Resource Allocation Protocol

Overcoming Deficiencies in Current Economic Model in Resource Distribution for more Equitable Distribution of Resources.

Abstract

Current economic model matches only the capital associated demands with appropriate supply, leaving a large unfulfilled demand globally creating inequality while motivating injustices. We propose Resource Allocation Protocol as a digitally enabled solution to provide decentralized resource allocation and usage to supply the demand regardless of capital holdings of participants to efficiently allocate resources of all forms anytime, anywhere to all participants.

1 Resource Allocation Protocol: Efficient Allocation of Resources

Economic activities as measured in GDP largely consist of measurement of trade of resources, and associated capital flows. While free market economy looks to allocate resources using demand based production and supply, the economic disparity in various geographies make this model non-functional. The resource allocation based on money being primary driving forces in moving the resources requires that a participant have both concentrated demand and money, in order for it to be met with supply. When in fact demand and supply should always be met, with exchange intermediary metrics being a data audit trail for the purpose of resource allocation.

Resource Allocation Protocol looks to provide a decentralized protocol to streamline efficient sharing of resources through strengthened audit capabilities and decentralized tracking of material resources, throughout their entire life-cycles. Resource Allocation Protocol can be used to measure and monitor manufacturing activities, raw resource usage, their consumption and re-manufacturing.

According to United Nations "Mobilizing adequate financing for sustainable development will be a challenge for all countries, but will be particularly difficult for Pacific Small Island Developing States where financing needs for sustainable, climate-sensitive development are estimated to be among the highest in the world when measured as a proportion of national output. They are also set to rise with the predicted impacts of climate change."[1]

United Nations Sustainable Development Goals[2] envisions a free and equitable society free of injustices and poverty. Through Resource Allocation Protocol, we enable crowd sourced participation taking actions for equitable distribution and appropriation of resources both domestically and internationally to meet the agenda set forth by UN SDG by 2030. United Nations Sustainable Development Goals are signed by 193 member nations, with obligation for each country and its civil society to actively contribute and meet these goals.

According to Center for Strategic and International Studies (CSIS) "Space-faring nations face a much different space environment; one that's more diverse, disruptive, disordered, and dangerous. Today's space domain presents a number of asymmetries that differ from other domains, creating a specific deterrence environment with unique policy implications."[3]

Resource Allocation Protocol aims to provide more efficient ways to govern and allocate resources, by providing decentralized public and private participation opportunity for resource

allocation, contribution, and usage. Through decentralized contribution and usage of various available resources, we aim to fill the gap in poverty materialized through inefficient resource appropriation of all forms.

1.2 **Building trust in a trust-less environment through Blockchains & Resource Allocation Protocol**

Blockchain, Smart Contract, and Digital Currencies provide digital means to establish trust in inherently trust-less environment. Resource Allocation Protocol provides a decentralized cryptographic authentication, whereby a participant can specify a cryptographic key to start a decentralized data sharing network, requiring all participating devices to have the key to join in on the network, enabling digital connectivity amongst diversely disconnected multi-functional devices for their efficient universal sharing.

Through diverse measurements and appropriately allocated resources, raw data for data science and prediction is significantly improved, providing a room to automate most of manual resource allocation related decision making. Examples of this include virtual tourism by builders, to get an accurate picture of on-the-ground data prior to building up a needed infrastructure on the ground. Combination of fleet of drones and IoT enable Virtual 3D tourism with capabilities to emulate many of the local features ranging from sound, wind, temperatures to emulation of 'touch' of a local object through measured data. This data can then be used by design softwares to automatically modify the design to allocate materials & resources fit for the environment.
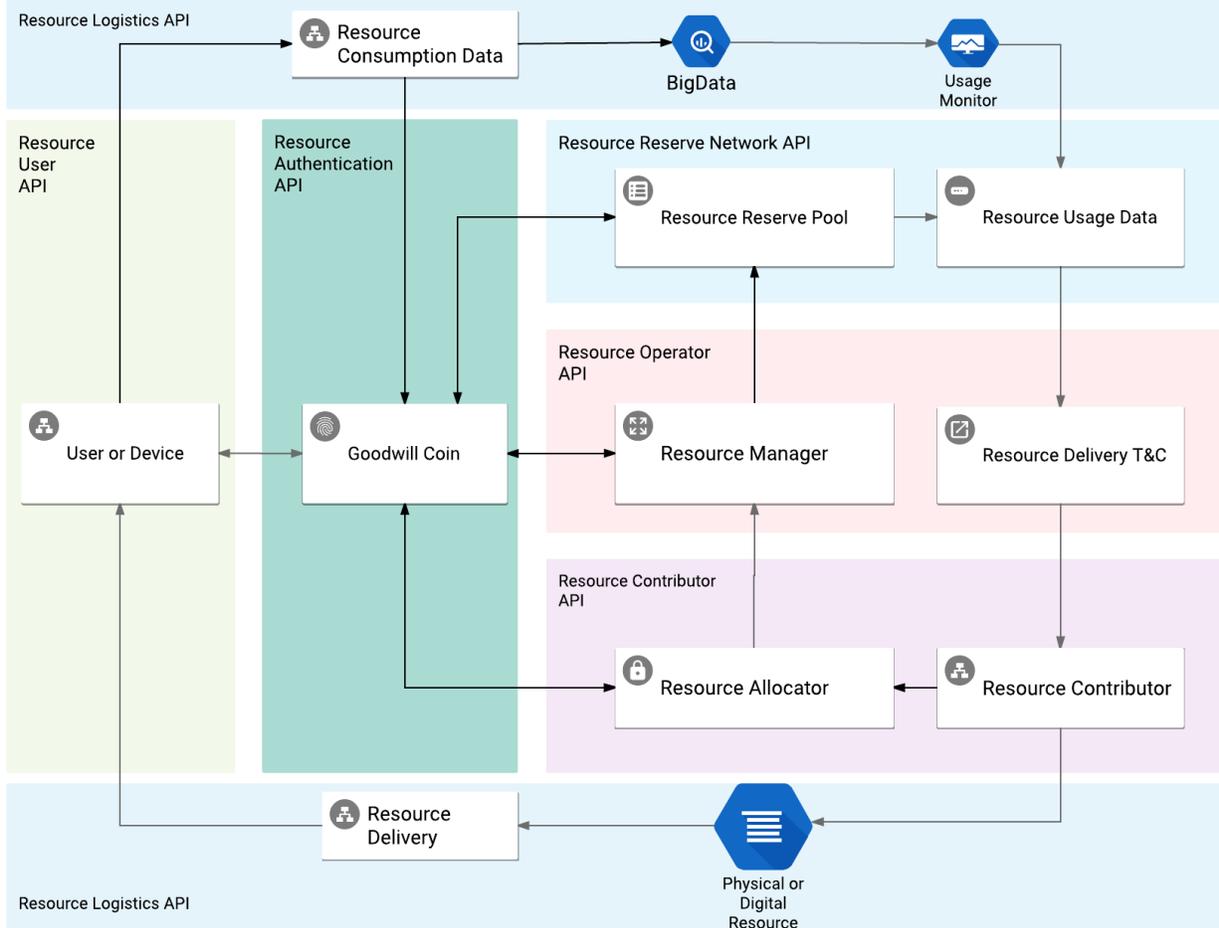
2. **Resource Allocation Protocol Design**

2.1. **Actors in the Resource Allocation Protocol**

There are 5 roles for the actors in the network:

1. Users, IoT or Devices who send and receive resource use request to and from the network
2. Resource Authenticator, responsible for token based authentication and identification of resource users
3. Reserve Network(s) providing value added data to the network
4. Resource Operators, who manage and share allocated resources (e.g. devices such as fleet of drones, or group of IoT equipments)
5. Resource Contributors that provide usable resource and allocation data to the network (e.g. IoT, Devices, manufacturers, or resource suppliers, to enable real-time data based delivery of resources based on consumption)

RESOURCE ALLOCATION PROTOCOL

2.2. **Dynamic Reserve Pool**

Resource Allocation Protocol guarantees resource availability by leveraging the existing reserves in the network. Resource allocations are directly managed by different resource contributors, to be shared amongst Resource Operators based on availability, allowing excess capacity to be utilized by decentralized participants.

Furthermore, allowing different people, apart from Resource Reserve Network, to manage their own allocation permits Resource Protocol to support low-usage resources by off-loading the management efforts of those resources to corresponding Resource Operators. Thus, different parties who wish to take the risk of trading/ converting low-usage resource can create their own allocation of excess resource and register with Resource Reserve Network.

Note that Resource Reserve Operators do not hold any resource of the Resource Contributors that register with it. Their resource availability, and consumption data are stored on Resource Reserve Networks.

When a resource usage request arrives, Resource Allocation Protocol will fetch the resource availability from resource network reserve pools that can process the request. Resource Reserve Pool then selects the best operator and executes the request.

In order to provide credibility to new resource contributors, resource contributor's cap on acceptable Goodwill Coin will increase based on data track record of resource user's successful resource usage.

Participants can easily share their resources, such as work available at the company, computation power of an idle computer or an IoT device for allocation to the Resource Allocation Protocol participants. These initial participant resources will be the main source of liquidity for the Resource Reserve Pool before other reserves are registered.

RESOURCE ALLOCATION PROCESS FLOW (ESCROW)
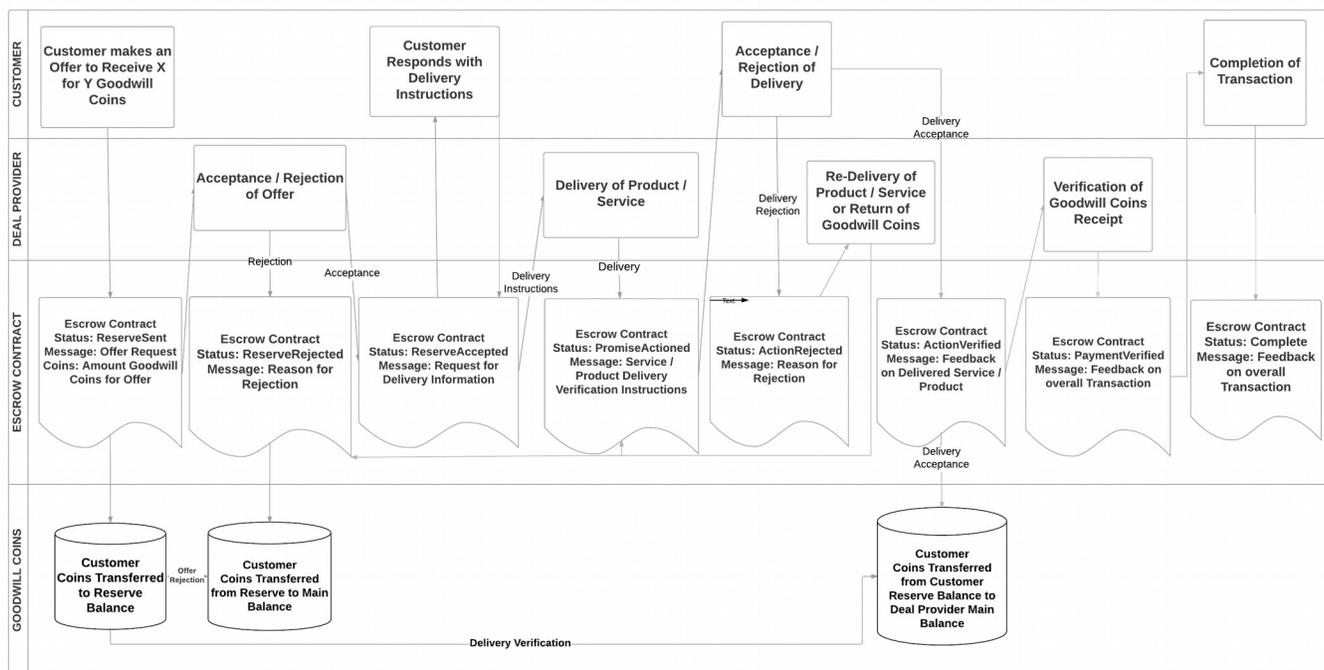
2.3 Why other resource allocators should join Resource Allocation Protocol?

Resource Allocation Protocol creates a platform for efficient allocation & tracking of resources that enable existing excess capacity of resources to be efficiently distributed amongst participants in real-time.

Resource Contributors can set Goodwill Coin for authentication of the participant, which increases based on track record of successful resource allocation. Authenticated participant can then share their own available resource or operate an existing resource within the network.

While the Resource Allocators can always do the trading without joining, Resource Allocation Protocol allows for secure authentication of authorized users to join in a network of resources, making it expensive for participant to leave resources consumed idly, encouraging efficient sharing of resources amongst multiple decentralized participants at all times.

Resource Allocation Protocol also provides a reserve dashboard software to help reserve managers manage their resource portfolio. The resource dashboard will include standard and popular criteria to allow resource managers to automatically make resources available in their portfolio. Our reserve dashboard is flexible enough that resource operators can always implement and set their own criteria when and where they see fit.

2.4 **How to keep the resources safe?**

The security of resources becomes a major concern in Resource Allocation Protocol, especially for public resources that take contributions from other members in the network. One of the primary concerns is that a bad/unethical resource operator may quote false resource resource allocation and usage to him/herself to drain Goodwill Coins from decentralized participants.

Let us categorize the resources into two types:
(1) private Resource Network which do not accept contributions and
(2) public Resource Network which take external contributions and share available resource with contributors.

Whilst still a valid concern, if resource operators of private resources follow good security practices, the risk exposure of private resources can be confined to an acceptable range, since the resource contributions and their usage are handled locally and other parties cannot interfere without permission.

On the other hand, public resources are subject to greater risk exposure due to its open nature. To mitigate the security risks of public resource, Resource Logistics API provides a transparent resource delivery monitor, so that contributors and consumers of the reserve can track all actual resource usage activities done by operators and users. All open resource usage also require Goodwill Coin authentication, to identify the source of the request. Resource Contributor's cap on acceptable Goodwill Coin will increase based on data track record of resource user's successful resource usage.

For example, the Goodwill Coin can only be transferred to predefined addresses in the contracts, such as the reserve contract itself, and other resource exchanges that the reserves interact with. Hence, the risk of unwarranted extraction of resource out of the system is removed.

Also, to prevent resource operators from deliberately setting up false and unreasonable resource allocation availability to collect massive decentralized participants, a background monitor will halt transactions when the system detects dubious activities that detect actual usage of the resource that does not align with claimed availability.

2.5. **Main System Components**

Resource Allocation Protocol consists of the following major components in its system.

● **Smart contracts**: Resource Allocation Protocol contains several contracts, including the main contract which serves as the main entrance to the system for users, devices and resource operators. We also have different contracts to maintain the resources, and a contract token which provides secure authentication to all features that Resource Allocation Protocol supports.

● **Goodwill Coin**: Convertible with Ethereum, Goodwill Coin provides secure authentication for Resource Users, Operators, and Contributors to create, join, allocate and use resources available in the network.

● **Resource Operations Portal**: aids the management of the resource by displaying their performance, statistics, supporting different criteria to make resources available or to use the resource. Resource operators interact with the network (or the Resource Allocation Protocol contract) via this portal.

● **Operator dashboard**: Helps Resource Allocation Protocol operator manage the entire system. Operator can add and remove new resources change network parameters via this dashboard.

2.6. **Resource Allocation Protocol APIs**

Resource Allocation Protocol supports different API commands for users, devices and resource operators.

2.6.1. **Resource User API**

Resource User API can be called by any Ethereum account, including normal account and contract ones.

RequestUse(Resource Reserve Network Addess X, Resource Type Y, Goodwill Coin Z)
      X: Resource Reserve Network Address
      Y: Resource Type Y
      Z: Resource Token Z
      Requests usage of resource type Y for token Z, from Resource Contributor X

      For example, users can call RequestUse(0x, "Cloud Storage: 1 GB", 100) to request usage of resource of type "Cloud Storage: 1GB" for 100 Goodwill Coins
      Successful request will result in usage instructions being returned

GetUsage(Resource Reserve Network X)
      X: Resource Reserve Network Address
      Returns the available resource for use from resource address X, and other publically identifiable resource related data

2.6.2. **Resource Contributor API**

Reserve Contributor APIs can be called by any account in the Ethereum network, though some API only works if the account already contributed.

There will be two different resource types in Resource Allocation Protocol:
      private ones which do not take public contributions
      public ones which allow others to contribute resources

The APIs for public resources:

ListResource(Resource Network Address X, Resource Type Y)

X: Resource Network Address
Y: Resource Type
Introduces Resource in Network X of Type Y

ResourceAdd (Resource Contributor Address X, Resource Qty Y, Resource Type Z)
X: Resource Contributor Address
Y: Resource Quantity
Z: Resource Type
Add a new resource to the network. The resource is managed by the contributor

ResourceRemove (Resource Contributor Address X, Resource Qty Y, Resource Type Z)
X: Resource Contributor Address
Y: Resource Quantity
Z: Resource Type
Remove an existing resource from Resource Allocation Protocol.

Contribute(Resource Type X, Resource Quantity Y, Resource Description Z)
X: Resource Type
Y: Resource Quantity
Z: Resource Description

Allocate Resource of type X for Minimum Goodwill Coin Y, for Resource Quantity

2.6.3. **Resource Operator API**

SetResourceTerm(Resource Network X, Resource Type Y, Goodwill Coin Z)
X: Resource Network
Y: Resource Type
Z: Goodwill Coin
Update usage terms of Resource Network X, based on existing usage. (Goodwill Coin can be set higher when demand looks to be nearing total supply limit)

2.6.4. **Resource Network API**

ListResourceNet(Resource Type X)
X: Resource Type
Returns Resource Networks for Resource Type X

CreateResourceNet(Resource Network Name X, Resource Network Address Y, Resource Type Z)
X: Resource Network Name
Y: Resource Network Address
Z: Resource Type
Creates Resource Network for Resource Type Z in Resource Network Address Y

DelistResourceNet(Resource Type X, Resource Contributor Address Y)
X: Resource Type
Y: Resource Contributor Address Y

To stop accepting usage of resource Type X

3. System Properties

3.1. Trustless and secure

The Resource Operator does not hold the resource of the contributors. Hence, by design, resource contributors are secured from theft losses. Resource Contributor need not trust the intentions of the resource entity and users, as the integrity of the operator is enforced/ensured by the smart contract. Resources shared, however, should be resources that does not compromise physical or digital security of both users and those in vicinity of the resource, through sharing of such resources.

Resource Users will have actual real time data on Resource Network's track record of successful resource delivery to have reasonable insight on reliability of the Resource Reserve Network's delivery capability of the resources.

3.2. Instant Resource Availability

A resource usage request is executed immediately within a single transaction. Resource Users get Resource Usage instructions the moment resource user makes a successful request.

On-chain communication of physical and digital resource delivery and consumption data are provided via Resource Logistics API.

3.3. On-chain Audit & Data Visibility

The Resource Allocation Protocol runs on chain and is accessible for all accounts, including normal accounts and smart contracts. That allows smart contracts to directly interact with the Resource Allocation Protocol without a third party intervention to receive resource availability and request their usage.

3.4. Compatibility

Resource Allocation Protocol does not require any modification in the underlying protocol of Ethereum and existing smart contracts to function. Our API can communicate with existing contracts without any change on their side. That said, we can also introduce a new Resource Allocation Contracts to improve on existing resource allocation mechanism.

3.5. Comparison to existing systems

We compare **Resource Allocation Protocol** to existing systems in the table below.

	Free Market Economy	**Socialist Economy**	**Resource Allocation Protocol**
Resource Usage Audit Trail	No	Yes	Yes

Instant Resource Allocation	No	No	Yes
Trustless and Secure	Money as a form of trust	Money as a form of trust	Consistent Resource Delivery as a form of trust
Resource Allocation Method	Capital Flow based Allocation	Social Demand based Allocation	Usage based Allocation

4. **Applications**

4.1 **Drones & Robot Fleet**
Applied to drones and fleet of robots, Resource Allocation Protocol can be used to measure the usage of drones, their energy consumption, and enable shared usage of fleet of drones amongst decentralized participants using pre-set rules for such sharing amongst participants.

4.2 **Manufacturing**

Applied to manufacturing, Resource Allocation Protocol can be used to measure the usage of resources, their forecasted demand, and enable predictive resource allocation amongst decentralized resource allocators.

4.3 **IoT**

Applied to IoT, Resource Allocation Protocol can be used to measure real time data, share the data to pre-authenticated participants, and enable shared data resource & usage allocation amongst decentralized IoTs and their operators.

4.4 **Governance**

Applied to Governance, Resource Allocation Protocol can be used to measure sentiments in existing policies and their deficiencies, enabling decentralized citizen participation in legislation process of new policies to overcome the deficiencies.

4.5. **Data Science**

Applied to Data Science, Resource Allocation Protocol provides trusted on-chain source for resource availability and their real time usage, enabling build-up of predictive models of consumption and production patterns of resources of various types.

4.6. **Forwards**

A forward is a contract whereby parties agree to trade a resource at a later date at a usage pre-specified in the present. One of the common problems in industrial allocation for resource, is for resource contributors to allocate the needed resource from various resource producers prior to delivery. Resource Allocation Protocol allows for decentralized allocation of such resources, enabling existing suppliers for resource contributors to collectively service large demand in advance, while offsetting excess capacity in public demand pool.

4.7 **Anti-Terror & Disaster Mitigation**

Applied to policing, Resource Allocation Protocol can be used to measure real-time crimes & hazard data, enabling decentralized allocation of appropriate policing forces to take action where there are needs, while informing relevant public of disasters and their mitigations.

4.8 **Use Cases of Resource Allocation Protocol to address Challenges to Social Progress**

Topics	Challenges	Solutions
Predictive Resource Allocation & Distribution	Doing more through automation Income Generation through Smart City / IoT Innovation	• **Resource Operators:** Strategic financing (funding, procurement, etc), Infrastructure Construction • **Resource Contributors:** Public / private partnerships & Organizational Design • **Resource Allocation Protocol Operators:** Policy & Rules Framework Design
Innovation	Determining what and how to Innovate Adapting to changing Technology, Policy, and Organizational Environment	• **Resource Users:** Data Intelligence / Smart programmes – Digital Services & infrastructure • **Resource Operators:** Integrated resource management • **Resource Contributors:** Strategic planning – integrated solutions & focused outcomes
Resilience & Risk	Responding to disasters, terror threats, changing climate, environment, and markets	• **Resource Operators:** Risk management (climate change, cyber, security) • **Resource Contributors:** Mitigation planning & execution • **Resource Users:** Geospatial mapping and data analytics
Managing Growth	Sustainable development	• **Resource Allocation Protocol Operators:** Policy & Rules Best Practices • **Resource Operators:** Integrated IoT Data Mining, data metrics & analytics • **Resource Contributors** Transition planning, Service Execution and Service Readiness Criteria
Competitiveness	Economic growth, efficiency, attractiveness	• **Resource Operators:** Sustainable economic development • **Resource Contributors:** Investment • **Resource Allocation Protocol Operators:** Market reform – policy, tax, legal, land, governance, jobs, Education and Skills • **Resource Users:** Culture, health and well being

5 Conclusion

- **Resource Allocation Protocol** provides decentralized mechanism for digitally measuring resource usage, and allocating resources in real time
- Through the use of **Resource Allocation Protocol**, it is possible to significantly accelerate resource circulation amongst the participants, ultimately creating an environment of unlimited resource availability for the participants for the demand at any given point in time.
- Digital technology provides solutions for inherent limitations in Resource Allocation

6 Roadmap

During Phase 1, Resource Allocation Protocol aims to offer a protocol for efficient decentralized resource allocation globally. During Phase 2, Resource Allocation Protocol aims to offer further integration into current City & Regional infrastructure to provide a leap forward in the way resources are managed, allocated and governed.

7 Acknowledgements

Through partnership with NeoSpace Foundation, Resource Allocation Protocol was founded with a vision of more efficient Resource Allocation mechanism to bring resource allocation efficiency fit to send humanity to live and work in outer space.

As a member of Venus Project, the team exchanges ideas on various ways to improve resource allocation to create functioning society fit for the future of humanity. Venus Project has global contributions, with materials available at: https://www.thevenusproject.com/

"Resource Allocation Protocol helps get the resources you need, anywhere, anytime." -- Richard, 2017

1   http://www.undp.org/content/undp/en/home/librarypage/poverty-reduction/financing-the-sdgs-in-the-pacific-islands--opportunities--challe.html
2   https://en.wikipedia.org/wiki/Sustainable_Development_Goals
3   https://www.csis.org/analysis/escalation-and-deterrence-second-space-age
4   https://en.wikipedia.org/wiki/United_Nations_peacekeeping
5   https://en.wikipedia.org/wiki/United_Nations_Police
6   https://en.wikipedia.org/wiki/United_Nations_Human_Settlements_Programme
7   https://en.wikipedia.org/wiki/Global_citizenship
8   https://www.americanexpress.com/us/content/foreign-exchange/articles/digital-currencies-by-central-banks-for-global-payments/
9   https://en.wikipedia.org/wiki/Spacelab

Appendix: Phase 2 Road-map & Goals

A.1 Digital Government Establishment & Participation

Resource Allocation Protocol aims to offer a platform for active participation in forming public private partnerships to directly to foster participatory citizen engagement on governance and policy formation throughout the planet to fully realize the visions set forth by Global Digital Government programme.

We aim to provide resource allocation for global citizen participation in following areas:

- Rule of Law
- Justice, Crime prevention, and automation of policing activities with UN Peace Keeping[4] & UN POL[5]
- Global Citizenship programme build-up
- Smart City Build-up to transition each and every cities and towns both within the planet & outer space to Smart City
- Voting, Legislative, Judicial, and physical residency rights
- Coordination with global representative round-table congress & senate to modernize governing bodies
- Consolidation of governing body activities to apply best practices throughout the planet
- Foster creation of consolidated single digital government in all applicable regions
- AI based automation for daily decisions
- UN Habitat[6] integration
- Work towards Digital Government Transition & Participation standardization

A.2 Global Citizen Participation

Resource Allocation Protocol aims to offer a platform for active participation in Global Citizen[7] activities through integration with Digital Governments across the planet.

- Digital Voting
- Management of local city infrastructure and resources
- Digital Legislation
- Government Services
- Identification & Active participation to find solutions for deficiencies in governance or government services
- Media Communications:
- Work towards Digital Government Global Citizen Participation service delivery standardization

A.3 Economic Structure Revision – Old Economy → Digital Economy Transition

Resource Allocation Protocol aims to offer a platform for full integration with CBDC (Central Bank Digital Currency)[8] and other Digital Economy platforms to foster transition from old economic activities to digital economy.
- Smart Supply Chain Integration
- Smart Manufacturing Integration
- Smart Transport & Logistics Integration
- Smart Banking
- Digital Currency (Smart Contract) for renting hard goods or consumption of soft goods
- Work towards Digital Government Digital Economy services delivery standardization

A.4 Space Age infrastructure, Outer Space Travel, and Habitat Readiness

Resource Allocation Protocol aims to offer a platform for startups to contribute to space age society and equipment build-up. We aim to connect startups and space programme building simulated sites on earth or building equipments for outer planets.

During phase 2, we look to collaboratively build up Space Labs[9] environment with active global participation in following areas:

- Smart Building
- Space Age Smart Cities & States:
  - Build-up of Space ready Smart City Equipments
- 3D Printed Manufacturing Ready Building & Equipment Blueprints
- Nano-materials manufacturing
  - Built-in shielding from harmful noise, heat & radiation
- Security and Monitor
- Passive & Proactive Policing & Anti-terror IoT Equipments
- Common Communications protocol between IoT Devices
- Space Logistics & Transport Automation
- Work towards Digital Government Space Habitat delivery standardization

A.4.1 Resource Allocation Protocol for Space Habitats

Objective:
Space Age habitat aimed at addressing social inequality presented by economic, political, and governance disparity

Guiding Principles:
* Guarantee well-being of its inhabitants regardless of educational, ethnic or religious backgrounds
* Absolute protection of civil liberty by providing political voice (legislation / voting participation), lifestyle (right to live a fulfilling life, regardless of inhabitants' capability to participate economically), and governance (guarantee of peace, protection, and prosperity)
* Guarantee the fundamental right to enjoy the best of all things the habitat is able to provide

Inhabitants:
* Become an inhabitant through donation of all existing personal & corporate resources (tangible / intangible assets, businesses, infrastructures, properties, etc) to the habitat
* All inhabitants share all resources that belong to the habitat, process for which to be facilitated by UN e-governance programme
* Participate as work-force for the habitat through local democratic elections process (e-democracy facilitated through e-governance)

Infrastructure:
  - Land
    * Donated / Purchased land to be used
  - Supply Chain
    * Minimise human intervention through technological automation in creating Energy, Food Supply, Logistics / Transport, Manufactured goods, and Facilities

Habitat Economy:

Financing:
   - Issue Digital Currency to all inhabitants with unlimited capacity to spend. (Driven by fundamental principle of shared ownership, currency used to 'rent' properties / goods for a limited time period)
   - Par value exchange rate with USD, with any purchased assets outside of habitat to be integrated as shared property of Habitat

Resources:
   - Ensure ample production capability for all goods / resources based off of current velocity of their consumption
   - Recycle / Refurbish all resources to ensure maximum resource lifetime value

Governance:
   Goods / Services Entitlement
   * Habitat to own and share all corporate entities and infrastructures, providing all products / services to its citizens for Free -- ensure citizens are provided for w/ or w/o work (Unlimited Digital Currency balance for all citizens, for show)

   Public Servants / Work Force:
   * Position work as an elective option to further stimulate existing life style, position workers as pubic servants, handle HR through local elections -- let people work through free will, continuously work to eliminate the need for manual labor through automation where-ever possible

   Legislation / Democratic Voting:
   * E-Democracy: Provide electronic platform to all inhabitants to participate in legislation, voting, justice, governance, elections, and peace keeping

   Healthcare:
   * Ensure the best medical facilities are provided for all its inhabitants

Education:
   Electronic & Field Education
   * Electronic Education, which allows each student to move at their own pace, with option to participate in physical groups for interested parties.

   Values Education
   * Focus on values education, aimed at exploration and understanding of higher spiritual values

Work:
   Electronic & Field Work:
   * Encourage creation of home-based work environment where-ever possible to encourage family participation, with option of physical participation for interested parties

   Robotics / Automation:
   * Continuously work to render the physical participation in work obsolete through automation

Peace Keeping & Security:
 Continuous Monitoring:

* Monitor, and Record all activities (electronic & physical) throughout all facilities and infrastructure within the habitat, with option for habitat to share the monitor feed publicly or to interested parties

Community Peace Keepers:
 * Local Peace Keeping forces to be elected through democratic elections process

Justice:
* Court Proceedings & Penal structure with focus on re-education of the inmates

Transport:
 * Shared transport (Electronic Cars & Public Infrastructures)

Overall aim is to integrate Resource Allocation Protocol and use its resource allocation efficiency to enable self sustaining habitat, providing the space habitat with latest / best technology, data, and infrastructure we as a society are able to offer.

A.5   **Smart Work & Collaborative Environment Establishment**
      Resource Allocation Protocol aims to offer a platform to create a digital work environment where majority of work procurement, execution, payments, and delivery are handled digitally.

- **Digital Service:**
  - Public Private Partnerships
  - Technology provider Discovery & Acquisition
  - Materials & Resources Discovery & Acquisition
  - Work forces and needed skill sets Discovery & Acquisition
  - Public Spaces Discovery & Acquisition
  - Work towards Digital Government Digital Service Standardization

- **VR Platform:**
  - Digital Conference
  - Digital Learning Environment
  - Digital Work & collaboration environment
  - Digital Entertainment (VR malls, VR conference booths, etc)
  - Simulated earth & space environment (work towards digital recreation of entire environments for planning)
  - Work towards Digital Government VR Platform Standardization

- **Doctors & Health:**
  - Digital Health Services (Real-time biotracker, monitor, and diagnosis)
  - Physicians & Surgeons:
    - Digital service acquisition
    - Partnership opportunities with process automation technology providers
    - Medical IoT Data Integration
  - Work towards Digital Government Smart Health delivery standardization

- **AI:**
  - Prediction of Resource, Population Movements
  - Measurements for process automation
  - Predictive allocation of infrastructure and resources based on existing conditions
  - IoT based manufacturing blockchain tracking
  - Work towards AI Open Integration standard globally

- **Digital Government derived Global Resource Availability, Allocation, and Manufacturing Productivity Data:**
  - Tracker of available resources for distribution
    - Measurement of resource availability & their consumption velocity
    - Availability of one time consumption goods (food, etc)
    - Anticipation of needed re-manufacturing and re-processing for each resource

  - Manufacturing Data
    - Facilitation of Consolidation & Sharing of manufacturing facilities & standard
    - Hard goods (material remanufacturing)
      - Tracker for Resources needed for each goods
    - Soft goods (biomaterials - plants, eggs, etc)
      - Streamlining of biomaterial production with consumption velocity (in-door mass production capability, ideally in lab cellular environment)
    - Facilitation of immediate manufacturing & distribution of goods based on user blueprints
      - Advanced 3D printing of consumer goods
    - Audit process for blueprint & design validation
    - Tracker for item location, usage, re-use
    - Facilitation of produced goods sharing & rentals using Smart Contracts
    - Integration with Digital Government Services to distribute, refurbish, re-manufacture the items using automated logistics of essential goods for local population
    - Partnership opportunities for service provision (auto, housing, boats, daily goods, etc)
  - Work towards standardization of Digital Government Resource Management System globally

A.6   **Smart Education**
　　　Resource Allocation Protocol aims to leverage VR and conferencing platform to create a digital decentralized learning environment through sharing of educational materials from decentralized credible sources

- Modernize existing education materials to global standard delivered digitally
- Provide standard digital learning programme for all to use
  - Materials to start from pre-school
  - At minimum, ensures Native English Proficiency through the course of learning
  - Flexibility to move as slowly or as fast as necessary
- Integration of Technology Provider to issue learning assistance technology such as Smart Watch, Smart Phone, Laptop & Tablet PC,
  - Biometric Tracker & Real time visual audio geolocation monitor for parents & guardian
  - UN POL & Digital Government Partnership for automated Cyber-crimes policing and anti-terror assistance
    - Predictive metrics for crime prevention and notification

- Work in digital work environment to contribute to company team efforts alongside education based on skill sets
- Work towards space environment knowledge & expertise preparedness
- Work towards standardization of Smart Education platform throughout the planet

A.7 Space Economy:

Resource Allocation Protocol aims to use Digital Government's capability to inject funding in needed areas through CBDC to integrate and transition old economic activities towards digital space age economic models