"You can't connect the dots looking forward, so you have to trust in something."

Steve Jobs

Acc.eth: The Instant Market for Electronic Promises between NFT Holders

Acc.eth DAO: The Decentralized Counterparty of Acc.eth

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Abstract. We suggest that the event ticketing market for live events is an ideal application of a decentralized autonomous organization (DAO), because ticket buyers care more about the now than the future. The Acc.eth DAO will leverage the "Purification Theorem" to set up a counterparty playing a pure strategy, ensuring electronic promises made from Merchant to Payee are kept or refunded at the purchasing price. Acc.eth is an instant marketplace for electronic promises featuring an expiry date and valid only among peers, offering a free first market to event hosts. By way of earning fees on a controlled secondary market, it will feed fresh funds into the Acc.eth DAO and reduce no-show rates as well as manual refunds for any event with a fixed set of tickets.

1. Introduction

Scaling events on the internet or in the real world requires three checkmarks: Great content, which no one can reproduce, great marketing to keep attracting new customers, and a great platform to make the event's content accessible. The complexity of events makes their production very risky for hosts, especially at scale. This in turn, becomes a risk for anyone purchasing a ticket as a deferred means of payment, because there could, e.g. be scam exits or sudden lockdowns.

This is why any ticket sale, at its core, means exchanging a call option on the future. However, tickets as such are not financial goods in most societies but rather defined as immaterial goods and can be sold to consumers. Still, once the outstanding ticket volume is exceeding certain thresholds, a host's floating tickets maybe subject to higher financial scrutiny by third parties. Therefore, third party platforms require extensive data collections of anyone party to a deal on their platform and exert power of the entirety of the value chain of any event. And there is there a high losses: typical revenue fees or lumpsum payments per ticket range from 1-15% in the long-tail market, eating into profits in a market where small hosts face intense competition. Hence, scalability is of the essence to hosts and flexibility to the ticket buyers.

Prisoner's Dilemma #1: Financial Scams

Permissionless Blockchain Ticketing Platforms have yet to prove their value. Their inherent problem is that a contract is based on an electronic promise, payable immediately, secured in an expiring store of value (IOU) from the Merchant to the Payee. According to Game Theory, such a situation will never result in lasting cooperation. Even if trust is present once a deal is sealed, the cooperation may and, thus, will end at a given iteration of the same or similar deals later on.

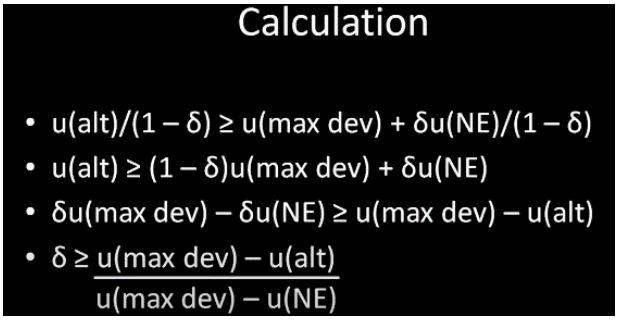

Figure 1: Wiliam Spaniel - Game Theory 101

Game Theory proves that no strategy can win in the reiterated prisoner's dilemma. The most likely result is always a Nash-Equilibrium (NE), which essentially prohibits ongoing cooperation towards value creation forever. As a result, ticket sales will always need a trusted intermediary at scale.

On the Web2, any intermediary needs to be a centralised one. This is untrue on the Web3, where events can be self-managed by a decentralized community (e.g. with the common aspiration to see a certain show) through a combination of trust building in the Meat Space and permissionless payments. Defectors harming the community with the sale of empty electronic promises may still occur, but can be manged and financially insured, if there is enough trust among the other players to justify compensations. Trust can be built through a decentralized third party, which must play a credible and pure strategy.

Prisoner's Dilemma #2: Content Marketing

Since we can, in principle, solve the initial standoff and get a value chain going, marketing is another Prisoner's Dilemma that needs solving. Building a trusted brand around an event requires reach, which today is centralised by Web2 behemoths under the power law distribution. They are solving the problem of message accuracy to encourage deals and make sure that risky spamming and shilling in networks is only allowed where paid to them.

To focus on the users, we must select the simplest Prisoner's Dilemma where Alice is looking for good information and Bob may or may not have good information to share. Such a situation will also result in a standoff NE, where receiving end users will no longer be interested looking for new information. Peer-to-peer referrals, paid or unpaid, can change this NE to become productive, where Alice already has friends (aka "frens") she trusts and where they are full of great insights.

Our Approach

Acc.eth, the Blockchain Ticketing Platform and Instant Marketplace inside of Communities, offers a bespoke platform to any existing NFT community and allows to create new ones. It covers marketing and platform and helps to ensure that only valid electronic promises are being made and kept.

To get it to work without centralized third parties, we will also need to introduce Acc.eth DAO as the player of a long-term pure strategy compensating reliably where defection has happened. It will seek rent from sales on the secondary market, which means it can be cost effective and even profitable, where good governance is applied.

Solving the cultural standoff

The "Folk Theorem" [i] in Game Theory stipulates that, if an actor in an infinite reiterated prisoner's dilemma consistently values the future higher than its counterparty, a greater degree of defection can be accepted over the long run. This is, however, very hard to sustain and impossible to predict in the long run. However, the "Purification Theorem", the "Folk Theorem's" extension, leaves some more wiggle room: It stipulates a point of intersection, or compromise, where both sides chip in to make sure cooperation is productive in the next subset equilibrium.

In the reiterated prisoner's dilemma, the opinion of the Merchant, the Payee, and the Acc.eth DAO can be expressed by the Greek letter ð (delta), it is basically the expected return over the long run on either side.

Luhmann's Cosmos

In this whitepaper, we will differentiate between two Actors all forming more or less productive Systems, seeking cooperation with other Systems to grow. We include Niklas Luhmann's Systems Theory[ii], which is essentially a Cosmos of many Systems of two Actors each. Luhmann's Cosmos is entirely built on communication, where Systems must a) recognize each other first to be able to b) transact. A silo of effective knowledge can therefore be a power tool. If one system in Luhmann's world acquires a functioning reality reduction of the synopsis, it can manipulate all others.

Cosmos Level

The Cosmos as a whole, but also each System of two actors may only reach a higher growth path if they constantly make better use their resources. At the Systems level that means some may cheat and bribe, or defect, in all games, but the Cosmos must still create a surplus or seize cooperation. Luhmann's Cosmos shows that communication can create a value through establishing ever more connections.

System Level

For recognition all Systems are using “reality reductions” (aka memes). Good reconnaissance will lead to productive outcomes through a better use of resources, while bad reconnaissance will trigger a System’s death or expulsion from the Cosmos. As all Systems are connected to a set of very large Systems, namely the financial System, the media System, and the political Systems. Large Systems have the power to change the game lastingly. They may help defunct Systems to defect for a long time.

Time = Money

Monetary transactions really begin to make sense if at least one more party is involved in some trades. In a multi-system pool setting, money will universally be accepted by unique identifiers as a store of value, a unit of account, and a means of exchange across multiple systems. Money accelerates communication due to its almost universal acceptance in the Cosmos. But money and its accumulation may also lead to imbalances, distorting connections and unhinging others. It is the other side of the same medal that any two actors managing to slow down consumption of their staple resource gains competitive advantage over consumption systems that burn faster through their resources.

2. Transactions

Event Ticketing is essentially a one-time prisoner’s dilemma: A Merchant promises, for a later time, to deliver something to the Payee. The Merchant issues a Ticket as a standard of deferred payment (proof of stake) to enable the Payee to redeem the value added after previously agreed period has passed.

In theory and practice, cryptography can be used to insulate transactions between two systems. Hence, they may be able to rise to maximum efficiency and enter into a stage where the odds for accelerated growth are in the cards, without any third party interfering or directly impacted through the purchases. Still, a long-term regress of the interactions to NE can never be avoided fully.

In some subset equilibria of at least three Systems, money can be a leveraged to patch and keep multilevel games going, if one actor drops out or is forced to leave. Hence, positive outcomes in the last tournament of the relevant subset equilibria may still achieved, if we assume that money is a finite resource and that, at their last breath, actors may opt to consume against payment, or, make sure that their money holdings get buried with them. In the former case, positive outcomes are achieved on both ends of the transaction while measured by different staple resources. In the latter case, all money not returned to system’s circulation will lead to an appreciation in purchasing power of all tokens still in circulation.

Game Theoretical Challenge

Game Theory generally builds on the caveat that all payouts from tournaments are principally fungible between all actors party to any subset equilibrium. Leveraging Luhmann’s Systems Cosmos for expiring tickets to Live Events we deviate from this simplification to say:

A) Upon sale a Merchant makes an electronic promise pegged against a unique identifier
B) Upon purchase a Payee receives the unique identifier as a deferred means of payment, signalling interest
C) When the previously accepted time for redemption has come, the Payee consumes a non-fungible, untransferable value added (a reality reduction) as agreed, or,
D) is refunded by a third more patient party,

E) The third party must create value added generated through the improved use of resources - by improving an existing first set of a ticket distribution in a community this can be done through consensual reshuffling on the secondary market as time to expiry nears

Thus, the element of time gains importance to eventually rise to become the key focus of any network of systems connected through money, once a lasting subset equilibrium seems to be attained. The stock and value of the staple resource of any actor determines their preferences of ð. Hence, in a financial system, all actors are presented with two options: they either must create value for others through cooperation while getting better at consuming resources or prey on adjacent stakeholders, therewith ending in a finite grim game, where ð > ½ at all times, or perish.

3. The Role of ð

Discount factors as expressed by ð in infinitely reiterated prisoner's dilemmas represent the time value of consumption and the probability of continuation. As a probability ð ranges between 0 to 1.

A higher Delta will bring about a higher chance of survival and higher patience towards defectors. A joint collective mindset is therefore quite aspirational to all stakeholders if every single actor is enabled to defect once and consume and build up the needed recon tools during a subset perfect equilibrium.

Functioning truth collectives produce more sustainable outcomes and typically create more value in more rounds of transactions, defunction ones will sooner or later run out of resources. Actors may never assume that said strategies really brings about positive equilibrium on an infinite timeline, because some would immediately adapt their strategy and consume endlessly in the now and result in a tragedy of the commons.

Connecting Confidence at the Term Level

With ð as the y-axis of a spectrum of probabilities, we may assume that there are strategies that vary greatly: Some actors on the lower end, may have no choice of strategy. If they are stuck in an unresourceful position where they must defect every time, they eventually become an unbearable burden. Still, other actors maybe in a position to cheat for a long time because they built up so much capital in reality reductions that they can afford it.

So ð provides a term transformation opportunity for the Acc.Eth DAO, if resourceful players help out to seek rent from presently defunct games to receive rent once system stability is reached. In Luhmann's Cosmos resourcefulness means rich in mind tools and cash is just one universally enforced mind tool. As events produce intra-system for one side consumes communication while the other accepts money a store of value, they produce sufficient finality to be leveraged at scale.

Operating on the internet, we leverage Cryptography to keep a newly opened channel shielded from the impact of other systems during a perfect subset equilibrium benefiting both Defectors, Cheaters, (and to a lesser degree, anyone in between). Otherwise, a direct link fostering constructive communication to build up new mindtools between the two is also highly unlikely, for third parties may disturb early in the process.

4. Live Events

Both in the real world or online, live events offer a high degree of immersion to Defectors, which is conducive to the built-up of new mind tools. Where they have enough capital, Defectors can also use

a fungible asset like money, to make up for their defection to the system's entirety. The efficiency of such strategies in the longer term greatly depends on the soundness of the monetary asset.

During the Pandemic, live events have suffered a blow, where held in public and many hosts of small event hosts drained out of their assets. In early 2022, an industry worth around $20 Billion in the U.S. and Europe needs to readapt its mind tools and invest in digital systems accepted by other players. This compounds the problem, because as stated above, live events are already an industry seeking high returns from risky investments and are not easy to scale. The latter can be attributed to the fact that marketing is necessary to newly generate joint mind tools with others and reduced to referrals, but the Acc.eth DAO must get the entirety of the event's value chain right, or will result in NE.

As successful live events are a function of a) immersive content b) the number of available connections through mind tools c) platform economics there are several levers to raise ð through more cost-effective investments by the part of the event host, who can opt for referrals through word of mouth instead of paying Social Media Services that would charge a premium on every new touchpoint, or opt to sell only to existing contacts for a while to get back on her feet.

5. Acc.eth Plattform

The Acc.eth Web2.5 Platform at acceth.xyz is a connector at zero cost to build instant marketplaces solely accessible with the right NFTs. Hence, only actors that were able to acquire a common mind tool will interact with each other. This should already turn the odds towards a fresh growth path rising subset equilibrium further down the road, if the community is not to big. The exercise only requires reading rights for acceth.xyz side to minimize the perceived risk in our own growth path. The risk/reward balance can also be improved by limiting all monetary transactions on the platform to a minimum, which is the path we chose to go to the market with.

As a more stable environment unfolds on the acc.eth platform over time, we can move forward by creating value from a previously untapped source of income, but will forgo this opportunity completely: We opt not charge first market fees to maximize use and liquidity on the platform to give back up to 15% of revenues to Creators.

To fund the DAO and make sure that payouts can be made in the case of scams, we need to generate income. Our secondary markets is for those who value flexibility more now, than they did at the time of purchase. In the last years, we have conducted over 500 interviews[iii] with live event managers and staff. We have learnt that for the most productive subset of their peer group, no fees on the first market is a huge business proposition. Decentralised means exist to minimize the negative impact of ticket scalping by unidentifiable users.

We make sure that customers do not become the product of their merchants by enforcing privacy per default. But event organisers may add and drop from a set of services built atop that we offer. This includes our Peer-to-Peer COVID19-Tracking tool officially tested in Frankfurt a.M., Germany during the summer of 2020. We were able to help 3.000 people connect without any increase in infections.

Hence, acceth.com is the lever to further increase ð in the event organizers, the Merchants, the Payee, and the Acc.eth DAO, e.g. by ending the need for manual refunds and ensure optimal utilization in a fixed set of tickets allowed to list on our personalized Web3 Marketplace acceth.xyz

6. Ticket Properties

Tickets remain intangible goods even if printed on paper. They constitute a promise made by a non-financial issuer, even when sold through middlemen on the internet. Said promise can be redeemed by ticket holders during a certain timespan and may lose its value entirely, depending on the issuer's

terms and conditions upon sale, even if it has not been produced and validated at the right time and place. Tickets are a feature with a single, agreed function. They are indivisible and may be personalized. Tickets create value added on both ends.

A ticket represents the right of access to a pre-defined excludable good or service, which can be both non-rivalrous (e.g. music played from a speaker) or rivalrous (e.g. seats at the cinema). Tickets are universally accepted around the globe, which means no-one needs to learn how to use them more than once.

While most ticketing systems are working well enough, some issuer of tickets usually factor in a churn/No-Show rate when they are preparing the combined ticket volume as part of their marketing strategy. This is money out of the pocket of every other payee and, hence, only fixed capacities are acceptable.

$TCKT

We define an electronic promise as a chain of digital signatures accepted at as a means of deferred payments inside of a distinct group. Once created upon digital agreement and defined by the merchant, $TCKT is sent directly to the first payee. It serves as a unique identifier once delivery is due. In the same vein, it may also be transferred back to a market with or without a predefined refund.

$ACC

We define ACC as the governance utility of a prospective ACC Decentralized Fund managed jointly by all ACC holders. Its primary responsibility is to keep delta in check on all sides. It could be introduced in a fair launch to all buyers paying fees on the secondary market.

Money Test

To avoid issuing easily inflatable e-money through electronic promises, we already have defined the expiration date to be set on the short horizon. We now validate that Tickets are not money, event if used through acc.eth.

Comparison

Generally, money has three functions:

Money Function:	**$TCKT**
1. A store of value	Tickets are a store of value, however, only within the agreement of a seller, who seeks financing, a buyer, who seeks non-financial, mostly social value added on the ticket's price.
2. A medium of exchange	Tickets are a medium of exchange, but not fungible. They are only recognized within the agreement of a seller, who previously determines the exchange rationale, and a buyer, who pays to secure the access right for an agreed validation process.

3. A unit of account	Tickets are unique units of account and not divisible or in any other way linear. The value of different tickets is measured in monetary assets used for the exchange in the mutual agreement between buyer and seller. Partial refunds or upgrades are compensated in lockstep.

➔ **A standard of deferred payment:** Tickets are used to defer value post-payment and capture a price/value relations over time that can be exercised through proof of stake.

Howey Test for $TCKT and ACC

To avoid issuing easily inflatable investments of money through electronic promises, we already have defined the expiration date to be set short-term. We now want to validate that tickets are not investments, even if used through acc.eth. The ACC token will be launched fairly to platform users.

The Howey four-prong test to be used in determining whether an "investment contract" exists is: (1) an investment of money, (2) in a common enterprise, (3) with the expectation of profit and (4) to be derived from the efforts of others

Howey Test:	**$TCKT**	**$ACC**
1. INVESTMENT OF MONEY?	No, deferred payment	No, free of charge
2. IN A COMMON ENTERPRISE?	No, as a right of access	No, in a decentralised govt.
3. WITH PROFIT EXPECTATION?	No, to redeem in-kind asset	No, to reclaim culture
4. LEVERAGING OTHERS?	No, Peer-To-Peer	Not, if decentralised enough
INVESTMENT CONTRACT?	NO!	NO!

7. Acc.eth DAO

The Acc.eth DAO could raise ð through good governance in the following areas:

- Ensures Secondary market activity
- White/Blacklists
- Set Outstanding Value Caps for Ticket Volume Total
- Manage 3rd Level Support
- Oversees Fee Structures
- Define EventIDs

8. Calculations

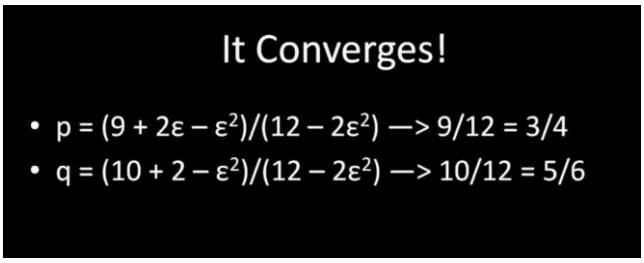

Figure 2: Wiliam Spaniel - Game Theory 101

9. Conclusion

Some commerce on the internet has freed itself from relying exclusively on financial institutions serving as trusted third parties to process electronic payments. While the new systems work well enough for instant transactions made between two (or more) willing parties, there is also a large deferred payments market for electronic promises, where Merchants get paid now, but deliver later. Such agreements have advantages and disadvantages on both sides and are used almost daily to schedule the smaller things in life for a determined date in the future.

For any deal closing, a multilateral channel of communication is of the essence to allow merchants to market their offerings to customers on the internet. A prerequisite of successful scaling and low marginal production costs of any good or service offered on the internet is marketing. In less than 20 years, almost all content markets – online or offline – have gone from decentralisation to full-on oligopolies or vanished as is the story of local newspapers. The winners took it all.

This exercises intense margin pressure on content producers and makes it harder to find new customers outside of their filter bubble. While digital media Web2 behemoths have arguably created real value added by connecting billions of human brains at a low cost, they have advanced to become levers of centralized control turning their customers into products and exercising power over their customers' identity in the digital and physical world.

Purely consensual content marketing is not really possible on Web2, since digital media platforms can neither avoid enforcing a unified code of behaviour nor the conflict mediation that comes off it. This often results in arbitrary deplatforming of non-modal communicators because the cost of mediation is too high. In Luhmann's Cosmos there is also a broader cost in the total loss of ability to establish communication channels for non-reversible services in drastically skewed systems.

These costs and payment uncertainties can be avoided altogether by in physical meetings, but no mechanism exists to make deferred peer-to-peer payments over an uncoded communication channel without a trusted party (or its fees) and find new customers outside of market segments predefined by digital media platforms.

What is needed is an electronic marketplace based on consensual truth norms instead of truth, allowing any two (or more) willing parties to communicate and transact directly with each other without the risk of an infringing against a universal code of behaviour. But they must be kept from gaming the system or radicalize until they break out from their routine to turn they system forcefully.

With the ability to protect sellers from fraud by leveraging transactions that are computationally impractical to reverse, we propose social escrow routines that could easily be implemented to protect buyers. With it, we propose an alternative to arbitrary cost efficiency deplatforming using a peer-to-peer distributed governance system to generate consensual marketplaces.

There is only one solution: Events must become more productive again to help us produce the best mind tools to avoid the next Pandemic.

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[i] It is called the Folk Theorem and not named after John Nash, because it was discovered by a whole set of different “folks” at around the same time. As no single actor managed to claim the Folk Theorem to their own name it could be seen as a NE between multiple folks.

[ii] Theory of Society, Volume 1, Niklas Luhman translated by Rhodes Barret, 2012, New York

[iii] Corona Impact Report, Make Europe GmbH, May 2022, Frankfurt. Make-europe.com