MELIOR.AI

White Paper

V 1.0.11

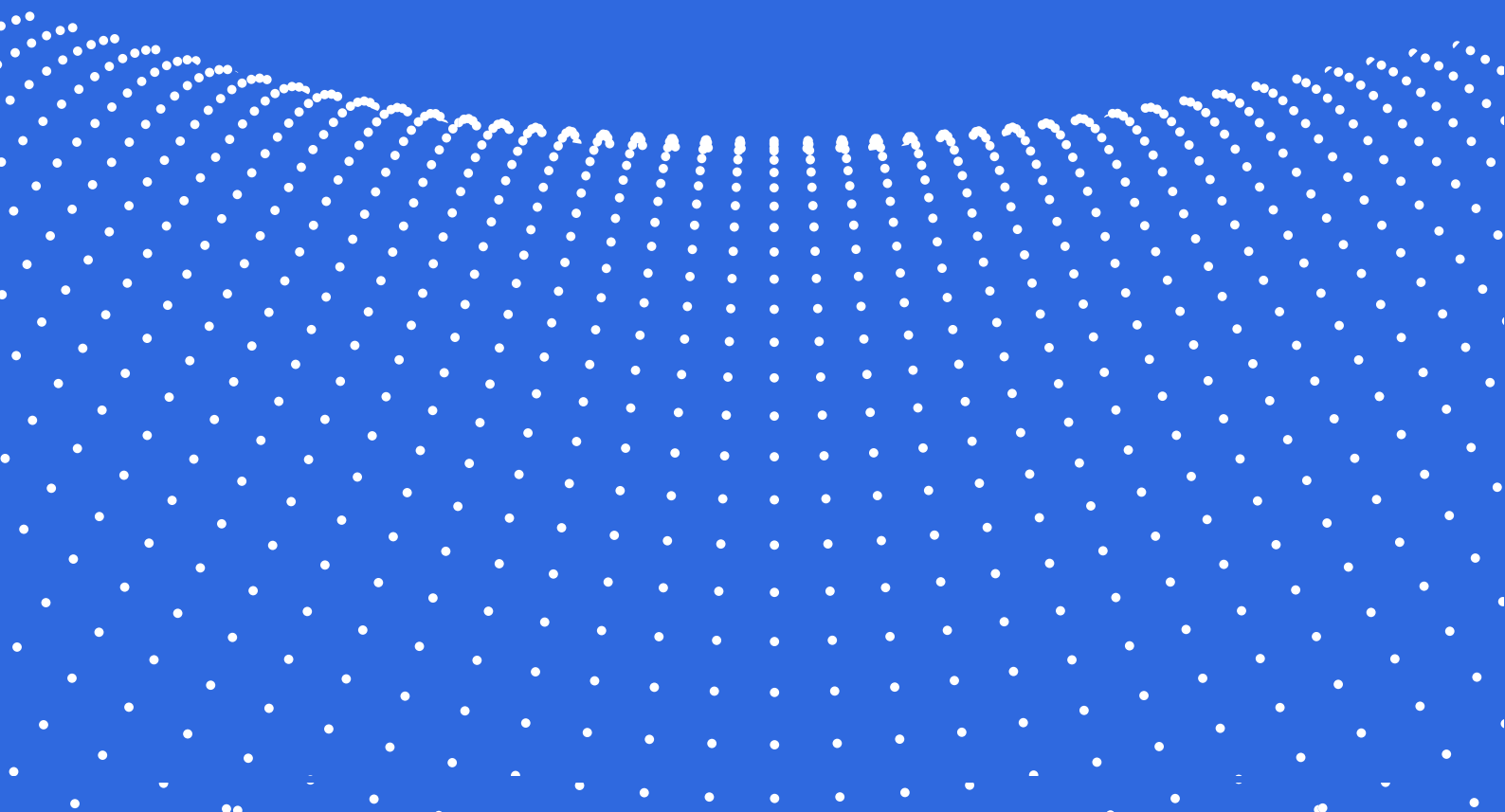September 2018

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Potential purchasers of our MEL tokens (as referred to in this White Paper) must carefully consider and evaluate all risks and uncertainties associated with Melior AI and its business, the company's operations, the token sale, MEL tokens and all information presented in this White Paper and in any technical documents, on all Melior AI associated websites and social media presences (the Associated Documents). In considering and evaluating the risks and uncertainties you should specifically consider that you could lose all or part of the value of any MEL tokens that you acquire.

This White Paper and the Associated Documents contain certain forward-looking statements, estimates and projections with respect to the anticipated future performance of Melior AI. Such statements, estimates and projections have been prepared by the management of Melior AI and involve significant elements of subjective judgment and analysis, which may or may not be correct.

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The information provided in this White Paper and the Associated Documents has not been approved or examined by any regulatory authority of any kind. Please

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Please note: You are not eligible to buy MEL tokens if you are a citizen, resident, or green card holder of the United States of America, a citizen or resident of the Republic of Singapore or of the People's Republic of China, a citizen or resident of the People's Democratic Republic of North Korea, or a citizen or resident of the Republic of Cuba.

Executive Summary

Melior AI is a research, development and solutions provider company. We are already generating revenue and our family of competitive e-commerce products and vibrant research and development pipeline will see the company achieve its vision to 'Democratise Artificial Intelligence'.

We have already developed our own Machine Learning, Neural Network and Deep Learning models.

Our extensive research has focused on (reusable and multi-purpose) Natural Language and Image Understanding.

We are committed to continuous research and development, learning, expansion and growth. Our future focus will include Voice Recognition and Autonomous Agents. We will continue to generate products that benefit many industries including the Internet of Things, Education & Training, Healthcare, Finance, Commerce and Marketing & Analytics.

To achieve our goals and our vision to Democratise Artificial Intelligence we are launching this token sale to raise a minimum of US$5,000,000.

From healthcare to sports, from manufacturing to retail, AI capabilities already play a major part in our day to day lives. Ongoing advancements in the AI sphere will further revolutionise all industries across the board. It is no surprise that people are now beginning to pay increased attention to the rise of AI. Equally, brands are realising the real importance of following the natural consumer trend.

Every business would benefit from AI but due to the data training requirements involved, it has been something reserved for the corporate giants. Small businesses, which make up a sizable part of the e-commerce market, have been unable to participate in the AI revolution. Small businesses are a major part of all our lives, integral to our communities, and are epicentres of innovation and industry. Their opportunity to benefit from advancements in AI will transform our society in many ways.

Melior is perfectly placed to be able to deliver the benefits of AI to businesses of all sizes.

Our technical team comprises software developers and academics with decades of experience in the Artificial Intelligence (AI) sector.

Our management and advisory team includes experienced professionals including: a tech entrepreneur with over 20 years' experience in building technology startups; an Internet expert and corporate advisor who is currently the Vice-Chair of the Board of ICANN; a trained lawyer and tech think-tank advisor and a former Goldman Sachs & Bank of America banker with a Harvard MBA.

Our products provide innovative solutions to a number of problems including-

Problem: The cost of access to AI and the need to have a lot of pre-existing data to train AI

Our Solution: Melior has created its own sophisticated neural networks for computer vision and image and natural language processing to develop models for domains with minimal amount of data available. Melior has a wide range of affordable chatbots

Problem: The growth in e-commerce is driving the need for customer service operations which are not easily scalable

Our Solution: Melior's chatbots make it possible for companies to scale their customer support operations to match their customers demands

Problem: Many customers search for the same information online but websites can be hard to navigate and don't answer the customer questions. Customer support often not available outside certain hours

Our Solution: Max - our interactive chatbot never sleeps, is available 24/7 and is equipped with easily extensible knowledge perfect for FAQs

Problem: Many companies have massive catalogues that are not easy to navigate

Our Solution: Melior's products are capable of handling very complex catalogues and include the ability to image search.

Melior Token Sale - Summary

- The Melior (MEL) token is a utility token issued on the Ethereum platform conforming to the ERC20 standard.

- The total amount of MEL tokens in issue will be 400 million. There will be no further tokens issued.

- The soft cap of the token sale is $5 million USD and the hard cap will be approx $20 million USD equivalent.

- Funds will be accepted in: Ether, Bitcoin, Neo, Litecoin, and Ripple.

- The standard cost of a token is the crypto-currency equivalent of $0.12 USD. However, in different public sale periods there will be different preferential rates.

- Up to 55.75% of MEL tokens (223 million) will be issued in the crowdsale and any that are not sold during this process will be added to the community fund.

- There will be a minimum individual purchase of 1000 MEL tokens. There will be no maximum individual purchase.

- Participants will have to complete a KYC and AML process and register their wallet addresses for whitelisting before taking part in the crowdsale process.

- Participants will also need to register an ERC20 compatible wallet to receive MEL tokens in the crowdsale.

- Participants can only take part in the token sale once they have passed KYC and their wallets have been whitelisted. They will be informed of their status in the members' section of our token sale website: tokensale.melior.ai

- US, Cuban, Chinese, North Korean and Singaporean residents are prohibited in taking part in this crowdsale.

Blockchain Usage – Summary

The use of blockchain technology is a fundamental part of Melior's business model. Blockchain technology will be used to:

- Create smart contracts to govern the relationship between customer information and Melior data storage.

- Enable MEL tokens to power the Melior Pay-As-You-Go offerings.

- Ensure that milestone payments for PAYG product usage are totally transparent and scrupulously honest on all sides.

- Enable commissions to be paid to third-party developers when the Melior Marketplace is launched.

- Run the token sale and to enable participants to trade the MEL tokens on public exchanges.

## Why participate in the MEL Token sale?

MEL tokens are utility tokens that have an intrinsic value in the Melior Artificial Intelligence ecosystem. Participants in the token sale will directly benefit from the company's success with current and future products. The more customers Melior acquire then the fewer tokens there will be in general circulation and the more valuable the remaining tokens will be.

All Enterprise customers using any Melior products will have 10% of their fiat payments allocated to a token buy-back scheme. The token buy-back will take place via public exchanges which will mean that Melior will always be a customer for it's own tokens.

The tokens purchased by Melior will then be taken out of circulation so the net result will be that 10% of all Melior revenue will be used to reduce the amount of tokens in issue and thus increase the value of the remaining tokens. The more customers that Melior attract, the more tokens get taken out of circulation and the more valuable the remaining tokens are.

In addition to this, all of Melior's Pay-As-You-Go services will be required to purchase $250 of Melior tokens in an allocated wallet in order to make their service function. PAYG customers will make their $250 payment in fiat currency and Melior will purchase the tokens on their behalf on public exchanges. The function of the deposit is to ensure that the more PAYG customers Melior acquire, the more tokens are taken out of circulation.

Token Value Generation Model
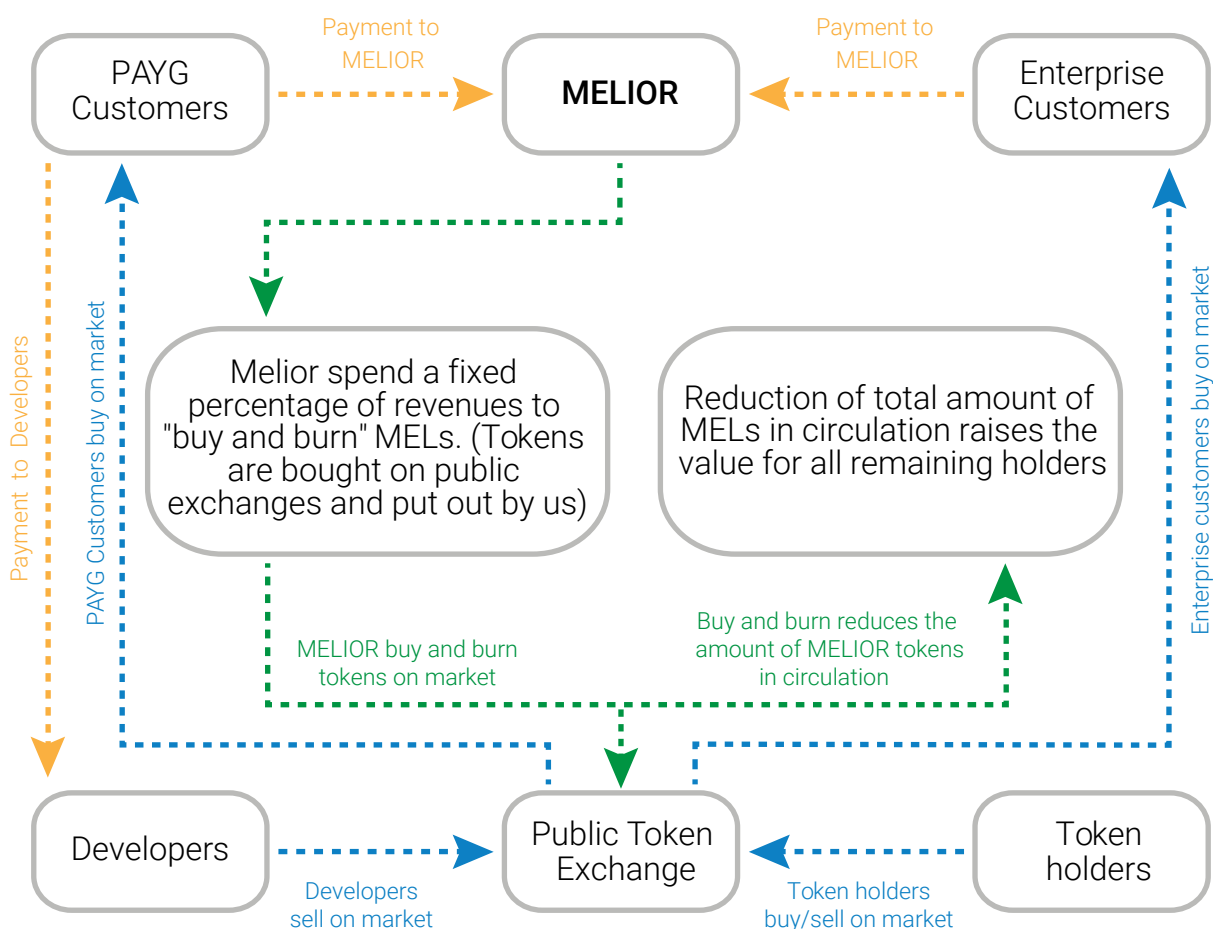
Why Melior Is Raising Money

Melior's research has developed exceptional core AI tools via intricate training, data usage, transfer learning and knowledge sharing to create models that respond in a more authentic way leading to a better user experience.

Unlike many companies raising money via token sales, Melior already has two sophisticated working products that have been robustly tested, are generating revenue for the company today, and are ready to sell to market. MILA (a Virtual Customer Service Assistant for e-commerce) and MAX (a Frequently Asked Questions Bot) are AI powered chatbots targeted at the e-commerce sector, which is worth US$1.4 trillion per annum in the ten biggest markets alone (PWC).

Melior is not raising its soft cap to develop a product, but rather to commercialise and productise its already working tools. The money raised will be used for marketing, to establish a sales team and to expand into new territories. Any money raised in excess of the soft cap figure will in part be used for further R&D in order to develop new products for other industries, based on our existing technology and the results of new research.

Through our token sale Melior is issuing its own utility token, the MEL token. This will act as a mechanism to power our AI products; a currency to operate within our development marketplace and a way to share in the future success of the company.

Abstract

Every year the reach and value of Artificial Intelligence is increasing. It is no longer a question of whether it will dominate the internet - or the economy, as a whole - but when. For the last twenty years, people have accessed the web and the knowledge available on it almost exclusively via websites, but as technology moved on consumers quickly followed.

Presently, many people use social media sites like Facebook and Twitter as their exclusive means of accessing news or engaging with brands, and the fast progression of AI is going to change this even further. Perhaps sooner than we imagine, we could be interfacing with machines directly and talking to them as we would to another human.

AI works by combining large amounts of data with fast, iterative processing and intelligent algorithms, allowing the software to learn automatically from patterns or features in the data. Melior's AI technology is built on many different datasets, combining in-house training with pre-trained models, accounting for hundreds of training hours to acquire an incredible wealth of knowledge.

Simply put, the aim of AI is to provide software that can reason on input and explain on output.

A major barrier with AI is the cost of ownership. Building, testing and productising viable models is extremely expensive computation-wise, and a large amount of data is required in order to succeed. It can often take hundreds of machines equipped with expensive GPUs and weeks of time to train an individual network in the traditional manner. Consequently, larger companies are getting the benefits while small to medium companies are being left on the sidelines.

Melior provides AI solutions that scale across all business sizes in an economical way. We provide a full service suite for large corporates as well as an affordable "DIY" service for small businesses. With its development of a sophisticated off-the shelf solution, Melior meets an increasing market need of small and medium sized businesses by providing economical intelligent products capable of immense impact on a global scale.

We specifically targeted one of the trickiest aspects of Artificial Intelligence – the point at which a chatbot interfaces with people - and have ensured that our AI understands the wide complexities involved in normal human communication.

A common technique in AI or Deep Learning approaches is to tackle a problem by gathering large amounts of data that resolves one particular issue yet only builds a very basic knowledge. An example of this would be learning to recognise cats by first learning how to identify colours and basic shapes including triangles, squares and circles in order to finally achieve the goal of distinguishing cats from

other things and animals. In human learning, this would be the equivalent of a person learning how to read each time they approached a new book.

At Melior, we chose to create a network that learns closer to the way humans do: first acquiring the knowledge of how to read, so that with each different book they ingest the specific information the book contains, without necessarily forgetting what they learned before.

As our exceptional technology has already had training on vast existing datasets, it has allowed us to build a system where no historical client data is needed in order to make it work. We believe from a technical point of view that this is a more intelligent, efficient, resource-and-knowledge aware approach.

Due to their core general knowledge, our models require much less training time than others currently on the market, and additional fine-tuning for a different domain is also quicker to do. This means reduced development costs for both ourselves and our customers. Deployment is swift and pain free.

Our technology understands that many aspects are reflected in a conversation in addition to the words themselves, **such as tone and context.** These aspects are analysed as an important part of delivering Melior's AI solutions.

With our vision of a growing range of global applications, businesses of all sizes will be able to participate and benefit from the AI revolution.

Market Overview

Artificial Intelligence

The market for AI is booming. PWC say that **"Global GDP will be 14% higher in 2030 as a result of AI – the equivalent of an additional US$15.7 trillion... more than the current output of China and India combined"**[1]. It is no surprise that AI businesses across the globe are being incorporated to capitalise on this potential.

Where will the value gains come from with AI?

Global GDP impact by effect of AI ($trillion)

Legend: Labour Productivity · Personalisation · Time saved · Quality
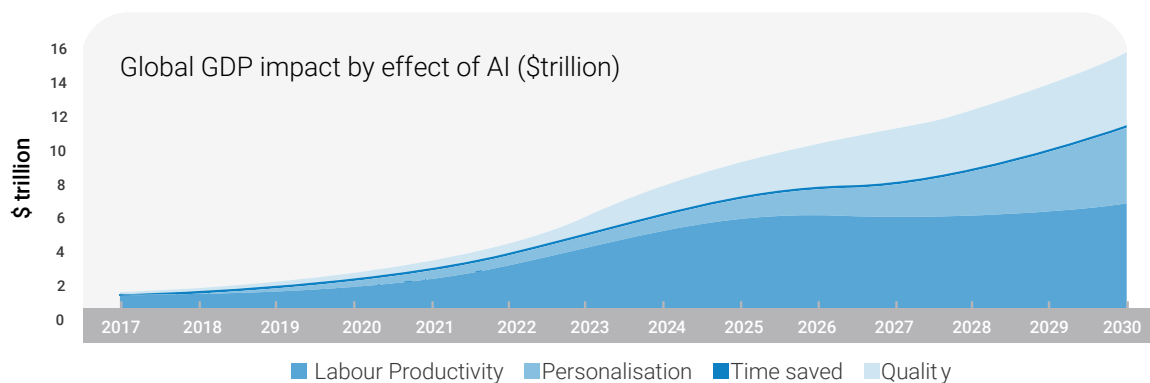
Source: PWC

Global Revenue from AI Market Size 2016-2025:

Year	Market in million US dollars
2016	1 378.19
2017	2 420.36
2018	4 065.99
2019	6 629.44
2020	10 529
2021	16 241.52
2022	24 161.77
2023	34 381.76
2024	46 519.61
2025	59 748.54

Source: PWC

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[1] https://www.pwc.com/gx/en/issues/analytics/assets/pwc-ai-analysis-sizing-the-prize-report.pdf
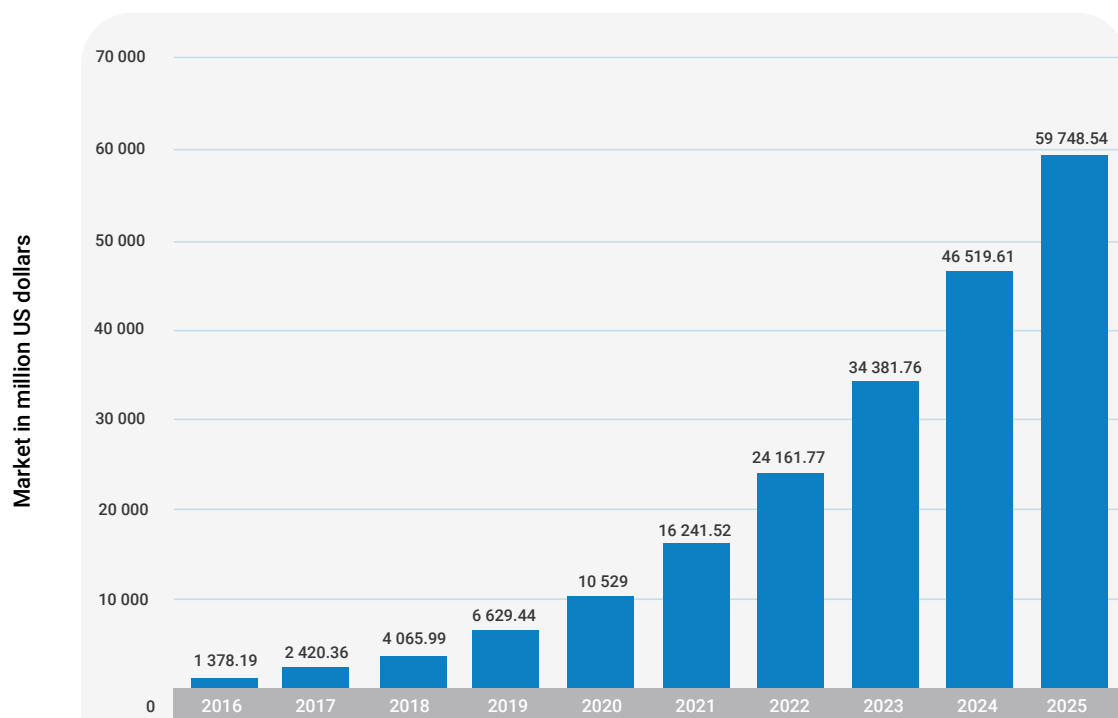
This potential is not limited to AI companies. All industries across the globe are looking for methods to capitalise on the rising importance of AI by attempting to streamline processes and to automate repeatable tasks using artificial intelligence. The impact will be felt everywhere and not one major global industry will be immune:

•Advertising •Aerospace •Agriculture •Automotive •Building Automation •Business • Consumer • Defence • Education • Finance • Gaming • Government • Healthcare • IT • Investment • Legal • Life Sciences • Logistics • Manufacturing • Media & Entertainment • Oil, Gas and Mining • Retail • Real Estate • Sports • Telecoms • Transportation

Within each of these sectors, an overwhelming majority of the use cases rely on the use of Deep Learning and Neural Networks to operate on extremely large data sets (Big Data), particularly Computer Vision and Natural Language Processing methods. While these are extremely impactful they are also inevitably incredibly costly.

In the current technological and economic environment, every business would benefit from integrating AI into its day to day operations; however, most cannot afford to do this due to the considerable cost and amount of time it takes to train an AI system in its specialist function. An off-the-shelf AI solution will almost never match the unique requirements of every business without customised coding and individual training, which comes at a heavy cost, so only large businesses have the financial firepower to hire the developers required to do this.

Problem: due to the cost of training AI systems, the benefits are mostly confined to global giants.

Our Solution: Melior's wide-ranging suite of chatbots provides an affordable access point to Artificial Intelligence usage for everyone, including SMEs.

E-Commerce

Retail E-commerce's Global Spread (Billions)
The 10 largest e-commerce markets (by billion USD)

Canada $30

US $340

UK $99

Germany $73

Russia $20

France $43

China $672

Japan $79

South Korea $37

Brazil $19
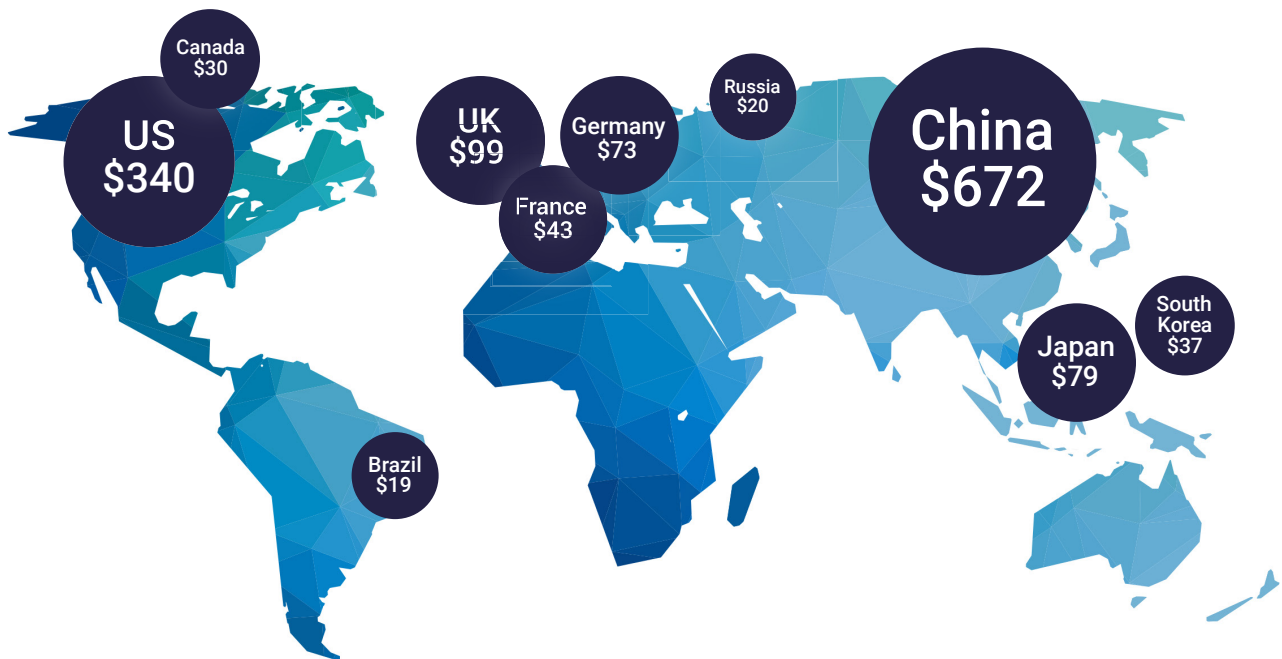
Source: PWC

The e-commerce market globally is worth US$1.4 trillion dollars annually in the ten largest markets alone. An industry this size needs an enormous amount of customer support, which is very expensive.

Worldwide Customer Support Expenditure
Global contact centre market 2015 - 2020

2015 Market Size
$7.14
BILLION
2016 market growth rate **9.24%**

2020 Market Size
$11.84
BILLION
2020 market growth rate **11.78%**
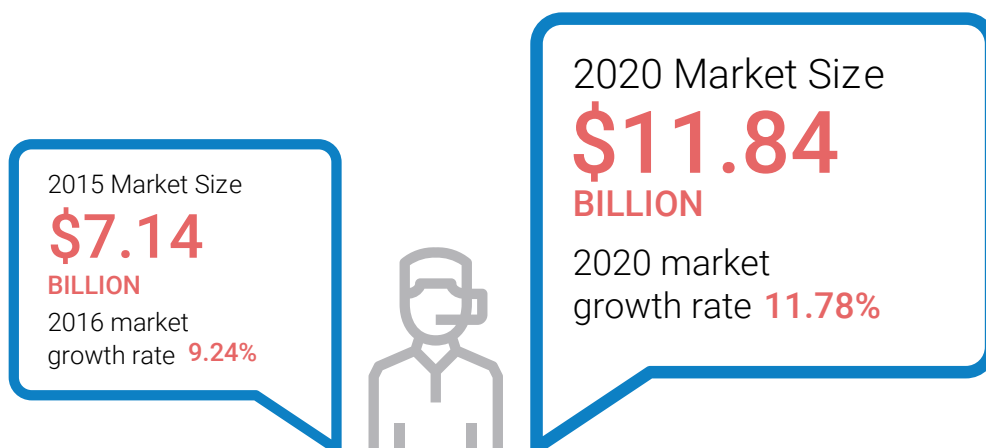
Source: Technavio

We believe that every e-commerce provider with a need for customer services or contact centre employees is a potential Melior customer. Beyond this, we imagine that every business with a website is also a potential customer through our upcoming Pay-As-You-Go system.

Problem: Growth in e-commerce is driving the demand for customer services operations which are not easy scalable.

Our Solution: Melior's AI chatbots make it possible for companies to scale their customer services to match their customer demands. We can guide customers to the checkout faster, ensure their shopping baskets are filled with the products they desire to purchase and assure a more seamless interaction experience with a brand as a whole.

Chat Applications

The size of the global e-commerce market is the reason for Melior's first commercial AI product, an Artificial Intelligence e-commerce chatbot - MILA.

There are estimated to be over 2 billion mobile phones in the world. Almost all of them are now smartphones equipped with the facility to use any number of social chat applications.

Chat apps usage:

App	Monthly active users in millions
WhatsApp	1300
Facebook Messenger	1300
WeChat	980
QQ Mobile	843
Skype	300
Viber	260
Snapchat	255
LINE	203
Telegram	100
Blackberry Messenger (BBM)	63
Kakaotalk	49

Monthly active users in millions
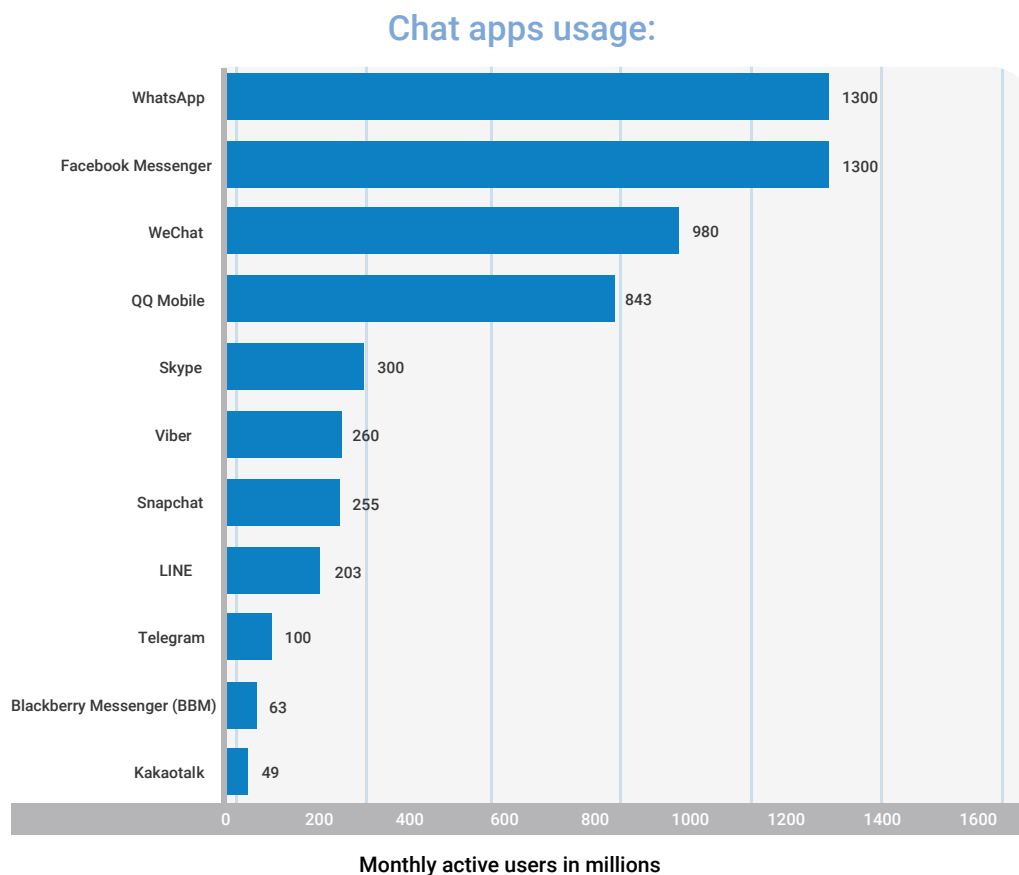
Chatbot Market Size To Reach US$1.25 Billion By 2025 | CAGR: 24.3% [2]

Source: PWC

The top three chat applications have over 3 billion active monthly users between them and market research shows that users prefer chat over other forms of communication.

Customer satisfaction rates from online chats sit at around 90%[3]. Most customers are already accustomed to native chat channels as seen in Facebook Messenger and WhatsApp and are able to receive customer support in under a minute. In this way, customers feel constantly supported and do not need to make any extra effort to communicate.

Currently most online companies requiring chat support outsource to call centre companies in countries that provide lower priced costs. To provide 24 hour per day support they require three teams of three operating in shifts around the clock. These teams can deal with approximately 175 enquiries per day at a cost of around US$8,000 per month.

Problem: Customer service teams need to be individually trained in their customer facing roles, as well as cover put in place in case of illness – hence the setting up process is slow and expensive.

Our Solution: Melior makes it possible for companies to scale their customer services quickly in order to match their customer demands. We make it affordable for brands to provide superior customer service. Moreover, as AI achieves incredible accuracy, our solution increases the chance of a customer completing a purchase and also expedites the sales process.

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[2] https://www.grandviewresearch.com/press-release/global-chatbot-market
[3] EN-WP 2016 Retrospective PDF

How it Works - Artificial Intelligence Guide

Artificial Intelligence

The human brain is a massive neural network which allows us to learn and understand the environment around us. Advances in computing power and data have led AI to outperform humans in some specific tasks.

AI is a technology capable of learning, error-identification and self-improvement to interact with its environment and to take actions designed to increase the chance of success in its programmed goal. AI automation can dramatically impact routine, high-volume repetitive tasks, reliably, with more accuracy and without fatigue.

In the past, the development of complex AI technology has been constrained due to a lack of computing power and a lack of data with which to train it. But in recent years, the generation of "big data" and the development of "the internet of things" has totally changed the field of play. Today there is real-time access to vast quantities of data and the exponential development of GPU computing power has made it agile enough to navigate these colossal datasets in a much less laborious manner.

AI researchers have now begun to make giant strides forward in machine intelligence development. It is an exciting moment. Problems that they have worked on for decades, such as facial recognition and voice interaction, are now being solved and the technology is being integrated into day-to-day life.

When research firm CB Insights released its 2018 "AI 100" list in December 2017, it revealed that the hundred startups on their list had raised US$11.7 billion in funding across a total of 367 deals. There were 11 unicorns amongst them [4].

So, if Artificial Intelligence is the future: the future is already here.

Artificial Intelligence Definitions

Back in the 1950s, Marvin Minsky and John McCarthy, fathers of the AI field, described artificial intelligence to be any task performed by a program or a machine that, if a human carried out the same activity, we would say the human had to apply intelligence to accomplish the task.

That is a fairly broad definition, and there are many discussions about whether something is truly AI or not.

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[4] https://www.cbinsights.com/research/artificial-intelligence-top-startups/

At a high level definition we can differentiate two types of AI:

- Weak AI: Also known as narrow AI. These are AI systems bound to a certain range of tasks (even if they have superhuman ability in that specific task) which lack the capacity to generalise the learned knowledge to significantly different domains.

- Strong AI: Also known as Artificial General Intelligence (AGI). These are AI systems with a cross-domain capability. The system learns from a variety of experiences and applies its knowledge in different domains.

The concepts of weak and strong AI are somewhat blurred and can lead to confusion. Recent advancements in AI have lead to systems that are weak and strong in different ways. It is arguable then that the subfields of AI offer greater clarity in their definitions.

Current AI contemplates the following sub-fields:

1. Machine learning

Machine Learning is a subfield of AI that allows computers to learn without being explicitly programmed. It is based on statistical learning and evolved from the fields of computer vision and learning theory.

By using various data analysis algorithms, Machine Learning provides systems with the ability to acquire knowledge from previous interactions in order to develop computer programmes that are able to learn for themselves. Unlike traditional programming - where a task is solved by imputing a set of human rules and commands - Machine Learning trains the computers on a large amount of input data. It requires them to independently find interrelations between input parameters and to make their own conclusions, decisions, and predictions in the pursuit of their tasks without being explicitly programmed. Essentially, the machines use the input data to learn how to perform the required task.

As the number of data samples available to their algorithms increase, the machines improve their performance and are very efficient at finding natural patterns in the data. This allows them to discern hidden patterns without being explicitly programmed where to look, and to then apply those patterns when looking at similar problems in new situations.

Traditional Machine Learning techniques rely on hand-crafted features (i.e.: human designed representations of the inputs) in order to start the learning process. To put it another way: there is no automatic learning of internal representations of the data like with Deep Learning.

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[5]   A recent example is DeepMind's AlphaGo system. Is an example of weak AI while being very strong by means of Go playing standards.

There are three main areas of Machine Learning: supervised learning, unsupervised learning and reinforcement learning.

Supervised Learning

In Supervised Learning, data known as "training samples" is given to the algorithm. This data already contains known correlations and the object is to have the computer algorithms identify these existing relationships and label the data. An example of this would be in image recognition, where a machine could be trained to distinguish a dog from a cat. The algorithm would be provided with a host of training images explicitly labelled 'dog' and 'cat' and would use this data to build a model for itself of what each animal looks like.

Once the algorithm is successful with known data it then moves on to unknown data in an attempt to get to a stage where the model is advanced enough for the computer to identify unlabelled images of dogs and cats for itself. In short, the training is to teach the computer to solve the cat/dog problem in a controlled environment before using the experience to solve the same problem in a new situation.

Unsupervised Learning

Unsupervised Learning operates on raw data (i.e. data not labelled), with the objective of finding hidden patterns, similarities, and anomalies inside the dataset without human intervention.

Much like a child, these programmes start with relatively simple information, but when they are exposed new information they are able to absorb that knowledge to generalise and make decisions on new datasets.

Reinforcement Learning

Reinforcement Learning allows machines and software agents to automatically determine the ideal behaviour within a specific context through the use of reward feedback. This type of Machine Learning is fundamental to the development of AI applications that can operate with a degree of contextual autonomy amongst different environmental circumstances.

Reinforcement Learning is increasingly used within the AI field alongside Supervised and Unsupervised Learning in more advanced applications, in order to develop trial-and-error algorithms to accelerate neural network designs. This is done, for example, by allowing the AI to rapidly ascertain which of the neural network architectures (decisions) will be best suited to the circumstance that they face at any given time – effectively consulting their memories.
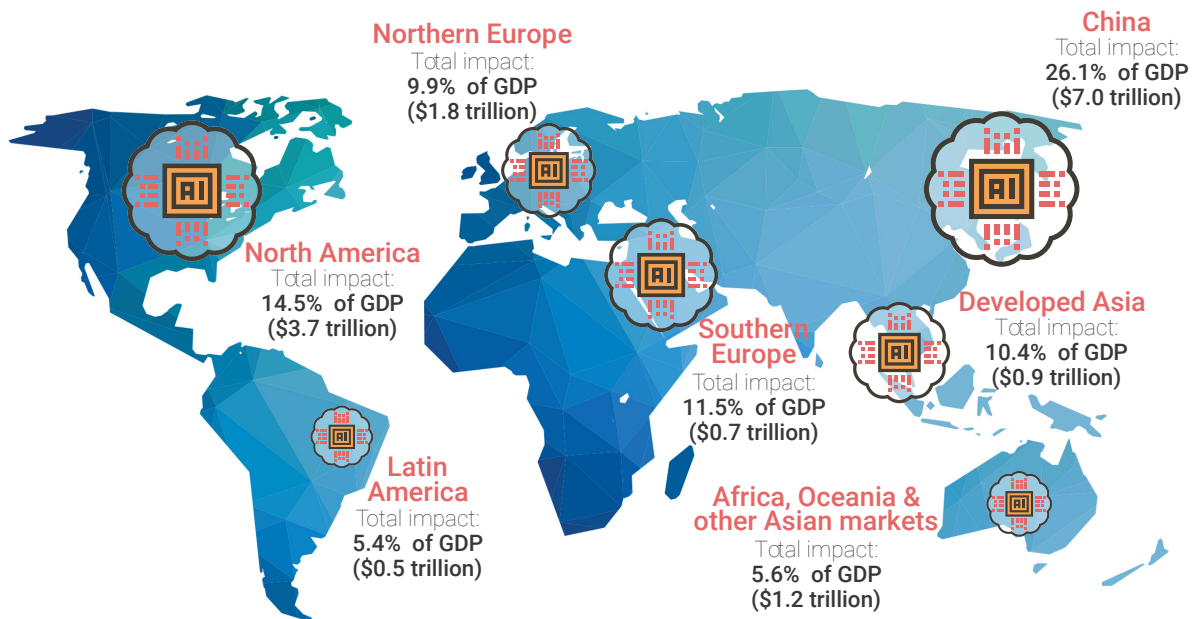
2. Deep Learning

Deep Learning can be understood as a technique to implement Machine Learning loosely inspired by the human brain.

Deep Learning methods have become very effective for complex tasks such as computer vision and sentiment analysis and, as such, have become increasingly important to AI development partially because they do not require hand-crafted features that are necessary for conventional Machine Learning techniques. This means that less human intervention is called for in order to make the machine learn.

A Deep Learning system attempts to understand the world by creating a multi-layered neural network that learns its own representations of the world and stores them as a nested hierarchy of concepts many layers deep. The hierarchical concepts are learned by a neural network by means of adjusting the strength of the many connections between its neurons when exposed to a large number of examples. Backpropagation is used to adjust the weight of connections between the neurons to improve results and once configuration is complete, the layer system of the neural network allows subsequent computations to be built on previous ones.

As the inputs go through multiple layers, Deep Learning models are able to deal with more abstract questions as the higher layers build on the inputs generated from the lower ones. When processing images of a human face, for example, the machine recognises the elements based on a hierarchy of simpler building blocks: straight lines and curved lines at the basic level before eyes, mouths, and noses; entire faces; and finally specific facial features.

PWC Predictions for which regions will gain the most from AI.

Northern Europe
Total impact:
**9.9% of GDP
($1.8 trillion)**

China
Total impact:
**26.1% of GDP
($7.0 trillion)**

North America
Total impact:
**14.5% of GDP
($3.7 trillion)**

Southern Europe
Total impact:
**11.5% of GDP
($0.7 trillion)**

Developed Asia
Total impact:
**10.4% of GDP
($0.9 trillion)**

Latin America
Total impact:
**5.4% of GDP
($0.5 trillion)**

Africa, Oceania & other Asian markets
Total impact:
**5.6% of GDP
($1.2 trillion)**

As can be seen from the chart above – the majority of the benefits of AI will be attained by the wealthiest parts of the world, and the gains reaped by the wealthiest companies within them.

Problem: A significant amount of an AI enterprise's budget will be put into computing power to train the AI models. This includes the purchase and maintenance of high computing performance hardware, which has become a heavy burden to businesses, restricting investment in technology research and development.

Our Solution:

Melior has created sophisticated Neural Networks for Computer Vision and Image and Natural Language Processing to develop models for domains with minimal amount of data available.

We believe in making AI technology accessible to businesses of all sizes across the globe. The benefits that Artificial Intelligence developments bring to the world should be within everyone's reach.

By sharing the work we have done on our own networks with SMEs through both private sales and our public marketplace, we strive to accomplish this and to be both profitable and equitable.

Our Products

Melior's aim is to produce a wide ranging suite of AI products that will empower businesses of all sizes and in all sectors to make the best use of the advances in technology that are available with the use of AI.

This is based on our extensive research within the sectors of Natural Language Understanding (NLU) and Computer Vision and built on the platform of our existing keystone Neural Networks and Deep Learning technology.

In addition to our wide ranging R&D pipeline, we already have two impressive chatbot products that are built, tested and ready for market today. MILA - our virtual Customer Service Assistant and MAX - our FAQ bot, provide a different level of assistant service to meet a business's needs.

Our products are:

- Cloud-base software-as-a-service.

- Off-the-shelf, quickly deployable e-commerce AI solutions for all businesses.

- Multilingual, multichannel, and universal.

- Facilitating world-class product discovery better than other currently available search solutions.

- More user friendly. More intelligent. Less 'artificial'.

Due to the unique approach that we have taken to the development of the core AI, Melior is able to provide a high quality range of products that are also economical. While most other Artificial Intelligence companies have followed the path of training their AIs to be focused on specific tasks (a longer, more expensive endeavour), we chose a different route.

Our focus is on training the AI on vast available datasets on peripheral tasks to provide a general learning base which the AI models can then use to solve more specific problems. This general knowledge is then shareable among many models giving it broad, basic communication capabilities that can then be applied to other settings with a minimum of additional finessing (if required), making the training not only more time efficient but also cost efficient.

> Melior's strategy is to produce the most accessible, experience-enhancing AI technology to suit all business and customer needs.

Our chatbots are multichannel and will be multilingual. Melior anticipates support for Spanish, French, Portuguese and German by December 2018. This totals approximately 2 billion people globally, and we intend to expand our language

support even further as soon as possible, starting with Chinese language in early 2019.

Commercialisation

Our first target is the e-commerce market, which is predicted to be worth US$2.8 trillion in 2018, and by giving companies a 24-7/365 presence on the major social media messaging channels will reach approximately US$4.8 trillion by 2021 [6]. We believe that the customer services interface for online stores can be dramatically improved with our AI technology. As currently all of this business is focused on websites and human customer service agents, there are significant financial and access gains that can be made by introducing AI to the product mix.

Melior's vision is the democratisation of Artificial Intelligence.

Melior will share the benefits of AI with all businesses irrespective of their financial circumstances – selling bespoke technology to bigger businesses while also providing a pay-as-you-go model to smaller organisations.

We have developed the following AI chatbot solutions:

- For Enterprise: MILA, MAX

- For SMEs: MINNIE PAYG

Enterprise Offerings: MILA, MAX

MILA — our e-commerce bot.
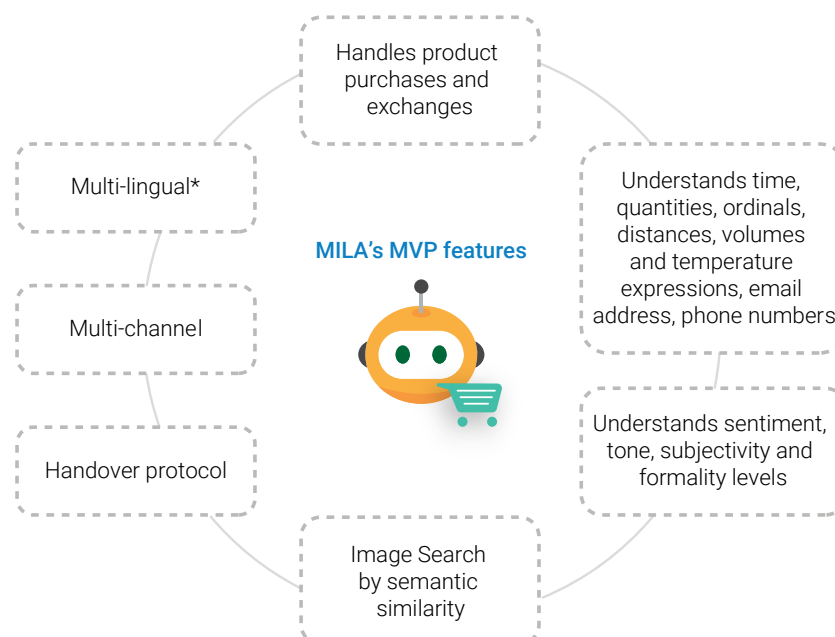
Identifies 83 languages;
Understands English. Spanish, Italian, Portuguese, German and French languages available in December 2018.

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6   https://www.statista.com/statistics/379046/worldwide-retail-e-commerce-sales/

Messaging technology has spread rapidly over the last few years to become one of the most used smartphone services globally. Services like Facebook Messenger, WhatsApp, WeChat and Telegram have evolved to include features such as payments, online booking and ordering. With the correct AI chatbot engine, they are now able to carry out many of the functions of a website or mobile application within their own ecosystems. The four biggest messaging platforms combined have over 3 billion monthly active users [7]. MILA will allow businesses to be available to all of them, all of the time; within the social messaging channels that their customers are already familiar with.

Problem: There are only a small number of e-commerce platforms out there. Although these platforms are configured differently by each business, with enough variation to distinguish between brands, a customer looking to find a purchase is not able to use a universal approach to locate what they want. They have to learn how to 'navigate' each individual website instead.

Most people use a search engine to source an item by entering in a few key search terms. But this method requires someone knowing what they are searching for. If a customer knows what they are looking for but does not know its name, they can carry out a picture search; but without context the search will generate a huge number of extraneous results.

A search engine only searches based on the terms provided to it, and does not refine successive searches based on any previous searches a user has made. To refine successive searches, the user must add additional search terms.

When dealing with a shop assistant in real-life, humans have many ways to describe what they are looking for, but systems that try to help a consumer navigate an online catalogue usually present some kind of web form. Whilst this is marginally better than manually entering in raw search terms, it is still too narrow a means of conveying to the system what a person is looking for. Usually it is just a way of refining the customer's earlier searches.

Our Solution: Melior's MILA **chatbot, powered by advanced Artificial Intelligence** provides a better tool for product discovery and **simpler navigation of large complex catalogues.** It is an impressive e-commerce advantage for all businesses.

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[7]   Accenture Chatbots Customer Service Doc – page 4

The Chat Channel Interface

MILA handles all communications with a user. It is capable of carrying out conversational text as though talking with a human (chat) and engaging with multimedia content (it recognises images) while also recognising the geographical location of the user.

The AI Engine bridges the chat interface and the e-commerce catalogue system. It is able to extract what a user is looking for from the chat interface, taking into account context and complex modes of human expression. It then converts this understanding into database query commands that search the catalogue for relevant information and packages it in a suitable form for the user through the chat interface. Moreover, search results continue to improve over time as the engine learns from 'experience'.

MILA is a chatbot capable of dialogue with a human that can also understand images. This bot then interfaces with an e-commerce platform and its back-end database that holds the catalogue data as well as the user's shopping history. Our AI can extract the key information to query the e-commerce platform back-end.

Presently, the majority of online customer assistance is carried out by human operatives, based in more affordable locations across the globe. Occasional language challenges aside, these operatives need to be trained individually, and are required to work in teams in order to give 24 hour coverage to a business. When team members are tired, sick, or they leave, the standard of the customer service declines. Furthermore, additional costs and training times ensue when the team requires expansion. MILA can perform faster than its human equivalents; never makes the same mistake twice; is instantly scalable and costs a third of the price of a human agent. MILA is also capable of dealing with many more enquiries in the same 24 hour period.

In addition to this, MILA can instantly deal with queries that are beyond a human customer support operative. If a customer wants a specific product, for example, they need only ask MILA and all the product details appear within the chat (image, cost, size etc.). They can then purchase it easily from within the messaging application – the entire transaction carried out seamlessly as soon as the customer makes their decision to buy.

MILA is even able to help a customer when the name of a product escapes them. With a simple picture upload, our chatbot is able to deliver the product details within seconds.

As most of the current generation of chatbots available on the market are not AI powered, they only use decision trees to determine their responses. This means that they have a limited understanding of the questions they are asked and,

more frustratingly, a limited response pattern. In simple terms: unless a query is phrased in a precise way – they are unable to understand the question put to them. So instead of the computer learning to speak like a customer, the customer must learn to speak like a computer!

MILA is different. Our complex neural network system means that all of our bots use Machine Learning, behind which multiple Deep Learning Models are analysing different aspects of a conversation (language detection, parsing, information extraction, sentiment etc.) to bring about a much more authentic, human-like conversational experience. As our AI chatbots continue to keep learning, the constraints of the expressibility of a standard decision tree method do not apply.

As with most new technologies, the current bottleneck on wider virtual customer assistants is down to the cost. Due to the training time required by Deep Learning Networks, the up-front costs are very significant with the savings only becoming apparent over time. This creates veritable barriers to entry for many medium and large businesses who are unable to afford those costs.

However, Melior's AI system is trained on general world knowledge, so our customers are able to quickly deploy an AI powered chatbot for their e-commerce brand. It is possible to subscribe instantly and add a chatbot to an e-commerce operation within a matter of days regardless of the industry. From fashion companies to building supplies; or chocolates to pizza delivery - MILA understands them all.

MILA offers a saving of at least 60% against the fees that companies typically pay human customer services operators and the ability to scale up instantly at a pro-rata cost.

MAX — our FAQ bot.
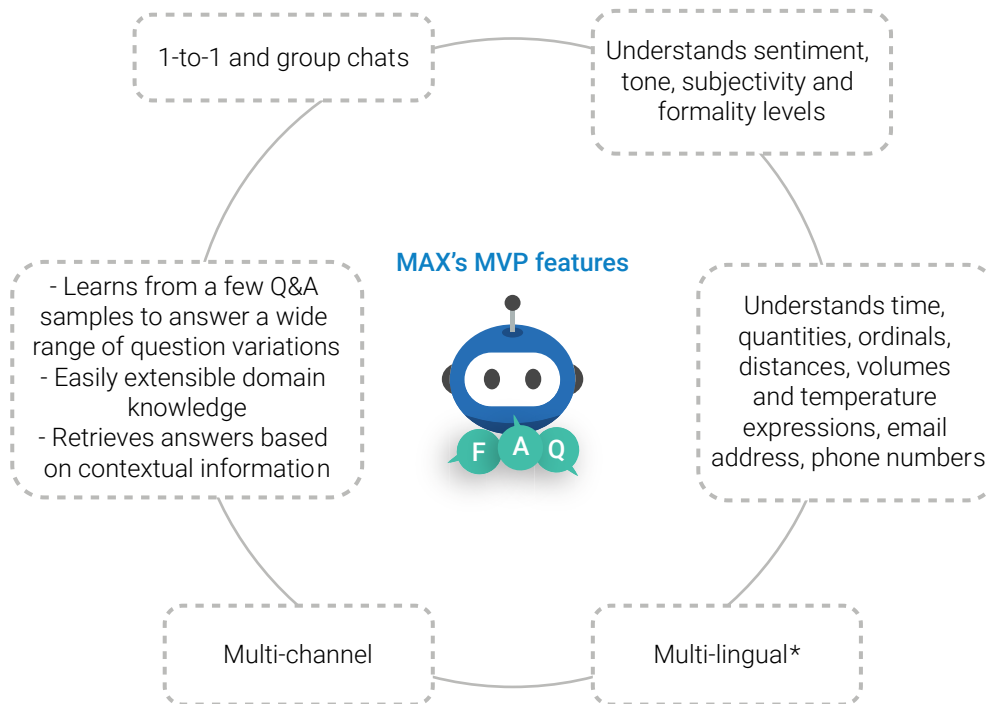
MAX's MVP features

- 1-to-1 and group chats
- Understands sentiment, tone, subjectivity and formality levels
- Learns from a few Q&A samples to answer a wide range of question variations
- Easily extensible domain knowledge
- Retrieves answers based on contextual information
- Understands time, quantities, ordinals, distances, volumes and temperature expressions, email address, phone numbers
- Multi-channel
- Multi-lingual*

Identifies 83 languages;
Understands English. Spanish, Italian, Portuguese, German and French languages available in December 2018.

Problem: Invariably customers want to know much of the same information when approaching an online store and while some sites do have a frequently asked questions page, it is often hard to access or navigate. A quick and accurate answer sometimes makes the difference between a sale and the abandonment of a basket. The internet has made us all global browsers, which means that customers ask questions around the clock, yet customer support is not always readily available outside of certain hours.

Our Solution:

MAX - our interactive chatbot that never sleeps.

Businesses can drastically improve the effectiveness of their online marketing with a smart chatbot that delivers information to a customer at any time of the day and night. In our experience, many people browse the internet wanting to learn more, to discover the facts about a product, without being overaggresively 'sold'. *91% of customers said they would use an online knowledge base if it were available and tailored to their needs (Zendesk).* We created our FAQ bot with this purpose in mind — the speedy retrieval of key information to aid customer engagement in their online experience, and to better assist them with their prospective purchases.

Even though people love browsing the internet, consumers do not want to navigate complex websites or mobile applications to find the information they are looking for, and much prefer a chat interface. Statistics indicate messaging apps, after 12 months, exhibit a 5.6x larger retention than all other average apps[8]. Equally, many consumers often have similar queries when online but many sites do not seem to be aware of the importance of this information being easily accessible, which can lead to consumers abandoning their search and moving elsewhere for information and even their purchases. MAX, our FAQ bot was created to provide an easy way for businesses to provide answers to frequently asked questions directly within a messaging conversation.

MAX is equipped with easily extensible domain knowledge allowing it to meaningfully address business-related Frequently Asked Questions. It was born as our tireless token sale Telegram channel assistant and has evolved and learnt to assist other businesses too since then, helpfully answering questions about opening hours, methods of payment, shipping options and much more around the clock.

MAX relies on a number of independent AI models to help it assess the intent of what it has heard, the sender (in the case of group chat), as well as the sentiment and tone of the message. It is an effective tool for often repeated queries, to help with channel management and community support as well as with 1-to-1 question answering.
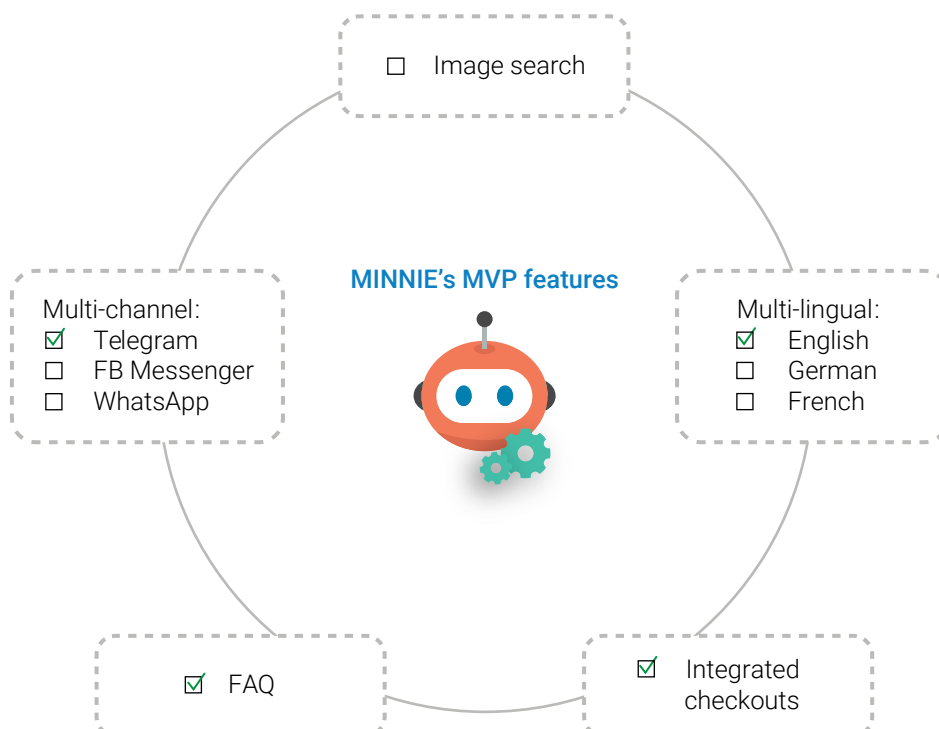
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[8] http://www.businessofapps.com/mobile-messaging-apps-have-5-6x-the-user-retention-after-12-months-use-compared-to-average/

Small Business Offering: MINNIE PAYG

In the UK, the combined turnover of SMEs is £1.9 trillion per annum [9]. In the USA, small businesses contribute US$8.5 trillion per year to the economy [10], while In Germany SMEs contribute 1 out of every 2 Euros generated by this segment of the economy [11]. The total economic contribution of small businesses to these three economies is well over US$10 trillion per annum.

Our vision is to democratise AI. As the benefits of this amazing technology should be shared by all, we are currently well advanced in developing a pay-as-you-go-system, catering specifically for the massive small business market, that will offer the sophisticated functionality of our technology at a cheaper cost. **Our MINNIE product with maximal impact.**

> **MINNIE** is our AI powered chatbot customised to small businesses, which combines MILA's expertise with MAX's superior technology at an affordable price. As small businesses have different acute needs, we have created a solution allowing them to select key features according to their individual requirements with applicable rates depending on their selections.

MINNIE's MVP features

☐ Image search

Multi-channel:
☑ Telegram
☐ FB Messenger
☐ WhatsApp

Multi-lingual:
☑ English
☐ German
☐ French

☑ FAQ

☑ Integrated checkouts

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[9] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/467443/bpe_2015_statistical_release.pdf
[10] https://townsquared.com/ts/resources/small-business-united-states-numbers/
[11] https://www.bmwi.de/Redaktion/EN/Publikationen/wirtschaftsmotor-mittelstand-zahlen-und-fakten-zu-den-deutschen-kmu.pdf?__blob=publicationFile&v=1

MINNIE Financial Model & MEL Tokens

Our MINNIE model has the potential to expand Melior's income considerably by making our highly functional AI products available to small businesses who would otherwise be priced out of the market.

- MINNIE works much like an electricity meter, in that in order to function, it requires US$250 in MEL tokens to be in a wallet linked to the customer's account.

- We intend to make token purchase completely frictionless. SME customers make a simple card transaction and the resulting token will be seamlessly credited to an automatically created token wallet, owned by the customer.

- US$250 worth of tokens must always remain in the account to keep the chatbot functioning. In the event of a customer ceasing to use the chatbot the tokens will be sellable by the customer. So in essence, the US$250 functions like a deposit.

- US$250 worth of tokens are linked to a PAYG account upon registration. This token amount on the registration date will determine the minimum quantity of tokens needed to keep the system functioning. I.e. If $250 buys 1,281 MEL tokens then 1,281 becomes the amount of tokens required to keep the account active, even if the value of the tokens drops. If the value of MEL tokens increases (so that 600 tokens are now worth $250), a customer can sell their superfluous tokens for a profit. In this way, the customer benefits from any upside in token value while at the same time being protected from the downside. In the unlikely event that the MEL token goes down in value a customer will not have to top up their minimum deposit to keep the system working.

- Similar to a pre-paid mobile phone contract, a customer prepays their wallet balance in anticipation of their usage. A customer's balance is only deducted via the PAYG system when a predefined milestone is reached (for example, if a user makes an appointment at a hairdresser's salon or the bot handles 50 questions for a microbrewery).

Key Benefits of MINNIE

- Signing up to the MINNIE PAYG application does not cost a business any money – it is simply a refundable token-based deposit.

- The only time any money is paid by a business to Melior is when a pre-agreed milestone transaction is reached.

The Melior Market Place – Democratising AI

The AI space is rich with possibilities, and Melior is fully aware of the importance of community engagement and how integral that is to the expansion of ideas. We envisage a facility where outside developers – in collaboration with our technology — create third-party applications that can be monetised in a revenue share system.

We will follow a well-known and well-tested Apple Store/Google Play model where we invite vetted third-party developers to build domain-specific extensions and commercialise them on the Melior marketplace. Every bit of technology that is intended for the PAYG market will be put out in raw form for adaptation by developers to the real world.

Developers would be allowed to set their own 'per transaction fee' in line with our published guidelines. We aim to take a fixed percentage (up to 30%) of each such payment and pay over the remaining 70% to the third-party developers. We envisage that those micro-transactions will be priced around US$1.00. Our terms and pricing guidelines will be adjusted from time to time in line with market feedback.

Technology Used In The Enterprise E-Commerce Engines

Guiding Principles

Melior is guided by the principles of skill, scalability and security.

We believe that microservice-architecture running in a secure cloud environment best fits our present needs. In this way we are not saddled with a monolith that becomes harder to maintain and evolve but are equipped with a swappable set of tools and services that can be effectively managed, can evolve organically and be independently improved.

This approach allows us to research faster and experiment, which in turn allows us to offer more frequent feature releases.

Our Chatbots: How they work

From a high level overview, our chatbot solutions can be divided into three abstract components:

Conversational Channel/Interface:

A conversational interface provides the user with a familiar mechanism to communicate with the e-commerce platform through the AI. It allows for standard methods of communication and interaction through written text, emojis, images, hyperlinks, location or voice.

Additionally, many of the conversational channels provide applications for all major smartphone and web applications. This means that the users' conversation and their context are simultaneously accessible from a variety of devices at any time.

Artificial Intelligence Engine:

A process of information extraction and understanding is necessary behind the chat interface to bridge the gap between content interpretable by a human user (i.e. human language or visual information) and an e-commerce catalogue system.

E-Commerce platforms are in general composed by databases where product retrieval is done by means of some formal language (i.e.: SQL or API interface).

However, building a rule based system capable of mapping human expressibility to such databases becomes an impossible task, given the infinite amount of ways humans communicate.

An AI based approach, on the other hand, allows our solution to better cope with the way a human would interact in reality if they were talking to another human, and, more importantly, learns over time how to do it better.

The AI engine understands user inputs (utterances/images/emojis,etc.) and extracts necessary information (i.e.: user goal or intent, product information, time or geographical information) to pull up the relevant information that responds to a user's initial query.

Different engines for different content:

- The *Natural Language Understanding Engine* provides the understanding of the user's written messages, identifying useful pieces of information to achieve the desired goal. (i.e.: message language, message intent or topic, objects, attributes, dates, places, names, quantities etc.). It also identifies other aspects of written communication that are not directly related with the content but are attributed more to the user's style. (i.e.: sentiment, formality, tone, subjectivity, toxicity and so forth).

- The *Image Understanding Engine* focuses on the semantic meaning of an image, its components, colours, and textures in order to translate an image into a unique compressed representation; "an image signature." These signatures are then used to search for similar images in a catalogue. It also identifies and reads from potential regions of interest in the image (i.e.: barcodes, labels, text, icons) thereby providing an additional mechanism of communication.

> These engines are integral to the success of our AI chatbots that efficiently and effectively interpret user queries effortlessly.

E-Commerce Platform

The e-commerce platform exists at the other end of the system i.e. the commerce catalogue, shop, or back-end of what the user would traditionally see through a website or phone application.

Once the user's messages are translated into a set of instructions

understandable by the e-commerce platform, the platform is in charge of providing information relating to available articles or products e.g. we extract buy, red trousers, size M. The e-commerce system processes that information and replies: buy (yes), red trousers (yes), size M (no, size S, L, XL).

A user's needs are met swiftly and simply, leading to greater customer satisfaction and higher outcomes.

Our Chatbots: Architecture & Engineering

High Level Architecture
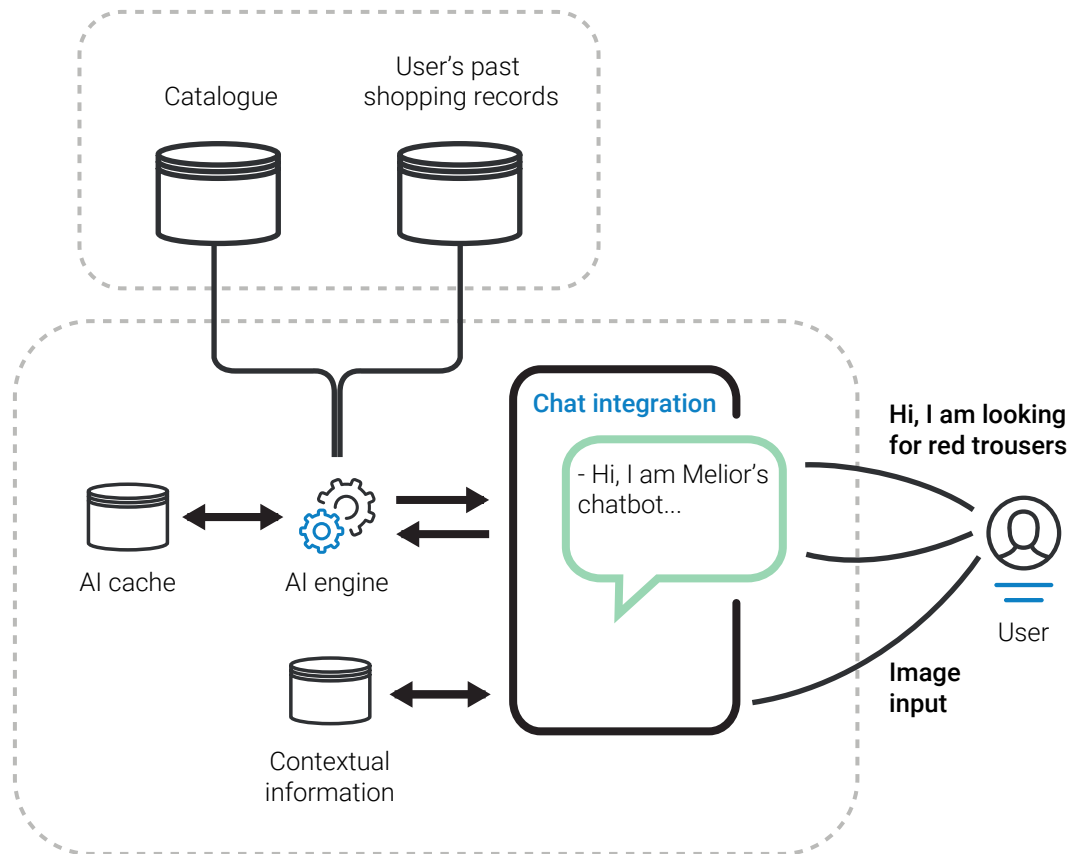
MILA's High level architecture diagram

1. A user communicates through the chat channel (text, voice, images, emojis, etc.).

2. The messages/images are read by the AI engine to determine the user intent and extract important information to carry out the command. Based on the provided and extracted information, the AI engine determines the next questions to be asked or steps to be taken.

3. When enough information is gathered to complete the action required by the user (e.g. purchase a product), the catalogue is queried to retrieve the necessary information (item price, characteristics, availability etc.), which is then sent back to the user.
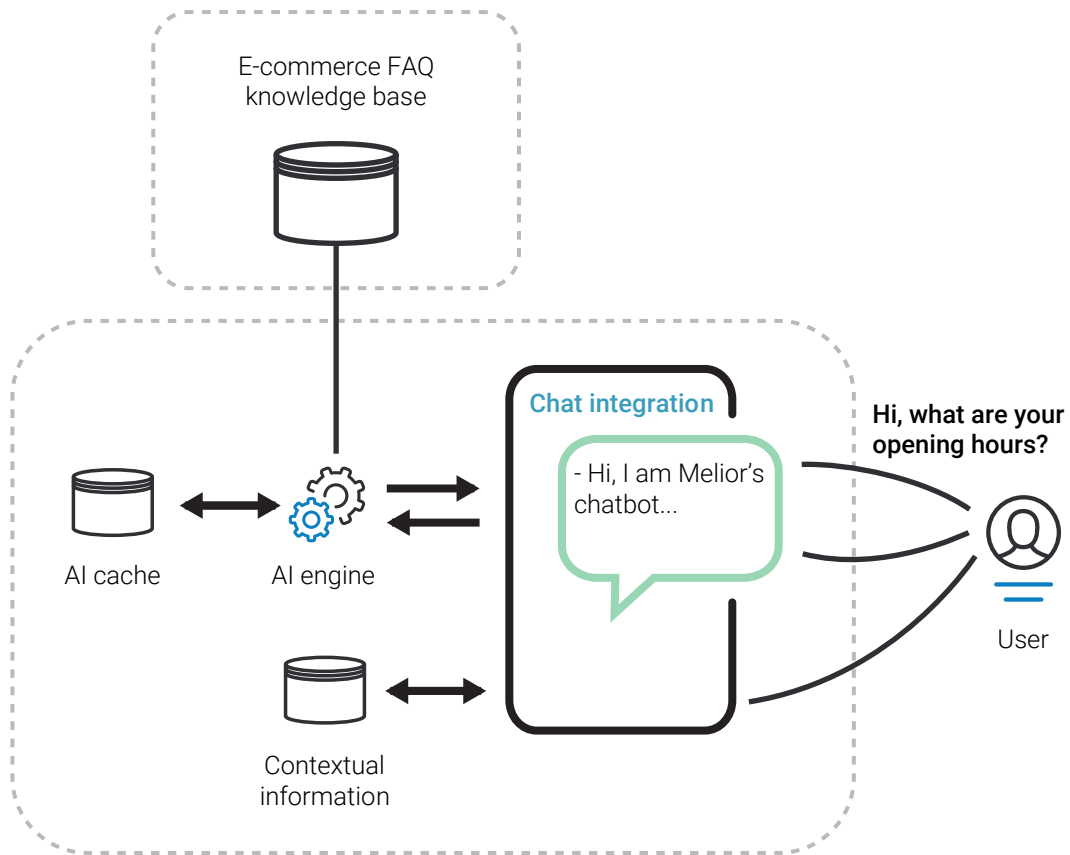
MAX's High level architecture diagram

1. A user communicates through the chat channel (text, image, emojis, etc).

2. The user's messages are interpreted by the AI engine allowing MAX to understand what information is the user looking for.

3. Once the topic is known MAX queries the knowledge base to find the appropriate answer, before sending it back to the user.

Natural Language Understanding Architecture Diagram

Run NLU sub-systems

Inferring meaning and extracting useful information

Hi, I'm looking for red trousers

```
{
    intent: buy
    sentiment: Neutral,
    product: Trousers,
    additional - information: {
        color: RED,
        size: N/D
    }
}
```
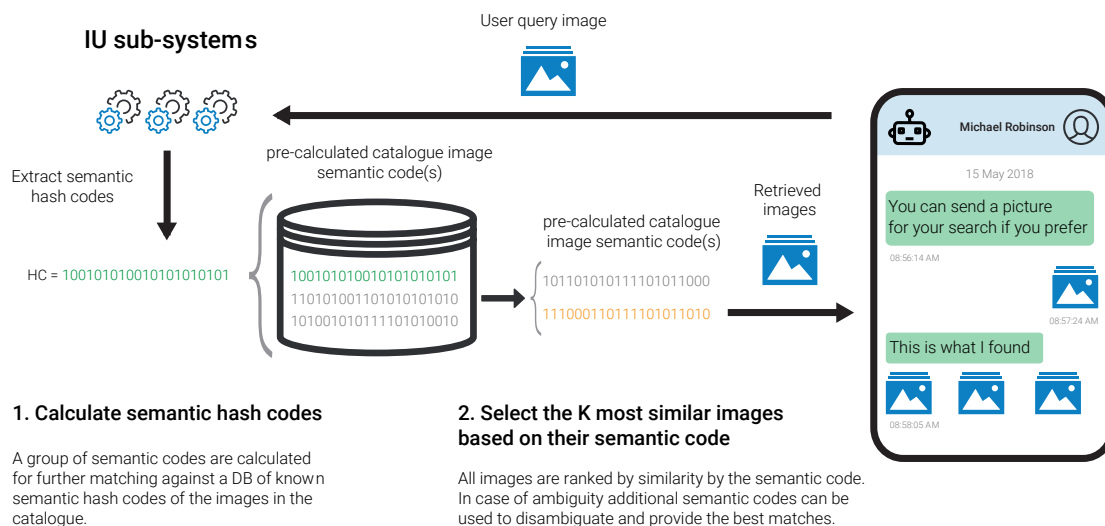
Match catalogue and decide further questions

Based on the available information and the catalogue DB chose next steps (questions, tips, prompts, etc)

NLU understanding

Message intent and other useful information (objects, times, places, names, quantities) is extracted together with message style and emotional aspects (sentiment, formality level, subjectivity).

Catalogue

Michael Robinson

15 May 2018

Hi, I'm Melior Bot.
I can help with your purchases or refunds.
08:56:14 AM

Hello there!
I'm looking for some red trousers
08:57:24 AM

Ok - red trousers. What size do you need?
08:58:05 AM

The NLU Engine extracts content and style information from the user's message and determines what the next actions are.

Image Search Architecture Diagram

IU sub-systems

User query image

Extract semantic hash codes

pre-calculated catalogue image semantic code(s)

Retrieved images

HC = 100101010010101010101

```
100101010010101010101
110101001101010101010
101001010111101010010
```

pre-calculated catalogue image semantic code(s)

```
101101010111101011000
111000110111101011010
```

Michael Robinson

15 May 2018

You can send a picture for your search if you prefer
08:56:14 AM

08:57:24 AM

This is what I found

08:58:05 AM

1. Calculate semantic hash codes

A group of semantic codes are calculated for further matching against a DB of known semantic hash codes of the images in the catalogue.

2. Select the K most similar images based on their semantic code

All images are ranked by similarity by the semantic code. In case of ambiguity additional semantic codes can be used to disambiguate and provide the best matches.

The Image Search Engine computes the semantic codes (a sort of unique image signature) of the user's origin image and compares it against known signatures to retrieve the K most similar ones.

Melior is running a micro-service architecture: restful, scalable & dockerised services deployed on the cloud.

- We implement CI/CD methodology.

- We use Github to store our codebase.
- We use a simplified Git Flow methodology.

Backend

- Melior's AI is written mostly in Python and we build upon some very well known open source libraries:
  - ◊ TensorFlow & PyTorch
  - ◊ Sklearn & Scipy
- Our AI models are never trained mixing different clients data, which guarantees that no information is leaked between clients.
- All our AI models are running in Docker container which allows for scalability on demand and isolated execution.
- AI experimentation and results are saved in MongoDB.
- The produced AI trained models are stored in S3 per client.
- Python is the established data science language given the extensive tools and libraries available for Machine Learning / Deep Learning and in general statistics or scientific fields.
- Our e-commerce integrations are written in node.js and use express where appropriate.
- Our chatbot channel integrations are written in node.js using Bottender and we leverage a number of open-source frameworks.

Storage & Database

Melior uses MongoDB and Redis for search acceleration and session management.

The JSON-like documents structure of MongoDB makes it the best choice to deal with the variety of information found in diverse catalogues and chats because MongoDB does not require having fixed schema in tables as relational databases. In addition *MongoDB* provides horizontal scalability and text search.

- S3 storage for models.
- We respect GDPR and allocate our data storage accordingly.
- Our front-end is written in react/js.
- We enforce the use of HTTPS/encryption.

We enforce strict data separation between different users. Client data is only accessible within their private stacks.

Roadmap (Timeline to start after token sale completion)

$5+ to 10 MILLION

	Q1	Q2	Q3	Q4	Q5
AI	NLU – French, Italian	NLU – Spanish, Portuguese	NLU - Chinese	Image Search: Region of Interest Detection	Troll Detector / AI Analytics
Channels	FB Messenger, Telegram, Web Widget *	WeChat, Skype, Viber, WhatsApp	Chat Analytics	Voice	
Integrations	Magento * / BigCommerce	Shopify	Demandware/ Salesforce		
Commercial	ICO completes / Exchange listing	MINNIE PAYG / Active marketing commences / UK 3 person sales team recruited		Asian office / Asian sales team: 3 person	

$10+ to 15 MILLION

	Q1	Q2	Q3	Q4	Q5
AI	NLU – French, Italian / NLU – Spanish, Portuguese	NLU - Chinese	Paralinguistics & emotion-aware AI	Image Search: Region of Interest Detection	Troll Detector / AI Analytics
Channels	FB Messenger, Telegram, Web Widget *	WeChat, Skype, Viber, WhatsApp	Voice	Chat Analytics	
Integrations	Magento * / BigCommerce	Shopify	Demandware/ Salesforce		
Commercial	ICO completes / Exchange listing	MINNIE PAYG / Active marketing commences / UK 3 person sales team recruited	UK +3 person sales team recruited	Launch Melior Market Place / Asian office / US office	Asian sales team: 3 person / US sales team: 3 person / Asian sales team: +3 person / US sales team: +3 person
R&D		R&D Department established	IoT	Healthcare	

$15+ to 20 MILLION

	Q1	Q2	Q3	Q4	Q5
AI	NLU – French, Italian / NLU – Spanish, Portuguese	NLU - Chinese	Paralinguistics & emotion-aware AI	Image Search: Region of Interest Detection	Troll Detector / AI Analytics
Channels	FB Messenger, Telegram, Web Widget *	WeChat, Skype, Viber, WhatsApp	Voice	Chat Analytics	
Integrations	Magento * / BigCommerce	Shopify	Demandware/ Salesforce		
Commercial	ICO completes / Exchange listing	MINNIE PAYG / Active marketing commences / UK 3 person sales team recruited	UK +6 person sales team recruited	Launch Melior Market Place / Asian office / US office	Asian sales team: 6 person / US sales team: 6 person / Asian sales team: +3 person / US sales team: +3 person
R&D		R&D Department established	IoT	Safety / Healthcare	Marketing / Education / Training

Product Development & Research Guide

As a R&D company, we have focused strongly on developing reusable and multi-purpose AI technology to improve and open up new opportunities for businesses. In doing so, we gathered expertise on how to efficiently produce AI systems that work across domains with minimum effort of adaptation.

In our goal of democratising the use of AI, the identification and understanding of future directions in which society can benefit from this technology is of utmost importance to us. We believe that the following fields are, or will be, greatly enhanced when combined with AI technology and should therefore be the focus for our next research efforts:

IoT

Within the next five years, AI and machine learning will become imbedded in all forms of technology that incorporate data exchange and analysis. The opportunities created by this are vast, from new services and breakthroughs in science to the augmentation of human intelligence and its convergence with the digital world. By leveraging our experience in AI in terms of communication with world-knowledge models and image understanding AI systems we believe our AI technology can help in the following areas :

- Privacy: For IoT to thrive, the security of connected devices must be addressed. Appropriate safeguards to ensure transparency and user control must be put in place to ensure that data-collection is not gratuitously exploited, thereby undermining privacy and deepening the unnecessary surveillance of people.

- Security and Safety: IoT will produce a treasure trove of big data that can greatly affect people in a number of ways from helping cities to predict accidents and crimes, to providing doctors with real-time insight into information from pacemakers or biochips.

- Optimisation and Monitoring: AI technology will lead to advancements in optimised productivity across industries through predictive maintenance on equipment and machinery, create truly smart homes with connected appliances not to mention energy efficiency (beneficially impacting the planet), and will provide critical communication between self-driving cars.

Smart cities:

Local governments are presently able to gather real time data with a minimum of difficulty. Combined with the complex capabilities of AI, we can help cities determine innovative ways to run more efficiently and effectively. AI is

already being implemented to help officials learn more about how people use cities, as well as improving infrastructure, optimising use of resources and improving public safety in cities. With most of the human population currently living in urban areas, improving cities and city living is a pressing global need impacting many many lives that will bring forth many opportunities to AI companies in the near future.

Here are two areas on our radar:

- **Privacy Protection Within Smart Cities:** China is at the forefront of AI cities and their initiatives give us a glimpse of what can be achieved when you have a lot of data combined with low levels of privacy law. Building a better future means imagining how best to use AI in developing smart cities while respecting the privacy of citizens.

- **Smart Village:** A considerable number of large companies are already investing in the potential of smart cities including Siemens, Microsoft, Hitachi and Google. While these companies are looking at the needs of projects that well funded by governments, not every municipality will be able to afford this sort of technology. Melior intends to put together an affordable toolkit that would be more accessible to all.

Healthcare:

Artificial Intelligence has led to extraordinary developments in healthcare in recent years that will only continue to improve over time as an aid rather than replacement to health services. AI-powered diagnostics will use the patient's history as a baseline to detect small deviations and flag possible health conditions in need of further investigation and treatment.

Recent studies point the possibility of early-diagnosis based on images even at a macroscopic level and from voice analysis.

Similar voice and image understanding techniques used to develop our chatbot products could be expanded and adapted to the diagnosis domain in order to:

- Support diagnosis by detecting small variations from the baseline in a patient's health data or via comparison with similar patients.

- Aid early identification of potential pandemics and to track incidences of the disease to help prevent and contain its spread.

- Benefit imaging diagnostics (radiology, pathology). Similar computer vision techniques as the ones created to understand user queries or to detect differences between groups of images can be used to assist in the detection of tumorous cells.

Education & Training:

Education is an area that has unlimited potential to utilise innovation. Tapping into AI technologies to enhance and accelerate the learning process could streamline everything from admissions through to grading and even student access to vital resources.

Melior intends to explore potential possibilities within Education and Training in the following ways:

- **Virtual Tutor:** Visual and dynamic learning channels outside of the classroom will not only become more prevalent but also capable of supporting a variety of learning styles, and address common questions and concerns students have that cannot be readily addressed by teachers, tutors or parents. Moreover, Virtual Tutors would also greatly impact children in societies with limited access to educational services due to geographical or financial limitations.

- **Adaptability of Assessment:** AI offers an opportunity to tap into the adaptive learning processes. In traditional learning environments, different capabilities and interests yield different learning speeds, which can sometimes lead to some students being left behind and others slowed down. An adaptive virtual teacher means a better rate of learning for each student at no extra cost for the school.

- **Customised Learning Material:** Our AI technology can be used to adapt learning material for students. Identification of mistake patterns could be also applied to reinforce lessons/topics for a given student.

Marketing & Analytics:

New data is generated and collected for AI analysis each time a user browses on the internet. This data reveals information such as user needs, behaviours, and future actions, which is oftentimes optimised for marketing purposes to supply the most relevant information to users.

A natural transition from our e-commerce solutions is using the big data we will have accessed from chatbot interactions to extract buying patterns and general user behaviour for further AI analysis.

- **Customer Understanding:** Analysing e-commerce interactions or social media images means a brand can leverage this information by using AI to better understand consumer patterns, behaviours, to more effectively and efficiently meet their needs.

- **Upselling and Cross-selling:** Increased customer understanding can leverage a "predictive" ability that can significantly reduce customer research on the product and makes decision-making easier.

Manufacturing & Logistics:

Manufacturing impacts nearly every part of our society by shaping our physical environment. Through manufacturing, human creativity transcends from an idea or pixels on a display into a physical form. By uniting AI and manufacturing, we will deliver a digital transformation to the physical world.

An adaptation of our image understanding technology could assist in faster identification of production errors in manufacturing chains, thereby by greatly improving efficiency.

Furthermore, the same understanding capabilities and learning techniques used to enable our chatbots to navigate an e-commerce catalogue in an optimal way can be used to optimise production processes.

Our technology could be expanded to enhance many aspects in the manufacturing and logistics space, for example:

- Enhanced Monitoring and Auto-correction of Manufacturing Processes — currently quality control is carried out by visually inspecting chained-produced parts. Computer vision techniques would improve the detection rate of errors, decrease detection time, reduce material waste and eliminate tiring and painstaking tasks for manufacturing staff.

- Supply Chain and Production Optimisation — studies by the Tungsten Network have suggested that valuable time and money is wasted on trivial supply chain related-tasks that are conducted operationally by humans, which could be exponentially revolutionised with AI technology, to allow staff to be better utilised in the workplace.
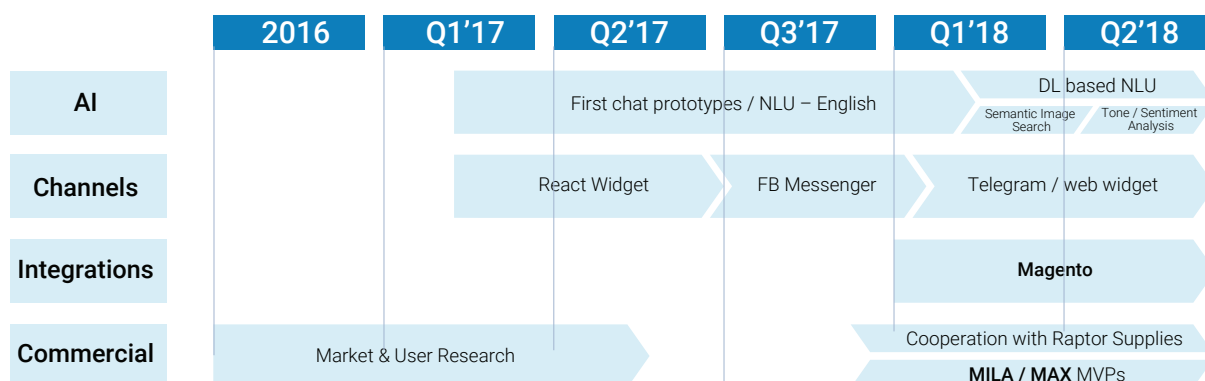
The Company

We founded Melior upon realisation that the world is undeniably returning to natural language interfaces. Many people resent adopting new interfaces that are forever changing, not to mention the complex new rules that compensate for the inadequacies of applied computer science. Now that technology is available to help people easily communicate what they want, there is no going back.

Melior's CEO, Martin, has always been focused on technological innovation and building systems that solve problems. He has a long held interest in the practical applications of computer science and linguistics. Jose, CTO, is an Artificial Intelligence and Machine Learning expert with an enormous wealth of understanding of AI in customer care and assisting humans with AI systems in business. With a strong digital agency and business background, Monique, COO, is Melior's execution engine. She has a great eye for design and UX.

The combination of Martin's history of running digital agencies, Monique's project organisation experience and Jose's extensive AI background meant that Melior were perfectly positioned to integrate Artificial Intelligence advances into the corporate sector, by creating products that assisted humans in saving time and money.

The Melior team quickly realised that while AI had great potential within the customer service industry, "traditional" AI providers had a major problem of their own making - the requirement of large amounts of historical data from every new client to train on. This clearly precluded any notion of democratisation of AI or rapid onboarding.

To address this problem, Martin and Monique built an early experimental prototype chatbot able to manoeuvre an extensive catalogue of a jewellery brand. This chatbot was further developed with Jose's AI expertise when he took up a full-time position with Melior as Head of AI and CTO in early 2018. This led to a meeting with a VC who was interested in its application to an investment he had already made. This client was Raptor Supplies, who were an important first step in Melior's progression.

	2016	Q1'17	Q2'17	Q3'17	Q1'18	Q2'18
AI			First chat prototypes / NLU – English		DL based NLU / Semantic Image Search	Tone / Sentiment Analysis
Channels		React Widget		FB Messenger	Telegram / web widget	
Integrations					Magento	
Commercial	Market & User Research				Cooperation with Raptor Supplies / MILA / MAX MVPs	

After extensive discussions as to how Melior's technology would benefit their business, Raptor Supplies gave us access to their catalogue of over 800,000 items running on Magento. This allowed us to validate our assumptions and to build a compelling MVP. After many refinements we are excited to have three working products.

Melior Company Structure

Melior Artificial Intelligence Limited

Registered Office:

The Black Church,

St. Mary's Place,

Dublin D07 P4AX,

Ireland

The Team

Founding Team & Executive Board

Martin Szyllo – CEO & Co-Founder

LinkedIn Profile: https://www.linkedin.com/in/martinszyllo/

Education: BSc in Comp Science, American University of Paris, MBA (EBS)

Melior's CEO is a software architect and entrepreneur with over twenty years' experience in building technology startups. After graduating from the American University of Paris, Martin built a tech resourcing company supplying his fellow Computer Science students to US and French companies. At the same time he started his engineering career with Data General, advising clients about fault tolerant/failover UNIX systems.

In later years Martin built and sold a knowledge management company providing bespoke solutions to investment banks. He also co-ran a successful London based digital agency for over ten years.

Martin is a gifted strategist who specialises in planning, compiling and executing complex digital solutions with a large amount of moving parts. He was a Software Architect and Development Manager at Digital Genius, a renowned Artificial Intelligence start-up, and, prior to founding Melior was CTO at Plutus. IT, a cryptocurrency FinTech start-up. There he built a team from scratch and architected and oversaw the design and delivery of a complex microservice-based, robust architecture implementing a payment platform, a mobile app and a cryptocurrency exchange.

Martin is an experienced Entrepreneur, CTO, and Director with a demonstrated history of growing Fintech, Blockchain and AI startups. He has a track record of successful businesses and is highly skilled in building and running distributed/ remote agile teams and an accomplished architect of scalable, Dockerized microservice-oriented systems.

Key Skills:

Assembly and running of tech teams. Executing complex software projects within tight timelines and on budget. In-depth understanding of software architecture. Experience in running and scaling tech companies. Good grip of selling to corporate clients in key territories.

Jose Marcos Rodriguez – CTO & Co-Founder

LinkedIn Profile: https://www.linkedin.com/in/josemarcosrf/

Education: BSc Computer Science, MSc in Computational Theory, MSc in Artificial Intelligence in Barcelona's Facultad d'Informatica.

During his degree in Computer Science at Barcelona's Facultad d'Informatica, Jose worked in the Machine Learning and Computer Vision research lab at SerimagMedia, providing AI, Computer Vision and NLP tech solutions for document automation (information extraction, documentation classification, verification). Jose simultaneously completed a MSc in Computational Theory and another in Artificial Intelligence, which was sponsored by SerimagMedia. His academic research focused on delivering automatic document understanding and analysis focused on solutions for big banks and insurance companies.

At a time when artificial neural networks were not yet mainstream, Jose led the transition from traditional computer vision systems towards more automatic and resilient AI technologies, combining novel Genetic and Evolutionary algorithms with what today is widely known as Neural Networks and multi-agent systems. Most recently Jose was the first Deep Learning engineer at Digital Genius (DG), a London based AI start-up. There he led the company's transition from a rule-based product for customer service into a fully AI driven solution.

Key Skills:

Computer Vision, Natural Language Processing, Fuzzy Logic Systems, Fuzzy Inductive Reasoning, Multi-Agents Systems, Artificial Neural Networks, Statistical Analysis, Computational Geometry, Reinforcement Learning; Python, Java, MATLAB, ProLog; Mathematical risk analysis for software development projects.

Papers & Patents:

An Attention Mechanism for Neural Answer Selection Using a Combined Global and Local View

Patents:

- Template generation for a conversational agent
- Message Text Labelling

Monique Duarte – COO & Co-Founder

LinkedIn Profile: https://www.linkedin.com/in/monique-duarte-04b55148/

Education: BA in Communication, Journalism (Rio de Janeiro, Brazil); LLB, Queen Mary University of London.

While Monique has pursued degrees in both Journalism (in Brazil) and Law (in the UK), her passion lies with using technology to solve real problems. Monique has over ten years of experience in product development, managing cross-functional teams both in-house and remotely. She has also successfully secured two rounds of professional investment for her previous start-up. As a Head of Product, Monique has overseen product development from concept to delivery and identified the market opportunity through user and market research and validated knowledge. Monique has vast experience in defining product vision, product requirements and KPIs. She adept in managing diverse groups of stakeholders with competing interests, and is able to manage expectations and make decisions for the product in relation to business goals.

Prior to co-founding Melior, Monique was responsible for the digital archives collections for the Taylor & Francis Group. She has worked in the legal department at Nominet; founded an E-publishing platform; and worked at the tech think-tank Morango Media.

Key Skills:

Business Process Mapping; Requirement Analysis & Definition; Goal Oriented Product Roadmap; Product Backlog Management; Stakeholder Management; Conflict resolution; Cross-functional Team Management; Project Management; User Research; UX/UI; User Testing; Responsive Design.

Chris Disspain – Chairman

LinkedIn Profile: https://www.linkedin.com/in/chris-disspain-2335a71/

Chris was a corporate lawyer in the U.K. and Australia for over a decade, and has experience in all aspects of Corporate & Commercial Law. Following this he spent 16 years as the CEO of .AU Domain Name Administration Ltd – the independent governing body of the Australian Internet Domain Name Space (DNS).

Chris is currently a board member at ICANN where he is Vice-Chair of the Board, Chair of the Accountability Mechanisms Committee and sits on the Executive, Finance and, Compensation committees. He has also been a member of the United Nations Secretary-General's Internet Governance Multi-stakeholder Advisory Group.

Technical Team

Pablo Montenegro — Chatbot and e-commerce integrations

LinkedIn Profile: https://www.linkedin.com/in/pablomontenegro/

Pablo is a full stack developer with in-depth knowledge of enterprise chatbot solutions and e-commerce platforms such as Magento and Shopify.

Keerthi Thomas — Blockchain Specialist

LinkedIn Profile: https://www.linkedin.com/in/keerthithomas/

Keerthi comes with a PhD in Software Engineering and specialises in modelling problems and requirements. He is responsible for design of on-chain and off-chain services for cryptocurrencies. He teaches Blockchain Strategy at Oxford Business School.

Rafa Chica Oosterbaan — AI engineer / python dev

LinkedIn Profile: https://www.linkedin.com/in/rafachica/

A full-stack developer with 6+ years experience in complex backend systems involving Machine Learning and Computer vision sub-systems.

Rafa is production manager of Artificial Intelligent multi-agent systems for high throughput document analysis pipelines.

Flavius Stefan Nicu — AI engineer / python dev

LinkedIn Profile: https://www.linkedin.com/in/flaviussn/

Flavius is an Engineer with special focus on building production ready real-time computer vision AI systems. Lead software architect and developer of a real-time and cross-platform SDK for mobile devices to detect, classify documents and extract visual information, applying Computer Vision and Machine Learning solutions in embedded devices.

He has worked in computer vision and pattern recognition server systems in collaboration with the CVC lab.

Alex Barashkov — Tech lead, architect, product manager

LinkedIn Profile: https://www.linkedin.com/in/barashkov-alex/

Alex is an experienced full-stack web developer, IT product and project manager, with eight years of experience leading all aspects of diverse projects from inception to release. With both strong frontend and backend skills along with previous expertise as a hands-on UX architect, he believes that every problem can be solved with hard work, discipline, and solid planning.

Dima Semenovskiy — Full-stack developerer

LinkedIn Profile: https://www.linkedin.com/in/dsemenovsky/

A full stack developer with 8 years of experience in building complex applications, Dima previously worked at IBM and another startup which specialised in cryptocurrency. Dima comes with excellent skills and expertise in developing both frontend and backend systems, being fluent in modern web frameworks and has a passion to build pixel perfect and user-friendly web apps.

Nikita Teplyakov — Android, iOS developer, backend developer

LinkedIn Profile: https://www.linkedin.com/in/nikita-teplyakov-8148578a/

Nikita is an experienced Android developer educated in multiple engineering disciplines and well-versed in development of practical mobile applications. He enjoys applying logic to difficult problems, which inspired him to pursue computer science. Nikita has over 4 years of experience in building complex mobile applications using industry best practices, TDD, modern frameworks & technologies.

Vladimir Shkodin — Devops

LinkedIn Profile: https://www.linkedin.com/in/vladimir-shkondin-86b576aa/

Vladimir is a Systems Development (Infrastructure) Analyst who endeavours to bring the experience that he had as clusters infrastructure administrator for cloud computing services to Devops world. He has acquired a wealth of experience from participating in various interesting projects built on the top of technologies like virtualisation and container which are the base of private and public clouds. He also has a wide knowledge about Linux OS, Networks and Firewalls.

Vlad Kamelsky — UI/UX

LinkedIn Profile: https://www.linkedin.com/in/vlad-kamelsky/

An experienced UI/UX expert, Vlad is enthusiastic about boosting revenue for companies that have excellent products and services. He has used proven design strategies to build over 15 products for top tier digital businesses.

Kemal Smaylov — Full-stack developer

LinkedIn Profile: https://www.linkedin.com/in/kemalsmaylov/

Kemal is a skilled frontend developer with a high level of proficiency in the web technologies. Kemal has ability to create flexible architect solutions and has experience in large and high-load projects. He is an expert in understanding and vision of client-oriented UI. He also created microservices for the top exchanges of cryptocurrency for private channels.

Roman Suleymanov — QA Engineer

LinkedIn Profile: https://www.linkedin.com/in/romansuleymanov/

Roman is an experienced Quality Assurance Engineer with a demonstrated history of working in the information technology industry. Skilled in Bug Tracking, Test Automation, Product Requirements, and TestPlanning.

Marketing Team

Chioma Okereke — Communications Advisor

LinkedIn Profile: https://www.linkedin.com/in/chioma-okereke-5b940626/

Chioma is a Communications Specialist with more than fifteen years of experience writing marketing materials for a wide range of customers including start-ups and global organisations.

Chioma completed a Law with French Law degree at UCL before moving into the media sector. She has worked for many renowned brands including British Airways, Framestore, the BBC, The Walt Disney Company, Comic Relief, and Twentieth Century Fox.

Lewis Anderson Orr — Marketing Consultant

LinkedIn Profile: https://www.linkedin.com/in/lewisandersonorr/

Lewis has over thirty years of experience in IT and digital industries. During this time period he has skillfully managed teams across countries and continents and successfully developed and nurtured many new businesses as well as opened offices in New York and Paris.

Advisors

Technical & AI Advisors

Shafiq Rayhan Joty — Assistant Professor at Nanyang Technological University

LinkedIn Profile: https://www.linkedin.com/in/shafiq-joty-b1a80a122/

Shafiq has a PhD in Computer Science from the University of British Columbia and is an expert in Natural Language Processing (discourse processing, question answering, machine translation and sentiment analysis). He also specialises in Machine Learning techniques (probabilistic graphical models, deep learning, reinforcement learning and representation learning).

Business Advisors

Chika Okereke — Founding Principal of Tenbrook Management LLC

LinkedIn Profile: https://www.linkedin.com/in/chika-okereke-52859338/

Prior to founding Tenbrook, a firm focused on Emerging Market Investments, Chika was co-head of Fortress Investment's Emerging Markets business. He also worked at Bank of America and in the Mergers and Acquisitions department at Goldman Sachs.

He has served on creditor steering committees for various issuers as well as on the Advisory Board of an Emerging Markets focused Carbon Credit Opportunities Fund, and has also been an Advisory Member of the City Tech, City University of New York's Business Faculty since 2010.

Chika graduated from Imperial College of Science, Technology and Medicine with an Honours Degree in Mechanical Engineering and received an MBA from the Harvard Business School.

Mike Silber — Head Legal and Commercial at Liquid Telecom, a leading independent pan-African data, voice and IP provider.

LinkedIn Profile: https://www.linkedin.com/in/mikesilberza/

Mike is Group Regulatory Head of a pan-African telecommunications provider and General Counsel of their South African subsidiary and a director of their Congolese subsidiary. He has extensive experience working across sub-Saharan Africa.

Mike is a South African qualified lawyer with extensive experience of working with information and communication technologies. Prior to taking an in-house position, Mike was recognised as a leading South African Internet and e-commerce lawyer and as one of the leading Technology, Media and Telecommunications lawyers in South Africa.

Mike serves on the boards of a number of not-for-profit corporations, including the Internet Corporation for Assigned Names and Numbers and a number of local and regional Internet and connectivity-related industry associations, including the South African Communications Forum, the FTTX Council Africa, and the ISP Association.

Melior Business Model

Melior's business is built on a Software as a Service (SaaS) model.

SaaS removes the need for organisations to install and run applications on their own computers or in their own data centres. This eliminates the expense of hardware acquisition, provisioning and maintenance, as well as software licensing, installation and support.

Other benefits of our SaaS model include:

- Scalable usage — our SaaS Cloud services offer high scalability, which gives our customers the option to access more or fewer features, as required.

- Flexible payments — rather than purchasing software to install, or additional hardware to support it, customers subscribe to a SaaS offering. Customers pay for our services on a monthly basis based on features they require.

- Automatic updates — rather than the need to purchase new software, customers can rely on Melior to automatically perform updates and patch management. This further reduces the burden on in-house IT staff.

Artificial Intelligence is predicted to add an additional US$15.7 trillion to global GDP by 2030 (PWC). AI is fast becoming a lucrative sector to penetrate as evidenced by the growing number of companies/businesses, but even the PWC figures focus mostly on the benefits to large multinationals.

The overall business model of Melior is the development of new Artificial Intelligence systems to replace existing technologies, both human and computer, in a wide range of different corporate sectors. Artificial Intelligence is predicted to add an additional US$15.7 trillion to global GDP by 2030 (PWC) – so this is a very lucrative sector to be in, but even these numbers focus almost exclusively on the benefits to large multinationals. By Melior also addressing the needs of very small businesses with their affordable AI solutions, the total size of the market could be even larger than PWC have predicted.

> Melior currently has **two working products** that have been developed for the US$1.4 trillion per annum retail e-commerce sector (PWC) and also have a pipeline of new products aimed at different sectors, whose development will be exponentially accelerated by the successful completion of the token sale.

The e-commerce business model is focused on adding new sales channels through message apps, capitalising on current customer trends as well as providing support to human customer service agents by taking care of repetitive tasks and only handing over when necessary. We aim to improve the user experience, save customers money, and bring in more revenue.

Adding value to token holders is built into the Melior business model. Every participant of the Melior ecosystem will be required to have a certain quantity of MEL tokens in an affiliated wallet in order to gain access to our offerings, this will increase the value of the MEL tokens:

- Enterprise clients will pay a monthly fee and an on-boarding cost to enable Melior to customise our products to their specific demands.

- Pay-As-You-Go clients will require a deposit to use our MINNIE service. Melior will take a fee every time a milestone transaction is met. These will be governed by smart contract.

- The Melior Marketplace is anticipated to come into existence in 2019 (details referenced in the roadmap) which will generate additional income for Melior by allowing outside developers to create add-ons for the benefit of our customers. Melior will receive a percentage of all fees generated.

Melior will also undertake to spend a fixed percentage of all revenues received on buying back tokens on market and destroying them (buy and burn) to progressively decrease the amount of MEL tokens in issue.

Enterprise Customers: low cost, high margin

An onboarding fee is associated with our Enterprise offering. The onboarding process takes between 1 day and two weeks, depending on the complexity of the client's system. From this point on it can be geared up to accommodate increases in tier usage at a relatively low cost.

Enterprise customers pay a monthly fee for their product usage. This fee is divided into tiers dependent on the amount of tickets (customers) they require to be serviced in any given month. The tier units are based on the amount of tickets that human operatives can deal with, which essentially works out as 45 per day.

Presently, in order to provide human driven 24/7 customer support companies spend upwards of US$8000 per month depending on the number of tickets handled per shift. That is a tremendous cost to bear, particularly for many small and medium sized companies. Melior's AI-driven solutions to assist in this area are priced at around 30% of this cost.

Melior aims to drive significant volumes of customers to the Melior ecosystem by offering sophisticated AI products that increase the efficiency of contact centres while significantly lowering costs. More importantly, in the world of Artificial Intelligence, low cost does not mean low margin. What we are delivering are **low cost, high margin products.**

Furthermore, with the subscription model in place for recurring revenue, we aim to retain customers on a long-term basis in order to maximise profits from the Enterprise sector. Given that worldwide customer support expenditure is forecast

to be worth US$11.84 billion per annum by 2020 (Technavio) this is an extremely fruitful sector to be a part of.

Pay-As-You-Go Customers – Paying only for Milestone transactions

Melior's "MINNIE" pay-as-you-go offering is designed to bring the power of Artificial Intelligence to small businesses that do not have the resources to commit to an ongoing enterprise customer services subscription.

The MINNIE application costs nothing to a client to install (aside from the initial US$250 refundable deposit of MEL tokens that can be sold if they stop using the system). MINNIE also has no cost to Melior for client onboarding as it is self-configured by the user via an online web interface. In this way it provides absolute value for money for both the client and Melior.

Revenue is generated for Melior when certain pre-agreed targets client are met, whereupon the client pays a fee to Melior. The costs of the targets will vary dependent on the bespoke requirements that the customer has for MINNIE. Examples could include the client being charged US$1 for every 100 questions answered by MINNIE or US$1 for every appointment booked through MINNIE.

By offering a low-cost high-value service, Melior are able to deliver many of the benefits of Artificial Intelligence to small businesses at a very affordable cost.

The advantage to Melior is that MINNIE is a self-service solution almost instantly ready to use.

Within the UK small businesses contribute £1.8 trillion per annum to the economy[12]; in the USA this is US$8.5 trillion per annum [13] and in Germany it is 1 out of every 2 Euros generated by this segment [14]. With widespread adoption and no up-front expenses either to clients or Melior, it is easy to see how the PAYG offering could be incredibly profitable when executed on a global scale.

The Melior Marketplace

The Melior Marketplace is anticipated to come online in 2019 (details referenced in the Roadmap). It will operate in a similar fashion to other revenue sharing models the world is already familiar with, such as the Apple Store or Google Play. We will allow vetted developers to utilise Melior PAYG technology to develop third-party applications customised to particular business sectors.

We will publish guides for development of extensions that in turn can be published to the marketplace. Developers would be allowed to set their own 'per transaction fee' in line with our published guidelines and Melior would aim to take a fixed

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[12] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/467443/bpe_2015_statistical_release.pdf
[13] https://townsquared.com/ts/resources/small-business-united-states-numbers/
[14] https://www.bmwi.de/Redaktion/EN/Publikationen/wirtschaftsmotor-mittelstand-zahlen-und-fakten-zu-den-deutschen-kmu.pdf?__blob=publicationFile&v=1

percentage (up to 30%) of each payment and pay over the remaining 70% to the third-party developers. We envisage that these micro-transactions will be priced around US$1.00. Our terms and pricing guidelines will be adjusted from time to time in line with market feedback.

As with the rest of Melior's PAYG offering, the Melior Marketplace would be a high volume of micropayments proposition. Additional value would be given to existing products by third parties and Melior would take a small slice of the revenue they generated by further developing our core offerings. This is an undertaking which perfectly matches our ethos of generating value for both the company and token holders by allowing developer and small businesses to utilise the benefits of our Artificial Intelligence technology – democratisation of AI in action!

Melior Future Products

In addition to further developing our existing products we have plans to expand our core AI technology into completely different sectors. These include:

- The Internet of Things, which has been estimated by McKinsey to have a global value of up to US$11.1 trillion per annum by 2025. [15]

- The Healthcare market, which is currently valued at US$6.5 trillion per annum by the World Economic Forum. [16]

- The Online Education & Training market, which has been forecast to have a value of US$287 billion by 2023. [17]

- The Global Marketing and Analytics market, which is estimated to be a US$1 trillion per annum industry. [18]

- The Global Logistics Market, which is estimated to be a US$4 trillion per annum industry. [19]

In total the value of these industries by the middle of the next decade will be nearly US$23 trillion. We believe that gaining a foothold in just a tiny fraction of these industries with innovative AI technology will result in a company that has the potential to grow into a key global player while at the same time ensuring that the financial benefits of Artificial Intelligence are shared all the way down to the smallest businesses on the planet.

For more on our innovation pipeline please see our Product Development & Research Guide.

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[15] https://www.mckinsey.com/~/media/McKinsey/Business%20Functions/McKinsey%20Digital/Our%20Insights/The%20Internet%20of%20Things%20The%20value%20of%20digitizing%20the%20physical%20world/The-Internet-of-things-Mapping-the-value-beyond-the-hype.ashx - Page 9
[16] https://www.weforum.org/projects/value-in-healthcare
[17] https://www.businesswire.com/news/home/20180226006458/en/Global-Online-Education-Market-2018-2023-Type-Technology
[18] https://cmointel.com/mark-zuckerberg-s-biggest-gift-to-the-world-and-to-marketers-was-the-social-graph-5ea6ea70971e
[19] http://cerasis.com/2015/04/22/logistics-infographic/

Competitors

Personalised AI Solutions

Giant global corporations like IBM's Watson and Accenture have the technological capacity to provide any AI solution required, nevertheless bespoke solutions take considerable time and the financial cost will be high. Even after the product is built there are also ongoing maintenance fees that still need to be paid.

Chatbot e-commerce builders

Bot Commerce is an example of a company offering off-the-shelf bot solutions that can be integrated into existing e-commerce solutions. However, these presently have no AI functionality and are decision tree bots, and are unable to deal with complex questions and Natural Language Understanding.

AI Commerce Startups

There are startups still dividing their time between managing projects for big clients while trying to produce a scalable off-the-shelf solution, but not only is the cost of their products greater than Melior's, they also do not have the same range of functionality.

Known Market Players

People are already familiar with virtual assistants (voice interfaces) on the market such as Siri, Alexa and Cortana by major market players who are always expanding their product arsenal. It would also be remiss not to mention big players such as Google Duplex and the partnership between Shopify and Amazon in this space as well. But where Shopify and Alexa help the business owner to interact with their e-commerce platform, our technology helps e-commerce clients interact with the e-commerce platform or shop. Equally, Google Duplex's functionality would be enhanced by interaction with our chatbot solutions. So while their current products aren't direct competitors to our current offerings; as operators in the same space, it's important to keep a close eye on these players in order to maintain our competitive edge.

Human Customer Services Providers

These are the incumbents who currently deal with most of the retail industry. A human Customer Services force is three times costlier than Melior's solution as well as being time-consuming and expensive to train, manage and scale. Nonetheless, they remain strong competitors due to the familiarity that their customers currently have with them.

Still, there is no question that this is an industry ready for disruption.

Competitor Comparison Matrix

	Melior.AI	IBM Watson	Conversable	botcommerce.io	TaskUs
AI powered	✓	✓	✓	✗	✗
Scalability	✓	✗	✗	✗	✗
Understand emotions and communication style	✓	✓	N/A	✗	✓ Humans
Multi-channel chatbot interface	✓	✓	✓	✗	N/A
Multi-channel e-commerce integration	✓	✓	✓	✗	✗
Multi language NLU	✓	✓	N/A	✗	N/A
Sales & Delivery Handling	✓	✓	✓	✗	✓
Image Search	✓	✓	✗	✗	✗
Off-the-shelf Solution	✓	✗	✗	✓	N/A
Minimal onboarding	✓	✗	✗	✓	✗
FAQ	✓	✓	✓	✓	✓
Handover to Humans	✓	✓	✓	✗	N/A
Cost & time effective	✓	✗	✗	✓	✗
Maintenance	✓	✗	✗	✗	N/A
SaaS vs Toolbox	Saas	Toolbox	Toolbox	Saas	Humans/ Project

Token Economics

The Melior token (MEL) is a cryptographic project token which has an integral use within Melior's ecosystem:

MEL: Utility Coin

All customers using the Melior network will be required to pay 10% of their fees in Melior tokens which will be used in the Melior token-buy-back scheme. This will include Enterprise customers who will pay in fiat (i.e. currency that a government has declared to be legal tender) but will have 10% of their spend automatically allocated to a token buy-back account.

The money in the token-buy-back account will then be used by Melior to purchase MEL tokens on the public exchange at the prevailing rate. These tokens will then be destroyed, which will be done by sending them to a public wallet from which they cannot be recovered.

The net result of the token buy-back scheme is that every customer Melior acquires will become a purchaser of MEL tokens, via the Pay-As-You-Go (PAYG) system or through Melior's accounting systems as an Enterprise customer. The buy-back scheme will also reduce the amount of tokens in circulation and look after the interests of token holders by reducing the number of tradeable tokens in existence.

Enterprise clients will be required to pay 10% of their monthly fees in MEL token. PAYG customers purchase MEL tokens as a deposit, and the tokens will also act as a unit of currency for PAYG customers and developers within the Melior Marketplace.

> **Token purchases will be orchestrated seamlessly behind the scenes. Customers will only have to worry about fiat payments.** It means that both Enterprise and PAYG customers generate the need to continually hold tokens. In case of PAYG customers it is to cover the cost of paying the milestone fees and the deposit. In case of the Enterprise clients it is 10% of their SaaS fees that is to be converted into MEL token. Therefore token liquidity is created and token scarcity is further increased.

A PAYG customer's deposit is always held within their wallet, and they are able to sell at any time after ceasing to be a Melior customer.

Powering the System

PAYG customers get instant access to MINNIE through our online configurator after having made a minimal required deposit.

Once a milestone transaction is reached a small fee is paid both to Melior and to any applicable third-party developer within the marketplace. This fee is denominated against fiat in the local currency and the transaction settled in MEL tokens, thereby delivering a post-sale cost advantage to the customer rather than a pre-sale cost.

MEL tokens are a fundamental part of the Melior economic system. Every PAYG customer is required to have a fixed amount of tokens in a dedicated wallet that is held as a deposit in order for the PAYG system to function. Deposits are recorded on Melior's blockchain, as are all transactions.

Using Melior tokens as deposits is advantageous in helping increase token price. As every Melior customer is required to take a fixed number of MEL tokens out of circulation while they remain a customer of the company, this limits the supply of tokens available on the open market and increases its value due to scarcity.

Store of Value

As the use of our products requires MEL token purchase, every Melior customer will contribute to the scarcity of the MEL token.

All PAYG customers will also have an ongoing need for additional tokens to pay the continual fees for Melior's services.

New customers will not be negatively affected in the event of a rise in value of the MEL token as fees are always denominated in fiat. What is more: a rise in the token's value will increase a customer's deposit in their wallet.

Generating Value for Token Holders

Customers using Melior products and developers within the Melior Marketplace will be required to pay a deposit in MEL tokens in order to run any Melior products. They will have the option to either buy tokens on the market or pay Melior in fiat so we can take care of the conversion behind the scenes. Melior will undertake to do all fiat to token transactions by buying on public exchanges at the current market rate. These will then be allocated to a wallet affiliated to the client account where the deposit keeps their products working.

This structure has been designed in order to look after the interests of token holders who participate in the token sale, on the basis that every client that Melior acquires will take more tokens out of circulation, thereby increasing the price of the tokens. In this manner token holders will directly benefit from the growth of Melior as a company.

To further align the interest of token holders alongside the interest of the company, Melior will also undertake to spend a fixed percentage of all company revenue on buying back MEL tokens on public exchanges and putting these tokens into a "black hole" wallet from which they can never be recovered - i.e. a buy and burn programme.

This will also have the effect of reducing the amount of tokens in general circulation and will increase the value of those that do remain tradeable.
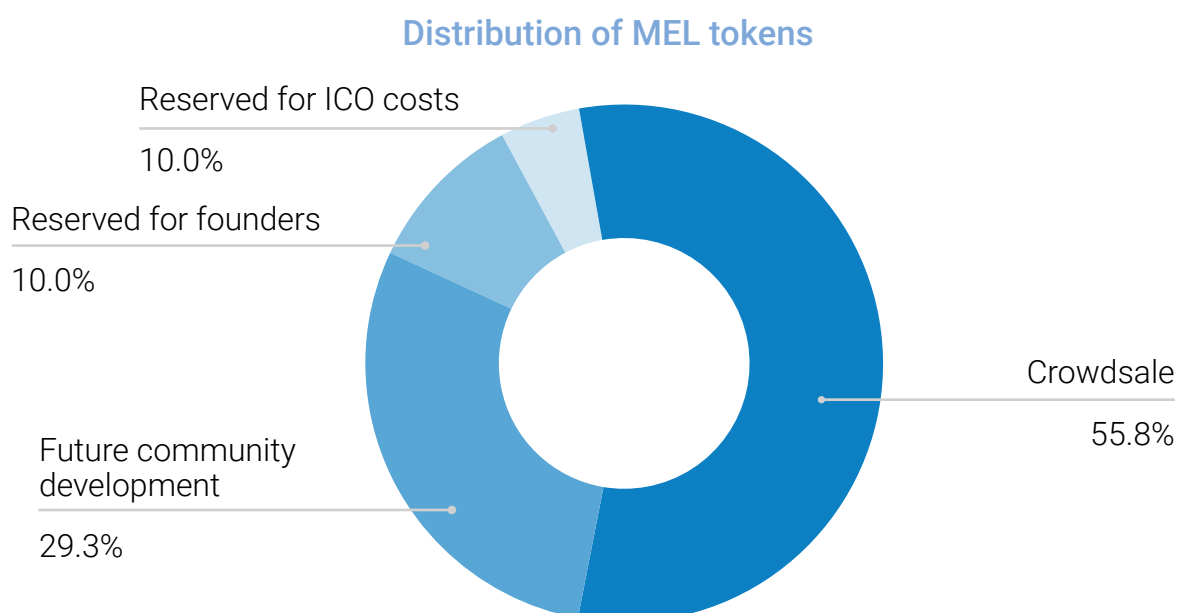
The Token Sale

- The Melior (MEL) token is a token issued on the Ethereum platform conforming to the ERC20 standard.

- 400 million of MEL tokens will be issued in total. There will be no further tokens issued.

- The standard cost of a token is the crypto-currency equivalent of US$0.10.

- Up to 55.75% of MEL tokens (223 million) will be issued in the crowdsale and any that are not sold during this process will be destroyed.

- In different public sale periods there will be different preferential rates.

Distribution of MEL tokens

400,000.000 (100%) total issue

- Up to 223,000,000 (55.75%) of tokens are available for crowdsale to ensure that participants have a meaningful share of all tokens in issue.

- Between 117,000,000 (29.25%) and 140,000,000 (35%) of tokens are reserved for future community development to encourage usage of the Melior Marketplace, attract strategic partners and remunerate new key project hires (not founders).

- 40,000,000 (10%) of tokens are reserved for founders.

- 20,000,000 (5%) of tokens are reserved for token sale costs.

Distribution of MEL tokens

Reserved for ICO costs
10.0%

Reserved for founders
10.0%

Future community development
29.3%

Crowdsale
55.8%

Melior reserve the right to use the community development tokens for a second token sale if deemed necessary for the further development of the business, but the company undertake to ensure that any secondary offering is made at a minimum of US$0.50 per token.

Tokens reserved for the founders will be escrowed via smart contract over a three year period and will vest as follows:

- 20% of tokens will vest on the first day that tokens are listed on their first exchange.

- 30% of tokens will vest 1 year after the first day of listing.

- 50% of tokens will vest 2 years after the first day of listing.

The vesting of the founders' tokens is heavily weighted to the latter end of the vesting process to ensure the long-term alignment of interest between the company founders and token sale participants.

Methods of Purchase

The available methods to purchase MEL tokens are by the submission of Ether, Bitcoin, Neo, Litecoin, or Ripple. The exchange rate for each currency will be struck at 08.00 UTC on Day 1 of the sale and will subsequently be updated at 8am every following day to be valid for the following 24 hours.

Soft Cap & Hard Cap

The soft cap of the token sale is $5 million USD and the hard cap will be approximately $20 million USD equivalent. The amount raised will vary slightly due to the price discounts offered at different times in the crowdsale.

Minimum and Maximum Individual Purchases

There will be a minimum individual purchase limit of USD 1,000. There will be no maximum individual purchase.

KYC, AML & Wallet Whitelisting

Melior intend to fully follow best practice regarding vetting participants for KYC and AML regulations. All potential participants in the MEL token sale will be required to complete a comprehensive KYC process before being permitted to participate in the crowdsale.

The existing legal framework in the European Union does not require token sale projects to comply with any specific law, and most member states have not addressed the regulation of ICO and token sales. With that in mind, Melior being a forward-looking enterprise, is in-line with the European disposition with regard to the fight against money laundering and terrorist financing (AML/CFT). Consequently, in order to guard against fraud and ensure the higher safety of our participants, Melior's top management has prioritised the need to be compliant with the requirements of the anti-money laundering regulations.

We have adopted strict AML/CFT Policy and Procedure developed in accordance with the Fourth Money Laundering Directive (DIRECTIVE (EU) 2015/849) requirements, existing best practices and its experience in the cryptocurrency domain. We declare that our token sale project is fully compliant with the aforementioned provisions.

In order to improve the efficiency of the KYC performance of our participant data, Melior has partnered with First.Digital to manage and control the AML/CFT process. First.Digital has developed a proprietary methodology for addressing the challenges of the AML compliance of the funds attracted via the token sale. This methodology is based on the use of third-party screening vendors as well as on a range of checks conducted internally.

Following the industry best practices, Melior has appointed a qualified Compliance Officer (CO) reporting directly to the CEO of Melior. The CO comes with over 10 years' experience in the AML/CFT and banking sectors, reflected in a deep knowledge of financial regulation, document flow and internal control systems.

By being AML/CFT compliant, Melior has found and implemented an optimal balance of risk mitigation and proficiency that guarantee legal validity of the token sale project, minimise reputational risks for our participants and proactively prevent fraud attempts.

Wallet Requirements

Participants in the token sale will need:

- A wallet that is compatible with the type of currency to be sent.

- An ERC20 compatible wallet in order to receive MEL tokens.

- To register the address of both these wallets in the members section of the Melior token sale website.

Please note – registration of an ERC20 Ethereum wallet to send Ether and to receive your MEL tokens the address will mean the same address is used for both the 'send currency' and 'receive token' fields. For all other currency types a participant must submit one wallet address for sending currency and a separate wallet address for receiving tokens.

A list of recommended wallets will be provided by Melior on the token sale website.

Important Reminder:

- Participation in the Melior token sale is only possible upon completion of the KYC process and walled whitelisting. Melior bears no responsibility for funds sent from an un-whitelisted wallet. In most cases they will be returned within 24 hours but Melior will not be able to help in any recovery process and funds may be lost forever.

- Sending the wrong type of cryptocurrency to the wrong type of wallet address (ie Ethereum to a Bitcoin address) will result in lost funds, and no tokens will be received.

The Buying Process

In order to take part in the Melior token offering a participant must:

- Have completed the KYC/AML registration process.

- Be approved for participation in the token sale.

- Have registered the wallet address from which funds will be sent to Melior.

- Have received approval from Melior regarding wallet whitelisting.

After completion of all the steps above, the token sale must commence before participants can apply for tokens.

The token sale will commence at 12.00 (midday) UTC on Monday October 8th 2018.

At this exact time the members area of the website will be updated with the necessary Melior wallet addresses and the smart contract will be open to send funds to and receive tokens back from.

Tokens will be issued instantly at the published exchange rate in proportion to funds sent and will show back in the senders wallet within 5 minutes of being received.

Token Price & Discount Structure

Period	1 MEL = $USD Equivalent	Discount
1st-2nd hours	$0.090	25.00%
3rd-24th hours	$0.095	20.83%
1-5 Days	$0.100	16.66%
6-10 Days	$0.110	8.33%
11-30 Days	$0.120	0.00%

Prohibited Participants

Citizens of China, Cuba, Singapore, North Korea, the USA and anyone on AML 'stop list' are prohibited from taking part in this token sale due to regulations imposed by their governments.

Melior Security Precautions

We take security very seriously. Please be aware of the following security principles when participating in our token sale:

- A **Public Key** is required to send you money. Your **Private Key is needed to steal your money.** Giving someone else access to your private key is the same as giving them access to all of your funds. *Do not share your wallet* **Private Key** *with anyone.*

- **Melior will never publish the wallet addresses for the token sales anywhere other than the members section of the Melior website.** Be vigilant about

other instances of the wallet addresses on social media as these will be phishing attempts, as there have been in the past with other high profile token sales. These scams have involved setting up fake Twitter accounts and websites with a similar company names that seek to persuade participants to send funds to other wallet addresses for "Airdrops" or "Second Round token sales" via these websites or from emails purporting to be from the token sale company.
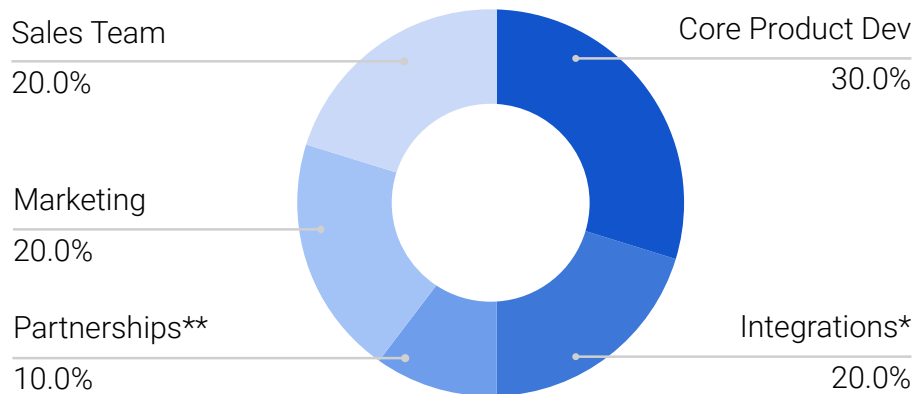
Please be aware that:

- Melior will never put out company wallet addresses over email or any form of social media.

- Melior will only ever publish wallet information in the members area of the Melior website – www.melior.ai

- Emails from Melior AI will only originate from melior.ai domain.

- Our Token Sale website is: https://tokensale.melior.ai

- Our only LinkedIn account is: https://www.linkedin.com/company/meliorai/

- Our only Twitter account is: https://twitter.com/melior_ai

- Our only Facebook account is: https://www.facebook.com/meliorai

- Our only Telegram Token Sale support group is: https://t.me/meliorai

- Our Reddit account is: https://www.reddit.com/user/Melior_AI

- Our only Reddit Subreddit: /r/MeliorAI

- Our only Medium account is: https://medium.com/melior-ai

- Our only LinkedIn account is: https://www.linkedin.com/company/meliorai/

- Our only Instagram account is: meliorai

- Our only Github account: https://github.com/meliorAI
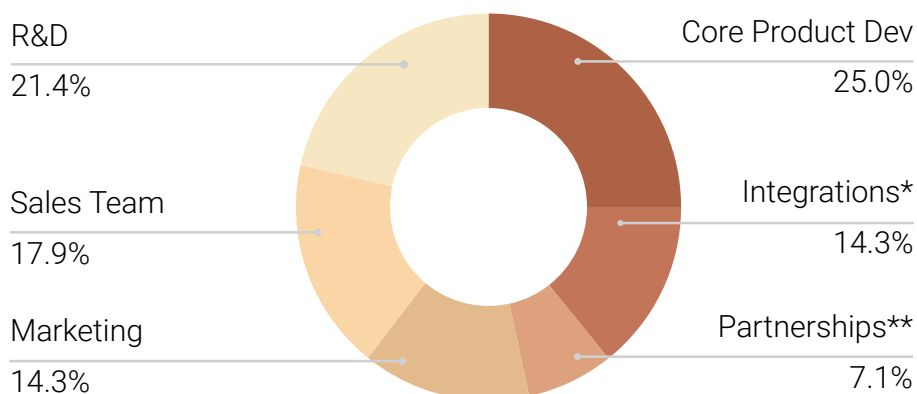
- Our contact email address: 42@melior.ai

We have spent a significant amount of time on internal security precautions for the token sale, which include (but are not limited to) keeping editable access to our website and mailing list to a very small number of people, the use of extremely complex passwords for access to the website or to our mailing lists, and a two-factor authentication log-in requirement for all administrators.
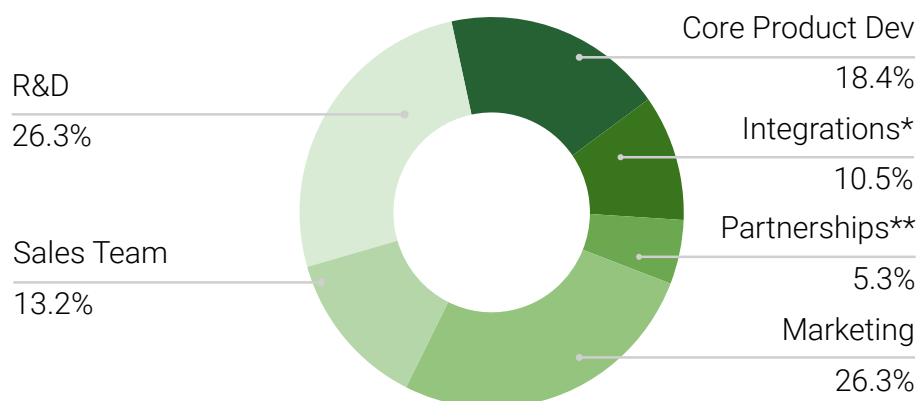
Use of Received Funds

Funds allocation (US$5-10M)

- Sales Team — 20.0%
- Marketing — 20.0%
- Partnerships** — 10.0%
- Core Product Dev — 30.0%
- Integrations* — 20.0%

Funds allocation (US$10-15M)

- R&D — 21.4%
- Sales Team — 17.9%
- Marketing — 14.3%
- Core Product Dev — 25.0%
- Integrations* — 14.3%
- Partnerships** — 7.1%

Funds allocation (US$15-20M)

- R&D — 26.3%
- Sales Team — 13.2%
- Core Product Dev — 18.4%
- Integrations* — 10.5%
- Partnerships** — 5.3%
- Marketing — 26.3%

*Integrations with major e-commerce software providers give us access to their customer bases and their sales force. We will invest in cultivating those close relationships.
**We aim to build and nurture partnerships with prominent organisations that can influence clients and bring forth new opportunities for Melior.

Melior & Blockchain

Blockchain is crucial to Melior's market model due to its immutable and "always on" nature. Melior intends to integrate blockchain as a fundamental part of the business model in the following ways:

- Utilisation of Smart Contracts - Reliability & Confidence

- Settlement Systems – Sharing & Honesty

- Pay As You Go Application Store - Third Party Development

- Storage of Data – Consideration to GDPR Compliance

Utilisation of Smart Contracts — Reliability & Confidence

Smart contracts are the rules governing the relationship of all blockchain users – both human and AI. These rules are also immutable and guarantee compliance across the system.

The use of smart contracts within Melior's blockchain will enable the implementation of the storage and compliance features. Because the rules pertaining to use of data will be coded into the smart contracts it will not be possible for Melior itself to store or access the data by any method other than that pre-agreed by the smart contracts. All users can therefore be guaranteed that the manner in which their data is stored and used will always follow the pattern described by Melior's guidelines.

Settlement Systems – Sharing & Honesty

Smart contracts within blockchain will enable the use of MEL tokens to power the pay-as-you-go element of Melior's MINNIE PAYG offering. This will be done by ensuring that a customer's account is in credit with enough tokens to power the services they require.

There will also be a referral system established whereby brand advocates can be paid a fee for customers they introduce to the Melior network, with the value of their payment based on customer usage. As blockchain functions as a digital record, the usage factor and commissions paid will always be visibly recorded.

Once again, the use of the blockchain and smart contracts will ensure that all contracted transactions are carried out with 100% honesty and clarity to all parties.

Third Party Development - Pay As You Go Application Store

Developers will be able to distribute their third-party applications via the Melior Marketplace which users can purchase, similar to other familiar revenue sharing models like Google Play.

Storage of Data & GDPR Compliance

Transactional data will be saved on Melior's blockchain, which ensures an immutable record of every transaction that occurs and provides a definitive account of what has been sold, should this ever prove necessary.

This data will be stored in a private blockchain and, in order to ensure compliance with the forthcoming European Union General Data Protection Regulations (GDPR) and under similar rules in other jurisdictions, only the transaction content will be held within the blockchain.

Security and personal information is of paramount importance to us. As such, we do not store any private customer data in any form. While Melior does research generic purchasing information and does hold that information on occasion, we are fully compliant with GDPR regulations and other local territorial equivalents where appropriate.

Choice of Blockchain

We have made the decision to launch MEL tokens on the Ethereum blockchain for the following reasons:

- Ethereum is one of the leading global cryptocurrencies of 2018 with a market capitalisation in excess of US$70 billion. Due to its large community base it has developed many advanced features not possessed by its rivals including Turing-complete smart contract scripting and sandboxed code execution.

- The widespread uptake of the blockchain also means that Ethereum configurations are already being supported by major cloud provider services. Amazon Web Services have recently started supporting Ethereum out of the box, giving immediate, comprehensible scaling when storing data for enterprise client solutions.

- Ethereum has a strong development roadmap and community, with democratic governance, which has led to rapid development frameworks such as Truffle, as well as testnets for pre-production testing that make life easier for developers.

- Integrating with Ethereum allows us to work with a proven community of professionals with established toolsets and practices, increasing consistency and standardisation. Companies such as Blockcypher are able to provide high quality network nodes for Ethereum. Additionally, the network also offers services such as decentralised storage and peer-to-peer messaging which could be helpful to Melior in the future.

Ethereum Facts

- **Ethereum is highly successful as a token sale platform.**

  Ethereum proactively supports onboarding of tokens where tokens can be converted to hold value as cryptocurrencies or 'coins', created and sold in token sales. Out of the **78,640** ERC20 token contracts on Ethereum, **451** are active tokens with a significant market cap.

- **Ethereum based (ERC20) tokens are supported on almost every exchange**

  Melior's choice of an ERC20 token means that the tokens will be available to list on 99.9% of cryptocurrency exchanges globally, thus ensuring the maximum amount of chance in securing access for the tokens to a major exchange.

- **Ethereum offers a mature smart contract platform**

  Solidity has gone through several revisions and the Ethereum network currently hosts 24,244 smart contracts. Currently there are at least 1,419 projects that have built their DApps on Ethereum platform.

- **Ethereum Performance**

  Ethereum's performance in the real world is exponentially better than that of Bitcoin. Whereas Bitcoin takes more than an hour to settle a transaction, Ethereum is more than thirty times quicker and is able to process transactions in approximately 2 minutes. It is also capable of coping with significantly more transactions per second (15 compared to Bitcoin's 3-6) making it Melior's cryptocurrency of choice.

Melior Official Communication Channels

We are happy to answer any of your questions - below are Melior's official communications channels:

Melior website – www.melior.ai

Our token sale website is: https://tokensale.melior.ai

Our LinkedIn account is: https://www.linkedin.com/company/meliorai/

Our Twitter account is: https://twitter.com/melior_ai

Our Facebook account is: https://www.facebook.com/meliorai

Our Telegram Token Sale support group is: https://t.me/meliorai

Our Reddit account is: https://www.reddit.com/user/Melior_AI

Our Reddit Subreddit: /r/MeliorAI

Our Medium account is: https://medium.com/melior-ai

Our Youtube channel is:
https://www.youtube.com/channel/UC-lw11OvT2dWk3igMLXcfzQ

Our Instagram account is: meliorai

Our Github account: https://github.com/meliorAI

Our Email address: 42@melior.ai