Opolis: The Employment Commons

A NEXT GENERATION EMPLOYMENT ECOSYSTEM FOR THE SELF SOVEREIGN WORKER

In the current epoch of technology, thousands of Human Resource technology (HR tech) companies compete for users with creative marketing, aggressive sales tactics and grand (often overstated) promises. High fragmentation of tools and services, user dissatisfaction and massive inefficiencies are byproducts of the current architecture. Workers searching for new work opportunities feel stuck and beholden to roles in which 69% of them are disengaged while employers are overwhelmed with regulatory burdens, increasing risks and accelerating costs of employment. With increasing desire for expanded velocity and fluidity of work, the obsolescence of the current top-down organizational model (corporation-based employment) is standing in the way of accommodating modern market needs.

Opolis is a new employment framework which better aligns the incentives of ecosystem players in a sustainable, user driven, network-based public utility infrastructure. Opolis employs a for-profit model which shares value creation and encourages contributors to collaborate for the long-game. Based on principles proposed by Elinor Ostrom in *Governing the Commons*, we call the totality of this Opolis ecosystem, The Employment Commons.

Opolis was founded on the belief that the future of work is increasingly dynamic and that existing HR tech systems and infrastructures are ill-equipped to prosper in this new reality. This reality offers opportunity for individuals and organizations to not only survive, but thrive in a decentralized paradigm. Opolis is building the technological and legal framework for the self-sovereign worker. Decentralized Employment Organizations (DEOs) will allow for sustainable mutuality between employer (service consumer) and employee (service provider).

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History

Due to the acceleration of the Industrial Revolution and following the Great Depression and World War II, employment dynamics were commonly engineered to retain workers for long periods, oftentimes for the span of an entire career. Pensions (and other perks) were used as incentives for employees to stay working for, and ultimately retire with, a company. For decades, it was common, almost standard, to see individuals sell their skills, time and attention to a single employer for 20-30+ years. Loyalty was perceived to be of the utmost mutual value. Workers in these generations who were impacted by a societal scarcity mindset highly valued safety and security; corporations were happy to oblige. The organizing framework that has supported this social contract between employer and employee has been left relatively unchanged since the early 1900s. In modern times, the social contract itself, however, has shifted away from loyalty as a core belief almost entirely.

For younger labor generations (X,Y,Z), loyalty is much less significant as a core value. They've witnessed their parents and grandparents be laid off from jobs which had held loyalty as a core feature. They've also seen companies fail, causing families and friends to lose their pensions or other vital benefits. This has brought a significant amount of distrust to the relationship between employers and employees. In fact, at this point in time, loyalty seems to be perceived as a nice-to-have, but not expected/required, benefit by these cohorts. These labor pools also place more value on perceived social good than profit seeking motives of corporations. Today, corporations seek optimization of labor costs while younger employees value freedom and flexibility.

This movement by workers toward freedom and flexibility has been steady. It is estimated that in 2018, 36% of U.S. workers were participating in the gig economy, which equates to 57 million people. It is expected that by 2025, 50% of the overall labor force in the U.S. will participate in freelance/gig work, while 84% of millennials and 81% of Generation Z have already reported they are currently considering joining the gig economy. The challenge for workers is that today's outdated employment architecture is designed for the safety, security and retention of a bygone era. While gig work provides freedom and flexibility for workers, they are not likely to maximize their participation in the gig economy without the underpinnings of safety and security provided by "traditional employment." Such underpinnings include: fluidity of opportunities (jobs), affordable healthcare insurance, access to quality retirement plans, insurance, administrative support services, legal support, tax compliance and more.

Challenges of the Current Industry Architecture

Asymmetry of Power & Decision Making

Corporation-based employment is based on centralized, or top-down decision making. This model suffers from a paradigm termed in political science and economics as the principal-agent problem, which occurs when an agent makes decisions on behalf of, or impacting a principal. This dilemma presents issues of moral hazard, conflicts of interest and asymmetric information, with decisions being made on behalf of the company, rather than what is best for an employee.

In most cases, decisions around employee benefits are made by HR, procurement and/or finance executives. Many factors are taken into consideration when provisioning (if any) benefits (i.e. healthcare, time off, retirement plans, insurance(s), etc.), however, the input of the employees is almost never taken into consideration. This dynamic creates a highly paternalistic relationship between employers and employees. With a shift to freedom and flexibility as worker core values, this dynamic is seen as less desirable, if not unacceptable, by younger workers. Furthermore, if employment is severed, *for any reason*, employees are forced to change benefits or pay significantly more to keep them through programs like COBRA. These changes create significant disruptions for individuals, i.e. being forced to find new primary care physicians, etc. On the flip side, employers are overburdened with risk and legislative compliance mandates, which has made employment risks and costs a top concern of employers across the globe.

The irony of the focus on employer-provided benefits is that there seems to be little correlation between employee productivity and the quality of employer benefits. It is common to see corporations use benefits as a pretense for modern-day loyalty, forcing employees to stay in roles they do not like because the benefits they receive are hard to replace. It is also common to see job applicants decline desirable roles or employees leave quality work due to what they describe as "the poor quality of benefits."

Although the practice of offering fringe benefits as a means of competing for talent has been in existence for well over 100 years, most of these benefits have now become table stakes. Health insurance in the United States is now required to be offered by employers with 50 or more employees by the Affordable Care Act. This requirement has created a controversial and highly political conversation about the nature of healthcare and whose responsibility it is to provide it to individuals, further stressing the need for a new employment framework.

Current Market Solutions

As a means of maintaining agility with respect to managing compliance requirements and/or simplifying administrative tasks, employers turn to many different types of third party outsourcing vehicles. Professional Employment Organizations (PEOs) (e.g. TriNet, Just Works) are commonly used for joint purchasing power with respect to employer benefits, while staffing or recruiting companies (e.g. Robert Half, Adecco) and Employer of Record (EOR) (e.g. TalentWave) services take on the full responsibility for outsourcing the activity of employment in its entirety. Administrator of Record (AORs) (e.g. Gusto) provide similar administrative services to small businesses.

The primary issue with these current industry solutions is that "outsourcing" risk to a third party creates more risk and/or expense, not less. For example, PEOs take a "co-employment" relationship alongside employers. They provide a suite of services to employers which include payroll remittance, compliance, benefits procurement and management, accounting and reporting. In many cases, HR management services are also included. In essence, the PEO is often viewed as a full outsourcing of employment although the employer does maintain legal co-responsibility (EOR) for the employees they outsource to a PEO. With two companies now managing employment risks instead of only the employer doing so, risks and complexities rise. And with perceived risk mitigation comes increased cost.

Staffing and recruiting companies have the potential to marginally decrease employment risk, but doing so can be very expensive for employers *and* employees. Functionally, staffing and recruiting companies provide full outsourcing services of employees. They source talent *and* accept full EOR responsibilities while providing employers with total flexibility over their labor. Due to the business to business (B2B) relationship of these services, employers can scale labor consumption up or down with a single phone call. However, in this category, there is a specific problem that warrants noting for employees. When negotiating prices for services, employers always seek to pay less per hour making it *expensive* for employees, too. Concurrently, the company providing the services wishes to maximize profit (typically 24-40%+ gross profit) per hour worked by the employee. Competition to provide these services is also very high. As such, employers have the ability to compress pricing rather effectively. In the end, employees are left with below market wages and minimal benefits due to this tension. In some cases, employees are offered no benefits whatsoever.

Contrary to the risk outsourcing of an EOR, AORs do not take responsibility for the legal employment of employees. In this arrangement, the employer contracting the service provider maintains full responsibility for the legal employment of employees. It is only a provider for administrative services. This leaves all employment related risks and inflexibility in place for the corporation. Most payroll processing services will fall into this category.

With any of these current market solutions, employers are faced with increasing costs in virtually all areas of employment commerce. Competition, recruitment costs, regulatory expenses, legal research, employee turnover and increased operating expenses create the need for employers to be more efficient with their procurement of services. Employers continue to move significant portions of their workforces to contingent labor pools. Conversation around the HR space suggests that employers are interested in moving more of their employees to contingent arrangements, but lack the frameworks to do so.

Market & Technology Fragmentation

Along with the aforementioned obsolete services solutions, thousands of technology and services companies of all sizes are competing for markets worth up to $30 billion in software and technology spending. These opportunities combined with low barriers to entry have caused massive market fragmentation. While HR and software procurement executives can expect a steady inflow of inquiries attempting to sell software solutions that claim to increase efficiency of hiring or employment management functions, they find it is virtually impossible to evaluate and integrate these systems seamlessly with thousands of point solutions inundating the conversation. Technology/services firms attempting to collaborate with other companies up/down stream in the life cycle who have traditional profit maximization revenue models eventually see the revenue made by collaborators as “lost revenue” for themselves which drives them to move vertically as software providers have more success in gaining revenue share from existing customers than they do finding new ones. This practice has not proven to be successful in solving market fragmentation and is death to collaboration amongst firms. Eventually, market makers who attempt to create a space for the possibility of collaboration (i.e. Customer Relationship Management [CRM] platforms) are abandoned by point solutions firms as a significant channel for revenue due to this broken paradigm.

Opolis - The Employment Commons

Opolis is a technological and legal framework offering a public utility infrastructure for employment; The Employment Commons. There are three components to Opolis which are required for the entirety of the ecosystem to function properly: open source Decentralized Employment Organization (DEO) frameworks, Native Trustee Technology and Markets/API Technology & Services.

The full realization of Opolis will be built through *evolution*, not revolution. While many projects in the blockchain technology and Web3 sector are promoting highly futuristic products and ecosystems, most of these projects, in Opolis' view, will have difficulty achieving user adoption due to User Experience Design (UX) problems and the impracticality of "full decentralization" in complex industries. Current UX systems in place are very complicated for the average user, requiring them to become familiar with entirely new processes and unfamiliar requirements.

Opolis has chosen to take a more pragmatic, evolutionary approach to the decentralization of employment. Opolis' strategy is to build a bridge to the future, not attempt to build a fully decentralized solution from the beginning. In the world of employment, it would be unrealistic, if not impossible to accomplish, given the compliance requirements and complexity of the systems required to incorporate an all-in strategy.

Decentralized Employment Organizations (DEOs)

Decentralized Autonomous Organizations (DAO), which are currently the most prominent example of a decentralized organization, lack legal standing in the analog world of U.S. jurisprudence. From a legal perspective, this is relevant because without a recognized legal status, limited liability protection offered to other legal forms is lacking, thus exposing stakeholders to personal liability. Additionally, if DAOs are construed as general partnerships, token holders may owe a fiduciary duty to each other, which could also potentially result in unlimited personal liability. Also to note, when users earn or receive value from a DAO, there is no corresponding support system in place to address legal and tax compliance. This becomes especially tedious for organizations and employees navigating multi-national requirements.

To address the above, Opolis has pioneered the concept of Decentralized Employment Organizations (DEO), which *combine* established legal and technological frameworks. Verified members will have the freedom to participate in an infinite number of DAOs while only having to be part of one DEO. Members are vetted through employment verification requirements and will be able to operate, with KYC and AML compliance, pseudonymously throughout their entire work cycle.

Individuals will have the ability to move freely from one DEO to another based on their preferences. It is expected that the major determinant factors by which people will organize are social & political beliefs, skill sets and geography. DEOs will self-govern and incorporate changes made based by its membership. If changes are made to a DEO and any member doesn't like the outcome, they will have the ability to opt-out of the DEO and join one that better suits them.

Additionally, services consumers will be able to remit payment inside the Opolis network in total compliance with international payroll regulations. All funds, from DAOs or traditional employment channels, will be funneled into a member's single DEO to simplify management of administrative functions for individuals (like taxes and benefits).

Legal Framework: DEOs as Employment Cooperatives

Traditionally, centralized corporations have been positioned to maximize shareholder value of those who are most often *not* users/customers of their products, platforms or services. This archetype does not align with the goals of a sustainable member-owned, decentralized organization/network. Thus, decentralized organizations must be designed to be resistant to power asymmetries with individual members or groups exercising undue control over its governance. For this reason, Opolis has elected to utilize a cooperative organization (co-op), which, by virtue of its definition, is an autonomous association of persons voluntarily united to meet their common economic, social and cultural needs and aspirations through a jointly owned and democratically controlled enterprise.

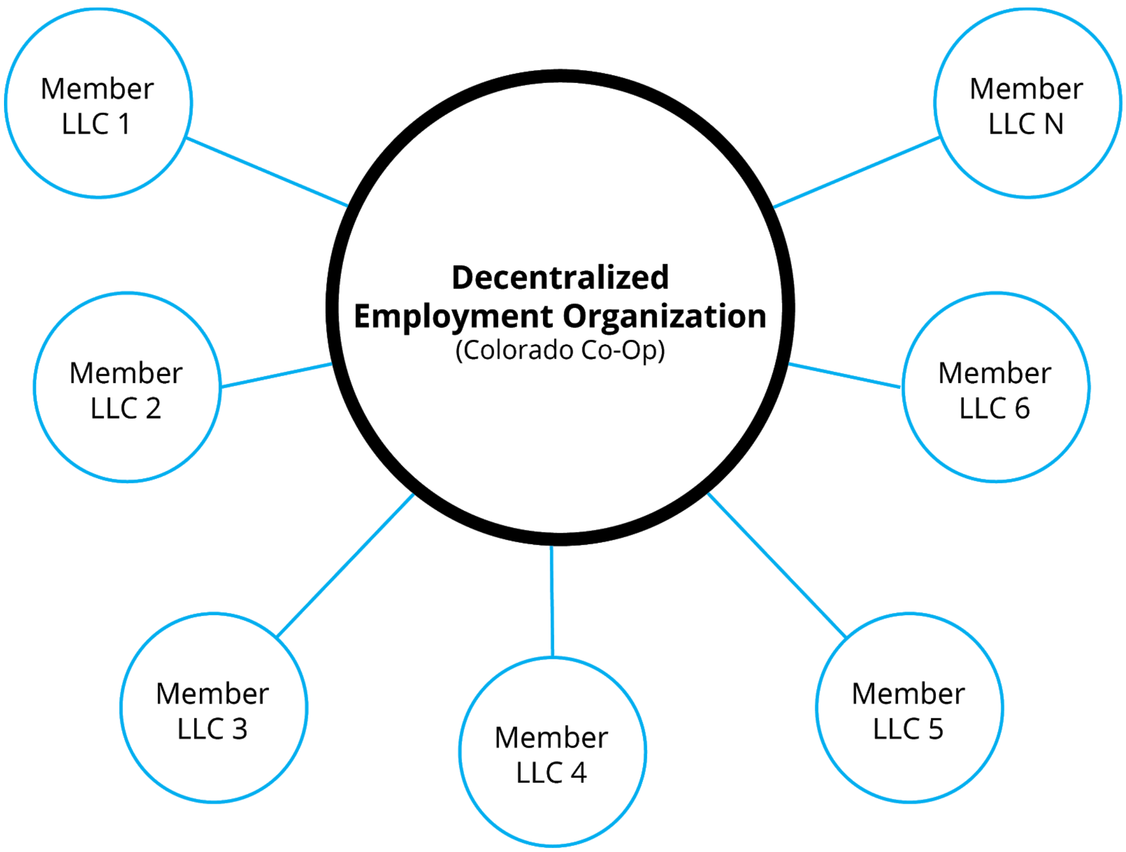


Fig. 1: Member LLCs opt-in to the DEO co-op framework.

Specifically, Opolis is utilizing the flexibility afforded by the Uniform Limited Cooperative Association Act (ULCAA) for its initial DEO prototyping, an Act which has been adopted in variations across a number of states. In 2010, the Colorado version of the ULCAA established the Limited Cooperative Association (LCA), found in C.R.S. Article 58 of Title 7, which is a hybrid statute combining standard cooperative principles with the flexibility of partnership and limited liability company law, thus affording its member patrons with the type of liability protection embraced by traditional corporate forms. As of 2018, under Colorado law, an LCA may also elect to take the form of a public benefit corporation (PBC). LCAs can operate with a pluralistic purpose, for the benefit of its members, to generate a profit as well as to serve the interests of outside stakeholders including outside vendors and investors. Ultimately, LCAs do not set out with the objective of seeking out a liquidity event, rather a return on investment is achieved through sustainable operations and profitability. It should therefore be strikingly clear why cooperatives, as the original social enterprise business model, provide a consummate legal framework to address the inefficiencies of the current centralized corporate design.

Staking & Membership

Each DEO will have configuration capabilities whereby DEO founders can configure membership rules (staking, rules, voting, etc.). Staking can be calibrated to attract certain types of members and create exclusivity or openness. Staking will be done in denominations that are stable (i.e. DAI, USDC) to maintain stability of funds for members given the unknown timeline of staking. Staking may also come with rewards from the DEO depending on how the founders have configured the organization.

Voting & Governance

Voting within a DEO will exist as one member, one vote. DEOs will require that members are verified for employment via the Opolis Trustee acting as an oracle. This will rule out Sybil attacks common in anonymous networks. Opolis will also offer to DEOs integrations with existing Web3 governance protocols like Colony, Aragon and DAOStack for this implementation. As opposed to being prescriptive in governance structure, Opolis will allow for multiple variants for voting participation & governance at scale. To ease members into decision making and to avoid voter apathy, Opolis will initially only configure voting to include proposals about: 1) benefits and features of a member’s DEO 2) constitutional changes 3) changes to the DEO<>Trustee relationship.

The Opolis Trustee

The Opolis Trustee is comprised of two parts: native technology and shared services. Both are crucial to employment compliance and a quality member experience. It is also important to highlight the need for structural and technological benevolence and how the Trustee monetizes to become a sustainable service provider to the network of DEOs it serves.

Native Technology

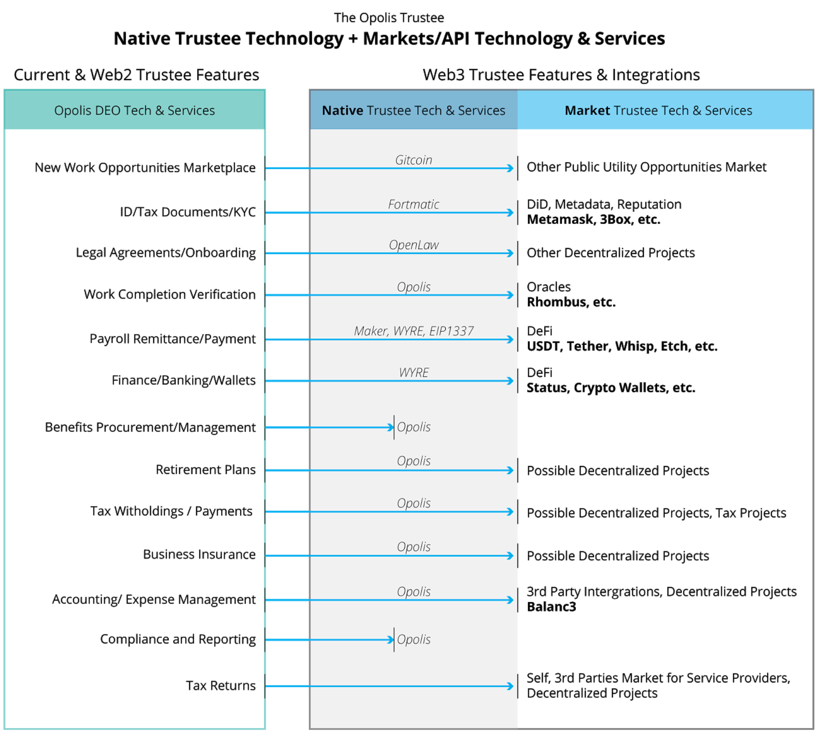
The Opolis Trustee will initially utilize a combination of Web2 and Web3 technologies for its native technology. Over time Opolis will replace as much Web2 technology as possible with Web3 solutions. As part of the native technology stack, key functions are: the Public Utility Opportunities Market, Data Storage, Oracles, Payroll Remittance and Legal Agreements.

The Trustee will ultimately be a tapestry of technology and services. The main goal of the Trustee is to provide sustainable, scalable, low-cost services to DEOs and their members. Opolis will accomplish this through creating a structure that incentivizes collaboration. Technology contributors who participate in the native technological offerings of Opolis will share in the revenue created by the stack. This gives incentives to companies to collaborate and build Opolis with premiere technology.

Fig. 2: The Opolis Trustee will ultimately be a vertically integrated tapestry of technology and services.

The Public Utility Opportunities Market

Outside of the traditional referral by friends, the connection between hiring employers and potential employees exists behind the paywalls of thousands of job boards (i.e. Monster.com, LinkedIn, ZipRecruiter), other third party marketplaces (i.e. Upwork, Fiverr) and recruitment services firms (RPO, Staffing, Recruiting firms). For employees, this has meant their time and attention is spread across multiple platforms with a low probability of being in the right place at the right time to find the "right



opportunity." For employers, it has meant high costs and long hiring cycles with a sub-optimal return on investment. Those in charge of sourcing talent commonly complain about looking for "needles in haystacks" with various platforms or advertising instant results which usually fail to produce the "best-fit" employee. Given this, employers often settle for the "good enough" employees due to time constraints and information fatigue.

With Opolis' Public Utility Opportunities Market, fragmented third-party marketplaces become obsolete. The market is free to use for employers and employees. Furthermore, eliminating the need for any third party listing service, employees can access opportunities independently through DEO membership and employers can create opportunity listings directly targeted at specific DEO talent pools. DEOs will act as "live databases" where people, opportunity and employment live together to create optimum connection efficiencies.

Data Storage & Oracles

In the corporate-centric employment ecosystem, there are restrictions on how sensitive data is stored and what/how employee information can be shared. In the Employment Commons, sensitive employee information will not be stored on-chain but should also remain sovereign to the member. This will occur with the assistance of the Opolis Trustee acting as a custodian of member data with total restrictions on sharing any member data with outside parties.

Opolis will eventually allow the employee to choose when to share employment information and with whom, allowing the employee to have sovereign ownership and control of their information. In time, employees will have a portable employment profile (or sovereign employee file) which may consist of data including but not limited to: education, certifications, employment reputation, work history, skills competency, pay history, tax forms, and other various data points. These pieces of employment metadata will be verified by independent oracle platforms (Web2 and Web3) while allowing members to maintain attestations and decide how/when they want to share sovereign data. It's important to note that whether Opolis develops native oracle services or utilizes other solutions through vertical integration (Streamr, Rhombus, The Graph), oracles used will need to remain as either the source of truth or decentralized data providers in order to prevent attestation corruption or verification of false information.

Payroll Remittance

Opolis payroll remittances and associated payments will be built using EIP1337, a protocol which contains the pending standard for recurring payments on the Ethereum blockchain (subscriptions) coming from the ERC 948 Working Group. Contracts will be written so that employees and employers agree on an opportunity's automated payment amount and this amount is distributed automatically between parties. Attestation on behalf of the employer will be verified via The Opolis Trustee prior to funds distribution via a smart contract.

Streamlining payroll remittance is one of the largest opportunities for efficiency capture of the entire Opolis effort. The current banking system for payroll, especially on the international front, is expensive and obsolete. Replacing it with a cryptocurrency-native system with seamless off-ramps to fiat currencies is of top priority. Opolis is exploring a formal partnership with MakerDAO to bring the DAI token into the ecosystem as its native currency.

In the near term, DEO members will have the option to select which currency, or currencies, they'd like to receive. They'll be able to select a number of fiat currencies as well as have the option to receive up to their entire paycheck in cryptocurrencies (DAI, BTC, ETH, etc.).

Legal Services

Opolis will automate and provide native access to automated smart contract employment and legal agreements using Web3 technology (e.g. OpenLaw). Integrated legal tools will allow members across large networks to seamlessly memorialize relationships, exchange value for services, verify credentials and experience, thus eliminating unnecessary and excessive transaction costs. Further, deterministic code-based rules which can be automatically executed may ensure legal and tax regulatory compliance without the need of current third party outsourcing vehicles such as those mentioned above.

Shared Services

The Opolis Trustee will provide low cost services to DEOs and its members. The entire lifecycle of employment administration will be covered. From compliance, to tax withholding and remittance, reporting, benefits administration and general HR duties, the Trustee will serve to provide a one stop solution for individuals employing themselves. To illustrate this comparison, here is how the Trustee will change standard W2 employment and standard freelance employment regarding various services:

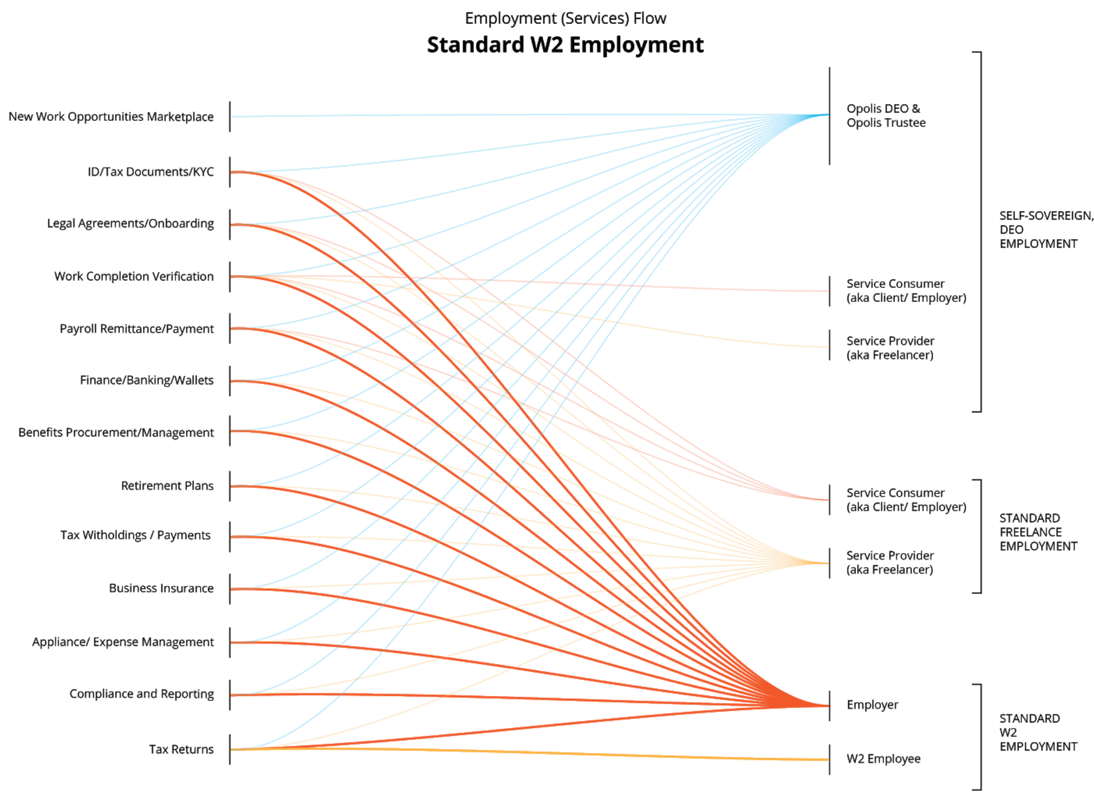


Fig.3: This figure highlights the comparison of standard W2 employment services versus the Opolis Trustee.

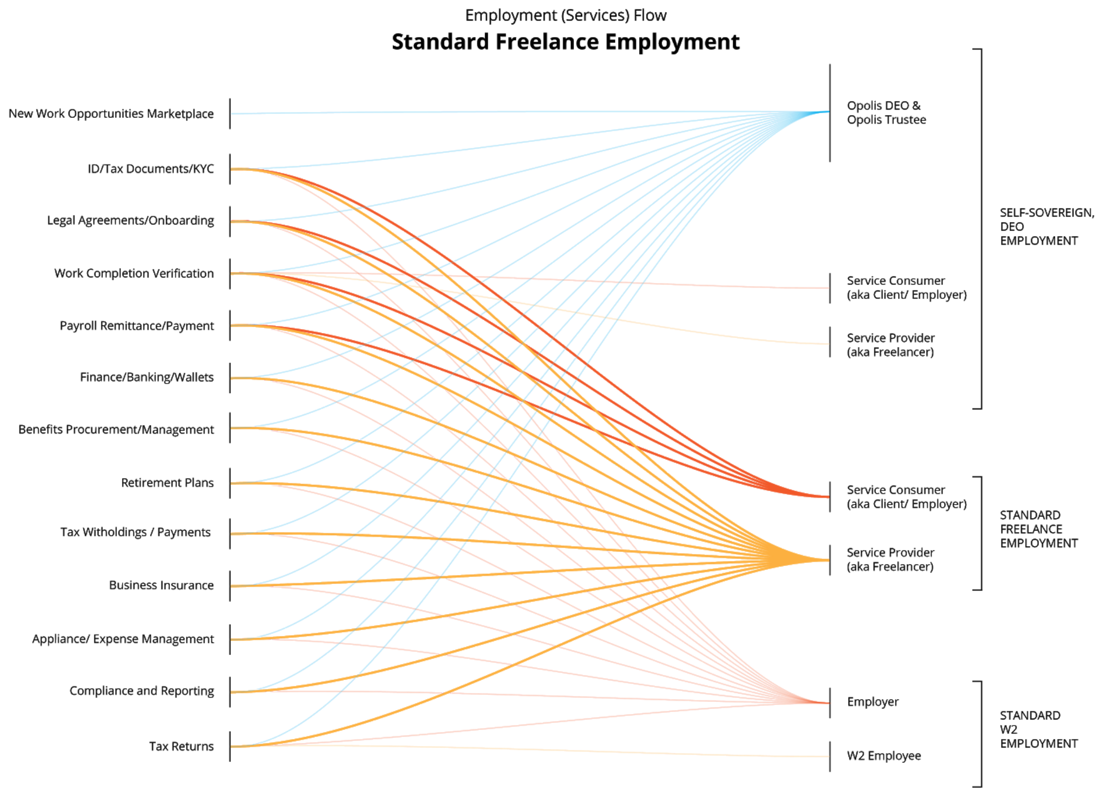


Fig. 4: This figure highlights the comparison of standard freelance employment services versus the Opolis Trustee.

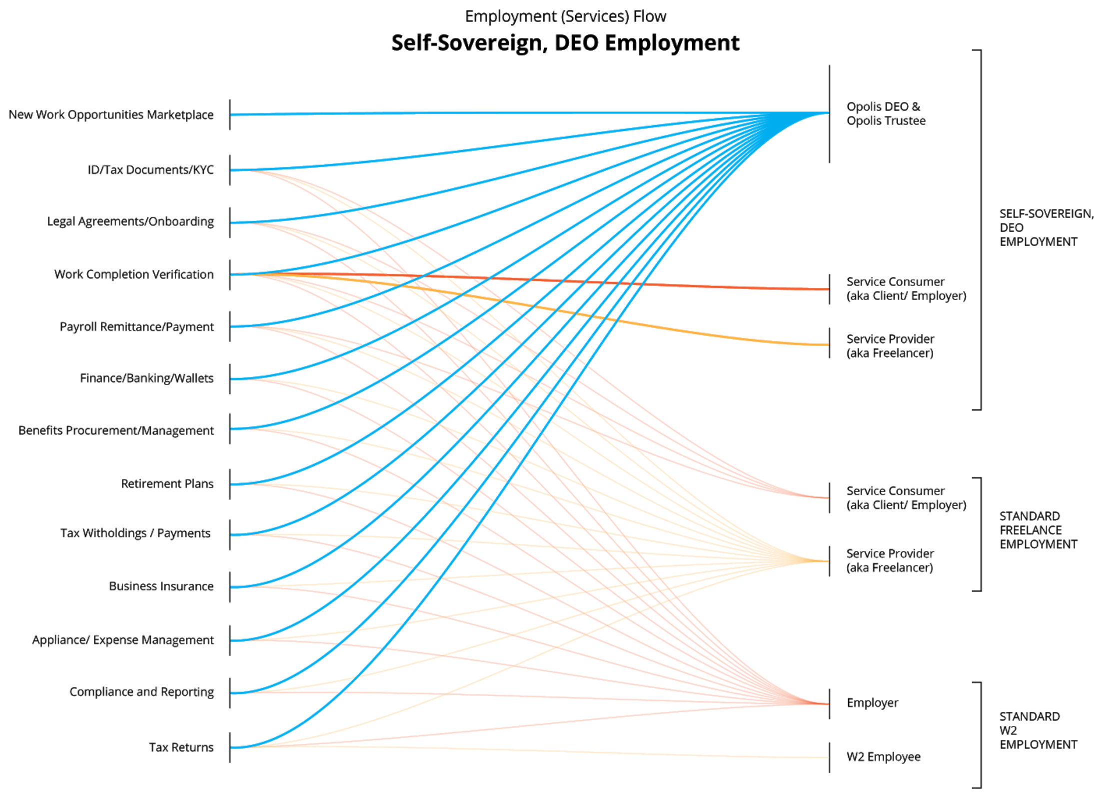


Fig. 5: This figure highlights all of the employment services offered by the Opolis Trustee.

Structural & Technological Benevolence

As a public utility infrastructure for employment, maintaining structural and technological benevolence is a keystone goal for the long-term. The Opolis Trustee will exist in a legal governance framework which allows Opolis' benevolence to be legally protected over time and avoid the "tragedy of the boardroom." When networks scale, an increasing divergence of incentives alignment is observed, which shows the tendency for the network to lose benevolence toward users and collaborators when there is a centralized, exclusively shareholder-focused entity as the market maker.

In order to thwart these risks, the Opolis Trustee must not: 1) compete directly with contributing native technology 2) focus on profit maximization (although profits for sustainability and investor returns are acceptable) 3) become anything other than an end-to-end base layer of employment for members.

Monetization & Sustainability

The Opolis Trustee will charge a percentage of payroll (between 1-3%) costs as a fee for services to individuals who use the Opolis Trustee. The DEO technological and legal frameworks will be open-source and free to use.

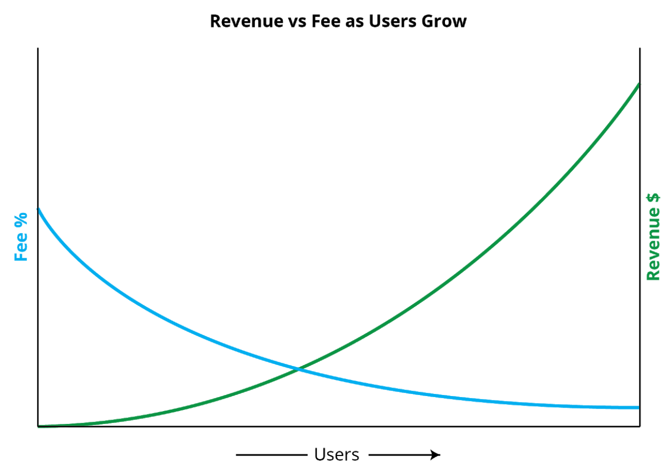


Fig. 6: This graph shows the relationship between incoming revenue versus fee percentage as users grow.

The vertical integration of services reduces the cost individuals would have to pay if they were to source their own benefits and services à la carte on the retail market. Examples of services in the stack include billing, collections, payroll, EOR, benefits management, tax remittances, compliance and tax returns, etc.

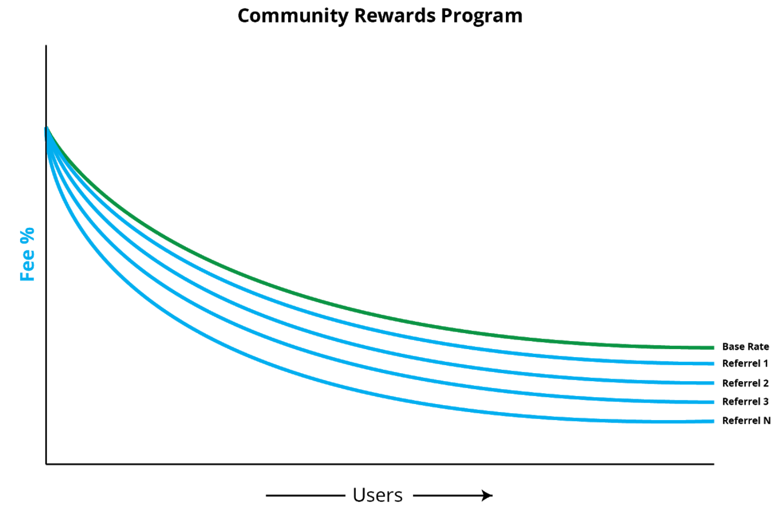


Fig. 7: This graph shows the relationship between required fee percentage as referrals increase.

Opolis also plans to reduce fees to members as total member count and payroll volume grows. This gives a long-term incentive for members to bring new members to the ecosystem.

Markets/API Technology & Services

Opolis is designed as the employment protocol; a base layer of technology and services. With Opolis as a neutral substrate, contributors can integrate functionality into the ecosystem without fear of vertical integration up/downstream cannibalism by the "market maker."

Markets & Add-On Tech

In addition to the native technology of the Opolis Employment Commons, there will be an open Application Programming Interface (API) whereby other dApps/technology providers can offer members "add on" technology or services which members would pay for à la carte. Opolis strongly believes in open markets whereby the members determine what technology wins in the ecosystem. Some of this "add-on" technology in the ecosystem could include: Authentication & Identity, Reputational Systems, DeFi Lending & Insurance, Other DAOs, Prediction Markets, Governance Systems and Trustees.

Authentication & Identity- The Opolis native technology will recognize a member's Ethereum address. Any other identity options, wallets, or exchanges will be added on by DEO members based on an individual or group's identity preferences.

Reputational Systems- Reputational systems will allow employers to differentiate between employees and opportunities while also creating incentives for good performance and skill improvement. Reputational components could include education, skills competency, employment histories, certifications and recommendations. With blockchain based attestations, bad actors gaming the system would be minimized.

DeFi Lending & Insurance- DeFi systems (ie: Dharma) could lend to employees against services invoices, and could be de-risked by a decentralized insurance pool (ie: Etherisc). At scale, employees could choose from a variety of lenders competing with different rates and insurances in the marketplace.

Other DAOs- Members will be able to participate in an infinite number of DAOs while only having to be a part of one DEO. All funds, from DAOs or regular employment channels, can be funneled into a DEO to simplify the administrative expectations for individuals.

Prediction Markets- Prediction markets may be valuable for any number of probabilistic outcomes from determining candidate/job fit to governance outcomes.

Governance Systems- Opolis will offer native governance systems for DEOs. However, Opolis believes that different groups will wish to adopt different governance systems and will allow other systems to interoperate with Opolis' DEO technology. Some DEOs will opt to only be procurement co-ops, some will organize more like unions and still others will experiment with different forms of ownership structures (e.g. digital ESOPs).

Trustees- Overall, it is important to keep in mind that the Opolis Trustee will likely never become *fully* decentralized due to its services nature. As a result, many other trustees may attempt to compete to provide services to DEOs including existing players such as ADP, Paychex, Gusto, TriNet and JustWorks. The advantage for the Opolis Trustee is being the first mover in the crypto/blockchain payroll space, as well as its architecture as a low-cost, benevolent public utility.

Social Implications

Opolis' influence on the way people engage with work, on a global scale, should not be underestimated. Fundamentally restructuring employment has ripple effects reaching into every corner of the commercial sphere. For purposes of this paper, we will highlight only but a few of the possibilities that exist.

United Nations Sustainable Development Goal 8 (UN SDG 8)

The United Nations (U.N.) has a goal to "Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all." Opolis shares this purpose. To realize this, however, requires fundamental shifts in the way labor is organized. DEOs will provide the structural change needed.

As an individual's DEO affiliation becomes one's self-sovereignly owned relationship with the commercial world, employers/corporations no longer "own" employment. Employees become their own "employers" and are free to affiliate with whatever DEO they see fit, and as a by-product of mass adoption, Opolis creates the world's first network-based and fully portable workforce. This ecosystem will provide many socially positive side-effects to which the U.N. cares deeply:

Net Improvement in Human Quality of Life

All people globally are in search of the perfect balance between providing for their families and having time to spend with those they care about. Decoupling the employer/employee paradigm will open infinite possibilities for individuals to *choose* the type of work with which they wish to engage, with whom they wish to work, how much they wish to work and from where they wish to work.

Impact on the Underserved Person

Opolis creates permissionless opportunities for workers. Individuals who have historically been disenfranchised or underserved will not have typical barriers in front of new opportunities. Their self-determined *employment* will be the vehicle by which they find new opportunities and their DEO can act as an additional social support system.

International Labor Markets

As individuals become self-sovereignly employed throughout the world, a borderless employment ecosystem is created, forming an entirely new dynamic for international work opportunities. As individuals will be able to globally access opportunity and democratically choose their work through Opolis, the employer/employee relationship will become unbundled to create new incentives for both parties: Employers will have to be competitive with what they pay internationally and employees will have to deliver value and productivity to stay relevant. This fluidity of work also provides international workers in low-income areas access to productive markets and previously unavailable opportunities.

Public Utility Opportunities Marketplace

Along with creating a portable and borderless workforce, Opolis creates *native* marketplaces of talent on-demand and on-demand opportunities through the Public Utility Opportunities Marketplace. Through a member's DEO membership, employees can constantly explore a pool of opportunities within their DEO. On-demand opportunities will be all-encompassing from tasks to projects to longer-term relationships. Employers can regularly post opportunities targeted to specific DEO pools. Work therefore becomes a fluid model whereby individuals can regularly accept or reject opportunities within a DEO. Instead of being mired in complex employment regulations, business will consume services from other businesses on a much more fluid basis. Accounting precedents already exist for the consumption of international services from foreign corporations so there will not need to be any innovation or updates to current standards. Overall, a borderless workforce has the capacity to engage more people globally from a work perspective, thereby potentially decreasing unemployment rates internationally.

Collective Capitalism

Scaling value for hundreds of years has happened inside the construct of the corporation. Value creation has also been the exclusive right of shareholders of these organizations. The advent of DEOs allows for a method of scaling value; sustainable, distributed networks. At scale, DEOs, which will essentially function as opt-in networks, will share value creation between members, contributors, suppliers, customers and investors. This will allow for a truly multi-dimensional and sustainable value creation infrastructure.

Universal Basic Employment (UBE)

DEOs could choose to offer Universal Basic Employment (UBE) social safety net whereby offering predetermined wages for services to members when they are between work projects. Qualifying members would perform tasks set forth by the DEO and receive compensation for doing so. Members would contribute to this fund through payroll deductions and have rules for distribution based on voting proposals by DEO members.

Universal Basic Income (UBI)

If members wish to structure Universal Basic Income (UBI) within their DEO, they would vote to have a percentage of their periodic payroll deducted and contributed to a DEO-owned UBI fund. Members would also vote on the governance structure of the fund distribution of UBI (i.e. members could decide that any member affiliated within their DEO should have access to UBI funds if they are without employment for greater than one month, or any other length of time voted on by the DEO). Members who do not want to participate in UBI could simply opt-in to a DEO where UBI is not a part of the social program.

Political Systems & Digital Citizenry

At scale, the Employment Commons structured by Opolis allows for an emergent, blended, multi-dimensional social structure whereby individuals would vote on governance structures within their DEO networks. A member's DEO could essentially become their political affiliation through opt-in. Since members opt-in to DEOs and can easily opt-out and switch DEOs, no member would be forced into any particular paradigm. Members could vote to structure their DEO with an emphasis on capitalistic, socialistic, or other structured governance variances pending their own preferences.

This model would allow for people of like mind from across the globe to organize into communities *without* the need for geographically based forced political systems. The fluidity of digital affiliation would give individuals the ability to democratically choose how they wish to organize their political affiliation. At scale, DEOs could be the fundamental structure by which *Opt-In Global DigitalPolitical Systems* advent.

Consortium Investing

DEO membership allows for groups to form consortiums which could invest together based on chosen objectives. By pooling income resources at the base economic protocol, members would develop and vote on group investment strategies within DEOs. They could allocate funds to projects outside or inside of their DEO. They could even collaborate with other DEOs to form super funds for investing.

Cost Savings & Procurement Efficiency

Through one user's DEO membership with other members at the base layer of employment, a network of procurement power develops. At scale, this would mimic the power of corporations. As these economies of scale develop, members will be able to benefit from cost savings and resource efficiency through their DEO membership together. Members may benefit from cost savings and resource efficiency on various services or commodities together since the attitude of a public utility at the employment layer is not competition; it's a service infrastructure.

Concerns

Maintaining Risk Segregation for DEOs & Members

Legal frameworks must be able to segregate members from risk due to bad behavior from other members. Although Opolis believes that utilizing co-ops for procurement purposes will alleviate these concerns, there are still "what if" legal scenarios which could undermine the entire viability of the ecosystem.

Voter Apathy & Governance Participation

Entrepreneurs and freelancers will have experience with making business decisions for themselves. Employees, however, who work for corporations are generally not involved in decision making. This includes making decisions for rather important items like healthcare and retirement planning. There is significant concern that members will not participate in voting/governance should they 1) be presented with too many proposals (overload) 2) be presented with proposals to which they have no preference or see their personal impact (apathy) 3) be presented with proposals that confuse the member (complexity). Proposals must not be complex or too frequent in order for DEOs to function properly and have high voter turnout.

User Experience Design (UX)/User Interface Design (UI)

Private key management and complexity of UX with respect to Web3 technology is a major concern for user adoption. Opolis does expect that the technology will mature in the near(er) term, however, for initial launch, Opolis has chosen not to implement certain features (decentralized identity specifically) until Opolis is able to abstract complex activities away from members completely. Opolis is exploring a partnership with Fortmatic to do just this.

Security & Privacy

The Ethereum blockchain is a public blockchain. As a result, sensitive member data cannot be stored on chain without violating many data privacy laws including HIPAA and GDPR. Opolis is excited about proxy re-encryption technology (i.e. NuCypher) which is rapidly advancing, however, Opolis will continue to store member data in secure databases until certainty can be reached with members handling their own data.

Closed Betas & MVP

Opolis is building an initial DEO closed beta in partnership with Consultants Collective (a consultants guild). The members of the Consultants Collective will be participating in a governance design and DEO setup for their guild of approximately 40 independent consultants.

Opolis will launch its open MVP in Q42019 targeted at populations of individuals who are already practicing as freelancers. For more information and MVP priority access registration, visit opolis.co.

Conclusion

Employment represents the basis by which the entire global economic engine is powered. Worker productivity is the lifeblood of Gross Domestic Product (GDP) internationally. The Opolis Employment Commons and Decentralized Employment Organizations contribute to a thriving and sustainable global employment economy while, at scale, offering infinite opportunity and fluidity to the self-sovereign global worker.

With respect to adoption of blockchain and other decentralized technology, creating an ability for average people to access cryptocurrencies natively has no better application than payroll through sustained employment. With this methodology, there will be no need to have anyone "buy" cryptocurrencies; they will opt-in to accepting them as part, or all, of their compensation seamlessly. Decentralized employment could be the single most important application of Web3 tech we see in the coming decade.

Mutuality between Service Consumer and Service Provider is calibrated and sustained by open employment markets and free relational dynamics; allowing for purely fluid labor pools and hyper-agile corporations. With Opolis the advent of truly democratic employment systems are the future. And the future starts now.

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Definitions

Administrator of Record (AOR): The term AOR used by Opolis denotes a service provider, a simile to the term Administrative Services Organization (ASO). The AOR, or ASO, provides similar services offered by Professional Employment Organizations (PEOs) but does not "own" the employees of those choosing to use its services.

AML Compliance: Firms must comply with the Bank Secrecy Act and its implementing regulations ("Anti-Money Laundering rules"). The purpose of the AML rules is to help detect and report suspicious activity including the predicate offenses to money laundering and terrorist financing, such as securities fraud and market manipulation.

Analog: Not digital; not computerized.

Blockchain Technology: A blockchain is a decentralized, distributed and public digital ledger that is used to record transactions across many computers so that any involved record cannot be altered retroactively, without the alteration of all subsequent blocks.

Contingent Labor: Contingent workers are defined as freelancers, independent contractors, consultants, or other outsourced and non-permanent workers who are hired on a per-project basis. They can work on-site or remotely. Contingent workers may operate under a zero-hour contract, an agreement which states that a given employer is not obligated to provide a worker with any minimum number of hours. Zero-hour contracts are sometimes called casual contracts.

Cooperative Organization: A cooperative is an autonomous and independent organization owned, financed, and controlled by the people who use it. It provides and distributes benefits to those persons based on the amount of their use with a concern for community responsibility. A cooperative may take the form of a multi-stakeholder organization, which authorizes multiple classes of membership, each having different ownership and governance rights. Employees may hold one class of membership, vendors and suppliers may own another class and customers may hold a third. Outside investors may also hold a separate class of membership in some jurisdictions, with varying rights ascribed to such classes of membership, including voting, dividends and redemption.

dApp: Decentralized applications (dApps) are applications that run on a peer-to-peer (P2P) network of computers rather than a single computer. dApps, have existed since the advent of P2P networks. They are a type of software program designed to exist on the Internet in a way that is not controlled by any single entity.

Decentralized: Blockchains are politically decentralized (no one controls them) and architecturally decentralized (no infrastructural central point of failure) but they are logically centralized (there is one commonly agreed state and the system *behaves* like a single computer).

Decentralized Autonomous Organizations (DAOs): A decentralized autonomous organization (DAO), sometimes labeled a decentralized autonomous corporation (DAC), is an organization represented by rules encoded as a computer program that is transparent, controlled by shareholders and not influenced by a central government. A DAO's financial transaction record and program rules are maintained on a blockchain. The precise legal status of this type of business organization is unclear.

Employer of Record (EOR): A company or organization that is legally responsible for paying employees, including dealing with employee taxes, benefits, insurance, etc.

ESOP: An employee stock ownership plan (ESOP) gives workers ownership interest in the company, at times with upfront costs. ESOPs are qualified in the sense that the sponsoring company, the selling shareholders and participants receive various tax benefits. Companies often use ESOPs as a corporate-finance strategy and to align the interests of their employees with those of their shareholders.

Gig Economy: Economic activity that involves the use of temporary or freelance workers to person jobs typically in the service sector.

Gross Domestic Product (GDP): Gross Domestic Product (GDP) is a broad measurement of a nation's overall economic activity. GDP is the monetary value of all the finished goods and services produced within a country's borders in a specific time period.

KYC Compliance: Know your customer, alternatively known as know your client or simply KYC, is the process of a business verifying the identity of its clients and assessing their suitability, along with the potential risks of illegal intentions towards the business relationship. The term is also used to refer to the bank regulations and anti-money laundering regulations which govern these activities. Know your customer processes are also employed by companies of all sizes for the purpose of ensuring their proposed customers, agents, consultants, or distributors are anti-bribery compliant. Banks, insurers, export creditors and other financial institutions are increasingly demanding that customers provide detailed due diligence information.

Opolis: The word "Opolis" was created from the combination of the word opportunity, which represents the service consumer, with the Greek root -polis, meaning city, or in our case, community.

Oracle: An oracle, in the context of blockchains and smart contracts, is an agent that finds and verifies real-world occurrences and submits this information to a blockchain to be used by smart contracts. An oracle is a data feed – provided by third party service – designed for use in smart contracts on the blockchain.

Professional Employer Organization (PEO): A professional employer organization (PEO) is an outsourcing firm which provides services to small and medium sized businesses. Typically, the PEO offering may include human resource consulting, safety and risk mitigation services, payroll processing, employer payroll tax filing, workers' compensation insurance, health benefits, employers' practice and liability insurance (EPLI), retirement vehicles (401k), regulatory compliance assistance, workforce management technology, and training and development. The PEO enters into a contractual co-employment agreement with its clientele. Through co-employment, the PEO becomes the employer of record for tax purposes through filing payroll taxes under its own tax identification numbers.

Recruiting Firm: Recruiting firms generally support more full-time, permanent candidates. These positions tend to take longer to fill and they may tend toward management positions. Recruiting firms might be more likely to work with people looking for a job as well as those that are not actively looking. Recruiting firms generally place ads for candidates, screen resumes, conduct interviews, and narrow down the candidates until an offer is extended, and therefore are more involved in the actual sourcing and hiring of a candidate, and less involved throughout the lifetime of a candidate.

Recruitment Process Outsourcing (RPO): A form of business process outsourcing (BPO) where an employer transfers all or part of its recruitment processes to an external service provider. An RPO provider can provide its own or may assume the company's staff, technology, methodologies and reporting.

Self-Sovereign Identity (SSI): The concept of individuals or organizations having sole ownership of their digital and analog identities, and control over how their personal data is shared and used. This adds a layer of security and flexibility allowing the identity holder to only reveal the necessary data for any given transaction or interaction. Since identity is such a central part of society, it is necessary to ensure that user control will be the primary foundation SSI will be built upon.

Self-Sovereign Worker (SSW): Based on the concept of SSI, the SSW not only has sole ownership of their digital and analog identities and control over how their personal data is shared and used, the individual also has ownership over their employment and how their employment data is shared and used.

Service Consumer: With the next generation employment of the Opolis Employment Commons, employers cease to be called "employers" and are referred to as service consumers. They consume the services of the service provider, formerly known as the "employee."

Service Provider: With the next generation employment of the Opolis Employment Commons, employees cease to be called "employees" and are referred to as service providers. They provide the services for the service consumer, formerly known as the "employer."

Staffing & Consulting Companies: In terms of working with companies, both staffing and recruiting are used to hire candidates for a particular role. While staffing companies are commonly used to fill short term roles or to hire people for specific projects, consulting/recruiting firms deal with those who are seeking jobs as well as those that are not.

Sybil Attack: The Sybil attack in computer security is an attack wherein a reputation system is subverted by forging identities in peer-to-peer networks.

"Tragedy of the Boardroom": Often when platforms or networks scale, the "tragedy of the boardroom" is observed, which shows the tendency for the platform or network to lose benevolence toward users and collaborators when there is a centralized, exclusively shareholder-focused entity as the market maker.

Velocity and Fluidity of Work: The rate of speed by which people move from role to role (velocity) and the ease by which people have access to new work (fluidity).

Web 2.0: A collective term for certain applications of the Internet and the World Wide Web, including blogs, wikis, video sharing services, and social media websites such as Facebook and MySpace, which focuses on interactive sharing and participatory collaboration rather than simple content delivery. The term "Web 2.0" was introduced by the O'Reilly Media Web 2.0 conference in 2004, which focused on social uses of the Web.

Web 3.0: As a formal definition, Web 3.0 is still being defined.The term used to describe the evolution of the Web as an extension of Web 2.0. This definition of Web 3.0 is the popular view held by Tim O'Reilly. In contrast, Nova Spivack defines Web 3.0 as connective intelligence; connecting data, concepts, applications and ultimately people. While some call The Semantic Web 'Web 3.0', Spivack's opinion is that The Semantic Web is just one of several converging technologies and trends that will define Web 3.0.

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