Utility Token for Service Robotics

WHITE PAPER

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1. Executive Summary

Robolab is a service robotics company delivering major change in the food and beverages industry. As part of our service revolution, we have designed an autonomous bartending unit that is considerably faster and more capable than the regular human workforce in that position. With several advantages, it breaks through the usual bartending bottlenecks and turns losses into profits with ease. The bartender of the future is called “Yanu” and has its own AI-powered soul that already knows a wide range of beverage recipes, communicates with customers, and once stocked, can perform its duties without human input.

The team at Robolab includes university scientists, top designers, and entertainment and bar industry professionals that have gathered to create new and exciting solutions in service robotics. The company has advisors from a wide range of fields and is constantly recruiting currently building our sales force. Our inventions and patents are owned by the company as are all our other assets and rights. Yanu is currently being tested and prototyped, so the future is very close indeed.

The market is huge. Busy public areas where beverages are served anywhere in the world will form our playground. Despite Yanu’s global potential and broad appeal, we will begin by targeting our closest market — the European Union. Robolab already has several sales managers across Europe and initial agreements are in place thanks to our flexible contracts and rising interest in our solutions to common problems in the beverages industry. Yanu is a small unit and with its amazing design fits well into every environment. This makes the unit suitable for large transportation hubs, nightlife venues, big events and any place with lots of people that are usually waiting in line to be served.

Robolab plans to cross-market our machine in cooperation with major beverage companies, creating a highly visible and novelty advertising space with this futuristic robotic bartender. Yanu will speak for itself!

The Yanu token has been created to boost our production cycle and scale up manufacturing… and more! We are creating several options for our clients to benefit from the token. For instance, solid discounts when purchasing the Yanu units, as well as the necessary services and beverages for venues. We have set up a safe system to convert your product placement into Yanu tokens.

Feel free to get acquainted with the details of this exciting opportunity below. In addition, you will find a detailed description of our team, financials, business model, business roadmap plus everything you need to know about the ICO and Yanu token economics.

Welcome to the world of Yanu!
2. Vision

Robolab will lead the revolution in service robotics!

The team at Robolab believes in a future where digital intelligence and robots free mankind of routine tasks by providing them affordable and efficient services that take on a considerable share of the routine and hard labour processes. There are only a few sectors that will not be affected by the world-changing technological revolution that has already started and is only just picking up speed.

The automation industry, which for decades focused on heavy industry, is now expanding to the service sector with exponential growth in volume. This major change is fuelled by several enabling technologies and sensor advancements, which have given birth to collaborative robots that can safely operate side by side with humans. Robots are not stealing their jobs, as the media scare tactics like to suggest, but rather fuelling productivity, making life easier and providing more opportunities and time to focus on the creative aspects of every role. Medicine, healthcare, transportation and other everyday services are the latest trending areas where collaborative robotics and AI are booming today.

Every day, we read of startups and new technologies that are showing progress and success in different fields. Robolab is part of these developments with our innovations in service robotics. We start off with Yanu, the bartending unit, but there are plans to cover other service areas with a range of technical solutions and universal software already in the development phase. Where we stand today is comparable to when smartphones started to take off, but very few apps had been introduced. As we all remember, the application explosion followed very soon.

The market is huge, and the need for automation is increasing. Labour costs are high, and every year there are fewer people of working age, with the right education, and even less of those who want to do demanding or routine tasks or serve others.

Our vision is to create a service robotics company that takes care of a number of problems in the service industry by pursuing robotics and AI development. Robolab will offer B2B services including implementation, installation, education, warranty and maintenance for companies operating in the service, hospitality and entertainment sectors willing to participate in the shift to automation for the benefit of everyone. Like any major technological revolution in history, this will also change the structure of society.

We are true believers in the many benefits of blockchain and crypto-currencies, and foresee that this change will provide several new ways to deliver huge increases in productivity to benefit everyone. The latest blockchain solutions help us to safely hold customer data, handle personal verification services and offer greater cooperation between players in a range of fields. Our future network and token solution will facilitate such a communication and transaction revolution. All this in addition to the regular use of our tokens for discounted purchases of service robots, payments for services at hospitality enterprises or transportation hubs, and priority services at entertainment venues.
The first step along that highway is to set up a network of fully autonomous, AI-controlled units that are smaller, faster and cheaper while also offering intelligent companionship for customers. We are aiming high but starting out with reasonable and achievable targets. You can find out how that will work in the following sections.

**Let’s dream for a second:** You are visiting London, and there is a new Yanu nightclub open. So you decide to drop by and check out the flashiest club with cutting-edge technologies. While the taxi is getting there, you download the app, get verified, and your VIP status is confirmed instantly. Browsing through the list of the latest cocktails, booking a table in our AI-powered system takes just a few seconds.

Of course, there is a huge line at the door, and the bouncers look like they won’t budge. But hey, as an early investor a participant in our ICO you have a golden ticket. And not only a ticket to the success of the company but also to the venues and bars our company is going to run. VIP status and smiles at the door, and a perfectly made Gin and Tonic effervescing on the counter ready for you faster than you can make it to the bar.

This is how we treat our first investors. While enjoying your drink, our chatbot kicks in. In a very polite and bartenderly manner, it cracks a joke and asks how you like your drink. If you choose to continue the conversation, it remembers your choices, gives you inside tips about London and keeps you company or maybe even matches you up with people nearby. Why not, right? Because the possible uses for our Yanu AI are limitless and new ideas are popping up all the time.

Alan Adojaan, CEO of Robolab
3. About Robolab

Robolab was founded at the beginning of 2016 by a group of entrepreneurs with a background in entertainment and investment. We instantly brought on board a group of top scientists to create new opportunities for the service and entertainment industry by using newly available robotic technologies and state-of-the-art software solutions. Robolab teamed up with two universities to work out the current robo-bartending unit: Tallinn University of Technology worked out the first tech solution and Tartu University as our main partner today is building the machines. Tartu University, is listed as worlds 314-th in ARWU list of top universities of the world and holds similar position (301-350) in Times Higher Education rankings. Our company currently has a team of 15, supported by five outstanding advisors that gather monthly to review progress and consult. You can get to know them all at the end of this document and even more closely on our webpage where the main characters provide video statements and share their Linkedin profiles.

Robolab develops, produces, sells and operates robotic service units. There is a wide array of areas where automation will take place. However, right now we have decided to focus on the hospitality and entertainment sector. Our first units are fully autonomous bartending units, called Yanu, which can be placed in public places like nightclubs or bars, restaurants, cruise ships, hotels, festivals and any crowded entertainment venue. We are selling cost-effective service robots for the hospitality and entertainment industry. Our first solution can automate beverage-mixing and serving activities while functioning as a stand-alone business unit. The unit effectively replaces the classic, human-operated bar setup and helps businesses to overcome labour-related bottlenecks. Yanu decreases labour costs since it requires no full-time workers and only routine maintenance, generates 10:15% less material loss through its greater control of the serving process, eliminates the risk of error or theft, while increasing productivity, since one unit can replace up to four full-time workers.

We are selling cost-effective service robots for the hospitality and entertainment industry. Our first solution can automate beverage-mixing and serving activities while functioning as a stand-alone business unit. The unit replaces in a very effective way the classic, human-operated bar setup and helps businesses to overcome labour-related bottlenecks. It decreases labour costs as it only needs some routine maintenance, no full-time workers, generates 10-15% less material loss as it features a more controlled serving process and eliminates the risk of error or theft, and increases productivity as one unit can replace up to four full-time workers.

We can sell and rent units to clients as well as operating our own units in leased spaces all over the world, starting in the EU. Consequently, cash flow increases from sales of units, unit maintenance, and sales of services and goods. We sell directly, and we prefer direct client relationships instead of using an intermediary agent, so we can maintain a close relationship with our customers.

All units are assembled using components produced by major companies and proven technologies. Although innovation is required at every step, we are assisted by the overall rise in enabling technologies (i.e. sensors, cameras, AI). Our cutting-edge engineers guarantee quality and an outstanding product that does not as yet have many market competitors.

Couple words about Estonia: It produces more successful startups per capita than any other country in Europe. We have one of the most favorable regulations and most liberal tax systems in the world, with zero corporate income tax. It also attracts a lot of investments – Estonia is second in Europe after UK in euros invested into startups per capita through new alternative funding solutions and predicted to be in top 3 of the world by that number. In the June 2018 report of Price Waterhouse Estonia ranks 4th in the world in the number of closed and planned Ico’s, and considering funding volume, 7th. “Estonia is 1.3million people and we have 4 unicorns. There are no other so small countries in the world with 4 unicorns today.”, says Kersti Kaljulaid, President of Estonia.
4. Market Needs

Many labour markets in high-income economies are currently facing structural changes (rising labour costs, shortages of suitable workers, etc.) caused by demographic and educational changes. Therefore, business owners often seek ways to automate repetitive and redundant tasks. These problems are especially acute in the service sector, where staff turnover and a lack of trained employees is almost overwhelming.

The latest and most popular solution is the implementation of customer-facing service robots to help or replace human workers who perform such menial and repetitive tasks. As customer-facing robots are being deployed by numerous businesses, some of the industry’s segments are falling behind in productivity and innovation due to the lack of economically viable service robots. Based on today’s robotics technology and the latest human-robot interactions know-how, Robolab aims to offer a cost-effective professional service robot designed for accommodation and food service activities in the hospitality sector. The proposed solution can automate everyday beverage mixing and serving activities while functioning autonomously as a stand-alone business unit. It overcomes labour-related bottlenecks in high-income economies, as it can replace human workers.

The most remarkable benefits of robotic service units (RSUs) include:

- **A leaner serving process.** Robotic precision ensures no accidental errors like false measuring.
- **The reduction of manual work.** As robots only need regular maintenance, in most cases no full-time.
- **Increased security.** Complete automation rules out errors or intentional theft. Customer identification algorithms can perform quick and accurate age verification.
- **Decreased labour costs.** In some cases near zero labour costs.
- **Increased productivity.** On an annual basis, the average output of one RSU equals to the manual work of four full-time workers.
- **25% increase in weekly operating hours** due to more flexible operating/run-time.
- **Increased quality.** Machines offer consistent quality.
- **10-15% less material loss** on an annual basis due to improved (robotic) precision.
- **Lower rent fees because of more compact operating capabilities.** The robotic solution that we offer needs much less space to provide a comparable output and requires no additional space for labour.

1 https://ifr.org/worldrobotics/
The major problems in the industry that we address:

- **Purchasing RSUs requires more capital.** In most areas, it is still easier to enter business with workforce than robots since there are few financiers offering lease or loan product for purchases of robots. We are offering various ways to finance the purchase.

- **Payments are expensive for the seller.** 1-2% is usually gone before it reaches the sellers account. The use of Yanu tokens makes payments almost free.

- **Customer verification** is difficult but often legally required. Our safe system uses a state-of-art verification solution.

- **Difficult setup.** The machine will be shipped in plug-in configuration. The setup takes little time and will be carried out by our engineers.

- **Complex machinery.** A half day of schooling, easy-read manual and smart backend-monitoring system gets customers going fast.

- **No maintenance network.** Building a network of machinery requires a network of service and repairs. Besides on-site service mechanics, we provide fast replacement and delivery. To offer quick service, we partner with local technical support. For close proximity locations - in EU, we send our personnel.
5. Business Model

We keep it simple and stick to high margin business only.

We sell, lease and maintain bar units. This offer is suitable for any client who already owns a venue and wishes to enhance its business but wants to obtain all the profit from our technology. We will set up the bar unit, train the employees to operate it and offer cloud-based service for maintenance. This model is suitable for clubs, bars, hotels, ships, movie theatres and similar venues.

We operate our own units. This offer is suitable for a client who owns a space that can be enriched with new solutions, but who does not wish to engage in the everyday operation of the bar. We will set up the bar unit in the leased space, organise refills, cleaning and maintenance. This model is suitable for shopping malls, airports, railway stations, festival areas, sporting venues and tourist attractions.

We keep it simple and focused:

- The only requirements are water, electricity and internet access (which can be a mobile connection).
- The unit is broken into modules to fit standard sea containers and trailers, and through standard doors.
- Setup is fast and performed by our maintenance team on the spot
- Maintenance is cloud-based and operating is easy due to the service software.

Yanu helps run bars much more efficiently and profitably.
6. Sales and Marketing

Robolab is selling bar units directly to the customers. There are several good reasons for this choice:

- Our sales team has considerable experience operating bars and restaurants
- We have a wide array of flexible payment options available — sale, lease or revenue sharing
- The price of the bar units enables us to motivate our sales force with sizable commissions
- We do not plan to use agents or dealers and rather value direct long-term relationships
- We want to focus on direct communication and feedback to improve our products

Marketing. We have a low-cost approach to marketing — selling our products and setting them up at visible sites is the best marketing we can get. Every working unit is an advertisement for our product:

- We will cooperate with worldwide brands to cross-market our products
- Our first units will be set up in carefully selected transportation hubs, entertainment and sports venues and festivals to achieve maximum visibility and media coverage
- With this ICO we are building a strong community to support our goals
- We are looking forward to opening high-end nightclubs in major metropolitan areas

During the ICO time we will work with different agencies and partners to build a community of early backers. As an incentive we’re providing substantial discount on the tokens. During the early post ICO period our main focus is to get Yanu token listed on at least 1 major cryptocurrency exchange. This way we can showcase our token and product to hundreds of thousands of new investors and future Yanu clients. In 2019 we’re planning to launch international PR and marketing campaigns to introduce Yanu to frequent travelers. We will strategically target people likely to visit airports where Yanu bartenders are set up.

As of late 2018, we’re negotiating with potential clients and signing pre-sales agreements of Yanu robots. We want our token holders to be able to not only buy and trade our tokens, but to also take advantage of the discounts on beverages offered by Yanu bartenders.
Here’s what we have been working on so far and what’s planned for the future.

**2016**
- Q1: Research and discussions with robotics companies and software professionals.
- Q2:
- Q3:
- Q4:

**2017**
- Q1
- Q2
- Q3
- Q4
- Extensive market research in association with Tallinn University of Technology and Startup Wise Guys (B2B accelerator) as advisors.

**2018**
- January: Development contracts signed. Core team and advisory board for Robolab established. YANU robot presales started in Europe. First round of equity investments attracted.
- February: Expansion of team to 12 people including product engineers, software engineers, AI specialists, industrial designers, sales and marketing professionals, and blockchain specialists.
- March: ICO planning and cooperation with Estonian Cryptocurrency Association. First partnerships with nightclubs and bars.
- June: ICO planning and preparation. Launch ICO website and open whitelist for interested investors.
- July
- August
- September
- October
- November
- December

**2019**
- Q1
- Q2
- Q3
- Q4
- Established technical infrastructure for the production of the YANU units. Production optimization. Get YANU token to first major exchange.
- Launch first Yanu robots in airports to gain wide access to end-customers. Launch of global marketing campaigns.

**2020**
- Q2: YANU flagship venue opens in a major city.
- Q4: Readiness to fully match demand for units.
8. Financial Overview

During 2018 we have raised in cash and agreed future commitments in the amount of 700 000 euros. If ICO will not reach hard cap it will not have an impact on the roadmap progress but will affect how many bar units we can produce. In this case, we will raise an additional round of investments from conventional venture capital institutions to speed up the production.

<table>
<thead>
<tr>
<th>Estimate in millions of USD</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
<th>2022</th>
<th>2023</th>
<th>2024</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>0,00</td>
<td>7,48</td>
<td>17,8</td>
<td>35,88</td>
<td>71,75</td>
<td>143,50</td>
</tr>
<tr>
<td>R &amp; D exp.</td>
<td>-0,80</td>
<td>-0,95</td>
<td>-1,10</td>
<td>-1,43</td>
<td>-1,53</td>
<td>-1,70</td>
</tr>
<tr>
<td>Fixed assets investment</td>
<td>-0,00</td>
<td>-1,50</td>
<td>-3,75</td>
<td>-7,50</td>
<td>-15,00</td>
<td>-30,00</td>
</tr>
<tr>
<td>Operating profit</td>
<td>-3,19</td>
<td>-2,75</td>
<td>-1,41</td>
<td>0,76</td>
<td>9,31</td>
<td>33,46</td>
</tr>
<tr>
<td>Operating cash flow</td>
<td>-3,19</td>
<td>-2,45</td>
<td>-0,36</td>
<td>3,31</td>
<td>14,86</td>
<td>45,01</td>
</tr>
<tr>
<td>Cash Flow from Financing²</td>
<td>13,0</td>
<td>5,00</td>
<td>5,00</td>
<td>5,00</td>
<td>5,00</td>
<td>5,00</td>
</tr>
<tr>
<td>YANU buybacks³</td>
<td>0,00</td>
<td>0,15</td>
<td>0,36</td>
<td>0,72</td>
<td>1,44</td>
<td>2,87</td>
</tr>
<tr>
<td>Net Cash Flow</td>
<td>9,81</td>
<td>0,90</td>
<td>0,54</td>
<td>0,10</td>
<td>3,42</td>
<td>17,14</td>
</tr>
</tbody>
</table>

¹ Including robotic bar units operated by Robolab
² Sale of Yanu tokens from second tranche, see ICO, page 15
³ This is 2% buyback from the market. See Token Economics page 14
9. Robolab Network Model

With the creation of the YANU token, we aim to accelerate the use and development of the entire service robot sector. We invite others to join our network.

Our network model provides affiliates and their clients the possibility of direct monetary transactions and cooperation in finance and development:

- Payments with Yanu tokens are made directly with 90% fee reduction
- Financing instruments for product leasing and project financing
- Crowd-funding for new projects
- Shared costumer verification database
- Shared maintenance network and logistics
- Shared AI and software development
- Cooperation in R&D
- Shared workforce – common hiring pool
- Shared intellectual property protection and contracts
- Shared marketing campaigns
- Cross sales with affiliates
- Discounts for clients and end-users
- Personal data vault for shared customers
- Study grants for Robotics students
We will follow our plan through. Our machine is a very real and material entity. It is a machine built by top specialists and has a huge market and foreseeable demand. No matter what, our company will go through with the plans and produce the machine. Therefore we are not relying on the ICO.

Our Business Philosophy

- **Transparency.** We believe in a general open approach with our stakeholders in addition to monthly reporting and annual audits.

- **Our risks are managed carefully.** There is no plan to burn through the investment quickly. Our expenses will remain low and well calculated.

- **We think and work for long-term goals.** The Robolab business model is built for self-reliance and organic growth. We are not building our business to rely on the next round of venture capitalist mercy.

- **We will follow our plan through.** Our machine is a very real and material entity. It is a machine built by top specialists and has a huge market and foreseeable demand. No matter what, our company will go through with the plans and produce the machine. Therefore we are not relying on the ICO.

- **We value our team and they value our goals.** We have built a reasonable motivation package in the form of allocated tokens so that everyone will benefit. However, there are no free lunches for anyone — our own team has to own it, and several deposits will be in an escrow facility until our goals have been achieved. We want everyone to share the risks and take the responsibility.
Our token has built-in characteristics to increase demand and liquidity, limit supply and provide downside protection. Tokens to the team and advisors will be distributed quarterly over the period of two years. 20M tokens will be allocated in a separate wallet for it.

- **Demand for the token is created by product discounts.** This will invite clients to purchase Yanu tokens from the open market and buy products and services with Yanu tokens.

- **The conversion rate for purchases is the initial ICO price (0.1 dollar) or the market value of the token (whichever is higher).** This is your downside protection – tokens will always have at least the value you bought them for during the ICO. There is always a market for our tokens since we offer real products. In case price of the token falls below ICO price, our products high sales margin covers it. Bar units up to 100% and drinks up to 900%. Losses will be covered by sales revenue. Plus we are raising funds from ICO that will be used for production, so no risk of running out of money if clients use tokens to buy our products.

- **On each transaction, 2% of our revenue worth of tokens will be burnt thereby constantly decreasing the number of tokens in circulation.**

- **We aim to list YANU on major crypto exchanges so our investors will have liquidity in the future.**

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**Token allocation**

- Escrow for future ICO-s (50%)
- Public offering 2018 (25%)
- Referral and bonus program (20%)
- Allocation to team and advisors (5%)

**Use of funds**

- Marketing (20%)
- Production of Bar units (30%)
- Salaries expense and business development (32%)
- R&D (18%)
12. ICO

Our offering is 100 million YANU tokens to be sold at 0.1 dollars per token.

Citizens from Estonia cannot USA cannot participate in the offering. Check the Sales Terms for details. Unsold tokens will be held for future emissions that will be announced and explained early. Minimum investment 100$, maximum 1,000,000$.

In total 400 million YANU tokens will be created and allocated as follows:

A. 200 million tokens
   ▶ Public offering to investors: 100 million YANU tokens (10 million dollars)
   ▶ Allocation to team members and advisors: 20 million tokens that will be released over a period of 3 years
   ▶ ICO bonus and referral program with a maximum of 80 million tokens
   ▶ Unused tokens from the first tranche will be added to the second tranche

B. 200 million tokens (100 M$) to be escrowed and used for future expansion
   ▶ This second tranche cannot be sold for less than 0.50 dollars per token (or 5x the ICO price).

* If the Soft Cap of 10 million tokens (1 million dollars) is not reached, all funds will be returned to the investors.

We have allocated 80 million tokens for ICO bonus and referral program:
   ▶ 1 million free tokens for whitelist promotion. The first 10,000 persons who register for the whitelist receive 100 tokens each (valuation 10$).
   ▶ Referral program. The referrer and the code user receive 10% of the buyer’s purchase amount as bonus tokens.
   ▶ Bonus program aiming to promote investment size:
     - Investment >1 000 dollars receives +10% in tokens
     - Investment >10 000 dollars receives +20% in tokens
     - Investment >25 000 dollars receives +30% in tokens
     - Investment >100 000 dollars the deal is negotiable

C. Bonus program reward for earlier investors
   ▶ Pre-sale first week +30%
   ▶ Pre-sale second week +20%
   ▶ Pre-sale third week +10%
ICO Timeline

<table>
<thead>
<tr>
<th>Whitelist and private sale</th>
<th>Pre-sale</th>
<th>Public sale</th>
</tr>
</thead>
<tbody>
<tr>
<td>01.07-09.10</td>
<td>10.10-07.11</td>
<td>11.11-12.12</td>
</tr>
</tbody>
</table>

2018

Accepted currencies:

- Bitcoin
- Ethereum

13. Why Yanu?

1. Our business model is straightforward and focused
2. We have a highly professional team and experienced advisors
3. We operate in the global markets and in a sector with proven demand and high margins
4. We operate in one of the fastest growing technology sectors with many opportunities to widen our reach and improve our products in the future
5. YANU Token has wise and well-designed economics
6. The ICO aims to fund YANU profitability and provide funding for expansion in the future
7. The token is legally sound, technically secure and token allocation is highly motivating for the team

Invest in real technology and a business run by goal-oriented professionals!
Appendices
14. Detailed Market Overview

As the issue of labour shortages in ageing societies comes into sharper relief, the expectation that robots will be used as a solution is increasing. Therefore, the robot market, which has become quite large for industrial applications, is poised for radical growth in a broad range of services applications.

A service robot can be defined as a ‘non-industrial robot’ that contributes to the performance of services for humans and institutions. The market for professional service robots (PSRs) was estimated at €4.5 billion in 2017, with almost 80,000 PSR units sold – 54% of these units were manufactured in North America, 27% in Europe and 19% in Asia. Of the 700 companies supplying service robots, 290 come from Europe and 240 from North America. Virtually all countries in these regions are attempting to foster a vibrant entrepreneurial environment, and the service robotics industry has become one of the focus areas of their public policies.

A long-term forecast issued by the International Federation of Robotics shows that the market is expected to grow, with an expected average growth rate of 20–25% between 2018 and 2020. In terms of value, the sales forecast during that period indicates a cumulative volume of €23 billion and approximately 400,000 PSR units sold.²


In developed countries, where the effect of the ageing population is being felt considerably more quickly, it is estimated that by 2030 there will be close to five people aged 65 and over for every ten in the labour force, up from 3.5 in 2017.

Global PSR manufacturer allocation

There has been significant growth in the global PSR market over the last five years. (E billion)
The hospitality industry is a broad category of fields within the service industry that includes accommodation, theme parks, cruise lines, and other fields within the tourism industry. It accounts for 1 out of every 10 jobs worldwide and is one of the top industries negatively affected by the labour shortage.

Currently, the hospitality industry is facing a labour shortage, which is impacting business operations and impeding investment and growth.

Recent survey findings indicate that millennials are the primary reason for the labour shortage taking place in the hospitality industry, as they tend to be least satisfied with their job and the least likely to stay employed in the industry. While customer-facing robots are being deployed by numerous businesses to boost productivity, some of the industry’s segments are falling behind. This is mainly due to the lack of economically viable service robots, meaning that most of today’s service robots are either too expensive or lack efficiency.

Based on a comprehensive evaluation of our robo-bartending unit, we have determined two high-potential markets for our product, including the (1) European beverage serving activities market, and the (2) international airport retailing market with an initial focus on Europe.

The beverage serving activities (BSA) market incorporates undertakings (nightclubs, bars, etc.), whose main business is serving (mostly) alcoholic beverages for immediate consumption. Within the EU, this industry incorporates 570 000 businesses, employing more than 2 million people.

The low apparent labour productivity for the whole of the EU-28’s food and beverage services sector is being pulled downwards in particular, by beverage serving activities. Turnover per employee is 16% lower than the average figure in the overall accommodation and food service activities sector.
To increase productivity, bars and nightclubs are increasingly offering technology-driven solutions and services. Establishments in the industry are introducing self-ordering touchscreen kiosks, mobile apps for customisable orders and quick payment methods to reduce the wait time behind the counter.

The increase in the young adult demographic coupled with high disposable income and growing employment rates fuel the BSA market.

**AIRPORT RETAILING MARKET**

Global air traffic has grown by a substantial 78% in the past decade and is expected to double from the current level in the next 15 years.

**Annual growth in global air traffic passenger demand**

<table>
<thead>
<tr>
<th>Year</th>
<th>Growth Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>2.40%</td>
</tr>
<tr>
<td>2009</td>
<td>-1.20%</td>
</tr>
<tr>
<td>2010</td>
<td>8.00%</td>
</tr>
<tr>
<td>2011</td>
<td>6.30%</td>
</tr>
<tr>
<td>2012</td>
<td>5.30%</td>
</tr>
<tr>
<td>2013</td>
<td>5.20%</td>
</tr>
<tr>
<td>2014</td>
<td>5.70%</td>
</tr>
<tr>
<td>2015</td>
<td>7.30%</td>
</tr>
<tr>
<td>2016</td>
<td>7.40%</td>
</tr>
<tr>
<td>2017</td>
<td>7.50%</td>
</tr>
</tbody>
</table>

For airports, non-aeronautical revenues have become an important funding source to cover investments in infrastructure and service improvements. In 2017, non-aeronautical revenues accounted for more than €54 billion, with revenues from concessions, car parking and property leading the way. Concessions make up 28% of non-aeronautical revenues earned by airports. Typically, the concessionaire pays a fixed sum, plus additional income to the airport once a predetermined profit or turnover level has been reached by the concessionaire. As many airports generate a much higher proportion of their income from concession activities than from aeronautical operations, it is important for them that the overall retail market is in good shape.

While airports are battling to improve performance and optimise revenues from concessions, the ongoing increase in passenger numbers is also making airports increasingly attractive to different retailers. However, the competition is fierce, and the retailers face two challenges that limit their business growth. Firstly, it is becoming increasingly difficult to meet the ever-higher expectations of both the airports and the consumers who demand constant improvements in the service quality and shopping experience. Secondly, the labour shortage that characterises the whole service sector is exacerbated by the thorough vetting process and undesirable work shifts.

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7 Sourced from the World Bank’s World Development Index database.
8 http://aci-economics.com/conference-report/
ESTIMATED SIZE OF THE TARGET MARKET

The size of the total addressable market for the Yanu bartending unit has been calculated using data on two primary target groups:

1. **Beverage serving companies in Western and Central Europe** - labour related costs in these countries are higher and thus the potential benefits of using a service robot are the greatest. The average hourly labour cost in Europe is estimated at €25.4. The countries with relatively higher hourly labour costs include Denmark, Belgium, France, Netherlands, Germany, Austria and Ireland, where the corresponding figure is 20–65% higher. As the estimated retail price for Robolab’s service robot is €150,000, only larger beverage servers (employing >20 people) are considered potential clients.

2. **International airports around the world** - retail solutions are needed to increase productivity and reduce operating costs. As airports now have the potential to gather huge amounts of data to understand passenger journeys, they can link certain passenger groups together with a relevant selection of service offers. This provides a great opportunity for Robolab as we can be certain that our service robot will benefit airport retailing in the biggest way possible. Considering that our pilot client, Tallinn Airport, serving 2 million passengers annually, will be fitted with our first service robot, the robot will already be optimised for similar service specifications.

| No. Of beverage serving companies in Europe, > 20 employees (Eurostat - 2015) |
|---------------------------------------|----------|
| Denmark                              | 44       |
| Belgium                              | 55       |
| France                               | 65       |
| Netherlands                          | 174      |
| Germany                              | 2479     |
| Austria                              | 105      |
| Ireland                              | 458      |
| Total                                | 3390     |
| Addressable market (1 device at €150,000 per beverage serving company) | €509 million |

| No. Of commercial air passengers carried worldwide (2017) | 4081 million |
| Addressable market (1 device at €150,000 per 2 million air passengers) | €306 million |

**Total addressable market** | > €800 million

3. While we are starting out with Yanu, the bartending unit, there are plans to cover other service areas with different technical solutions and our universal software.
15. Technical setup

1 - ETHERUM

Ethereum is a platform that is intended to allow people to easily write decentralized applications (Dapps) using blockchain technology. The Ethereum blockchain can be alternately described as a blockchain with a built-in programming language, or as a consensus-based globally executed virtual machine. The part of the protocol that actually handles internal state and computation is referred to as the Ethereum Virtual Machine (EVM). From a practical standpoint, the EVM can be thought of as a large decentralized computer containing millions of objects, called “accounts”, which have the ability to maintain an internal database, execute code and talk to each other.

2 - TOKENS

Tokens in the Ethereum ecosystem can represent any fungible tradable good: coins, loyalty points, gold certificates, IOUs, in-game items, etc. Since all tokens implement some basic features in a standard way, this also means that your token will be instantly compatible with the Ethereum wallet and any other client or contract that uses the same standards (ERC20).

3 - ACCOUNTS AND TRANSACTIONS

There are two types of accounts both types of accounts have an ether balance. To serve as a sort of externally owned account with a more complicated access policy; this is called a “forwarding contract” and typically involves simply resending incoming messages to some desired destination as long as certain conditions are met; for example, one can have a forwarding contract that waits until two out of a given three private keys have confirmed a particular message before resending it (i.e. multisig). More complex forwarding contracts have different conditions based on the nature of the message sent; the simplest case for this functionality is a withdrawal limit that you can override via some more complicated access procedure.

- **Externally owned account (EOAs):** an account controlled by a private key, and if you own the private key associated with the EOA you have the ability to send ether and messages from it.

- **Contract:** an account that has its own code and is controlled by the code.

Transactions can be fired from both types of accounts, though contracts only fire transactions in response to other transactions that they have received. Therefore, all action on the Ethereum blockchain is set in motion by transactions fired from externally controlled accounts. The simplest transactions are ether transfer transactions.

4 - CONTRACTS

Contracts live on the blockchain in an Ethereum-specific binary format (Ethereum Virtual Machine (=EVM) bytecode). However, contracts are typically written in some high-level language such as solidity and then compiled as byte code to be uploaded onto the blockchain.

Contracts generally serve four purposes:

- To maintain a data store representing something which is useful to either other contracts or to the outside world; one example of this is a contract that simulates a currency, and another is a contract that records membership in a particular organization.
To manage an ongoing contract or relationship between multiple users. Examples of this include a financial contract, an escrow with some particular set of mediators, or some kind of insurance. One can also have an open contract that one party leaves open for any other party to engage with at any time; an example of this is a contract that automatically pays a bounty to whoever submits a valid solution to some mathematical problem, or proves that it is providing some computational resource.

To provide functions to other contracts; essentially serving as a software library.

Contracts interact with each other through an activity that is called either “calling” or “sending messages”. A “message” is an object containing some quantity of ether (a special internal currency used in Ethereum with the primary purpose of paying transaction fees), a byte-array of data of any size, or the addresses of a sender and a recipient. When a contract receives a message, it has the option of returning some data, which the original sender of the message can then immediately use. In this way, sending a message is exactly like calling a function.

Contract information is uploaded somewhere identifiable using a publicly accessible URL, and anyone can find out what the URL is just by knowing the contracts address. These requirements are achieved very simply by using a 2 step blockchain registry.

In general, there are three types of applications on top of Ethereum. The first category is financial applications, providing users with more powerful ways of managing and entering into contracts using their money. This includes sub-currencies, financial derivatives, hedging contracts, savings wallets, wills, and ultimately even some classes of full-scale employment contracts. The second category is semi-financial applications, where money is involved but there is also a heavy non-monetary side to what is being done; a perfect example is self-enforcing bounties for solutions to computational problems. Finally, there are applications such as online voting and decentralized governance that are not financial at all.
16. Legal setup

ROBOLAB OÜ is incorporated in Tallinn 10133, Estonia, Roseni 7a. The company was founded in the beginning on 2017.

The board of directors includes Alan Adojaan (CEO) and Kristjan Sild. Partners control 100% of the voting shares.

All assets, rights, patents, trademarks, designs are fully owned by ROBOLAB OÜ. The Yanu trademark and design of the robotic unit in production is patented around the world.

The Yanu trademark and design of robotic unit in production has patent pending. Patent numbers are: 017869655 and 017869656 and 004849503-0001 to 0004.

ROBOLAB OÜ will be the legal entity carrying out the ICO and issuing Yanu tokens.
17. Team

Alan Adojaan
CEO and marketing
- More than 15 years of experience in the food & beverages and entertainment business.
- Has managed the biggest nightclubs and most popular restaurants in Estonia.
- Owns a small photo production company and advises several firms on marketing topics.
- Has acquired two science degrees in communications and PR.

Alvo Aabloo
CTO, Science Team Leader
- Professor of technology in Estonia’s highest ranking university – the University of Tartu (listed as the world’s 314th on ARWU (Academic Ranking of World Universities).
- Has participated in numerous science projects all over the world: Multi-Functional Nano-Carbon Composite Materials Network (MultiComp), The European Network on Integrating Vision and Language and European Scientific Network for Artificial Muscles (ESNAM) to name a few of the larger ones.
- Project leader of the famous fits.me fashion fitting robot later purchased by Rakuten (www.rakuten.com).

Priit Kull
Engineer and construction specialist, Building team leader
- More than 30 years of experience in industrial design.
- Has designed car parts for big players like DaimlerChrysler, Peugeot, Cadillac and Bentley.
- Has worked for SGH Estonia, Vestas and Global Castings.
- Mentor at the BuildIT startup accelerator.
- Msc in Machine Building Technology from Tallinn University of Technology.
- Studied Business management in Trade Management Institute, Blackrock, Ireland.

Jan Graps
Industrial Designer, Design team
- His company JanKen Wisespace (with Ken Ruut) delivers world-class industrial design and has worked with top experts in the field of advertising, graphic arts, multimedia and IT technology for 12 years.
- Jan is the creative manager and interior architect. Ken is the development manager, interior architect and 3D designer. Find out more about them: www.janken.co.
Henrik Aavik
**Applaud, Application development team leader**
- More than 20 years of experience in the advertising and media business.
- Currently the CEO of Applaud (www.applaud.ee), the leading producer of mobile applications and software in Estonia.
- A board member of Estonian e-commerce association.
- Sales and marketing manager of the popular Traffel app.
- In collaboration with our advisor Andrei Korobeinik, he runs the Estonian Cryptocurrency Association, an organisation that deals with the main topics of the crypto-world in Estonia.

Karl Kruusamäe
**Ph.D. Associate professor, Tartu University, Robotics team**
- Has studied robotics at the University of Tartu and University of Catania.
- Has worked in the field of robotics at the National Institute of Advanced Industrial Science and Technology (AIST) in Japan and at the University of Texas in Austin, USA.

Teet Tilk
**Leading electronics and system design engineer**
- A scientist at the University of Tartu, Faculty of Science and Technology, Institute of Technology.
- A degree in electrical and electronics engineering from Tallinn University of Technology.
Ahmed Helmi
Robotics Team
► Responsible for Robolab’s coordinate programming.
► BSc in Medicine, now acquiring BSc in Technology and Robotics at University of Tartu.

Kalle Pruuden
Engineer and construction specialist, Building team leader
► Professional skills in metalworks.
► Educational background from the Estonian Arts Academy.
► Has participated in numerous international projects involving local museums, department stores and world-class events.

Kristjan Sild
CFO and Sales
► Real estate and equity investor for more than 15 years.
► Owns investment company Upgreen that also invested in Robolab.
► Has participated in Startup Wise Guys accelerator and founded several startups.
► Has studied philosophy and economy at Tallinn University.

Cedric Simon
Sales Manager, Europe
► Expert salesman who has closed deals since 1996.
► Located in Paris and Amsterdam.
► Has worked for technology giants like Dell, Cisco and Verizon (in corporate sales and business development).
Johannes Kanter  
**Marketing team leader**  
- More than 5 years of experience in digital marketing and PR.  
- Founder and board member of several startups like Wink, Marknet Media and Digital Media Estonia.  
- Degree in International Business Administration from Estonian Business School.  
- MSc in Business Information Technology from Tallinn University of Technology.

Oliver Raal  
**Marketing Team**  
- Extensive experience in marketing, business development, sales and headhunting from different sectors (aviation, beverages, defence).  
- Founder of Pingpong Marketing and the Camorka app.  
- Two MA degrees from Estonian Business School, Management&Marketing and International Business Administration  
- Currently obtaining an MA degree in Law at Tartu University.

Eliise Siidirätsep  
**Community Manager**  
- Has worked in several Estonian television channels for a decade.  
- Currently the director of the main news program in Estonia (called Aktuaalne Kaamera).  
- Takes care of Robolab’s community, client relations and marketing.
Priit Martinson  
**Legal Advisor**
- Ten years of experience in international trade, foreign direct investment and business development.
- Five years of diplomatic service in Shanghai as the Head of the Commercial Section at the Consulate General of Estonia.
- Has worked with leading Chinese and Hong Kong conglomerates including BYD, CITIC Group, CK Hutchison Holdings, Fosun and Union-Pay.
- Has guided public sector institutions on how to digitalise their services based on the Estonia’s e-Government solutions.
- LL.M. in Chinese Law from Tsinghua University.
- Currently works for PricewaterhouseCoopers.

Mike Reiner  
**Business development advisor**
- Co-founded and managed the B2B Accelerator Startup Wise Guys that invested in 50+ companies from 20+ different countries.
- Covered venture capital business development for Amazon Web Services in EMEA.
- Founded CCC Startups and Startup AddVenture, a global entrepreneurship network that produced events in 7 different countries reaching thousands of entrepreneurs.
- Mentor at various incubators/accelerators such as Techstars.
- Founder of world’s biggest and most specialist AI conference – World Summit AI.
- Two science degrees from Amsterdam University, Business Information Systems MSc (graduated cum laude) and Information Science BSc.

Aleksander Tõnnisson  
**Technical Supervisor**
- Co-founder and CEO at Buildit Hardware Accelerator, the first startup accelerator in Northern and Eastern Europe that invests into hardware startups.
- Has worked and lived in Munich, the silicon valley of Germany. For four years, he worked for one of the top engineering companies (ESG Elektroniksystem- und Logistik-GmbH), developing flight simulators for the German navy.
- Programme Manager in computer engineering at Tartu University where he gained two degrees in the same field.
Andrei Korobeinik

**Cryptocurrency advisor**
- Well-known IT-investor, entrepreneur and startup advisor. Former member of parliament
- Creator of the first social networking platform in Baltics – Rate.ee that was a huge success.
- Advisor to several business enterprises, e.g. Applaud, Brainpoker, Import 2, LHV Bank.
- Has been the Member of the board at Estonian Business Angels Network and Enterprise Estonia.

Andrus Purde

**Marketing and sales advisor**
- Various marketing roles at Skype over five years.
- Founder and head of marketing of Pipedrive (Pipedrive.com); helped the company to grow from zero to 70,000+ paying customers around the world.
- Founder and CEO of Oufunnel (Outunnel.com).
- Mentor at Startup Wise Guys and Startup Highway. Angel investor.
- Has studied at Estonian Business School and Amsterdam School of Business.

Miikka Saloseutu

**Worlds top-20 ranked ICO advisor**
- ICO Strategic marketing advisor and business advisor.
- Experienced marketing professional with a demonstrated history of working in the internet industry with many challenging projects.
- Skilled in Search Engine Optimization (SEO), venture capital investments, angel investments, E-commerce Optimization, Sales, Initial Coin Offerings, Crypto Currencies and Pay Per Click (PPC) marketing