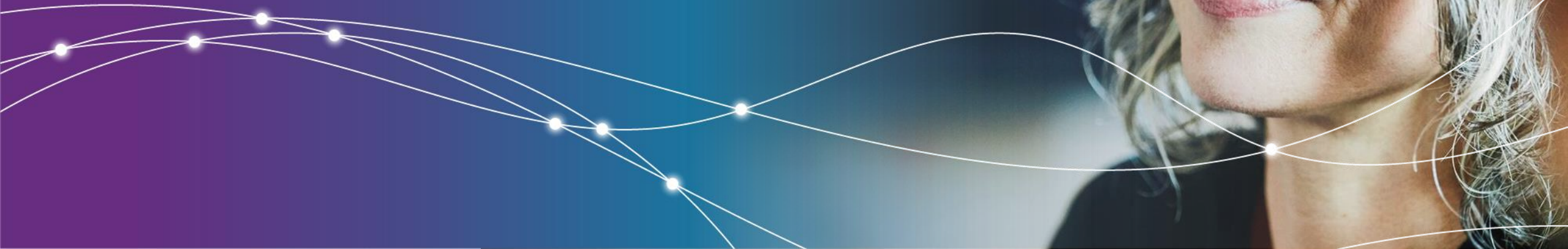
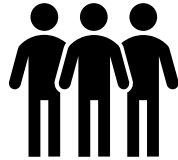


How Blockchain elevates health solutions and services today and in the future



Why Blockchain



Community owned



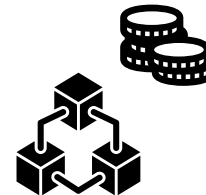
Open Sourced



Transparent
Transaction



Decentralized
Governance



Advanced
Incentive
Model

Blockchain Concerns

- Energy Consumption
- Ponzi Schemes and Charlatans
- Security Concerns
- Cost and Resources needed to run
- Scalability/Performance



Example

Provider Directory Management

Provider Directory Management is the perfect starting point to begin an industry collaboration using Blockchain technologies

\$2.1B per year is spent managing provider data and **75%** of that effort is duplicative.

2018 CMS results indicate that roughly half (**48.74%**) of directory entries have at least one inaccuracy.

Who is Engaged?

Founding Members

Humana

MultiPlan

**Quest
Diagnostics**

UnitedHealthcare

Additional Members

Cognizant






ProCredEx™

CORVEL

**PRIME
HEALTH SERVICES**

Provider Directory Elements Audited by CMS

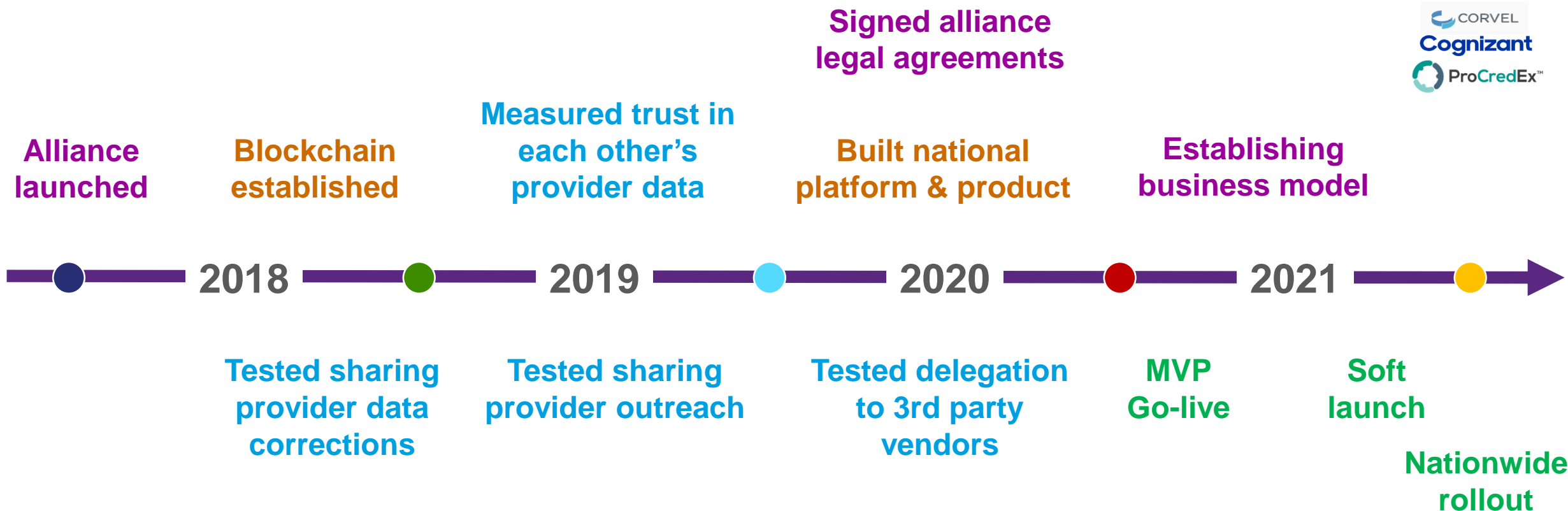


-  Name
-  Address
-  Phone Number
-  Specialty
-  Accepting New Patients

Synaptic Health Alliance (SHA)

We co-founded SHA to explore how Blockchain technologies can help solve some of healthcare's toughest problems.

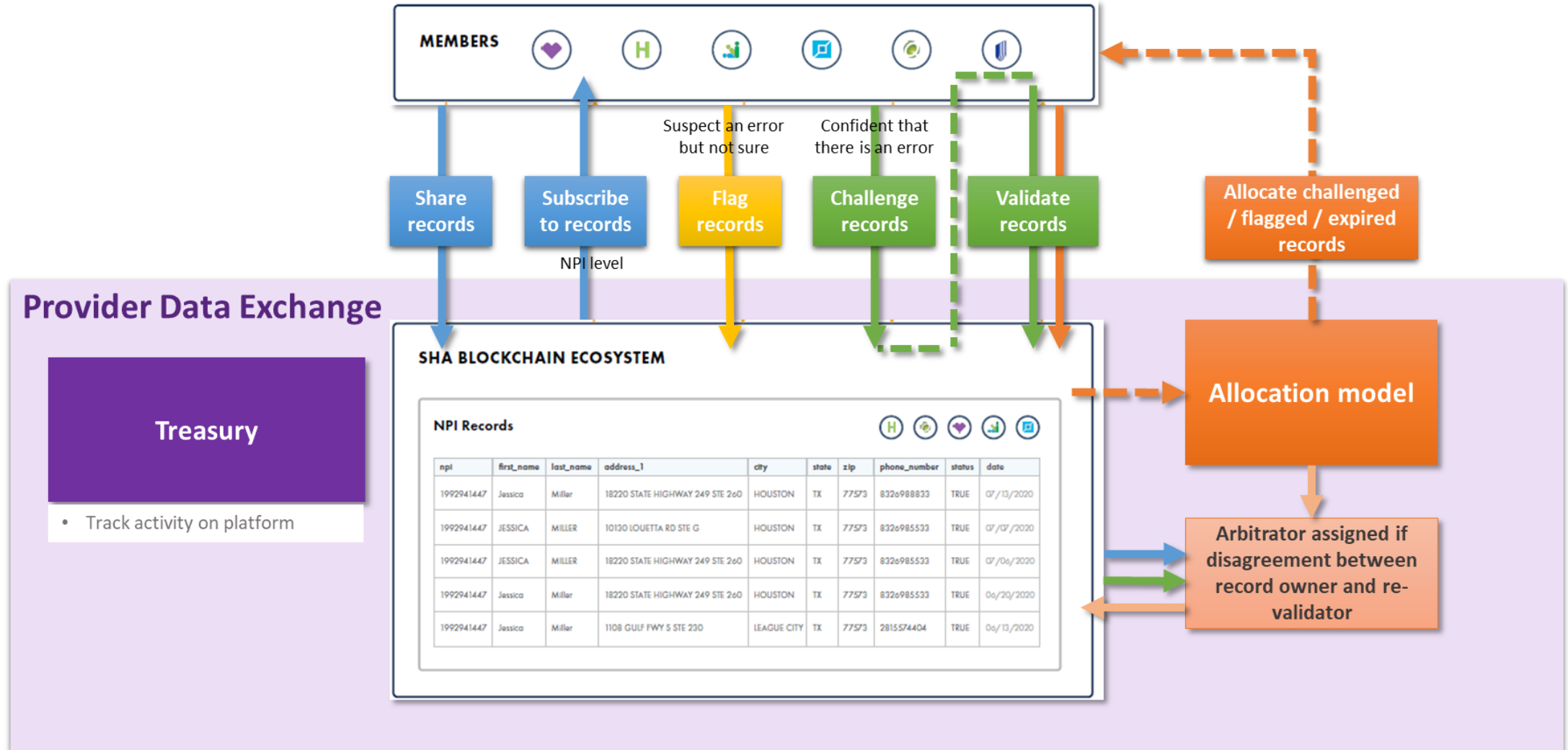
Synaptic Health Alliance Journey



Early POC findings:

- Found up to 89% of corrections by crowdsourcing data – Inactive locations and address mismatches
- Measured up to 83% (avg.) trust in each others data
- Up to 94% agreement in each other's provider outreach call results
- Test with 3rd party vendors inconclusive

How the Synaptic PDX product works



Accomplishments

Provider Data Exchange

- Recently shared data exceeds 90% data quality threshold
- Opportunity to avoid over 25% of outreach calls
- Create value with cash flow neutral approach

Broadly for the Alliance

- Decentralized Governance
- Community Owned
- Open-Source Code for Alliance members
- Transparent transactions
- Advanced Incentive Model



FUTURE

UP NEXT

- Maturing Provider Data Exchange Product

Considering:










- Provider Credentialing
- FHIR API Registry
- Reducing Administrative Burden
 - Good Faith Estimates
 - Decentralized Medical Claims
- Eliminating Waste



APPENDIX - Provider Data Exchange (PDX) User Experience

Summary

Balance: \$ 9,721.11

| Provider | Records | Delegated | Recent | Current | Flagged | Challenged | Subscriptions |
|---|-----------|---------------------|--------------------|---------------------|----------------|------------|---------------|
|  Aetna (% of Records) | 179,392 | 80,335 (44.78%) | 57,650 (32.14%) | 41,407 (23.08%) | 23 (0.01%) | 7 (0%) | 6,005 |
|  Centene (% of Records) | 71,497 | 19,372 (27.09%) | 0 (0%) | 52,125 (72.91%) | 46 (0.06%) | 1 (0%) | 0 |
|  Corvel (% of Records) | 153,791 | 6,870 (4.47%) | 700 (0.46%) | 146,221 (95.08%) | 5 (0%) | 1 (0%) | 364 |
|  Humana (% of Records) | 40,154 | 0 (0%) | 3,961 (9.86%) | 36,193 (90.14%) | 4 (0.01%) | 0 (0%) | 940 |
|  MultiPlan (% of Records) | 199,540 | 0 (0%) | 25,479 (12.77%) | 174,061 (87.23%) | 23 (0.01%) | 2 (0%) | 11,141 |
|  PSJH (% of Records) | 981 | 0 (0%) | 981 (100%) | 0 (0%) | 0 (0%) | 0 (0%) | 2 |
|  Prime (% of Records) | 130,836 | 43,921 (33.57%) | 3,067 (2.34%) | 83,848 (64.09%) | 12 (0.01%) | 1 (0%) | 0 |
|  Quest (% of Records) | 31,506 | 31,506 (100%) | 0 (0%) | 0 (0%) | 8 (0.03%) | 0 (0%) | 0 |
|  UHC (% of Records) | 200,014 | 89,219 (44.61%) | 9,916 (4.96%) | 100,879 (50.44%) | 64 (0.03%) | 1 (0%) | 15,204 |
| Total (% of Records) | 1,007,711 | 271,223 (26.91%) | 101,754 (10.1%) | 634,734 (62.99%) | 185 (0.02%) | 13 (0%) | 33,656 |

Explore records ^

NPI lookup

Search

Summary

Add records ^

Single

Batch submissions

Challenges v

Flags v

Workspace ^

Arbitration

Impact

Conflicts

Outreach ^

Plan submissions



























Planned records


Integration v

Impact

☐ Show first 10 conflicts

Attestation within
30 days



| NPI Address Phone number |  Humana |  Aetna |  Centene |  Corvel |  MultiPlan |  PSJH |  Prime |  Quest |  UHC |
|---|--|--|---|--|---|--|---|---|--|
| 1003003609 850 Ed Hall Dr Ste 110 Kaufman, TX 75142 (214) 396-4950 | Active Unknown (Current)  | Active 9/22/2021 (Recent)   | — | — | — | — | — | — | — |
| 1003200700 6411 Fannin St Houston, TX 77030 (713) 704-4294 | Active 2/8/2021 (Current)  | Active 9/22/2021 (Recent)   | — | — | — | — | — | — | — |
| 1003341470 6411 Fannin St Houston, TX 77030 (713) 704-4296 | Active 2/8/2021 (Current)  | — 9/22/2021 (Recent)   | — | — | — | — | — | — | — |
| 1003259458 4716 Alliance Blvd Ste 500 Plano, TX 75093 (469) 800-6000 | Active 10/16/2020 (Current)  | — 9/22/2021 (Recent)   | — | — | — | — | — | — | — 8/3/2021 (Recent)   |
| 1003806100 1001 Water St Ste E-200 Kerrville, TX 78028 (830) 257-6633 | Active 2/23/2021 (Current)  | — 9/22/2021 (Recent)   | — | — | — | — | — | — | — |

 Explore records ▴




NPI lookup

Search

Summary

 Add records ▴Single 


Batch submissions

 Challenges ▾ Flags ▾ Workspace ▴

Arbitration


Impact

Conflicts

 Outreach ▴

Plan submissions

Planned records


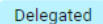

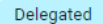

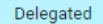

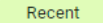



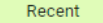
 Integration ▾

NPI lookup

1003003609

LOOKUP

| | | | | | |
|------------|---------|---|---|---|---|
| NPI | Records | Contributors | Subscribers | Merge records | |
| 1003003609 | 10 |  |  |  |  |

| | Location | Phone | Location status | Contributors | Last attested | Information | Actions |
|---|--|--------------|-----------------|---|---------------|---|---------|
| ▼ | 850 Ed Hall Dr Ste 110, Kaufman, TX 75142 | 214-396-5960 | Active |  | 44 months ago |  | ⋮ |
| ▼ | 124 E US Highway 80 Ste 104, Forney, TX 75126 | 214-396-4950 | Active |  | 3 months ago |  | ⋮ |
| ▼ | 200 S Collins Rd, Sunnyvale, TX 75182 | 214-396-4950 | Active |  | 44 months ago |  | ⋮ |
| ▼ | 850 Ed Hall Dr Ste 110, Kaufman, TX 75142 | 214-396-4950 | Active |  | 28 days ago |  | ⋮ |
| ▼ | 9900 N Central Expy Ste 215, Dallas, TX 75231 | 214-396-4950 | Active |  | 6 months ago |  | ⋮ |
| ▼ | 220 S Collins Rd, Sunnyvale, TX 75182 | 214-396-4950 | Active |  | 28 days ago |  | ⋮ |

Explore records

NPI lookup

Search

Summary

Add records

Single

Batch submissions

Challenges

Flags

Workspace

Arbitration

Impact

Conflicts

Outreach

Plan submissions

Planned records







Integration

NPI lookup

1003003609

LOOKUP

| | | | | | |
|------------|---------|---|---|--------------------------|------------------|
| NPI | Records | Contributors | Subscribers | Merge records | |
| 1003003609 | 10 |  |  | <input type="checkbox"/> | <p>SUBSCRIBE</p> |

| | Location | Phone | Location status | Contributors | Last attested | Information | Actions |
|---|---|--------------|-----------------|---|---------------|------------------|---------|
| ▼ | 850 Ed Hall Dr Ste 110, Kaufman, TX 75142 | 214-396-5960 | Active |  | 44 months ago | <p>Delegated</p> | ⋮ |
| ▼ | 124 E US Highway 80 Ste 104, Forney, TX 75126 | 214-396-4950 | Active |  | 3 months ago | <p>Delegated</p> | ⋮ |
| ▼ | 200 S Collins Rd, Sunnyvale, TX 75182 | 214-396-4950 | Active |  | 44 months ago | <p>Delegated</p> | ⋮ |
| ▼ | 850 Ed Hall Dr Ste 110, Kaufman, TX 75142 | 214-396-4950 | Active |  | 28 days ago | <p>Recent</p> | |
| ▼ | 9900 N Central Expy Ste 215, Dallas, TX 75231 | 214-396-4950 | Active |  | 6 months ago | <p>Current</p> | |
| ▼ | 220 S Collins Rd, Sunnyvale, TX 75182 | 214-396-4950 | Active |  | 28 days ago | <p>Recent</p> | |

Flag

Unflag

View flag details

Challenge

Cancel challenge

Inspect challenge

Accept challenge

Reject challenge

Arbitrate challenge

Skip arbitration

APPENDIX



Synaptic Provider Exchange Data Layout

| Key | Required | Field | Description | Subscription |
|-----|----------|------------------------|-------------------------------|--------------|
| K | R | NPI | 10 digits (string) | (public) |
| K | R | Phone_Number | 10 digits (string) | (private) |
| K | R | Address | alpha | (private) |
| | | Address_Line_2 | alpha (optional) | (private) |
| K | R | City | alphanumeric | (private) |
| K | R | State | 2 letters | (private) |
| K | R | Zip | 5 digits (string) | (private) |
| | R | isDelegated | true false | (public) |
| K | R | Location_Status | active inactive | (private) |
| | | Attestation_Date | YYYYMMDD | (public) |
| | | Channel | alpha from list | (public) |
| | R | First_Name | alpha | (public) |
| | R | Last_Name | alpha | (public) |
| | | Middle_Name | alpha | (public) |
| | | Suffix | alpha | (private) |
| | | Last_4_of_TIN | string 4 digits (w/0s), array | (public) |
| | | Fax | 10 digits array | (private) |
| | | Email | alpha array | (private) |
| | | Comments | alpha | (private) |
| | | Decay_Signal | True False <blank> | (private) |
| | | Accepting_New_Patients | True False <blank> | (private) |
| | | Primary Specialty | NUCC code lookup | (public) |

Addresses are standardized by a call to Pitney Bowes Precisely

Excel will default reformat dates as MM/DD/YYYY; be sure to fix back

Selection among: Unknown, Vendor, Operational Update, Fax, Provider Master MDM, Provider Phone Call, Provider Website, Roster Upload

Need to format "0000" to include leading zeros

Synaptic API's

humana-pdx.synaptic-test-env.kaleido.cloud/api

ejohnson62@humana.com

Synaptic API 1.0 OAS3

</api/v1/swagger>

To invoke the API programmatically, include the system API key as Bearer token in the authorization header.

Servers

/api/v1

Records

- GET /records
- POST /records
- GET /records/{id}
- PUT /records/{id}

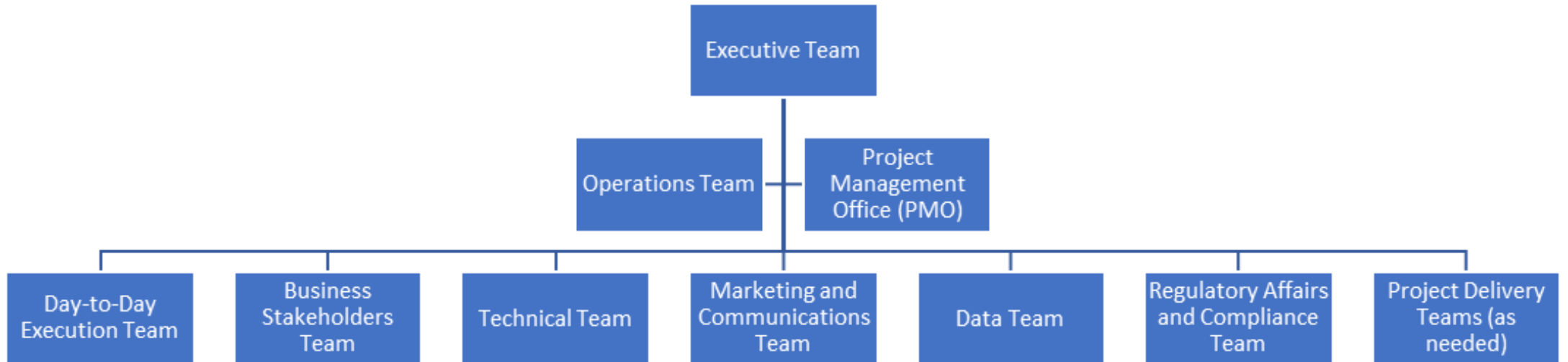
Search

- POST /search

And similar Get, Post, Put, & Delete API's on:

- Subscriptions
- Flags
- Challenges
- Allocations
- Impact
- Outreach
- CSV export file
- Validator
- Address standardization call
- Hashes (key)
- Events
- Specialties
- Financials

Synaptic operating structure



Membership Grid (December 2021)

| | Founding | Board | Alliance | Organization | Services | Advisory |
|-----------------------------------|-----------|-----------|--|--|-----------|--|
| Annual Fee | \$100,000 | \$100,000 | \$25,000 | \$50,000 | \$50,000 | - |
| Voting Member | ✓ | ✓ | Can provide input and feedback, but have no voting power | Can provide input and feedback, but have no voting power | | Can provide expertise and advice, but have no voting power |
| New Member Approval | ✓ | ✓ | | | | Can provide expertise and advice, but have no approval power |
| Governance Strategy Input | ✓ | ✓ | Can provide input and feedback, but have no approval power | Can provide input and feedback, but have no approval power | | Can provide expertise and advice, but have no approval power |
| Alliance Contracts Input | ✓ | ✓ | Can provide input and feedback, but have no approval power | Can provide input and feedback, but have no approval power | | Can provide expertise and advice, but have no approval power |
| Chair Alliance Teams | ✓ | ✓ | ✓ | ✓ | ✓ | |
| Create Alliance Delivery Teams | ✓ | ✓ | | | | |
| Propose Alliance Projects | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Participate in Alliance Teams | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Rights to Use Production Data | ✓ | ✓ | ✓ | ✓ | | |
| Ownership Opportunity | ✓ | | | | | |
| Participate in Strategic Planning | ✓ | ✓ | Can provide input and feedback, but have no approval power | Can provide input and feedback, but have no approval power | | |
| Source Data Contributor | ✓ | ✓ | ✓ | ✓ | | |
| Maximum Members | 6 | 4 | Unlimited | Unlimited | Unlimited | Unlimited |
| Constituent Sub-Members * | | | | ✓ | | |
| Use founding member designation | ✓ | | | | | |

* = "Organization" members can have multiple constituent members with data rights (each under 100,000 providers) on the one organization node. If a constituent member has 100,000 or more providers, they either need to become Alliance member or else additionally pay the Alliance membership equivalent +\$25,000 annually). This also allows them to have their own blockchain node for separate tracking and subscriber fees.