Spanner **Protocol**

Spanner Protocol

A Blockchain for Borderless Collaboration

Spanner, noun

1. *A household tool to tighten and BOLTs*
2. *A blockchain protocol that spans across communities*

PART I

Borderless Collaboration And Enabling Technology

Why Decentralized Collaboration?

*Blockchain, a consensus enforcement engine, **guarantees execution** of consensus of any collaboration via Smart Contract.*

*This brings unparalleled **advantage** to **decentralized collaboration** over real world contracts that are subject to argument and failure to enforce.*

No Dispute

Smart Contract will strictly execute the consensus. No enforcement failure. No middle ground for dispute.

No Censorship

On the system level, Blockchain runs on decentralized technical architecture and **will never be stopped. On the user level, all users' transactions will not be blacklisted.**

Low-cost Execution

Smart Contract is executed by increasingly cheaper machines, while real world contract is executed increasingly more expensive human resources.

The Future is Borderless

Decentralization Polarized. For anything, by anyone, at anyscale - **borderless**

For Anything

Any blockchain activity on-chain or cross-chain

Real world activities via off-chain connection

By Anyone

Open and simple for anyone to use.

Trust-free collaboration guaranteed by Blockchain.

At Anyscale

From small groups to global organizations with millions of participants.

From ad-hoc communities to permanent organizations.

Introducing Spanner's Core Technology: DPO
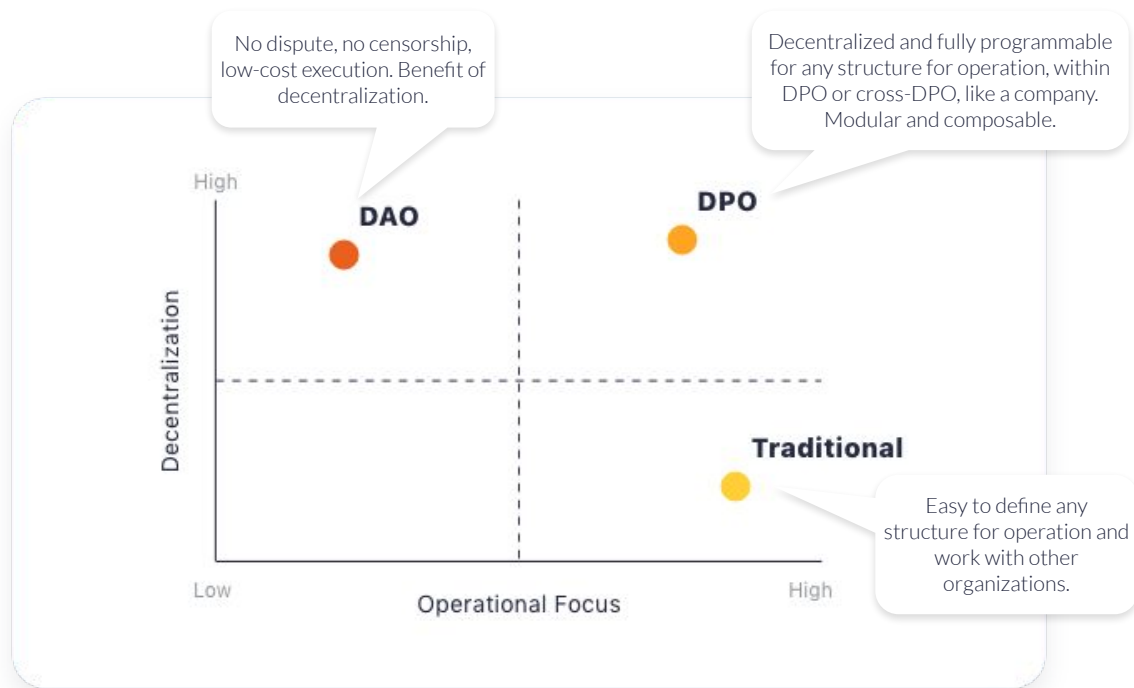
Decentralized Programmable Organization

DPO is a technology to enable borderless collaboration on Blockchain. It can be programmed with any structure and all interactions are transparent and verifiable.

It is a new form of digital organization.

DPO - the Best of Both Worlds

DAO runs on Blockchain based on a proposal-and-voting mechanism like shareholder votings, which is ineffective for most operations. DAOs need a structure to make operational decisions..

DPO is designed with full programmability to define any structure for operations within the DPO and cross-DPO like how companies work with other companies.

DAO: Decentralized Autonomous Organization
DPO: Decentralized Programmable Organization

DPO Features

"The beginning of wisdom is to call things by their proper name"

Decentralized Execution

Having the benefit of running on Blockchain. No censorship. No Dispute. Low-cost execution.

Programmable Structure

Program any operational structure for the goal. Perform any on-chain, cross-chain and off-chain actions at ease.

Organizational Behaviour

DPO can be independent and interdependent. The cross-DPO capability makes DPO modular and composable, behaving like a company.

DPO Use Case I: Decentralized Payroll

Bottom-up peer-review payroll determination for decentralized organizations.

Challenges: Current top-down payroll and appraisal processes are inefficient and does not fairly compensate staff contribution. And it can not scale to a large group of workers.

DPO solution: Program a bottom-up peer review system. Everyone is allocated some salary tokens and give to peers. Higher quality work will result in more tokens. All salary token distribution are transparent and verifiable.

DPO

Peer review by giving salary tokens

Work Group 1

Work Group 2
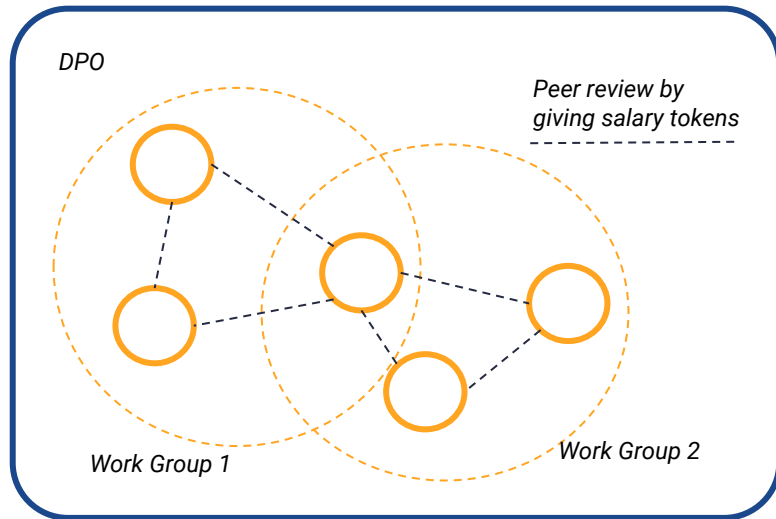
DPO Use Case II: Digital Art

Crowdfunding to purchase art pieces to share its ownership and future appreciations

Challenges: Purchasing art pieces can be expensive. Organizing people to raise funds in order to purchase expensive art pieces is difficult. Ownership and profit from sales are hard to distribute without middlemen which presents its own risks.

DPO solution: Program a crowdfunding mechanism with DPO for secure storage of funds, transparency of operations, and guaranteed settlement based on smart contracts. The shares are liquid and can be partially/fully transferred to others. Also directly applicable to Non-Fungible Tokens (NFT)!
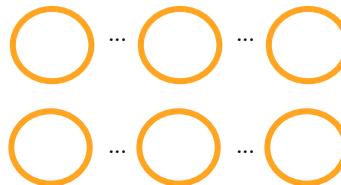
An token art, a replica of Mona Lisa

BUY | SELL

DPO

Manager

*Created and managed by **manager**, who charges a commission of the profit.*

... ...

... ...

100 equal value seats each corresponds to 1% ownership. By buying the seats, money are pooled together for use.
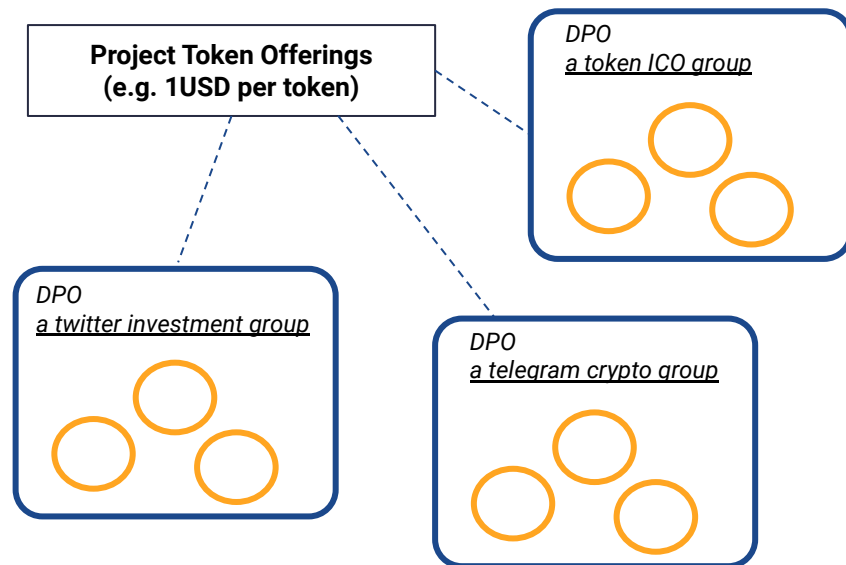
DPO Use Case III: Token Launchpads

A scalable form of decentralized token offerings

Challenges:
- Not open to everyone, as participants must possess minimum amount of Launchpad Tokens.
- Not open to every project, as project pre-sales often have high entry requirements.
- No transparency in platform's operations (e.g. token misuse, high cost and fraud)

DPO solution: Projects create token offerings open for taking. Community curators (big or small, any type like youtube or twitter) can create a DPO for the token offerings and set incentives parameters (like commission and referral fee). No business process needed between community and project. DPO participation is open to everyone without assumption.

Project Token Offerings
(e.g. 1USD per token)

DPO
a token ICO group

DPO
a twitter investment group

DPO
a telegram crypto group

PART II

DPO V1 for Decentralized Crowdfunding

Why Decentralized Crowdfunding?

A safe and versatile way to participant in crypto

1 Very versatile. E.g. token offering, NFT, mining and more.

Yield Farming

Mining

Staking

Investment

BulletTrain

2 Blockchain makes Crowdfunding safe. No dispute, no censorship, low-cost.

DPO V1 Structure

A DPO is created to crowdfund for **anything**. All received rewards are distributed to its participants according to their contributing roles.
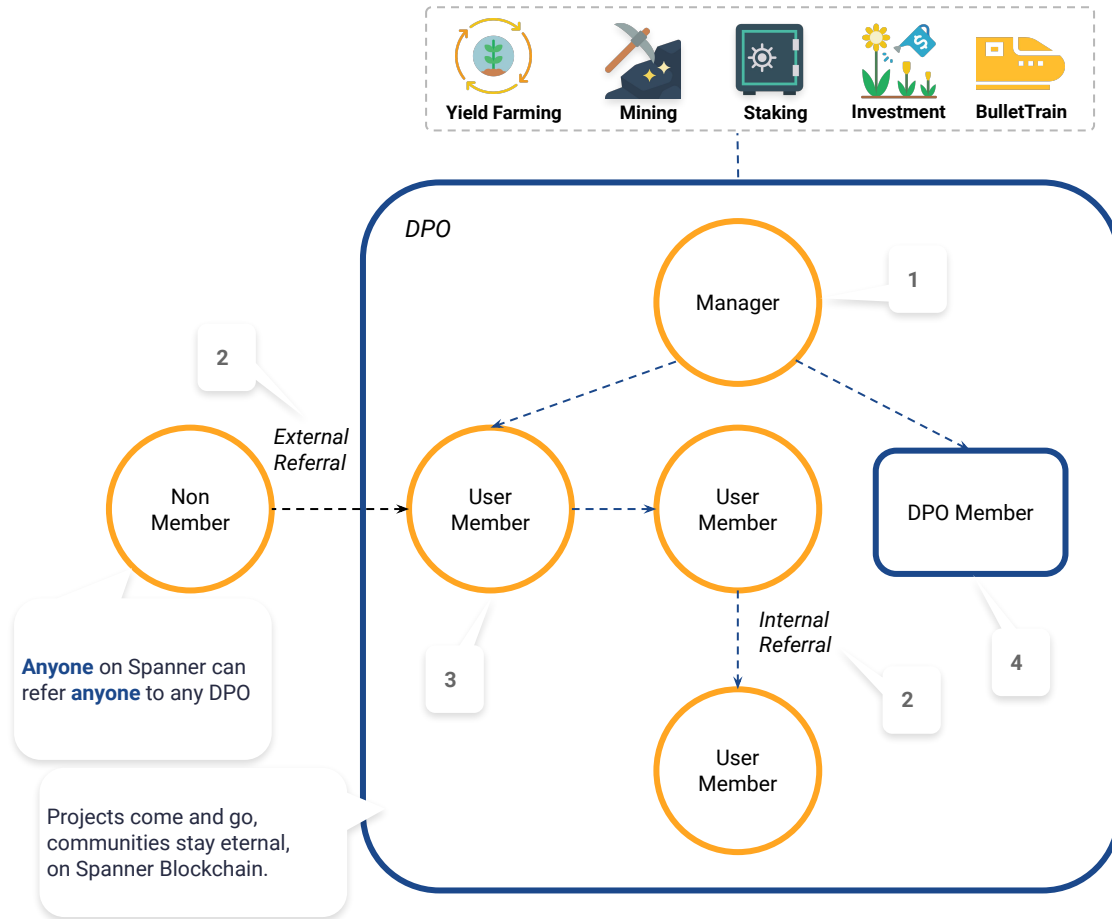
Anyone can participate

0 cost to create a DPO. Configure the reward structures as a Manager, and grow your DPO.

0 cost to be Referrer. Earn by referring members to DPOs.

Earn rewards directly by becoming a User Member.

Create a DPO to join another DPO as a DPO Member, known as **DPO Composition**.

- Manager earns management fee.
- Referrers earn referral bonus.
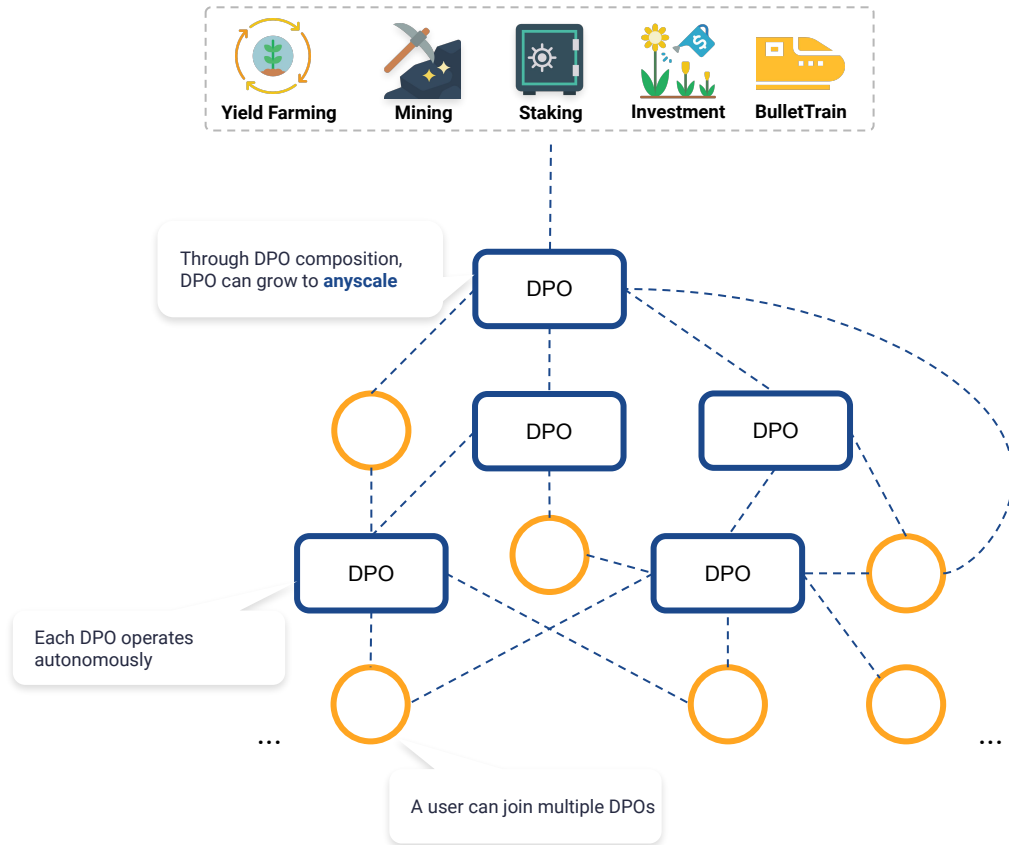- Members are the owner of the DPO and earn yields.

Yield Farming **Mining** **Staking** **Investment** **BulletTrain**

DPO

Manager — 1

Non Member — 3

External Referral

User Member

User Member

DPO Member — 4

Internal Referral — 2

User Member

Anyone on Spanner can refer **anyone** to any DPO

Projects come and go, communities stay eternal, on Spanner Blockchain.

DPO
Open Market

DPO operates independently like an individual user. A DPO can choose to crowdfund for a target by itself, or join another DPO as its member. Like a open market.

Benefits:

1. **DPO Composition:** DPOs can pool their funds together to become a bigger DPO for more expensive assets. DPO can grow to anyscale.

2. **Bottom-up Pricing:** Users or DPO are more inclined to join DPOs with lower management fees. The market will eventually decide the best and fairest management fee.

Yield Farming Mining Staking Investment BulletTrain

Through DPO composition, DPO can grow to **anyscale**

DPO

DPO

DPO

DPO

DPO

Each DPO operates autonomously

A user can join multiple DPOs

DPO V1 Recap

Borderless Crowdfunding for a limitless future

Crowdfund for anything

A reward package, or a NFT to represent anything unique like your future startup or any intellectual property.

Open to anyone

Anyone can initiate a crowdfund with 0 input or join a crowdfund. Easy to use.

Crowdfund at anyscale

DPO composition allows decentralized crowdfunding grows to anyscale. All settlements managed by the protocol.

BulletTrain - The first DPO V1 Application

A BulletTrain is a token reward express for participants

A BulletTrain has multiple **TravelCabins** of different classes. Higher classes give higher rewards but is more expensive to buy.
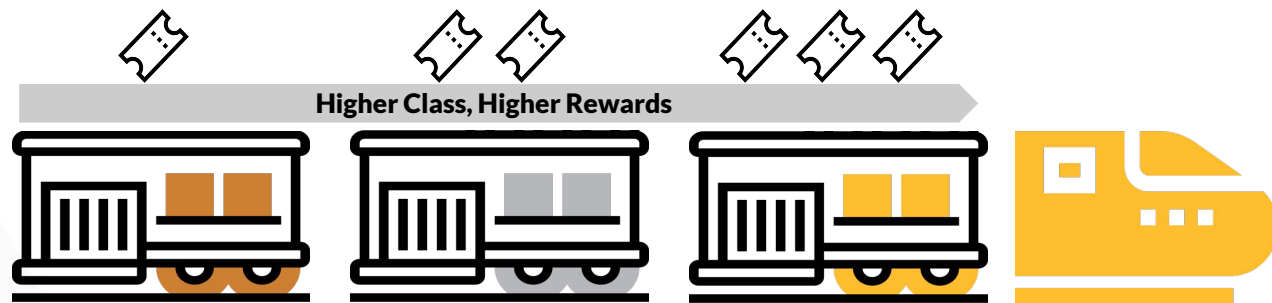
A simple 3-step BulletTrain journey

Higher Class, Higher Rewards

1 — Users buy a cabin for a BulletTrain ride..

2 — They get rewards during the train ride.

3 — They get their payment back when the ride ends.

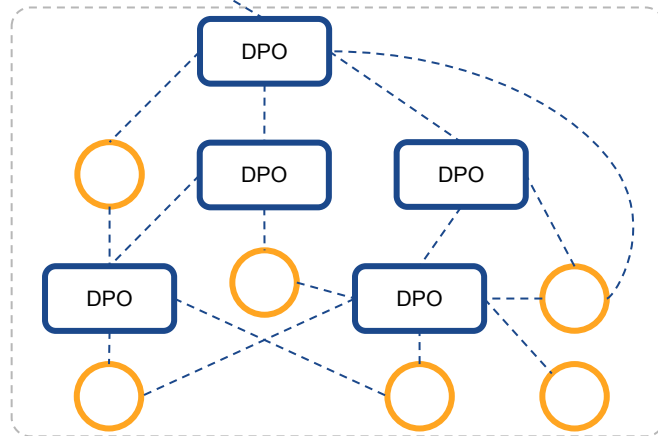# Why Projects Use BulletTrain?
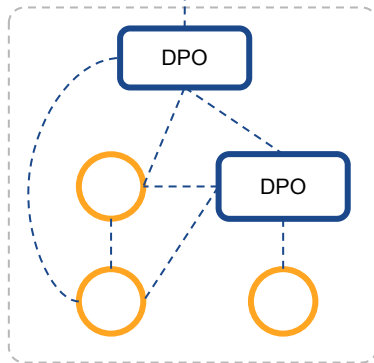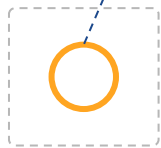
1
One Step Deployment

Create TravelCabins of different prices and token rewards for purchasers.

0
Zero Marketing Cost

Anyone can use DPO to organize a crowdfund to earn rewards. DPO communities are **self-organized** and incentivised by TravelCavin rewards.

∞
Infinitely Scalable

DPO composition allows a crowdfund of **anysize.**

Higher Tier, Higher Rewards

DPO

DPO

DPO

DPO

DPO

DPO

DPO

A small cabin can be purchased by just one user

A medium-tier cabin requires a small community

A large cabin might need the effort of a large community to purchase

BulletTrain and Compounded DPO Growth

BulletTrain as an effective viral growth method will create a network effect for the **Spanner Blockchain**, which will generate compounded value growth.

DPO Network Effect: The more DPOs there are, the more attractive for projects to launch a BulletTrain. New projects will attract more DPOs and add compounded value to Spanner ecosystem.

Learn more:
Spanner and Web3
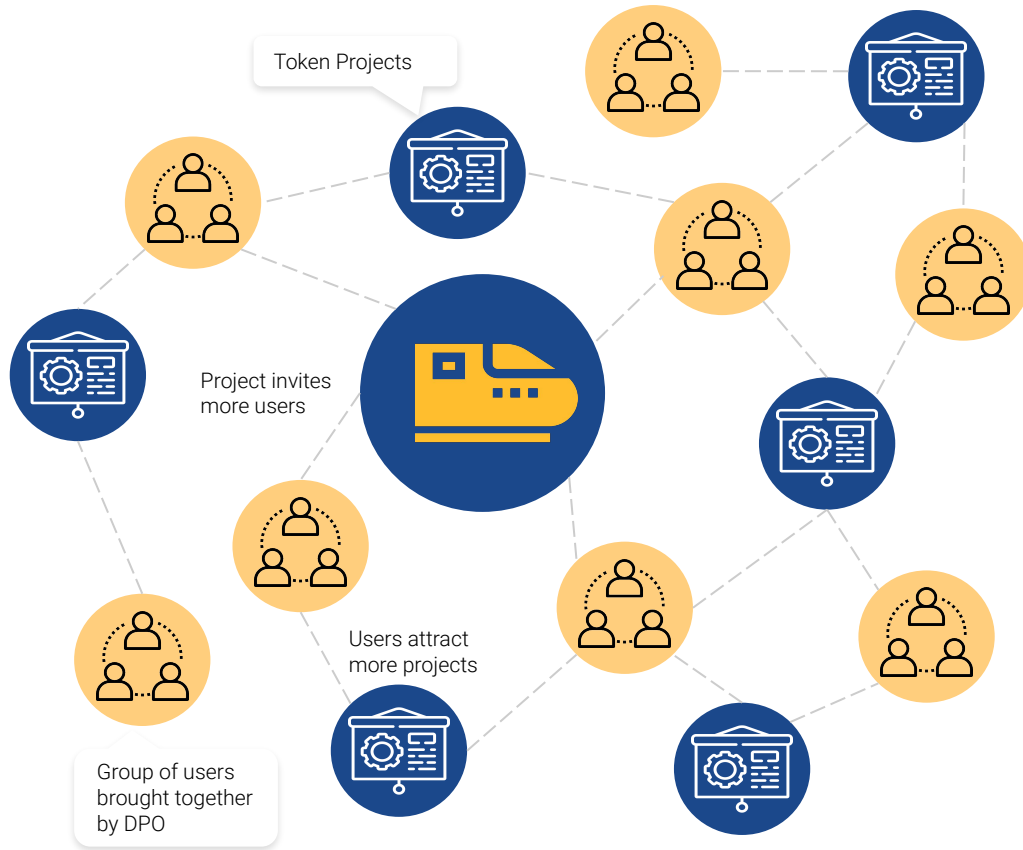
PART III

Back to the Big Picture
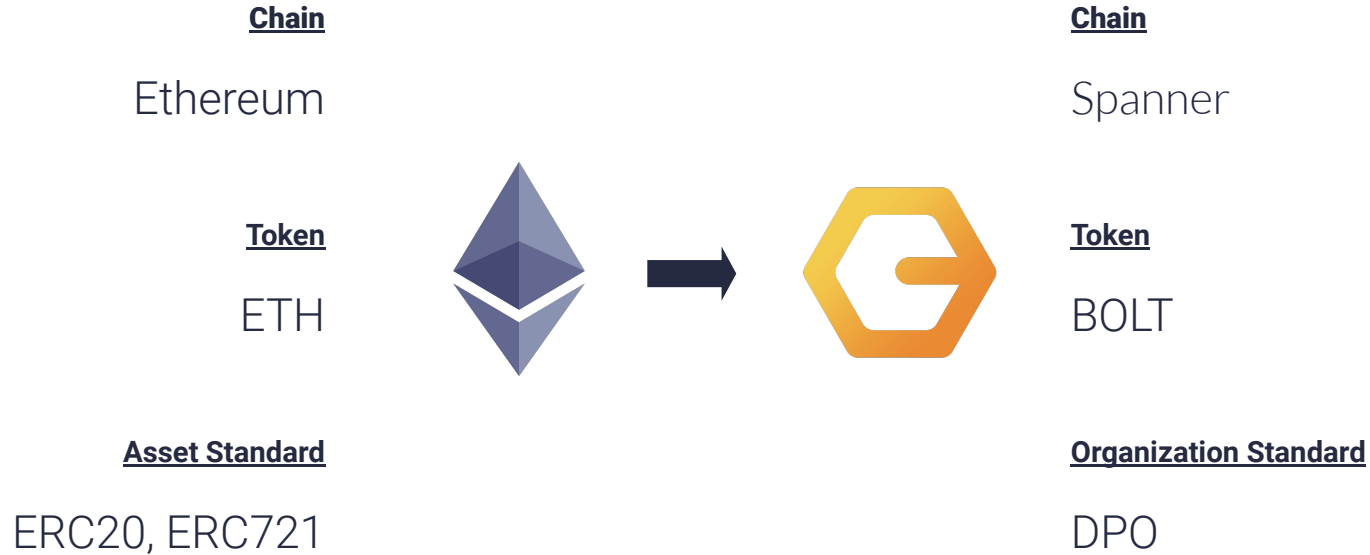
Spanner technology, economics, roadmap and more

From Digital Money to Digital Organization

Chain

Ethereum

Token

ETH

Asset Standard

ERC20, ERC721

Chain

Spanner

Token

BOLT

Organization Standard

DPO

Spanner Open Ecosystem

Reliable technology and community infrastructures, ready-to-use

Community Infrastructure

Active DPO users and individual users, ready-to-use DPO tools to build more communities.

BOLT Economy

Join the ecosystem and use Spanner blockchain with BOLT. Easy-to-use, low-cost, fast and reliable.

Technology Infrastructure

Spanner Blockchain, Cross-chain bridges and Off-chain Oracles. Providing pervasive connectivity.

Spanner Blockchain Architecture

DPO Technology Focus

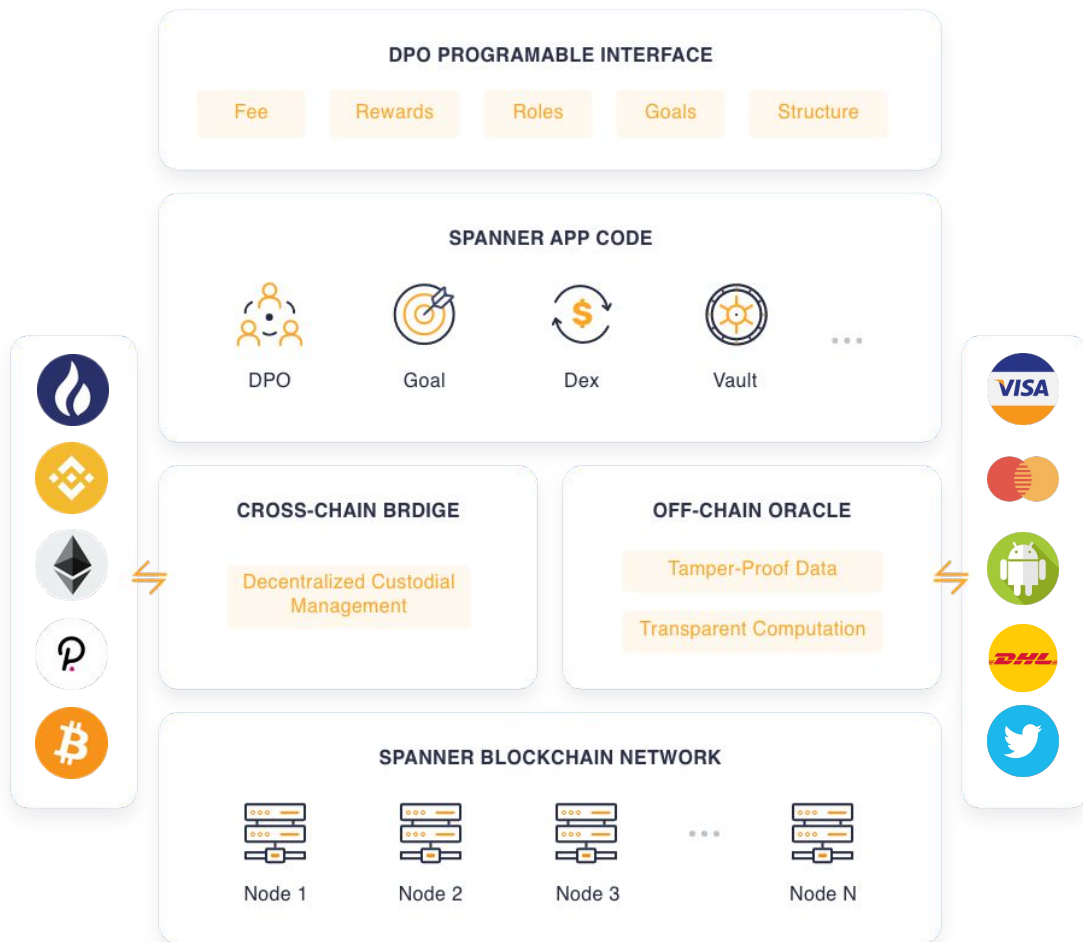**On-chain** - *Core DPO feature development*
Off-chain - *Oracle Integrations for real-world data*
Cross-chain - *Integrations to target third-party blockchain assets*

Full-stack optimization for Economies of Scale.
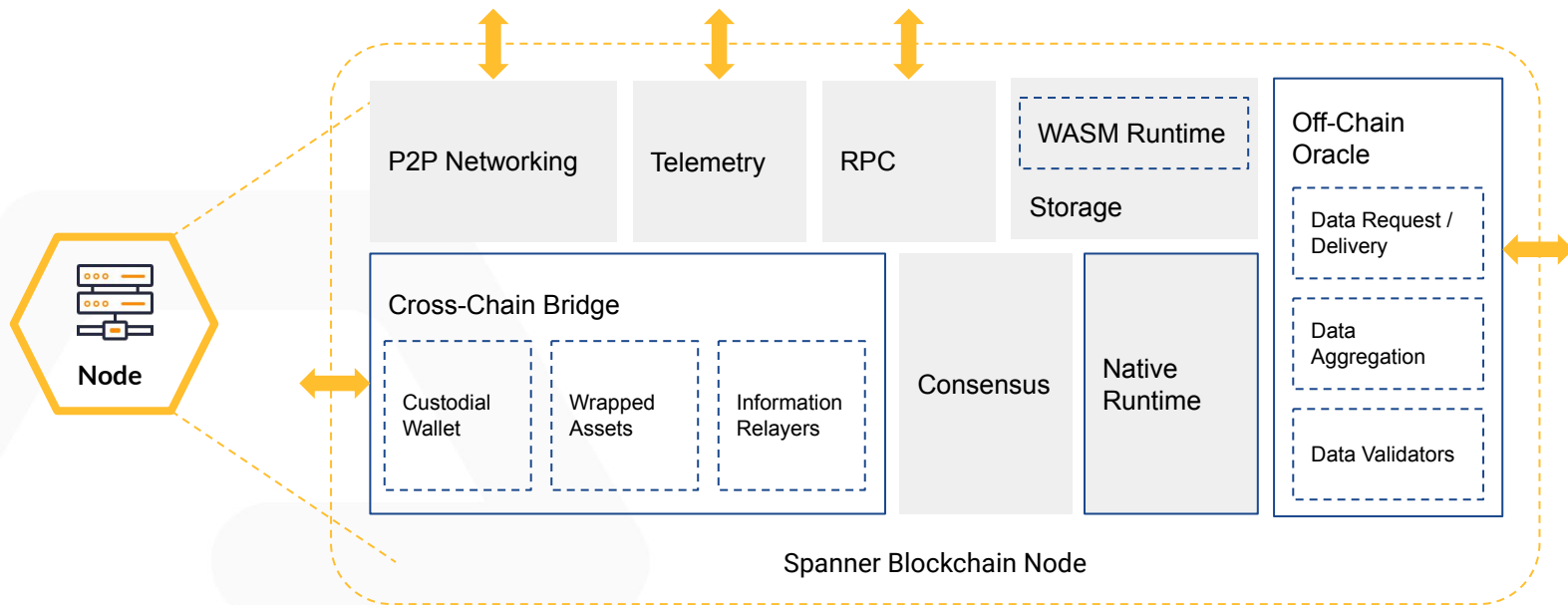*Technical comparative advantages.*

Powered by token **BOLT**
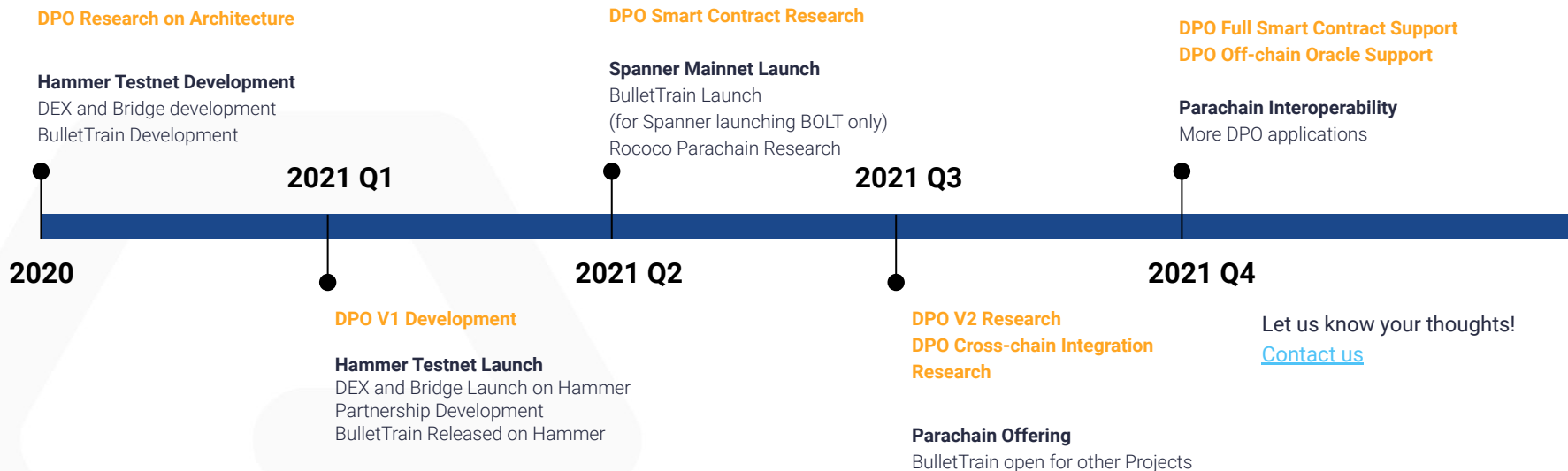

Built on Substrate Framework

Blockchain Node Architecture

Under the Hood

Node

P2P Networking

Telemetry

RPC

WASM Runtime

Storage

Off-Chain Oracle

Data Request / Delivery

Data Aggregation

Data Validators

Cross-Chain Bridge

Custodial Wallet

Wrapped Assets

Information Relayers

Consensus

Native Runtime

Spanner Blockchain Node

Our Roadmap

Developing a future for mainstream decentralized organizations

DPO Research on Architecture

Hammer Testnet Development
DEX and Bridge development
BulletTrain Development

2020

2021 Q1

DPO V1 Development

Hammer Testnet Launch
DEX and Bridge Launch on Hammer
Partnership Development
BulletTrain Released on Hammer

DPO Smart Contract Research

Spanner Mainnet Launch
BulletTrain Launch
(for Spanner launching BOLT only)
Rococo Parachain Research

2021 Q2

2021 Q3

DPO V2 Research
DPO Cross-chain Integration Research

Parachain Offering
BulletTrain open for other Projects

DPO Full Smart Contract Support
DPO Off-chain Oracle Support

Parachain Interoperability
More DPO applications

2021 Q4

Let us know your thoughts!
Contact us

Token **BOLT**

*BOLT is the only asset that gives you access to the limitless power of **DPO**. The more DPOs are used, the more valuable BOLT becomes.*
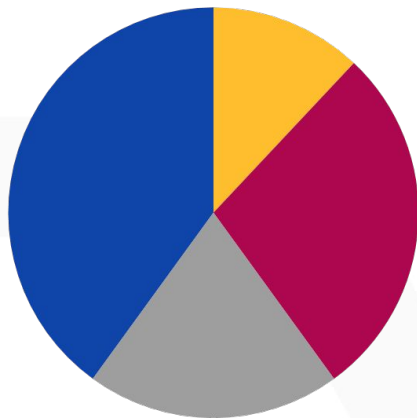
Bolt, noun

1. *A metal object applied to fasten things with Spanner*
2. *Native token of Spanner*

BOLT Distribution

BOLT is the fuel for Spanner Blockchain

● Team   ● Early Growth   ● Validadors   ● Treasury Reserves

Team (12%): vesting in 4 years. First unlock in Nov 2021
Early Growth (28%): Used for creating growth incentives like TravelCabins in BulletTrain
Protocol Validators (20%): For Polkadot Parachain slot auctioning or nPoS incentive
Operation Reserve (40%): Treasury usage will be formally governed by proposals

● **Stable**:
Token sales (0%) , fully bootstrapped.
No sales, no major holders, higher stability.

● **Deflational**:
1,000,000,000 BOLTs Total Issuance.
No more minting.

● **Community Governed**:
Token Economy model is governed on-chain
proposals

Where to Buy BOLT

Spanner's Decentralized Exchange (DEX): Supported by most crypto wallets.

Spanner DEX

Supported Wallets

Ethereum Compatible (log into Dapp via Dapp Browser)

Trust Wallet

IMToken

METAMASK

Polkadot Compatible

parity signer

PolkaWallet

Polkadot.{js}
browser plugin

Ecosystems and Partners

Polkadot Ecosystem

Polkadot Mainnet   Kusama Canary Net   Rococo Parachain Testnet   parity substrate

Interoperable Parachain Candidates

edgeware   Acala Network   Centrifuge   PLASM

Smart Contracts   DeFi   Tokenized Assets   Scalable Dapps

Supported Wallets

Trust Wallet   IMToken   METAMASK   parity signer   Polkadot.{js} browser plugin

Spanner Recap

Spanner, DPO, BOLT and the future

DPO is a new form of digital organization: DPO is a technology for decentralized collaboration at scale. It gives you the best of both worlds (organizational structure and efficiency of companies and fair and transparent governance of DAOs).

DPO is uniquely powered by Spanner Blockchain: DPO-oriented blockchain architecture, which gives DPO on-chain, cross-chain and off-chain functionalities. Full-stack optimization gives DPOs a leading edge against competitor DAOs.

BOLT is the fuel for Spanner Blockchain: Powers all Spanner Blockchain utility like DPO features, transferring tokens and DEX exchanges.

With BOLT, you can unlock limitless collaborative capabilities

Experience Spanner

Dapp - Manage Spanner assets, explore projects & join DPOs

Block Explorer - View the Blockchain in production

Website and Docs - Understand Spanner In-Depth
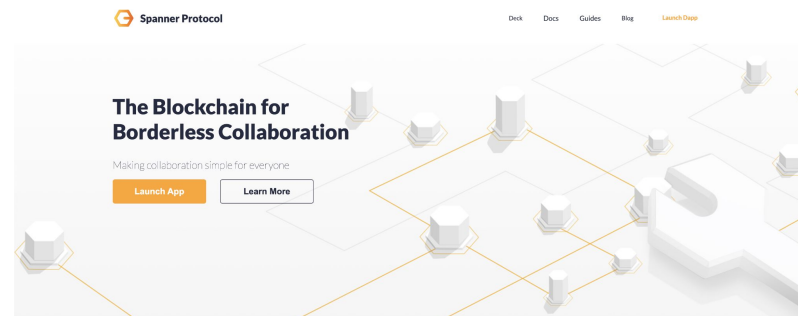
Want to Learn More?

www.spanner.network

Medium blogs

White Paper as docs

Contact Us:
ask@spanner.network

Deep Dive into
DPO V1 and BulletTrain

DPO V1 in Spanner BulletTrain

DPO V1 is defined by:

1. **Goal**: buy **what** before **when**

   -what: Default Target (Cabin or DPO).
   -when: Crowdfund period, after which members can refund.

2. **Incentive**: reward for **manager** and **referrer**. It defines how to distribute yield and bonus within the DPO.

   -manager charges management fee from the yield earned, just like how a fund works. The bigger the crowdfund, the more fee to be earned.
   -referrer Referral bonus ratio for the referrer and his referrer (2nd degree referrer), within the DPO only.

TravelCabin *Or* Another DPO

DPO has 100 equal seats to take
- Manager can buy 0 to 15 seats
- User Member can buy 1 to 15 seats
- DPO Member can buy 1 to 30 seats

DPO *100 seats*

Manager

External Referral

Non Member → User Member → User Member → DPO Member

Internal Referral *DPO Composition*

User Member

If the Default Target is not available, DPO can buy another target even if it requires less funds. The initial reward estimate change accordingly. Unused funds will immediately be returned to their rightful owners.

Example

Manager	Members	Default Target	Seat Price
Alice	Bob, Charlie, dpo_2, ...	TravelCabin (100k BOLT)	1k BOLT

How a DPO Manager Programs a DPO (5 Parts in Orange)

Step 1: Set the DPO goal

Default Target

TravelCabin **OR** Some seats of another DPO

determines →
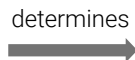
- Crowdfund total
- Price per seat
- Estimated rewards (Yield and Bonus)

Crowdfund Period

After which if DPO had not finished crowdfund, all members can get their deposit back

Step 2: Set the DPO incentive structure

Set Management Fee

Base Rate
(0 ~5)

+

Manager Seats Rate
(0 ~15)

=

Total Management Fee

Set Referral Rate X

Direct Referral Rate
(0 ~ 100%)

+

2nd Degree Referral Rate

=

100%

DEX   Projects   DPOs   BulletTrain

Hammer Testnet   Block # 779061

Create DPO   ✕

Create DPO for TravelCabin: Bronze

DPO Goal

Available Balance	993,846.54 BOLT
Crowdfund Amount ⓘ	1,000.00 BOLT
Your Deposit ⓘ	100.00 BOLT

Default Target ⓘ

Bronze

Name your DPO ⓘ

Igor Teaches DPOs

Crowdfund Period (Days) ⓘ

30

Incentive Structure

Management Fee ⓘ	2 (Base) + 10 (Seats) = 12%
Referral Rates (%) ⓘ	70 (Direct) + 30 (2nd) = 100%

Manager Seats in: Igor Teaches DPOs ⓘ   Seat Cost: 10 BOLT

10

Base Fee (%) ⓘ

2

Direct Referral Rate (%) ⓘ

70

Create DPO

An DPO example used in the following slides.

Name	DPO_0
Default Target	crowdfund 10,000 token for a Cabin.
Crowdfund Period	30 days
Management Fee	Base Fee (5) + Manager Seats (15) = 20%
Referral Rate	Direct (80%). 2nd Degree (20%)

DPO V1 Lifecycle

CREATED

The first state of DPO. When the crowdfund amount has been met (i.e. all seats filled) within the crowdfund period, DPO becomes ACTIVE otherwise FAILED.

ACTIVE

Ready to buy the Default Target, or another Target if the default is not available.

RUNNING

When the cabin has been purchased, either directly by a DPO or indirectly through another DPO via DPO composition.

DPO starts to receive bonus and yields as rewards.

COMPLETED

When all rewards have been received and deposits withdrawn by Members.

FAILED

Failed to crowdfund for the target. All funds can be withdrawn and returned to DPO members.

How TravelCabin Rewards Are Released

After a TravelCabin is purchased, the buyer (individual or DPO) can do following things in sequence:

**Releases Bonus
(One-time)**

**Release Yield
(On-going till the ride ends)**

**Withdraw Deposit
(When the ride ends)**

*Rule -
Treasure Hunting*
Buyers should withdraw their yields from the Travel Cabins at least every 7-days. Otherwise, 1% of the accumulated unwithdrawn yield will go to the user who withdraws on the buyer's behalf.
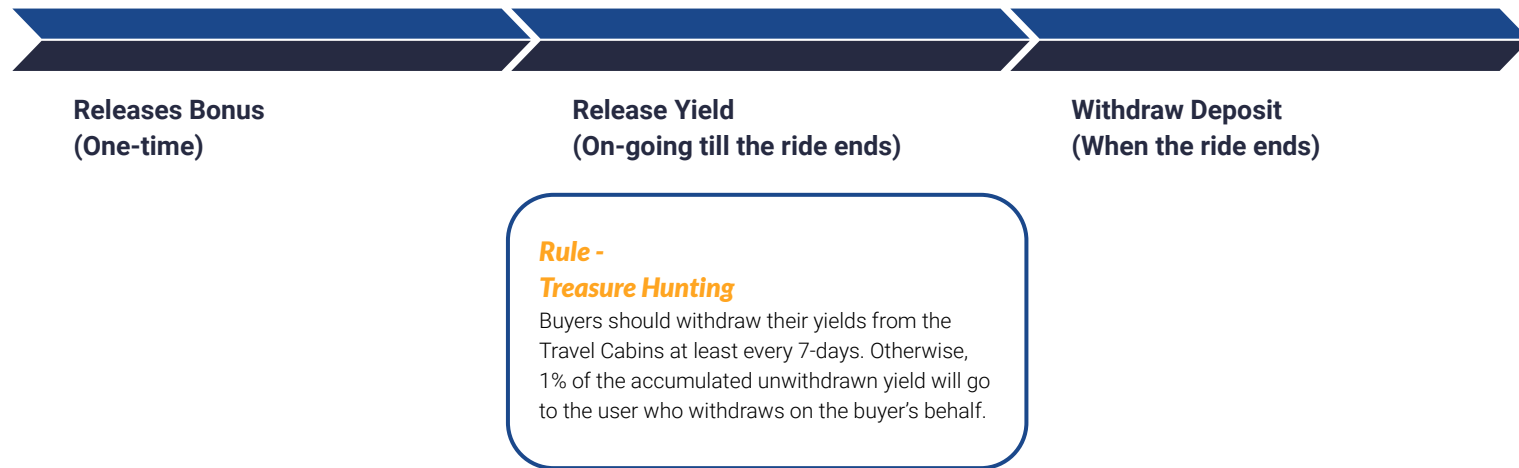
If the Buyer is a DPO, the process is the similar to the above:

But the Yields and Bonuses are distributed internally within the DPO, to its *Manager, Members and Referrers.*

If any of its Members is a DPO, then the Member will distribute the received rewards locally within the DPO.

How DPO Distributes Yields

1. Received Yields accumulate in the yield vault overtime and are released batch-by-batch.

2. Management Fee is deducted and the remainder goes to the Members respective to their seats.

3. Management Fee can be slashed in two situations to prevent the Manager from being sluggish.

Yield Release Process

Yield Vault

1000 tokens →

Management Fee

950 tokens →

Pay by Seats

Vault empties on every release

If Management Fee = 5%, Then the Manager charges 1000 * 5% = 50

If Bob has 5 seats, then he receives: 5 * (950 / 100) = 47.5

Determine Management Fee For each Release

On Creation → **On Running** → **On Release**

Initial Management Fee = 20%

Rule - Permanent Slashing
fee slashed by **50%** if the manager fails to buy a target *within **7 days (grace period)** after all seats are sold. After the grace period, all Members can buy a target for the DPO.*

Rule - One-time Slashing
Fee of this release slashed by **50%** if the manager fails to release yield for more than **7 days (grace period).**

If slashed, 10%

If further slashed, 5%

Number in ORANGE are from the example DPO case used in this slide

How DPO Distributes Bonus: (1) Forming a Referral Structure

1. If a user (e.g. Charlie) arrives at BulletTrain with a referral link from Bob, then Charlie will **always automatically** refer Bob as referrer when he joins a DPO, either individually or by creating another DPO.

- If Bob is a Member of the DPO, Bob will become Charlie's **Internal Referrer.**
- if not, Bob is his **External Referrer.**

2. Any Member without an **Internal Referrer** will be assigned one by the **Earlybird Benefit Rule**.

> **Rule - Earlybird Benefit**
> A newly joined member without an *Internal Referrer,* will be assigned one (an one-time assignment).
> ● If there is no User Member in the DPO so far, the Manager will be assigned.
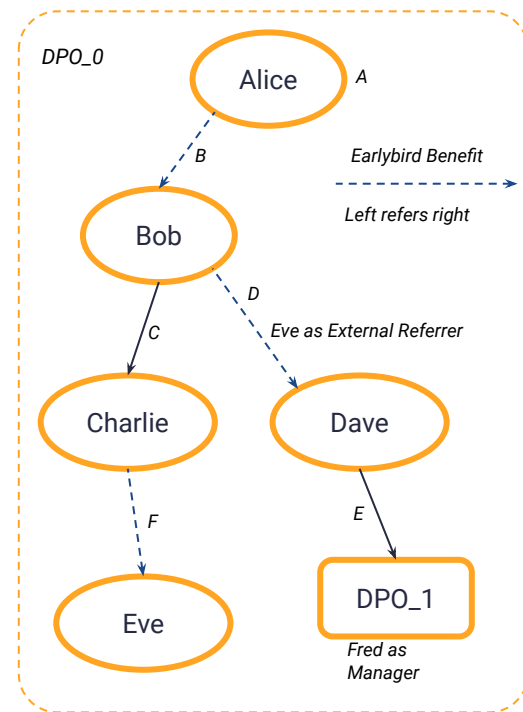> ● Otherwise, the first member in the Earlybird Queue will be assigned. The *Earlybird Queue* is a first-in-first-out queue for all User Member of the DPO.

Event	Following events happen sequentially	Earlybird Queue
A	Alice creates the DPO_0.	
B	Bob, without a referrer, joins DPO_0. the Earlybird Benefit rule applies and assigns Alice as Bob's Internal Referrer.	Bob
C	Charlies join DPO_0 specifying BOB as his referrer. Bob becomes Charlie's Internal Referrer.	Bob, Charlie
D	Eve introduces Dave to the BulletTrain app. Dave then joins DPO_0 specifying Eve as referrer. Since Eve is not yet a member of DPO_0, Eve becomes Dave's *External Referrer*. The Earlybird Benefit rule applies and assigns Bob from the *Earlybird Queue*.	Charlie, Dave
E	Fred creates the DPO_1 to buy 30 seats at DPO_0, specifying Dave as the referrer. Dave is Fred's Internal Referrer.	Charlie, Dave
F	Eve buys 15 seats of DPO_0 with no referrer. The Earlybird Benefit rule applies and assigns Charlie. *Note Dave won't be reassigned to Eve even if she is now a member. A missed opportunity for Eve.*	Dave, Eve

DPO_0

A

Earlybird Benefit

Left refers right

B

D

Eve as External Referrer

C

E

F

Fred as Manager

Each Member joining the DPO will first receive bonus by seats and then emit some bonus for its referrers to share, by 2 steps. The Member keeps the remaining parts of bonus.

Step 1: Computing Emitted Bonus.

| **Deposit Amount** | X | **Cabin Bonus Rate** | = | **Emitted Bonus** |

For a User Member, all its deposit counts. While for a DPO Member, only the Deposit of its manager counts.

Cabin Bonus / Cabin Price. Assume Cabin Bonus Rate is 5%

Case <u>User Member</u>: Dave buys 1,000 tokens worth of DPO_0 seats:

Deposit Amount
=1,000 tokens

Cabin Bonus Rate
= 5%

Emitted Bonus
= 1,000 tokens * 5%
= 50 tokens

Case <u>DPO Member</u>: Fred creates DPO_1 (taking 10 seats), which buys 2,000 tokens worth of DPO_0 seats

Deposit Amount
= 2000 tokens * (10 / 100)
= 200 tokens

Cabin Bonus Rate
= 5%

Emitted Bonus
= 200 tokens * 5%
= 10 tokens

Note that the DPO keeps the remaining bonus and distribute within itself.

Note if the DPO fails to buy the Default Target and buys a target using **less funds** than it raised, then the **Distributable Bonus** will be discounted accordingly. For example, if the DPO only utilizes 80% of the funds, the Distributable Bonus will only be its 80%

Note a Manager does not receive any Bonus within its own DPO, except for the Manager of a lead DPO, which buys a Cabin directly.

How DPO Distributes Bonus: (2) Bonus Allocation Based on Referral Structure

Step 2: Distributing **Emitted Bonus** to all referrers.

```
Emitted Bonus  →  [ External Bonus  +  Internal Bonus ]  →  [ 1st Referral Bonus  +  2nd Referral Bonus ]
```

External Bonus:If the Member has a External Referrer, then the External Referrer gets the External Bonus 30%. The remaining will be Internal Bonus

80% of Internal Bonus goes to the Member's Internal Referrer (say Bob) . The rest **20%** goes to
- Bob's Internal Referrer if any.
- Otherwise, Bob.

Case: with External Referrer and 2nd degree internal referrer,

Emitted Bonus	External Bonus	Internal Bonus	1st Referral Bonus	2nd Referral Bonus
= 50 tokens	= Emitted Bonus * 30% = 50 tokens * 30% = 15 tokens	= Emitted Bonus * 70% = 50 tokens * 70% = 35 tokens	= Internal Bonus * 80% = 35 tokens * 80% = 28 tokens	= Internal Bonus * 20% = 35 tokens * 20% = 7 tokens

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Case: with no External Referrer and no 2nd degree referrer

Emitted Bonus	External Bonus	Internal Bonus	1st Referral Bonus	2nd Referral Bonus
= 50 tokens	= 0 tokens	= Emitted Bonus * 100% = 50 tokens	= Internal Bonus * 100% = 50 tokens	= 0 tokens

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Number in ORANGE are from the example DPO case used in this slide

(Optional) An Illustration of Bonus Allocations

DPO_0

Alice — 10 seats, Total 1,000 tokens
Bob — 15 seats, Total 1,500 tokens
Eve as External Referrer
Charlie — 15 seats, Total 1,500 tokens
Dave — 15 seats, Total 1,500 tokens
DPO_1 — 30 seats, Total 3,000 tokens, Fred as manager, taking 10 seats
Eve — 15 seats, Total 1,500 tokens

Earlybird Benefit — Left refers right
Direct Referral — Left refers right

DPO_0 crowdfund 10,000 tokens for a TravelCabin with price 10,000 tokens. The Cabin gives 1000 tokens on purchase, i.e. Cabin Bonus Rate = 10%. Each DPO_0 seat requires a deposit of 100 tokens.
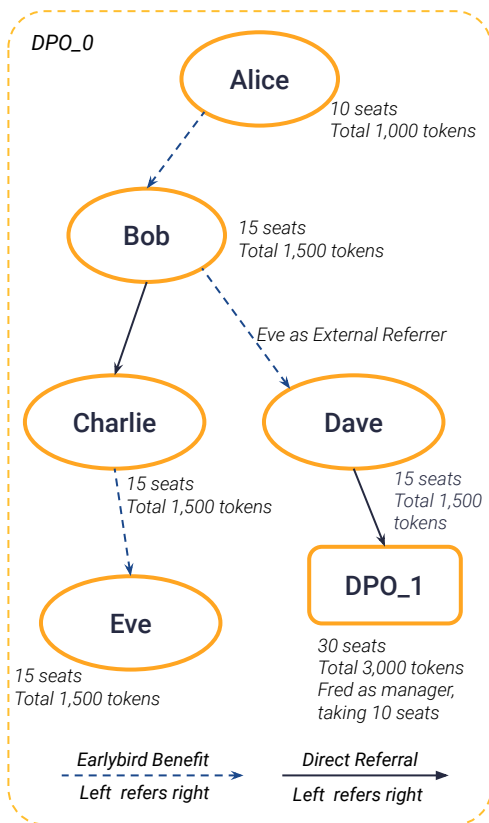
	Emitted Bonus	To Referrers	Received Total
Alice	1,000 * 10% = 100 (manager of lead dpo, keep all to herself)	0	100 (herself) + 150 (from Bob) + 30 (from Charlie) + 21 (from Dave) = 301 total
Bob	1,500 * 10% = 150	100% (150) to Alice	120 (from Charlie) + 84 (from Dave) + 30 (from Eve) + 6 (from DPO_1) = 240 total
Charlie	1,500 * 10% = 150	80% (120) to Bob. 20%(30) to Alice	120 (from Eve) = 120 total
Dave	1,500 * 10% = 150	30%(45) to Eve 70%* 80% = 56%(84) to Bob. 70% * 20% = 14%(21) to Alice	24 (from DPO_1) = 24 total
Eve	1,500 * 10% = 150	80%(120) to Charlie. 20%(30) to Bob	45 (from Dave) = 45 total
DPO_1	3,000 * (10 /100) * 10% = 30 (only manager's portion)	80%(24) to Dave. 20%(6) to Bob.	3,000 * (90 /100) * 10% = 270 For the members of DPO_2
Total Bonus allocating to members: 301 + 240 + 120 + 24 + 45 + 270 = 1,000			

Cabins
Offered by the
first BulletTrain

Configurable by any token project.
As many tiers as you like.

Cabin Classes and Rewards

Cabin Class	Ticket Fare	Journey	APY	Bonus
Bronze	1K BOLT	90 Days	30.00%	4%
Silver	50K BOLT	180 Days	45.60%	8%
Gold	1M BOLT	180 Days	67.20%	10%
Platinum	10M BOLT	180 Days	91.20%	12%
Diamond	50M BOLT	180 Days	103.20%	14%

BulletTrain Quests

Quests are additional rewards that projects can issue for their BulletTrain.

Spanner's Milestone Quest

On Spanner, we use Milestones to reward total community achievements.

With each milestone, BOLTs are sent to every BulletTrain passenger.

Milestone Rewards

Ticket Fare Milestone (BOLT)	Reward (BOLT)
1M	2.5K (0.25%)
2M	6K (0.30%)
3M	10.5K (0.35%)
5M	20K (0.40%)
7M	31.5K (0.45%)
15M	75K (0.50%)
30M	165K (0.55%)
35M	210K (0.60%)
40M	260K (0.65%)
45M	315K (0.70%)
50M	375K (0.75%)
60M	480K (0.80%)
70M	595K (0.85%)
80M	720K (0.90%)
90M	855K (0.95%)
100M	1M (1.00%)

Rewards are given at every milestone shared by all Cabin buyers proportionally to their total buy-in ticket fares.

The earlier you join, the more milestones you can get!

Up to 10% if you receive all the Milestone Rewards

BulletTrain Playbook

[for DPO Managers]

No money, No problem.

Managers can open a DPO with **0 token** input and charges up to **5%** base Management Fee. DPOs with lower Management Fee will be more popular for people to join. You can close it faster, buy the Cabin earlier and then get the bonus earlier.

With the bonus and fee earned in smaller DPOs, now you can **buy some seats** in your new DPOs to increase Management Fee to earn more for the same efforts in growing your DPO.

Act quick

Management fee will be slashed in following situations:
- Complete your crowdfund and buy your target before it runs out.
- Not buying a target within 7 days after your crowdfund completed will slash your Management Fee permanently by 50%.
- Not releasing the accumulated rewards of DPO every 7 days will slash your Management Fee temporarily by 50%.

Be flexible

You can create a small DPO to join your own bigger DPO. This lowers the barriers for some potential members.

Help the DPO targeting your DPO to grow. Their crowdfund will join together as your crowdfund. Refer people to their DPO and even buys some seats of their DPOs to lock-in a collaboration.

BulletTrain Playbook

[for DPO Managers]

Aim higher

Creating a DPO to join a bigger DPO allows you to earn more than buying a Cabin your DPO can afford alone. Check twice before you decide on the default target.

If your default target is not available, try to find another target for your DPO that utilizes your crowdfund to its fullest. The unused fund is a loss of opportunity for the Manager and Members.

Think win-win

Earn more by giving more to others. Grow DPOs with less efforts.

- Don't mind charging a lower Management Fee.
- A higher **Direct Referral Rate** incentivizes Members in DPO to grow your DPO for you.
- Encourage others to join your DPO via a new DPO. Them as managers are more motivated to crowdfund for your goal for more yields and bonus.

Be vocal and helpful

Share Spanner and BulletTrain to more channel (twitter, youtube).

More opportunities especially for communities where Spanner is lesser known. For example, help translate document in your language, curate a local group or update an explainer video.

BulletTrain Playbook

[for Referrers]

Be vocal and helpful on channels

Share your general BulletTrain referral link to all channels. More opportunities for communities where Spanner is lesser known. Sharing a link does not require you to hold any BOLT token. You will at least get external referrer bonus for your efforts in helping the project grow. Example referrer activities include:

- Translate website and explainer documents in your language
- Curate local Telegram/Whatsapp group and share the project
- Film a short video to explain projects and help users use BulletTrain
- Create a regional Facebook group to discuss the projects.

Prioritize internal referral

You can also generate referral link for a specific DPO. Users clicking on the link will first land at the DPO you specify. Note they will also indicate you as referrer even if they join another DPO instead. Internal referral normally gives more bonus than external referral.

- If you are a DPO Manager or a Member of other DPOs, prioritize referring users to join these DPOs.
- if you refer a user to join a DPO that you are not yet a Member of, consider buying at least 1 seat of that DPO or you might miss the Internal Referral Bonus.

BulletTrain Playbook

[for Individual Users]

Aim higher

Joining a bigger DPO normally gives more bonus and yields. Check twice before committing to any DPO.

Join early

Joining a DPO early gives you a higher chance to have a free internal referee by the *Rule - Earlybird Benefit*. Even if you only buy 1 seats.

Participating in BulletTrain early can give you more Global Reward along the way.
It adds up to 10% extra of your input if you join really early.

Keep a lookout

In case your DPO has a lazy manager, be sure to act (like releasing yields) before them after grace-period to save on management fees by *Rule - Permanent Slashing* and *Rule - Lazy Slashing*.

Up your game

Become a referrer by referring others to your DPO as their internal referrer, or other DPOs as their external referrer.

Become a DPO Manager yourself. As you know more about the BulletTrain it becomes increasingly easy for you to find the like-minded.

How to earn more than 100K BOLTs with 0 BOLT?

Earn more from here on

Create a DPO and buy some seats yourself to earn higher Management Fee, bonus and also the yields generated by the seats you purchased!

Case 1:
Create a DPO to buy a Gold-tier TravelCabin with 5% Management Fee and invite all Members yourself

Management Fee Earned
= Total Yield * Management Fee
= 1M * (68% / 2) * 5%
= 18k

+

Referral Bonus Earned
= Total Bonus
= 1M * 20%
= 100k

=

Total Earned
= 118k

Case 2:
Create a youtube channel to explain BulletTrain and share your referral link. Earn 30% of total bonus given as an external referrer.

Assuming the people you referred join DPOs that gives 10% Referral Bonus on average. Total amount of crowdfund is 4M.

Management Fee Earned
= 0

+

Referral Bonus Earned
= 4M * 10% * 30%
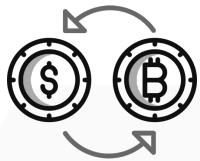= 120k

=

Total Earned
= 120k

Part V

Optional Extended Readings

To explore the knowledge base of Spanner Protocol

The Future of Decentralized Collaboration

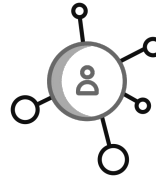*Decentralization Polarized. Do anything, with anyone, at anyscale -* *borderless*

| Transaction | Peer Lending | Trading | Affiliate Marketing | Fund | Global Supply-chain |

BITCOIN   **ETHEREUM**   **SPANNER**

DPO is Disruptive Technology

A successful decentralized token project must have: ***asset, liquidity and community***

A token project needs...

Asset

Creation made accessible to anyone using the ERC-20 token standard

Liquidity

Provision made simple with the DEX and yield farming

Community

Growth made viral with Decentralized Programmable Organization (DPO)

Triple Frontier Innovation

What Spanner has in common with Bitcoin and Ethereum?

	Technology Innovations	Economic Model Incentives	Community Wealth Effects
Bitcoin	The first monolithic Blockchain. Demonstrated as the first crypto asset	The "digital gold". Halving Cycle. PoW.	Mining using simple hardware in early days.
Ethereum	The first layered Blockchain for programmable Smart Contract. Demonstrated by ERC20.	ETH as a utility token for Smart Contracts. The more people use, the more expensive it gets	ETH is the gateway to all ICOs, which raised over $7 billion in 2018.
Spanner	The first organization-centric Blockchain for plug-and-play Dapps. Demonstrated by the BulletTrain.	BOLT as a utility token for Spanner Components. Economies of Scale - the more people use, the cheaper it gets.	BOLT will be the gateway to BulletTrain, a viral growth model for projects.

Contract Trilemma

What's the bigger picture?
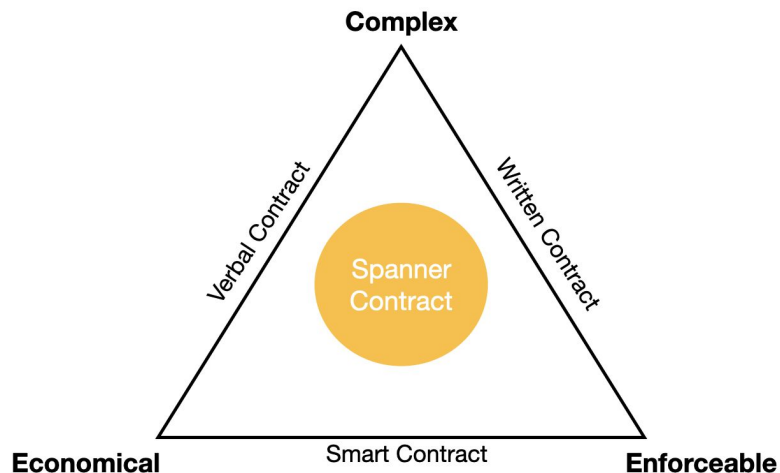
Contracts speedup collaborations.

Complexity, Enforceability and Affordability. We can only pick 2 out of 3 today?

But can we pick three?

Here's Spanner's answer

Community Power

A trillion dollar problem waiting for a solution

Now

Community Captured Value	Platform Captured Value

Communities are the key value contributors of platforms such as Wikipedia, Facebook etc. But captures very little value from their success. Communities should not only be credited but also rewarded.

Challenge -
Establish Community Consensus

Communities are very diverse and unorganized. Difficult for communities to reach a consensus of *the goal, structure and incentives*

New value creation from increased community engagement and ownership

Future

Community Captured Value	Captured by Others

DAOs will become a norm in the near future

Offering a new way to collaborate where trust is guaranteed by blockchain

The crypto industry has seen wide mainstream adoption 2020-2021. With rising interest in DAOs and Spanner's pioneering technology in DPO, Spanner aims to be the leader in developing DAO capabilities for both crypto and real-world use-cases.

Keys to Collaboration

Achieving community consensus

Clear Goal

1

A common goal for the community to strive towards.

Formal Structure

2

A formal system of task and relationships that govern how community members are to cooperate and achieve their goal.

Fair Incentives

3

Incentives designed to boost community collaboration. Distributed fairly based on verifiable contributions.

Achieving Community Consensus

The key to enable effective decentralized collaboration at scale

Goal

A **_clear_** and common goal for the community to strive towards.

Structure

A **_formal_** system of task and relationships that govern how communities are to cooperate and achieve their goal.

Incentive

Incentives distributed **_fairly_** based on verifiable and measurable contributions. The fairness comes from bottom-up market pricing mechanism.

DPO Growth Community Consensus

DPO Design Principles → **DPO for Growth**

Goal

Growth target is easily *verifiable and measurable*. Indicators like *total token holders* and *token holding values* are effective to measure the impact of growth.

Structure

Growth is naturally achieved by forming DPOs. To maximize growth, DPO needs a *fully open* structure where anyone can create, grow and join DPO. Supports *cross-DPO* collaboration that a DPO can join another DPO to form a bigger DPO.

Incentive

Given the growth indicator is verifiable and measurable, DPO can provide a *result-based reward* mechanism and allow communities to *program incentive* parameters. Let the market determine the best incentive parameters bottom-up in a *decentralized manner*.
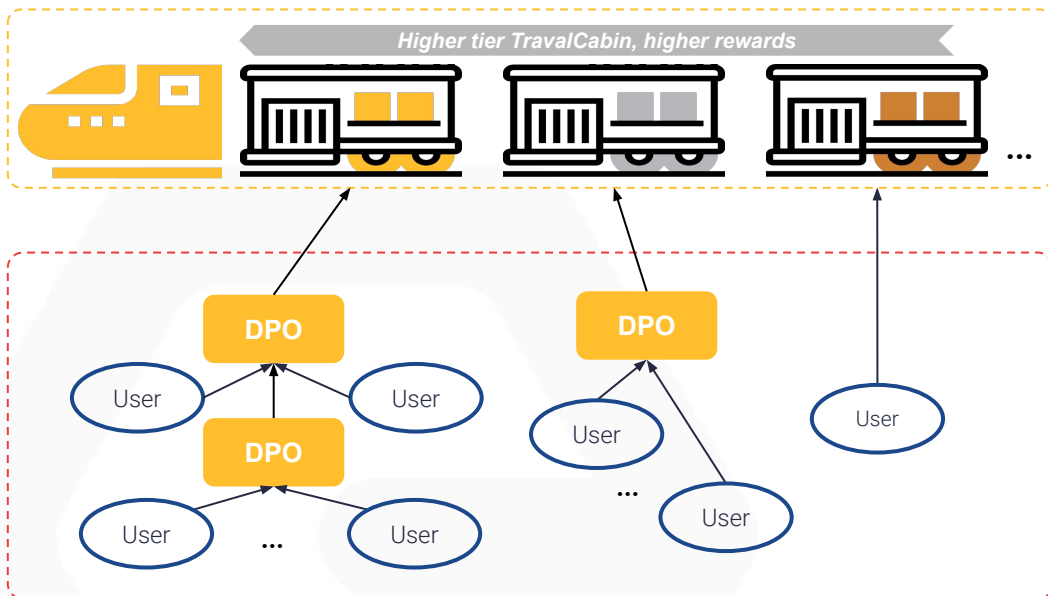
BulletTrain - Viral Community Growth

Project launches a BulletTrain with multiple TravelCabins (reward packages)

Higher tier TravalCabin, higher rewards

Communities buy TravelCabin(s) and become BulletTrain passengers to earn rewards

Launch a *BulletTrain* with 1-click

The aim of BulletTrain is for projects to give more tokens to its community. Any token project, *new or existing*, can launch a BulletTrain and give tokens in the form of **yield** and **bonus**.

Self-organized viral growth with *DPO*

Goal	To buy a TravelCabin. Either *directly or indirectly* through another DPO, i.e. cross-DPO collaborations. each DPO remains autonomous and settle locally within the DPO
Structure	Following roles designed to reach maximum growth ➢ *Manager* can create DPO <u>with 0 token</u> ➢ Members can join DPO, either as an individual or as another DPO. Members can join multiple DPOs ➢ *Referrers* can invite Members to join a DPO
Incentive	Community members of different skill sets can capture the value they create by: ➢ Being a Manager and earns fee from all members. ➢ Being a Members and earn yields by seats ➢ Being a Referrers and earn bonus by referrals. This appeals to affiliate marketers such as *twitter influencers, youtubers, telegram channel moderators*.

DPO vs DAO vs Traditional Company

How they differ in essential dimensions

FEATURES	Traditional Organization	DAO	DPO
Decentralized **Ownership**	✘	✔	✔
Guaranteed **Execution** by Blockchain	✘	✔	✔
Goal Oriented	✔	✘	✔
Organizational **Structure**	✔	✘	✔

Elevator Pitch Building Blocks

Innovating DAO with DPO

Spanner is a Substrate-based blockchain optimized for DPO that innovates DAO with structure to make operational decisions like modern companies. User can define how DPO works internally and externally interfacing with other DPOs through Smart Contracts.

DPO and Borderless Future

DPO can work with any on-chain and cross-chain assets and connect with off-chain activities. DPO is designed for the project vision of borderless collaboration where anyone can do anything at anyscale, as small as a group of friends to large multinational companies.

DPO for Decentralized Crowdfunding

DPO V1 focuses on crowdfunding on Blockchain. The crowdfunding is accessible for anyone, for anything on blockchain (investing in NFT, staking, yield farming etc) and for anyscale through an innovate DPO composition feature. Already with user adoptions, growing fast in the Polkadot ecosystem and connecting to more layer-1 blockchains.

New Forms of Digital Organization

Spanner enables people to create a new form of organization where user actions are rewarded based on the organization's goals and incentives. Spanner is a protocol that helps new crypto projects as well as non-blockchain organizations do things more transparently and fairly through our organization structure, the DPO.We foresee a future where the DPO is a viable alternative to corporations in running highly effective businesses.

Initial BulletTrain Offering

For token project teams, BulletTrain offers
- 1 step deployment, simply configure the rewards as TravelCabins
- 0 marketing cost. Communities are incentivized and self-organized using DPO
- Infinite scalability. DPO can scale up to anyscale of crowdfunding.

The End