



UNicoin

Incentivizing and making visible
cross-UN collaboration for the SDGs

WHITE PAPER



UNicoins White Paper audience and aims

This White Paper aims to spark a conversation on how the United Nations (UN) can incentivize, account for and make visible collaboration across the UN system to accelerate achievement of the SDGs.

Specifically, it seeks to kick-start a debate around UNicoins - tokens representing UN personnel time spent on cross-UN collaboration - as a proposed solution to the challenge of unlocking purposeful collaboration across the UN system.

The intended audience for this paper is first and foremost colleagues working in any capacity in the UN system as well as other relevant stakeholders. This paper has been crafted by a volunteer team of Young UN members, including UN Online Volunteers and is now undergoing peer review within a broader community of UN stakeholders.

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Glossary

- **Agile team**
A cross-functional team formed by UN personnel to work on a specific project or task.
- **Badge**
Digital recognition of contributions made by UN personnel to cross-UN collaboration, measured in number of hours spent, represented by UNicoins.
- **Blockchain**
A type of software made up of records of digital transactions that are grouped together into “blocks” of information and shared securely across computers on a shared network.
- **Collaborator**
UN personnel offering their expertise and time to collaborate on a cross-UN project.
- **Cross-UN collaboration**
Collaboration between UN personnel from differing UN agencies.
- **Collaboration time**
Time spent by UN personnel collaborating on cross-UN projects, measured in the number of hours spent, represented by UNicoins.
- **dApp**
A decentralized application, an application run on the blockchain.
- **Digital wallet**
An online wallet where UN personnel can store UNicoins earned when collaborating.
- **Collaboration marketplace**
A cross-UN collaboration platform where UN personnel can advertise collaboration opportunities and find collaborators.
- **Task**
A collaboration opportunity posted on a cross-UN collaboration platform. Each task details the number of hours and expertise needed from collaborators.
- **Token**
A digital representation of value. The value can be financial (e.g. a cryptocurrency) or non-financial (e.g. a unit of time) and is often captured in a blockchain. This paper focuses on non-financial tokens.
- **UNicoins**
Digital tokens representing UN personnel's time spent on cross-UN collaboration. The tokens are a non-monetary unit of value that can be exchanged among project managers and/or collaborators in recognition of collaboration hours contributed to cross-UN work.

Executive summary

UNicoins is a time-based token developed to incentivize, account for and make visible cross-UN collaboration to further the UN's mission, including the Sustainable Development Goals (SDGs).

Each UNicoин represents an hour of time spent in cross-UN collaborations. Anyone within the UN community can earn UNicoins for giving their time to a project outside their core focus, and can spend UNicoins in return for assistance on their own projects. Inspired by Young UN, UNicoins embody a re-imagined future of work in the UN. The project aims to harness digital innovation, in particular blockchain technology, to expand opportunities for people to collaborate in pursuit of the SDGs within an inclusive and decentralized UN ecosystem.

UNicoins' magic lies in mobilizing time for the SDGs through aligning incentives for cross-UN system collaboration in an interactive digital ecosystem. Using human centered policy design, UNicoins' community driven, time-denominated digital token is embedded with the principles, aspirations, and normative future of the UN.

This White Paper sets out the rationale for UNicoins and how they fit in the broader UN landscape including the future of work. The paper provides two potential scenarios for UNicoins - a project manager-led model (Approach 1) and a collaborator-led model (Approach 2) and discusses the advantages and shortcomings of each. Governance arrangements are proposed and conclusions and next steps shared including questions for peer reviewers to further improve the concept.



¹ Circulation of UNicoins is underpinned by a data strategy to optimize for SDG measurement, reporting, impact analytics, and data driven predictive foresight, aimed to unlock the collaborative effort needed to achieve the SDGs. And with less than 9 years left (or 78,840 hours) in the SDG Decade of Action, time is very much of the essence...

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1. Vision statement

UNicoins vision is to incentivize, account for and make cross-UN collaboration visible

UNicoins, together with other digital future of work solutions, enable the UN to mobilize skills and talent using an internal circular economy, creating a digital ecosystem through allocation of time tokens and recognition badges.

The UNicoins team envisages a world where the UN is a hive of innovation and collaboration to achieve the UN's mission. In line with the Secretary-General's call for increased cross-UN collaboration to achieve the SDGs, we envision a future of work in the UN where competition is transformed to collaboration, where silos give way to networks of UN personnel collaborating towards shared purpose. UNicoins make this possible by incentivizing, accounting for and making visible cross-UN collaboration - creating a digital ecosystem where value is exchanged within the UN system through time tokens and recognition badges.

UNicoins are digital tokens representing UN personnel's time spent on cross-UN collaboration.²

Core constituents of this ecosystem

UNicoins

Digital tokens representing UN personnel time (expressed in hours) spent on cross-UN collaboration. UN personnel can use a personal digital wallet stored on a blockchain to receive, store, track and spend UNicoins within the UN system. Collaboration time is accounted for and validated in one hour slots.

Badges

UN personnel specific emblems that recognize contributions of time to cross-UN projects. In contrast to UNicoins tokens, which constitute the system's tradable assets, badges are indicative of a personnel's accumulated collaboration efforts.

Collaborators

UN personnel offering their time and expertise to cross-UN collaborative projects.

²All UN personnel, including decentralized stakeholders serving as UN Online Volunteers per the spirit of United Nations General Assembly Resolution A/RES/73/140 recognizing inclusive technology-enabled global platforms for online volunteering and encouraging the meaningful participation and integration of all people, including youth, older persons, women, migrants, refugees, persons with disabilities, minorities and other marginalized groups, into reaffirmed institutional arrangements of volunteer-involving programmes and projects, with the provision of the appropriate means to leverage the full potential of volunteerism for SDGs.

2. The need for new ways to value cross-UN collaboration

[A 2019 survey](#), Navigating to the Next UN, of 859 UN personnel conducted by Young UN, highlights that more than 80% of respondents are interested in collaboration opportunities outside their core team, including participation in cross-functional or cross-UN system teams and short-term assignments.

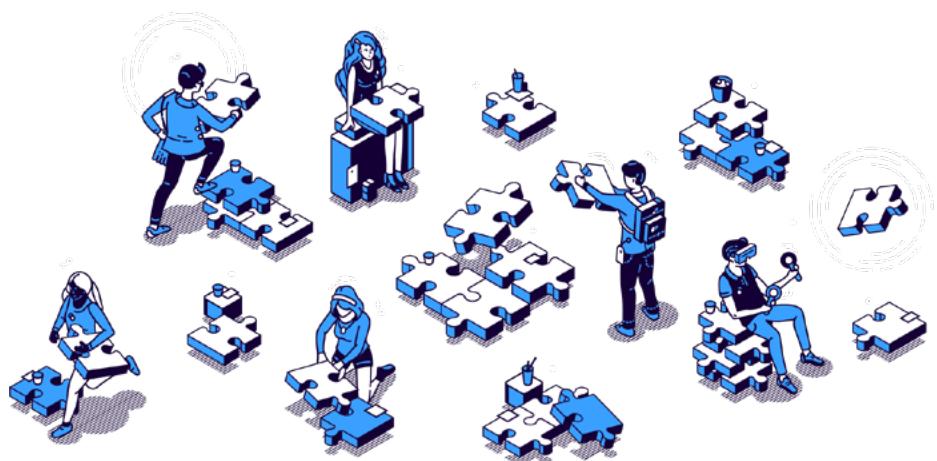
Yet, cross-UN system work, where all team members are contributing to One UN solutions, is often invisible and happens on the side of 'core' work.³ Such work is largely neither recognized nor accounted for in formal structures, performance mechanisms and budgeting frameworks. As a result, these additional collaborative efforts often rely on the goodwill of individuals and their managers.

The UNicoins ecosystem seeks to account for and make visible cross-UN collaboration. In order to enable cross-UN collaboration, structural barriers impeding collaboration need to be removed. In the UN context, one such barrier is that cross-UN collaboration is often not valued or recognized and time is not allocated to such work. To foster greater collaboration within any organization, collaboration can be incentivized. In a decentralized organization, such as the UN, such incentives are all the more important to overcome the

inherent silos within its structure. The underlying design of blockchain technology offers a solution in providing for self-sustaining collaboration where calibrated incentives are embedded through digital tokens.

But token incentives are only half of the story. Studies have shown that intrinsic motivation will decrease over time if extrinsic incentives are introduced for behaviors that an individual already found motivating.⁴ A key consideration for UNicoins, therefore, is that the intrinsic and extrinsic motivations for collaborators and managers are properly balanced. If properly accounted for, increased cost effectiveness, administrative efficiency, and creativity in the UN mandated activities will likely follow.

The following figure highlights the key intrinsic and extrinsic motivations for personnel, managers and their organizations to engage in and foster collaborative work. The figure uses data from the Young UN 2019 Survey and a Deloitte report on Google's collaborative economy.⁵ The figure demonstrates that each party often has their own reasons for collaborating (or enabling collaboration), but also shows that collaboration towards a shared purpose can support reform and change efforts on an organization-wide level.



³ Outside 'core' work refers to work beyond a UN personnel's fixed job description or job duties.

⁴ See for example: Eisenberger, Robert & Pierce, W. & Cameron, Judy. (1999). Effects of reward on intrinsic motivation - Negative, neutral, and positive: Comment on Deci, Koestner, and Ryan (1999). Psychological bulletin. 125. 677-91

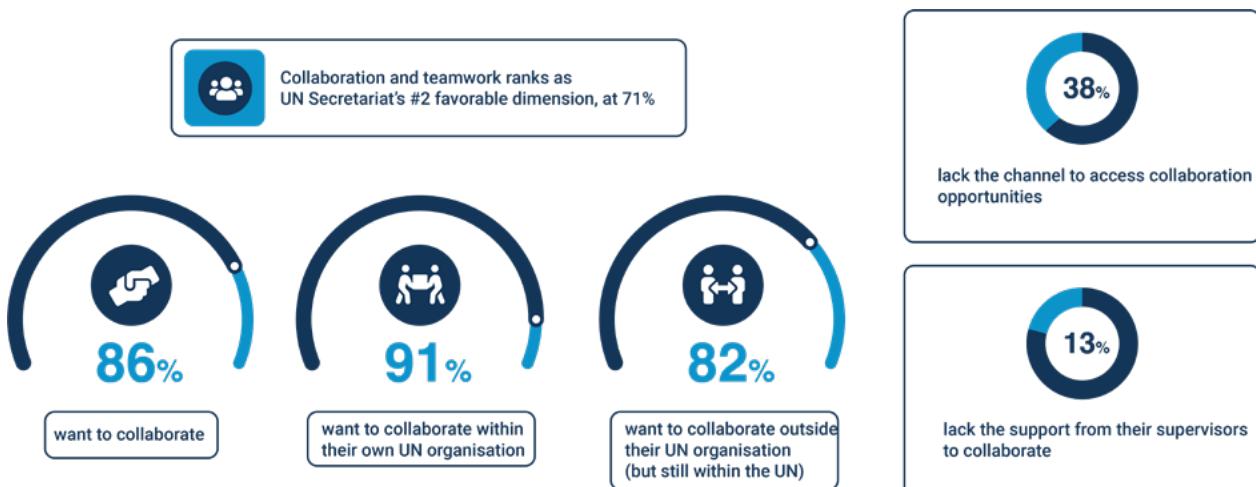
⁵ O Deloitte. The Collaborative Economy. Feb. 2014, www2.deloitte.com/content/dam/Deloitte/au/Documents/Economics/deloitte-au-economics-collaborative-economy-google-170614.pdf.

Key Reasons Motivating Cross-UN Collaboration at the Individual Personnel, Manager and Organisational Level

Employees	Project managers	UN organizations
Unleash their underutilized potential	Maximize human capital	Cost-saving
Only 20% of respondents in the UN feel their organisation enables to help them to reach their full potential and spur innovation and creativity.	By creating an enabling environment for fluid cross collaboration, skills and expertise gaps are filled internally (as opposed to hiring external consultants).	By leveraging resources within the UN system, the potential costs of hiring contractors or external consultants are reduced
Reduce inefficiencies	Increase employee satisfaction	Increase quality of output
25% of an employee's day can be spent searching for the right information to complete a task.	Satisfied employees collaborate twice as much as compared to those that are dissatisfied.	Collaboration's quality improvements can be worth around US\$2,517 per employee and manager per year
Career advancement	Gain valuable employee insights to become a better manager	Increase innovation
By working well with others, personnel can showcase their expertise and improve their reputation.	By working well with others, personnel can showcase their expertise and improve their reputation.	New ideas challenge the status quo. 60% experience a change in their way of thinking due to cross collaboration

 extrinsic motivation
  intrinsic motivation

To ensure recognition through UNicoins aligns with the push and pull factors outlined in Figure 1. It is also worthwhile highlighting segments from the 2019 UN Staff Engagement Survey⁷ and the 2019 Young UN Survey⁸. These surveys explore the current demand for cross-collaboration and whether those collaboration opportunities are available and accessible. Full details can be found in Appendix 1 and Appendix 2 while a summary of key points is shown below:



⁶Young UN (2019). Navigating the Next UN. ([internal doc](#)) | ⁷CultureIQ (2019). UN Staff Engagement Survey ([internal doc](#))

⁸Outside 'core' work refers to work beyond a UN personnel's fixed job description or job duties.

⁹Young UN (2019). Navigating the Next UN. ([internal doc](#))

In light of this, UNicoins are designed to address the desires of UN personnel to engage in cross-UN collaboration. UNicoins are intended to be deployed within a transparent marketplace where available collaboration opportunities can be explored. Furthermore, incentives for managers to allow their personnel to collaborate are outlined and integrated into the design for each of the proposed approaches.



3. Background: How UNicoins came about

UNicoins is an innovation incubated in the 2020 Reimagine the UN Together Challenge -- a UN system-wide ideation and crowdsolving initiative aimed at unleashing the creativity of UN colleagues in times of COVID-19. Using innovation to unlock and scale teams' solutions to organizational constraints, in turn building a more resilient UN community, is at the core of UNicoins approach.

³Outside 'core' work refers to work beyond a UN personnel's fixed job description or job duties.

⁴See for example: Eisenberger, Robert & Pierce, W. & Cameron, Judy. (1999). Effects of reward on intrinsic motivation - Negative, neutral, and positive: Comment on Deci, Koestner, and Ryan (1999). *Psychological bulletin*, 125, 677-91 ⁵O Deloitte. The Collaborative Economy. Feb. 2014, www2.deloitte.com/content/dam/Deloitte/au/Documents/Economics/deloitte-au-economics-collaborative-economy-google-170614.pdf.

3.1 Young UN - an inspiration for UNicoins

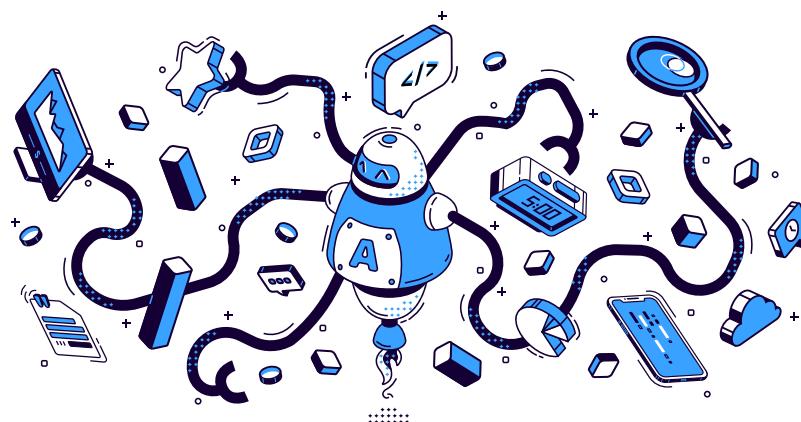
UNicoins is a *Young UN: Agents for Change* (Young UN)-inspired solution, conceptualized by a cross-UN project team representing 12 UN agencies, collaborating through the Young UN network.

Established in 2016, Young UN is a cross-UN, global and inclusive network of around 2200 members working towards a shared vision of a UN that fully embodies the principles it stands for.

Young UN is a decentralized global network with an inclusive and experimental approach whereby members join voluntarily and can get involved as little or as much as they like. Members contribute in a co-creative spirit to a OneUN commons, rather than representing their given UN entity. It is a cross-UN space to crowdsource fresh ideas, pilot new approaches and drive a movement for change towards a culture of innovation and collaboration across the UN system. Young UN's governance model is decentralized and non-hierarchical, taking inspiration from Decentralized Autonomous Organizations (DAO) a governance concept currently in use across numerous open-source innovation and blockchain projects, and lesser-known Distributed Cooperative Organizations (DisCO).

UNicoins was inspired by Young UN's self-organizing structure, and its action-oriented and agile working style, allowing teams to gather and disperse according to project needs. Young UN's work is aligned to best practice community standards and enables inclusive and member-driven decision-making. UNicoins' ecosystem of tokens and badges aims to replicate and embed innovative working practices, as they have been incubated in Young UN.

Young UN also continues to be a major force in shaping the future of work in the UN through its manifold system-wide engagement. The network has pioneered innovative solutions and developed visionary products, contributing on a regular basis to conversations of the Chief Executives Board (CEB), the High-Level Committee on Programmes (HLCP) and the High-Level Committee on Management (HLCM). Particularly noteworthy is the report 'Navigating to the Next UN' that provided striking impulses to the discussion on how to make the UN fit for the future of work. A key finding of this report was a widespread need and interest in system-wide collaboration, noting that the UN needs to address the barriers preventing this from happening, such as overly siloed approaches, rigid reporting lines and cumbersome bureaucratic processes. Young UN support in UNicoins has contributed to the fact that now, with this White Paper, there is an elaborated approach that gets to the root of this problem.



4. UNicoins' contribution to the broader UN landscape

In order to achieve the SDGs, UN reform objectives and nimbly tackle unpredictable global challenges, the UN system needs to deliver as a One UN system, rapidly forming and dissolving flexible teams drawing seamlessly from the UN's vast pools of talent and expertise.

In a resource constrained environment, digital innovation can act as a catalyst to decentralize and expand opportunities for multi-disciplinary change agents to collaborate. UNicoins can unlock time resources for implementing the SDGs and deliver on Our Common Agenda during the Decade of Action.

The UN Secretary General's Task Force on Digital Financing of the Sustainable Development Goals (SDGs) sets forth an ambitious framework to harness frontier digital technologies to accelerate financing for the SDGs. By leveraging time as a stored resource, UNicoins incentivizes cross-UN collaboration efforts toward the SDGs in a way that aligns with this framework.

The UNicoins ecosystem responds to challenges discussed by the High Level Committee for Management (HLCM) and its Task Force on the Future of the UN System Workforce, such as the call to introduce new and collaborative ways of working and to create a UN system that is fit for the future of work.¹⁰ It allows strengthening cross-UN and inter-agency collaboration to truly deliver as 'One UN'. It offers an effective solution to meet the widely expressed need to connect and collaborate, as highlighted, for example, in the recently revised version of the UN Secretariat Competency Framework, the UN Resident Coordinator Leadership Profile, the UN System Leadership Framework and the new UN Senior Leadership Commitments. Furthermore, UNicoins supports broader organizational goals set forth in the 2020 Quadrennial Comprehensive Policy Review (QCPR), that specifically highlights the importance of volunteerism.

UNicoins carry no intrinsic monetary value and are not foreseen to be available outside the UN system.¹¹ There may however be future use cases where integration with partner ecosystems would be beneficial, enabling wider circulation among stakeholders working towards the SDGs.¹²



¹⁰CEB. Interim Report of the CEB Task Force on Future of the UN-System Workforce. 2020.

¹¹Under IPSAS accounting a benchmark could be used to provide an estimated worth of in-kind time resources mobilized

¹²For example, a futuristic **Jointly United Loves In Action (JULIAs)**, as a decentralized volunteering for SDGs store of time value.

Harnessing data insights - cross-UN collaboration to accelerate SDGs

UNicoins support the implementation of the QCPR of the operational activities for development of the UN system (A/C.2/71/L.37), to "collect, analyse and increase significantly the availability of high-quality, timely and reliable disaggregated data.... in the context of United Nations operational activities for development."

The creation and distribution policy of UNicoins seeks to be data driven, utilizing user data and meta-data of UNicoins issuance, institutional distribution, transfer, validation, and storage for policy optimization.

Data and metadata related to the issuance, transfer and storage of UNicoins are collected in an accurate and transparent way. The metrics which the system will record are:

- Cross-UN collaboration tasks categorized by the SDGs (1-17)
- Affiliated UN Entity or Entities of personnel requesting UNicoins enabled task(s)
- Expected deliverables within a task
- Quality assessment and validation of submitted tasks
- Validation of number of hours submitted
- Meta-data showing the exchange of UNicoins and their circulation across the UN system

² CEB. Interim Report of the CEB Task Force on Future of the UN-System Workforce. 2020.

Under IPSAS accounting a benchmark could be used to provide an estimated worth of in-kind time resources mobilized

For example, a futuristic Jointly United Loves In Action (JULIA)s, as a decentralized volunteering for SDGs store of time value.

Checkpoint for reviewers (Part 1/2)

Do you understand...

1. What are UNicoins?
2. What pain points does the UNicoins ecosystem aim to address?
3. Who is involved in the UNicoins project?
4. How does the UNicoins ecosystem contribute to ongoing change efforts in the UN system, including as they relate to the future of work?

5. UNicoins in practice

Proposed approaches

This section presents two concrete approaches for how UNicoins can be circulated within the UN system to make visible and value cross-UN collaboration. The two approaches (project manager-led and collaborator-led) emphasize simplicity and ease of use, thus providing a way to accurately account for cross-UN collaboration efforts while streamlining administration through aligned incentives and decentralized roles of UN personnel.

The approaches value cross-UN collaboration efforts with the help of badges and UNicoins. Collaboration can be enabled through collaboration marketplaces, where collaborators and groups requiring help come together. Next follows a collaboration stage, where the collaborator executes on the requested task. The collaboration is concluded with a two way review that lets the collaborator and group rate each other, similar to services like Airbnb, thereby ensuring that collaboration is conducted in an honest and transparent way.¹³

5.1 Approach 1: project manager-led

5.1.1 Overview

In the project manager-led collaboration system, UN project managers exchange UNicoins. When the need for a collaborator who is external to their team arises, project managers can seek out the required expertise (collaboration task) in a dedicated cross-UN collaboration marketplace.

To post a collaboration task, project managers need to have sufficient UNicoins in their digital wallet to account for the task; since UNicoins will be exchanged for collaboration time measured in hours. The only way for project managers to aggregate UNicoins is to incentivize their team members to contribute to cross-UN collaborative efforts, and thus earn UNicoins for their team. Indeed, UN managers themselves can earn UNicoins when collaborating across the UN system. This approach creates an ecosystem of internal talent and expertise; a natural incentive to both contribute and receive collaboration hours.

5.1.2 Rationale

For project managers, the incentive to collaborate is clear. To receive expertise external to their team, in the form of collaboration hours, project managers are encouraged to allow their team members to collaborate externally. Only when their team members earn a sufficient amount of UNicoins will project managers be able to post tasks and receive the help required.

For collaborators, non-managerial UN personnel, the incentive to collaborate is embedded in the collaborator-specific badges.¹⁵ With a tier reward system, this helps collaborators to feel empowered and recognized for their efforts, while encouraging friendly competition. Through the badge levels system, UNicoins collaborators are able to grow their skills and seek out opportunities within the UN system.

¹³ See Appendix 2 for detailed information on the rating criteria.

¹⁴ See Section 3 for drivers of collaboration currently in the YUN community.

¹⁵ See Deep Dive #1 for details on the UNicoins rewards mechanism with badges.



5.1.3 Methodology



As illustrated above, the transaction process between project managers and collaborators of different agencies is as follows:

1. A project manager specifies a collaboration opportunity and puts it on the marketplace
 2. A collaborator applies using their internally stored skills profile
 3. The project manager accepts the application and initiates the collaboration
 4. The collaborator completes the stipulated task and notifies the project manager
 5. The project manager verifies completion of the job, rates the collaborator and transfers the UNicoins to the collaborator's manager
 6. The collaborator rates the project manager and receives recognition badges

5.1.4 Shortcomings

The limitations of the project manager-led approach mainly concerns the rigidity of roles. In this approach, there is a clear distinction between project managers and collaborators that reflects the current organizational structures of the UN system. This distinction of seniority may still encourage a hierarchical environment which diverges from the vision of fostering a more agile and collaborative organization to adapt and remain relevant in light of major trends in the future of work.

Concerning the project manager role specifically, further considerations may be required to tackle unfairness related to team composition across the UN. Some managers may oversee a larger team, helping them to earn UNicoins quicker than a team with fewer team members. Furthermore, under this approach, non-manager collaborators may feel left out, as they do not receive any UNICOINS, even though they contribute significantly to the success of the project.

Lastly, this approach may hamper collaborative efforts in failing to offer the full flexibility to be in multiple cross-UN agile teams, since this model is reliant on formal reporting lines.

¹⁶Refer to Section 3.4 for further details.

5.2 Approach 2: collaborator-led

5.2.1 Overview

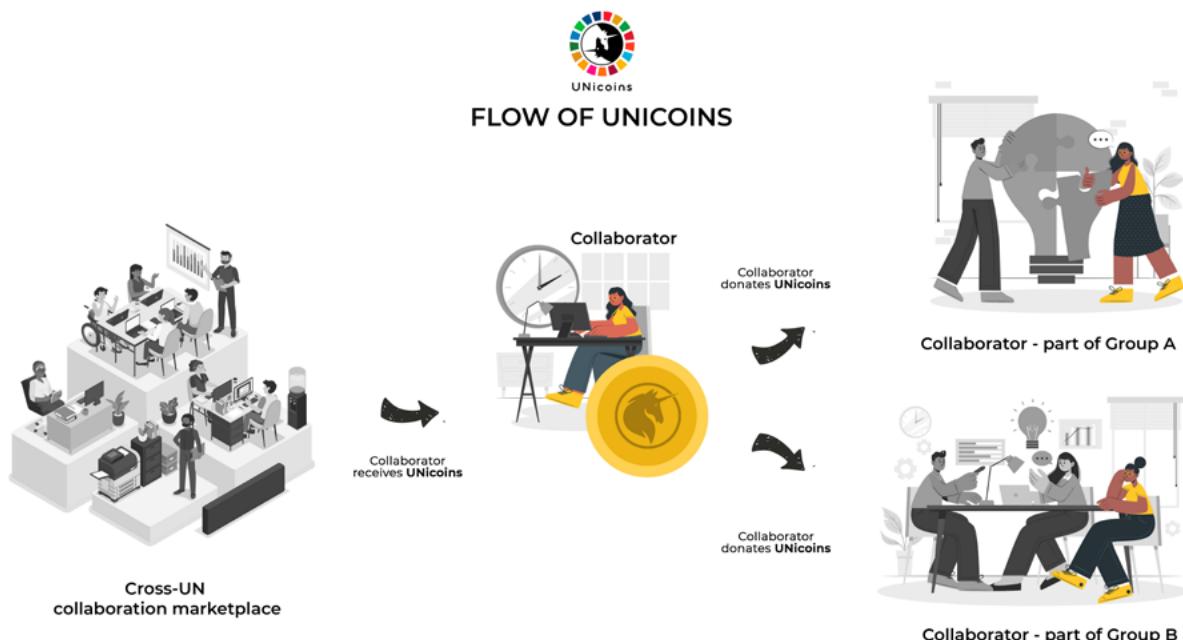
The collaborator-led approach follows a fully decentralized model whereby UN personnel (both collaborators and project managers) are incentivized to self organize and form project-specific agile teams, which then recruit additional collaborators by advertising required expertise in a dedicated cross-UN collaboration marketplace.¹⁷ In this approach, UNicoins can be earned by any UN personnel, regardless of their seniority and are stored in individual digital wallets, rather than project manager' wallets, as in the first approach. The newly-created agile team can post a task after pooling their pre-earned UNicoins in a group digital wallet. The additional collaborators receive UNicoins for their collaboration hours - and the team is able to address the relevant problem with a high degree of efficiency.

5.2.2 Rationale

This approach's strength lies in its ability to provide a highly flexible yet simple framework. From the wider UN perspective, this approach empowers UN personnel by giving them full oversight over their UNicoins wallets. Their ability to allocate UNicoins to any projects of their choosing creates an increased sense of agency and belonging, which may boost user engagement. This agile team arrangement enables full and transparent monitoring of all cross-UN collaboration efforts. The simplicity of adding new members to agile teams allows for seamless scaling.

5.2.3 Methodology

In the collaborator-led model, UN personnel can be part of multiple agile teams, as illustrated by team A and team B below. Agile teams can be formed by UN personnel working for the same UN agency or from multiple agencies. This provides a nimble mechanism where UN personnel are encouraged to harness internal talent and expertise. UN personnel can additionally provide expertise to teams which they are not part of themselves as collaborators and receive UNicoins from the digital wallet of the given team.



¹⁷Similar to the idea of "Scrum teams" vs "Agile pods". See generally <https://www.scrum.org/forum/scrum-forum/34717/agile-pods-vs-scrum-teams>



The agile teams that an individual is part of can collectively submit task requests via the cross-UN collaboration marketplace to receive help from additional collaborators. This gives them the opportunity to quickly overcome obstacles by leveraging the UN's vast network of internal knowledge. The additional collaborators are transferred UNicoins from the respective agile team's wallet, which are budgeted through the initial donations from the team members. Similar to other well-known services such as Splitwise, the team wallets automatically monitor their members' relative UNicoins contributions.¹⁸¹⁹ The full process from posting a task request to completion of the task is illustrated below.



As illustrated above, the transaction between a new collaborator and a team follows a six step process.

1. The team specifies a collaboration opportunity and puts it on the marketplace
2. The collaborator applies using their internally stored resume and credentials.
3. The team accepts the application and initiates the collaboration
4. The additional collaborator completes the stipulated task and notifies the team
5. The team verifies completion of the task, rates the collaborator and exchanges UNicoins
6. The collaborator rates the group and receives UNicoins for the services provided.

¹⁸UNicoins can only be donated to teams that the donating party is participating in.

¹⁹<https://www.splitwise.com>

Why blockchain?

After successfully being deployed according to the above specifications, UNicoins will be a decentralized application (dApp) built on blockchain technology. This has several advantages compared to traditional application infrastructure, including:

Transparency - all data generated within the system (e.g. individual balances, UNicoins trades, and ratings) is recorded on a distributed ledger. Rather than being siloed away and accessible only to a central authority, such data is accessible to all participants in the UNicoins ecosystem. Any changes to records can only be made through network consensus protocols, therefore implementing a transparent, robust, and secure data strategy.

Transparency and immutability facilitate trust, ultimately allowing for the efficient, ongoing functioning of the UNicoins ecosystem without the need for a centralized intermediary.

Security - on a blockchain, each transaction must be verified by a network of computers (UN Entity nodes in an interagency consensus protocol) before being recorded. Once approved, the transaction is encrypted, linked to the prior transaction, and stored across the network. As such, it is near impossible to hack and alter. For UNicoins, the security further engenders trust in the network, but is also essential within the context of the wider UN ecosystem, since users may deal with sensitive information.

Efficiency - Within the UNicoins ecosystem, transactions can be automatically triggered upon the meeting of predetermined criteria. This allows transactions to be completed trustlessly (e.g. without a trusted third party mediating) - often faster, while maintaining reliability and compliance. For UNicoins, this allows the ecosystem to operate in real-time (or near-real time), allowing for greater overall participation and use.

Ownership - decentralized governance allows users of the ecosystem to have a say in how the network is run, through the use of decentralized governance protocols (see section: governance). Giving users ownership in the network can increase overall adoption, and ensure that the network develops according to its users needs and wants.

Data privacy, ethics, and protection by design - As blockchains create immutable records, it is of utmost importance that data privacy, ethics, and protection are made top priorities of the system. UNicoins is designed in line with the Principles on Personal Data Protection and Privacy, which set out a basic framework for the processing of personal data by, or on behalf of, the UN system organizations in carrying out mandated activities. Since each token represents a concrete verified hour related to an SDG outcome, the lifecycle of a UNicoin will have a data trail of transactions that is highly beneficial to data analytics. User data will thus be anonymized to the extent possible to protect the personal data derived from interactions and ethical and privacy mechanisms will be fortified to ensure proper use, such as transparent data disaggregated by wallet and user control over their data.

Checkpoint for reviewers (Part 2/2)

Do you understand...

5. What are the main differences between the manager-led and collaborator-led approaches?
6. Who has UNicoins in each case and what does this enable?
7. Who receives badges and why does this matter?



6. UNicoins management, team and governance

6.1 UNicoins governance at pilot stage

In both approaches (project manager-led or collaborator-led) for the minimum viable product (MVP) stage, the UNicoins project team is in discussion with several UN agencies as potential champions and candidates to co-create the MVP for the pilot. Following the circulation of this White Paper, the intention is to solicit candidates and confirm pilot champions during Q2 2021.

The role of the pilot partner will be to:

- Conduct testings and provide feedback for future iterations of the selected UNicoins approaches
- Develop the backend infrastructure for UNicoins in collaboration with pilot partner
- Conduct user testing
- Report regularly on the project progress to other stakeholders involved in the development of UNicoins
- Develop a decentralized governance system
- Launch UNicoins to the wider UN network in the following phase(s)

6.2 UNicoins governance at scale: decentralization

Over the longer-term, UNicoins is envisioned as a fully decentralized ecosystem, governed and maintained by its users. In the context of a blockchain-based organization, this model is referred to as a Decentralized Autonomous Organization ("DAO"). DAOs are internet native organizations managed by programmable rules (e.g. smart contracts) and governed by user consensus. Similar to agile sprints, users of the ecosystem will be able to propose and implement refinements to the ecosystem themselves, thereby enabling resource efficiency.

Decision-making for technical updates, network strategy, token distributions and product changes can be actioned through the DAO, passing to a qualified vote of users. This ensures that UNicoins is and continues to be a user-centric system, therefore improving overall user activity and engagement. While the MVP developer will be responsible for designing the end voting mechanisms for the UNicoins DAO, examples of possible voting mechanisms include:

- Simple majority user consensus, with wallet equal to one vote. Quorum at 20% of wallets voted.²¹
- Simple majority user consensus, with one UNicoins equal to one vote. Quorum at 20% of total UNicoins supply voted.
- Simple majority user consensus. Staggered voting by badge level. Quorum at 20% of users voting.

²¹A quorum is the minimum number of members of a deliberative assembly necessary to conduct the business of that group.

6.3 Decentralized mediation, recourse and dispute resolution

In decentralized systems, there is no boss to resolve conflict situations and disputes among users should they arise, therefore this function needs to be performed by contributors and community members of the UNicoins ecosystem. To facilitate conflict resolution in the UNicoins ecosystem disputing parties could use decentralized mediation and community arbitration.

Decentralized mediation:

The main aspects of decentralized mediation that could be developed further:

- Data of transactions relating to disputes captured in UNicoins system for digital resolution.
- Data fields embedded in the system for disputing parties to confidentially submit their statement of facts in a time stamped to UNicoins online dispute resolution mechanism.
- Established time period to find a mutually agreeable informal settlement with delegated mediator for expediency in adjudication of issues. If mediation time limits lapse without resolution the issue is escalated to community arbitration.
- Mediators selected from a pool of users with proven skill in mediation and conflict resolution that is administered in the system for automated pooling and selection.
- Decentralized mechanisms could be deployed to allow for community input into selection and retention of mediators to provide feedback on the outcomes.
- Appointed mediators recognized with UNicoins for their time spent in mediation and incentivized for positive resolution outcomes (i.e. higher chance of selection for next case).

Community arbitration:

The main aspects of community arbitration for a whole of community resolution system:

- Appeals to be delegated to a panel of internal arbitrators pooled from skilled mediators.
- Arbitrators review cases and determine an adjudicated outcome that they believe will be validated by the broader UNicoins community as best representing a just result.
- Voting of the community of UNicoins holders is conducted to validate arbitration outcomes. This is to build a broad based consensus on precedent that will influence future cases.
- Successful arbitration outcomes incentivized through rewards of UNicoins to arbitrators.
- Advanced configuration could enable AI/ML assisted online dispute resolution based on data inputs from the intake fields, mediated outcomes, and arbitration results.²²

²²In digitizing justice solutions UNicoins network could benefit from incentive aligned token economics and AI predictive analytics of user submitted data for online dispute resolution that incorporates deep learning and natural language processing models.

Example: Dispute resolution in Approach 2

Astrid is a data scientist at UNICEF. She applies to a UNicoins group posting by **Bettina** that requests help cleaning and presenting a large data set related to the allocation of aid funds during the COVID-19 pandemic.

After initially agreeing to offer 5 hours her time in exchange for 5 UNicoins, **Astrid** sets about her work. After 5 hours working on the data set, she realizes it will take another 3 hours to complete. Without notifying **Bettina**, she pushes on and finishes the work after 8 hours.

After completing the work, **Astrid** informs **Bettina** that she is owed 8 UNicoins for her 8 hours of work. **Bettina** disagrees, noting that **Astrid** never informed her she planned to work overtime, and would have completed the work herself if she had known.

Bettina and **Astrid** are not able to work out an agreement independently, and so refer to the UNicoins network for mediation and potential arbitration. Each post a max. 250 word summary of their position via the cross-UN collaboration marketplace, which will be shared to the UNicoins network mediation to review the case and bring **Bettina** and **Astrid** to an amicable resolution within 72 hours.

If after the period for mediation has passed and either **Bettina** and **Astrid** remain unsatisfied with the recommendation of the mediator they may appeal to internal arbitrators who will review and make a determination that they feel will be accepted by the UNicoins holders as a just outcome that benefits the overall system and is seen as fair by users.

UNicoins holders selected to serve on the arbitration panel are given one week to review the documents related to the case and provide their determination that will be voted on by UNicoins holders. E.g. at the end of the week, 2 of the 3 arbitrators vote that **Bettina's** case has merits.

Short description of the case with the recommended outcome is then submitted to the UNicoins network, of which for example 34% of holders vote for quorum, with 60% of that group voting with **Bettina's** proposal. After the vote has closed **Astrid** receives 5 UNicoins and the arbitrators that made a just determination are rewarded with UNicoins.



7. Conclusions and next steps

As outlined in this paper, UNicoins have the potential to incentivize, account for and make visible cross-UN collaboration thereby unlocking and increasing collaboration across the UN. Why does this matter? Because cross-UN collaboration is essential if the UN is to deliver as One UN and play its role in achieving the SDGs. In this Decade of Action, with the scale of global challenges ahead, we have no better way of reaching our shared goals than pooling our resources and taking collective action.

The UN has one of the deepest and most diverse pools of specialized talent in the world, but also perhaps the most siloed. By tapping into the wealth of knowledge, skills and perspective embedded within this system, by empowering people to connect and contribute with their full potential where they're needed, and crucially, by recognizing the valuable contributions of collaborators, UNicoins can help the UN to shift to become a more agile, connected and collaborative system that is ready to meet the challenges of the twenty-first century.

While UNicoins have great potential, there also remain many unanswered questions which the UNicoins team recognizes and would appreciate crowd input on during the review process! These include:

- How should UNicoins be created and by whom?
- How can UNicoins be used as a transformative enabler to shift to the Next UN and not to reinforce malpractices in the current UN system? What mechanisms need to be in place to do so? For example:
- How can the concept and spirit of UNicoins as a way to enable peer-to-peer collaboration, exchange and learning be upheld and the possibilities for UNicoins to be abused or misused minimized? This includes ensuring that UNicoins are not used as a way to enforce a control-based approach whereby managers track staff time and autonomy of UN personnel is further reduced.
- How to ensure that UNicoins do not add to precarious working conditions of staff?
- How to ensure that UNicoins incentivizes increased collaboration between teams and agencies, rather than having a stifling effect (e.g. team leaders or agencies start require UNicoins to collaborate with others)
- How to ensure that UNicoins do not add to precarious working conditions of staff?
- How to ensure that UNicoins incentivizes increased collaboration between teams and agencies, rather than having a stifling effect (e.g. e.g. team leaders or agencies start require UNicoins to collaborate with others)

Following review and comments from key stakeholders, we will propose next steps.

Thank you for your time in reviewing our proposal and for your support in helping us to improve this White Paper, in advancing our collective thinking and bringing to UNicoins to life.

DEEP DIVE #1

INCENTIVIZING COLLABORATION

Using gamification techniques to incentivize collaboration

The basis of a simple, effective incentive mechanism lies in gamification. Gamification in its modern form is the use of video game elements in non-gaming systems to improve user engagement and user experience (UX).²³ The popularization of gamification is thanks to its ability to fulfill the self-determining theory. This theory argues that humans have innate tendencies towards psychological growth, a unified self, well-being, and autonomous, responsible behavior.²⁴

The lessons of game theory can ultimately be leveraged to derive core game elements that keep collaborators motivated to contribute time working towards the SDGs. These core game elements are goal-focused activities, reward mechanisms and progress tracking.²⁵

In the context of UNicoins, badges could be digitally converted into user right tiers in the system. Goal scoring for the SDGs, through assigned task completion and accumulation of UNicoins, could be incentivized by three primary types of reward mechanisms namely leaderboards, badges, and UNicoins transfers. In the UNicoins system, collaborators will receive badges, which act as certificates of recognition and could be structured as mechanisms of role enhancement.²⁶ For example, upon earning each badge that encourages further engagement in the system and allows collaborators to access a more tailored user rights. With every badge progression, collaborators unlock more rights, responsibilities, roles and UN community recognition.

In the below example there are five levels of badges and to advance to the next level, collaborators need to achieve the next threshold of lifetime UNicoins and maintain positive community feedback and quality ratings.

Achievements can also be used as public proofs to showcase collaborators' accomplishments to external parties. By being able to share their lifetime UNicoins score and badge outside the UNicoins system, collaborators may be able to enhance their UN job application or personal evaluation for appraisals for example.



²³<https://scholarspace.manoa.hawaii.edu/bitstream/10125/41310/paper0161.pdf>

²⁴Same as above.

²⁵http://shura.shu.ac.uk/7172/1/glover_-_play_as_you_learn_-_proceeding_112246.pdf

²⁶Leaderboard would be for future implementation upon consistent and continuous growth of the UNicoins system.

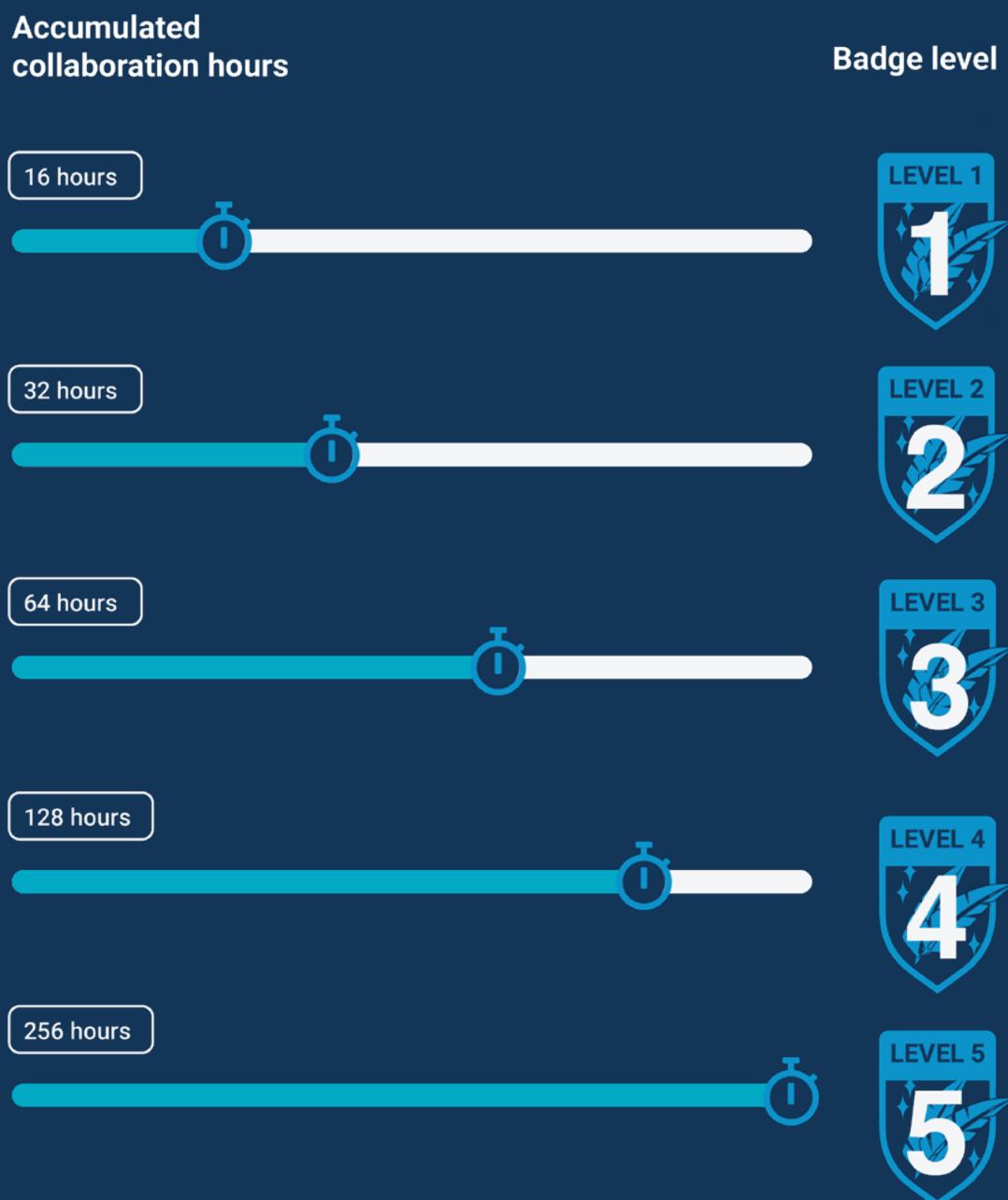
Proposed naming conventions in UNicoins

Badge progression: rights, roles and rewards

This section outlines the benefits reaped at each badge progression, namely gaining access to more rights, roles and responsibility and recognition.

Badge progression

By actively participating in collaboration opportunities, collaborators progressively reach higher badge levels. The amount of accumulated collaboration hours required to reach any given badge level is shown below:



Recognition

By progressing with each badge, collaborators move up the ecosystem of recognition. Included below are the proposed levels of recognition, alongside proposed naming conventions for each given level:



UNicorns are community members contributing Epochs of subject matter expertise for SDGs / Level 1-2²⁷²⁸



Griffins are community members convening UNicorns' Epochs through UNicoins incentives / Level 3-4²⁹



Doves monitor, evaluate, mediate, and govern UNicoins ecosystem integrity/ Level 5+³⁰

Other proposed naming conventions for the UNicoins system:



Olive Branches
Programmed wise contract policy architecture of UNicoins ecosystem³¹



Epoch
Each one hour slot is named epoch.



Dove feathers
Badges

Roles (weighted votes)

When decision making is required by the community, weighted voting rights may be established based on badge level. For example, a community member with badge level 2 would have the weight of 2 votes. This allows for consensus based on community engagement while ensuring all community members have a say in issues affecting the community.

²⁷Collaborators are understood to be gender positive, equitably inclusive for whole of community stakeholder engagement, coherent visionaries for the SDGs, and advocates of Leave No One Behind legal protection by design and rule of law community ethos.

²⁸In full informed consent, free will and creative autonomy per Terms of Use and Personal Data Protection & Privacy Policy

²⁹The Griffin is a legendary creature with the body, tail, and back legs of a lion, the head and wings of an eagle. The Griffin's combination of the characteristics of a lion and an eagle represents courage and boldness, and it always stood boldly against powerful fierce monsters. The Griffin also stands for strength, courage, and leadership. (citing <https://www.feri.org/mythical-animals/>). Griffins are gender impartial & bias free.

³⁰Doves are symbols of love, peace and harmony and represent the guardians of the UNicoins commons and ecosystem integrity.

³¹Olive branches are peace symbols sewn in the UN flag emblem. Random forests of olive branches are based on machine learning models to support wise contract decision making that are easily interpretable with linear, rule-based, and attention-based models.

Rights

User rights may also be allocated by badge level. For example:

Level 0 - To be onboarded with one Epoch dedicated to learning for network initialization

Level 1 - Able to participate in the community and be assigned tasks

Level 2 - Able to propose initiatives for funding (requiring two other collaborators at DF 3 and 4 to validate)

Level 3 - Able to validate cross system initiatives to crowdfund budgeting

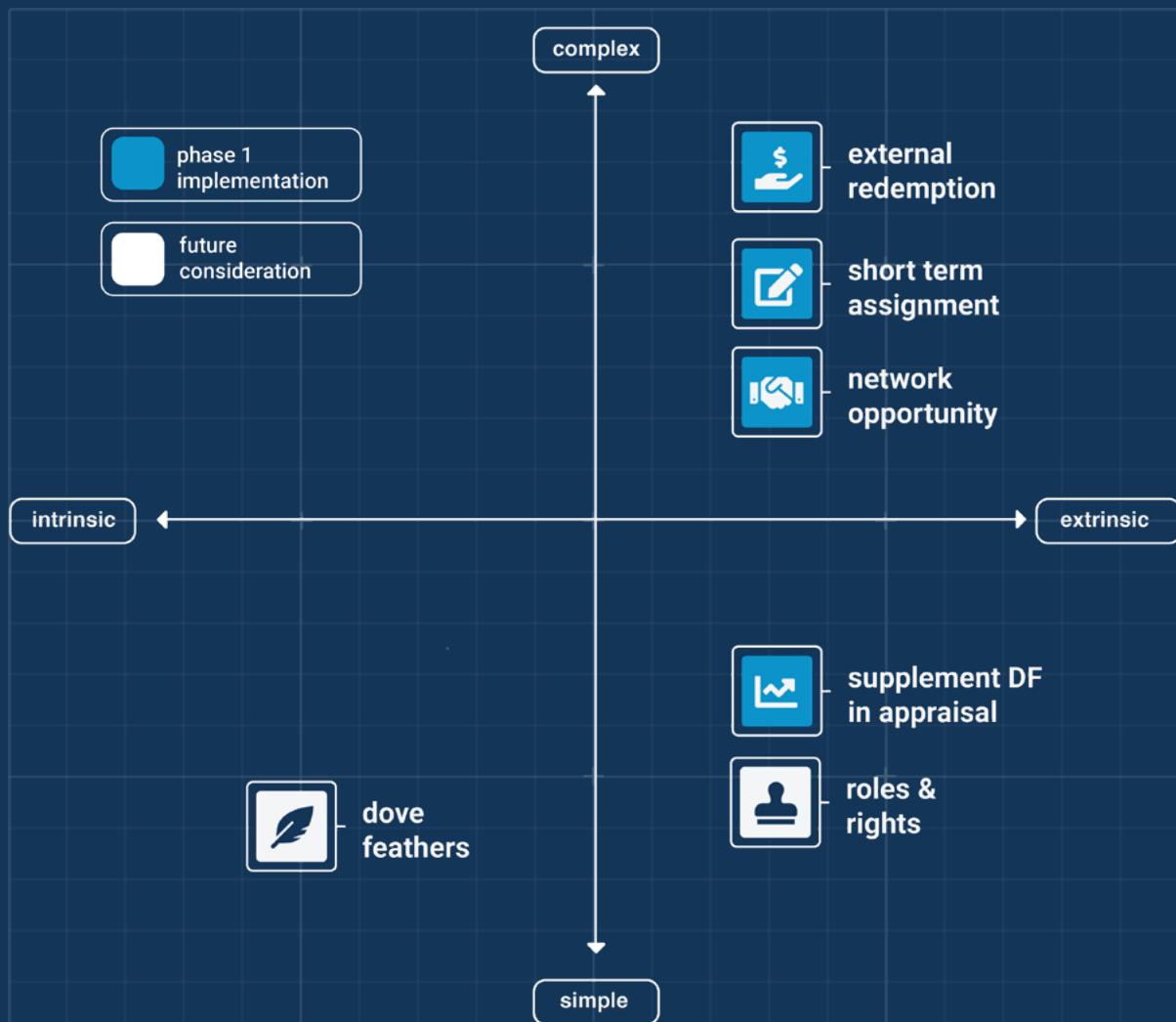
Level 4 - Able to co-facilitate initiatives

Level 5+ - Represent Doves with roles of ecosystem importance

Analysis of potential badge rewards :

	Align with UNIcoin's objective	Business feasibility	Technical feasibility	Residual Risk
Fun	Yes, focuses on intrinsic motivation	Simple. introduce Dove Feathers during onboarding	Simple. implement record for lifetime UNicoins and ratings received	Low. on assumption that it encourages friendly competition
	Yes. to showcase projects for policy change or integration in mobility marketplace	Complex, potential collaboration efforts with Connecta	Complex, requires system interoperability	Medium, not completely aligned with YUN value of a flat organization
Convenience	Yes, focuses on intrinsic motivation	Simple. leverage on the Dove Feathers	Simple. leverage on the Dove Feathers to dictate the roles and user rights	Low. further analysis required to outline DF 5 roles and responsibilities
	Yes. as expressed in the 2019 YUN survey but for future consideration	Complex, potential collaboration efforts with Connecta	Complex, requires system interoperability	Medium, potential of extrinsic motivation overriding intrinsic (if people become
	Yes, allows for additional contribution factor to upward career move	Complex, buy-in from HR globally required	Simple. extract Dove Feather to supplement personnel appraisal	Low/None
Monetary	Yes, focuses on intrinsic motivation	Simple. leverage on the Dove Feathers	Simple. leverage on the Dove Feathers to dictate the roles and user rights	Low. further analysis required to outline DF 5 roles and responsibilities

³²For future considerations, user rights may also embed the dimension to increase UNIcoin circulation either by introducing a UNIcoin expiry date or depreciating factor.



Matrix of Potential Badge Rewards

In conclusion, the UNicoins reward mechanisms give collaborators recognition for furthering the SDGs. They are designed with the intrinsic and extrinsic motivations of collaborators in mind in a way that most effectively serves the SDGs. Lastly, they ensure that a verifiable record of cross-system collaboration efforts is being maintained.



DEEP DIVE #2

UNicoins SYSTEM INFRASTRUCTURE

System architecture

1. UNicoins integration with current UN blockchain initiatives

At the foundation of UNicoins is blockchain technology, serving as the decentralized computer on which UNicoins will run.

Bitcoin aside, most blockchain applications created today are developed on Ethereum. However, since Ethereum is a public, permissionless network it can be unsuitable for private enterprise projects. Moreover, gas costs, which are the public network's transaction fees, could become a significant burden for a large scale project.

Quorum is a blockchain protocol initially developed by JP Morgan and now managed by Consensys, which is designed for use in a private network. Quorum allows for additional transaction privacy, permissioning, and flexible consensus mechanisms that make it more suitable for enterprise use cases. Quorum is derived from Ethereum, therefore maintaining Ethereum's flexibility and ease of use.

The UN is currently deploying an inter-agency Quorum blockchain, which potentially could champion the UNicoins system. UNicoins may also be deployed on alternative domain blockchains to Quorum that have interoperability with the Atrium network. Lastly, UNicoins could potentially be maintained in a consortium of broader SDG stakeholders, such as academic institutions for SDG data sharing.

2. Storage on the InterPlanetary File System (IPFS)

Since storing data on the blockchain would be expensive and slow, data can be stored elsewhere, either on a centralized server, or a decentralized storage layer. IPFS is a decentralized storage system, though data for UNicoins may also be stored on a traditional server especially during the development stages, such as shared UN databases, for example International Computing Center systems for self-sovereign decentralized UN personnel identity.

3. Smart contracts

Smart contracts are automated and immutable programs that run on Ethereum, or Ethereum-derived blockchains such as Quorum. In the case of UNicoins, smart contracts will be used to execute transactions e.g. transfer of UNicoins from one party to another, once certain parameters are met e.g. mutual verification by the parties that the work was done over an agreed period of time.

4. Client / Node

A client or node of the network will be used to host the UNicoins dApp. The node will manage transaction privacy and access controls for the dApp, contribute to consensus within the network, and serve to connect the user interface to the network.

5. Application Programming Interface (API)

APIs allow for communication between the blockchain and the web interface. The Web.js library contains a vast store of Javascript APIs. The utilization of APIs could also be deployed to integrate data between UNicoins and other applications such as UN Digital ID, UMOJA, Connecta, Atrium, ATLAS, etc.

6. User interface

The user interface for UNicoins will be a simple web application, allowing users to login with the UNID and connect up their UNicoins wallet.

The interface will communicate the user's UNicoин balance, transaction history, and reputation repository i.e. badges. It will provide access to the portal for advertising or applying for tasks; and in the case of alternative will allow groups to form and contribute towards a pool.

7. Cloud based data storage

While IPFS will be used to store backend blockchain data, a centralized cloud-based server may be used to host the web application and store front-end data.

8. Block explorer

In order to analyse the data from the dApp, a block explorer can be used, which provides analytics on everything from transactions, to account data, to application specific data e.g. ratings.



Appendix

Appendix 1

UN Secretariat dimension summary by favorability (CultureIQ,2019)

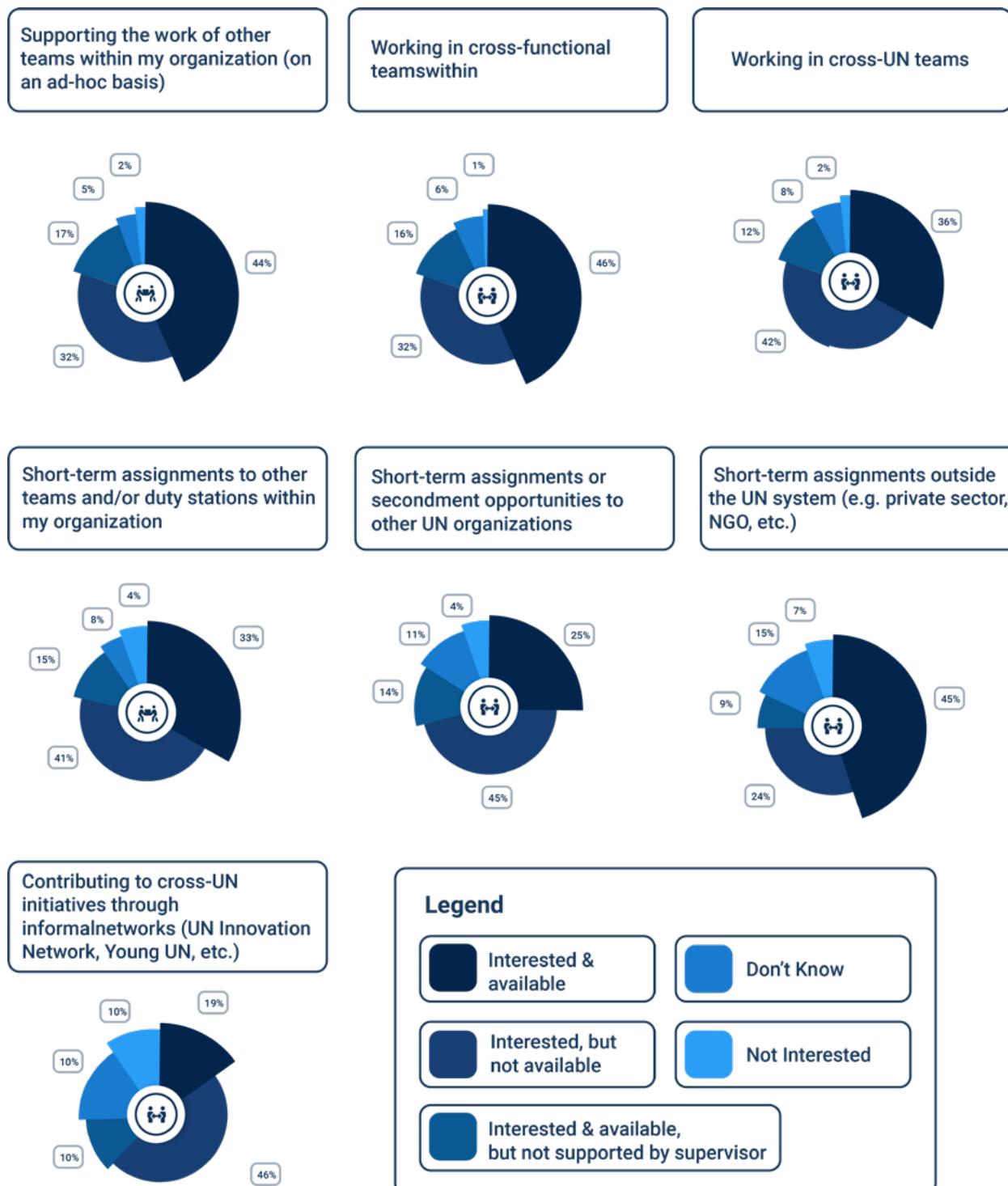
Dimension summary

- Most significant improvements (5+ Points) in alignment, Continuous improvement and empowerment
- Opportunities to improve in Agility and Career & Development.

Dimension	2019 UN Secretariat Favorable	2019 UN Secretariat Neutral	2019 UN Secretariat Unfavorable	2017 UN Secretariat Favorable
Alignment*	77%	13%	10%	70%
Collaboration & teamwork	71%	17%	12%	67%
Continuous improvement	69%	18%	13%	63%
Engagement	68%	16%	15%	72%
Performance management	67%	19%	14%	----
Empowerment	63%	18%	19%	58%
Ethics, trust & integrity	61%	20%	19%	61%
Staff wellbeing	61%	19%	20%	----
Work-life balance	60%	17%	23%	60%
Gender, div., & incl.	59%	26%	16%	----
Innovation	59%	25%	16%	----
Business transformation	58%	28%	14%	----
Retention	58%	20%	21%	61%
Agility	52%	26%	22%	51%
Career & development	46%	21%	33%	----

Appendix 2

Demand & availability of collaboration opportunities in the UN (YUN survey, 2019)



Appendix 3

Ratings Criteria

The external collaborator's performance is rated based on the following criteria:



Efficiency

External collaborator's time management in achieving task deliverable within expectations of the team



Effectiveness

The quality measurement of the collaborator's work product by team members



Collaborative approach

Level of collaborative effort

The external collaborator will in turn rate the team based on the following criteria:



Structure

How well the task had been structured and prepared



Accuracy

How well the time estimate coincided with the amount of work required



Collaborative approach

How effectively questions/uncertainties regarding the project were addressed

General Acknowledgements

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