

The Localflow Network

Decentralized AI chatbot platform for local economy

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Abstract

Localflow creates the social and technological infrastructure needed to make private individuals' microservices flourish and established businesses accelerate their profit over the pressing conditions of global economy. By combining machine learning models and the experience of local economy actors, we are developing an artificial intelligence open engine aiming at deploying disruptive, lightning fast, high privacy decentralized chatbots on demand, dedicated to all who are making the real exchanges in our cities today: retailers, businesses, private individuals and communities.

The scope of Localflow is the local economy at zero-fees with high privacy standards.

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1 Summary

Localflow strives to be a collaborative platform to assemble and deploy decentralized domain-specific chatbots focused on small and medium sized businesses and their supply chains, and on private individuals that offer services in their communities. Through Localflow people discover, contribute and use local information and offers without the need for a centralized intermediary.

Their attention is rewarded when they add or broadcast genuine content.

The collective AI engine and chatbot platform is delivered as open-source, built and maintained by a core team and the community developers in cooperation with the experience of retailers from several supply chains.

Localflow uses the EWA token as currency for its ecosystem, which is an ERC223 standard utility token on the Ethereum blockchain. (The token's name stems from our Localflow AI local assistant Ewa, about which we will talk extensively in Appendix B).

Businesses, retailers, and private individuals assemble their own modular bots from the component collection of the platform and can allocate EWA from their wallets to better rank their bots and related information in the local search index. Anyone is rewarded with EWA for creating meet-ups and high-quality social activities.

Community influencers are rewarded with EWA for reaching out to additional people for the Localflow and for motivating local businesses to build and deploy specific bots, promote them within interesting chat groups, and for sponsoring the Localflow ecosystem in other networks.

Developers and data analysts are rewarded with EWA for publishing new bot components, enhancing language translations, maintaining the hybrid human-artificial intelligence engine, the Natural Language Processing module and any other contribution to the project.

Businesses can activate two direct payment gateways, IOTA and fiat (via credit card). At the other end, chatbot users can access their wallet via chatbot, opting for paying for goods and services, choosing one of the two preferred currencies. They can also redeem discounts using EWA tokens.

“In the heyday of European imperialism, conquistadores and merchants bought entire islands and countries in exchange for coloured beads. In the twenty-first century our personal data is probably the most valuable resource most humans still have to offer, and we are giving it to the tech giants in exchange for email services and funny cat videos.”

— Yuval Noah Harari

2 Introduction

The core business of great entertainers such as Facebook, Instagram, Google and others is based on keeping users trapped in the net, watching screens as much as possible [1]. The more time they spend engaged, the more data they will be providing and the more advertisement will be getting their attention.

This type of centralized services considers people as data factories: the users’ attention is caught, drawn to various sites, information is captured and sold. Thus, while value is continuously extracted by tech giants from people’s time, local economy networks are progressively weakened as solid relationships are not incentivized. Retailers are often pushed to considerably lower their product standards to maintain price competitiveness, sometimes they have to close their businesses because they cannot sustain the pressure of the mainstream advertisement mechanics.

The connected world of private individuals and established businesses lacks a tool for building flexible, effective and fast local profit accelerators which can provide granular access to goods and services with high privacy standards a tool with which local activities, events, products and services can be promoted, sold and delivered instantly by and for the actors of the local economy.

Localflow moves the focus from far to near, from the past and the future to the present, from virtual to real, thereby allowing local value to circulate, and rewarding any economic actors in a specific area. At the same time, Localflow promotes time-saving, distraction-free and community-driven marketing.

Localflow delivers an open AI-powered local search engine through decentralized chatbots that are closely connected to private services, business offers and authentic activities run by the people. The @LocalflowBot offers local search for events and parties, where people can create their own events, make them searchable, browse for local content, and grow specific-interest niches and communities. This bot currently has 4000 active users.

2.1 Bots vs apps

Trends show that the golden era of apps is over [2].

When looking for an after-party in the middle of the night, or when asked to deliver something immediately, who wants to launch an app in order to see the

possibilities, and who wants to log onto a website from their smartphone? No one. But often we still have to do that, as most of the providers of goods and services in our cities are not mapped into smart search bars inside our chats or into effective conversational bots. Sometimes, the only way to reach them is via a phone number or a Facebook page.

Bots are able to provide quick answers right where communication is flowing: chats and vocal devices. They only need to be invoked to join a chat group, and, as long as they fulfill a clear need, they are likely to be used again [3].

Apps, by contrast, need a lot of marketing investment to sustain the download in the near and long term, and, in a similar way, e-commerce websites must run expensive marketing campaigns to increase their positioning in the search engine rankings [4].

See Appendix A for more insights on the subject.

2.2 Local community promotion vs keyword auction ad

77.43% of users' access [5] to internet information takes place today through a single search engine, Google. This extremely high degree of centralization has two main negative effects:

1. Businesses, producers and organizations that want to advertise their contents in a keyword search are all fighting to appear on the first results page, which requires paying for expensive AdSense/Adwords campaigns to improve their rankings; these payments amount to more than \$50 billion per year.
2. Those who control this single point of access find themselves in the position of traffic directors, operating in an opaque way with collected data. Against this background, many businesses simply cannot compete.

We propose local community-driven advertisement through the Localflow chatbot network. Users can find content in a conversational way, with the following advantages:

1. Actors are not crowded around a keyword because bots guide the user to the target through a rich and effective conversational flow, where information can be retrieved, even partially, in subsequent questions and answers using Random Access Navigation (R.A.N Section-5.1).
2. This kind of information search is more precise than a global search on internet pages because the bot is directly connected to business databases, and it can retrieve granular structured data as the user conversations provide all necessary parameters to accomplish the search.
3. Items and businesses are geographically prefiltered in every local area.
4. Influencers can share any content with the communities in a certain area. Both they and the community members themselves are rewarded (see the token circulation models in Section-6).

3 Localflow Objectives

Localflow provides a decentralized enhancement of personal micro-services, businesses and communities which stand for the specific economies of our cities and regional areas.

This enhancement is built on the following ecosystem:

- The EWA token which is an ERC223 standard utility token on the Ethereum blockchain that
 - can be used by businesses and private service providers to publish and promote their offers on the Localflow inline search engine, namely Ewa, the Localflow platform’s AI-powered assistant (Appendix B);
 - can be used by people to receive event tickets and any service provided by other users and businesses;
 - can be used to access bot modules in the bot platform. For all the former exchanges see the token model in Section-6.
- The Collective AI Engine and ChatBot Platform is delivered as open-source, built and maintained by the core team and the community developers in cooperation with the experience of retailers from several supply chains.
- Businesses, retailers, and private individuals assemble their own modular bots from the component collection of the platform and can allocate EWA from their wallets to better rank their bots and related information in the local search index.
- Developers and data analysts are rewarded with EWA for publishing new bot components, enhancing language translations, maintaining the hybrid human-artificial intelligence engine, the Natural Language Processing module and any other contribution to the project.
- Community influencers are rewarded with EWA for reaching out to additional people for the Localflow and for motivating local businesses to build and deploy specific bots, promote them within interesting chat groups, and for sponsoring the Localflow ecosystem in other networks.
- Anyone is rewarded with EWA for creating meet-ups and high-quality social activities.

The circulation of the EWA token will be driven by businesses which use it for advertisement and the listing of products and offers, by influencers who get EWA tokens when they are active in community groups, and by customers and users who get EWA tokens when looking at promotional content and re-using EWA to receive goods or services.

Small businesses cannot afford the high-tech AI development themselves, maintain complex machine learning datasets, NLP API integrations, and RAN flows. Most of the time they are relying on big global companies that group all those technologies together in a centralized service that tends to relegate

businesses and people into little “consumer cages”.

Localflow players, by contrast, can take advantage of the very same technology mix to build their disruptive chatbots in minutes, to accelerate their activities while enforcing their privacy and governance, and to nimbly stay in touch with market trends.

4 Use cases

Many tasks like reservations, order processing, delivery management, supply chain automatic provisioning, stock management, promotion, and the sale of personal goods and services can be delegated to Localflow AI chatbots.

4.1 Personal services (e.g. a home tailor)

Angela is a home tailor and has come up with a new jacket design. She takes some photos of her product and uploads them to the Localflow platform. “AngelaTailorBot” is created and deployed in a click, and her jackets can be found and sold in the mainstream chats.

4.2 Local community search (e.g. linear algebra teachers)

Linus wants to boost his linear algebra knowledge. He searches for skilled students in his area through the local search and gets to know the personal AI chatbot created by Jenny. He can now subscribe to her calendar for classes on demand and pay as agreed.

4.3 Group reservation and rental

There are some nice soccer fields in Berlin, and Tim wants to reserve one for two hours while extending an invitation for a soccer match to nine random members of his community. He does not have the time to organize the meet-up, and thus delegates the whole project to “BerlinSoccerFieldBot”. This bot asks the communities about their interest in participating, collects partial payments, and makes the reservation. It refunds everyone in case the minimum number of players is not reached.

4.4 Food delivery

Luca runs a kebab/pizza shop. He created his “RomeKingPizzaBot” in a minute on the Localflow platform, and now he can list his products in the city chat groups and communities, receive clean orders with location, automatically manage deliverers, receive flash payments in IOTA and fiat.

4.5 Stock provisioning

Elisabeth runs a catering service. She built “LizStockBot” for her activity stock to be automatically provisioned: items and ingredients are always ready for the upcoming catering orders as her chatbot monitors low thresholds and places

refill orders for items needed.

All latencies and interruptions due to task switching, typically experienced by small and medium sized businesses and busy people, are managed with unparalleled benefits for the local networking, which is looked after, fed and developed. Bot owners can monitor their data, consciously share them being rewarded for this, and set sustainable promotional rewarding targets for the ecosystem where they are actively engaged in.

Many other use cases are under scrutiny, we are still thinking about them, but we are confident that the collective imagination can build many microservices and modules that are beyond our inventiveness.

The platform will reward with EWA tokens any new use conceived and code writing, if this will provide solid gain to the network.

5 Technology coupling

5.1 Collective AI, NLP and RAN

Localflow datasets are pre-trained with the expertise of currently roughly 200 local businesses (mainly in north Italy), which are early adopters of the prototype, and of the early-stage contributors. On top of the open pre-trained dataset, businesses can add more sentences to describe their niche and their catalogues with structured products that enforce a Random Access Navigation over a classic conversational flow.

5.2 Ethereum smart-contracts

Ethereum is an open source, blockchain-based, distributed computing platform with smart contracts for decentralized relevant applications. In Localflow, the content advertisement and the community rewarding is based on the Ethereum smart contracts so that any local economy actor (business owners, influencers and users) can continuously give and extract value while promoting new contents, networking in a robust and deterministic way, without the need and the cost of a trusted intermediary (see the token model in Section-6).

5.3 IOTA tangle: zero-fee transactions, MAM and flash channels

IOTA, with its Direct Acyclic Graph proposition named the tangle [7], overcomes the Ethereum scalability limits while enabling zero-fee transactions. Even more speed in transaction validation can be reached via the flash channels [8] which we have tested and found to be a very good choice, especially for chatbots created for the recurrent supply chain provisioning. Masked Authenticated Messaging (MAM) [11] is used as the message dispatching mechanism for any chatbots delivered as an app (not connected to the mainstream platforms). MAM enables nodes to exchange data through the tangle, fully authenticated and encrypted. This means that the devices can easily transmit valuable and sensitive data with quantum-proof security.

5.4 Wallets

Businesses can activate two direct payment gateways, IOTA and fiat (via credit card). At the other end, chatbot users can access their wallet via chatbot opting for paying for goods and services, choosing one of the two preferred currencies. They can also redeem discounts using EWA tokens. IOTA can also be bought via credit cards through the bot wallet itself at the current exchange rate. An IOTA-based zero-fee exchange is integrated behind the scenes to convert currencies (fiat to IOTA and EWA) back and forth during any payments of goods and services. IOTA indeed is the preferred payment method integrated in the Localflow chatbots for its speed and zero fees, while the EWA is for anything related to rewarding and lazy smart contract transactions (see the token model in Section-6). In the future, Raiden Network can provide a solution to the scalability of Ethereum transactions [9][10].

5.5 Decentralized deployment

The platform includes a DevOps API allowing to deploy the chatbot to specific servers, containers or cloud application platform accounts. Anyone connecting other server farms at platform scale not only to host their chatbot is rewarded with EWA tokens, proportionally to the routed traffic. This framework has several advantages, notably:

- Anyone can keep their access to the distributed ledgers private. Blockchain private keys and IOTA seeds can be stored in the machine they prefer.
- There is no single point of failure for a chatbot, as the service is redundant in a network basis.

5.6 Decentralized search

A local search feature is implemented through the Ewa assistant. As chatbots are networking through the IOTA MAM, they can spread users' search requests in their local area, returning back to the user the pertinent chatbot list containing the relevant searched items. The "local-search package" has a timestamp and geolocation. Therefore,

- only chatbots in the users' local area open the package and use the search string for data retrieval, the others ignore it; and
- the package has a finite rebroadcast interval in the network before being definitely purged.

6 Token Model

In Localflow, the cryptocurrency represents the value of real life activities and the exchanges with local businesses for local products and services: value circulates back and forth between users, influencers, event organizers and business owners, who are all involved as stakeholders in the *local flows* they participate in. This circulating value is the EWA token (an ERC223 token), used to redeem discounts while accessing high-quality events, venues, and services in a given local area.

All the examples of user applications described in chapter 3 can be reduced to four basic types of EWA circulations:

- Business-to-community circulation: business owners sharing promotional content with potential customers.
- Multi-reservation circulation: services and goods for groups.
- Social activity circulation: attending events.
- Bot platform circulation: plugging in new components and sharing data.

Note: in the following token models, the fee component X_e is what a Localflow node keeps to run the smart contract transactions (Ethereum gas + business fee).

6.1 Business to community circulation

This circulation is all about the advertisement dividend split. The business owner sends an amount (X_b EWA) to top up his wallet and to publish products or services. That amount initially stays in a locked state. Users can get to know all those business promotional contents thanks to the Localflow AI-powered assistant Ewa. As long as a user browses contents privately, the amount X_b stays locked, and the user can reserve those contents at any time via the assistant, using fiat or IOTA (with discounts in EWA) as described in the previous section.

As soon as a user shares business content in a chat group (a community) or with another user, the flow of payment unlocks. Let X_b be the amount of EWA the business wants to invest per unit of shared content:

- Part of the X_b amount, X_i , goes to the user who shared the content. We call this user an influencer.
- Part of the X_b amount, X_e , is kept by the Localflow chatbot. This is the Ethereum gas with some overhead, decided by the host.
- The remaining amount, $X_c = X_b - X_i - X_e$, goes to the users in the chat group where the content has been shared.

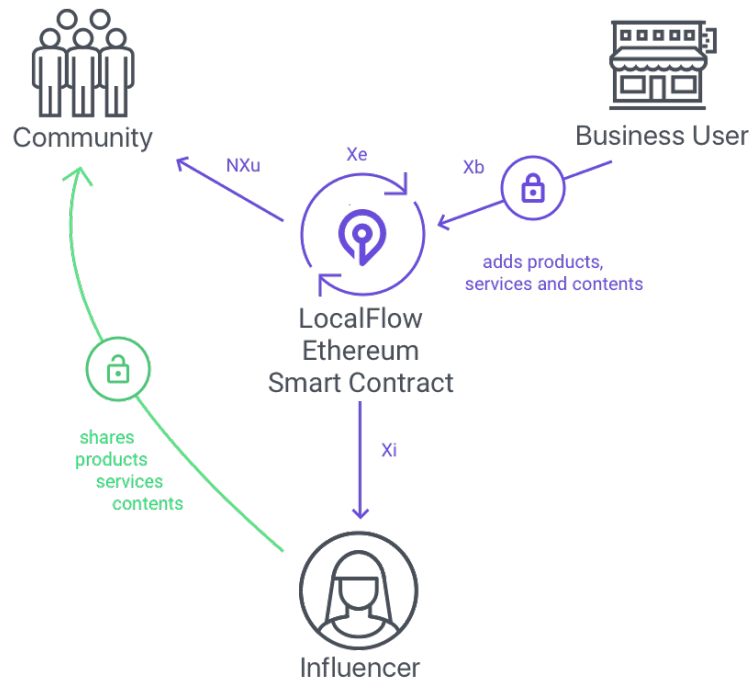


Figure 1: EWA, Business to community.

Some observations:

- Users receiving content from influencers, in a private chat or a chat group, gain an amount X_u .
- The larger the community (target chat group) to which content is shared, the broader the advertisement and the higher the cost for the business ($X_c = NX_u$, where N the number of users in the community), but the business owner can set a ceiling not to be exceeded at each sharing action.
- As long as content is shared, X_b decays, but the business owner can refill his wallet at any time.
- When users are accessing products or services from a business through Localflow, they can use fiat, IOTA, or both. They can also use EWA in their wallet to get a discount on the fiat or IOTA prices.
- Contents provided by businesses and private services are strongly coupled with influencers and the communities where they cooperate: if there's no interest from a particular community to access some business contents, products or services, EWAs will be progressively not flowing anymore from that business to that particular community and their influencers. This is governed by a decay curve, whose shape will be tuned down the line and according to the specific identity of any local areas.

6.2 Multi-reservation circulation

Each user of a pool sends her/his amount to reserve a good or service from a business. Each part X_u EWA stays in a locked state, and when the minimum number of participants is met or the target price is reached, the smart contract unlocks the payments: a fraction X_e is kept for Localflow, the remainder $NX_u - X_e$ is transferred to the business owner.

If the good or service was shared by a user, let's call her influencer, she would get the fraction X_i , and so the business owner would get $X_b = NX_u - X_e - X_i$.

The case of a single user accessing Localflow to discover and receive local goods, is a particular case of this circulation, with $N = 1$.

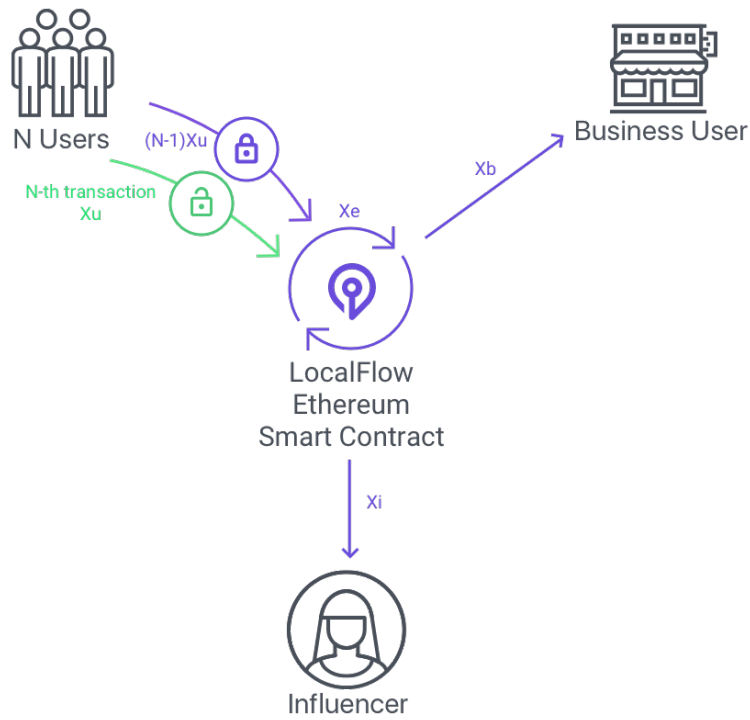


Figure 2: EWA, Multi-reservation.

6.3 Social Activities

In this framework, both users and business owners can launch events in open air, clubs or private properties, and have them publicly listed in the Localflow system. These social activities are searchable through the Localflow's Ewa assistant just as products and services are, but the sharing action doesn't drain any EWA. When a user reserves the electronic ticket for the event, the amount X_t

is in a locked state until she arrives at the venue. Once she has arrived, the flow of payments is unlocked via GPS/beacon: a fraction X_e is kept by Localflow, a fraction X_i goes to the influencer, and the remainder goes to the organizer (X_o) and his partners (X_{b1}, X_{b2}, X_{b3}).

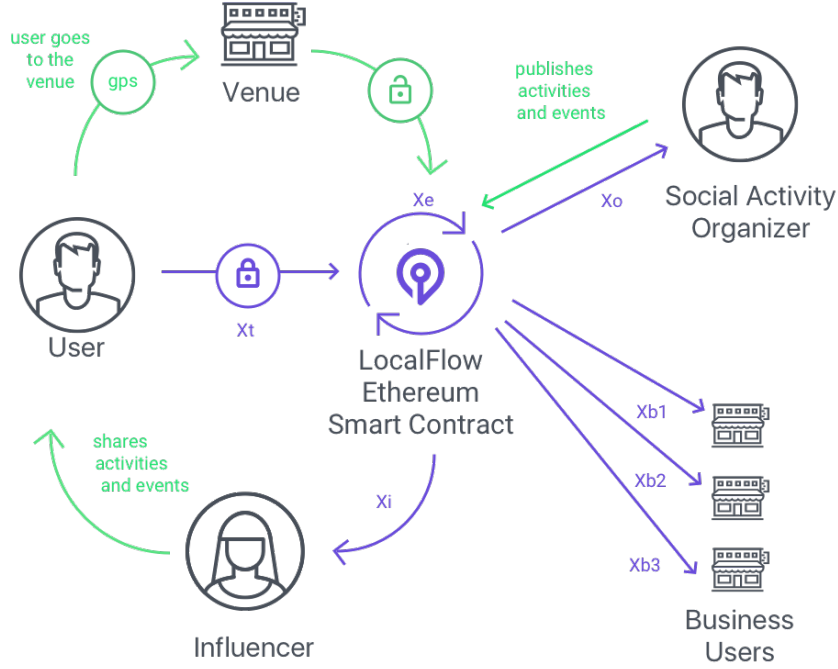


Figure 3: EWA, Social activities.

The last circulation scheme, including all the actors' interactions, shows how and why Localflow smart contracts facilitate the real local economy and the cohesiveness of all the actors.

As the price of ticket X_t can be split and divided among many businesses who brought their goods and services to the venue, the businesses are encouraged to get to know potential events in advance and to become aware of the organizers and the best influencers in their area. Their purpose of being where the social life really happens is to gather more EWAs and sell more goods and services. In this framework, they also enforce the launch and promotion of new quality events and can develop new forms of venues across the territory. This involvement factor is valid also for users, who, while searching for the best social events to attend, are rewarded with EWAs when looking at sponsored content passing through their chat groups. They are rewarded even more if they share those relevant contents with other groups, which makes them become influencers.

As a whole, Localflow stakeholders contribute to the development of their local community, market and consciousness, and this is an asset that can snowball as long as people become aware of the benefits of a trustworthy decentralized system. By contrast, mobile global services such as Booking, Deliveroo, Just-Eat, Airbnb, Uber and many others have a local area impact [12] but the cash flows to single revenue centers globally, taking away considerable resources from local areas (see Section-9.2).

6.4 Chatbot platform rewarding

When business owners and private users build their chatbots by assembling modules and templates, they reward authors with EWA, IOTA or fiat. These modules are published within the open source collaborative platform; fraction X_b is delivered to the development community).

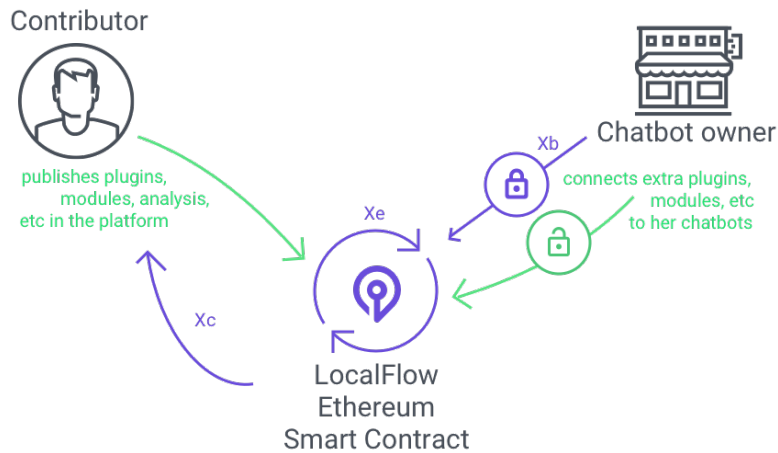


Figure 4: EWA, Chatbot platform rewarding.

7 Token Launch

7.1 Dutch auction

To avoid blockchain congestion during the token launch, and to allow the greatest number of interested people to participate, Localflow will adopt a uniform price dutch auction with a fixed amount of tokens to be sold, 50 million EWA (50% of total supply).

This format is chosen to find the market price for a fixed amount of EWA tokens: starting with a very high price which continuously declines with every block over time. This mechanism eliminates the need to rush into buying as participants get tokens for the same final price independent of the time of their bid.

The token launch will take place in between the second and third quarter 2018.

7.2 Distribution

- 30% will be allocated to the Localflow team
- 50% will be allocated for the token launch event
- 20% will be allocated to beta-testers, early-adopters and developers who supported the project during the MVP building phase and who continue building value around the project. Moreover, advisors, investors and partners.

A soft cap of \$1 million is set, and if it is not reached by the token launch event, every participant will be refunded. Team effort and business development is budgeted at \$20 million over two years.

As we aim at disrupting locally and thus intend to accelerate the adoption of cryptocurrencies among citizens in their real life, we are facing the challenge to convince the economic and political establishment of new ways of doing business. The associated efforts will use approx. 35% of the budget for legal fees and business development (see related rows in Table-1).

7.3 Budget allocation

The budget allocation over two years is shown in the table below.

Table 1: Allocation breakdown.

	1Q 2018	2Q 2018	3Q 2018	4Q 2018
Software Dev	45%	45%	30%	30%
Research	25%	15%	5%	5%
Marketing	0%	10%	25%	30%
Legal	30%	15%	10%	5%
Business Dev	0%	15%	30%	30%

8 Roadmap

The development efforts in the first 18 months after the token launch will include:

- AI local economy engine:
 - study of real economy collected datasets from early adopters and retailers,
 - deep learning models and algorithm tuning,
 - hybrid human-AI engine

- Bot creation platform
 - infrastructure, models, open collaborative interface
 - open module and template management
- Ewa local assistant
 - MAM-based local search
- EWA rewarding system
 - smart contracts for the token circulation
- Wallets
 - third party integrated Exchange
 - IOTA, EWA conversion layer
 - IOTA, EWA, fiat wallets
- Payment gateways
 - API for third party services
 - hooks for third party chatbot frameworks and services
- Decentralized deployment framework

9 Business landscape

9.1 Competition in chatbot platform

- Chatfuel.com: one of the first intuitive graphical platforms to create chatbots, strongly centralized.
- Recast.ai: a centralized collective AI platform to build, train, deploy, and monitor bots. It is focused on integrators and developers. It does not give rewarding for its users providing their data, nor does it provide an open framework to share templates or plug-ins.
- Miniapps.pro: is a blockchain-powered platform for bot building and SMS/USSD services, adopting a token model to reward developers for their work. They are focused on attracting developers and businesses, not on fostering a decentralized cooperation between small and medium sized enterprises and the development community. They don't provide zero-fee wallets for payments on their platform.

9.2 Competition in services with local impact

All global giants with local impact such as AirBnb, BlaBlaCar, JustEat, Uber, Deliveroo, Booking, Amazon, Facebook, etc., extract value from local communities. They centralize technology and earnings, and progressively impoverish local economies. They have no independent developers or broad community governance, and they don't reward users, who don't have power over the technology they use.

Google Maps is another local impact service that has enormous advantages on global store search. But it is not community-driven, does not reward users, and is centralized. In the EU, the antitrust commission prevents Google from performing local search implementation.

The table below highlights the fees of some centralized competitors with local impact. Roughly 15 to 20% of the transaction fees are taken away from locals by the tech giants.

Table 2: Transaction fees of some tech giant services.

Food delivery	Deliveroo 15%	JustEat 12-20%
Transport	Uber 25%	BlaBlaCar 10-20%
Room reservation	Booking 15-35%	AirBnB 6-12%

9.3 Competitive advantage

Table-3 shows a comparison between the current landscape and the Localflow ecosystem.

Table 3: Present landscape and Localflow comparison.

Present landscape	localflow ecosystem
Chatbot platforms	
Centralized Global oriented No sharing/rewarding support	Open/Decentralized deployment Local oriented Contributors are rewarded
Services with local impact	
Centralized High fees User attention not valued / exploited Visual apps Static search Data are violated (opaque usage) Fiat payments with high fees	Decentralized Near-zero fees User rewarded for attention Rich conversational AI bots Rich search made on services Data are transparently shared (privacy protection) Fiat-to-crypto conversational wallets

10 Team

The core team encompasses a broad mix of collaborators in engineering, AI, design, business development, and advisory of the crypto sphere:

- **Enrico Fusto**, Founder and CEO, educated at the University of Padua and UPC of Barcelona, is a developer and entrepreneur. He has been collaborating on several startups and spent the last three years investigating the search domain applied to chatbots and the crypto world.

- **Samuele Maran**, Co-founder and CFO, is a blockchain crypto enthusiast, visionary, trader and entrepreneur. He has spent the last five years investigating the potential applications of new technologies related to cryptocurrencies. He is the founder of BitBoost, the decentralized e-commerce platform.
- **Thomas Agnoli**, Co-founder and COO, is studying at the Medical School at Padua University (Italy). With the dream to become a neuro-social scientist he has the vision to build a more healthy world.
- **Andrea Belvedere**, Press and Communications Manager, is a blockchain expert and popularizer as well as the founder of Bitconio.net. He has been working for several years as a freelancer on the IBM Storage and Security domain.
- **Michele De Battista** is an eclectic front-end developer and web designer, with an economic background. He is specialized in design driven innovation and design thinking.
- **Sascha Radatz**, Fullstack developer, chatbot builder and IOTA enthusiast, has several years experience in releasing solid applications in Angular.JS and Node.JS for the web and conversational bots for Telegram.
- **Nicola Iannelli** is a Fullstack and Ethereum developer. His long IT career started when he was 19 years old, and he has been collaborating with several startups of the crypto sphere such as Oraclize.
- **Andrea Battaglia**, Community Manager, is studying at the Medical School at Padua University (Italy). His thesis is about Robotic-assisted Laparoscopic Radical Prostatectomy (RALP). He began his adventure in the world of crypto currencies four years ago becoming a seller on BitBoat Ltd.

The advisory board consists of:

- **Yessin Schiegg**, financial, legal and regulatory expert, has served as an advisor to the Ethereum Foundation and Status.im. Based in Switzerland, he possesses a broad network in the crypto ecosystem. Previously working at Blackrock, he is the CFO of Alpha Associates AG, an independent Private Equity manager.
- **Jacopo Tagliabue**, Founder of Tooso.ai, is an expert of deep learning and AI. Educated in several acronyms across the globe (UNISR, SFI, MIT), he is spending most of his time on natural language processing and data science for Artificial Intelligence companies.
- **Stefano Della Valle**, is an IOT and networks protocols expert and IOTA enthusiast. He has a strong foundation in telecommunications and is executive VP of iNebula.
- **Daniel Dubois**, is a business expert in semantic search engine and chatbots applied to connected commerce. He has a 15 years track record in competitive intelligence, marketing strategy, B2B sales and software project management.

Appendices

Appendix A App retention curves

In Figure-5 the percentage of active users for apps is plotted versus time, grouped per app popularity.

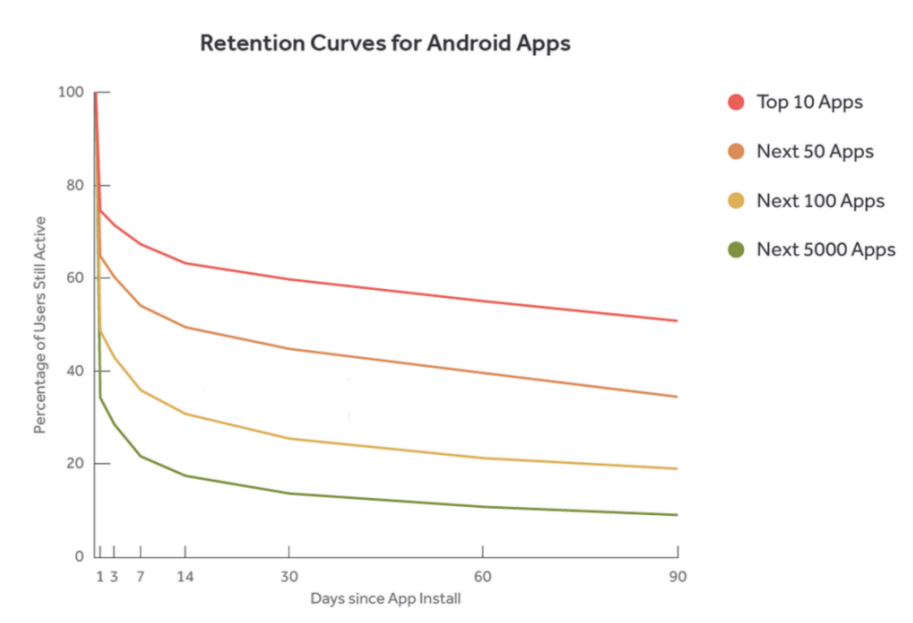


Figure 5: Retention curves for android apps (source Quettra, mobile intelligence).

Over 60 percent of notifications come from social chat messages. Mobilesquared [13] analyzed business and consumer trends in mobile messaging in the UK. Between 2013 and 2017, with a CAGR (Compound Annual Growth Rate) of 20%, ahead of apps (16%), and social media (8%), and that by 2017, mobile messaging overtake email in popularity as a marketing channel (84% vs 72%) and that email marketing will exhibit a negative growth rate (declining from 87% to 72%).

Mobile messengers such as Facebook Messenger, Telegram, WhatsApp, WeChat and other have become the preferred means of communication on mobile devices. WhatsApp has reached more than a billion of monthly active users, Facebook Messenger 900 million, WeChat almost 700 million, Telegram around 100 million (source: statista.com) [14].

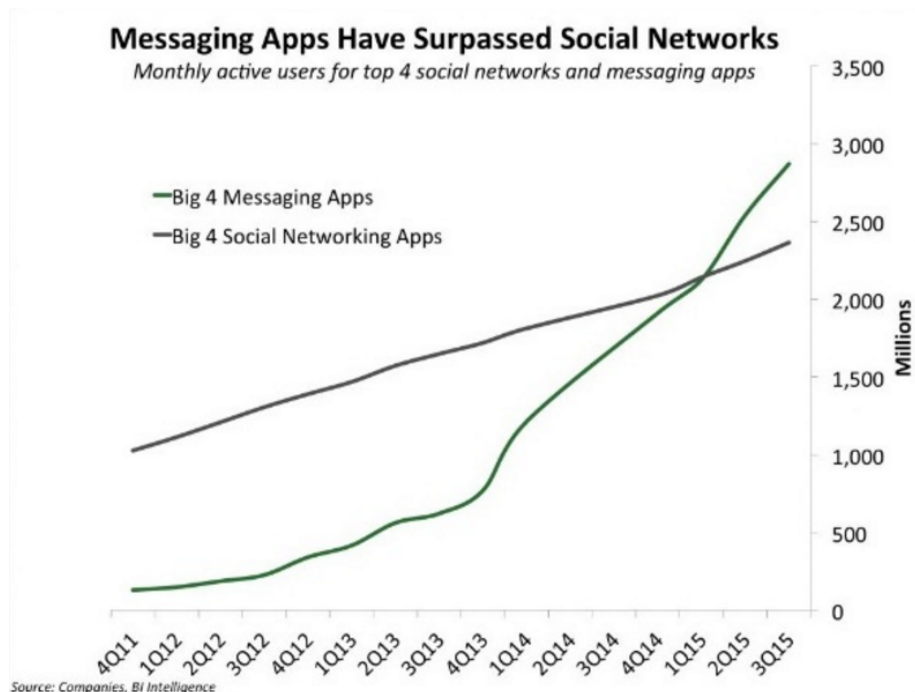


Figure 6: Messaging apps take over social networks (source BI Intelligence).

Appendix B Ewa assistant

Ewa is the Localflow platform’s AI-powered assistant, built with the main goal of optimizing people’s time while they are looking for local services and goods, bringing their attention back to real life, as soon as they have found what they need.

To do so, Ewa is deeply connected to local communities and is reachable from any mainstream chat platform and voice device.

Ewa communicates with the other chatbots connected to the Localflow network, and redirects users to the right one according to their searches, questions and conversations.

Ewa is programmed to always remember that humans have got a material body with a defined time and space. The main point in Ewa’s AI ethics is to provide a way for businesses and people to save time, answering in a precise and quick way, and connecting people to their surrounding environment.

The high level of consciousness that is made possible by flow states can be in place only if attention is protected by a communication technology that does not want to interrupt users as much as possible. In contrast, it has the ethical goal to serve them rapidly and not exploit their time. In addition, Ewa must

not continuously feed them with unwanted information, but simply serve specific tasks at the moment they are asked for.

By changing the incentives, we can change the world.

The Ewa AI assistant is part of the broader Localflow project.

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