SENSE

Rewarding Human Capital

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This paper is a work in progress. Open for review and revision.

Table of Contents

Abstract

Humans are the most successful high-order species on the planet because of our ability to pass information to each other, over generations and across huge populations. Language and conversation are the means of information transfer. The Internet and mobile revolution has amplified human connection and the ability to communicate globally, instantly.

Currently, humans are limited by closed social networks and indexed by advertising-supported social graphs, with no easy means to explore and efficiently leverage information shared within these centralized cliques, ultimately leading to the loss of much of the cornucopia of human knowledge. Locked away within these networks as they eventually fall in popularity is an untold amount of information. This is exacerbated today by multiple messaging apps that consume more of users' attention span than any other type of application and operate in silos, with no common knowledge repository and no way to interconnect knowledge stored within these apps. Sensay solves this problem with a decentralized, transparent, interoperable messaging platform enabling anyone to chat and unlock transactions across messaging applications in a distributed network.

This solution includes:

Sensay
A cross-platform messaging application and bot network that allows users and communities to connect through routing them to each other, as needed.

SENSE
A blockchain based token establishing the first smart contracts to reward a community of knowledge workers for their conversational contributions across Sensay and/or any other application in the ecosystem.

Humans.AI
A protocol with an API that allows developers to access human conversational data asynchronously or in real time, providing passive or active income to the participants in those conversations.

With these innovations, we introduce:

Conversational Smart Contracts
Automatically create and encapsulate transactional details extracted from conversations to build smart contracts for the delivery of information

Knowledge Attribution
Monetizing of knowledge across decentralized and centralized apps

Conversational Consensus
Confirm value of knowledge transferred via transparency

To enable the above innovations we are launching a utility token called SENSE
SENSE at launch enables token holders to turn on the platforms smart chat functionality, is pivotal to user on-boarding, and serves via smart contract as a mechanism to enable developers and publishers on the platform to extract valuable information from chat data.

Today's Global Messaging Ecosystem

An Expanding Method of Engagement

With the global population of 3.7 billion Internet users, the number of people using social media around the world has just passed 3 billion, which is about 40% of the global population, according to an August 2017 Global Digital Snapshot from We Are Social and Hootsuite[1].

And the number is rapidly growing.

Much of social media interaction is done on mobile apps with 4.9 billion mobile users and 2.7 billion mobile social users globally.

The amount of time people spend on social media is constantly increasing and the most frequently used applications on mobile devices are messengers:

- The average internet user is now on social media and messaging services for over 2 hours per day[2]
- Teens now spend up to 6 hours a day on social platforms with 30% of all time spent online now allocated to social media interaction
- Messenger apps have surpassed social networks applications by the number of monthly active users

The Challenge of Lost Knowledge

Currently, messaging apps consume more time than any other type of application. However, the following problems prevail:

- No common knowledge repository exists
- No way to connect the siloed messenger apps
- No good ways to find relevant people outside your social graph
- Centralized contact lists
- Redundancy of messaging apps
- Users' data is being taken and monetized without their involvement or knowledge

Centralized messaging applications––such as Whatsapp, Facebook Messenger, WeChat, Telegram, Slack, Kik and more––lack an interoperable feature to chat between them. Messaging data is owned by the platform without giving users control and a value stake. Contact lists are limited and not interoperated, search fails to deliver relevant people when we need them.

The constantly growing number of users and their increasing time spent on social networks create an enormous amount of valuable data, which is captured by centralized databases and sold for advertising revenue. For brands, this is a powerful insight, and many are capitalizing on it by creating ads designed to manipulate consumers' behavior. However, users do not own their own data and cannot choose whether or not to sell it. **When users do not earn value for every contribution they make to a network, the incentives do not align in the favor of all participants.**

1. https://thenextweb.com/contributors/2017/08/07/number-social-media-users-passes-3-billion-no-signs-slowing/#.tnw_5sJ7C56U
2. http://blog.globalwebindex.net/chart-of-the-day/daily-time-spent-on-social-networks/

Your Data is Valuable

Your time and data—your human capital—is contributed every day to some platform or another. Every message you send, every URL you visit, every photo you favorite or upload - these are all captured by one or more centralized databases. Some entity makes money from your digital footprints, rarely if ever passing it on to you, the end user.

What if you could earn a few cents for every post you thumbs-up or every recommendation you make? You certainly should, as a valued content publisher. Instead, your data and actions are getting stored in large centralized databases and sold off for advertising revenue. This revenue is only passed back to the end-user in isolated examples, and often the rewards will not outweigh the cost of production unless the content creator is approximately in the top 2% of influencers.

If users earn value for every contribution they make to a network, the incentives align in the favor of all participants. When users own their own data, they can choose whether or not to sell it and earn revenue on that sale. Creating an economy around human capital value transfer eliminates the need for advertising and the psychological manipulation that comes along with it, providing a better and more fulfilling experience for all participants in the ecosystem.

And the Solution Makes SENSE

Sensay is proposing a decentralized, interoperable, messaging protocol allowing anyone to chat and transact freely across centralized messaging applications. Our goal is to add a quantifiable value to users' skills and expertise, enabling digital trade of these human capital goods within a global community.

SENSE Decentralized Network (SDN) is intended to provide the missing bridge between blockchain and users on isolated, centralized applications who are unable to share and monetize their most valuable assets, creating a powerful incentive around messaging activity that consumes a significant portion of an average Web user's day. To this end, we are developing Humans.AI as a distributed application that runs on top of SDN.

People can commit their knowledge to a trusted ledger and gain knowledge attribution for their contributions:

1. Connection: Decentralized contact list
2. Communication: Allows instantaneous connections across all platforms
3. Contribution: value of human capital
4. Intelligence: the collective intelligence of the global human network

Users own their data and choose whether or not to sell it. Users earn value for every contribution they make to the SENSE network, thus the incentives align in the favor of all participants.

Sensay Platform

Background

Founded in 2014 by Ariel Jalali and Crystal Rose, Sensay started as a network allowing anyone on any SMS-enabled device to send a text message to a single contact (Sensay) and access the broad network of humans for an anonymous conversation.

Crystal and Ariel established Sensay with core beliefs about humanity:

- Everyone is valuable
- No one must be alone
- **Everybody wins** by helping others

After growing to one million users, Sensay expanded into a large-scale popular messenger as one of the first chatbots and was the first to create interoperability between them. Currently, the Sensay platform has 3 million users.

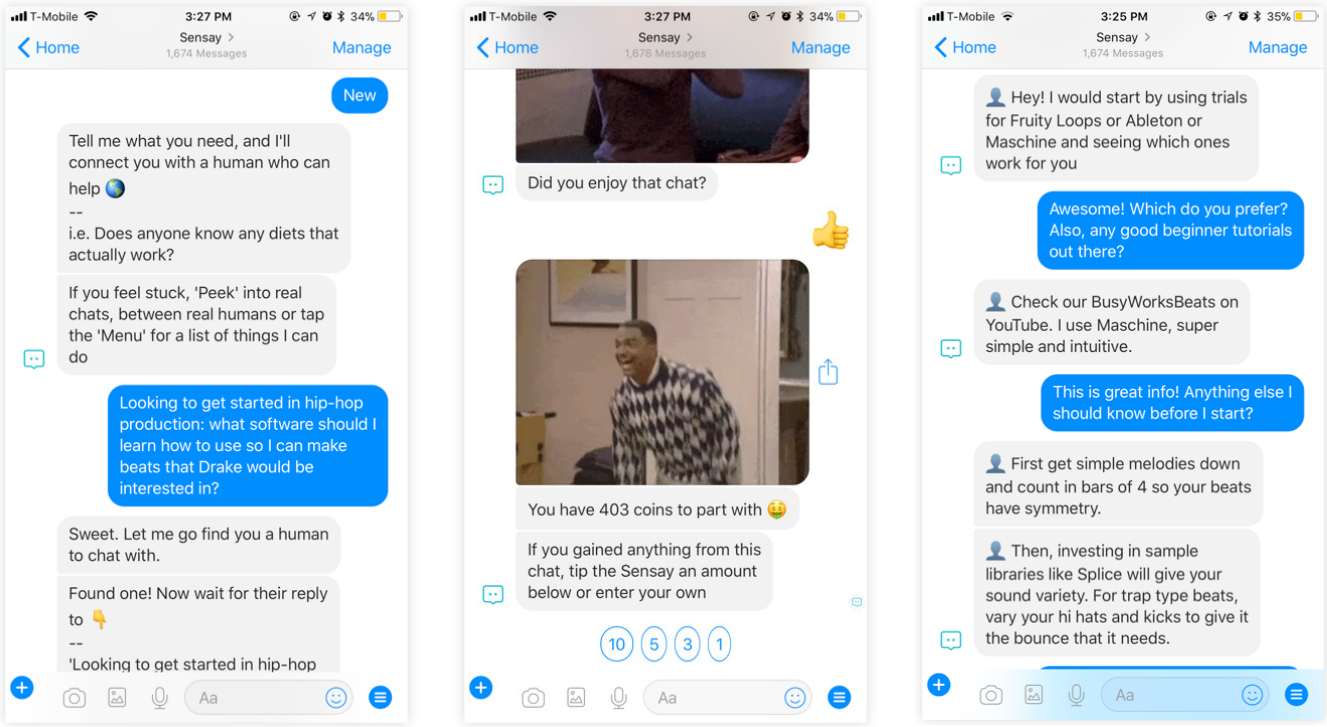
Current Platform

Sensay is an interoperable messaging platform for matching and routing to relevant particapants for conversations across major consumer messenger applications, including the most popular mobile messenger: SMS, commonly known as “text messaging.” The platform can be used for communication across different messaging apps, as an information repository, and to find relevant knowledge outside of individual networks while monetizing individual knowledge contributions.

A user finds Sensay as a bot in their favorite messenger, tells Sensay bot what he or she needs in natural language, and Sensay matches and routes that need to potential users who can help. It does so using a mix of topical and behavioral data the users have provided in the course of using Sensay. The first user who responds begins a chat conversation, and the users then converse in a peer-to-peer format. Either party may close the chat, which prompts a double-sided rating and an option to express gratitude by sending a “tip” to the other chat participant in Sensay Coins, an in-app value system. The Sensay platform indexes the chat transcript to improve future routing of similar needs and users. To date, over 20 million Sensay Coins are in circulation among roughly 3 million users.

Sensay’s core matching algorithm and routing engine allows users to connect to each other based on knowledge, helpfulness, availability, and other factors for valuable conversations and can expand to any communication layer.

Sensay users exchanging knowledge in a chat



Current Functionality & Sensay Coins

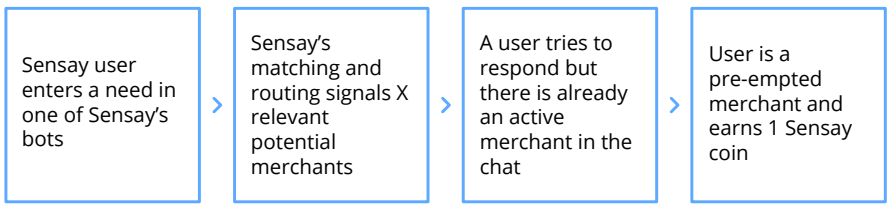
Currently, Sensay operates Sensay Coins, an internal token, which is used by chat participants to exchange value (tip) each other to express gratitude. To date, over 20 million Sensay coins are in circulation among over 3 million users. The increasing popularity of Sensay Coins is attributed to their various utilities on the Sensay platform:

- Users earn Sensay Coins via contributions to the network
    - Checking-in knowledge (user data)
    - Referring new users into the network
- Users earn Sensay Coins via peer-to-peer transactions and systematic rewards
    - P2P transactions in chat (tip)
    - Knowledge attribution in a tipped chat between active chatters
    - Reward for consecutive availability
    - Reward for timely activity
- Users spend Sensay Coins for exclusive on-platform usage
    - Add additional tokens to expedite a request (increase response time)
    - Pay to use features (eg. unlock chats)
    - Pay to gain premium routing features e.g. extended time, higher expertise

Current specific examples of solutions on Sensay Coins platform:

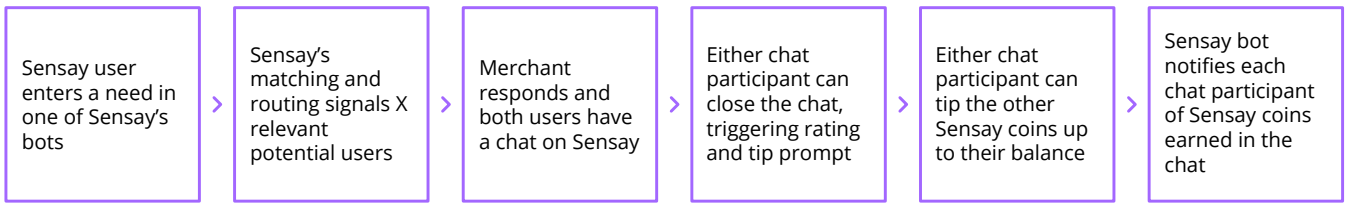
I. **Account Creation/On-boarding:** 10 Sensay Coins Earned

II. **Pre-empted Merchant:** 1 Sensay Coin earned



III. **One time re-up of user coin balance** (10 coins given when balance = 0)

IV. **Optional Tip on Chat Close: Variable Sensay Coins earned** (average 2 Coins)



Sensay's Vision

The existing Sensay platform, and the launch of the SDN represent a vision for:

- Decentralized messaging
- Users owning their own data
- All 5 billion global mobile users connecting and transacting with each other
- Free, interoperable communication between centralized and decentralized applications
- Users creating meaningful work and have access to new jobs
- Most-used "apps" are bots in messengers

Launch of the SDN

The Value for Human Capital - Enabled by Smart Contracts

Sensay is launching the SDN with the belief that all humans are valuable and all humans have the right to connect and transact their intrinsic value: knowledge, skills, and experience that can be shared in a tangible or intangible way. We call this human capital. It's the value of each individual's contribution to our collective intelligence.

The SDN will operate as a network for the use and sharing of human capital, built on Ethereum-based smart contracts that use the SENSE token to assign value to the human capital used and shared on the network. **SENSE adds a quantifiable value to the skills, knowledge, and expertise everyone has, enabling trade of these human capital goods in global communities.**

Humans.AI

The universal protocol for human intelligence

Sensay is introducing Humans.AI, the first application on the SDN, as a blockchain-based conversational platform that seeks to:

Index the world's humans based on their skills, expertise and knowledge (rather than identity)

Create the superhighway for human discovery

Provide a direct link to any human or their personalized A.I. agent for conversational help and advice; for conversations and transactions

Human Augmented Intelligence

The first applications on the SDN will involve smart contracts (described below) and APIs developed by Sensay as part of the Humans.AI application. Some of the APIs will enable users to interact with the SDN by accessing certain information by way of an “oracle,” and Sensay will operate one or more oracles to provide functionality to the APIs and the network.

Developers can leverage the data made available both via the public SDN and Sensay’s Humans.AI APIs, and they can earn SENSE by contributing to the network. Sensay the application earns SENSE by sending conversation data to Humans.AI and pays SENSE for each conversation it requests via the API. Human data and conversations stored behind the Humans.AI API can be tapped into by other applications and bots seeking integrated human connections and support.

Proof of Intelligence

Sensay aims to create the ubiquitous record of human knowledge attribution on the blockchain.

In the web age we had page ranking.
Today we are in the messaging age.
How do you find the humans?

Sensay’s Humans.AI API is the system of record to find a human by their knowledge, skills and intelligence. Sensay allows their users to check in knowledge for SENSE either overtly (self-check-in) or behaviorally (event-based check-in) which becomes your wallet of skills and reputation. Sensay intends to build on the APIs and smart contracts available today to eventually power functionality such as proof of intelligence, intelligence attribution, and conversational consensus.

SENSE Token and SDN Smart Contracts

Sensay has introduced the SDN - a decentralized and interoperable messenger platform enabling anyone to chat and transact freely across centralized messaging applications. SENSE, an ERC-20 compliant token, serves as a unit of account on the SDN, enabling unique interactions with smart contracts that can provide content, live interactions, bots, program tools and data contributions across the Sensay platform and other messaging applications. In character, SENSE is a decentralized utility token of fixed supply that can be integrated into applications as the transactional layer of value. At the time of the token sale, users of Sensay who hold Sensay Coins are given a one-to-one conversion for that amount of SENSE tokens.

The Ethereum blockchain is currently the industry standard for issuing custom digital assets and smart contracts. The ERC20 token interface allows for the deployment of a standard token that is compatible with the existing infrastructure of the Ethereum ecosystem, such as development tools, wallets, and other distributed applications.

SENSE Functionality at Launch

At the time of the SDN launch: (i) a fixed supply of 663,636,366 tokens are created, (ii) 182.5 million of those tokens are made available for purchase by users in exchange for cryptocurrency (BTC/ETH), and (iii) certain APIs for Humans.AI are made available for use across the SDN.

In order to demonstrate the consumptive utility of new SENSE tokens for participants at launch, Sensay provides the following functionalities of the new SENSE tokens:

- A one-to-one conversion of Sensay Coins into new SENSE tokens via external wallets
- Checking in knows to attribute knowledge via the knowledge attribution smart contract
- Earning in a chat and starting a chat require a token balance–for Humans or Me Bots

SENSE Smart Contracts

At launch, the SDN functionality will involve a main token contract along with the functionality of additional contracts on the SENSE network. The first 3 smart contracts for SENSE available on day 1 are:

- SENSE Token
- Knowledge Attribution (user has supplied knowledge, and such knowledge remains attributable to the user)
- Knowledge Access (user has searched for knowledge, and can obtain access to other users with the knowledge sought)

These contracts form a full loop on how SENSE tokens enter a user's wallet and are used to access functionality on the network.

SENSE Token Contract

A user account on Ethereum network can be thought of as the user's Ethereum wallet address. This wallet address can hold a variety of ether and one or more associated smart contracts, including ERC-20 smart contracts for tracking tokens, such as SENSE. Users can come to any application on the SDN and create a SENSE wallet. Developers can also create SENSE wallets for themselves and register with Sensay for credentials to access to the Humans.AI API.

Knowledge Attribution Contract

The Knowledge Attribution Contract is the contract that creates a hash of the knowledge attributable to a given user, and thereby attributes knowledge to a particular user of the SDN. This contract involves 3 mandatory parameters and 1 optional one to record a user's knowledge on the blockchain, as follows:

1. The ether wallet address to which the smart contract (i.e., knowledge attribution) is sent (public wallet key)
2. Amount of SENSE due, calculated when knowledge is oracalized by the API
3. Hash of knowledge that is created by the oracle via API
4. Developer or referring user wallet (optional)

Knowledge Access Contract

The Knowledge Access Contract is the contract that provides access to the users with attributed knowledge. This contract will include the following parameters:

1. Query string of the knowledge sought
2. "Invoice number," which is the reference number created by the API that contains (i) a summary of the results of the knowledge query, and (ii) amount of SENSE tokens due for accessing all the results
3. The "from" ether wallet address to pay the invoice (public wallet key)

The smart contract activates the SENSE token for use by linking the API token to smart contract hash, and it then grants user (or application) access to the knowledge.

When the invoice is paid, there is up to a 3-way split between the following parties in SENSE tokens:

- User attributed as owner of knowledge
- SENSE network
- Developer whose app attributed the knowledge (optional)

Blockchain & Implementation–Decentralization at the Core of SENSE

The blockchain solution is uniquely necessary for the knowledge attribution functionality; the "proof of intelligence" mechanism uses conversational data to link attributed knowledge to the blockchain--validating it, timestamping, and making it broadly accessible to other SDN parties (i.e. other chat applications, publishers, and developers).

Smart contract code executed on the Ethereum blockchain brings significant advantages relative to centralized databases, including lower costs, immutability, transparency, irreversibility, anonymity, and security. These characteristics of blockchain are particularly important for creating an efficient system of human knowledge attribution, exchange, and reward for the SDN, where SENSE serves as a value attribution mechanism for human capital.

Open-Sourced APIs

Humans.AI API Methods

The SENSE smart contracts, which represent fully decentralized Web 3.0 functionality, work in tandem with the APIs provided on an open-sourced basis by the Humans.AI application. The smart contracts record transactions on the blockchain, providing a hash of data and a token to access the data via the API.

/api/v1/know

/know is the first service on the Humans.AI API and serves as the technical foundation for future services. /know provides a global utility for recording knowledge attribution data to the blockchain and a platform for knowledge verification.

/api/v1/humans

/humans is the second service on the Humans.AI API and provides a means of looking up a user's consolidated profile on the Sense Decentralized Network by wallet ID. It takes wallet_ID as an input and outputs a user's profile object which includes all their knowledge attribution, sense balance and optional means to contact the user.

Knowledge Attribution Examples

Use Case 1: Knowledge Attribution Via OAUTH Applications

User comes to a site (e.g. Makesense.com) and creates an account. During this account creation the user is given a wallet / Sensay account. After creating their account, the user sees a list of supported sites. These supported sites allow them to OAUTH with various services that connect to user data. The application then pulls their profile data down and classifies the things that they know and rewards them for the help they have provided.

As the OAUTH applications start to ingest the data, the data is saved to the API endpoint where it is analyzed and hashed. Analyzed unhashed data is stored on as a record the SENSE server. The record's hashed key along with the user's wallet and the reward amount are stored on the blockchain, via the smart learn contract that will put the sense in the user's account.

Use Case 2: Knowledge Attribution via Reddit

Users on websites like Reddit will post, comment, and advise each other on a broad variety of topics. These posts and comments are rated by other users on Reddit for their usefulness which is represented in a score called Karma on Reddit. This reputation will be converted into SENSE giving the users credit for these actions. Each user action on a reddit post will be recorded in the user's SENSE wallet.

Using the Reddit API, the application authenticates the Reddit user, takes the user's Reddit Karma and feeds it into the Humans.AI API endpoint.

Once a user's attribution has been verified, then tokens will be given from the SENSE master wallet to the user wallet using the transfer function.

Use Case 3: Knowledge Attribution Via Sensay

Users on Sensay help each other by providing advice on a variety of topics via chat. These chats are rated and are qualified and scored on Sensay for their usefulness which is represented in a chat score on Sensay. This reputation will be converted into SENSE giving the users credit for these actions.

Using the Sensay API, the application authenticates the Sensay user, takes the user's Sensay chat score and feeds it into the Humans.AI API endpoint:

Use Case 4: Knowledge Attribution Via GitHub

Users on Github are software developers who have contributed their code to the Github website to help other developers who are building applications. Developers perform various actions on Github that may be eligible for knowledge attribution in SENSE, including:

- Creating code repositories
- Receive pull requests from other developers who contribute to the repositories
- Initiating pull requests to other developers to contribute to their repositories
- Gain stars on a repository they create
- Forks a repository to make a personal copy of someone else's code repository
- Follow other developers
- Gain followers when other developers follow you
- Date stamps for users and repos tell of user's tenure

Each are inputs to their reputation on Github. This reputation will be converted into SENSE giving the users credit for these actions. User projects and followers on a reddit post will be recorded in the user's SENSE wallet.

Planned End State / Ecosystem

SENSE intends to be at the center of a digital economy inside the SDN ecosystem; it will help facilitate demand generation and supply side by incentivizing all participants in the ecosystem and launch an incentive mechanism for all participants to contribute to the ecosystem.

Parties in the intended ecosystem may be categorized into two groups:

- End users represented by companies and users looking for product, content, or live interaction creation. They create the smart contract in order to request services from counterparties such as developers via the platform.
- Developers, partners, publishers, platforms generally are companies, individuals, or contractors looking to actively develop on, participate in, and make use of the ecosystem. They accept a request for services and are paid in tokens.

The platform intends to match smart contract creators with developers, publishers, partners, and other users that pay in SENSE for the use of data, interactions, and content or are compensated in SENSE for the creation of content, program tools, bots, data or live interaction:

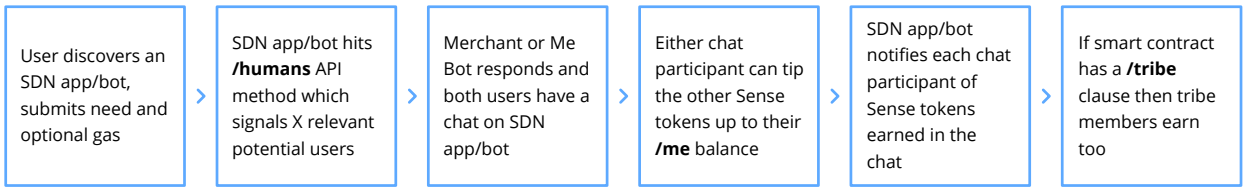
- At token launch, Sensay intends to sell its new SENSE tokens to end users in exchange for cryptocurrencies (BTC/ETH) to fund the operations of future decentralized network development
- New user account creation is driven by smart contracts that attribute and value knowledge
- End users create smart contracts requesting service and use SENSE to pay service providers or developers
- All users in the SENSE Decentralized Network act as publishers, who contribute content for tokens
- Developers provide service to smart contract creators, create platform tools and get compensated in tokens for its usage--tokens enable this tool creation
- Users provide service and get compensated in tokens for chat data, Me Bot, human API calls for live help, and referrals to other users
- Partners consume information from chats, analyze data and compensate the platform and users via tokens.

Once the protocol is built and ecosystem is established, we intend to work toward a framework for increased utility among participants within the ecosystem.

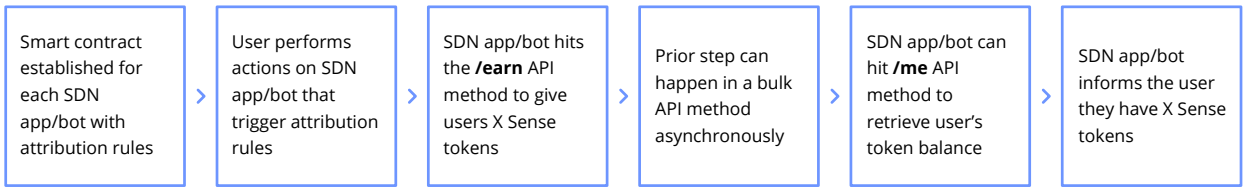
The vision for the end-state solution of the SENSE Decentralized Network:

Account Creation / On-boarding: Variable tokens earned

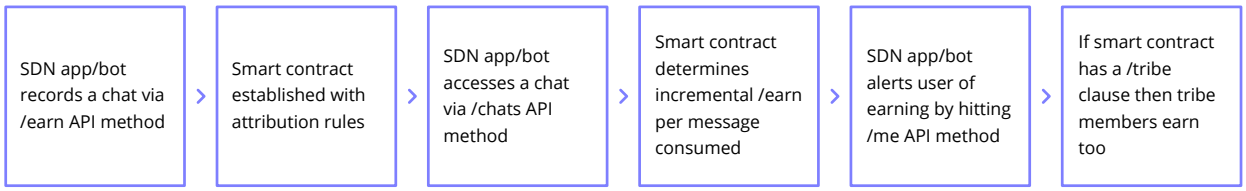
II. Earning in a Chat - Human or Me Bot: Variable tokens earned



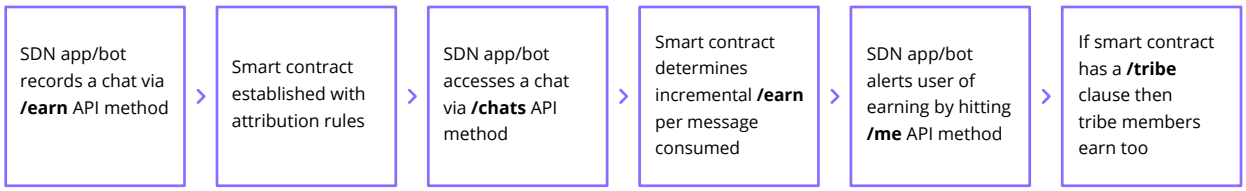
III. Earning for Knowledge Attribution: Variable tokens earned



IV. Earning Asynchronously on Chat Data: Variable SENSE tokens earned by apps/bots, humans, tribes



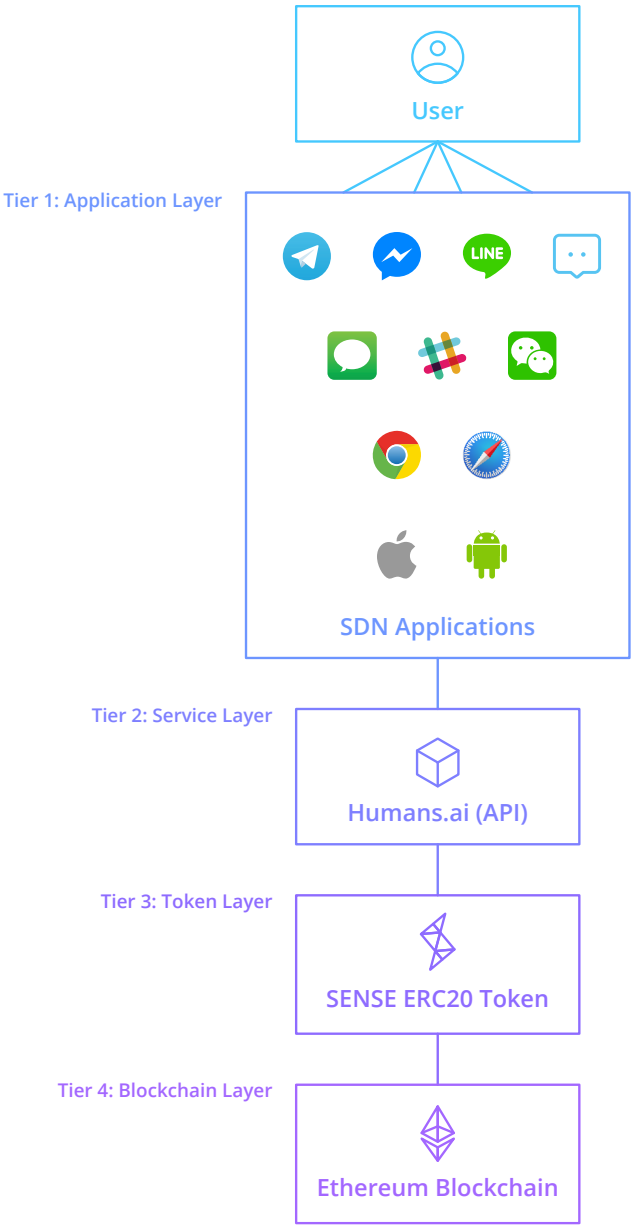
V. Smart Introductions and Routing: Variable SENSE tokens earned by apps/bots, humans, tribes



Architecture

SENSE will operate on a 4-tier architecture.

- **Application** Sensay and any decentralized or centralized application
- **Service** Open source API with methods for knowledge work, chats, contacts
- **Token** SENSE is an ERC20 token on the Ethereum Network
- **Blockchain** Blockchain-based attribution and rewards for knowledge



Application Layer

Sensay is the first application on the SENSE Decentralized Network. Others will follow, including the following in the centralized and decentralized spaces:

- Desktop Applications
- Web Applications
- Mobile Applications
- Chatbots
- Voice Applications
- AR/VR Applications

Service Layer (Humans.AI API)

SENSE tokens are transacted across the SDN as developers integrate with the Humans.AI API service layer or otherwise develop smart contract functionality. The Humans.AI API supports the following methods:

- **/know** to record and value actions to attribute value for knowledge work
- **/humans** to get 1-n humans who...and their associated attributed knowledge
- **/tribes** to find humans who all...

/Know to attribute knowledge

- Inputs: API token, array of external UUIDs, knows per UUID, notes per UUID, gas amount
- Outputs: Array of User IDs and Smart Contract IDs
- The smart contract is started for each user's knows and requires users to come and claim their knows by having X chats across the SDN to verify the knows

/Humans to get a relevant human and access their knowledge

- Inputs: API token, keywords, # humans, (optional: tribe IDs to filter on tribes), gas amount
- Outputs: Array of User IDs (optional: user profiles with skills and actions performed across SDN, average rating, SENSE balance)

/Tribes to find a tribe on the SDN

- Inputs: API token, keywords, #tribes, gas amount
- Outputs: Array of Tribe IDs
- Use Tribe IDs to filter chats or humans

Baseline Bots

Baseline bots for each major messenger will be available on Github that developers can use to interact with the Humans.AI API. The bots provide baseline functionality and can operate in testnet mode or in production mode transacting in actual SENSE.

Conclusion

SENSE is intended to provide the missing connective tissue between users on isolated, centralized applications who are unable to share and monetize their most valuable assets, creating a powerful incentive around messaging activity that consumes a major component of an average Web user's day.

SENSE makes sense!

If users earn value for every contribution they make to a network, the incentives align in the favor of each participant. When users own their own data, like a freelancer, they can choose whether or not to sell it and earn revenue on that sale. Creating an economy around human capital value transfer eliminates the need for advertising and the emotional manipulation that comes along with it, potentially providing a better and more fulfilling experience for the users.

Appendix

Glossary of Terms

Definition of common terms used in this paper

Active_Chatter	Sensay app user who is actively chatting as Active Consumer or Active Merchant
API	Application Programming Interface, e.g. Humans.AI API
App	Mobile, web or messaging application or dapp on the SDN
Asset	Object that is inserted into Sensay chat by either the consumer or merchant
Chat	Conversation on Sensay between a merchant and a consumer, triggered by need
Close	Command on Sensay to end a chat which triggers the rating and tip steps
Coins	Sensay coins used in the closed loop Sensay application
Consumer	Sensay user who needs something, either information or assets
Dapp	Decentralized application that works on the blockchain
Disabled	Sensay user who enters a STOP command to unsubscribe from SDN
Flag	Sensay rating to report abuse. Strikes 1 and 2 suspend, Strike 3 bans user
Flip	Forwarding a Sensay chat or a need to a potential merchant who can help
Humans.AI	Open source application programming interface (API) to access data on SDN
MeBot	Conversational agent using a user's attributed knowledge as training data
Merchant	Sensay user who provides or sells information or assets to a Consumer
Need	The first message in a Sensay chat from the consumer with the request for help
Next (user)	Ability to connect to next Sensay consumer or merchant
Oracalized	The process of extracting and attributing knowledge from a corpus of the user's raw data
Pass	Potential Sensay merchant dismissing an incoming need. "No" (I don't know)
Peek	Ability to view a Sensay chat happening live or that has happened
Preempted	Attempting to take a Sensay chat too slowly to become the active chatter
Rating	Double sided Sensay chat rating where both users score each other
Routing	The process by which a Sensay user is identified and signalled for a chat
SENSE	Token of the SENSE Decentralized Network, based on Ethereum
SDN	SENSE Decentralized Network encompassing SENSE and Humans.AI API
Signal	The message that goes to potential Sensay merchants to ask if they can help
Tip	Sensay coin payments made between two users
Tribe	User group on SDN who share at least 2 shared characteristics e.g geo + skill
User	User on the SDN

Algorithms

Conversational Routing and Conversational Valuing are both performed by an ensemble of Support Vector Machines (SVM's) or a Support Vector Clustering - with one SVM for each main classification. This means we have to take the probability of each, as below and use the best fit. Using a Platt scaling classification model, where x is the inputs, y is the class label, and A and B are two scalars that come from generative runs;

$$P(y = 1 | x) = 1 / 1 + \exp(Af(x)+B))$$

The other part of the equation is sorting out how relevant each user is to the resulting SVC outcome. This is done by applying the function to each of the potential merchants currently inactive (and thus eligible) for this topic ;

(number of chats in topic rated good and tipped / total number of chats) * SENSE in topic

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(positive boosts / negative boosts) * user ranking for topic

The SDN accesses or may access in the future, if further developed the business logic above but also the following variables - if fine tuning is required for any topic or subset. Developers who want to contribute their own algorithms or micro-bots for routing or attribution will be able to do so and gain attribution in SENSE for the actions involving their code on the SDN.

Conversational Routing (CR)

How a SENSE user is scored for his or her knowledge for specific topics and selected as a potential merchant for a chat. Variables include (weighted most to least)

- # chats in topic
- Average SENSE earned per chat
- Average rating earned over chats in topic
- Average turns taken in chats in topic
- % chats responded / total chats signalled
- Average gratitude sentiment analysis in chats in topic
- User ranking compared to others in that topic
- Negative downgrades for ignoring or passing on similar chats
- Positive boosts for potential merchants similar to the consumer
- Dynamic allocation for wildcard users to train learning

Knowledge Value Attribution (KVA)

How a user receives attribution for their knowledge on Sensay and earns SENSE. Variables include (weighted most to least)

- Know verified in chat as a merchant
- Message in a chat upvoted by the community
- Conversion of currency for off-network knowledge work
- Type of knowledge action (primary e.g post, secondary e.g. comment, tertiary e.g like or endorse)
- Attribution to user's tribe by virtue of tribe membership
- Upvoting a message or chat as a secondary act of publishing
- Friend-referred knows
- Self-reported knows

Conversational Value Incrementation (CVI)

How a chat on Sensay and increments in value for total potential SENSE user or users can earn. Variables include (weighted most to least)

- Randomized variable bounty aka "Golden Need" for merchants
- Randomized variable bounty on open needs upvoted by interested peeking users
- Randomized variable bounty for tribe membership attribution
- Randomized variable bounty for each incremental step to referring a user need to the perfect person

Blockchain Specifications of SENSE Smart Contracts

SENSE intends to provide a blockchain level contract which allows any 3rd party to store, and search for, a known users knowledge. To this end, there are a few contract calls which are of special note. In no fixed order, these are as follows;

DisplayUser(address user_id)

Show a user and any confirmed knowledge they have. Refuted items will be removed and not publically visible.

AddKnowledgeToUser(address user_id, bytes32 knowledge)

As a 3rd party, suggest knowledge for a user that they may not have listed. If we try to add knowledge to a user who already has this listed (either confirmed by themselves or pending their confirmation) then it will be added as another ConfirmKnowledge call instead.

ConfirmKnowledgeForUser(address user_id, bytes32 knowledge)

In the case that a 3rd party wants to give a +1 or thumbs-up on a users specific knowledge item, they can use this. This will only work on existing knowledge items. For adding, please see the previous contract call

DisputeKnowledgeForUser(address user_id, bytes32 knowledge)

This is effectively a -1 or thumbs-down on a users knowledge item.

FindUsersWithKnowledge(bytes32 knowledge)

Search the blockchain for any users which have the matching knowledge item. A user can also, after unlocking the appropriate wallet/store, do some functionality on themselves;

ShowMyKnowledge()

This simply will display any confirmed knowledge for the user, how confirmed it is by 3rd parties, as well as any suggestions added by 3rd parties via AddKnowledgeToUser for the user.

AddMyKnowledge(bytes32 knowledge)

When a user wants to add some knowledge that is not listed, they can call this. In the case that they are trying to add knowledge when they have this already listed (either confirmed by themselves or pending their confirmation) then it will be added as another ConfirmKnowledge call instead. Note that this call will not allow duplicates Ie; “cooking” twice will not make an two entries, if the first one is already confirmed.

ConfirmMyKnowledge(address txn_id)

When a user wants to add in knowledge, then the will call this with the blockchain transaction id to confirm. In the case that this is a community or 3rd party suggested addition, it will make it user confirmed, and increase the attribution count.