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## Blockchain's application in Jordanian refugee camps

Breaking new ground, UN Women partnered with the World Food Programme (WFP) to pilot test the use of blockchain technology to transfer salaries to women enrolled in Oases cash-for-work programmes in Za'atari and Azraq refugee camps, beginning in June 2019. The pilot reached 467 women and has been expanded to all four camp-based Oases in June 2020 in response to the COVID-19 pandemic.



*Ms. Anita Bhatia, Assistant UN Secretary-General and Deputy Executive Director of UN Women, accompanied by Mr. Ziad Sheikh, Representative, UN Women Jordan Country Office visited the Sameh Mall Supermarket in the Azraq refugee (Jordan) in November 2019 to assist to a blockchain payment simulation with a UN Women's Oasis beneficiary. Photo: UN Women/Lauren Rooney*

In February 2016, [WFP began using iris scans](#) to allow refugees in Jordan to purchase food at camp supermarkets. In January 2017, WFP initiated a pilot project in Pakistan, to test the use of blockchain for authenticating and registering beneficiary transactions. After refining both projects, in mid-2017,

the [Building Blocks](#) pilot began in Za'atari and Azraq refugee camps. Today, 106,000 refugees in these camps can use their entitlements to purchase groceries after scanning their iris at store checkouts. There are currently 126,832 Syrian refugees living in Jordanian camps, and half are female.<sup>1</sup>

1. UNHCR. 2020. Syria Regional Refugee Response Portal. <https://data2.unhcr.org/en/situations/syria/location/36> [Retrieved 2 December 2020].



*A UN Women cash-for-work beneficiary gets her iris scanned at the Sameh Mall Supermarket in the Azraq refugee camp, Jordan. Photo: UN Women/Lauren Rooney*

### Simulation lab and live test

In January 2018, UN Women hosted a [‘Blockchain Simulation Lab and Live Test’](#) in New York, in partnership with Innovation Norway and the UN Office of Information and Communications Technology. The four-day simulation lab spurred a range of stakeholders to explore blockchain’s use in humanitarian contexts, through practical applications. Private-sector companies presented cutting-edge blockchain-based solutions that addressed current challenges faced by women and girls in humanitarian settings. Following the Simulation Lab and [a corporate level Memorandum of Understanding \(MoU\)](#) on collaboration for innovation, UN Women Jordan entered a partnership with WFP to use blockchain technology to assist Syrian refugee women participating in its cash-for-work programmes at the Za’atari and Azraq refugee camps, building the system for the first transactions to take place in 2019.

### UN Women blockchain pilot

Under the [Building Blocks](#) inter-agency pilot, UN Women’s foray into blockchain began in Za’atari in June 2019 and Azraq in September

2019, involving nearly 200 vulnerable Syrian refugee women per month who are enrolled in incentive-based volunteering (also known as cash-for-work) programmes at two of its four Oasis Centers for the Resilience and Empowerment of Women. By leveraging this system, participants’ cash-for-work entitlements are stored securely on UN Women’s blockchain node. To access their funds – either as cash or to pay for goods – beneficiaries go to WFP-run supermarkets, where an iris scan identifies and links them to their blockchain account.

### Benefits of using blockchain during the COVID-19 pandemic

In light of the measures adopted in March 2020 by the Jordanian Government to prevent the spread of the novel coronavirus, the benefits of blockchain have become even more palpable. As UN Women beneficiaries were no longer able to physically work at the Oases, the system quickly shifted to cash assistance, ensuring no disruption to their incomes. Although the lockdown restricted UN staff movement, the blockchain system allowed salaries to be managed and transferred remotely, with no interruptions.

Meanwhile, beneficiaries in the non-pilot Oases experienced a delay in receiving their salaries since the outbreak of the pandemic in March 2020, which had to be physically collected once partners were finally granted a permit allowing them to enter the camp.

Moreover, restrictions on all people’s movement during the lockdown have meant that refugees are only allowed to leave home to go to the supermarket or to seek

medical assistance. As such, the supermarket has proven to be a strategic location for UN Women beneficiaries involved in the pilot to continue receiving their salaries. In addition, the IrisGuard biometric scan is contactless, so beneficiaries need not touch any buttons to pay for groceries, the way others must if using cards, making it a safer and more hygienic method.

In fact, UN Women's blockchain cash-disbursement system has made it one of the few humanitarian actors in Jordan that have been able to seamlessly and remotely ensure that cash continues to reach beneficiaries involved. This unexpected emergency situation has provided valuable lessons for the pilot's future continuation and the decision to expand it to cover the nearly 2,500 yearly participants in Oases camp-based cash-for-work programmes – as well as for its potential rollout to host communities in partnership with WFP in future.



*The team from the University of Oxford's Internet Institute conduct a focus group discussion with blockchain beneficiaries in the UN Women's Oasis in the Za'atari camp, December 2019. Photo: UN Women/Ana Lukatela*

## The results

Cumulatively, from June 2019 - April 2020, 467 women cash-for-work beneficiaries have participated in the pilot: 254 in Za'atari and another 213 in Azraq. Baseline and midline monitoring reports were conducted with different beneficiary rotations, in June, November and December 2019 and in January 2020 to assess their experiences. External independent researchers from the University of Oxford's Internet Institute also prepared a value assessment of the pilot's partnerships and impact, after a series of visits, observations, interviews and 18 focus group discussions with 101 beneficiaries in December 2019.

Findings have also emerged from a wider context of multi-stakeholder discussions and value analysis workshops about the pilot, involving several UN agencies, and the private sector partners. These reports and inputs have all served to assess the pilot's impact, for beneficiaries and the organization.

## Impact for beneficiaries

### Flexibility and access to cash

Women's salaries are now deposited weekly, as opposed to monthly, giving them more flexibility in how often they can access their funds. Previously, women received a physical cash payment of their salaries on a monthly set date directly at the Oases. Under the new system, women can also choose how to use their funds: as cash-back, applying it towards purchases at the supermarket, or saving some or all of it. The cash-back function is unique to UN Women, as WFP recipients can only apply their entitlements to supermarket purchases.

In baseline reports at both camps, common responses as to why the process was beneficial included: that recipients can 'save money easily', 'access their salary whenever they desire,' and that women 'are permitted to leave the home for this purpose' and so it provides them with some welcomed freedom to their movement. The value assessment concluded that overall, taking into account the variation in financial circumstances and money management strategies, an important benefit of the pilot was that it provides everyone with choice.<sup>2</sup> The same report cited a respondent who said: "I like that this week I can withdraw the salary whenever I need it, but when I don't need it, I can keep it till the end of the month."<sup>3</sup>

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2. Margie Cheesman. 2020. "Field report: UN Women pilot: Za'atari and Azraq refugee camps, Jordan." Oxford Internet Institute.

3. Ibid.

### Reliability and convenience

In both Za'atari and Azraq, the Oases are in close proximity to the supermarkets – both less than a 5-minute walk away – making them a convenient location.

Despite some initial problems with knowing when salaries would be deposited, 100% of the beneficiaries consulted for the baseline report in Azraq said that they had not faced problems in the disbursement process, as did 94% in Za'atari. Reported problems related mostly to the periodic lack of cash available at the supermarket – which has since been addressed by UN Women and WFP directly with the vendors. In a midline assessment in December 2019, all 114 respondents confirmed that they are regularly informed when entitlements are added to their balances by UN Women staff. Moreover, 92% confirmed that with the blockchain approach they have never had cash shortfalls.

It is worth mentioning that the endline assessment was due to take place in May 2020. However, due to global travel restrictions and confinement measures adopted in both refugee camps as result of the COVID-19 pandemic, the exercise has been postponed to 2021 once circumstances will allow.

### Control, safety and security

The 'digital wallet' was seen as a more secure way for participants to safeguard



their money, akin to a bank. According to an independent value assessment of the pilot, there have been no reported instances of victimization or theft from women collecting their salary.<sup>4</sup> In baseline reports, respondents in Za’atari called the biometric process “safer”. One noted: “Little by little, I take money instead of taking a big amount, because maybe I would lose it.” Another woman, from Azraq, specifically stated: “I feel safe knowing what I spend and what I save”.

The blockchain also increases women’s agency and control over their salaries, extending their financial independence as the iris-scan process at the supermarket checkout ensures that only the owner of the wallet can access the cash. The independent value assessment cites some women as saying that the system “protects women who are abused and have no say.”<sup>5</sup> In baseline reports in Za’atari, one beneficiary noted that “the recipient is the only one who can withdraw, so children or husbands cannot access your money,” while another said: “the Iris scanner is good because it doesn’t let the children go to retrieve it or other family members who waste their money on cigarettes and things that are not useful.”

### Ability to save and budget

In the baseline report at the Azraq refugee camp, 89% respondents said that a “digital wallet” is better for their financial management; and 78% of respondents in Za’atari noted the same. Of those 89%, the



Aisha Salam, 36, uses the blockchain assistance in Tazweed Supermarket, in Za’atari refugee camp, Jordan. Photo: UN Women/ Lauren Rooney

**Our impact:** Aisha Salam, 36, arrived in Za’atari refugee camp in 2014 from Damascus, and had to find a way to support herself, as well as, her three children. She enrolled in the Oasis Center as a teaching assistant and childcare provider, which allowed her to pay for the medication her daughter required and provide for the family’s needs. “Being able to save money for my daughter’s medication is very important to me,” Salam explained. “For myself and I know for many other women, it is reassuring to know that no one else can take the money or take advantage of our salaries.”

majority claimed the digital wallet is better than cash because they ‘can withdraw money whenever they need to’, and ‘it is better to save money’. One beneficiary from Za’atari said “I feel it helps me and may give me ideas on how to save a little bit of money.”

The independent value assessment noted that despite the shared understanding that long-term saving was impossible, there was

4. Ibid.

5. Ibid.

indication that some participants put money aside for budgeting, with one woman saying: “I might put some money aside for a specific purchase, to buy important things like a mattress or pillow covers or a water filter.”<sup>6</sup> Blockchain records also show that there were 3,246 unique transactions during the pilot, meaning beneficiaries each made seven transactions on average in one month. This indicates that they are not cashing out their full salary once a month but using their e-wallets much like bank accounts that they can access regularly.

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“We know that women in crisis situations and displacement settings tend to have lower digital literacy than men, and often lack access to the technology and connectivity that are so critical in today’s world. UN Women is partnering with WFP to change this by using innovative technology to drive change for women in the most challenging settings and to accelerate progress towards women’s economic empowerment on a large scale.”  
—UN Women Executive Director Phumzile Mlambo-Ngcuka

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### Digital and financial literacy

To increase the financial literacy of its beneficiaries, UN Women has provided expense-tracking and budgeting seminars at its Oases.

In the baseline report for Azraq, where 99% of respondents reported having their own phone, 81% stated that they can use their phone to track their expenditures and savings, while 74% of respondents said they

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6. Ibid.



*Ibtsam Sayeed Ahmed, 40, uses the blockchain assistance in Tazweed Supermarket, in Za’atari refugee camp, Jordan. Photo: UN Women/ Lauren Rooney*

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**Our impact:** in 2012, Ibtsam Sayeed Ahmed fled Syria after a bomb fell on her family home in Dar’aa, which left her with life-changing injuries. Ahmed spent the next three years in and out of the hospital to fully recover, “I had to learn to walk again, to adjust to only having one hand, support myself, and ultimately learn how to live in a new way,” she remembers. Ahmed lives alone and has the responsibility of financially supporting herself, so when an opportunity came to enroll in the UN Women Oasis Center, she took the position.

As part of UN Women’s incentive-based volunteer programme at the Oasis, Ahmed now earns a salary as a qualified Remedial Education Teacher, “(The position) allowed me to financially support myself and save money to pay for my medical bills.” To support women like Ahmed enrolled in the Oasis Centers, UN Women in partnership with the World Food Programme (WFP), and IrisGuard provide secure access to their funds and savings through blockchain assistance. “Knowing that I have the option to save money has made a difference in the way that I spend money and think about the future,” Ahmed affirms.

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would like to receive more training on using phones to track expenditures and savings. In Za’atari, where 94% of respondents had their own phones, 76% said they are able to use it to track their expenditures and savings, and 31% of respondents expressed that they would like to receive training on using phones to track their expenditures and savings.

As one woman put it: “[By tracking expenditures] I feel a sense of freedom”. In the mid-line assessment, all respondents expressed interest in more training to be able to track their expenditures. They said this would be a ‘good step to save and track money’. In addition, 54% indicated that the withdrawal of cash on a weekly basis has helped in one way or another with their decision-making.

## Benefits for UN Women and partners

### Efficiency and cost reductions

Blockchain is the technology behind cryptocurrencies such as Bitcoin and Ethereum. These encrypted digital currencies allow transactions to go directly to recipients without third parties, making money transfers easier, speedier and cheaper.<sup>7</sup> Oxford University's independent value assessment concludes that a key benefit of the UN Women pilot lies in its removal of banks as an intermediary, which streamlines costs and reconciliation processes.

Prior to the pilot, UN Women relied on UNOPS to provide physical cash at the Oases, which UN Women staff would then distribute in envelopes to its incentive-based volunteers. According to the independent value assessment, this involved much bureaucracy and time, as staff had to organize queueing times, check IDs and salary amounts, and deliver envelopes one at a time.<sup>8</sup> Now, that process is automated, via iris-scanners at the supermarkets. This leaves time for UN Women staff to attend to other priorities in the camps, significantly reduces overhead and administrative costs and bank fees and as all transactions are digitized where

there is a problem in reconciliation this can be solved in a matter of hours as opposed to days or weeks.

### Improves security and reduces risks

Building Blocks runs on a private, permissioned blockchain using encrypted transactions. The fact that UN Women and WFP validate each other's transactions through a common blockchain network results in improved security and accountability. The use of digital cash payments for humanitarian financing have been touted by experts as being more secure, while still ensuring privacy.<sup>9</sup> WFP has stated that through Building Blocks, it is better able to protect beneficiary data and control financial risks.<sup>10</sup> Experts say reducing third-party involvement can increase security and reduce the risk of fraud and of being hacked.<sup>11</sup> Storing records on a blockchain also makes them essentially tamper-proof, thereby reducing the potential for misappropriation.<sup>12</sup>

### Greater oversight and effectiveness

Through blockchain, UN Women has oversight over data from beneficiaries' digital wallets – in particular automated information about their balance and withdrawals.

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7. Tissa Riani. 2018. "Blockchain for social impact in aid and development" *Humanitarian Advisory Group*. <https://humanitarianadvisorygroup.org/blockchain-for-social-impact-in-aid-and-development/>

8. Margie Cheesman. 2020. "Field report: UN Women pilot: Za'atari and Azraq refugee camps, Jordan." Oxford Internet Institute.

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9. P. Currion. 2015. AidCoin: a revolution in humanitarian financing. [medium.com/@paulcurrion/introduction513f86ed92df#.2dz4i3166](https://medium.com/@paulcurrion/introduction513f86ed92df#.2dz4i3166)

10. Angela Smith. 2019. "How the World Food Programme uses blockchain to better serve refugees," ITU News. <https://www.itu.int/en/myitu/News/2020/04/08/12/32/How-the-World-Food-Programme-uses-blockchain-to-better-serve-refugees>

11. Tissa Riani. 2018. "Blockchain for social impact in aid and development" *Humanitarian Advisory Group*. <https://humanitarianadvisorygroup.org/blockchain-for-social-impact-in-aid-and-development/>

12. Michael Pisa and Matt Juden. 2017. "Blockchain and Economic Development: Hype vs. Reality." CGD Policy Paper. Washington, DC: Center for Global Development. <https://www.cgdev.org/publication/blockchain-and-economic-development-hype-vs-reality>

Being the custodian of this information means that potential disputes and problems (for example, if the wrong amount were uploaded) can be identified easily and resolved quickly and effectively, whereas this can be more challenging with an in-person, manual system. WFP has reported that with their blockchain system, any issues with transactions can be resolved more quickly, offering users a more efficient experience.<sup>13</sup>

### Improved insights for humanitarian programming

Automatic transactional data on how beneficiaries use their digital wallets also gives UN Women new insight into their spending and saving patterns. UN Women's Gender Statistics Analyst analysed such spending behaviour by location to deliver a trend analysis that can inform future programming. The independent value assessment also notes that such information can be put to good use, potentially through combined analyses with other UN blockchain partners' data, "which might enhance strategic, coordinated programming in the camps."<sup>14</sup>

Development sector literature emphasizes that blockchain technology could facilitate data-sharing, help reduce bureaucracy and facilitate coordination of actions among donors, which all have their own agendas –

which would also make it easier to identify funding gaps in the development aid sector.<sup>15</sup>

### Increased harmonization of aid efforts

The Building Blocks pilot project in Jordan represents a major step towards meaningful inter-agency collaboration as it marks the first time two humanitarian organizations are using a common blockchain network while using different entitlement management systems and keeping their internal operations intact. This pilot is expected to serve as a stepping-stone towards broader collaboration within the humanitarian cash ecosystem and it paves the way for increased harmonization of aid efforts.

To date, most blockchain pilots have involved only a single donor or agency. However, the real promise of using a blockchain to distribute aid is the potential for coordination across multiple donors. Sharing information across several organizations, including donors and partner governments, auditors and potentially even beneficiaries on a single platform, could make aid distribution more efficient in several ways.<sup>16</sup>

It could help to prevent unnecessary duplication of effort by donors and partner governments; it could promote greater harmonization of procedures by revealing areas where donors are asking for similar information from

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13. Margie Cheesman. 2020. "Field report: UN Women pilot: Zaatari and Azraq refugee camps, Jordan." Oxford Internet Institute.

14. Ibid.

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15. Aiste Rugeviciute1 and Afshin Mehrpouya. 2019. "Blockchain, a Panacea for Development Accountability? A Study of the Barriers and Enablers for Blockchain's Adoption by Development Aid Organizations." *Frontiers in Blockchain*. Vol. 2. <https://doi.org/10.3389/fbloc.2019.00015>

16. Michael Pisa and Matt Juden. 2017. "Blockchain and Economic Development: Hype vs. Reality." CGD Policy Paper. Washington, DC: Center for Global Development. p. 33-34. <https://www.cgdev.org/publication/blockchain-and-economic-development-hype-vs-reality>

governments but have different reporting standards; and it would allow partner governments to better integrate aid into their budget decisions.<sup>17</sup>

Beyond cash-transfer programming, blockchain also has the potential to be used by humanitarian actors for information management, coordination of aid delivery, management of crowdfunding, tracking supply chains, and boosting humanitarian financing.<sup>18</sup> Digital cash payments can be made interoperable across multiple actors, with the possibility of tracking funds from original donor to final recipient, while still ensuring privacy and security.<sup>19</sup>

In addition, WFP has stated that the blockchain system has allowed it to “set up assistance operations more rapidly in the wake of emergencies.”<sup>20</sup> In fact, blockchain’s resilience in the face of emergencies, and unexpected disruptions to business-as-usual, are another benefit and lesson learned, to be detailed next in the concrete context of COVID-19.

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17. Ibid.

18. Tissa Riani. 2018. “Blockchain for social impact in aid and development” *Humanitarian Advisory Group*. <https://humanitarianadvisorygroup.org/blockchain-for-social-impact-in-aid-and-development/>

19. P. Currión. 2015. AidCoin: a revolution in humanitarian financing. [medium.com/@paulcurrión/introduction513f86ed92df#.2dz4l3166](https://medium.com/@paulcurrión/introduction513f86ed92df#.2dz4l3166)

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## Conclusion

Through blockchain technology, women working at UN Women's Oasis Centers now have the option to either collect cash, save or spend it, opening up a new frontier of choice and agency for them. The pilot initiative has facilitated their access to physical cash, seen as a trusted mainstay, as well as access to a digital wallet, which is viewed as helpful in managing budgets. In digitalizing cash delivery, the pilot has given refugee participants:

- More **choice and flexibility**, by enabling them to withdraw any amount from their UN Women wallet at a time convenient to them, in a convenient location at the supermarket.
- More **regular access to cash**, by reliably disbursing cash on a weekly rather than monthly basis to address issues caused by cash shortfalls.
- Greater financial **control and security**, as the iris-scan process at the supermarket checkout ensures that only the owner of the wallet can access the cash, rather than husbands or children.
- Enhanced **ability to save**, particularly for emergencies, by allowing beneficiaries to store some or all of

their salary on the digital wallet for up to six months after their work contract ends.

- Improved **digital and financial literacy**, through training on how to use mobile phones to track spending, as well as budgeting seminars.

Moreover, participants report that the initiative has helped in their decision-making.

The pilot has also had important organizational benefits, for UN Women and WFP, which could also have future positive repercussions for Oasis beneficiaries. These include:

- Greater **efficiency and reduced costs**, by eliminating third parties, making money transfers faster and cheaper – with significant cost-savings so far for UN Women and WFP.
- More **security and reduced risk**, through the use of private, permissioned blockchain and encrypted currency, which reduces hacking and fraud while protecting beneficiary data.
- Greater **traceability and transparency**, increasing accountability to donors and in line with Grand Bargain commitments.<sup>21</sup>

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21. Grand Bargain commitments, as cited in Aiste Rugeviciute and Afshin Mehrpouya. 2019. "Blockchain, a Panacea for Development Accountability? A Study of the Barriers and Enablers for Blockchain's Adoption by Development Aid Organizations." *Frontiers in Blockchain*. Vol. 2. <https://doi.org/10.3389/fbloc.2019.00015>

- Enhance **oversight and effectiveness**, allowing UN Women to easily identify and resolve potential errors, analyse spending patterns and identify trends to inform future programming.
- Increased **harmonization of aid efforts**, as the first UN collaboration involving two organizations using a common blockchain network, it is expected to pave the way for greater interoperability and collaboration.

Finally, this project has had the unintended benefit of illustrating blockchain's **resilience during emergencies**, as evidenced by UN Women's ability to remotely ensure that cash continues to reach beneficiaries despite COVID-19 movement restrictions on staff and beneficiaries, while the non-contact nature of the iris scanning has proven to be a safe and hygienic approach.

Based on all of the aforementioned results and impacts of the blockchain pilot, in April 2020, UN Women made the decision to scale-up the approach and adopt this cash disbursement modality as the new standard for all of UN Women's camp-based Oasis cash-transfer programmes, which it was able to do as of June 2020. Moving forward UN Women will continue to explore with WFP opportunities to roll out the approach and pilot also in host community settings where UN Women in partnership with the Ministry of Social Development runs eight Oasis centers.



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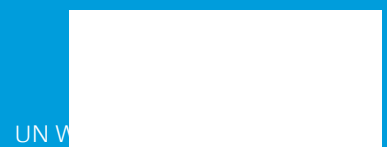
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UN Women supports UN Member States as they set global standards for achieving gender equality, and works with governments and civil society to design laws, policies, programmes and services needed to ensure that the standards are effectively implemented and truly benefit women and girls worldwide. It works globally to make the vision of the Sustainable Development Goals a reality for women and girls and stands behind women's equal participation in all aspects of life, focusing on four strategic priorities: Women lead, participate in and benefit equally from governance systems; Women have income security, decent work and economic autonomy; All women and girls live a life free from all forms of violence; Women and girls contribute to and have greater influence in building sustainable peace and resilience, and benefit equally from the prevention of natural disasters and conflicts and humanitarian action. UN Women also coordinates and promotes the UN system's work in advancing gender equality.



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