now recognised by the "Western" democracies. At least in the rapidly expanding internet trade, China wants to replace the dollar as the de facto reserve currency of the world economy.

So which currency will prevail as the world's digital currency in the future? Certainly the means of payment with which the most transactions and/or transactions with the largest volumes are actually carried out. It is also possible that the development will result in two different digital lead media in the consumer and business markets.

Let's take another look at the statistics presented above by the Swiss organisation ecommerceanvas:⁴³

⁴¹ Seidenbiel <April 2021>

⁴² Seidenbiel <June 2021>

⁴³ Gasser <undated>

China Likely Ahead in B2C and B2C Internet Trade

In terms of **B2C business**, the EU does not have the size to give a digital euro a competitive market position. The online retail sales of the EU countries France, Italy, Spain, Austria and Germany together do not even add up to CHF 2 trillion. If one adds the other countries of the euro area, it is probably estimated to be no more than CHF 3 trillion. The UK has a B2C turnover of CHF 430 billion. In contrast, B2C online trade generates CHF 4.7 trillion in the USA and CHF 4.6 million in China.

The Chinese company Alibaba organises the world's largest B2C marketplace. The US provider Amazon is in second place, but allegedly 75% of the new merchants registered on Amazon in 2020 will already come from China. In third place there is again a Chinese provider, the marketplace JD (JD.com. Inc./Jingdong).

US and Chinese platforms and the digital currencies preferred on them would probably go head-to-head for some time, but in the long run this is likely to end in favour of China with its population three times that of the USA.

Instead, China - surprisingly - already dominates the **B2B business** online with sales of CHF 2.7 trillion. The USA generates only CHF 1.7 trillion in B2B trade by a clear margin. At best, together with European partners, they could catch up with their Asian rivals. The global B2B eCommerce market, valued at US\$12.2 trillion in 2019 according to data provider Statista, is more than six times the size of the B2C market, and "Asia-Pacific comprises 80% of B2B business."⁴⁴

The five EU countries listed in the B2C market mix above contribute around CHF 1.1 trillion. Including the UK with CHF 430 bn, together with the US, a relevant lead could be achieved. Germany, with CHF 1 trillion, would also contribute a very strong EDI business. A digital euro alone, on the other hand, would hardly achieve global significance in this market.

At the corporate level "Amazon (USA), Alibaba (China), Rakuten (Japan), Mercateo (Germany), GlobalSources (China/Hongkong), Walmart (USA) and IndiaMART (India) ...(are) the major players in the global B2B eCommerce market. Amazon rebranded its B2B eCommerce operations from Amazon Supply to Amazon Business in 2015 and achieved sales of over US\$ 1 billion in just a year. Alibaba with a share of about 30% in China is now expanding its operational base to India, Europe and the U.S. The company's vast network of low-cost suppliers enables it to dominate the market, followed by GlobalSources."⁴⁵

From the point of view of market relevance in internet trade, it is therefore not strategically expedient to create a digital euro.

In the B2C business, at least close coordination between the ECB and the USA or the FED is needed, which would ideally also include the Bank of England. The result could be a kind of "Digital Daaler" as a common currency for retail online trade.

In the B2B market, at least the Bank of Japan would also have to be addressed. In view of the requirements for standardisation for industrial automation and the pronounced willingness of the Japanese to cooperate in this regard, Nippon would also be a suitable partner with regard to a common business means of payment on the internet.

Politically, this is an ambitious proposal, but its necessity cannot be dismissed in view of the facts.

⁴⁴ Statista <2019>

⁴⁵ Statista, <2019>

Multinational Cooperation Instead of National Sovereignty

"The existence of an exchange rate economically defines the nation", postulates the recently deceased Prof. Dr. Hajo Riese in his work >Welfare and Economic Policy<⁴⁶.

With the creation of a super-state medium of payment, national sovereign rights would inevitably be lost. They would be replaced by multinational forms of cooperation and coordination. The IMF has offered far-reaching assistance for this.⁴⁷ If all leading economies were to accept the support of this already existing body of international coordination, the division of the world into belonging to a "Western" and a Chinese-dominated digital internet money could perhaps be avoided. Nevertheless, the prospects for this do not look good at present.

Therefore, the "Western" democracies (a politically meant term that includes many Pacific states such as Japan, Australia or the Philippines) face the challenge of first harmonising their systems and standards among themselves. This, too, seemed unlikely until recently under the US presidency of Donald Trump. With the new administration under Joe Biden, these chances are much better. This harmonisation relates to a broad technological field, as a recent discussion at the GLOBSEC2021 Bratislava Forum made clear:

"The panelists covered what main priorities of the Transatlantic Trade and Tech Council should be. According to Frances G. Burwell, the number one priority should be putting these topics into a more prominent place in the agenda. The transatlantic market for data is substantial, so it is important to address it in a sustained, continuous manner and get policymakers to actually talk about these things. According to Burwell, the suspected priorities will be more resilient infrastructure and cybersecurity standards. These are priorities that both the US and the EU deem vital in their digital economies. ... Anna-Michelle Asimakopoulou ... also emphasized the trade aspect of the council, where the focus should rest on supply chains. ... The debate further focused on digital sovereignty, a concept that has gathered a lot of traction in public discourse over the past few years. The panellists have rather stressed the need for strategic interdependence rather than sovereignty in the digital sphere. Of course, who creates the rules will hold all the power in the future and increase its geopolitical influence. This begs the question: who will create those rules? Asimakopoulou suggests that if the EU-US union would do so, it would resolve these issues and inspire others to do so as well."⁴⁸

This means that the questions posed for this essay competition on the regulatory requirements of digital payments can now be answered in principle:

⁴⁶ Riese <1975, page 137>

⁴⁷ Adrian and Griffoli-Mancini <2021>

⁴⁸ GLOBALSEC2021 Bratislava Forum, <2021>

How can the objectives of the Digital Finance Strategy – and possible introduction of a digital euro – meet the needs of ensuring a future proofed European payment landscape?

A digital euro is not required for cashless payments by consumers, either within or outside the internet. Cashless payment transactions are based on the already largely digitised central bank money of the interbank system and are effectively provided by banks and other private payment providers.

“Risks other than banking disintermediation are... possible and need to be understood and carefully weighed. Regulatory frameworks generally exist to tackle many of these risks, but likely need to be revised and strengthened. For instance, financial services offered by big tech firms might be designated and regulated as being globally systemic. One guiding principle is that regulation should be proportionate with the risks and types of services offered. Fintech firms that offer banking services would be regulated as banks, and firms that offer the equivalent of investment funds, or broker dealer services, would be regulated as such.”⁴⁹

What would an effective policy response be to increase Europe’s competitiveness globally? How the international role of euro can be supported within a multipolar and digital international currency order?

The creation of a digital euro is not a promising strategy for maintaining European competitiveness. Rather, what is needed above all is close cooperation between the EU or the ECB and the USA or the FED to introduce a common digital currency for transactions on the internet. This cooperation should be open to other partner countries and their central banks.

How can digital currencies contribute towards financial inclusion? What is the role of regulators on that?

In the developed economies of the EU, cashless payment systems can facilitate purchases, but with regard to households, unlike in developing countries, they do not make a much-needed contribution to their financial self-sufficiency.

Some adjustments are needed at the level of financial regulation, but the regulatory framework is in principle in place. However, data protection poses a new challenge: Users of cashless payment systems demand anonymity for their consumption decisions.

With regard to the inclusion of (especially medium-sized) companies in global supply chains, there is a need for broad and diverse support. The main issue here is the integration of production-related systems with the parallel and often simultaneous or high-speed payment transactions, including the accompanying data and non-manipulable document traffic. The financial regulatory authorities must seek closer cooperation with the technical standardisation organisations for this. From a European perspective, the determined further development of the OPC-UA standard in particular offers an opportunity, but this must be coordinated with the American efforts for the Internet of Things.

⁴⁹ Adrian and Griffoli-Mancini, <2019>

What costs and opportunities exist from new technologies that may require innovative regulatory approaches?

The further development of payment traffic in the B2B area still requires considerable investment in research and technical development. Close cooperation with private companies from various sectors - also from the service sector - is inevitable.

With a view to the coordination called for in this essay in favour of an internet world currency, coordination within the framework of the IMF makes sense.

For this, the Western countries should move forward and create a common digital DLT currency for the internet, at least in cooperation between the ECB and the FED.

As internet trade pushes back the "real" marketplaces, there are changes in the need for traditional central bank money. The central banks involved in the digital internet currency must thus jointly determine the "real" and "virtual" money quantities needed for their economies and develop a corresponding joint monetary policy.

Can the current financial regulatory architecture facilitate digital innovation with regards to payments, and at the same time meet EU policy and regulatory objectives?

As far as B2C business and the applicable regulatory rules are concerned, the answer to the first part of the question is simply: yes.

However, the EU's political goal of digital sovereignty is at risk in view of the growing internet-based B2C and B2B markets. Even with the inclusion of the UK, the European countries do not reach the necessary economic size to become rule-makers themselves. The ECB should abandon the goal of a stand-alone digital euro and instead seek solidarity with the FED.

This does not mean that the ECB should abandon independent research on a digital monetary policy. However, its findings should lead to the creation of a multinational internet currency, which has been called the "Digital Daaler" in this paper in reference to a historical precursor.



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