Policy guidelines for implementation

CHAPTER 04

A
Policy considerations: towards a successful and sustainable stakeholder-centred approach

Technologies like blockchain need a supportive policy environment to succeed. In general, policy considerations have become a determining factor for the success and sustainability of digital solutions. This is particularly true for the multi-stakeholder and multi-agency space of trade processes and procedures. Thus, the policy considerations of blockchain implementation for trade facilitation purposes centre on stakeholder-dynamics, inter-agency coordination, user empowerment, public-private partnership (PPP) and users' digital hygiene, all of which are crucial for the long-term sustainability of the blockchain.

In the present section, issues of stakeholder empowerment, user support and inter-agency coordination, which are especially important for stakeholder ownership and support, are explored. Issues around data governance, user protection and standards are covered in the legal and regulatory section of the guide. The successful and sustainable implementation of blockchain for trade facilitation depends on implementation taking place in a multi-stakeholder manner, given that a combination of digital and physical infrastructure work in tandem in the trade environment and are managed by multiple agencies. Thus, a policy environment that will support critical trade infrastructure such as blockchain solutions necessarily requires a multi-stakeholder approach, a multi-structured set-up and a multi-user setting both within and across countries.

Furthermore, it is not only the trade policy environment that is multi-stakeholder in nature; the proper implementation of blockchain necessarily requires a multi-stakeholder architecture. The technology normally requires multiple entities to coordinate in keeping them resilient, secure and sustainable. Thus, in the design of any blockchain environment for the purpose of trade facilitation, stakeholder considerations should be at the centre of the policy and technical design. While blockchain is considered to hold potential for trade facilitation purposes, the areas of stakeholder interest, support and ownership, as well as the key policy area that largely determines the success and sustainability of trade infrastructure, have been given limited attention. The present section outlines the process and importance of having all relevant trade agencies involved in the implementation process as well as the need for appropriate individuals within the agencies who possess the required knowledge and authority to support and sustain the implementation process. Both inter-agency and intra-agency stakeholder coordination is critical in designing the blockchain policy environment. Effective engagement of key stakeholders in this regard is not only critical to the success of the blockchain implementation, but also presents the ultimate path to a sustainable digital infrastructure over the long term.

Both inter-agency and intra-agency stakeholder coordination is critical in designing the blockchain policy environment.

B

Key policy steps for successful stakeholder engagement

The steps to create an engaged stakeholder environment in the implementation process of blockchain for trade facilitation range from identifying and defining stakeholder roles to building their strength and knowledge in the implementation process. The success and sustainability of the blockchain implementation process will largely depend on how empowered and prepared the stakeholders are, both at the inter-agency level as well as at the intra-agency level. The process of getting stakeholder engagement right is laid out in the proceeding steps.

1. Identify key stakeholders and define key roles

The first step to set up the policy environment for a successful blockchain implementation is to identify the stakeholders who are critical to the implementation process and define their roles from start to finish. The identification and definition of stakeholder roles should take place within four key dimensions:

A

Sector-wide coordination. This encompasses broad Governmental stakeholder dimension. This is an all-of-sector broad level coordination where all agencies and key stakeholders of those agencies meet to decide the sector-wide direction of the technology and how the broad policy, regulatory and technical needs should be met. It will mostly be led by the ministry or department of trade within each country. At this level, regional and international collaboration may also be initiated for cross-border cooperation purposes.

B

Inter-agency coordination. This second dimension relates to the coordination mechanisms between key agencies in the implementation process, usually on a shared platform. This is where National Trade Facilitation Committees (NTFCs) will necessarily play a key role, for instance, by creating specialized subcommittees to address specific issues with regards to the implementation process.

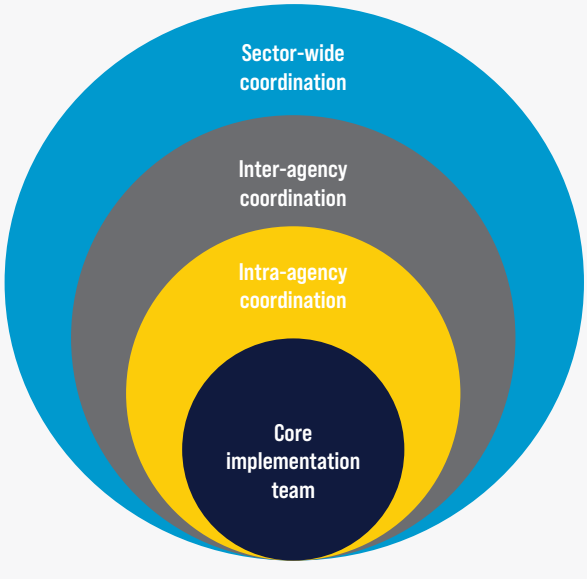
C

Intra-agency coordination. This third dimension relates to the level where key individuals within key agencies such as customs, ports or revenue authorities, internally coordinate among themselves and select key individuals for the implementation process. These key individuals are selected based on their relevant knowledge and level of authority for supporting the implementation process.

D

Core implementation body. This dimension relates to the core implementation team, where the coordination takes place directly at the functional and operational level among individuals of key agencies that undertake or oversee the actual implementation of solutions, technicalities and systems. The core team should include key institutions such as the customs, ports, standards and revenue authorities, with feedback loops across all key public and private sector stakeholder institutions. At this level, broad multi-stakeholder bodies such as NTFCs could also be useful in providing oversight and leadership.

Figure 10. Levels of stakeholder engagement for the implementation process



Source: Compiled by ESCWA.

All these four dimensions must include industry and private sector actors for the success of the stakeholder process. The various levels of stakeholder engagement are demonstrated in figure 10.

After the broad categorization and key stakeholders are identified, the definition of individual stakeholder roles that incorporate authority, domain and knowledge is important, especially when it comes to the constitution of the core implementing body. This process should be domain-dependent and reflect hierarchy. It would also necessarily vary from country to country. For example, while in some countries, customs will naturally form the core implementing body with a selected set of people from other agencies, in other countries the port authorities may constitute the core technical implementing body that undertake or oversee the actual implementation of the technology with the support of customs and other key agencies.

2. Understand stakeholder needs and communicate the benefits of the blockchain tools

Once stakeholders and their key roles have been identified and well defined, it is important to understand the trade facilitation needs, concerns and expectations of the stakeholders that can be addressed by the blockchain solutions. It is crucial to then tailor the stakeholder engagement towards addressing specific concerns and expectations by communicating to the stakeholders about the benefits of the technology and how it will help address those needs. For example, if private sector actors such as traders struggle with lack of transparency of Government processes, informing them about the unparalleled transparency, immutability and security of blockchain, as well as the empowerment of the private sector to independently verify and validate information using the blockchain solutions, could elicit their interest. Furthermore, certain Government agencies such as customs may struggle with the issue of quality assurance of declarations, under or over invoicing and revenue leakages due to inter-agency inefficiencies. Communicating to these stakeholders about the immutability, data integrity and security of blockchain and the technology's ability to prevent data tampering as well as drive inter-agency coordination efficiencies could secure their buy-in, interest and support in the implementation process. At this stage, undertaking a broad sectoral needs assessment for the technology will be appropriate.

Understanding the multi-user needs of the various key stakeholders also means considering the technical implementation processes of the blockchain for addressing these specific trade facilitation needs. While fully outlining and designing this would necessarily require the input of many agencies, it will be one of the most critical steps in the design process of the technical solutions. Understanding these user needs and outlining them ahead of the technical implementation process will be the key approach to ensuring that the blockchain solution meets the actual needs of the users and non-user stakeholders. Table 6 demonstrates some of the primary stakeholder user needs that may be incorporated into the design of the technical functionalities of a blockchain-supported user-facing application. It includes the user logic that would support key cross-border trade stakeholders adopted from the Global Report on Blockchain and its implications for trade facilitation performance.

Table 6. Key stakeholder needs that can be incorporated into blockchain design

Key stakeholders	Sector	Key technical design needs
National customs	Public	Interactive portal for: ■ Data authentication ■ Trade valuation ■ Payment processing ■ Issue and validation of Certificates of Origin ■ Notification alerts to/from other agencies
Agriculture authority	Public	Interactive portal for issuance and validation of sanitary and phytosanitary certification
Ministry of Trade/Trade Department	Public	A portal for approval/authentication of all trade documents, issuance of exemptions and preferential trade permits, and carrying out audits and sanctions
Health authority	Public	Interactive portal for issuance and validation of sanitary and phytosanitary certification
Standards authority	Public	A portal for the delivery of authorizations, classifications, and the issuance and revocation of licenses and permit
Revenue authority	Public	A portal for tariff lines, the receipt and processing of declarations and payments, and notifications/alerts to other agencies
Shipping agencies	Private	A portal for communicating and authenticating trader information, and for connecting/sharing such information with forwarders, bankers and Government agencies on documentation, declarations and transactions
Banking institutions	Private	A portal with integrated payment processing functionality, as well as communication functionalities to connect with traders, forwarders, shippers, customs and revenue authorities
Clearance/forwarding agencies	Private	A verification portal for trader-specific data, real-time trade flow, tracking of consignments, and the handling and forwarding of documentation, declarations and data to relevant Government agencies, shippers and banking institutions
Traders	Private	An all-encompassing portal for access to all service providers, payment processing, consignment tracking, self-declarations, certifications and credentials (especially of AEOs), and a notifications/alert system for approvals, sanctions and pending approvals

Source: Compiled by ESCWA.

3. Ascertain stakeholder readiness and preparedness for the technology

Once the stakeholder needs are understood and addressed with clear communication of the benefits of the technology and how it will address their needs, it is necessary to further assess the stakeholders' level of readiness and preparedness for the new technology. This involves understanding the concerns of the stakeholders regarding the implementation of blockchain technology in general, such as cost, complexity, user protection and security risks. Addressing these concerns is important to build trust and support for the implementation process. It also includes analysing the stakeholder's interests, expectations and level of influence on the overall implementation. Feedback mechanisms such as surveys and questionnaires that allow stakeholders to communicate their expectations and level of readiness for the new solutions will be particularly important for success. This will also inform the direction of focus of some of the subsequent steps to be taken in the implementation process such as nature of stakeholder training and education programmes, workshops and seminars. Furthermore, evaluating the stakeholder preparedness and contrasting that with the level of stakeholder interest in the technology will go a long way to support the implementation success and sustainability of the solutions. At this stage, undertaking a blockchain readiness assessment with the stakeholder inputs could help present a more complete picture of the level of preparedness of the various stakeholders.

4. Develop a stakeholder engagement implementation plan

Once the stakeholder needs and readiness are ascertained, it is important to put together a framework for stakeholder engagement. Developing a clear implementation plan that outlines the objectives, timelines, resources and expected outcomes for all stakeholder engagements will ensure success, efficiency and sustainability of the engagement efforts from the beginning to the end of the implementation process. The engagement plan must be reviewed on an ongoing basis to reflect the state of progress and emerging needs of the team and stakeholder groups that are engaged in the implementation process. This could also include a governance plan both for the application/use case and for the infrastructure. Furthermore, the plan should be continuously shared with all key stakeholders for input, feedback and to ensure that everyone is aligned and supportive of the implementation process. This engagement plan is best designed by an all-inclusive body like an NTFC. A basic template for the key components of the stakeholder engagement plan is presented in table 7. This can be adjusted according to each country's needs and based on the prevailing conditions of the implementing body.

Table 7. Key components of a stakeholder engagement plan

Key Sections	Constituents of the key sections of the stakeholder engagement plan
Objectives	■ To ensure effective communication, involvement and collaboration among all key stakeholders throughout the implementation process of the blockchain and accompanying solutions for trade facilitation purposes. ■ To address all stakeholder concerns, gather valuable inputs and achieve successful and sustainable adoption and utilization of blockchain technology in the trade facilitation efforts of the Government.
Timelines	Key timelines will include the following milestones and durations: ■ The pre-implementation phase (6 months): Identify stakeholders, attribute initial stakeholder roles, assess stakeholder needs and preparedness and design modalities of subsequent engagements. ■ Communication phase (3 months): Design channels of communication on major activities, meetings and workshops, define mechanisms and commence official meeting routines. ■ Training and capacity-building phase (6 months): Undertake training sessions, workshops and capacity-building events to address specific stakeholder challenges and concerns, and receive feedback and incorporate it in the implementation phase. ■ Implementation and evaluation phase (6 months): Monitor progress, evaluate engagement processes and efforts, and make necessary adjustments to reflect emerging needs.
Resources	■ Human resource: Set up a dedicated team responsible for stakeholder engagement constituting individuals with specialized knowledge in, communication, training and coordination. These individuals should be members of the NTFC. ■ Financial resources: Outline funding needs for communication, training materials, meetings, events, workshops and other engagement activities. ■ Communication systems: these should be channels of communication such as emails, newsletters, portals, social media accounts and surveys. ■ Training and support materials: Comprises user manuals, guides, tutorials, online courses and other training resources.
Expected outcomes	■ Increased stakeholder understanding of the benefits of blockchain technology. ■ Address concerns, mitigate resistance and build a sense of ownership and support for the technology among stakeholders. ■ Receive valuable inputs, suggestions and feedback throughout the implementation process for continuous improvement and alignment with stakeholder trade facilitation needs. ■ Stakeholders successfully adopt and utilize the technology, maximizing its potential benefits and minimizing risks. ■ Stakeholder groups that feel heard, valued and involved in the implementation process, resulting in a positive overall experience and increased satisfaction of all members.

Source: Compiled by ESCWA.

5. Organize key stakeholders before commencement of the implementation process

Once the stakeholder engagement plan is complete, key stakeholder involvement ahead of commencement of implementation is critical. Stakeholder coordination meetings, workshops and multi-agency engagement forums that bring every key agency and stakeholder group onboard will be crucial to the successful implementation and sustainability of blockchain infrastructure and solutions. This will lay the foundation for future engagement processes and will ensure the long-term health and use of the solutions. This process of organizing the stakeholders will also ensure that initial roles of the key stakeholders are well understood and that any needed adjustments will be executed ahead of the actual implementation of the project. This will further ensure that any initial conflations, gaps or overlaps of stakeholder roles are eliminated to establish clear lines of responsibility, duty and roles.

6. Training, education, research and support for stakeholders

Providing training and support to the stakeholders to ensure they are comfortable with the new technology and can use it effectively is one key component of the stakeholder organization process. This training can be geared towards multiple goals, such as helping stakeholders understand the key benefits and utility of the technology and helping increase their preparedness, ability and interest in the technology, and encouraging the maximum utilization of the solutions. Furthermore, undertaking periodic research towards improving the extent to which the technology meets stakeholder needs will be crucial. For example, if some stakeholders have high expected value of the technology based on their trade facilitation needs but have low knowledge of the technology and are thus less prepared, training efforts that are tailored towards empowering these stakeholders will be very useful. On the contrary, if certain stakeholders with high authority to support the implementation rather have low expectations on the technology's utility for their trade facilitation needs, education should be tailored towards the benefits, value proposition and efficiency gains of the technology for these concerned stakeholders and agencies. Empowering stakeholders through training, research and support is a key aspect of ensuring that the technology is well implemented and optimally used in a sustainable manner.

7. Implement stakeholder feedback loops, monitoring and evaluation

Continuous review of the stakeholder dynamics gives the overall implementation and utilization of the solutions an up-to-date perspective of stakeholder needs as well as expectations. It is important to constantly monitor and evaluate the implementation to identify areas for improvement and address any issues that arise. This will also help to ensure the success of the implementation and maintain stakeholder support. Also, evaluating the stakeholder engagement process to determine its effectiveness will allow for necessary adjustments in a timely fashion and will determine the sustainability of the project in a long term. Lastly, keeping stakeholders informed about the progress of the blockchain implementation process and its expected impact on existing trade facilitation infrastructure as well as the value of the new blockchain solutions is key.

In summary, getting the inter-agency vis-a-vis intra-agency coordination right is key for the overall implementation process. To get the above processes and steps right, some recommendations on the process of establishing the stakeholder ecosystem to support the implementation process are elaborated in table 8.

Table 8. Key recommendations for inter- and intra-agency coordination

Key Step	Recommendations
Selecting the lead implementing body/ agency	■ Choose a more technical agency that directly handles cross-border trade processes. This could be the customs, port or revenue authority. ■ The Ministry or Department of Trade will be a critical policy partner in providing leadership, oversight and resources for the lead implementing body's work.
Choosing the implementation team	■ The core implementation team will necessarily need to be made up of multiple stakeholders from core agencies that directly handle cross-border trade processing. ■ A technical team with appropriate knowledge and authority (middle-level management is most suitable) comprising customs, the ports and harbours authority, and the revenue authority will be best constituents of core implementing team.
Organizing the key stakeholders around infrastructure	■ Inter- and intra-agency coordination is best handled by a body like the NTFC with the collaboration of all key agencies and the private sector on issues around infrastructure design, user feedback on tools and user experience with the infrastructure.
Defining roles of key stakeholders	■ This should be done at the inter-agency and intra-agency levels. ■ At the inter-agency level, bodies such as NTFCs can coordinate and organize the dialogue on the key roles of each agency. ■ Once the roles of each key agency are defined, individual agencies will need to further select key individuals and their roles for proper coordination in the intra-agency context.
Sustaining stakeholder interest and participation	■ Once key stakeholders and their roles are well defined, sustaining the interest and continuous participation of the stakeholders in the implementation and sustainability of the ecosystem is key. ■ This will include constant communication, training, stakeholder support workshops and materials.

Source: Compiled by ESCWA.

A summary of the seven key steps of the stakeholder engagement process is presented in table 9.

Table 9. A summary of the seven key steps for building stakeholder engagement

Step	Process description
Identify key stakeholders and define key roles	Involves identifying stakeholders who will be critical to the implementation process and defining their roles at the four key levels (sectoral, inter-agency, intra-agency and core implementing team).
Understand stakeholder needs and communicate the benefits of the blockchain tools	Involves understanding the trade facilitation needs, concerns and expectations of the stakeholders and tailoring the engagement process so that it addresses these expectations, concerns and needs.
Ascertain stakeholder readiness and preparedness for the technology	Involves understanding the concerns of stakeholders regarding implementation, such as cost, complexity, user protection and security risks, and addressing these concerns in order to build trust and support for the implementation process.
Develop stakeholder engagement implementation plan	Developing a clear implementation plan that outlines the objectives, timelines, resources and expected outcomes for all stakeholder engagements will ensure the success, efficiency and sustainability of the engagement efforts from the beginning to the end of the implementation process.
Organize key stakeholders before commencing the implementation process	Stakeholder coordination meetings, workshops and multi-agency engagement forums that bring every key agency and stakeholder group onboard will be crucial to the successful implementation and sustainability of blockchain infrastructure and accompanying solutions.
Training, education, research and support for stakeholders	These should be geared towards multiple goals, such as helping stakeholders understand the key benefits and utility of the technology and helping increase their preparedness, ability and interest in the technology, while encouraging the maximum utilization of the solutions.
Implement stakeholder feedback loops, monitoring and evaluation	Continuous review of the stakeholder dynamics gives the overall implementation and utilization of the solutions an up-to-date perspective of stakeholder needs and expectations.

Source: Compiled by ESCWA.

C

Public-private partnerships as a key policy consideration

Establishing PPP is a standard approach for most physical and digital infrastructure development projects aimed at Government use. The approach holds many advantages that can support the success and sustainability of the infrastructure in question. PPPs not only leverage the strengths of both sectors but also bring optimal use of resources and expertise. Furthermore, given the crucial role of the private sector within the trade environment of most countries, the involvement of the private sector at the technical, policy and regulatory levels of the implementation process is the best way to guarantee an inclusive approach and ensure that the technology meets the needs of all key stakeholders. A PPP approach to the implementation process can thus bring many benefits to the implementing body, some of which are elaborated below:

1

Cost-effectiveness

By making use of private sector expertise, critical talent and delivery efficiencies, PPP can bring cost savings to the Government and ensure that limited financial resources bring high yields. Also, by enabling access to a wider range of such expertise, a larger talent pool and the additional capabilities across both the private and public sector, a PPP approach will likely benefit the blockchain implementation process and make it more cost-effective as a result of the multiple competencies, higher accountability standards, deeper stakeholder alignment and innovative performance mechanisms.

2

Collaborative innovation

Blending the technical know-how of the private sector with the policy endowments of the public sector can foster critical innovation for the benefits of the Government and the implementing body. While the private sector is known for its market-driven creativity, the public sector is known for its broad knowledge of societal needs. A combination of such domains in the blockchain implementation process can lead to significant innovation and successful collaboration towards the meeting of the trade facilitation needs of the Government.

3

Efficiency and risk management

A PPP approach to the implementation process can help mitigate the financial and operational risks that come with implementing significant physical and digital infrastructure. By allowing the implementation process to be a shared investment between the Government and the private sector, the process not only reduce the overall resource demands on the Government, but also presents the Government with the opportunity to share the challenges and potential operational hurdles with competent, efficient and innovative private sector partners. This reduces overall risks and drives efficiency for an optimal outcome in the implementation process.

The blockchain-based advance cargo information system of Egypt, which has become an integral part of the country's national single window and currently helps expedite shipment clearance, reduce cost and time for both sea and air freight, is an example of a PPP blockchain infrastructure implemented as a collaborative effort between CargoX and the Government-owned MTS.

4

Inclusive and impactful results

By involving both public and private sector partners and stakeholders, PPP can ensure a user-centric design approach, where key private sector stakeholders such as forwarders, shipping agents, clearing houses and other private sector AEOs provide critical user-experience inputs for the overall implementation process. Some of these private sector stakeholders can also become implementing partners leveraging their experience and expertise over the years to bring intuitive, user-friendly and well-aligned user benefits from the blockchain solutions. This will ensure the best long-term impact from the blockchain solution within the trade environment.

5

Capacity benefits

Partnerships between the public sector and the private sector usually promote knowledge transfer between these sectors. Thus, while the private sector can benefit significantly from the knowledge and processes of the public sector the opposite is also true. That is to say, the public sector can equally benefit from the technical expertise, efficiencies and innovation of the private sector to enhance their own practices. These insights can help improve other areas of the Government operations and improve the general processes of the public sector.

6

Long-term sustainability

The involvement of multiple parties in the implementation process through PPP can contribute to the long-term sustainability of the blockchain solution in the trade environment. This can be partly driven by the shared risk outlook between the two sectors but also enhanced by the maintenance culture of the private sector. Thus, by incorporating maintenance and support provisions in the partnership design, the expertise and talent of the private sector will be continuously leveraged for the long-term success and sustainability of the infrastructure even after the initial implementation phase.

A summary of the benefits of a PPP approach to the implementation process is presented in table 10.

Table 10. A summary of the benefits of a public-private partnership approach to the implementation process

PPP benefit	Description
Cost-effectiveness	By making use of private sector expertise, critical talent and delivery efficiencies, PPP can bring cost savings to the Government and ensure that limited financial resources bring high yields.
Collaborative innovation	The technical know-how of the private sector together with the policy endowments of the public sector can foster critical innovation for the benefit of the Government and the implementing body.
Efficiency and risk management	Allowing the implementation process to be a shared investment between the Government and the private sector not only reduces the overall resource demands on the Government but also presents the Government with the opportunity to share the challenges and potential operational hurdles with competent, efficient and innovative private sector partners.
Inclusive and impactful results	By involving both public and private sector partners and stakeholders, PPP can ensure a user-centric design approach, where key private sector stakeholders, such as forwarders, shipping agents, clearing houses and other private sector AEOs, provide critical user-experience inputs for the success of the overall implementation process.
Capacity benefits	Partnerships between the public sector and the private sector usually promote knowledge transfer between these sectors with the Government participants benefiting from the technical expertise, efficiencies and innovation of the private sector to enhance their practices within the public sector.
Long-term sustainability	Involvement of multiple parties in the implementation process through PPP can contribute to the long-term sustainability of the blockchain solution in the trade environment.

Source: Compiled by ESCWA.

D
Establishing public-private partnership for blockchain implementation

Establishing a PPP process for implementation involves multiple steps and a series of considerations to ensure successful collaboration, efficient performance and deep commitment from both sectors in the development, deployment and adoption of the blockchain infrastructure. While the technical development process can be easily undertaken with a simple partnership agreement, the stakeholder engagement processes can be complex and requires a significant level of process planning to be inclusive enough. Below are some of the key steps in establishing the PPP process for the implementation process. These can vary from one context to another, depending on the number of partners, governance system or the implementing body's mandate.

1. **Resource allocation:** Resource planning is a key component of the entire implementation process and is especially important when preparing a PPP approach, not just for determining these resources but also for apportioning them according to workload and responsibilities of the implementing

partners in a way that will ensure success. The allocation of the components of work is thus accompanied by the allocation of resources. Determining the financial, human and technical resources required for the overall implementation, identifying the sources of the resources and allocating these resources according to the components of the work commitments required from both the public and the private implementing partners is key.

2. **Defining implementing partner requirements:** Identifying the appropriate implementing partners will depend on key indicators defined by the implementing body. These indicators can include performance history, talent and expertise, resource capabilities and attestations of other relevant stakeholders. These will form the basis of selection of the public and private sector partners who are qualified to contribute to the partnership. Any institution that meets these requirements, such as Government agencies, software development firms, industry experts, research consultancy firms or academic institutions, can then be considered for the initial pool of potential partners for the implementation process.

3. **Design of legal and technical frameworks:** Developing the technical and legal frameworks that will govern the partnership will give clarity to potential partners on what to expect from the partnerships as well as what is expected of them in the partnership. For example, a technical/legal document that spells out the deliverables, and objectives of the solution as well as the timelines and resource commitments of the implementation process will give potential implementing partners a clear understanding of their eligibility by establishing the minimum requirements for expressing interest in joining the implementing process as a partner. The framework may take the form of a draft agreement, memorandum or draft contract that outlines the commitments, deliverables, responsibilities and expectations from potential partners.

4. **Seeking expressions of interest:** This is the stage where potential partners are requested to express interest in being implementing partners, usually through a request for proposals (RFP), where potential partners can apply either as individual implementing partner or as consortia. It is important to clearly define the project scope, obligations, evaluation criteria and timelines at the time of publishing the RFP. This ensures transparency, accountability and encourages broad-based participation by all qualified potential implementing partners.

5. **Evaluation and selection:** Received proposals are evaluated based on the predefined criteria set out at the technical frameworks stage and a selection is made based on the suitability and eligibility of the potential implementing partner or set of partners. Factors such as technical expertise, track record, financial viability and alignment with project objectives are key to consider.

6. **Partnership agreement:** After selection of a partner or set of partners, there is need to design and negotiate a partnership agreement that outlines the roles, responsibilities, rights and obligations of each partner in the implementation process. This stage is crucial for the overall success and sustainability of the blockchain project and its level of utility for the trade facilitation stakeholders. Most terms and conditions as well as technical and legal aspects in the partnership agreement will have direct consequences on the technical considerations of the infrastructure. The agreement should therefore address, among other things, the details of technical considerations, consensus mechanisms, architectural design, data governance, confidentiality, dispute resolution mechanisms and user-friendliness. As shown in figure 11, key areas to be considered within the partnership agreement include:

a. Development, deployment and maintenance: The partnership agreement should primarily consider architectural designs and other technical details of the development, deployment and maintenance process of the blockchain and its accompanying applications. It should clearly communicate technical design details on performance, security and sovereignty of the infrastructure and indicate key performance indicators to be met when the work is complete. The agreement should also establish mechanisms for ongoing maintenance, updates and support to ensure that the infrastructure and its accompanying solutions remain fully functional, meet user needs and perform optimally;

b. User evaluation and feedback mechanisms: The partnership, among other things, must include clear mechanisms for periodic evaluation, user feedback and regular inputs from key stakeholders to ensure that the solutions meet performance requirements, lead to user satisfaction and are improved in a timely manner whenever there are technical issues. The partnership must involve channels of feedback from end-users, stakeholders and Government agencies to identify areas for improvement, adjustments and iterations towards optimal use;

c. Knowledge sharing and capacity-building: The agreement should include mechanisms for knowledge sharing between the public and private sectors, facilitate skills transfer and promote capacity-building, especially for the public sector partner(s). This would help build expertise within the public sector and foster long-term sustainability of the blockchain and its usability. The agreement should specifically indicate channels for knowledge transfer and the legal means to address any failure to comply by this condition. It should also indicate which key public sector stakeholders the knowledge transfer process should be aimed at, ensuring that the knowledge benefits the Government the most;

d. Quality assurance, testing and audits: Another key component of the partnership agreement should be to ensure that the developed blockchain infrastructure, solutions and applications meet required quality standards, and that it is thoroughly tested for functionality, usability and security, with all codes audited through rigorous code reviews to identify and rectify any issues or bugs and ensure safety.

Figure 11. Select components of the partnership agreement for the implementation process

Source: Compiled by ESCWA.

The key steps for establishing a PPP approach are summarized in table 11.

Table 11. Summary of steps to establish a public-private partnership approach for the implementation process

Key step	Process description
Resource allocation	This involves determining the financial, human and technical resources required for the overall implementation, identifying the sources of the resources, and allocating these resources according to the components of the work commitments required from both the public and the private implementing partners.
Defining implementing partner requirements	This involves developing key indicators such as performance history, talent and expertise, resource capabilities, and the attestations of other relevant stakeholders to select partners such as Government agencies, software development firms, industry experts, research consultancy firms or academic institutions to join the implementation process.
Design of legal and technical frameworks	The outcome is a technical/legal document that spells out the deliverables, objectives of the solution, timelines and resource commitments of the implementation process, which will give potential implementing partners a clear understanding of their eligibility by establishing the minimum requirements for expressing interest in joining the implementing process as a partner.
Seeking expressions of interest	This usually takes the form of an RFP calling for potential partners to apply either as individual implementing partner or as consortia. In the RFP it is important to define the project scope, obligations, evaluation criteria and timelines at the time of publication to ensure transparency and accountability and to encourage broad-based participation by all qualified potential implementing partners.
Evaluation and selection	Received proposals are evaluated based on the predefined criteria set out at the stage of the technical frameworks and a selection is made based on the suitability and eligibility of the potential implementing partner or set of partners.
Partnership agreement	This step involves designing and negotiating a partnership agreement that outlines the roles, responsibilities, rights and obligations of each partner in the implementation process.

Source: Compiled by ESCWA.