



chainium

# WHITEPAPER

**THE EQUITY MARKET IS BROKEN  
LET'S START AGAIN**

28/02/2018  
v3.0

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# 1 Executive Summary

At Chainium we have a simple mission: to disrupt the global equity market.

We stand for any business that wants to raise capital to grow. We stand for any investor who wants to buy shares in businesses they believe in. That's why we built Chainium. To connect businesses directly to investors, using blockchain. To make buying and selling shares easy.

Our platform is already available as a prototype on our website. It provides solutions to the problem of raising capital for large enterprises and smaller businesses alike. We offer business owners access to the sophisticated tools and techniques of the listed markets for a fraction of the price. For investors we provide direct access to a huge range of equity offers previously only open to institutional investors, for zero fees.

Raising capital through equity in the traditional way is a complicated and costly process. Running an IPO takes months of planning, multiple engagements with advisors, negotiations with banks and law firms to gain regulatory approval, and pitches to attract institutional investors. The process takes a minimum of twelve months, attracts hefty fees, and the end result is uncertain.

Our back-to-basics approach to raising capital reduces bureaucracy, whilst our use of blockchain technology removes duplication and eliminates errors. We allow investors and businesses to exchange digital share certificates for fiat or crypto-currency in a transparent, tamper proof and immutable distributed ledger. No intermediary or other reconciliation steps are involved in transactions, cutting through hundreds of legacy systems and solutions from the old world.



Figure 1: The Equity Market reinvented

Whilst some providers aim to avoid regulation, we believe it is important to offer a fully regulated platform, and therefore we are committed to working with regulators. We have already started the process of acquiring a European Banking license.

Underpinning Chainium is the utility token CHX, which is used as the fuel to transact on our platform. We are holding a token sale in order to create a community of token owners and raise the necessary funds to develop the production platform in 2018.

Chainium was founded by a core team who have worked together in the financial services industry for more than thirteen years.



**Figure 2: The Founders (Florian, Sascha, Ermin)**

We have the platform, team and experience required to disrupt the global equity market, one of the most inefficient and secretive industries you could imagine, and all we need is your help. Buying and selling shares should be easy. With Chainium, it is.

## 2 Market Analysis

### 2.1 An industry in crisis

Ever since the credit crisis and banking collapse of 2008, there has been a troubling paradox in the financial industry. On one hand restrictions on lending have created an acute funding gap for business owners who cannot get access to the capital they require to fund their growth. Yet at the same time record low interest rates have left investors searching in vain for meaningful returns.

An efficient, accessible equity market should hold the answer to this paradox. Business owners should be able to offer a share in their business in return for the capital they need to fund growth. Investors are rewarded with a share in the future success of the company. That way we would expect to see equity markets grow.

However, we actually see the opposite. Traditional shareholder engagement is decreasing in record numbers with fewer individual shareholders and fewer Initial Public Offerings (IPOs). In many economies the number of listed companies continues to decrease. In the US for example every year between 1996 and 2012 saw a decrease in the number of exchange-listed firms (8.000 to 4.100).<sup>1</sup> Between 1980 and 2000, an average of 310 companies went public every year, but between 2001 and 2015 only 111 did so.<sup>2</sup>

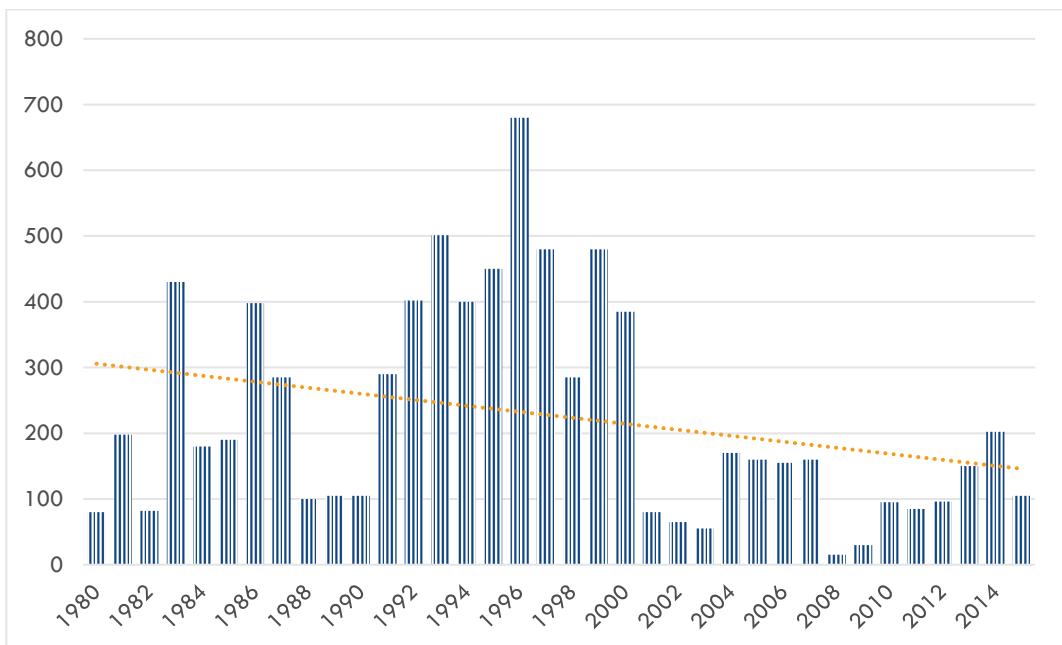


Figure 3: IPO Decline

<sup>1</sup> Craig Doidge, G. Andrew Karolyi, and René M. Stulz: The U.S. listing gap, 2015. Page: 4

<sup>2</sup> Ewing Marion Kauffman: M&As & IPOs. Source: <http://www.kauffman.org/microsites/state-of-the-field/topics/firm-and-industry-dynamics/ma-and-ipos>

The millennial generation are not interested in the traditional stock or fund markets. They are put off by high fees, lack of transparency and a legacy of distrust from the 2008 financial crisis. Centuries-old investment processes are being challenged as a new generation turns away from the industry.

"The basic elements of the current value transfer process have been in place for over 150 years"<sup>1</sup> and are ripe for disruption.

## 2.2 Traditional Capital Raising

Capital fund raising through traditional mechanisms has changed little in decades. It's expensive, time consuming and ultimately there is no guarantee you will get the funds you need. The options available to business owners are limited.

### 2.2.1 Public Equity

Companies that wish to offer equity through a public listing for the first time can attempt an Initial Public Offering (IPO), companies that are already listed and wish to raise additional capital can undertake a Rights Issue or placing of new shares. While such corporate actions allow companies to raise capital, this triggers a range of disclosure obligations. New entrants encounter a multitude of costs through both the IPO process and the continuing obligations and expenses associated with going public.

If you run a successful IPO, expect to invest 7% of your raised capital in fees, advisors, lawyers, regulation applications, and investor communications.<sup>2</sup> Your operating costs increase too, as you need to put new governance structures in place. This is a huge industry for intermediaries alone, as you need a registrar, brokers, an investor relations team and mechanisms to keep the markets continuously updated.



<sup>1</sup> World Economic Forum: The Future of Financial Services: How disruptive innovations are reshaping the way financial services are structured, provisioned and consumed, 2015.

[http://www3.weforum.org/docs/WEF\\_The\\_future\\_of\\_financial\\_services.pdf](http://www3.weforum.org/docs/WEF_The_future_of_financial_services.pdf), page 44

<sup>2</sup> pwc: Considering an IPO? The costs of going and being public may surprise you, 2012. Page 10. Source: <https://www.pwc.com/us/en/deals/publications/assets/pwc-cost-of-ipo.pdf>

Figure 4: Traditional way of fundraising for listed companies

A study from pwc shows that 90% of companies spent more than USD 1 million on one-off costs associated with their IPO and USD 1.5 million on recurring costs as a result of being public.<sup>1</sup>

Costs of this magnitude put public capital raising mechanisms out of the reach of more than 99% of global businesses.

## 2.2.2 Bank Financing

For most companies bank financing is the most popular, and in many cases the only, way to raise capital. However, the Global Financial Crisis led to a tightening of bank credit policies requiring the application of strict risk processes and retention of significant capital buffers. Banks now demand more oversight when lending and generally are only willing to lend to well-established companies.<sup>2</sup>

Unlisted companies largely depend on bank financing, and yet typically the smaller a firm, the larger the likelihood that its funding application will be declined by a bank.<sup>3</sup>



Figure 5: Traditional way of fundraising for non-listed companies

## 2.2.3 Private Equity

The most popular alternative to bank financing is private equity. The private equity market is actually made up of a variety of informal networks of individuals and institutions who invest directly in businesses. Raising capital through private equity can take a number of different forms including Venture Capital, Angel Investors and Family Investing. The problem with all types of private equity is the inefficiency of the

<sup>1</sup> pwc: Considering an IPO? The costs of going and being public may surprise you, 2012. Source: <https://www.pwc.com/us/en/deals/publications/assets/pwc-cost-of-ipo.pdf>

<sup>2</sup> Crowdfunding: Many Scrappy Returns, Economist, Nov. 19, 2011, page 36

<sup>3</sup> European Commission: Survey on the Access to Finance of Enterprises, 2014, page 4. Source: <https://perma.cc/6U6G-DT24>

market caused by the relatively small number of participants and the lack of transparency, and of course zero liquidity.

### **2.2.3.1 Venture Capital**

Venture capitalists carry out two main functions: capital acquisition and capital provision. They act as an agent on behalf of the original providers of capital. Their objective is to maximize the value of their investment, which leads to a strong focus on companies with a good risk-return ratio. Venture capitalists often prefer to make a small number of large investments. Given these parameters, it is no surprise that venture capital is only available for a minority of SMEs. This is because private equity investors are usually attracted only to rapidly growing companies, such as innovative technology firms.

### **2.2.3.2 Angel Investors**

Business angels are private individuals who use their own money to invest in unlisted companies, often coupled with business advice or mentorship. Unlike in the venture capital market, there is no intermediary in the angel finance market. However, like venture capital it is still an inefficient market. A business owner needs to work a network of advisors to meet business angels and then tackle a negotiation where the power balance is almost always in the investor's favour.

### **2.2.3.3 Friends and Family**

For a significant portion of SMEs, investment comes from family and friends. Although these arrangements can work they are highly inefficient. A business owner needs to be lucky enough to have a personal network with the capacity to provide the funding required and then a fair value has to be agreed for the investment.

## **2.2.4 Crowdfunding**

The main potentially disruptive innovation in the capital raising industry over the past few years has been crowdfunding. Crowdfunding platforms were seen as an exciting tool to widen access to capital raising activities. New platforms were greeted with a lot of excitement as they had the potential to expand the sources of financing available to unlisted companies by facilitating equity investing from retail investors through the new crowdfunding intermediary.

Unfortunately, the initial promises associated with crowdfunding have not materialised. The well-documented challenge with crowdfunding is that the dominant platforms have not delivered on the initial optimism surrounding the industry. The largest crowdfunding platforms do not offer a legal framework for equity ownership. Rather, the disappointing reality is that they have simply become mechanisms to collate charitable donations for mostly non-commercial start up projects.

A small subsection of platforms described as *equity crowdfunding* do allow equity sales. Unfortunately, rather than disrupting the market by offering a low cost alternative this small number of platforms have built traditional legacy services and used their niche

position to leverage comparable fees to traditional capital raising. Once all the various fees and costs of an equity crowdfunding are taken into account the business owner will be left with no more than 80% of capital raised.

## 2.2.5 Token Sales

Token sales are the latest innovation in raising capital. Whilst there are obvious benefits to undertaking a token sale for certain blockchain technology companies that require a token to underpin their community and platform economics, clearly the vast majority of businesses do not require a token. A token sale does provide a useful capital raising mechanism but only for a very niche, very small subset of technology businesses in the blockchain industry.

## 2.3 Market Size

The existing global equity market is estimated at 74 Trillion assets under management, projections expect up to 100 Trillion in 2020. While a small number of publicly listed companies generate the vast majority of business headlines privately held companies actually represent 99% of this market.<sup>1</sup>

The size of the equity market size that is untapped is even larger. The World Bank estimates that there are 420–510 million micro, small, and medium enterprises worldwide of which 2.5 million are SMEs.<sup>2</sup> Globally, fewer than 30 per cent of these firms use external financing, of which half are underfinanced. The total unmet need for credit among MSMEs alone is estimated at USD 2.1–2.6 trillion globally.<sup>3</sup>

By comparison, the crowdfunding market was estimated at \$34 billion in 2015.<sup>4</sup> The World Bank projects that the value of the global crowdfunding industry will reach USD 93 billion by 2025.<sup>5</sup>

The newer crypto market is estimated to be USD 173 Billion but this is less than 0.5% of the global equity market.

## 2.4 The Opportunity

The potential market is enormous but it is being failed by the incumbent legacy intermediary industry that currently controls the interface between investors and

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<sup>1</sup> Eurostat, Key Figures on European Business, 2011, page 11. Source: <https://perma.cc/HUV4-TJLS>

<sup>2</sup> Source: <https://www.destatis.de/EN/FactsFigures/NationalEconomyEnvironment/EnterprisesCrafts/SmallMediumSizedEnterprises/SmallMediumSizedEnterprises.html>

<sup>3</sup> World Bank: Financing for Development Post-2015 32 (2013), page 32. Source: <https://perma.cc/9LZ2-5T4L>. Also see <http://www.worldbank.org/en/topic/financialsector/brief/smes-finance>

<sup>4</sup> Massolution: 2015 CF Crowdfunding Industry Report. Source: [http://reports.crowdsourcing.org/index.php?route=product/product&product\\_id=54](http://reports.crowdsourcing.org/index.php?route=product/product&product_id=54)

<sup>5</sup> World Bank: Crowdfunding's Potential for the Developing World, 2013. Page 44. Source: <https://www.jbs.cam.ac.uk/faculty-research/centres/alternativefinance/publications/>

business owners. Chainium is offering a brand-new service for 99% of the companies in the world. We bridge the gap between the old and new economies by simplifying established processes (dividends, general meetings, shareholder communication) through the power of blockchain technology, allowing everyone to participate and have access to tools and markets that are currently only available to a select few.

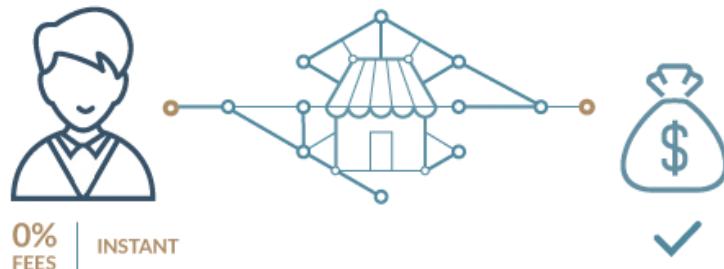


Figure 6: The Chainium Platform removing the middlemen

The old-world problems that Chainium solves are:

- **Barriers to Capital Raising:** Access to capital is traditionally controlled by a small number of powerful intermediaries. SMEs in particular are highly dependent on the liquidity and appetite for risk of their main bank. Many businesses simply don't get access to the capital they need to grow.
- **Barriers to Investing:** Access to investments is traditionally controlled by a small number of powerful intermediaries. Retail investors in particular are often excluded from corporate actions and investment opportunities.
- **High Costs:** Intermediaries charge both investors and business owners excessive fees. Lack of competition, even from new players like equity crowdfunding platforms, keeps fees high.
- **Lack of Transparency:** Company valuations, especially in private equity and crowdfunding transactions, are highly subjective. The lack of a transparent, liquid market puts sellers and buyers at risk.
- **Loss of Control:** SMEs raising capital privately often have no choice but to give up far more of their equity than they want to, as venture capitalists and angel investors only invest significant amounts in a small number of companies. Listed companies will usually have a minimum free float set by the regulators.
- **Time Wasting:** Complex, duplicate legacy bureaucracy makes applications for capital time consuming. Legacy providers such as banks have no reason to provide good customer service, as customers usually have nowhere else to go.

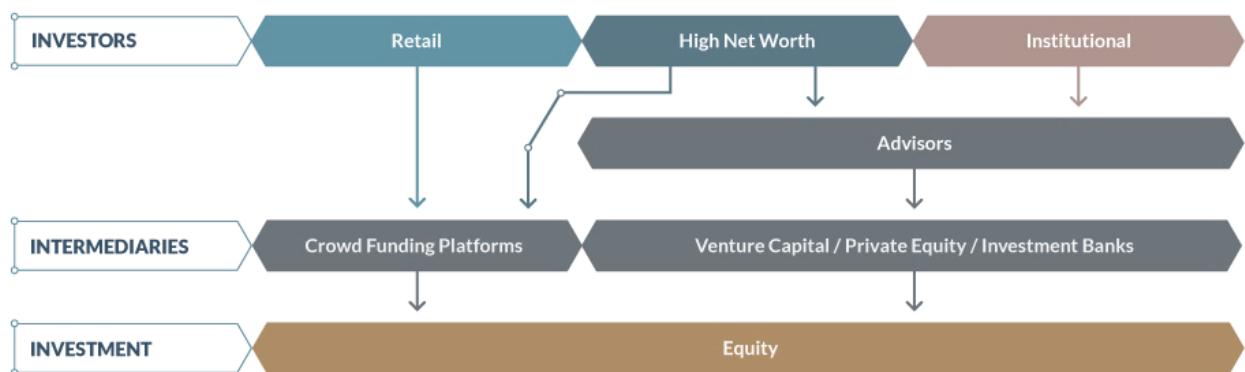


Figure 7: Traditional Capital Raising

## 3 Our Solution

### 3.1 The Platform

Chainium is the platform to buy and sell shares – business owners can sell equity in their businesses to raise capital and investors can buy and sell shares from businesses. You can see our prototype on our website.

Like all good ideas, at its core our platform is really simple. Chainium allows business owners to sell equity in their business in return for capital from investors. We can offer this service free of charge to both business owners and investors because we keep our processes simple and use blockchain technology.

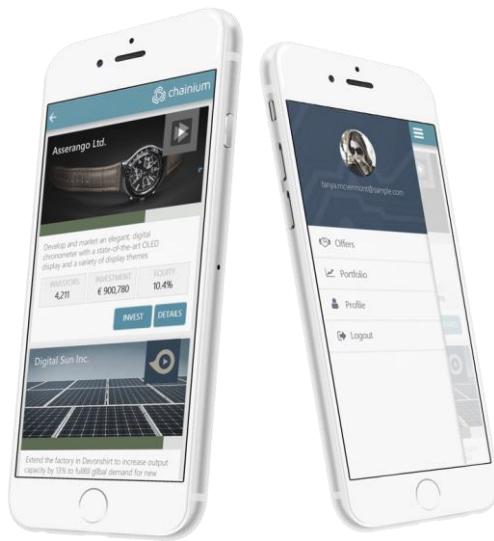


Figure 8: The Chainium Investor App Prototype

The clever bit is that business owners choose the terms on which they sell their equity and how actively they want to engage with their investors. A small family business could use Chainium to manage a simple private sale of an equity stake in order to ensure the sale is secure, legal and transparent.

Alternatively, a larger firm could use Chainium to run a public equity offering and manage regulatory compliance, reporting, KYC/AML, investor communication, shareholder voting and all the other services required to manage a large investor base.

Chainium removes the expensive intermediaries layer<sup>10</sup> and enables access to equity fundraising directly from investors.

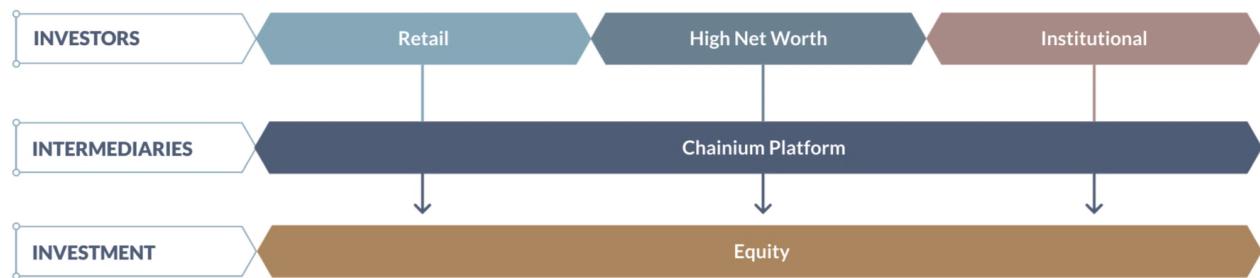


Figure 9: Chainium cuts out the intermediaries

There are a number of key functionalities that are provided either by Chainium or 3<sup>rd</sup> Party companies:



Figure 10: Modules of the Chainium Platform

## 3.2 Use Cases



Figure 11: Processes and Participants in Chainium

### 3.2.1 For the Business Owner

Chainium allows businesses to execute several different corporate actions in a simple, safe and cost-effective manner. The following examples are expected to be the most common ways business owners might use our platform.

#### 3.2.1.1 Case 1: Creating an Offer

Business owners who have registered on the platform can use our intuitive web application to set up an "offer" by simply following a step-through process. An offer is simply a time-limited invitation to purchase equity in a business at a fixed price.

Business owners have the option to select their investor base according to a number of criteria such as investor type (high net worth, professional, retail investors), by country, by region or by trading volume.

The key element is the fair valuation of the company to set the share price. This is achieved by applying Artificial Intelligence and Predictive Modelling techniques based on company financial KPIs and macro-economic data.

Besides key values like revenue, costs and ownership structure, external factors like the economic situation in the particular country, the industry sector's performance are taken into account to make a fair valuation range to suggest to the business owner. We use a large data warehouse off-chain to provide the predictive data for the suggested valuation.

Business owners also have a number of enhanced paid options such as promoting the ranking of their offer for a selected target group of investors.

### **3.2.1.2 Case 2: Dividends**

Chainium allows the business owner to automatically pay out a dividend back to its investors. The investors receive the dividend on a pre-determined ratio (profit per share) to their account. Dividends can be in the form of fiat cash, crypto-currency, an allotment of additional shares or a corporate reward scheme. Chainium can automatically calculate and distribute the dividends through a Smart Contract to allocate the correct amount to each account. Each investor receives a notification regarding the dividend received and the accounts are updated accordingly.

### **3.2.1.3 Case 3: Shareholder Voting**

Voting rights are an important motivation for investors to purchase a stake in a company. The ability of shareholders to have a say on the strategic direction of the company in which they have invested is an important element of shareholder democracy. Voting in listed companies usually takes place a couple of months after the year-end statement has been published. With Chainium the same voting logic can be applied, or any other voting schedule a business owner wants. Due to the ease of automated online voting, companies can use voting more often to get approval for significant corporate actions such as larger investments or other strategic decisions.

Chainium allows the business owner to create a time-limited Voting Event. Once the proposal is submitted, all investors get a notification to vote on the resolution with either yes, no or abstain with a pro-rata number of votes in line with their equity stake. The business owner gets instant granular feedback on the voting results.

### **3.2.1.4 Case 4: Register Analytics**

Knowing investors and the detail of who holds equity is essential for all companies. The benefit of the blockchain as the single source of immutable data is that there is no need for any other party to duplicate the information. Chainium Registry Analytics tool set gives the business owner a deep insight into the demographics of the investors.

The Registry Analysis is made up of two different modules:

- The shareholder list providing details of the equity distribution among investors. The list allows you to drill into investor details as well as the transaction history
- The Analytics Dashboard contains a set of reports that give insight into all dimensions of the investor base and their holdings such as trading volumes, top shareholders, distribution among countries or other available demographic data

The Analytics Dashboard also allows business owners to compare their shareholder analysis against other similar companies listed on Chainium. This can be particularly useful for business owners considering creating an offer.

### **3.2.1.5 Case 5: Investor Communications**

Building a trusted relationship with investors is vital to increasing the chances of successful further investment, and it increases the likelihood of turning investors into

customers. Chainium provides a powerful communication module that allows companies to interact with their investor basis via multiple channels.

The Investor Communications module includes:

- Campaigns: A campaign is an interaction with the investors through internal or external channels, digital or paper-based. The business owner can setup a campaign and filter the target group that is required for the selected type of campaign. Investors can then be contacted directly through Chainium, via email or in app messaging or, using the export function, by any 3<sup>rd</sup> party service
- Export: This function allows you to export the investor base or a selection of it for external use. This could be a 3<sup>rd</sup> party CRM system or a local print shop. The selection criteria allow dozens of filters to be applied to narrow down the investor base
- Import: In order to provide a complete view of all investor activities, the import function allows you to import campaign specific data. For example; Investors may have received a paper-based voucher requiring them to register online to get a discount for a product. The data of all investors who have participated in this campaign can be imported so the history provides a full picture of investor interaction even though the execution was performed outside Chainium.

### **3.2.1.6 Case 6: Rewards and Perks**

Turning investors into customers and keeping them loyal is an important activity, especially for smaller companies with a large local investor base. Chainium provides dedicated functionality for managing corporate rewards and perks.

Rewards and Perks are offered in two areas:

- **Investor perks;** within Chainium the business owner can offer additional free, matched or heavily discounted shares as a reward for predefined user actions.
- **Customer perks;** smaller companies in particular can offer a special discount for investors with a certain minimum holding. Retail companies can even use the investor app as a loyalty card programme offering discounts or free items at point of sale.

The Rewards and Perks module is tightly integrated with the Campaigns Module in order to track the success of all kinds of investor engagement.

### **3.2.1.7 Case 7: Corporate Financial Reporting**

Listed and unlisted companies all have financial reporting obligations, depending on the jurisdiction and legal status of the entity. The purpose of the Financial Reporting is to minimise effort involved in this obligation as far as possible. Chainium not only automatically generates basic annual financial reporting documents, in some jurisdictions, the platform will also be able to submit the relevant shareholder data automatically to the regulatory authorities (where the infrastructure exists). The key

information maintained in Chainium is the investor registry that holds all investor master data.

### **3.2.2 For the Investor**

Chainium allows investors to search, identify, evaluate and invest in a wide variety of businesses through direct offers and a secondary equities market in a simple, safe and cost-effective manner. The following examples are expected to be the most common investor initiated use cases;

#### **3.2.2.1 Case 1: Access to Offers**

Investors will use Chainium to participate in offers created by business owners or their partners. All investments require a validated investor account on the platform. Once logged into the app, investors are presented with relevant offers based on a number of criteria:

- Current location
- Investor preferences
- Filters selected or search function
- Recommendations made based on investors with similar trading profile in comparable markets

Once an investor has selected an interesting offer, the investor only needs to determine the volume of the investment they wish to make and ensure they have sufficient funds available for the transaction. Once the transaction is completed the investor receives a receipt, a transaction is created in the blockchain via the open offer Smart Contract and the newly acquired shares are displayed on the investors account.

#### **3.2.2.2 Case 2: Portfolio Dashboard**

Investors need to stay informed about the performance of their investments. The Portfolio Dashboard provides a comprehensive overview of all investments made and their current performance. The list also allows investors to drill-down further to get insight into details such as other market transactions, volumes and benchmark indices. The Portfolio Dashboard acts as the central hub for investors in Chainium.

#### **3.2.2.3 Case 3: Performance Analytics**

One of the unique competencies of Chainium is performance analytics based on Machine Learning. Algorithms analyse investor trading patterns, trends and individual behaviour to make recommendations on improved trading strategies or approaches based on an investor's profile.

#### **3.2.2.4 Case 4: Secondary Market**

One of the key features of Chainium is the secondary market that enables trade in equity of any company that is participating in Chainium. Company equity is immediately tradable after any initial Offer has been completed and capital collected.

During the offer period, investors can only buy from the issuing company directly. Access to the Secondary Market is provided to all investors automatically.

We can charge zero fees because using the blockchain we are able to know exactly who owns each share in any business using Chainium. As buyers and sellers can be matched directly we don't need to pay a broker commission or a market maker through bid-offer spreads.

The transparency also provides improved liquidity for investors. Investors will not require brokers to access the market and will be able to do so directly with full visibility. This is also a benefit to business owners as improved liquidity should result in improved price discovery and therefore more accurate valuation.

### **3.2.3 For Third Party Developers and Providers**

Third party developers and service providers in the ecosystem are companies that provide applications and/or other services to investors or business owners via Chainium. They interface with the ecosystem through an open API to prove their customers additional value, on top of the platform's core functions. Such companies can be intermediaries in the traditional stock market, for example advisors such as brokers recommending investment opportunities, or they could be service providers, for example offering business owners KYC checks for their shareholders.

Providers in Chainium include, but are not limited to;

- Advisors
- Brokers
- Banks
- Clearing Houses
- Stock Exchanges
- Registrars

All providers pay a fee to query the data set (off- and on-chain) via a secure API that is provided and maintained by Chainium. The interface grants access to third parties in line with our legal requirements under GDPR. More importantly the access is also strictly controlled in accordance with the specific user choices that our customers make when signing up to the platform. Note that users who choose to opt out of data services may incur a platform fee.

#### **3.2.3.1 Case 1: Investment Advisory**

Using our API and account management modules certified advisors using Chainium can create campaigns and targeted communications to their own customer base in order to market certain offers. Providers can work with business owners through Chainium to reward this behaviour.

### **3.2.3.2 Case 2: Registrar Services**

Existing Share Registrars can access investor and transaction data from Chainium in order to offer their own proprietary reporting and analytic services to customers. This could complement their existing legacy registry services or be offered as a value add to Chainium customers via a third party developed app.

## 4 Benefits

Chainium brings significant benefits to both investors and business owners by putting them in direct contact with each other, without the middlemen.

### 4.1 Business Owner Benefits

For businesses, Chainium will enable them to...

- Sell shares in a listed or non-listed business – using an intuitive online and mobile platform.
- Sell directly to investors – enabling them to communicate directly and build relationships with investors.
- Remove the middlemen – cut out advisors, brokers, banks, clearing houses, registrars and all other administrators.
- Raise capital without an IPO or VC backing – no need for non-listed businesses to run an expensive IPO or rely on venture capitalists anymore.

For a fee - support whenever they need it...

- Capital Raising Advice - for businesses who are looking for advice and support with raising capital and launching a share offer.
- Shareholder Engagement - we offer a range of shareholder services including communications and event management delivery.
- Investor Insight – we use our data and predictive models to forecast who investors will be and how they will behave.

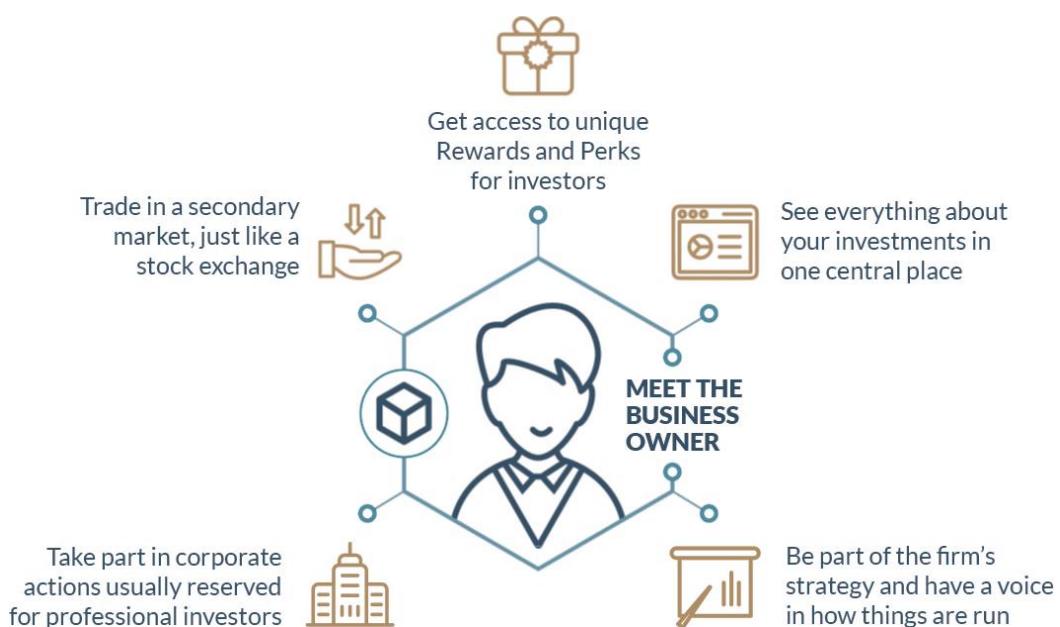


Figure 12: Benefits for Business Owners

## 4.2 Investor Benefits

For investors, Chainium will enable them to...

- Buy shares in a business – no need to limit them to listed companies, they can now invest in non-listed businesses too.
- Buy directly from businesses – invest in businesses that they really believe in.
- Remove the middlemen – cut out banks, brokers and all other administrators.
- Get access to exclusive investment opportunities – invest in any share offering available on our platform.

For a fee- support whenever they need it...

- Investment Advice - for investors who are looking for advice and support when buying and selling shares
- Business Insight – we use our data and predictive models to identify businesses that fit their investment profile



Figure 13: Benefits for Investors

## 5 Applications

Chainium has distinct target groups with different but interlinked needs; business owners, investors and 3<sup>rd</sup> party developers and service providers. To cater for this, Chainium is providing different applications for the target groups:

### 5.1 Business Owner Web-App

Chainium offers business owners a responsive web-application and administration front-end that runs on all modern HTML5-compliant browsers. While the web-applications also run on smaller devices, the implementation caters for space requirements thanks to the extensive reporting and analytics capabilities of Chainium.

### 5.2 Investor Mobile App

Unlike traditional investing platforms, our Investor app has been designed specifically for mobile supporting both Android and iOS devices. We have developed the app with user experience as the primary driver ensuring that any complexity is hidden behind the scenes. Investors who are unfamiliar with cryptocurrency do not need to know that the blockchain or any cryptocurrency is involved in their transaction at all.



Figure 14: The Chainium Investor App Prototype

### 5.3 API and Community Features

To allow the open source community to build applications that interface with Chainium ecosystem, we will provide rich, secure APIs along with documentation, support forums and blogs. The goal is to build and maintain an active community that provides exciting added-services to Chainium.

## **5.4 Community Apps**

Both investors and business owners will be able to use applications that have been built by the community and 3<sup>rd</sup> party providers (free as well as commercial). The application platform allows the target groups to download and/or access additional services.

## 6 The CHX Token

CHX is the utility token that fuels and runs Chainium and the underlying network. Business owners are required to lock up CHX tokens in a Smart Contract in order to launch an equity offer on Chainium. This ties business owners to their investors and protects the entire community from spam and fraudulent offers. Business owners and investors can also use CHX to purchase additional value add services.

CHX tokens do not represent equity or securities in Chainium itself nor can they be used to purchase equities or securities offered for sale on Chainium.

### 6.1 The Role of CHX

In practice CHX tokens are used for;

Offer Reserves:

- Business owners are required to lock up a reserve of CHX tokens for the life of the equity they issue.
- Business owners must lock up at least 1% of the total value of the equity on offer, but they may opt to offer a higher reserve if they choose. The lock up value is visible to all investors.
- The CHX lock up provides a level of guarantee to investors that business owners will remain committed to their investors.
- The lock up CHX remains the property of the business owner but they controlled via a Smart Contract. In the event of an orderly buy back of all equity the business owner can reclaim their lock up CHX.
- In the event of a default the lock up CHX are distributed to the investors.
- CHX reserves create a minimum barrier cost for spurious offers, helping to protect against fraudulent listings and denial of service attacks.

### 6.2 Payment of Platform Fees

- Fees from business owners for paid services
  - o Capital Raising Advice - for businesses who are looking for advice and support with raising capital and launching a share offer.
  - o Shareholder Engagement - we offer a range of shareholder services including communications and event management delivery.
  - o Investor Insight – we use our data and predictive models to forecast who investors will be and how they will behave.
- Fees from investors for paid services
  - o Investment Advice - for investors who are looking for advice and support when buying and selling shares.
  - o Business Insight – we use our data and predictive models to identify businesses that fit their investment profile.

- Fees from 3rd party institutions for anonymised data feeds.
- Fees from 3<sup>rd</sup> party developers to build apps that query Chainium, based on service level and user numbers.

### **6.3 Community Rewards**

- CHX reward referral program for new users sign-up.
- CHX top-up/ bonus schemes for business owners who run successful capital raising offers.
- CHX payback program for business owners based on volume of ancillary services purchased.
- CHX payback program for 3rd party API users based on number of API calls and unique transactions.

## 7 Company Structure

Our company, Chainium AG, is based in Liechtenstein, an ideal location, given the strategic advantages of the country (highly supportive in terms of regulation needs, access to Swiss and EU-markets) and in close proximity to all modern European markets. We already have hubs in UK and Germany, are in discussions with Hong Kong, and will soon open more hubs in North America and Asia.

### 7.1 Chainium AG

Chainium AG was incorporated in 2017 as a legal entity in Vaduz, the capital of the Principality of Liechtenstein. The company is majority owned by the three original founders. Our early employees and advisory group also hold minority equity stakes in the company. No external party or VC currently owns any equity stake in the company.

The company is supervised by EU jurisdictions and policies, most notably the Financial Market Authority (FMA) Liechtenstein (Finanzmarktaufsicht). Chainium AG acts as the operational entity for all activities of the organisation and as the holding entity for funds and tokens. Chainium in its entirety acts neither as an investor nor as an issuer.

We directly employ staff and contractors in the UK, Germany, Bosnia, Switzerland and Liechtenstein. We are the organisation that is fully dedicated to providing the technical framework for Chainium. This includes:

- Defining the equity offer framework through Chainium in a secure, fair and transparent manner
- Creating the fair valuation range mechanism for the offer
- Developing and implementing the underlying Ethereum smart contracts that are required to process on-chain transactions
- Developing and implementing the off-chain data warehouse required for ancillary services
- Creating incentives for business owners, investors and third-party providers to join Chainium
- Releasing Chainium apps as open source reference implementation that allow users to participate in Chainium
- Actively managing the legal, regulatory and compliance framework for Chainium
- Actively managing the security of Chainium
- Creating the utility token (CHX) and executing the token sale event to fund the development and operation of Chainium

## 7.2 Our Business Model

Investors can purchase shares on Chainium for zero fees, and business owners can sell shares on Chainium for zero fees too. This is fantastic for our customers, but you may be wondering how we make money?

Our model is simple, we don't charge fees for our basic services, buying and selling shares, but we do charge fees for all the additional services we offer. There are three key revenue sources for us;

### Premium Investor Subscriptions

- We will charge investors for support services including investment advice, portfolio management and business insight.
  - o Investment Advice - for investors who are looking for advice and support when buying and selling shares
  - o Business Insight – we use our data and predictive models to identify businesses that fit your investment profile
- Regular investors who want additional services such as access to our AI/ML prediction models will pay a monthly subscription.

### Business Owner Value Add Services

We will charge businesses for support services including capital raising advice, shareholder engagement and investor insight.

- o Capital Raising Advice - for businesses who are looking for advice and support with raising capital and launching a share offer
- o Shareholder Engagement - we offer a range of shareholder services including communications and event management delivery
- o Investor Insight – we use our data and predictive models to forecast who your investors will be and how they will behave
- Business owner shareholder services such as automated reporting and compliance, KYC checks, shareholder voting, dividend distributions and many more, are all chargeable services.

### 3rd Party Access

- Fees from 3rd party institutions for anonymised data feeds from Chainium are charged in CHX.
- Fees from 3<sup>rd</sup> party developers to build apps that query Chainium based on service level and user numbers.

## 7.3 Team

Chainium AG was founded by a core team that has worked together for more than thirteen years in the share registry and financial services industry.

We have a great mix of equity and share registry business experts, blockchain specialists and senior financial services and securities executive leadership. We have experience across multiple technology and business fields, and a strong track record of execution, innovation, and vision and strategy.

### **7.3.1 Sascha Ragtschaa - Chief Executive Officer & Co-Founder**



Sascha started Software Engineering at the age of 16, and worked for a number of web technology start-ups during the initial stages of his career. Working in streaming and multimedia technologies initially in 2000 (Kirch New Media, Munich) he branched out into data analytics and financial services, working as a Lead Engineer on multiple projects and business lines around the world: employee share plans, share registry, annual general meetings and events, shareholder communication and mortgage servicing to name a few. Over the past 16 years he has worked for the largest global share registry and transfer agency provider in the world, and held various technology leadership roles in Europe, Australia and North America. In his most recent function he was the Chief Information Officer for Europe, Middle East, Africa and Asia, managing five hundred technology staff across multiple locations and countries, covering the end-to-end technology delivery and servicing lifecycle of a global organization. He is now developing and deploying these capabilities in the new era of decentralized financial services applications, creating a business with the best engineers in the industry.

### **7.3.2 Ermin Dzinic - Chief Technical Officer & Co-Founder**



Ermin is a technically sophisticated engineering professional with broad experience in business intelligence, data analytics, software development methodologies and strong expertise in database systems. Ermin started his career in 1998 in the finance and banking sector, developing and supporting banking systems in Bosnia. In 2001 he moved to a Munich start-up company, working on the development of various CRM systems with a focus on shareholder relationship management and data analytics. Ermin then has worked at the world's largest registrar where he led various software development teams with a focus on data warehousing and web development. In his most recent position he was in charge of a regional (EMA) data analytics unit with a focus on gathering and analysing data about market trends and business opportunities to maximise efficiency and revenues, using data mining and machine learning to evaluate past trends and predict future events. Master's Degree in Electrical Engineering and IT Technology,

SCRUM Master, Certified Oracle Professional and Associate coupled with the completion of relevant Management and Technical Education. Multilingual proficiency in Bosnian, English, German and Spanish.

### **7.3.3 Florian Batliner-Staber - Chief Operating Officer & Co-Founder**



Florian, a native Liechtensteiner, specialises in technology solutions and product development around global equities and shareholder relationship management. He gained his first experience with technology start-ups in 1995 when he first founded his own internet agency. He holds a degree in communication science at the Ludwig-Maximilians-Universität in Munich, and worked for a number of years as a technical software manager at a Content Management provider. Between 2006 and 2017 Florian was the Head of Technology in Continental Europe for the world's largest registrar. Florian managed both IT infrastructure and software development projects, as well as product management. He has been responsible for the rollout of global back of office software products as well as the implementation of large-scale applications in the financial services industry in Europe.

### **7.3.4 Helen Tanner - Chief Marketing Officer**



Helen has worked as a senior marketing leader for some of the largest financial services companies in the world. AXA is one of the world's largest insurers and Helen headed up the 60-person strong communications function in Wealth Management in the UK. Helen was Marketing Director for UK & Europe for the largest global share registry and transfer agency provider in the world. In these roles, Helen's specialised in marketing communications, data analytics and innovation, successfully creating and launching a range of new products to market.

Helen has also founded a data and marketing consultancy business so she brings a wealth of experience in both startups and corporates. This means she balances a hands-on approach with strategic leadership and she's known for her creativity, execution and tenacity.

### **7.3.5 Kenan Trokic - Development Manager**



Kenan is a articulate, mature and competent professional in payments and risk management. He is the co-founder of Moore, an IT company specializing in facilitating digital payments and identities with customers among ranks of banks, payment processors and top global card brands. With a Master's degree in Computer Sciences and MBA, Kenan knowledgeably combines creative thinking in technical and business aspects of digital banking. Having held many senior positions in tech and business, his decisions and leadership led to launch and development of four payments processors, including bank-shared, independent and a branch of NYSE listed global processor. Kenan had one successful exit and is devoted to development of digital banking.

### **7.3.6 Lejla Trokic - Blockchain Developer**



Lejla is a co-founder and CTO of Moore. She is resourceful, problem-solving senior software engineer specializing in designing and deploying secured IT systems. As Oracle certified Developer and Security Implementation Specialist, Lejla designed full stack data processing architecture for systems running 24/7 in private and public clouds, with operations continuity. She has innovatively developed and implemented efficient and cost-effective solutions in banking and payments sectors complying with security and regulatory requirements, which were audited and accepted by Qualified Auditors. Among others, Lejla designed and implemented systems and applications used by banks and processors, that include Transaction Authorization, Risk Management, Clearing, Bank Settlement, ATM Monitoring and Fraud minimization. Lejla is bringing technical expertise, along with creativity and attention to details.

### **7.3.7 Nezir Begić - Designer**



Nezir is a talented designer from Sarajevo. Nezir loves everything to do with design and he has worked for big international businesses as well as local start-ups. Nezir studied Design & Multimedia at IT Academy Sarajevo and he now works on a range of design projects, from app design to web design to digital communications. In his spare time, Nezir has worked on many community projects and he's been recognised by the local media and press.

## **7.4 Advisory Board**

We have the benefit of a great mix of senior advisors within the financial services industry, hand-selected and known to the management team and CEO for many years. Each advisor has a clear focus and specific terms to support our business. In our current phase, and on top of the regular advice and insights, our Advisors have agreed to actively promote and make introductions through the overall network of business contacts, industry experts, helping us to grow our network, our platform and gain access to the most senior people across the investment industry globally. As most of our advisors are very tech savvy and know global equities markets very well, they are actively helping and shaping our final product and services.

Most notably, our advisors are incentivised on the success and growth of the business alone. Unlike other current blockchain organisations, the majority of our advisors are not personally benefitting from the token sale. They hold advisor equity in Chainium AG, specified through a contract, and if the business grows then the advisors should benefit.

### **7.4.1 Klaus Tschütscher - Ex Prime-Minister**

Klaus is a senior figure and ex prime-minister in European politics and he'll support us to develop our European business and client network, as well as support with the political landscape and regulations.

### **7.4.2 Mark Pui - Senior Executive at PWC**

Mark is a senior executive at PWC in Malaysia and he'll support us with the overall business strategy, regulatory and compliance matters and will help us to gain entry into the Asian Market. He has been involved with Chainium for some time, and we are happy to have him on board.

### **7.4.3 Jan vom Brocke - Professor of Information Systems**

Jan is a Professor of Information Systems at the University of Liechtenstein and he'll work with us to develop innovative algorithms for equity market data. We already have a partnership with the University, to work through machine learning and data matching for our business validation module. He is a great guy and very well known in the FinTech community.

### **7.4.4 Yana Afanasieva - CEO and Founder of Competitive Compliance**

Yana Afanasieva is a compliance and regulatory expert in the fields of Fintech, blockchain and cryptocurrencies and former head of regional compliance for PayPal and Amazon in Luxembourg. She is also CEO and Founder of Competitive Compliance, a boutique compliance consultancy firm, supporting several high-profile Fintech, blockchain and cryptocurrencies start-ups. In addition, Yana is a mentor at

the Fintech Startupbootcamp accelerator in Amsterdam and an active contributor for regulatory initiatives at Swiss Finance +Technology Association and Zug Crypto Valley community. Yana's the perfect advisor to Team Chainium and we're thrilled to have her onboard.

#### **7.4.5 Iain Robertson - Operations Director at Babcock MSS**

Iain Robertson is Operations Director at Babcock MSS, a global managed cyber security solutions provider. Prior to setting up Babcock MSS Iain held senior roles in Engineering and Enterprise IT in the Babcock Group, a FTSE100 engineering firm. Iain has extensive experience and specialist knowledge in Security Operations, Security Culture and Information Assurance. He has led technical teams his entire professional career and brings significant experience of taking new services to market.

#### **7.4.6 Mark Westcott – Co-Founder ShadowFall Capital & Research**

Mark Westcott is co-founder of ShadowFall Capital & Research, a short-focused UK hedge fund. Prior to founding ShadowFall, Mark held senior investment banking positions in London, most recently as Head of Institutional Equity Sales for Cantor Fitzgerald. Mark has extensive capital markets experience including IPOs, secondary placings and equity trading. He has worked in front-office financial services his entire professional career and brings a deep knowledge of equity markets and fund raising for corporates. Mark holds CF10 (Compliance Oversight) and CF11 (Money Laundering Reporting) Controlled Functions at ShadowFall in addition to CF4 and CF30.

### **7.5 Liechtenstein FinTech Hub**

Liechtenstein is the ideal hub for FinTech companies, due to its unparalleled advantages of a finance centre:

- High level of political continuity and stability
- Direct access to two markets (EU and Switzerland)
- Liberal economic policies and progressive approach to virtual currencies<sup>1</sup>
- Stable social, legal and economic conditions
- Solid public financial policy
- AAA rating
- Swiss franc as legal tender

In relations to its population, Liechtenstein is the most successful FinTech environment globally. Together with Switzerland, Liechtenstein plays a leading role in the FinTech sectors due to minimal bureaucracy, stable conditions and a Government that offers

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<sup>1</sup> Financial Market Authority Liechtenstein, Fact Sheet on Virtual Currencies, Source: <https://www.fma-li.li/files/fma-fact-sheet-virtual-currencies.pdf>

pragmatic support and fast decision making, key benefits in an industry that is about to see more regulation.<sup>1</sup>

We have already engaged in direct discussions with Liechtenstein's Financial Market Authority (FMA) to ensure the business plan complies with all regulations, and we are getting great support from the government, the regulatory bodies and the technology community.

As we have personal links to the region (one of our founders is a native Liechtensteiner), we are equally acting as ambassadors for the location, its economy and people, and its possibilities.

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<sup>1</sup> Financial Centre Liechtenstein, 2017, page 10

## 8 Regulatory and Compliance

The management team has been operating for many years under heavy regulatory scrutiny and oversight across multiple jurisdictions and markets. We believe that further regulation in the crypto and blockchain industry is inevitable and will present opportunities for reputable market leaders that have the experience and expertise to succeed in a regulated environment.

Sascha Ragschaa the CEO of Chainium AG, has been operating under FCA Approval 1 regulations (EU / UK) for a number of years, and he is an expert in operating and running technology systems and services and businesses under regulatory guidance.

Chainium is not a bank deposit taker or an investment fund. Our initial platform model does not fall under any specific regulatory policies and requirements, and has received assurance by the FMA that it does not require regulatory approval.

In the early stages of Chainium rollout, we will use our token economy model to facilitate peer-to-peer based transactions. We will not hold or administer any fiat cash, nor manage any trading of equities, stock or shares. As a result of this, our initial product does not fall under prudential supervision or banking regulations.

However, we have already started engaging with the Liechtenstein government and the Financial Market Authority (FMA) to acquire a European banking license and become fully regulated and compliant, in order to manage fiat cash funds, and to facilitate trading and brokerage services. This is anticipated in Stage Two of the product development and rollout of additional trading features.

As we grow we will need to meet a number of regulations in different jurisdictions in the equity investment space, and we plan to invest heavily to meet certain regulatory needs. We will engage with the SEC in North America to start the process, the FCA in the UK, and the SFC in Hong Kong to cover our primary markets for the coming years.

In preparation, we are committed to invest immediately in the following common policies and procedures, to prepare for regulated activities:

1. KYC (Know Your Customer) - both for investors and retail shareholders, identifying and verifying the identity of our clients and customer base. This will also include any measures to satisfy AML (anti-money laundering) regulations that govern these activities.
2. Tax and cross border regulations such as FATCA.
3. PSD2 (Revised Payment Service Directive), enabling bank customers (consumers and businesses) to use third-party providers and FinTechs, such as Chainium.
4. GDPR, to protect and safeguard personal data.
5. MiFID II (Markets in Financial Instruments Directive) as a framework to govern and administer shares, stock and equities trading in the EU

Whilst these are common policies and regulations in the traditional finance industry, there are a number of unanswered questions and grey areas in the crypto-currency market. We are committed to actively working with regulators to identify the right mechanisms for our organisations.

We have the advantage of a very close and direct contact to the Liechtenstein government to ensure the regulatory framework the company operates in support the further successful development of the company. We are committed to following all required regulations and believe that active engagement with the Liechtenstein authorities will provide Chainium with a competitive advantage as the market inevitably becomes more regulated.

## **9 Competitive Analysis**

Chainium's mix of old-world equity finance expertise and new-world technology innovation is unique. There are however some companies and projects with partially overlapping aims, which we discuss in more detail in this section. Whilst some could be considered competitors, many could become customers or partners.

### **9.1 Crowdfunding**

The first crowdfunding sites, such as Kickstarter and Indiegogo, have been undeniably successful in raising capital in a novel way since they launched just over a decade ago. They do not however make use of blockchain or distributed ledger technologies and typically charge a minimum fee of 4% of any capital raised. Each of the sites also has its own specific limitations, for example Kickstarter only offers creative projects. A common criticism of these platforms is that they have become simply a mechanism to collect charitable donations, rather than invest in viable businesses.

### **9.2 Equity Crowdfunding**

A number of crowdfunding platforms have tried to respond to the negativity associated with traditional crowdfunding by specialising in equity crowdfunding. CircleUp, Seedrs and CrowdCube have all had success in establishing mechanisms for selling equity in unlisted companies. There are significant differences to our model though. They do not offer direct communication between business owner and investor, they do not provide transparency regarding who has purchased equity, and they charge a hefty 5-10% fee. In addition equity from crowdfunding is typically highly illiquid, with limited options for secondary trading.

By contrast, we offer a service for all types of businesses, and we will specifically target larger enterprises and listed companies. Our operating costs are lower and we have a simplified approach, which means we can charge zero fees.

### **9.3 Execution Only Listed Trading Platforms**

For many years there have been execution-only platforms for trading listed equities on the secondary market. Two of the most innovative are The Share Centre and Robin Hood. These platforms have had significant success in reducing the cost of trading shares in the secondary market by allowing investors to execute without the historic need to speak to a broker over the telephone. However, again, these platforms are not built on distributed ledger technology so they still incur significant unnecessary costs, behind the scenes the trade will still find its way to a market maker quoting a bid-offer spread. In addition the choice for investors is limited as they only offer equities in companies that are large enough to list publicly on a stock exchange. They offer no investments in private or unlisted companies. Most importantly none of these platforms offer the ability for business owners to directly offer their own equity for sale.

## **9.4 Private Investment Brokers**

Brokers such as JP Jenkins and Equidate offer trading platforms for unlisted companies. While the strategic focus is comparable to Chainium, these providers are driven by old-economy approaches (involvement of stockbrokers and traditional banks) and do not make use of distributed ledger technology. They do not provide a service for listed companies, and their market penetration is low. Fees to investors are typically much higher than for listed execution only brokers. These platforms are niche and access is usually restricted to high net worth or sophisticated investors, as a result the secondary markets are not very liquid.

## **9.5 Blockchain Projects**

A large number of blockchain projects have launched recently and we have researched many of them in detail. We have attempted to summarise our key findings here, particularly where we see innovative projects in either overlapping or adjacent markets.

**Asset Tokenisation:** Projects such as LAToken, Proof ICO, and Kick ICO are aiming to allow any number of asset classes to be traded on their distributed ledger platforms including property, art, debt, fiat and crypto-currencies and commodities. One of the many asset classes that they plan to tokenise is equities. The problem with this approach is that in almost all cases these organisations do not have the specialist knowledge or experience to offer a comprehensive equities services ecosystem, nor manage the complex regulatory, compliance and legal frameworks required. These platforms are operating outside existing financial regulatory frameworks, a strategy which we consider highly risky. In contrast we will be applying for a banking licence through the FMA.

**Equities Clearing and Settlements:** A number of traditional stock exchanges and registrars are looking to leverage blockchain experts such as Setl.io, T0 and Chain to simplify and reduce cost in various underlying equities clearing and settlements processes. They are trying to innovate from inside the sector and as a result can't tackle the whole ecosystem. Our plans are far more ambitious.

**Prediction Markets (Gambling) Projects:** Projects such as Stox, Gnosis and Augur aim to allow users to bet on the outcome of almost any public event. It is of course possible to gamble on an outcome such as the movement of an equity price over a fixed time period. However, this is still just gambling. These third-party betting platforms have nothing to do with the economically useful process of business owners selling a stake in their business to investors in return for a share in the benefits.

**\*Crypto Funds:** Projects such as Swarmfund, Blackmoon Crypto, Blockchain Capital and many others are using the blockchain to offer ownership in various managed funds, some of which include equities in their portfolios. It is important to understand

that Chainium is not an investment fund or vehicle and is not competing with any of these projects. We will not hold or invest our user's money.

**\*P2P Lending:** Bitbond, ETHLend, Othera, SALT and others offer peer-to-peer lending solutions for small-to-medium sized companies. Like Chainium they are trying to use blockchain technology to cut out the middlemen in a key part of the financial services industry. Unlike Chainium they are focused on lending rather than on equity sales. Raising capital through selling equity is a fundamentally different proposition to borrowing. We believe that companies need good providers of both services, and that P2P lending is an adjacent, rather than a competitive market.

## 10 Token Sale

### 10.1 What is the purpose of our Token Sale?

We are undertaking a token sale for three reasons:

- to raise funds to complete the development of Chainium and to launch the production platform.
- to create a committed community of token owners who will transact on Chainium.

### 10.2 Important Disclaimer

This document is not a prospectus nor a solicitation for investment and it does not pertain in any way to an offering of securities in any jurisdiction. CHX Tokens are not an investment or security of any kind. They do not represent ownership or shares in Chainium AG nor any other entity. They have no rights whatsoever including no voting, no dividends and no claim to future profits.

CHX tokens are simply a method to pay for services on the Chainium platform.

### 10.3 Which Platform

Ultimately Chainium will be agnostic to underlying blockchain technology. However, we have decided to launch our token sale on the existing public Ethereum blockchain using an ERC 20 token. This is because Ethereum is the second largest public blockchain by market cap and by far the largest issuer of alternative tokens. It also provides one of the most active developer communities in the Smart Contract space.

### 10.4 Distribution Event

The sale details are:

- |                                      |             |
|--------------------------------------|-------------|
| - Total number of tokens created:    | 200,000,000 |
| - Maximum number of tokens for sale: | 100,000,000 |

Of the 100,000,000 CHX tokens available for sale, any that are not sold once the public sale ends will be burnt (permanently destroyed).

- |  |                     |
|--|---------------------|
| - The maximum amount to be raised (hard cap) is: | USD \$8m            |
| - Minimum individual contribution:               | 0.1 ETH             |
| - Maximum individual contribution:               | None                |
| - Price for CHX tokens                           | 1 CHX = 0.00017 ETH |

### 10.5 Phases

There are two phases to the token sale:

## 1. Pre-Sale: 27 November 2017 12:00 UTC until 18<sup>th</sup> December 2017 12:00 UTC

The pre-sale will allow early participant to buy tokens before the public sale begins. To reward early participant, we will offer bonus tokens. The pre-sale event is intended to incentivise our early supporters, influencers, community backers and partners. The pre-sale was capped at \$1m USD.

## 2. Public Sale: March 2018

### 10.6 Bonuses

During our pre-sale, we offered a bonus of 30% for early contributors. During the public sale, there are no bonuses available.

### 10.7 Distribution

Tokens will be distributed within a few days of the close of the public token sale.

### 10.8 Token Allocations

| Type                             | Tokens      | % of Tokens | Description   |
|----------------------------------|-------------|-------------|---|
| Available for sale               | 100,000,000 | 50%         | Tokens available for sale in the pre-and public sale.   |
| Founders & Management Allocation | 50,000,000  | 25%         | Tokens for the founders as an incentive to deliver the next stage of the product. There is a vesting schedule in place (see below). |
| Token Sale Costs                 | 10,000,000  | 5%          | Reserved for marketing, legal and other costs associated with the token sale.   |
| Reserve fund                     | 40,000,000  | 20%         | This is a reserve fund of tokens held by Chainium AG for operational purposes (and not for founders or management).                 |

### 10.9 Community Bounties

Up to 2% of the tokens, from the Token Sale Costs category, may be allocated to community members who support us before the public token sale. Tokens will also be provided to registered users who perform community tasks, e.g. Facebook likes, blog posts, twitter follows, join email lists, etc.

## 10.10 Founder Rewards

The percentage of the total token supply that represents a fair reward for the work and risk taken by the development team and advisors is considered to be 25%. Those tokens will be released to the management team incrementally over time (contingent on their continued work on the project).

- At 6 months 25% of personal allocation released
- At 12 months 25% of personal allocation released
- At 18 months 25% of personal allocation released
- At 24 months 25% of personal allocation released

## 10.11 Use of Proceeds

Based on our roadmap, the proceeds of the token sale will be used to develop the platform and to operate the business. The following breakdown highlights the proceeds based on business area and rough estimation on a per annum basis:

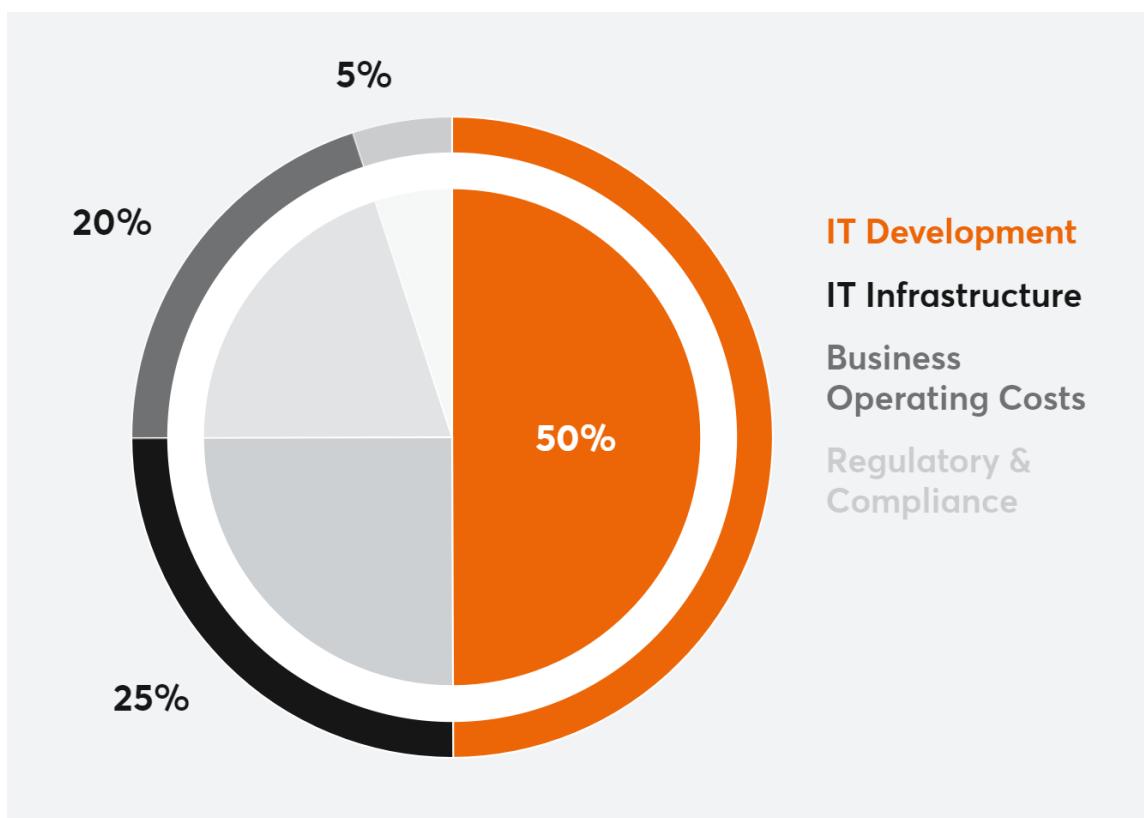


Figure 15: Funding Breakdown

Category explanations:

- **IT development:** building the platform, the ecosystem, community features, mobile app, and all API's. The costs are primarily staff costs and operational expenses.

- **IT infrastructure:** compute, storage (cloud services) and network costs in an OPEX model, and other capital expenses such as software licenses and maintenance contracts.
- **Business operating costs:** costs of office space and facilities, back-office costs such as tax, legal, finance, and a mix of OPEX and CAPEX costs.
- **Regulatory and Compliance:** activities required to acquire and maintain a European banking license (small license), and other compliance certifications such as ISO 27001.
- **Sales & Marketing:** costs for advertising campaigns, partner and third-party channel costs, lead generation and direct sales for large enterprises and institutional investor activities.
- **Loans:** loans that have to be repaid to the founders as well as family and friends from the start-up phase, as well as costs to prepare for the token sale.

Our roadmap is in stages that depend on the amount of funds we raise. See the summary below:

| Proceeds          | < USD \$3m  | USD \$3m - \$6m   | USD \$6m +   |
|-------------------|---|---|--|
| Staff Levels      | < 8   | < 16  | 20+  |
| IT Development    | Chainium will be developed. This includes the mobile app, the blockchain backend and a light version of the API's. In terms of functionality, the P2P funding mechanisms will be built. | The full platform and all features and functions will be developed. In addition, we will implement trading and brokerage functionality so that stock exchange type functionality is available to investors and business owners. | The platform and all features and functions will be developed. In addition, we will implement trading and brokerage functionality so that stock exchange-type functionality is available to investors and business owners. Major API and community features will be included here too. |
| IT Infrastructure | The platform will be hosted in a public cloud.  | The platform will be hosted in a hybrid cloud with all banking systems and client data  | The platform will be hosted in a hybrid cloud with all banking systems and client data   |

|                     |  |  |   |
|---------------------|--|--|---|
|                     |  | hosted on-site, and all client-facing services and community features hosted in the cloud.   | hosted on-site and all client-facing services and community features hosted in the cloud.   |
| Business operations | We will have two main offices: one small HQ in Liechtenstein and one tech hub in Bosnia. | We will have three main offices: one small HQ in Liechtenstein, one tech hub in Bosnia and one corporate development office in the UK. | We will have more than 4 main offices: one small HQ in Liechtenstein, one tech hub in Bosnia and two corporate development offices (UK and US). |

## 10.12 KYC

We believe it is important to protect token purchasers and to ensure we are operating within a legally compliant manner. This is what our organisation stands for, and we want to ensure our services protect token owners over the short and longer term.

All participants require prior KYC and AML clearance. This process is managed by a 3<sup>rd</sup> party on our behalf and will include verification of your identity via a document check. Further details will be available on our website.

Unfortunately, in addition to these controls, we have also had to completely exclude citizens and residents of a small number of countries from participating in our token sale. A final list of excluded countries will be available on our website.

## 10.13 Terms & Conditions

Full terms and conditions for the token sale will be available on our website. You will be required to read and accept these terms before purchasing CHX tokens.

## 11 Roadmap

Over the next few months we will release the first alpha version (minimum viable product) of Chainium through multiple revisions and releases in a traditional agile development approach. These iterations will be released to our early supporters, our community members, friendly clients, partners, advisors and early adopters. We will use the community feedback to continuously develop and improve our product, utilising the standard iterative agile development approach.

The beta stage of our development milestone is targeted to deliver the "almost" finished product (80% completion), and will be released to public customers, investors and business owners. The feature-set will still contain functionality for the SME market, including a few modules to deal with larger global companies.

The fourth stage in the lifecycle of our organisation is our most ambitious phase: driving market penetration of our Investment Marketplace into the traditional equities markets: disrupting clearing houses, stock exchanges, registrars and any intermediary involved in the current global capital market space. By offering a proven full-service shop with zero fees for investors, we will attract further old-economy heavyweights to utilise our services. This campaign will be supported by a heavy marketing campaign, support and backing from our community, and traditional sales and business development activities.



Figure 16: Roadmap and Milestones

## 12 Risks

The following is a list of risk factors that might affect the Token Sales, our business or the Chainium platform. The list is not exhaustive.

### 12.1 CHX Token Offering Risks

| Risk                     | Description   | Mitigation  |
|--------------------------|---|---|
| Macroeconomic conditions | There is a risk that any significant change in macro-economic conditions, for example a recession, could significantly dampen the appetite for token sale.  | Whilst there is no explicit mitigation in place for macro-economic changes we are reducing the time at risk by moving from whitepaper to token sale quickly.  |
| Token sale market crisis | There is a risk that a major scandal, for example fraud, money laundering, cyber-attack or crypto-currency price collapse, could adversely affect appetite for token sales despite having no direct link to us.   | Although the token sale market is maturing rapidly this risk is clearly still significant given the number of low quality and fraudulent token sales currently in circulation. We are committed to operating to the highest levels of integrity, which should help investors differentiate between scam token sales and high-quality token sales.   |
| Ethereum project crisis  | There is a risk that a significant negative event for the Ethereum community, for example a security vulnerability, or cyber-attack, could adversely affect appetite for Ethereum based token sales such as ours. | The Ethereum project is one of the best-known blockchain platforms available. The Ethereum team have been through crisis before (e.g. the 2016 slock.it DAO) and successfully recovered. In the unlikely event that the Ethereum project were to collapse Chainium has been designed in such a way that our project could be run on a competing platform, for example Waves or aeternity (albeit this could result in a project delay). |
| Insufficient funds       | There is a risk that we may not reach the minimum viable funds through the token sale be unable enact our business plan.  | We have put together an experienced token sale advisory and marketing team to ensure that the token sale is structured to have the best possible chance of success.   |
| Competitive action       | There is a risk that one or more blockchain start-ups or legacy securities platforms could attempt to launch a rival token  | The token sale market is crowded and growing quickly. We expect some token sales with overlapping concepts and functions to ours to come to market during our timeframe. We remain  |

|                         |   |   |
|-------------------------|---|---|
|                         | <p>sale during the token sale window. This could reduce the appetite for investment in our token sale.</p>  | <p>confident that our team, use cases and technology make our token sale a unique opportunity.</p>  |
| Token sale regulation   | <p>There is a risk that one or more national regulators impose new regulations on the issuing of cryptographic tokens, for example taxation changes or registration requirements, which could delay or halt the token sale.</p>   | <p>We are working with an experienced token sale legal partner to ensure our offering is legally compliant in all jurisdictions where we are offering the token sale. In the event that a particular jurisdiction restricts token sale investment, such as China in September 2017, we expect that any shortfall will be made up from contributions from other jurisdictions.</p>   |
| Cyber attack            | <p>There is a risk that we will be the subject of a malicious attack by a 3<sup>rd</sup> party before or during the token sale process. This could lead to theft of data, tokens, or other currencies from us directly or from our investors or wider community.</p> <p>Additionally, the token sale could be disrupted or delayed if a 3<sup>rd</sup> party attack requires us to take services offline impacting our ability to issue tokens within the timescales.</p> | <p>We have considered security from the very outset of the project. We have built in a number of layers of security defense during the token sale from the basics such as vulnerability scanning and patching through to more advanced protections such as DDOS protection, network, host and log monitoring, correlation and alerting. We would encourage you to read our security white paper for further details.</p> <p>Despite all this we recognize that it is possible that an attacker will succeed in breaching our defenses. We have prepared for this by creating and testing an incident response plan which includes support from a UK Government CESG CIR scheme accredited cyber security incident response partner.</p> |
| Insider security breach | <p>There is a risk that we will be the subject of a malicious attack by an insider before or during the token sale process.</p> <p>This could lead to theft of data, tokens, or other currencies from us directly, our investors or wider community. Additionally, the token sale could be</p>  | <p>We have also considered insider security from the very outset of the project. We have built in a number of layers of insider monitoring and protection during the token sale from the basics such as personnel security vetting, least rights access model and security audit logging through to more advanced protections such as automated monitoring for suspicious patterns of insider behaviors.</p>  |

|                  |   |  |
|------------------|---|--|
|                  | <p>disrupted or delayed if an insider attack requires us to take services offline impacting our ability to issue tokens to the token sale timescales.</p> | <p>We would encourage you to read our security white paper for further details.</p> <p>Despite all this we recognize that it is possible that an attacker will succeed in breaching our defenses and as such we are prepared. This includes a tested major incident response plan which includes support from a UK Government CESG CIR scheme accredited cyber security incident response partner.</p> |
| Money laundering | <p>There is a risk that the token sale attracts investment from those with access to illicit funds.</p>   | <p>We will obtain sufficient information about potential investors through the token sale registration process and monitor for suspicious investors and/or activities. We will be partnering with a well-known KYC compliance provider to ensure these checks are undertaken rigorously.</p>   |

## 12.2 Business Risks

| Risk                    | Description   | Mitigation  |
|-------------------------|---|---|
| Technical Issues        | The development program involves solving a number of complex technical problems. There is a risk that unforeseen technical complications add to the estimated effort, leading to a delay in the go live date and/or additional costs.       | The technical team is made up of experienced programmers and infrastructure experts from across Europe. The team is headed by our CTO who has worked for 13 years for the world's largest share registrar. Although there are technical challenges to solve we are not creating our own blockchain protocol from scratch nor are we building our own infrastructure. We are building on the ERC 20 smart contract capabilities of Ethereum using Microsoft Azure infrastructure. This greatly reduces the technical risks and complexity. |
| Lack of business owners | There is a risk that Chainium fails to attract a critical mass of business owners onto the platform meaning that investors do not have sufficient choice of corporate actions.  | We will appoint a dedicated internal team to build awareness of Chainium in the crowdfunding community targeting potential small business owners. We are running a significant targeted social media campaign with incentives for early adopters. In parallel we are also working with a number of partners and advisors to onboard a number of keynote larger private business owners.   |
| Securities regulation   | There is a risk that one or more national regulator introduces new or amended regulations on the issuing of securities, which could impact us in unforeseen ways.   | We see regulatory compliance as a normal part of business in the securities industry. We have excellent relationships with regulators in many major jurisdictions and intend to offer services to investors and business owners that are fully legally compliant. We view our ability to meet regulations as an advantage over other copycat platforms that attempt to avoid regulatory compliance.   |
| Prudential regulation   | We are not a bank, we do not plan to take deposits or reinvest funds. We simply facilitate p2p transactions between investors and business owners. As such we do not expect to be subject to prudential regulation, however there is a risk | We see regulatory compliance as a normal part of business in the securities industry. Taking on prudential regulatory compliance is considered unlikely but if this occurred it would affect the entire industry and we would be well placed to implement the required changes. However, this would be a significant cost to the business.  |

|                                  |   |  |
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|                                  | that a change in legislation or interpretation could change this position.  |  |
| Taxation                         | We expect all of the investments on offer through our platform to be subject to taxation (for example sales tax, income tax or capital gains tax). Any significant change in the taxation status of the investments on offer may reduce their attractiveness to certain investor types. | Changes to national tax legislation are frequent but in most major jurisdiction are announced well in advance, especially those with significant impact. We believe that although particular investment types or mechanisms may be impacted by tax legislation changes, investors will simply rebalance portfolios to other investment types available through the platform. Hence overall throughput would not be impacted significantly. |
| Fraudulent Investment            | There is a risk that a fraudulent business owner might attempt to raise funds from investors with the sole intent of using those funds for personal gain.   | We will enforce a minimum set of standards for business owners and verify these criteria are met. Financial credit checks, criminal record checks and disqualified director checks will be undertaken. Default rates will be clearly available on the site. We will actively work with national law enforcement agencies where fraudulent activities are identified.   |
| Credit Worthiness / Default Risk | As with any investment platform there is a risk to investors from the default of business owners. If default rates become too high there is a risk that the platform is deemed too high risk and investors are discouraged.   | Although investors using Chainium make their own decisions as to the credit worthiness of a potential investment we will set a minimum set of standards for business owners and verify these criteria are met. Default rates will be clearly available of the site.  |
| Money Laundering                 | As with any investing platform Chainium has the potential to be used for money laundering.  | We will comply with international anti-money laundering laws. We will obtain sufficient information about our investors and business owners including verifying identity. We will conduct due diligence on the securities and other assets that are issued on the platform. We will monitor the platform for suspicious users and/or trading activities. We will actively work with and report to national regulators                      |

|   |   |   |
|---|---|---|
|   |   | and law enforcement agencies as required by law.  |
| Cross Border Access / Investor Screening    | National legislation means that in some cases it is illegal for a national of one jurisdiction to invest with business owners based in another jurisdiction. Certain jurisdictions (e.g. the US) also require additional investor screening and information checks. There is a risk that without proper enforcement we (and or our investors / business owners) could be subject to enforcement action if these regulations are breached. | We will allow business owners themselves to define which national jurisdictions they wish to offer their investment in. Our KYC module will be used to strictly ensure that only investors that meet the required national legislation eligibility criteria will be allowed to invest (or in some cases even view the offer). |
| Disclosure                                  | There is a risk that if information associated with any investment is not provided in a comprehensive, accurate, timely and consistent manner then investors may consider that the platform is unfair and be discouraged from investing.  | We will automate the information disclosure process to reassure both business owners and investors that minimum standards for disclosure are met and that information is made available to all investors in a fair and transparent way.   |
| Information Asymmetry / Insider Information | As with all business owner – investor relationships there is a risk of abuse due to the fact that the business owner will inevitably have more information than the investor.   | We will automate the information disclosure process to assure both business owners and investors that minimum standards for disclosure are met and that information is made available to all investors in a fair and transparent way.   |
| Herd Behavior                               | As with all platforms that deal with large numbers of retail investors, or crowds, there are inherent risks associated with the behavior of crowds. Whilst this is a complex topic  | We will provide a suite of controls for retail investors including hard limits on weekly deposit rates and individual investments caps. We will monitor the platform for signs of investors who are exhibiting erratic behaviors and we will intervene when appropriate.  |

|                          |  |  |
|--------------------------|--|--|
|                          | <p>and crowd behavior is not necessarily a bad thing there is a risk that unsophisticated investors could make investment decisions based only on the behaviors of other investors. This can create "hype" which can lead inexperienced investors to take on too much risk.</p>                                      |  |
| Data Privacy Legislation | <p>We will be required to hold personal and sensitive data belonging to our investors and business owners. There is a risk that a deliberate or accidental breach of any jurisdictions data privacy legislation could lead to damage to our reputation, loss of customer and potential regulatory action.</p>        | <p>We will abide by the generally accepted global standards on privacy (in particular EU GDPR). A jurisdiction that requires higher standards will either be excluded from the platform or bespoke arrangements will be put in place.</p>  |
| Key staff retention      | <p>As a technology start-up we have a number of key staff that are considered critical to the ongoing success of the business. There is a risk that one or more of these staff could leave for a competitor or to start a rival project. This could lead to a delay in data going live, and/or additional costs.</p> | <p>Our staff are incentivized to share in the success of the project. Despite this we know we will lose some team members along the way and we plan for this by creating specific succession plans for key roles.</p>  |
| Competitive action       | <p>There is a risk that one or more blockchain start-ups or legacy securities platforms could attempt to launch a rival offering leading to a loss in market share.</p>  | <p>There are already established competitors in the crowdfunding and execution only share platform sectors. It is our assessment that none the existing platforms offer the same functionality. If a new copycat platform launches to rival Chainium we will have first mover advantage.</p> |
| Corporation Tax          | <p>There is a risk that any unforeseen changes in tax</p>  | <p>Chainium AG is incorporated in Liechtenstein where the team has had</p>   |

|                        |  |  |
|------------------------|--|--|
|                        | legislation in a jurisdiction where we are economically active (primarily Liechtenstein) could lead to an increased effective tax rate and reduce profit after tax.                              | excellent advice from a very supportive national regulator who is attempting to encourage FinTech and particularly blockchain start-ups. We believe that any changes to legislation will be well flagged and designed to help nurture FinTechs. If there were a significant change in policy we would consider options for relocating elsewhere.     |
| Reputation             | It is imperative that we command the trust of our customers. Any real, or perceived, misconduct or ethical failings could impact our ability to onboard new investors and business owners.       | The Founders, Advisory Board and Board of Directors have put in place an effective governance regime for the entire company, which includes a stringent code of ethics for all our employees. We are committed to upholding the highest ethical standards in all our business operations.  |
| Exchange rate exposure | We have exposure to a number of fiat and crypto-currencies including ETH, which could affect our underlying profitability.   | Chainium AG employs an external foreign exchange treasury expert in Liechtenstein who is responsible for implementing our hedging strategy.  |
| Acquisitions           | We intend to grow by acquisition as well as organically. There is a risk that the financial and operational benefits of acquisitions may not be realized as quickly and efficiently as expected. | In the case of any potential acquisition we will conduct full financial and other due diligence. A business case with forward-looking projections will be submitted to the board and the integration risk considered at an early stage as part of the review. Detailed integration planning will be undertaken before completion of any acquisition. |

## 13 Appendix

### 13.1 Glossary

|                  |  |
|------------------|--|
| AGM              | Annual General Meeting: a yearly gathering of a company's shareholders   |
| AML              | Anti-Money Laundering: a set of procedures, laws or regulations designed to stop the practice of generating income through illegal actions   |
| Business Owner   | Individual or group who owns a business. In Chainium context: users who initiate corporate actions, such as equity offers  |
| CSD              | Central Securities Depository: a specialist financial organization holding securities such as shares either certificated or un-certificated  |
| FATCA            | Foreign Account Tax Compliance Act: tax law that compels US citizens at home and abroad to file annual reports on any foreign account holdings   |
| FCA              | Financial Conduct Authority: financial regulatory body in the United Kingdom   |
| FMA              | Finanzmarktaufsicht: financial regulatory body in the Principality of Liechtenstein  |
| GDPR             | General Data Protection Regulation: A regulation by which the European Parliament, the Council of the European Union and the European Commission intend to strengthen and unify data protection for all individuals within the European Union (EU) |
| Investor         | Any person who commits capital with the expectation of financial returns. In Chainium context: users who purchase equity in businesses through an offer or in the secondary market   |
| IPO              | Initial Public Offering: the first time that the stock of a private company is offered to the public   |
| KYC              | Know Your Customer: a process by which a business identifies and verifies the identity of its clients  |
| Listed company   | A company whose shares are traded on an official stock exchange, and must adhere to the listing rules of that exchange   |
| M&A              | Mergers and Acquisitions: a general term that refers to the consolidation of companies or assets   |
| MiFID II         | Markets in Financial Instruments Directive: a regulation that increases the transparency across the European Union's financial markets and standardizes the regulatory disclosures required for particular markets                                 |
| MSME             | Micro, Small & Medium Enterprises  |
| MVP              | Minimum Viable Product: a product with just enough features to satisfy early customers, and to provide feedback for future product development   |
| Unlisted company | A company that is not listed on any stock exchange   |

|      |  |
|------|--|
| PSD2 | Payment Services Directive: an EU Directive to regulate payment services and payment service providers throughout the European Union (EU) and European Economic Area (EEA) |
| SEC  | Securities & Exchange Commission: an agency of the U.S. Government that serves as the primary regulator of the securities trade  |
| SFC  | Securities and Futures Commission: financial regulatory body in Hong Kong  |
| SME  | Small & Medium Enterprises   |
| VC   | Venture Capitalist: investor who either provides capital to start-up ventures or supports small companies that wish to expand but do not have access to equities markets   |