



**FOUNTECH**  
THINKING ARTIFICIAL INTELLIGENCE

# **Sales & Marketing, Powered by Artificial Intelligence**

**Whitepaper**

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**08 August 2019**

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# EXECUTIVE SUMMARY

This whitepaper is produced by the team at Fountech.ai and examines how technology driven by Artificial Intelligence (AI) has enhanced the output of the Sales and Marketing (SaM) sector. It goes without saying, of course, that further advances can and will be made, and this document outlines both current progress and highlights exciting near-future opportunities.

We show how our own AI-driven solutions can be integrated, adapted and supported by us, so that the inevitable necessity of marketers and sales professionals entering this brave new world of AI can, and will, be smoother than you might think.

After reading this document, we will, naturally, be very keen to hear from anyone with questions or suggestions about how our technology can benefit both you and your customers. You can reach us at [ai@fountech.ai](mailto:ai@fountech.ai).

## INTRODUCTION

**Note:** In this document, for the sake of brevity, the term “product” is a broad one, which refers severally to physical products, software and appropriate services.

The challenges faced by SaM professionals (SaM pros) are various. They need to maintain a comprehensive view of market trends so that they can understand their current and potential customers' various dynamic needs and goals. To maintain such a panoptic view, especially in the context of the amount of data beamed around the planet, requires smart technology. What's required is technology that can identify genuinely insightful business intelligence from vast quantities of data holding various levels of utility and value.

SaM pros must do one thing very well: return a constant dividend against their customers' investments in their services. It's all about simple economics. Marketing spend has to be worthwhile.

*“Value is created for customers when they perceive the benefits they receive to exceed the costs they need to expend.”<sup>[1]</sup>*

More than ever nowadays, SaM pros rely on data-based decisions to provide a worthwhile service. Before the exciting opportunities afforded by AI, sorting useful data from dross was a time consuming, thereby expensive process. It still is for those who haven't yet adopted the new technology.

Badly targeted social media advertising makes great profits for the publishers, not so great for the purchaser of the advertisement space. Knowing one's target customers' desires and dreams should be simple now that it's possible to have access to so much of their data. But, in reality, there's so much data that it has become more difficult to find the genuine nuggets amongst the fool's gold.

For SaM pros, there's a plethora of potential, and for customers there's so much choice that they can become overwhelmed. How can the needs of both these groups best be serviced? By analysing Big Data, analysing it well, then suggesting clear tangible actions that deliver results.

SaM is a creative-driven sector. Unlike engineering, which can be measured in horsepower, microns and temperatures, success in SaM is often nebulous and questionably quantifiable. As a result, SaM pros tend to stick with familiar, safe strategies, even though they might not be the most effective, because they demonstrate reasonable historical success. In short, this is where AI is of incredible value, offering the power of data analytics and automation, leaving the creative, enjoyable work to the human brain. With the above context, this document is laid out as follows:

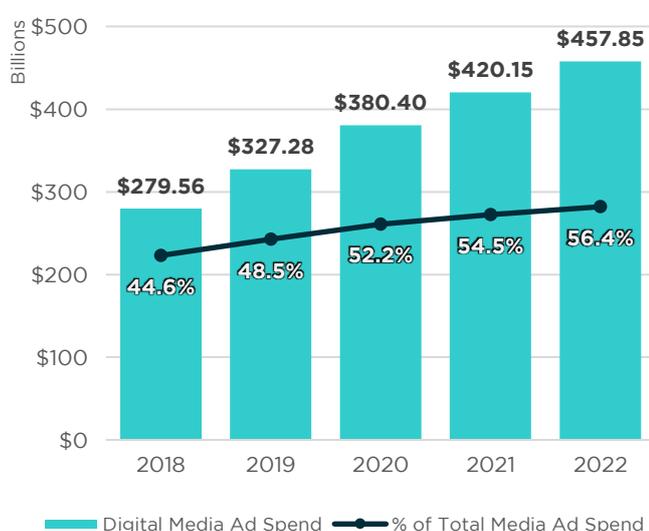
1. **SaM goes Digital** – Why SaM is going digital, how digital is advancing SaM and what “going digital” really means.
2. **What AI Brings to the Table** – What capabilities only AI can offer, how they benefit SaM pros and how experts feel about AI's role in their companies.
3. **Fountech's SaM-Tech Solutions** – Our offered digital AI solutions for the SaM domain; what they do, an overview of how they work and what value they can add to your workflows.
4. **About Us** – Fountech's goals, methodology and core philosophy.

## SALES AND MARKETING GOES DIGITAL

There are currently over 3.5 billion regular internet users globally and that number is projected to rise to 4.66 billion by 2022, of which 56% will have two or more connected devices. Consequently, online marketing has become the second biggest channel for global ad spend, accounting for 45% of 2018's total ad spend. Within the next five years, global online ad spend is projected to surpass global TV ad spend, a major change as TV has been the dominant channel for quite some time<sup>[2]</sup>.

With the prevailing trend of digital-tech transforming business models across all business domains<sup>[3]</sup> and the rapid growth of connected digital-tech users, SaM companies need to think fast on how they can integrate digital marketing solutions with their existing assets and processes. Fountech can provide these answers with effective clarity.

Projected Global Digital Ad Spend<sup>[2,3]</sup>



### DIGITAL AI SOLUTIONS RELIEVE HUMAN WORKLOAD

In this digital driven age, SaM pros are expected to perform a multitude of tasks that require various skillsets. With this ever-increasing requirement for technical competencies, AI is poised to be the digital assistant, streamlining and facilitating this process efficiently.

SaM programs are now emphasizing the importance of recruiting technically talented people. As stated in IBM's '2019 Marketing trends'<sup>[4]</sup>:

*"Today, the greatest marketing advantage is technical marketing talent - the martecheter (sic)"*

SaM pros are being challenged by the fast-growing quantity of data that is only becoming more fragmented due to the ever-expanding range of collection sources. There is a well-known phrase in computing: Garbage In - Garbage Out (GIGO); thus, having ever more data, by definition, the likelihood of more poor-quality data increases. In short, inaccurate, irrelevant data can only ever lead to irrelevant and ineffective marketing.

Having to manage and process all this information is onerous and expensive. Fountech's AI can churn through data, uncover its hidden insights, ignore irrelevance and suggest coherent strategies.

Most importantly, not only is this accurate, it's also very cost effective. AI doesn't take holidays or go off sick, it churns out quality insights 24 / 7 / 365. While you're asleep or on the weekend, it's still working.

### HOW AI CAN TRANSFORM YOUR COMPANY'S SAM

In an increasingly competitive environment, digital transformation is now a necessity for survival. Early adopters are becoming market leaders, making significantly more progress than those who choose to ignore

For a practical example, data can now be digitized into repositories that can be searched, sorted and presented by any number of criteria in seconds. A campaign might require, perhaps, information identifying anyone who had bought a pizza from a given restaurant chain in a certain postcode area within a specific timeframe. Only a digitized repository, with meta-tagged data can provide such accurate information quickly.

Consequently, capabilities like this, and so much more, is causing investment in innovative digital technology to grow. According to Gartner, global spending on digital-tech in the retail domain is

estimated to grow by 3.6% in 2019 to reach US\$203.6B, and is projected to continue growing for the next two years<sup>[5]</sup>.

Companies embracing AI-powered SaM solutions are increasingly utilising it to:<sup>[6]</sup>

1. **Digitize Sales Channels** – The more that sourcing of data is digitized, the more effective data analysis needs to become. This will allow products to be bought/sold more efficiently and profitably. If you can really get to know your customer’s digital profile, you can cater for them much more effectively.
2. **Digitalize Targeted Advertising** – By utilising AI solutions to achieve granular and automated hyper-personalisation, content is better targeted and presented for each individual customer.
3. **Digitally Transform Offers** – Products can be re-evaluated as regards what is offered, how it’s delivered and maximising campaign impact. For example, until recently, and still nowadays, paper vouchers cut from a newspaper must be taken to a retailer, accepted in part-payment for a product or service, kept in the cash register, then manually returned to the issuer to receive a credit.

E-vouchers are becoming commonplace by reference numbers typed into an EPoS terminal, but that’s still inefficient. AI can assist in the non-hard-coded creation of one-time use vouchers scanned from a smartphone to be redeemed and voided simultaneously, preventing fraud and streamlining accounting procedures.

Moreover, digital vouchers can tell the precise date, time and location of the redemption by a named user. Such profiling data is utterly invaluable.

# WHAT AI BRINGS TO THE TABLE

## THE POSSIBILITIES ARE REMARKABLE!

Before we dig into the technical nuts and bolts of just what algorithms can achieve whichever magical results, as we'll outline in the 'Solutions' section below; let's just step back for a moment to remember what the old adage for successful marketing tells us.

Only once you can answer the three questions below comprehensively, are you in total control of your campaigns:

- What are you trying to say?
- Who are you trying to say it to?
- How are you trying to say it?

The first of those three questions can only be answered by the creator of the campaign; but thinking carefully exactly what message one might try to convey will dictate the method of dealing with the subsequent two questions. AI can identify the audience at both granular and global levels (**exactly** who!) and suggest, indeed implement, the method by which the message is best conveyed (how). In the meantime, please let us give you a brief overview of how the AI can achieve this:

## PROCESSING A WEALTH OF DATA

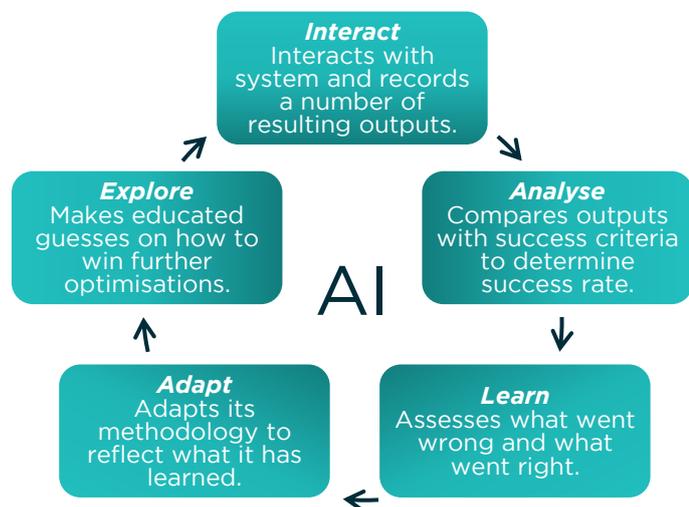
Data harvesting has increased exponentially the world over, creating data abundance (Big Data), but has also resulted in noisy data feeds. The challenge, then, is to sift through massive quantities of data to find its hidden insights. AI methods can achieve this by processing fragmented data and presenting it sorted by whatever required criteria in an easily understandable form. The value of such clarity cannot be overestimated. It's the adaptable, effective presentation that allows both high level decisions and day to day processes to be so much more transparent, controllable and effective.

## ADAPTING BY LEARNING

A main characteristic of AI is its ability to learn from the outcomes of its actions.

Traditionally, technology needed to be programmed with pre-defined instructions on how to achieve its desired functionality. This approach which is hard-set on using its original instructions and cannot learn or adapt is limited compared to new, better ways of achieving required results. AI will only use its original instructions as a starting point and adapt based on resultant feedback.

More than this, AI can do what we humans cannot; work tirelessly to understand and perfect individual tasks. Through continuous trial and error, AI makes micro improvements to its approach which, over time, result in optimal output guiding ever-more accurate decision making.



## AUTOMATING COMPLEX ROUTINE TASKS – AND MORE

The McKinsey Global Institute found that 40% of tasks within traditional sales functions can be automated, and it is projected to rise to 50% with further advancements in AI technologies<sup>[7]</sup>. Furthermore, they found that AI is capable of automating tasks in the sales process previously considered too complex to automate with traditional digital-tech (e.g. lead generation).

AI is the modern equivalent of a work-horse, dependably performing routine, repetitive, labour intensive and time-consuming tasks. However, even these routine tasks range in complexity, from those requiring minimal mental effort to those that require more time and thought, despite them being repetitive. In either case, they are fundamentally important to complete.

By relying on AI to facilitate automation, the nature of work shifts from *labouring* to *coordinating*. The time AI saves offers three major benefits:

1. **Increased Productivity** – SaM pros now spend more time on value-adding tasks. Productivity increases as pros immerse themselves in the creative side of their work.
2. **Decreased Expenditure** – The disparity between SaM pros' expertise and the tasks they perform will be minimized. As such, valuable, and therefore expensive, human resources will spend their time on tasks requiring their qualifications, curbing wasted resources.
3. **Better Campaign Analysis** – Clearly, the more complex the data used to steer a campaign, in a successful scenario, the more effective that campaign would be. However, the effectiveness of a campaign isn't always measured by how many customers converted or made purchasing decisions on the basis of the campaign offered to them. Using AI, it's now possible to analyse near misses by analysing customer behaviour after a campaign closes.

For example, let's imagine a digital voucher was emailed to 10,000 recipients offering a discount via a mobile device app at a pizza restaurant chain, to be used only on a Tuesday evening over the coming two months. Effectively, there would be eight opportunities to use the voucher. Let's imagine that the typical uptake of the offer was 5% - 500 vouchers redeemed over the time.

AI driven analysis of purchasers' visiting options post-campaign, and a digital post-campaign survey, to both voucher and non-voucher users, can analyse, by data points such as stated reasons for not taking up the offer, against subsequent visits, using social media and GPS data, that would give insights as to why the Tuesday option wasn't popular. Before AI, one would have to rely on simple answers to an online survey; with AI, confirmatory data can suggest motivations, sentiments, geographical issues, monthly pay dates, weather patterns (e.g. consumption of rich and greasy foods always reduce in very hot weather) and a myriad of variables that would have, hitherto, been exceptionally difficult and long-winded, to include.

The insights obtained might suggest that, although Tuesdays were very quiet at the chain restaurants (hence the push for increased footfall) this was because incredibly popular TV coverage of football league events happened on those evenings. Instead, the next campaign might offer discounted Tuesday evening **pizza delivery to the home**, whereby customers could enjoy the pizza and the sporting event simultaneously. Only by using the creative power of human imagination, combined with the analytical power of AI, can such outcomes be achieved.

## PERSONALISING CUSTOMERS' EXPERIENCES AND OFFERS

The concept of 1:1 marketing has been discussed and trialled for around a quarter of a century now, yet customers still frequently receive unimportant, moderately segmented or outright blanketed promotions. The challenge is rooted in marketers' human capabilities, time and resources.

Personalisation requires the creation of infinite versions of content, determining the right combinations near instantly for vast numbers of customers; an inhuman feat. With humans still in charge of strategy and creativity, AI can assist in creating personalized content on a mass scale, but at a hyper-personal level.

True personalisation is based on the predicted behaviour of the individual rather than conforming to a statistically defined segment<sup>[8]</sup>. AI will allow for a more holistic view of customers' profiles and, therefore, for much more accurate customer segmentation. Products will be tailored to the preferences of individual customers, exciting customers with allure of "made for me". True personalisation is not yet commonplace but it soon will be. Those who don't offer such choice at the personal level will be way behind the market leaders.

## CHANGING HOW WE INTERFACE WITH DIGITAL-TECH

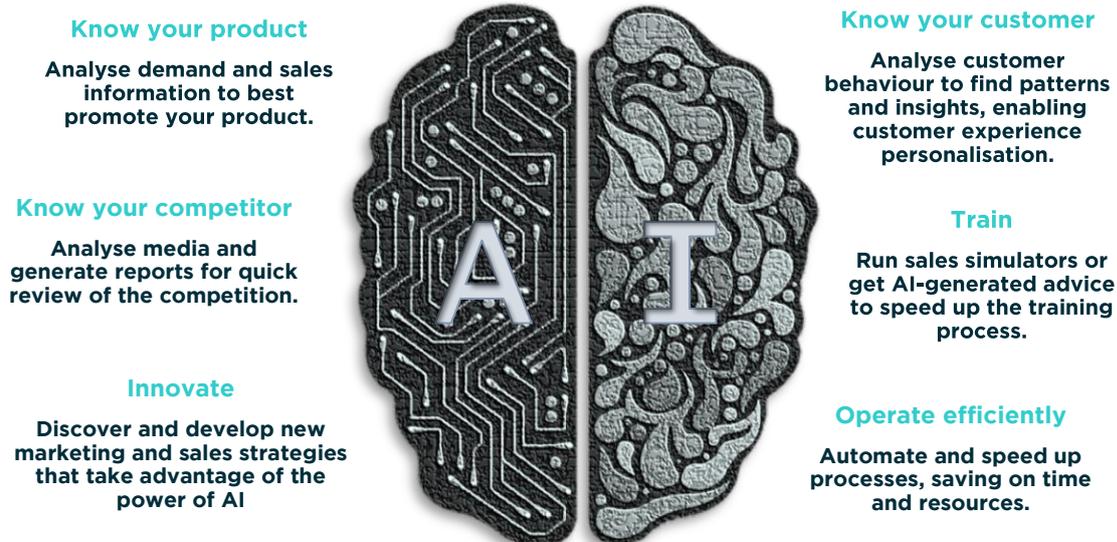
Advancing beyond its traditional role as a backend tool, AI is now making simple and smart interfaces everywhere, redefining our experience with digital-tech to be more natural and fluid. This is quite an impressive leap as error-tolerance is much lower on the frontend to ensure a flawless customer experience.

Notably, chat-bots are AI conversational agents that use natural language, like Apple's Siri and Google's Assistant, and are expected to replace traditional apps as the standard interface for mobile communication. Because of AI's ability for human-like conversation, AI is becoming the face, indeed the voice, of companies' digital brands, seen as digital spokespersons / mascots, and are becoming a key differentiator.

Customer interaction via AI is SaM's new frontline for customer support, especially in retail<sup>[9]</sup>. Gartner projects that 85% of customer interactions in the retail sector will be managed by AI in 2020<sup>[10]</sup>.

## THE BENEFITS OF AI'S CAPABILITIES IN SAM

Integrating AI solutions into companies of all sizes across in terms of SaM carries huge benefits; for example, knowing your customers and your competitors at a deeper level than previously possible. AI analysis of campaign near-misses can help to train sales people to be bang on target next time, innovating with fresh strategies and efficient processes. The graphic below illustrates this:



## EXPERTS' OPINIONS

AI is now firmly established as a game-changer in this sector. Quotes from leading bodies confirm this:

**"High-performing teams are 4.9x more likely to be using AI than underperforming ones."**

- *Salesforce*

**"Sales teams adopting AI are seeing an increase in leads and appointments of more than 50%, cost reductions of 40%–60%, and call time reductions of 60%–70%."**

- *Harvard Business Review*

**“Sixty-two percent of the highest performing salespeople predict {AI} guided selling adoption will accelerate based on its ability to rank potential opportunities by value and suggest next steps.”**

- *Salesforces*

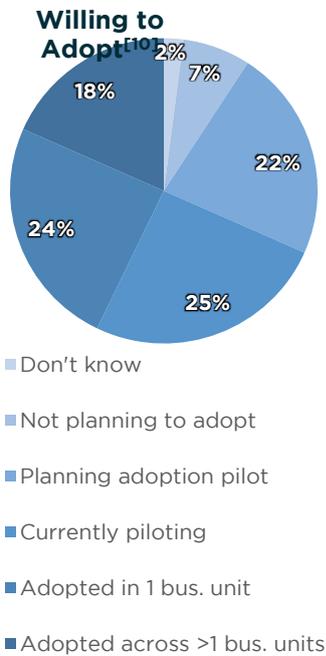
**“By 2020, 30% of all B2B companies will employ AI to augment at least one of their primary sales processes.”**

- *Gartner*

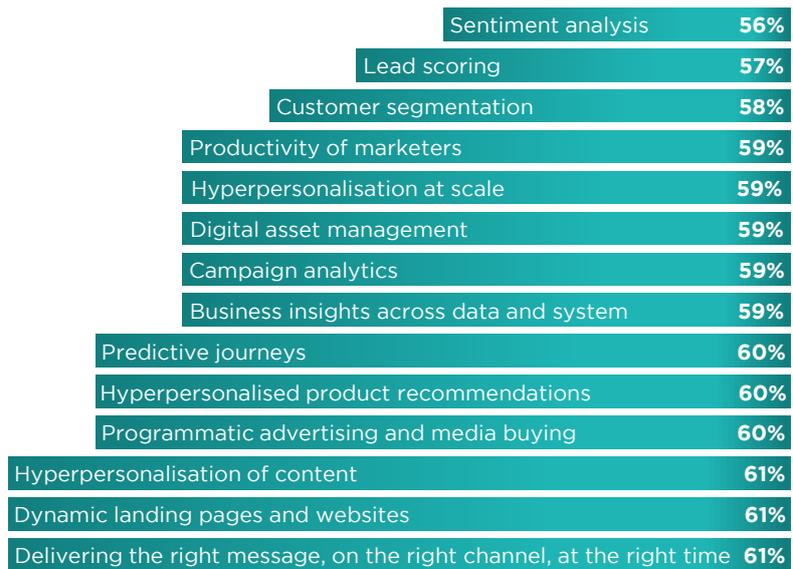
**“There is ample scope for marketers to leverage voice assistants, AI and Robotic Process Automation (RPA) to drive growth.”**

- *Tractica*

With all that AI can offer, how do experts feel about adopting it into their business and what applications hold the most promise for them? The graphic below answers just that, with AI anticipated to make a significant impact on customer personalisation and engagement. With such potential, it's little wonder that 67% of organisations have either adopted or are piloting AI solutions in their operations:



**Where the Help of AI is Highly Anticipated<sup>[11]</sup>**



## FOUNTECH'S SOLUTIONS

Below we outline several SaM-Tech solutions that can empower your company, together with example use cases for each. We have developed a number of AI modules, which we collectively refer to as our toolset. By modularizing key AI functionalities, Fountech can provide our customers with the convenience of building custom solutions in a Lego-block approach, using various combinations from the set. For each solution, modules are modified to fit their intended use. Our off-the-shelf SaM solutions below are combinations of modules that we believe can benefit the SaM domain.

If you would like to create a customized solution for your organisation, either by modifying the consistent modules of an existing solution, or by creating brand new ones, please contact us. We value your input and wish to understand how we can best offer value to our clients.

### PREDICTIVE FORECASTING

AI systems have proven to be more accurate than human experts in predicting outcomes. Our modules can process historical data to inform future results, providing useful insights. As a general rule, of course, the more accurate the input data, the more accurate the predictions.

Modules	CHURN DETECTION
<b>03:</b> Predictive Analysis	Using Time-Series Analysis and Predictive Analytics, we can detect customers' churn probability in order to prioritise the customers who need attention.
<b>06:</b> Time-Series Analysis	For example, a customer's decreased level of engagement with a platform or service can attribute to the AI's churn probability prediction. Later, the probability value can be compared with the actual outcomes (e.g. if the customer slipped away or not) to increase the prediction's accuracy.  Additionally, seeing which customer retention methods were successful on high churn-risk customers can help with churn prevention.

Modules	INVENTORY MANAGEMENT
<b>02:</b> Data Visualisation	Machine learning can improve the accuracy of demand forecasting, helping companies manage their inventory more efficiently. It predicts demand by analysing historical data, while also considering current trends to further improve accuracy.  For example, if AI is tasked with managing the inventory of ice cream, it could use historical sales data, consider seasonal factors (e.g. a summer influx of tourists) and footfall in specific locations to predict sales.
<b>03:</b> Predictive Analysis	
<b>06:</b> Time-Series Analysis	

### DATA ANALYSIS

Modules	VIDEO ANALYSIS
<b>07:</b> Computer Vision	Video analysis can be automatically performed with AI much quicker than a human could. Within a video, AI will try to recognize distinct objects (e.g. phones, cars) using Object Recognition, faces and facial expressions using Facial Recognition and lexical characters with Optical Character Recognition. AI can recognize anything it has been trained on, with example pictures of the objects.
<b>08:</b> OCR	
<b>10:</b> Entity Recognition	
<b>11:</b> Sentiment Analysis	Speech recognition and sound classification can detect conversations and specific sounds. Natural Language Processing (NLP) can analyse conversations to identify the context of the video. All information extracted can be presented in a report, enabling companies to review competitors' videos more effectively.
<b>12:</b> Summarization	
<b>13:</b> Speech recognition	

Modules	<b>COMMUNICATION ANALYSIS</b>
10: Entity Recognition	<p>Using various NLP methods, such as Entity Resolution, Sentiment Analysis and Summarisation, we can create tools that can help companies analyse their communications (e.g. from e-mails or chat-bot interactions) to generate overviews. This can help in keeping better track of interactions with customers or generate insights by comparing the results of the analysis with customer buying behaviour.</p> <p>Additionally, calls can be transcribed and analysed in real time to detect customers' sentiment, emotion and intention and give recommendations to a salesperson on the best response.</p>
11: Sentiment Analysis	
12: Summarization	
13: Speech recognition	

## PROCESS AUTOMATION

Modules	<b>CHAT-BOT</b>
01.1: NLU (Classification)	<p>Chat-bots can be used to autonomously engage with many leads and customers in parallel. Chat-bots harness various NLP algorithms to understand what a client desires and then generate an appropriate response.</p> <p>For example, salespeople can use chat-bots to reach out to Marketing Qualified Leads (MQLs) to promote products, as well as gather more information, until the MQLs convert to Sales Qualified Leads (SQL). This allows salespeople to quickly establish customer-company relationships with more potential customers, gain insights and, perhaps, also entertain prospects prior to reaching out to them, saving time and effort. Additionally, chat-bots can handle customer enquiries and on-board customers to your platform.</p> <p>The capabilities and possible applications of chat-bots in SaM are numerous. For example, sentiment analysis can be added to a chat-bot so that it may adjust its response to a customer's tone or transfer the communication to a human operator if a customer is dissatisfied.</p>
09: NLG	
10: Entity Recognition	
11: Sentiment Analysis	
13: Speech-recognition	

Modules	<b>AUTOMATED DATA ENTRY</b>
01.1: NLU (Classification)	<p>Automated data entering can drastically enhance your data gathering process, helping your data to be more of a complete picture. It extracts key pieces of text (e.g. dates, locations, prices, logos, etc.) from both bodies of text and images, and enters it into the appropriate repositories. As an example, this solution could be used to automatically record any important information shared by customers in communications to your CRM.</p>
08: OCR	
10: Entity Recognition	

Modules	<b>ARTICLE GENERATION</b>
01.1: NLU (Classification)	<p>Natural Language Processing methods such as summarisation and entity recognition can be used by marketers to save time and resources in creating article content.</p> <p>We can create a solution that can take keywords as input, scrape relevant resources and incorporate findings with existing content, or generate custom content which can be made specifically for a target audience. Additionally, it can include media such as relevant pictures and videos.</p>
07: Computer Vision	
09: NLG	
10: Entity Recognition	
11: Sentiment Analysis	
12: Summarization	

Modules	SEARCH ENGINE OPTIMIZATION
01.1: NLU (Classification)	AI can constantly generate and test keywords and links on your website and adjust them to increase your website's traffic and display it to the most relevant users.
10: Entity Recognition	Not only can SEO analysis 'test' keywords, but it can also make 'latent semantic indexing' a quick and simple process. Keywords in well-written SEO- friendly copy should be early in sentences, be relevant and evenly distributed; not too 'spammily' concentrated throughout text. An AI module could speed up and dramatically improve this process.

## LEAD AND CUSTOMER MANAGEMENT

AI can scan large datasets from multiple sources and suggest lead prioritization based on an assigned score:

Modules	LEAD SCORING AND PRIORITIZATION
03: Predictive Analytics	Using Weighted Probability or various Machine Learning methods, we can assign a score to leads that indicates their buying probability. Additionally, similar methods can be used to predict which existing customers have more chance of buying a better product (up-selling), or a new product (cross-selling). This can be achieved using historical data of customer behaviour and comparing it to the data of those with similar profiles and have purchased better or new products.
05: Clustering	
06: Time-Series Analysis	

Modules	LEAD GENERATION
Fountech's solution: Prospex	<p>Fountech offers a solution for automatic lead generation. Prospex (one of our own flagship products) uses AI to understand who you and your sales-team are, what you sell, where you sell it and what your ideal client looks like.</p>  <p>It uses all of this and more to identify qualified sales leads, each lead being tailored to individual salespeople in your team. From small sales-teams in one location to larger groups across the globe, Prospex is built to deliver qualified, cost-effective leads, all day and every day. Check out <a href="https://www.prospex.ai/">https://www.prospex.ai/</a></p>

Modules	AUTOMATIC CUSTOMER SEGMENTATION
03: Predictive Analytics	There are considerable advantages in using AI for customer segmentation. It removes the element of human bias while being able to process data more thoroughly and efficiently, creating any number of segments of any size and level of focus. Automatic Customer Segmentation can operate autonomously with minimal human input, making it less resource demanding.
04: Outlier Detection	
05: Clustering	

## PERSONALISATION

Beyond prediction and prioritization, some AI systems may recommend sales actions, going so far as to advise sales-teams as to which actions the system values the most, based on your goals and insights from data. This is achieved by predicting customers' behaviours and using their profile data.

Modules	<b>GUIDED SELLING</b>
<b>01:1:</b> NLU (Classification)	<p>Guided selling is a process in which AI will recommend the best course of action for a specific customer or segment. This can be achieved by the analysis of past events, to forecast outcomes, then giving recommendations regarding strategies, products, services and prices.</p> <p>This is achieved by analysing past data of interactions and whether those interactions led to a sale or not. For example, when a prospect is at the nurturing stage, AI can find customers with similar profiles (in terms of age, sector, favourite products and more) and then find historically successful methods.</p>
<b>03:</b> Predictive Analytics	
<b>05:</b> Clustering	
<b>06:</b> Time-Series Analysis	

Modules	<b>PRICE OPTIMIZATION</b>
<b>03:</b> Predictive Analytics	<p>Manual price optimization relies on expert opinion, based on years of experience. AI and machine learning can analyse vast amounts of data, such as pricing and purchase history or other important factors.</p> <p>With the use of neural networks, AI can suggest price ranges for a product based on current market statistics and offer better deals within a calculated price range, resulting in more effective pricing and a better chance of selling, while also removing the workload of manual research in determining pricing factors.</p>
<b>05:</b> Clustering	
<b>06:</b> Time-Series Analysis	

Modules	<b>TARGETED ADVERTISING</b>
<b>03:</b> Predictive Analytics	<p>This solution targets content and product displays to consumers and prospects based on their attributes, such as location, age, interests, previous activity and purchase history, helping you show your content and products to interested customers. In the context of online selling platforms, this can provide tempting product recommendations.</p>
<b>05:</b> Clustering	

Modules	<b>PERSONALISED MESSAGES</b>
<b>09:</b> NLG	<p>Customers appreciate when they are treated in a personal manner and their previous communications are remembered, giving a feeling of friendship and trust.</p> <p>Personalised messages are created using customer data and insights derived from past interactions, such as attitude, likes, dislikes, favourite products etc. This enables communications, including calls with sales reps, to be personalized.</p> <p>Furthermore, recent breakthroughs in NLP and Text-to-speech (TTS) can enable machines to perform voice calls. This can be added as an extra feature.</p>
<b>10:</b> Entity Recognition	
<b>11:</b> Sentiment Analysis	
<b>13:</b> Speech-recognition	

## TRAINING

Modules	<b>SALES-PITCH SIMULATION</b>
<b>01:</b> NLU (Context/Classification)	<p>Chat-bots and machine learning models trained with customer behaviour can be used to create sales-pitch simulations, where salespeople will present a product and be given feedback. Our AI will determine if the salesperson used the best words and techniques and calculate the likeliness of deal closure, while the feedback provided would be in context to the product's targeted customer profile.</p> <p>Also, as part of its feedback, the AI chat-bot can train salespeople on objection handling techniques that have proven to be successful in the past, so they can perform better next time.</p>
<b>09:</b> NLG	
<b>10:</b> Entity recognition	
<b>11:</b> Sentiment analysis	

# FOUNTECH'S TOOLSET

## SM-AI-01: Natural Language Understanding (NLU)



NLU is a subset of NLP that deals with reading comprehension, so that machines can understand the meaning and intentions behind words. NLU itself covers multiple domains such as Entity Recognition (SM-AI-10) and summarisation (SM-AI-12). In this document, NLU implies the ability to classify based on content and the ability to understand the context of a sentence.

### SM-AI-01.1: Classification

As an example, AI can categorise products by identifying keywords found in product descriptions.

### SM-AI-01.2: Context

In a particular setting, certain words appear more frequently and are associated with other words. That is, they occur perhaps in the same sentence. These relationships are captured by AI algorithms and can be used to denote context. For example, the sentence "I would like to renew my wardrobe" can be understood as an intention to buy clothes.

## SM-AI-02: Data Visualization



Making sense of raw data, usually in the form of spreadsheets, can often be exhausting, and sometimes impossible. Our data visualization module converts data into visual representations in the form of graphs, charts, maps and more, offering easily understandable data, sortable by a variety of criteria.

## SM-AI-03: Predictive Analytics



Using various techniques to process your historical data, AI can help guide your decisions as it predicts probable outcomes. Such techniques include data mining, data modelling and machine learning. Examples of predicted outcomes might be the number of sales to result from certain tactics or the probability of a customer buying a specific product.

## SM-AI-04: Outlier Detection



Outlier detection statistically analyses data to define normal operating conditions, enabling it to detect when any values go beyond the range of normality. It does this by looking at metrics such as mean, standard-deviation, kurtosis (the sharpness of the peak of a frequency-distribution curve) and more.

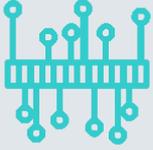
Once normal boundaries are set, AI can help in detecting unexpected behaviour, such as fraudulent activity or customers likely to churn based on a set of quantifiable actions.

## SM-AI-05: Clustering



Objects are the summation of one or more quantifiable attributes. For example, a colour can be defined by its three attributes: red, green and blue. Using the attributes of data objects, clustering algorithms create clusters (or groups) of likewise attributes, where similar objects are close in proximity.

AI can cluster separate products or customers to various advantages. For example, when a new product is released, AI can assess whether it suited for any of your existing sales channels by checking if it is similar to previous products.



#### SM-AI-06: Time-Series Analysis

Time-series analysis describes how something evolves over time. For example, the amount of sales over a time period. AI can help you to rewind the clock or extrapolate forward in order to understand the progress of your data over a linear timescale.

Examples of time-series algorithms include Fourier transforms, spectrograms, 'lines of best fit', extrapolation and even deep learning models like Long Short-Term Memory (LSTM).



#### SM-AI-07: Computer Vision

Our computer vision AI analyses images to detect if particular objects are contained within an image, and indeed where they might be located. Invariably, detecting objects within images utilises classification algorithms. There are many suitable classification algorithms, depending on the use case. Examples include logistic regression, support vector machines (SVMs) and (deep) neural networks.



#### SM-AI-08: Optical Character Recognition (OCR)

OCR is a specialised form of computer vision. It detects characters within images (either in printed or handwritten form) and converts them into machine-encoded text. After retrieving valuable text contained within images, it can be processed using one of our other modules (e.g. entity recognition, analytics, etc.) to derive insights.



#### SM-AI-09: Natural Language Generation (NLG)

NLG is a subset of NLP that takes structured data (e.g. entities, sentiments, relations) as inputs and converts it to human-readable sentences. This is commonly utilised by chat-bots to convert data into natural language so they can understandably share their knowledge in a conversation.



#### SM-AI-10: Entity Recognition

Entity recognition is a subset of NLU, taking digital text as its input and outputs annotated entities contained within. For example, in the sentence "John bought a new iPhone at the mall during Black Friday", the output is "Person: John, Product: iPhone, Location: Mall, Event: Black Friday". This can be used to identify customers and contacts within transcribed communications or to identify any mentions of products, places, events, etc.

### SM-AI-11: Sentiment Analysis

Sentiment analysis (SA) is useful for understanding customers' satisfaction and gauging how successful customer interactions are. It goes without saying that sentiment is predictive of purchase behaviour and can be used to gauge how to interact with a customer.

SA returns a score within a positive-negative spectrum to indicate the overall feeling of an expression. Sentiment can be analysed in three different formats:



#### SM-AI-11.1: Text

Textual is achieved by recognizing inherently positive or negative words and phrases. For example, the word “bad” can count towards negative sentiment, while the word “exciting” may count towards positive sentiment. Analysis can extend to groups of words, or phrases, instead of single instances.

#### SM-AI-11.2: Speech

Verbally expressed sentiment is analysed using sound recognition and machine learning models trained to associate sound patterns with specific emotions. A simple example of this has been used for years regarding voice stress analysis in lie detector machines.

Such devices have hitherto been tarnished with a questionable reputation, but all forms of sentiment analysis are strong examples of how AI can be integrated into existing technology (e.g. the lie detector) to bring vast improvements in accuracy.

#### SM-AI-11.3: Facial

Facial expressions contained in videos are biometrically analysed to determine their denoted sentiment.

### SM-AI-12: Summarization



Summarization is a specialised NLU algorithm. It takes as input large bodies of text and returns a summarized version, containing only the key information. This is achieved by ascribing an importance value to each word / phrase. Importance is quantified in several ways, like the frequency of a word in a given text. Then, each word's importance contributes to an overall sentence or paragraph importance value, enabling the creation of summaries.

Summarization can be useful to any industry that deals with large bodies of text, such as analysing legal contracts, political and parliamentary reports, technical specifications for very complex building projects and the like. For SaM, it can be used to summarise product descriptions and reviews, articles, customer support communications, etc.



### SM-AI-13: Speech Recognition

Speech recognition is a newly developed way of computer input. It's achieved by using acoustic modelling to associate words with audio signals. Most commonly, it converts speech to text (STT), which can then be further analysed with NLP. For example, customer support calls could be automatically transcribed and then summarized for efficient data logging.

## ABOUT US AND CONTACT DETAILS

Fountech is an AI think-tank. We have designed AI solutions for a variety of industries, such as automotive insurance, hospitality, sales lead generation, energy arbitrage and supply, global educational technology and much more.

Our press coverage is well established, as we are a worldwide authority on AI integration and design, having worked in the USA, Europe, Asia and the Far East. We are regularly featured and referenced in international publications, as seen in our [media summary](#). You can also view or sign up to our [newsletter](#).

We provide seemingly simple solutions (even though they really are not!) to complex business problems using Big Data and disruptive technologies. To find out more about Fountech generally, please visit our website; <https://www.fountech.ai> or download our [e-brochure](#).

To find out more about our methodology when we work with clients, please see [our methodology overview](#).

We would love to connect with you on [Twitter](#), [LinkedIn](#) and [Facebook](#).

### THE FOUNTECH APPROACH – THINKING AI

Creation, application and integration of AI is part of what we do. Our experience and expertise enable us to identify ways we can empower your company by analysing your needs and proposing custom AI applications that are most suitable to you, rather than relying on text-book solutions. In this context, “we don’t just apply AI, we think it”.

Fountech know how to integrate technology into businesses because we understand primarily that return on investment is as crucial as providing an efficient solution to a given problem. Fountech’s CEO and serial entrepreneur, Nikolas Kairinos, has taken numerous tech start-ups from a zero balance sheet to having generated millions in capital; consequently, we understand the concept of bridging the gap that sometimes exists between technical and business people, to create products that return tangible results.

### GET IN TOUCH

We are keen to hear from those interested in using our services to put themselves ahead of their competition. We often work by answering your – “*What if we only knew...?*” question, where the answer would revolutionise your profitability and your customers’ experiences.

Every time you learn new ways about putting your business forward, so do we. That’s why we’re so keen that you ask us your burning question, So, don’t hesitate, why not **contact us right now for an absolutely obligation-free initial consultation:**

[ai@fountech.ai](mailto:ai@fountech.ai)

**“You don’t just learn AI; you need to think it.”**

– Nikolas Kairinos, Fountech.ai CEO

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