



# CATALYST

A decentralised digital content distribution protocol

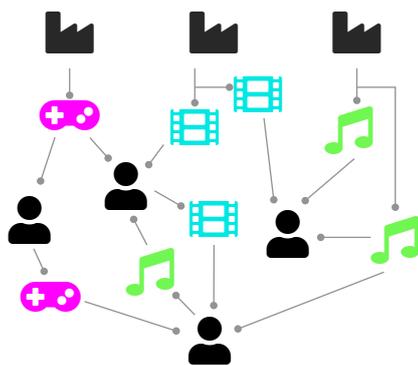
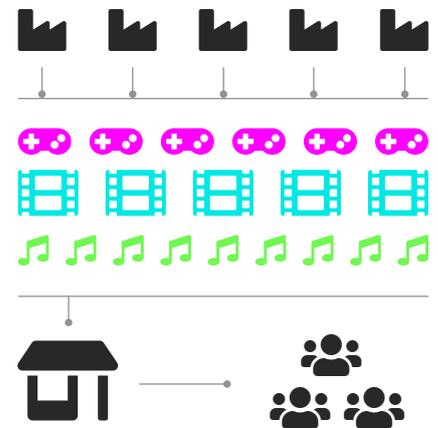
# Abstract

## The world is hooked on digital content. People just can't get enough.

Yet whilst **tens of millions** of apps, films, songs and books exist - incredibly there are barely more than **a dozen significant platforms** that distribute them.

Of course this perfectly suits the incumbent, dominant players, as they don't care what you listen to, play or watch - just that you do. But for the vast majority of creative artists, film-makers, developers, musicians and writers **the system is deeply, profoundly broken.**

Their work doesn't get the sales it deserves, and unfairly, they are unable to make a living in the pursuit of their talents.



## Introducing Catalyst – a decentralised digital content distribution protocol for games, movies, music, and books.

Using the power of 'distributed trust' and the 'tangle' structure of DAG (Directed Acyclic Graph) networks - Catalyst flips the building blocks of the entertainment industry on its head, creating millions of individual marketplaces, each showcasing dozens of products.

This democratised content ecosystem is meritocratic and takes the massive fees routinely levied by platforms such as Steam, Google Play, Netflix, Spotify and Amazon, and instead shares them amongst all stakeholders.

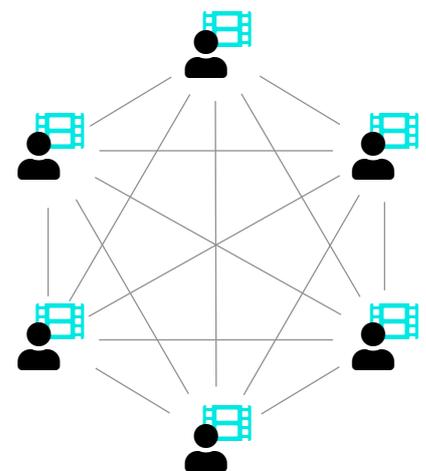
## Our distributed consensus network will revolutionise not only the distribution of content, but also its' onward resale and marketing, via a proprietary peer-to-peer distribution system and licence transfer mechanism.

This uses the consensus of ecosystem stakeholders to render fraudulent file sharing near impossible, and ensures copyright holders are remunerated appropriately and transparently.

We have passed 'peak dominance' of the closed platforms like Amazon, Google Play, Netflix, Steam, Spotify and their ilk.

**Open-source distributed trust content protocols with incentivized rewards are the new future.**

## This document invites you to be a part of it.



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# Catalyst Vision

## “Apes alone, weak. Apes together, strong.”

*Rise of the Planet of the Apes.*

The Catalyst Protocol provides an ecosystem where users are valued and high-quality producers are rewarded. The current system is a closed one, and it favours mainly the big producers, all of whom compete for the coveted front pages of Steam, Google Play, Netflix and iTunes stores. As soon as you drop off these shopfronts, your downloads plummet.

Small producers can't build effective businesses under these editorially-driven systems, and as a result most sadly do not prevail in the marketplace.

Catalyst is a distributed trust protocol for developers, consumers and brokers of digital and even physical assets which flips the building blocks of the entertainment industry on its head, creating millions of individual marketplaces, each showcasing dozens of products.

This democratised content ecosystem is meritocratic, and rewards quality with the distribution it deserves, whilst paying consumers for sharing, hosting and even selling on the content.

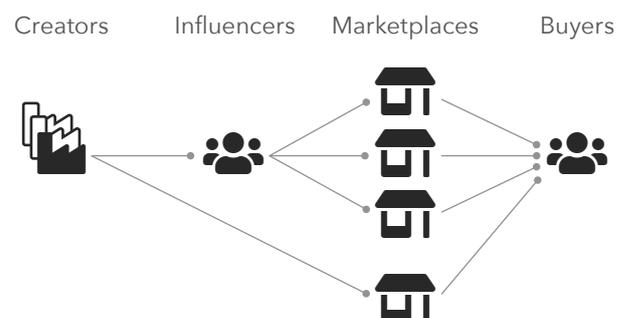
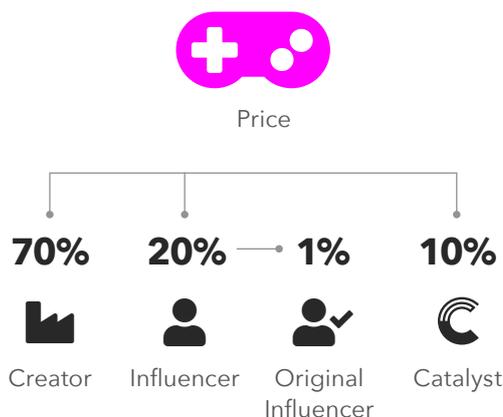
Our use of distributed trust renders fraudulent file sharing near impossible, and through the power of decentralised ledgers we unite producers, consumers and influencers to create frictionless marketplaces which cut out the middlemen.

### The “Marketplace of Marketplaces”

Catalyst is an ecosystem whereby users can create their own stores with ease, and then share them both with their own social network, and wider networked marketplaces. They will then earn currency by sharing their own stores, and by convincing others to do so too. This top-down system has powerful network effects as by sharing content in this way, users will benefit from the activity of other users much further down the chain.

The vision is a future where you have millions of users, each promoting great content to their networks of hundreds or thousands of friends and family, through a set of powerful enabling tools that make it easy to build, promote and distribute their own content, whether that be movies, games, music, audiobooks, or even physical Blu-Rays for example.

This shared economy, based around distributed trust, is a whole ecosystem built around rewarding both audiences and producers. It emphatically does not rely on any centralised core and in the gaming sector alone boasts over 2.2 billion active gamers. This is a clear distinction which will allow an ever-larger proportion of the multi-billion dollar global content market to be put in the hands of high quality producers and their dedicated followers.



## The Global Content Market

The combined markets for games, movies, music and books is massive. To simplify the market size component of this white paper, we'll focus on the games sector but in summary, the total market size for each major content category breaks down as follows:

- Games - \$137.9Bn
- VOD - \$64.7Bn
- Music - \$17.3Bn
- eBooks - \$17.1Bn

All of these sectors are experiencing 10%+ YoY Growth

This year is a landmark in the history of the games market, with revenues exceeding the \$130 billion mark. Six years ago, global revenues amounted to approximately

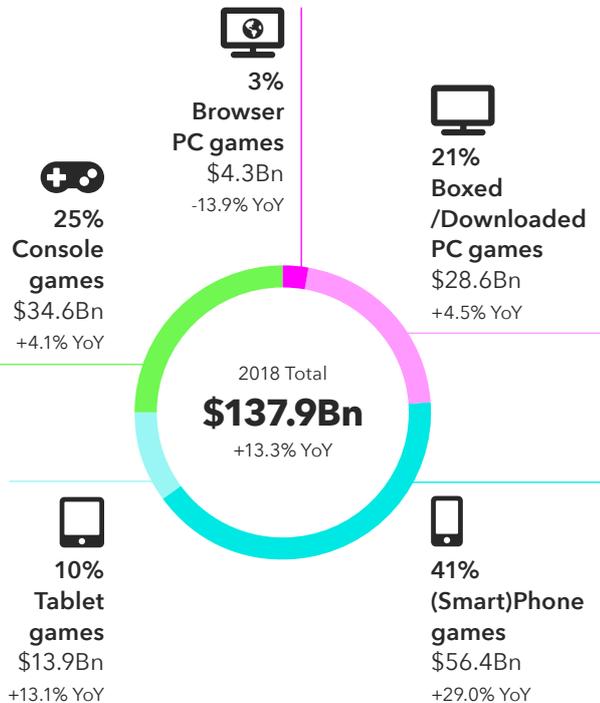
\$70 billion. **A growth of 97% in six years** illustrates how game companies have not only pioneered new ways of engaging and entertaining consumers, but have also led the way in innovating business models to suit the digital age.

Today, there are **2.2 billion active gamers in the world**, of which 47%, or 1.0 billion gamers, spend money while playing. These gamers are expected to **generate \$137.9 billion in game revenues** in 2018.

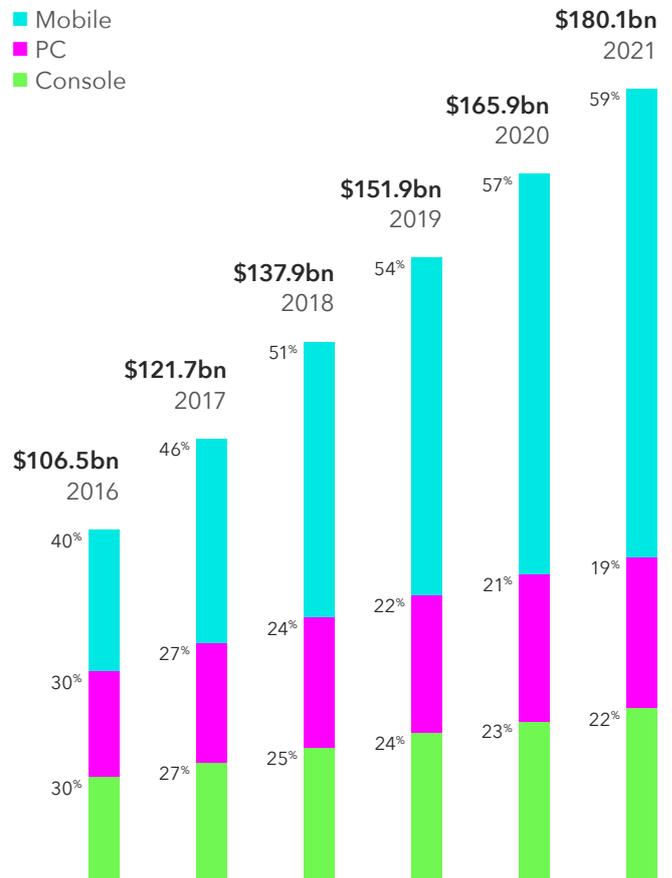
Ten years after the launch of the iPhone, mobile is the most lucrative segment for the second year running, with **smartphone and tablet gaming growing 19% year over year to \$46.1 billion, claiming 42% of the market**. Currently 68% of handsets use the Android OS vs 29% iOS. Console is the second-largest segment with revenues of \$33.5 billion 2017.

## Global Games Market 2018

The Global Games Market per segment



Segment Breakdown of Global Games Revenues Toward 2020



# the average content producer only earns \$6 for every \$20 game, movie or music album they create

## Distributed Trust as the new middleman

It is estimated that after the platform fees, licensing fees, and marketing, the average content producer only earns \$6 for every \$20 game, movie or music album they create.

Yet alternatives for these cash-strapped creators are not ideal:

### 1. Self Distribute

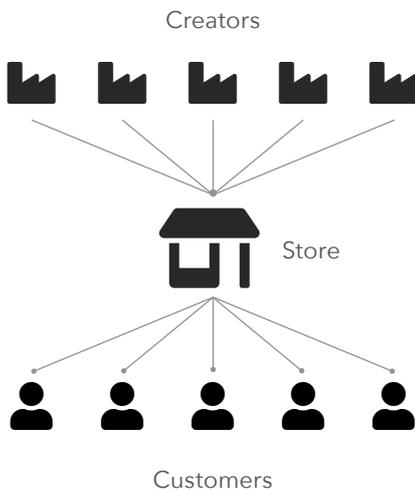
- Risky
- Hard to scale
- Tough to reach an audience

### 2. Use Distributor

- Distributors have little competition
- They take a large cut - 30%+
- Know you have little alternative

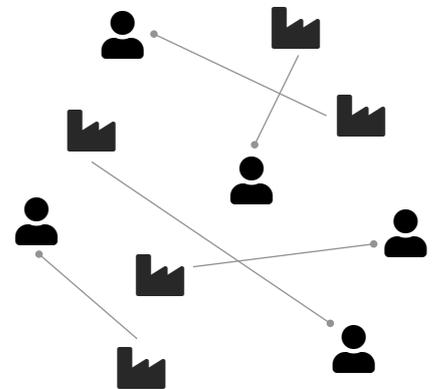
The main reason the big content platforms exist is threefold:

1. They have vast user bases
2. They handle payments
3. They deal with rights management



Catalyst will use distributed trust to satisfy 2 & 3 without a middleman, as the protocol removes the need for a centralised distributor to act as a conduit for the transaction.

- everyone can be a creator or customer
- no middle man



To satisfy reason 1, the protocol, and associated third party applications will create millions of individual marketplaces, each showcasing dozens of products, whose distribution centres around a currently absent incentivized rewards system.

This system is built around the focus of our ICO - the Catalyst (CAT) cryptocurrency.

## A New Digital Currency - Catalyst

catalyst

'kat(ə)list

Noun - something that precipitates an event.

The notion of "Catalyst" is a name which is suggestive of both huge ambition, and change combined. The coin itself has utility in the sense that it allows direct participation in the "event" - a true revolution in content distribution. Above all it is short, memorable, relevant and crucially unused as a cryptocurrency or business.

This is a shared economy, and one that benefits creators and consumers equally. But this is a cryptocurrency, and in order for it to be feasible, it has to be advantageous and worthwhile. To establish an ecosystem around Catalyst, it has to establish its own, fundamental value.

### Building Fundamental Value

Catalyst is of course, more than just a new cryptocurrency, it is an entirely new protocol, and one which enables and facilitates the trusted distribution of digital content, in such a way that **the more third party developers that use the protocol, the more value that will grow within the Catalyst token** itself, as customers deposit their fiat currency in exchange for Catalyst.

Any volatility in the value of the token itself will be corrected in real time so that the market prices of goods in local currencies will be consistent and correct.

Via our SDK it will be possible for third-party developers to easily allow their apps to utilise the Catalyst protocol. Imagine the appeal in countries across the world to, for example:

- Create a Spanish marketplace for buying and selling downloaded movies.
- Develop a PC game website which competes with Steam in Norway.
- Build a Spotify competitor in India
- Launch a console game and DVD/Blu-ray marketplace in the USA.
- Create an alternative Android App Store

All of the above, and more will be possible without any of the current friction/concerns around:

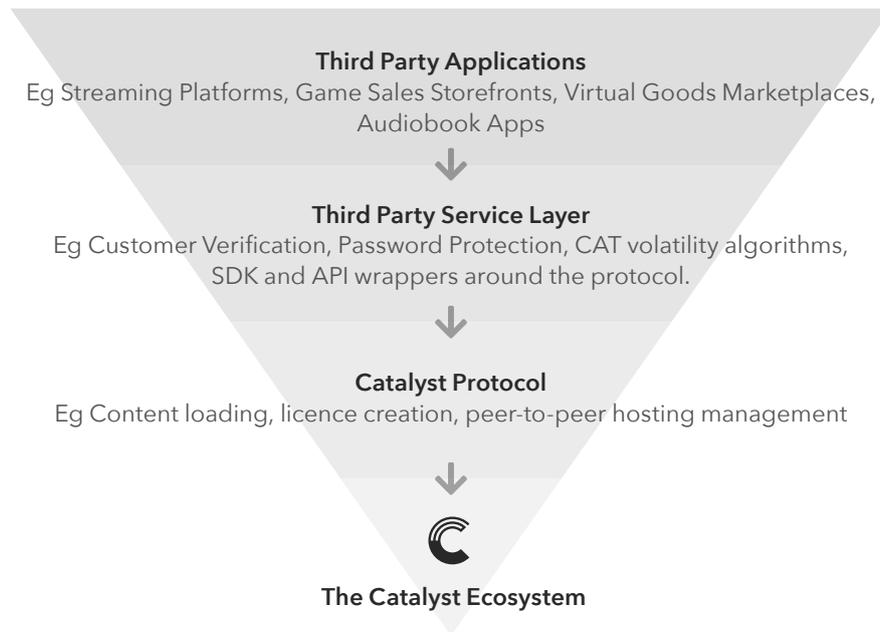
- Access to content
- Rights management
- Onward resale of content
- Payment systems
- Copyright-related trust

**The current platforms of the founding team have millions of users across dozens of countries**, engaged in the playing and distribution of hundreds of games, and the resale of millions of digital content products. Their understanding of the economics of e-commerce marketplaces, in-app purchases and the monetary ecosystems of Android development means that Catalyst will be in a strong position when it comes to launching its protocol, through the development of showcase applications such as games.network



## Building an Ecosystem

The primary innovation discussed in this paper is the Protocol itself, but despite this it is worth showing how the wider Catalyst Ecosystem would operate, and how existing and future content industry players might act within it.



## The Catalyst Protocol Foundation

The Catalyst ecosystem will ultimately become a global marketplace for all types of digital and physical products, and to grow it will need a non-profit organisation to oversee the administration of the Catalyst token supply.

The non-profit Catalyst Protocol Foundation will strive to maintain the Catalyst ethos of openness and decentralisation. Only if this is maintained will a true transition from competitive to cooperative be possible. All participants in this community will benefit from its' collective success.

# All participants in this community will benefit from its' collective success

The modus operandi will be in creating an open source codebase, along with embracing further partners from within the ecosystem to become part of the Protocol Foundation. The Protocol Foundation will support them in bringing the Catalyst protocol to life within their own applications, as well as sharing crypto-wallet, reputational and trust-related information to ensure that the Catalyst protocol remains solid and integrated.



## Summary

Through core application development, and focus on **a true distributed trust market model enabled by its cryptocurrency**, Catalyst will endeavour to create a truly decentralised market platform, enabling the purchase, sale and potentially even rental of both physical and digital products. Financial incentives are at the heart of the project, and distribution of these incentives will be such that all participants, whether developers, creators or consumers will benefit from them.

**The existing PlayJam community of over 200 developers will be the initial adopter of the currency**, via showcase app games.network. By populating the ecosystem with applications this will be seen to encourage migration of users into the platform. The Catalyst Protocol Foundation will ensure the stable growth of the ecosystem.

This ecosystem will incrementally transition onto a fully decentralised model, with no required assistance from Catalyst or any other entity. It will emerge as a fully autonomous distributed trust marketplace, utilising, via API a cohort of developers who, via the Catalyst currency, empower the platform by matching buyers and sellers, and facilitating transactions of Catalyst tokens for the betterment of the community as a whole.

This migration from a competitive to a cooperative marketplace of digital and physical products, will have a sustainable long-term focus, as the developers and consumers within it will compete and innovate in return for fair remuneration, all in support of sharing the proceeds of a currently broken market where the monopolistic hegemonies of Apple, Google, Amazon & Netflix will otherwise prevail unchecked.

# 1. The Catalyst Cryptocurrency

## Summary

Catalyst is introducing a cryptographic utility token, named Catalyst (CAT), for use in marketplace transactions such as:

- In-app purchases
- PC game downloads
- Streaming of movies, music
- Downloading of eBooks and audiobooks
- Purchases of physical products

Catalyst will be the currency for all purchases and sales within the Catalyst ecosystem

In character, Catalyst is a pure cryptocurrency of fixed supply. They are fractionally divisible and long-term non-inflationary.

Like other cryptocurrencies, units of Catalyst are fungible and transferable, and they will be expected to trade on multiple cryptocurrency exchanges.

## Implementation

Blockchain (BC) may not provide the idea solution for the implementation of the Catalyst Protocol. Hence **we are considering a DAG based solution** - which provides the following advantages.

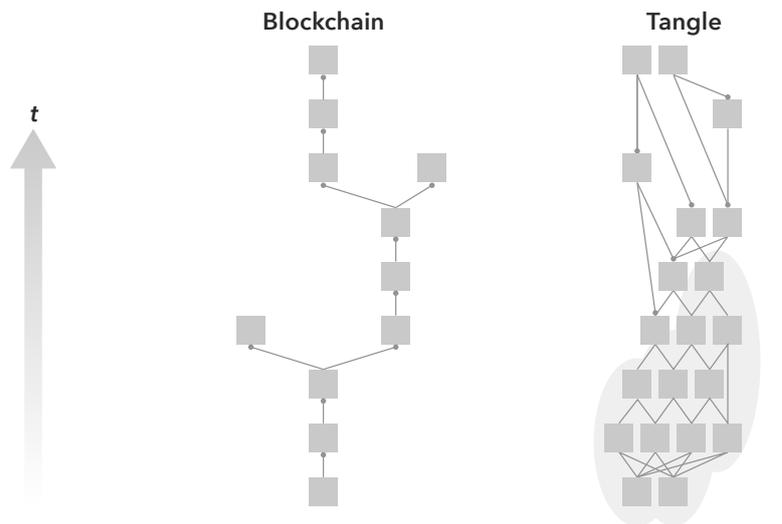
1. Scalability. As BC scales, transaction speed slows. The reverse is true with DAG - transactions speed up with network growth.
2. Quantum risk. BC is vulnerable to improvements in quantum computing, DAG is not. A quantum computer could mine Bitcoins ~17 billion times faster.
3. Transaction fees. BC requires transaction fees. DAG does not. (With DAG, 'new' transactions implicitly verify 'old' transactions, whereas BC requires explicit verification of all transactions.)

This solution obviates some of the significant concerns around the fees associated with the more popular ERC20 protocol. Using an ERC20 based token means 'piggybacking' the Ethereum network, which means that the cryptocurrency is for all time dependant on paying transaction fees to the Ethereum network.

## Not Blockchain?

Newer technology cryptocurrency offerings such as Byteball and IOTA uses a distributed ledger technology that is known as Tangle which does not have blocks, chains or even miners. Participants have to actively participate in the consensus of the network if they want to make transactions.

One of the most crucial advantages, is that it is many degrees easier to make changes / updates / enhancements / correct errors than with Blockchain solutions, which by their very nature require consensus for changes to be made. IOTA has also been built with 'machine-to-machine' micropayments as central to its design.



Technology	Block chain	Directed Acyclic Graph
Copyright	Open source	Open source
Consensus	Proof of Work: SHA256-Hash	Proof of Work: check of Tangle tip
Openness	Public ledger	Public ledger
Applications	Bitcoin, Ethereum EOS	Iota, Byteball
Efficiency (tps)	3-4	500-800

## 2. Building a New Digital Economy

### Tech and Investment Partners

PlayJam is a technology company focused on the distribution of mobile Android games. At the dawn of interactive TV, they pioneered gaming solutions that delivered big-screen gaming to hundreds of millions of users in over 80 countries and during its lifetime it has delivered in excess of 6 billion game downloads. Their content-delivery platforms continue to evolve providing a range of next generation solutions to the entertainment industry from bespoke hardware and software products to an app store platform capable of accessing a significant percentage of the 2.2 billion active gamers in the world today, the vast majority of whom are playing on mobile.



PlayJam is backed by major blue-chip investors GameStop Ventures, Cox Communications and Adobe Ventures as well as venture capital firms London Venture Partners (who backed SuperCell and Unity), Endeavour, 24 Haymarket and Gate Ventures. The company has also secured strategic investment from two Chinese partners, Hero Unity and Avit PLC providing access to the world's second largest market, one which has recently been significantly de-regulated and is experiencing meteoric growth.



Vala Capital is an innovative private investment group that operates award winning investment funds, including PlayFund and The UK Challenger Fund. Working with some of the UK's leading entrepreneurial talent they explore deals across a range of sectors where technology innovation, brand management or inventive product development underpins significant growth potential. The team behind Vala Capital have raised in excess of £100m+ of capital funding, of which the founders have provided in excess of £30m. They have generated exits of over £2bln.

### Content Partners



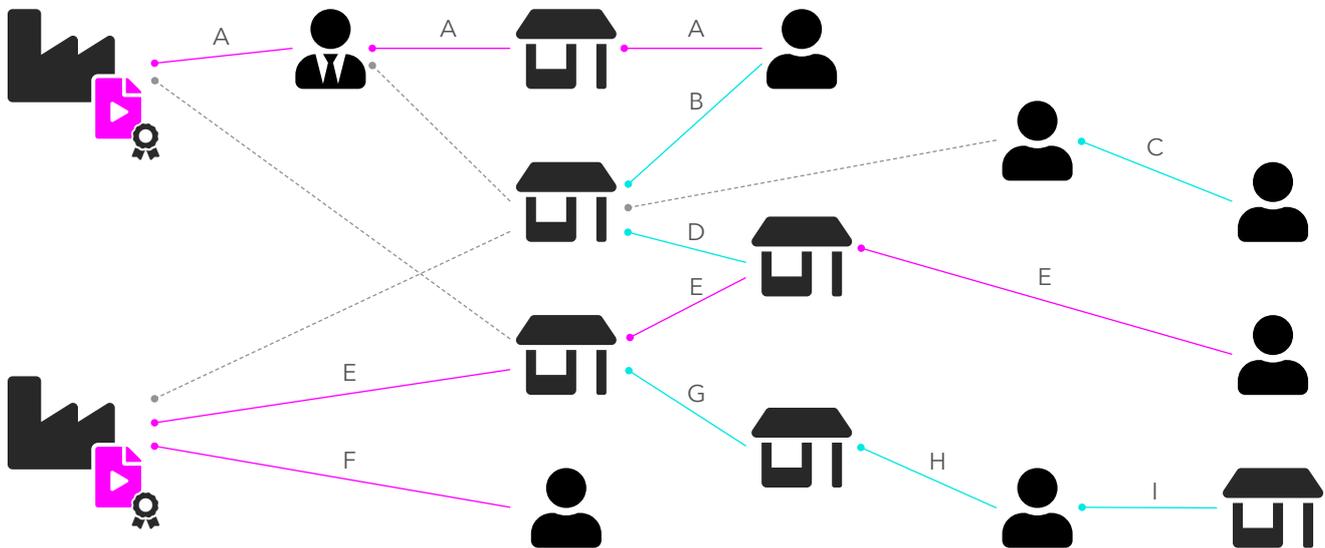
### The Catalyst users are all marketplaces

Each user has an identifier, and is able to select, curate and then publish online their own stores which will ultimately contain digital assets that they are distributing (and physical assets that they wish to sell or swap). These users can then either invite new users or be aggregated in to larger user cohorts to facilitate trade between themselves and or with the content producers.

Whilst initially, the marketplace will exclusively focus on PC games and mobile applications, via the games.network use case, it essentially can apply to any products, whether digital or physical, as long as they have a commonly recognised identifier.

Developers can utilise this data of users and inventory, to facilitate transactions as they see fit, or indeed to simply take advantage of the data from a purely statistical standpoint. This is an open distributed trust environment on a public distributed ledger.

### Some of the ways users, markets and content creators can transact



Transaction	Buyer	Seller	Type	Notes
A	User	Factory	Active	Relayed via a market and a broker
B	User	Market	Passive	Purchase direct from market inventory
C	User	User	Passive	Private user to user sale
D	Market	Market	Passive	Private market to market sale (for inventory)
E	User	Factory	Active	Relayed via two markets
F	User	Factory	Active	Direct purchase from factory
G	Market	Market	Passive	Private market to market sale (for inventory)
H	User	Market	Passive	Purchase direct from market inventory
I	Market	User	Passive	User selling content back to a market

### Catalyst (CAT) integration

In order to purchase applications or products on the platform, users will be required either to exchange currency (Sterling, Dollar, Bitcoin etc) for Catalyst, or, as described earlier, earn the currency through various endeavours - all of which serve to support and grow the community.

**Transactions on the platform will, first and foremost, be transfers of Catalyst.** The actual value of the currency in relation to local currencies will be easily determined through its listing on any of the various cryptocurrency exchanges (e.g. Etoro, BVC)

All of the content and products within the protocol will be priced, via front-end third-party applications, in fiat currency, which is essential, as consumers will not otherwise be able to easily determine value. The corresponding value in CAT will of course, fluctuate according to the fortunes of the protocol and its overall market capitalisation, but products and content will have local, fiat-based prices either set but the original 'factory that issued the first licence, or by the onward vendor of the product who can set any price they like.

Of course, as each onward sale is triggered either via an affiliate system, or as a direct transfer of a single licence, **the content copyright owner will be remunerated according to parameters set within the protocol itself** eg 50% of price to factory, 50% to promoter.

### Link-Based Distribution

All content is hosted via the P2P network and therefore none of the products in the ecosystem are dependent on closed cloud networks as delivery platforms.

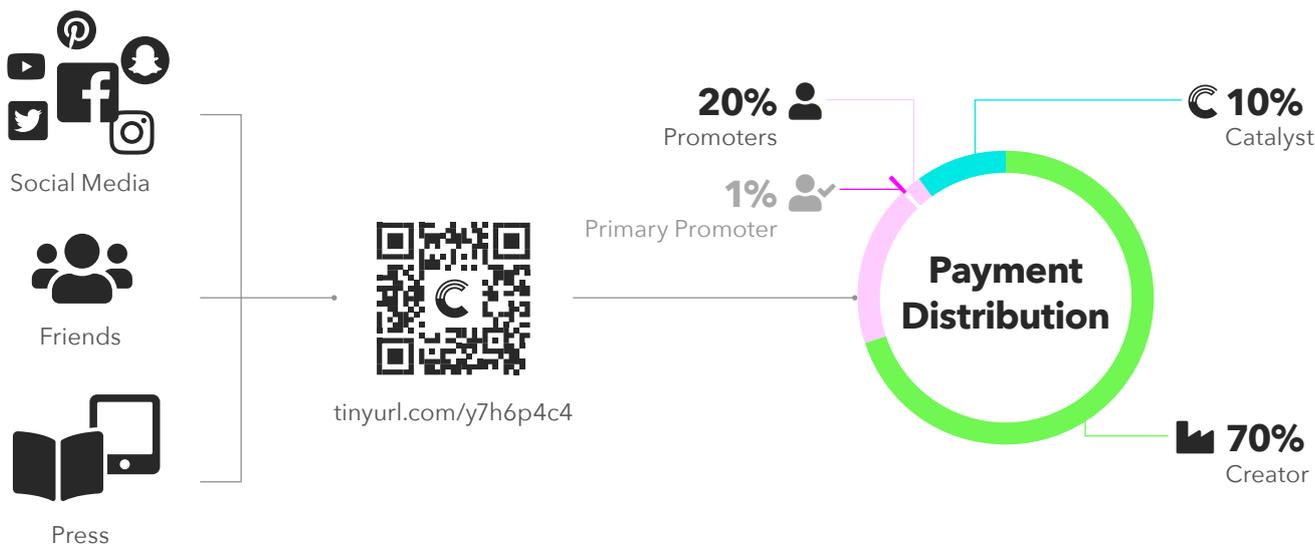
**Content is discovered and downloaded via shared links created by individual 'Clients' installed on PCs and mobiles.**

Here are examples of how, say, a PC game might be downloaded, and in doing so, trigger payments

- Link shared via iPhone on messaging channels - WhatsApp, Twitter, Messenger, Facebook etc
- Youtube game review with clickable link
- Magazine Advert with QR Code/Tiny URL

Each paid download will trigger payments in the following proportions:

- 70% Creator
- 20% Influencer/User (1% Original Influencer)
- 10% Catalyst

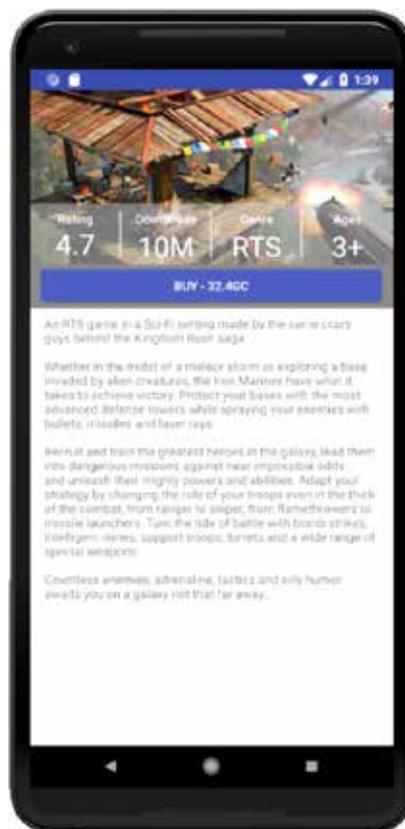
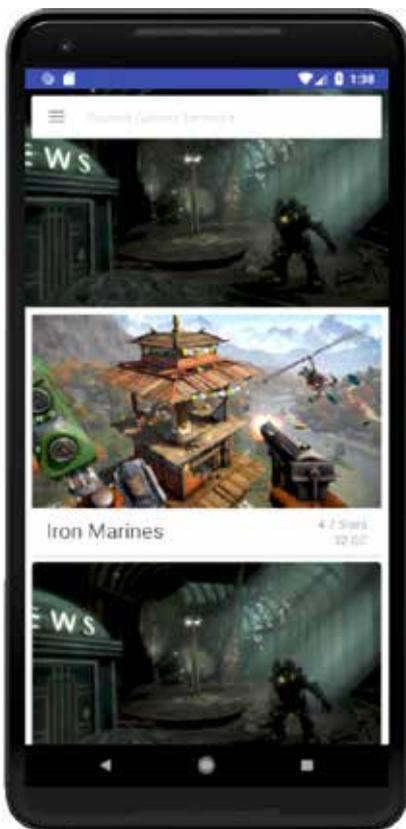


### An earnable currency: The Catalyst Wallet

A simple integrated wallet is essential in enabling any app-based community to adopt a cryptocurrency. Our own wallet is housed within the Catalyst Client.

The wallet will market the range of possibilities for the currency itself, showing clearly when various Catalyst thresholds are reached, and what products and activity that would then unlock.

Furthermore, it will clearly indicate the earning activity history, as well as deposits and withdrawals.



# The wallet will market the range of possibilities for the currency itself

There are considerable frictions within the cryptocurrency ecosystem currently that whilst overcome by hardened enthusiasts, present considerable barriers for most consumers. **The Catalyst Wallet will hide the encrypted keys and alphanumeric addresses** that would otherwise be onerous and off-putting. No prior expertise will be necessary to earn and spend Catalyst.

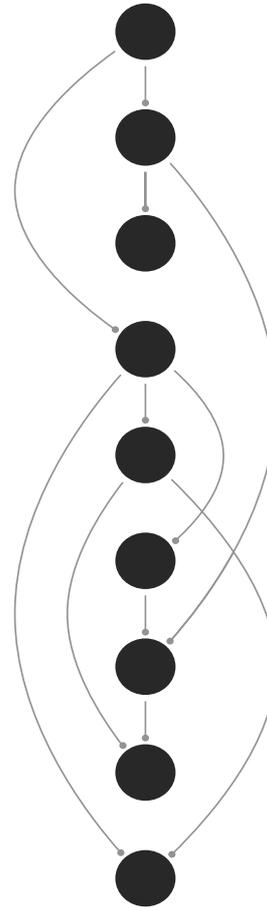
Crucially, developers that are building third party applications based on the protocol will be able to 'white label' this wallet solution to ensure that the fiat currency of relevant territory is shown an exchange value that is updated in real time.

### Settlement Layer

Users or developers wishing to transfer Catalyst tokens into and out of Catalyst applications will be able to do so. Within games.network for example users will have a smooth, seamless experience with the games.network wallet that interfaces with the settlement layer, which will easily handle the frequency of transactions.

**The Tangle structure actually increases in transaction speed and efficiency the more it grows.**

We have chosen this DAG structure with care precisely because it ensures there are no bottlenecks and users will be encouraged to retain currency within the ecosystem to ensure growth and stability.



### The Catalyst Economy and prospective use cases

The protocol itself is designed to allow the trading of any goods, whether digital or physical, and in order to demonstrate its power and efficacy, there are three use cases which are being developed in parallel.



### Example Use Case: Swapsy

Swapsy is a simple-to-use integrated pricing and trading platform specialising in buying and selling pre-owned console games, DVDs & Blu-rays, books, & CDs

Uniquely, **the Swapsy marketplace is based around "crowd-fulfilment" whereby items are traded peer-to-peer**, like Amazon/ eBay, but the crucial USP is that any given item is anonymously fulfilled by the most efficient seller, chosen by proprietary algorithms and a hierarchical seller structure.

This consumer proposition bolts onto the Catalyst protocol and uses the same distributed consensus marketplace components utilised to facilitate trading and sharing of digital content, to match buyers and sellers of used physical media.

This same proposition can migrate easily into the streaming of matched digital versions of the same content.



**games.network**

### Example Use Case: games.network

The core expertise of the founding team lies in gaming, and the perfect illustration of the power of the protocol is a use case that disrupts the closed platforms such as Steam, Itch and Green Man Gaming.

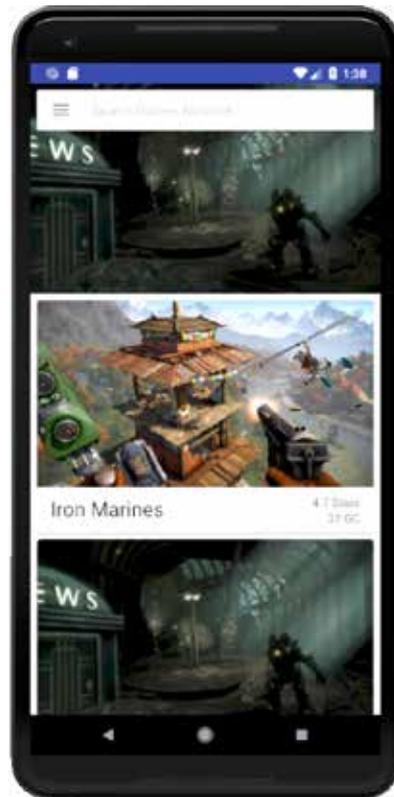
Developing an app like games.network would have been near impossible before the existence of Catalyst for the following 'chicken and egg' reasons:

1. Developers would not be interested in the hassle of uploading their catalogue unless they were guaranteed a large audience.
2. Gamers would not be attracted to a platform without a sufficient range of games on it.

Additionally, there are further barriers to entry

1. Trusting the content
2. Onward sale of content prohibited
3. Managing incentivized rewards is too complex

Whether you want to create a niche Audiobook web site, or a horror movie trading app, with the Catalyst protocol, **the only barrier to entry for a content marketplace is building or customizing the front end to your own specifications.**



**the only barrier to entry for a content marketplace or customizing the front end to your own specifications**

# 3. The Catalyst Protocol Foundation

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## Overview

The Catalyst ecosystem is envisioned as a community of partners - digital services and applications - that adopt the Catalyst (CAT) cryptocurrency. The Catalyst Protocol Foundation will be a non-profit entity, and operate as **a democratic governance body for the members of this ecosystem.**

The main functions of the Catalyst Protocol Foundation will incorporate the open governance of its resources together with other ecosystem partners; the development and marketing of the open-source Catalyst Protocol; and the growth of the protocol itself and growth of the ecosystem's membership.

The plan is for the Catalyst Protocol Foundation **to grow an open ecosystem of marketplaces for consumers to derive value and benefits from**, whilst providing developers with an open and sustainable platform to develop, deliver, and enhance those marketplaces. Over time, the Foundation will be replaced by other, more innovative governance methods such as a decentralized autonomous organization (DAO). **We have initially created our non-profit legal body as a preliminary step toward this goal.**

## grow an open ecosystem of marketplaces for consumers to derive value and benefits from

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To fulfil its mission, the Catalyst Protocol Foundation will dedicate resources to three specific goals as described below.

The Catalyst ecosystem is envisioned as a group of partners:

### Governance Goals

The Catalyst Protocol Foundation will dedicate resources to establish a fair and transparent governance process that will take into account the voices and needs of all participants within the ecosystem. This open governance model will oversee decisions related to the membership process, participation rules, legal matters, and content and compliance guidelines.

### Research Goals

Resources will foster an environment of innovation by working with partners to test new ways to participate in the ecosystem and drive value creation and network effects.

### Development Goals

Resources will foster an environment of innovation by working with partners to test new ways to participate in the ecosystem and drive value creation and network effects.

### **Mandate and Long-Term Goals**

To aid the Catalyst Protocol Foundation in carrying out its mission, the majority of the supply allocation of Catalyst tokens will serve as a monetary reserve at the limited discretion of the Protocol Foundation. The Catalyst Protocol Foundation is responsible for guaranteeing the security of the Catalyst (CAT) reserve as well as transparency in its use of funds.

In the long term, the Catalyst Protocol Foundation will fund research and development efforts to support an autonomous reward mechanism that is secure against economic vulnerabilities, with all transactions accounted in a trustless way. In the interim, the Catalyst Protocol Foundation will administer a centralized ledger and execute on its defined policies and protocols in an automated but trustful way, while working toward a fully decentralized method.

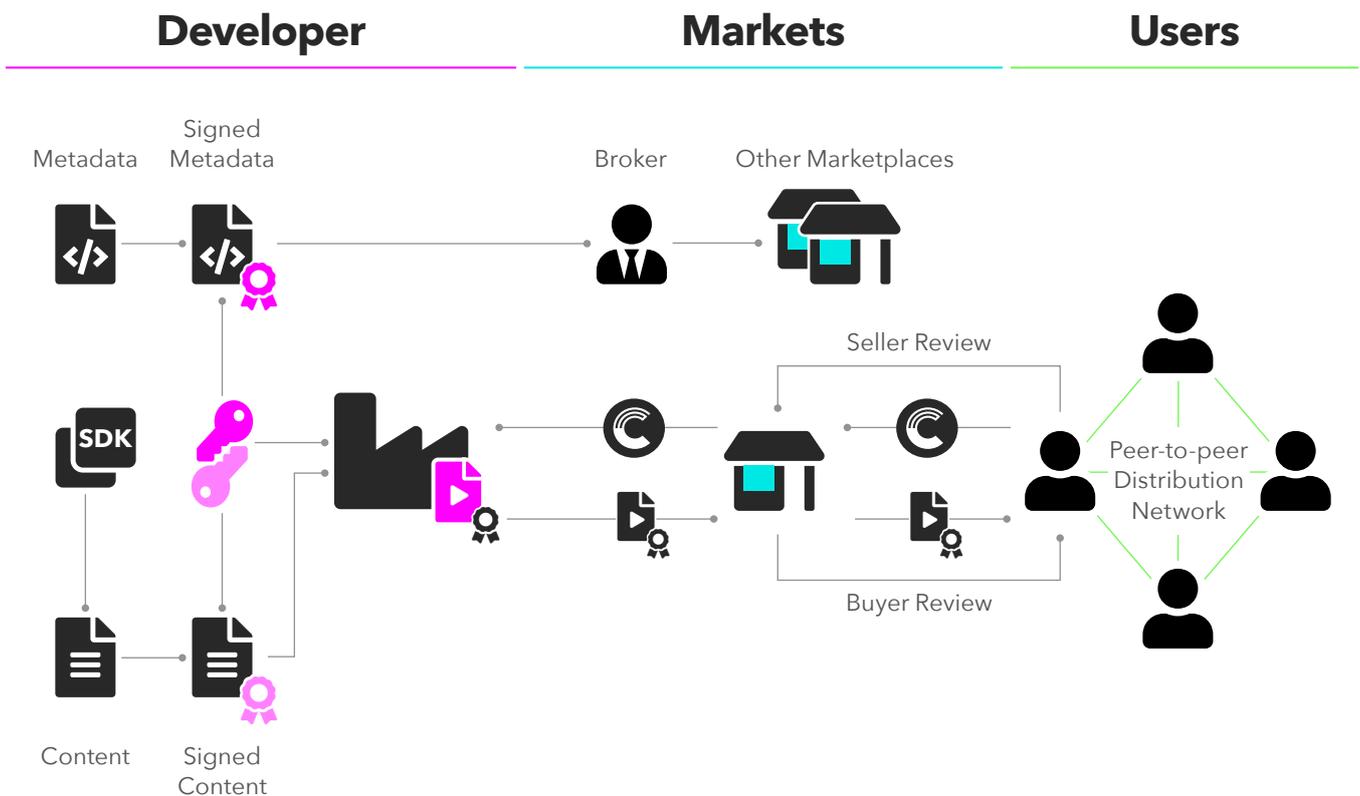
**fund research and development efforts to support an autonomous reward mechanism that is secure against economic vulnerabilities**

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# 4. Technical Overview

## Overview

The Catalyst concept comprises a collection of components and processes that can largely be divided into three groups: Content developers, markets, and users. Below is a block diagram overview of the major components and processes followed by details of the components that are being created to power the Catalyst ecosystem.



With traditional content markets, the product being sold is often only released once a purchase has been completed. The Catalyst system takes a different approach in that all content is available, in full, but has built-in licence control technology to prevent piracy. This means that 'buying and selling' software becomes a case of creating and trading 'licences' - small packets of data that enable access to a game.

**The Catalyst system takes a different approach in that all content is available, in full, but has built-in licence control technology to prevent piracy**

## Delivered Components

### SDK

A suite of tools provided to developers to integrate into their software to provide compatibility with the Catalyst ecosystem. Integration is, by design, very simple and can be 'bolted on' to existing software with minimal effort. The SDK also includes tools and guides for how to prepare cryptographic keys, correctly sign the software and prepare metadata (Description, Screenshots, Genre etc).

### Licence Factory

The licence factory is the origin of all licences. Developers install their cryptographic keys into a self-maintained instance of the licence factory software which will then generate licences 'on demand' in response to payment of the appropriate fee. The licence factory is also responsible for hosting 'origin' data, which is the initial seed for the download of the software itself. Further distribution of the software is covered below under 'Users'. Finally, **the licence factory operates as an 'endpoint' for licence validity checks, providing a final authority on piracy of a piece of software.**

### Marketplace

The marketplace software is an open source component that allows third parties to buy and sell licences from licence factories, other marketplaces or even from users. At its essence, it is a known place where developers can offer their wares and users can find them. Typically, a marketplace will offer other features to users and developers to provide 'value add' services. It is worth

noting that at a fundamental level, **marketplaces, licence factories and clients are all equal peers in the buying and selling of licences** with the exception that licence factories never 'buy' licences. This means that marketplaces are free to 'buy' licences from a factory without an end user to sell them to or can 'sell' licences from an existing inventory without involving a factory. It also means that users can trade licences between themselves. Crucially, it is the cryptocurrency technology itself that prevents duplication of the licences and piracy.

### Client

The client, another open source component, performs two key tasks. It provides a virtual wallet which contains both the users current balance and their 'owned' licences to facilitate the buying, and optionally selling of licences. **Typically, a client would connect to a marketplace, or a series of marketplaces to provide access to a range of content for sale.**

The second key task of the client is to operate as a peer node in the distributed file sharing system that hosts the binary content of games and other content. Given the decentralized nature of the Catalyst system, it makes sense to ensure decentralization of the file hosting itself, removing the burden from the developer and speeding up download by localizing the data. **The licence factory acts as the 'origin', the initial source of the data, after which clients themselves can freely share the data as it is protected from piracy via the licensing paradigm.**

# 5. Technology Timeline/Roadmap

## Token Generation Event

Catalyst requires significant funding to develop both the protocol and third party service layer required to utilise it. For a variety of reasons – particularly for the sake of scalability, since the ecosystem will eventually need to cater to millions of users – all the software required, the protocol, the mobile and desktop client software, crypto wallet, user interfaces and applications, network infrastructure and monitoring will need to be completed before the ecosystem will function effectively.

**This Tangle network will need to be launched and its growth facilitated to the point that it can operate at scale.** We will also need to market the protocol to content producers to the extent that sufficient content is onboarded to create an appealing network upon which to build applications. This requires significant funding and as such the creation of the Catalyst Utility Token is an ideal method as the token itself will allow users to transact with all the digital and physical marketplaces that are created on the protocol.

We hope to assemble a large and diverse group of investors from around the world, not only individual accredited investors, but also companies that, in our view, should have a strong interest in seeing a reformation of the current broken digital content distribution systems.

**We welcome strategic investments from companies who are likely to become adopters of the protocol** we are building and who may be able to contribute to its development. Additionally, we invite funding and involvement from investment arms of blockchain and decentralised protocols that might seek to invite Catalyst to partner with them.

To raise this funding we are planning a Token Generation Event (TGE) in Q2 2019 with a \$30M Hard Cap. In order to launch such an ambitious TGE successfully **we are seeking what we are calling “Pre-Sale” TGE funding** to market and launch Catalyst effectively to the global community of Crypto partners and investors.

This early-stage funding comes at a significant risk, and therefore the tokens are being offered at a 50% discount to the main TGE price. Additionally, there will be no lock-in period on sales of these tokens once the main TGE is complete. This may be the only stage that there is any discount on the tokens, so we do urge serious investors to contact us to take advantage of this potentially unique opportunity.

## Pre-Sale TGE Operation

The Catalyst pre-sale TGE will be issued by Catalyst Protocol Ltd, a Gibraltar Limited Liability Company, and will be organized around contracts running on an as yet chosen protocol, potentially IOTA, EOS, BYTEBALL or another.

Participants willing to support the development of the Catalyst Protocol can do so by sending the chosen currency to the designated address. By doing so, they will be purchasing Catalyst Tokens (CAT) which are sent instantly to their wallet.

- The accepted currency during the ICO is to be determined.
- There will be a soft cap to be determined, but no hard cap.
- The pre-sale will last 60 (sixty) days, if target is not reached sooner.
- The ambition is to raise IRO \$30M

<b>Issuer</b>	Catalyst Protocol Ltd
<b>Jurisdiction of Issuance</b>	Gibraltar
<b>Legal qualification</b>	Utility Coin, not a security
<b>Minimal goal</b>	USD 500,000
<b>Target</b>	USD 3,000,000
<b>Date of pre-sale TGE start</b>	October 1, 2018
<b>Date of TGE end</b>	60 days later or until target is reached

## CAT Tokens

The Catalyst token will be a token of value. The token is a digital asset, bearing value by itself based on its underlying assets, properties and/or associated rights.

Our tokens will rely on a well-established infrastructure, such as EOS, IOTA or Byteball benefiting from several advantages:

1. **Infinitely Scalable**
2. **Zero Fees**
3. **Quantum robust**

Whilst the majority of TGEs rely on Ethereum and the ERC-20 protocol - there are well documented risks associated with this, mostly in respect of transaction speeds of which Ethereum is still only capable of 15-20 per second vs our chosen protocol which will manage many multiples of this rate.

## Budget

Field	% of budget	Activities
Legal	10%	Company establishment, contracts with merchants, etc.
Product Development	40%	Product development according to development roadmap
Operations	10%	Management, employee salaries
Marketing, sales, merchant acquisition & partnerships	40%	Expenses for launching ICO, attracting third party developers & partners

## TGE Roadmap

	Q4 2017	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019	Q2 2019
<b>Dev</b>	Marketplace Framework	Protocol Development	Client Demo	White Paper Released	Open Beta	Launch	
<b>Funding</b>	Team Assembles	Corporate Formation	Pre-seed round		<b>"Friends &amp; Family" Raise up to \$3M</b>	\$30M Private Sale	\$30M Public Sale Close

## 6. Conclusion

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Our vision is to truly pioneer in the field of distributing content. We understand this market, and can see an opportunity here to win big. The collective experience of the founders has been built on innovation in areas that are now widely accepted, such as Smart TV gaming, subscription movie rental and media marketplaces. **We believe that a correctly conceived and executed distributed trust marketplace is going to be unstoppable.** Such a truly decentralised autonomous organisation, will truly energise the crowd, with a new cryptocurrency at its centre, to democratise the game and media industry by providing the technology and impetus to unite producers and customers - an open and sustainable system that puts their collective interests first.

This new model empowers consumers, instead of either selling their data to advertisers or just pocketing vast commissions to fuel monopolies. The big players in the industry have excessive centralised influence and it is hoped that not just Catalyst and its associated applications, but also other trust based enterprises will band together to compete effectively as part of a paradigm shift in the tools of commercial power.

A lively economy will result around Catalyst, and it is believed that **a huge opportunity now has materialised to challenge the current players** with a global marketplace for both digital and physical goods driven by the collective. The Catalyst ecosystem, managed by the Catalyst Protocol Foundation and fuelled by the network effects of a remuneratively significant user-get-user system, united by cohorts of independent producers and their marketplaces just might have a shot at taking them on.

Catalyst will be built initially using a hybrid on-tangle/chain and off-tangle/chain technology solution, with the goal of eventually transitioning to a fully decentralized and autonomous system. The cryptocurrency will be used to compensate ecosystem partners based on each service's contribution to Catalyst's overall growth. The Catalyst Protocol Foundation will allow the cryptocurrency to become platform-agnostic, but we will leverage our large existing technology to drive mass adoption. As a result, Catalyst can scale to meet the interoperability demands of modern applications and become the basis for a new form of monetization.

**Through this vision, Catalyst will bring to fruition a new era of decentralized community ownership, enabling a vibrant ecosystem built around the progressive distributed trust model that shows the way into a more egalitarian future.**

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# Catalyst Founding Team



## **Ben Hardyment – CEO**

A recognized and accomplished entrepreneur with 16 years of experience building and exiting platforms. He founded Zapper in 2009 which is still one of the leading re-commerce sites for DVDs, CDs, Games & Tech products. He previously founded Webflix in 2002, the first online DVD rental business in the UK with a successful exit to LoveFilm in 2005. He received a series record offer on BBC's Dragons' Den.



## **Barn Cleave – CPO**

Fifteen years games and mobile experience - content and developer relationships, deep games market understanding. Experience with: Big Data, Corporate Business Development & Strategy, Digital Content & Electronic Distribution, Freemium, In-Game & Mobile Advertising, Micropayments, ODP (On Device Portal), Programmatic Advertising and Web/Mobile Commerce.



## **Kasper Hunt – CTO**

Veteran software engineer, Kasper led the engineering teams at PlayJam - a revolutionary TV games network - and was responsible for the design and delivery of the PlayJam Platform. With a strong background in embedded systems, having previously run worldwide R&D for an industry leading PCB/ATE manufacturer working with high profile customers including Apple, Raytheon, Rolls-Royce, Ferrari, Foxconn and Cisco.



## **Jasper Smith – Chairman**

During a career spanning 30 years, Smith has co-founded and developed a number of highly successful businesses in the digital media sector including Fantastic Corporation, The Optimistic Network, Static, PlayJam, PlayStack and Transgaming. PlayJam, initially backed by BSkyB, HSBC, Cazenove, became the world's largest TV games network before being acquired by Open TV in 2001 for \$68 million.





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