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POLICY BRIEF

20-4 Securing Macroeconomic and Monetary Stability with a Federal Reserve–Backed Digital Currency

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This Policy Brief is part 1 of a two-part series.

OVERVIEW

The US monetary system faces significant challenges from advances in technology and changes in the macroeconomy that, left unaddressed, will threaten the stability of the US economy and financial system. New technology and the slow adoption by incumbents in the banking system have been accompanied by a proliferation of digital payment processors largely outside the regulatory net. Digital technologies hold the promise of faster, cheaper, and more secure payments systems, but they can also pose risks to the safety and soundness of the financial system. At the same time, low interest rates mean that central banks will not have the policy ammunition they had in the past during the next recession. The Federal Reserve needs new tools to meet its mandates of price stability and maximum employment. It also needs to preserve the safety and soundness of the financial system in a rapidly digitizing world.

We believe that a Fed-backed digital currency can solve both problems. Our proposal creates a regulated system of digital currency accounts for consumers managed by digital payment providers (DPPs) and fully backed by reserves at the Fed. The system would be limited in size, to preserve the functions and stability of the existing banking system. Fed backing would mean low capital requirements that would in turn facilitate competition. Low fees and no minimum balance requirements in the new system would also help financial institutions reach the roughly 25 percent of the US population that is currently either unbanked or underbanked.

Digital accounts for consumers could also provide a powerful new stabilization tool for both monetary and fiscal policies. For fiscal policies, it could facilitate new automatic stabilizers and while also allowing the Fed to provide quantitative

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easing (QE) directly to consumers. This tool could be used in a timely manner with broad reach to all Americans. (We discuss a structure for providing QE directly to consumers in part 2 of this Policy Brief series.)

This Policy Brief focuses on the proposed system of DPPs. We start by outlining the opportunities as well as the challenges and risks presented by new digital means of transactions and cryptocurrencies. We then outline our proposal for a Fed-backed digital currency, including the potential role of stablecoin to augment individual accounts, the safeguards to the traditional banking system, and the incentives for households to open and maintain these new accounts.

MONETARY REGIMES IN HISTORICAL CONTEXT: HOW DID WE GET HERE AND WHERE SHOULD WE GO NEXT?

A Two-Tier Banking System from the Beginning and the Birth of the Federal Reserve

The success of the US dollar in becoming the world's reserve currency is the result of a few hundred years of learning from mistakes and striking a balance in public-private partnership. Alexander Hamilton established the Bank of the United States in 1791 to serve as both fiscal agent and a fractional reserve commercial lender and to stabilize the growing system of state banks and currencies. But a geographically vast, rapidly growing, and politically divided nation was skeptical of centralized control and chafed under the constraints of a conservatively managed institution.

As the United States grew and developed, the financial system lurched between centralized and local forms of money creation. Decentralization led to bank runs and financial panics, which led to greater federal oversight. The ensuing stability came with restraint that would give way to demands for less centralized control. Repeated financial crises stemming from lightly regulated local currencies and banking systems eventually led to the creation of a national central bank. In 1913 the Federal Reserve was established to "provide a means by which periodic panics which shake the American Republic and do it enormous injury shall be stopped."[1] The Fed's original mandate was to maintain the stability of a national banking and financial system and the US currency.

Currency and the Wild West of Digital Money

Currency serves three functions: It is a medium of exchange, a store of value, and a unit of account. Achieving these functions is no small feat and requires the collective confidence of a diverse and ever-changing population. Once confidence and stability are established, money becomes a public good of enormous value in facilitating economic growth and stability in a market-based system. But that stability is easy to take for granted.

1 Ben Bernanke, A Century of U.S. Central Banking: Goals, Frameworks, Accountability, speech at the "The First 100 Years of the Federal Reserve: The Policy Record, Lessons Learned, and Prospects for the Future," conference sponsored by the National Bureau of Economic Research, Cambridge, MA, July 10, 2013, www.federalreserve.gov/newsevents/speech/bernanke20130710a.htm.

The urge to innovate in money creation has always existed. The current frontiers are digital currencies and the technologies that hold the promise of faster, cheaper, and more secure payments processing. The wave of cryptocurrencies created in the last decade was born out of a combination of the promise of digital efficiency and security and skepticism about the stability of sovereign currencies and private financial institutions. To date, no cryptocurrency looks poised to effectively and consistently serve the three functions of a currency; cryptocurrencies are more of an alternative asset class, a volatile store of value.

Facebook is approaching digital currency from a different angle with the proposed creation of Libra, a permissioned blockchain digital currency backed by existing sovereign currencies. Libra could potentially serve the broader functions of money while delivering efficiency and global reach. It is the most credible challenge to the dominance and stability of sovereign currencies, although it would require the blessing of regulatory authorities around the world. Facebook's Libra proposal has arguably done the sometimes overly cautious central banking community a favor. Discussions about central banking digital currency have been underway at the Bank for International Settlements, the International Monetary Fund, and various global central banks for several years, but there is now an increased sense of urgency to move forward.[2]

Even as cryptocurrencies have emerged, digital payment processors have been innovating and enhancing the convenience with which consumers can move their bank deposits around to exchange money and pay for goods and services. PayPal was an early provider of online payments. It now also owns Venmo, an app that facilitates person-to-person digital payments. PayPal recently reported it has 295 million users globally and is adding 9 million new users a quarter. Banks clearly see the future of digital payment processing. A consortium of banks created Zelle to process person-to-person payments. It operates as a standalone app and is also integrated within the apps of sponsoring banks. It is estimated that Zelle processed $56 billion in payments in the fourth quarter of 2019. Many other businesses, such as Square's Cashapp, Google, and Apple, have moved into the digital payment processing space, and retailers such as Starbucks have created their own digital payment apps.[3]

Digital payment apps are not a new form of money; they are a more efficient way to move existing bank deposits around. These services are advancing at a rapid pace almost entirely outside of regulatory oversight. Funds can sit within these apps without the protections enjoyed by bank deposits, and users have no clear recourse if the apps are hacked or commit errors in user transactions. These payment apps process hundreds of billions in transactions every year. A growing number of users, particularly younger users, are embracing them, despite the lack of protection from technology malfunction, hacking, or breaches of privacy.

2 See, for example, BIS (2018) and Mancini-Griffoli et al. (2018).

3 See "Zelle Person-to-Person Payments (P2P)," www.earlywarning.com/products/zelle-person-person-payments-p2p.

Central banks around the world are considering how best to incorporate and address digital advances in their operating regimes.[4] Safe and secure real-time digital payments are an issue the Fed should address. It has taken a step in this direction with the announcement of an effort to develop FedNow, a 24-hour real-time payment and settlement service. We think it can go farther and should embrace and facilitate digital efficiency while shoring up the value of the public good of a stable currency and financial system through direct involvement and oversight.[5]

THE PROPOSAL: A FED-BACKED DIGITAL CURRENCY TO PRESERVE MONETARY STABILITY, INCREASE INCLUSION, AND PROVIDE A NEW POLICY TOOL

We propose the creation of a new system of regulated financial institutions called digital payment providers (DPPs)[6] to facilitate fast, inexpensive retail payments for consumers through the use of a digital currency backed by reserves at the Fed.[7] The DPP system could also be used to facilitate automatic stabilizers more efficiently to consumers and provide the Fed with a new tool (discussed in part 2 of this Policy Brief). A stable digital currency, secure real-time payments processing, and a more effective tool to stimulate demand in a recession could achieve stability within the financial system and meet the Fed's mandate. Much like the current banking system, a system of private providers would promote competition and continued innovation, while Fed oversight would promote safety and soundness (figure 1).[8]

Promoting Competition and Low Barriers to Entry

Relying on the private sector alone to offer the benefits of new technology, as the United States currently does, introduces new sources of systemic risk into the system. The analogy to the proposed DPPs is the two-tier banking system in which supervised depository institutions hold deposits at the Fed and are authorized to accept deposits, extend loans, and provide other intermediation services to consumers and businesses. Regulated banks create the vast majority of money in circulation through lending activity. Our proposal preserves the

4 On the need for public sector involvement in digitalization of currencies and payments, see Lael Brainard, The digitization of payments and currency: Some issues for consideration, speech at the Symposium on the Future of Payments, Stanford, CA, February 5, 2020, www.federalreserve.gov/newsevents/speech/brainard20200205a.htm.

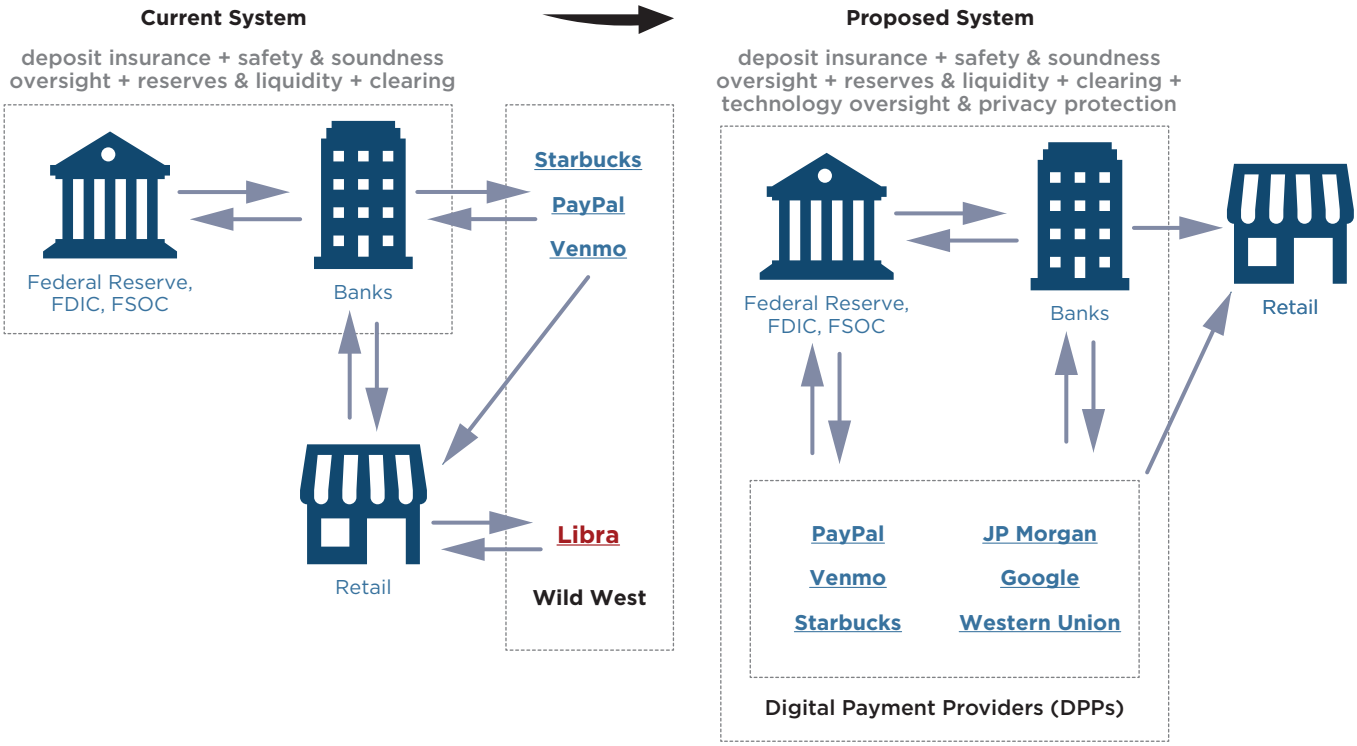
5 See Board of Governors of the Federal Reserve System, "Federal Reserve announces plan to develop a new round-the-clock real-time payment and settlement service to support faster payments," press release, August 5, 2019, www.federalreserve.gov/newsevents/pressreleases/other20190805a.htm.

6 We use the term *providers* to clearly differentiate the responsibilities they have that go beyond those of processors and apps discussed above.

7 There are a number of important public policy questions around the regulation of digital finance and whether federal or state regulators should take the lead. These questions are important for DPPs, but given their use of Fed accounts, we would expect the Fed to be the primary regulator.

8 For a more radical approach to these issues, see the paper by Ricks, Crawford, and Menand (2020). Unlike some other proponents of narrow banking, we do not seek to provide a new safe asset in sufficient size as to remove the need for deposit insurance. The goals we seek are more efficient payments, financial inclusion, and augmentation of the countercyclical toolbox.

Figure 1
Ensuring safety and soundness in a digital world



FDIC = Federal Deposit Insurance Corporation
FSOC = Financial Stability Oversight Council

role of fractional reserve banks, adding a narrow mandate for DPPs to facilitate small-value retail payments, not engage in lending or wholesale payments, which make up the vast majority of payment flows. Our approach is similar to that suggested by Tobias Adrian and Tommaso Mancini-Griffoli (2019), which they call a synthetic digital currency and is essentially a version of a proposal for segregated balance accounts put forward by James McAndrews to the Federal Open Market Committee.[9]

Another advantage of this two-tier system is that it separates the official sector from direct monitoring of individual payment transactions. Versions of central bank digital currency in which accounts are directly held at the central bank by design give the official sector this monitoring power independently of the need to enforce laws and regulations.

Regulatory standards, including capital and liquidity requirements, should be less burdensome for DPPs than for depository institutions; as deposits will be 100 percent backed by reserves at the Fed, there would be no need for deposit insurance. New regulation would be required to ensure both the protection and appropriate property rights of consumer data with a focus on cybersecurity. The know-your-customer (KYC) restrictions on DPPs would have some specific characteristics, as DPPs would be providing account and custody services for

9 See page 14 of the October 2014 transcript at www.federalreserve.gov/monetarypolicy/files/FOMC20141029meeting.pdf.

the Treasury and the Fed. DPPs would be responsible for verifying consumer eligibility to receive the deposits/bonds, and each DPP would need to be set up to conduct open market operations with the Fed and transfers from the Treasury.

Low capital and liquidity requirements should encourage competition, even as modern technology and network effects lead to massive economies of scale and concentration. Scale can lower costs and improve efficiency for consumers; however, it will be important to balance the efficiencies from network effects against the risks of concentration. Limits on market share of any institution to 10 percent (similar to the current limit on deposits in the banking system) could help strike that balance. DPPs would likely include new legal entities within bank holding companies, large tech firms and payment companies, and smaller-scale financial technology (fintech) firms with innovative customer interfaces.[10]

We propose seeding the digital accounts in the new system with an initial grant of, say, $500 per resident 16 and over. The seeding would require a Fed balance sheet expansion of about $130 billion—well under half what the Fed recently expanded its balance sheet by for reserve management purposes but a strong incentive for consumers to take the time and trouble to open an account.[11] In order to expand coverage to the unbanked and underbanked, we recommend prohibiting direct account fees and minimum balance requirements but allowing for indirect fees, such as transaction fees paid by merchants.[12]

DPPs would also be compensated through interest on the reserves created with the seed endowment; some of that compensation from the Fed would be intended to subsidize the broadening of access to digital payment services. The lower cost structure and speed of payments would encourage consumers to shift more of their retail transactions to the system. For the system to be viable, it would be important that a large number of consumers use it as their main transaction account. The lower cost structure of the DPPs, and initial incentives for both consumers and DPPs, should create momentum. Many consumers using digital payment processors like Venmo or PayPal would easily transition into the DPP system for secure real-time payment processing. We foresee basic transactions and transfers such as paying bills then being made within the DPP system.

Limiting the size of accounts in the DPP system to $10,000 would reduce the impact on the banking system. For the vast majority of Americans, an account limit of $10,000 would not be a binding constraint, and it would place a limit

10 This proposal is different from the original proposal by James McAndrews, in which existing depository institutions would be able to offer segregated balance accounts (see page 14 in www.federalreserve.gov/monetarypolicy/files/FOMC20141029meeting.pdf). Our proposal widens the scope of firms that can have accounts at the Fed and separates DPPs from depository institutions within bank holding companies.

11 The transfer would be implemented by the Fed buying a zero-coupon bond issued by Treasury from consumers through DPPs. The increased liabilities of the Fed would be matched by this zero-coupon bond. At current interest rates, the annual cost of a $130 billion grant would be under $2 billion.

12 The number one reason people cite for not having a bank account is not having enough money to keep in it; high, unpredictable fees are also a significant impediment (FDIC 2018). Aaron Klein of the Brookings Institution discusses how the current system penalizes lower-income households (see "Is cash still king? Reviewing the rise of mobile payments," Up Front, January 30, 2020, Brookings Institution, www.brookings.edu/blog/up-front/2020/01/30/is-cash-still-king-reviewing-the-rise-of-mobile-payments/?utm_campaign=Economic%20Studies&utm_source=hs_email&utm_medium=email&utm_content=82869721).

on how much money could flow out of traditional banks into the DPP system in times of stress. For higher-income consumers actively using DPPs, the cap on individual accounts would likely lead to methods to sweep excess funds into other deposit vehicles in the financial system. DPPs would also face competitive pressure from banks on interest rates offered on accounts.

Sustaining the System with a Stablecoin

DPPs would be restricted to receiving interest on reserves only on the initial seed amount. But the holdings of the DPP system are likely to grow beyond the seed amount, because of its attractiveness for many consumers who are currently unbanked and underbanked and the desire by all consumers for a fast, low-cost transaction service. The system of DPPs could also have the right to issue a stablecoin backed by reserves held at the Fed, although not necessary at inception.[13] Stablecoins use distributed ledger technology (blockchain). In the case of DPPs, they would operate on a permissioned network, similar to the design of the Libra association but with DPPs being the permissioned members. Such a system is different from the open network structure of the original cryptocurrencies, such as Bitcoin. It would allow DPPs to produce a digital token version of the US dollar that could be more widely held than the normal DPP consumer accounts and in larger sizes. It would be within the Fed's control to limit the growth of the new issuance of the stablecoin. (In part 2 of this Policy Brief series, we discuss how increased issuance of the stablecoin might facilitate highly effective QE directly to households.)

Like banks and paper currency, DPPs would need to comply with anti–money laundering (AML) and anti-terrorism laws and KYC rules not only for individual accounts but also for the stablecoin under the oversight of the Fed and other agencies. The DPPs would need to collectively agree on a technical structure to ensure ease of use and widespread ability to hold and transfer the stablecoin while meeting these rules. The maximum aggregate issuance of the coin should be limited in the initial case to an amount similar to the seed amount for the DPP system, about $130 billion. The Fed would have the right to impose lower limits on the aggregate size of the stablecoin by slowing its growth if demand for the stablecoin was unexpectedly strong, thus safeguarding against either non-US holders using it as a significant global store of value or unintentional disintermediation of the fractional banking system.

Reducing Risks to the Existing Monetary and Banking System from a Central Bank–Backed Digital Currency

The proposed system of DPPs presents two main risks to the current banking system. First, households might shift deposits from the banking system to their DPP accounts, potentially constraining credit intermediation. Second, flight from bank deposits to the Fed-backed digital currency could accelerate in times

13 The former chair of the Commodity Futures Trading Commission has advocated for a similar approach. See Christopher Giancarlo and Daniel Gorfine, "We Sent a Man to the Moon. We Can Send the Dollar to Cyberspace," WSJ Opinion, *Wall Street Journal*, October 15, 2019, www.wsj.com/articles/we-sent-a-man-to-the-moon-we-can-send-the-dollar-to-cyberspace-11571179923.

of stress, which could be destabilizing to the banking system. (In our second policy brief, we address this issue in the case in which DPP accounts are used to implement direct payments to consumers.)

Since the initial seed deposits are new money, they would complement, rather than substitute for, bank deposits. In our structure, the central bank balance sheet grows with the addition of the seed bonds on the asset side. The liability side of the balance sheet has a "new" component—the reserves held by DPPs—and the balance sheet of the traditional banking system is unaffected. The common criticism of central bank digital currency that it reduces funding for loans in the private sector would therefore not apply at inception in our system. Furthermore, growth in the DPP accounts for previously unbanked and underbanked households would come mainly from reduced holdings of cash, with no effect on the traditional banking sector.

DPPs would be paid interest only on the amount of the initial seed deposit, not on additional monies, and the cap on individual accounts would rule out their usefulness for wholesale and large-value transactions, which constitute the vast majority of money flows in the US financial system. Most household payments are very small. Indeed, the Fed's Diary of Consumer Payment Choice (Kumar and O'Brien 2019) finds that US consumers make 21 payments a month that are less than $25 and only 13 purchases greater than $50. Another estimate of the size of both firm and household payments using credit cards, prepaid and non-prepaid debit cards, the automated clearinghouse (ACH) system, and checks finds that there were 174.2 billion such payments in 2018, worth more than $97 trillion, with an average payment size of just over $500.[14] In comparison, in December 2019 Fedwire funds, the Fed's large-value payment system, handled $63 trillion of payment transfers between banks, with an average transfer value of about $4 million.[15] The structure of DPPs as a narrow institution handling only retail payments means that banks will still be needed for credit intermediation, risk transfer, and investment and wholesale banking.

More evidence suggesting that the DPP system would not threaten the traditional system comes from comparing possible aggregate sizes. The aggregate initial seed amount of $130 billion is about 1 percent of the total deposits in the traditional banking system of $13 trillion. Even if the amount held in the accounts doubled from the seed amount and issuance of the stablecoin hit its maximum, the two sources would represent less than 2.5 percent of deposits held in banks and money market mutual funds, which total $17 trillion.

Another criticism of central bank digital currency is that it would accelerate runs out of traditional bank deposits and money market mutual funds in times of financial market stress. Although it is impossible to refute the idea that such run dynamics are possible, the impact on the traditional banking system would be limited by the lack of institutional access to the accounts, the individual account limit of $10,000, and limits on the rapid growth in issuance of the stablecoin. The experience of the global financial crisis of 2008, new liquidity regulation for large banks, and money market fund reform in the United States all suggest

14 See the 2019 Federal Reserve Payments Study, www.federalreserve.gov/newsevents/pressreleases/files/2019-payments-study-20191219.pdf.

15 See Federal Reserve, Fedwire Funds Service–Monthly Statistics, www.frbservices.org/resources/financial-services/wires/volume-value-stats/monthly-stats.html.

that it is institutional holders of large deposits, not retail depositors, that are the potential source of destabilizing run dynamics. There is always a tradeoff between providing safety to consumer deposits and the risk of accelerating runs. Our account limit of $10,000 is well below the Federal Deposit Insurance Corporation (FDIC) limit of $250,000, which can apply to multiple accounts at different depository institutions.

The banking system is already being disrupted by digital innovation. Our proposal is for the central bank to keep up with developments in the interests of safety and soundness. Failure to establish a regulated system of digital payments means that the banking system will be increasingly disintermediated by entities outside regulatory oversight.

Restricting the activities of DPP accounts to retail payments would focus the regulatory regime on consumer protection, operational resilience, and safeguards around the use of customer data, along with enhanced rules relating to AML and KYC. Regulation and supervision would have a new technology oversight component as part of ensuring safety and soundness in a digital regime, which would also apply to the traditional banking system.[16]

Importance of a Timely and Inclusive Payment System for Macroeconomic Stabilization

The proposed system of DPPs would help the Fed ensure that the valuable public good of a stable currency survives the transition to a digital age while using the benefits of lower costs to reach a sizable segment of the population that has not benefited from the payment security offered by the current banking system. Our second policy brief discusses the urgency of providing additional tools for macroeconomic stabilization. These tools center on timely and widespread payments to consumers in a downturn and the unique advantages offered by our proposed system of DPPs.

Claudia Sahm (2019) has outlined some of the difficulties the US government had in producing timely payments to all Americans using fiscal policy and the existing government and private banking infrastructure. One of the obligations of a DPP would be to act as an intermediary to ensure timely payments to all eligible households, removing the burden from the existing government agencies of additional payment responsibilities. The initial seed money can be thought of as a way of counteracting the impact of switching costs to open new accounts and as an investment by the government to ensure that all Americans can receive timely payments. The availability of interest on reserves for DPPs on the initial seed amount is also an investment in infrastructure to enhance macroeconomic stabilization.[17]

16 For discussion of some of these issues, see PIIE event on Data Protection and Digital Finance, November 18, 2019, www.piie.com/events/data-protection-and-digital-finance.

17 For example, in recent weeks Hong Kong announced direct transfers to households to stabilize the economy in response to the novel coronavirus. Since Hong Kong does not have a similar infrastructure in place as we suggest, the payments will be made in the summer. See the Summer Boost section in the March 2, 2020, Bloomberg article, www.bloomberg.com/news/articles/2020-03-02/hong-kong-finance-chief-sees-property-holding-up-despite-turmoil?sref=lFzuH3OC.

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