7 practical examples of how AI solutions changed business

AI - The Power of ~~tommorrow~~ Today!

Elsevier

McDonald's

Google

SkinVision

Eightfold

GumGum

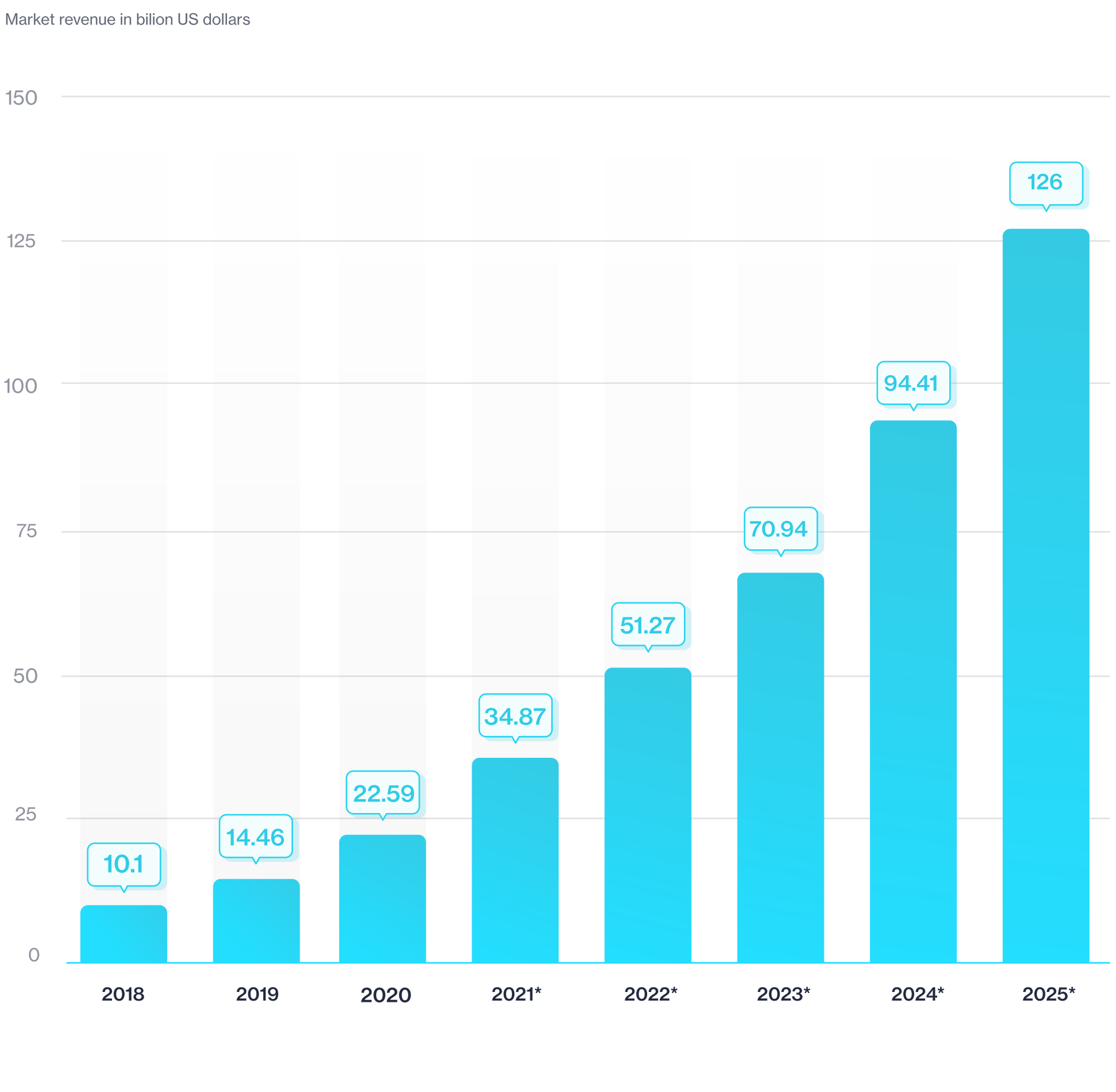
Stitch Fix

Idego

Introduction

In “Terminator 2: Judgement Day” - the classic sci-fi movie by James Cameron - the main protagonist, portrayed by Arnold Schwarzenegger, claims to be a machine that learns through experience. At his first encounter with humans, he doesn’t recognize why they are crying. “You do that when you feel sad,” young protagonist John Connor explains to him, but the Terminator doesn’t seem to understand the concept of sadness. Nevertheless, as the story progresses, the Terminator is put through an intensive human emotions course. Ultimately, in the final sequence of the movie, when Schwarzenegger’s character has to say goodbye to his companions, he states, in a familiar Lana-Del-Rey kind of voice, “I know now why you (people) cry”.

The concept of Artificial Intelligence was not simply a part of James Cameron’s imaginarium. The first research into it was run by IBM in 1959. Their computers were already able to beat chess archmasters by the beginning of the 90's. But that was just a start. The “Terimnator’s technology” has now become an everyday thing in different scopes and almost every area of life and business. We live, actually, in a time of AI revolution. Just look at the chart on the right illustrating the projected market revenue growth in the next few years (for those who missed it - we’re talking about hundreds of billions of dollars).



The goal of this e-book is to provide you with examples of how AI solutions have revolutionized business, originated great companies, and in each case streamlined their profits. Some may think that AI is only for the richest investors - like Google or McDonald's (and you will in fact find those examples here) - but we will prove to you that among them, also many smaller companies (smaller at least before their introduction of AI) or start-ups were able to implement such solutions.

First, here's what you have to know before we begin: AI is just a name for a number of different solutions and technological trends, connected to each other by one factor - enabling computers to automatically learn from experience. You may find among them solutions such as Knowledge Graphs, Intelligent Applications, Deep Neural Network ASICs, Data Labelling And Annotation Services, Smart Robots, Decision Intelligence, AI developer and teaching kits, Augmented Intelligence, AI governance, Things As Customers, Neuromorphic Hardware, Responsible AI, AI marketplaces, Generative AI, Composite AI, Small Data, Artificial General Intelligence, Edge AI, Digital Ethics, AI Cloud Services, Deep Neural Networks (Deep Learning), Natural Language Processing (NLP), Machine Learning, FPGA Accelerators, Chatbots, Computer Vision, Cognitive Computing, Autonomous Vehicles, Insight Engines, GPU Accelerators.

This is not a manual, but a case study paper - thus, we won't waste space and your time explaining each of the examples mentioned above. However, you can check the hottest on Gartner's trend report chart on your right. We've decided to list those solutions to show you how wide this field of technology has become and to assure that it's going to grow even wider, and even deeper. If you have questions about some of those solutions, please don't hesitate to ask us through our email form that you can find **here**.

Now, let's take a look at a few of the many examples of successful AI solution introduction in companies and the effect it had on business value.

Elsevier

McDonald's

Google

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Stitch Fix

Idego

CATEGORY DATA LIBRARY

AI SOLUTION MACHINE LEARNING / IMAGE PROCESSING / BIG DATA

Elsevier

Case Study

The company and the problem to solve

“We’ve all got way too much information coming at us – and the challenge is to distill that down to what’s really important, getting the right bit of knowledge at the right point, and distinguishing fact from not-so-accurate fact.”

- said Elsevier’s CTO, Dan Olley

Elsevier (originated in the Netherlands) is one of the biggest and oldest publishers of scientific and medical research: the 140-year history of studies combines over 400,000 articles published EACH YEAR which sums up to almost **50 ZETTABYTES of data** (to give you an idea, 1000 terabytes are one petabyte, 1000 petabytes are one exabyte, 1000 exabytes is 1 ZETTABYTE). This is all raw, unstructured data, with valuable content not set in rows and columns of Excel, nor even in a simple sentence, but often in diagrams, photographs or charts.

Finding relevant content would be impossible using only typical search algorithms. And that’s where machine learning and big data show up on a white horse to help

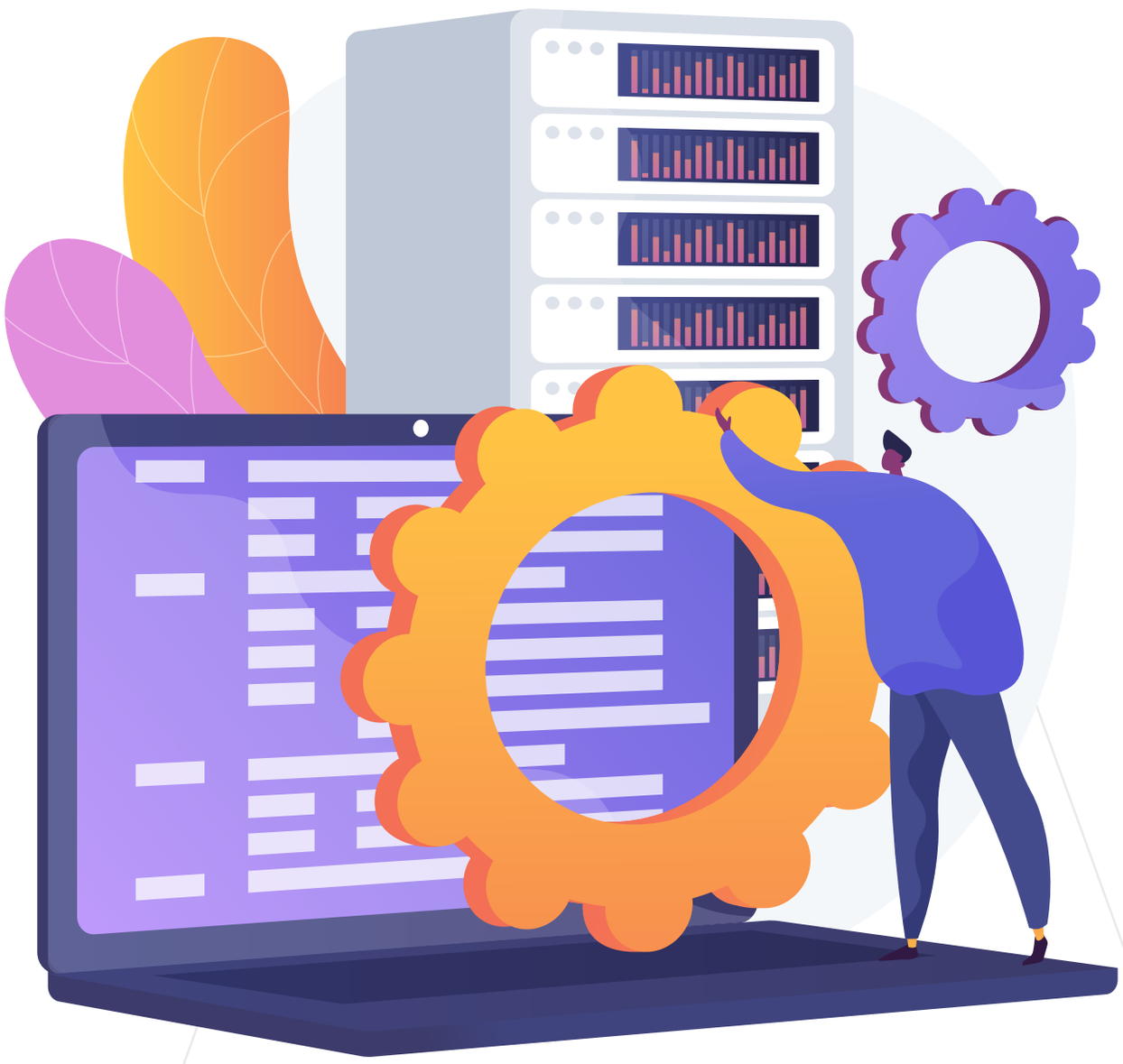
The solution

“We can use machine learning to extract information and insights from documents in ways that ‘traditional’ natural language processing has struggled to do. This is even more true when you come on to images and other visual data”

- said Dan Olley

Machine learning greatly helped Elsevier to translate different research into a common language of analytical data thanks to its ability to learn during data-processing. It’s been found that researchers in their studies are often seeking information in the form of flow charts. That’s where computer vision, responsible for image recognition, came in handy.

The AI quickly learned to distinguish the difference between flow charts, bar charts, pie charts, and others, and it offered a more accurate answer to users’ queries. It also began to classify every other image it came across. Instead of labeling photographs as “not a chart” (i.e. not relevant), it became increasingly good at categorizing them. **It saved hundreds of years of manual labelling and a ton of time for researchers whenever they tried to find what they were looking for.**



The Outcome

The interesting thing is, once you start getting good at this stuff, you realize how many opportunities there are.

- said Olley

The pioneering use of AI in industry opened up a whole new land of opportunities for Elsevier. For example, they quickly introduced a recommendation system based on the same rules that you use every day binge-watching Netflix or buying stuff at Amazon. Dan Olley claims that the path for other AI development is set for at least another 10 years.

Thanks to AI, Elsevier is no longer only a publisher anymore.

AI technology not only helped Elsevier as a publishing company to gain business leverage on the publishing market, but it also broadened their scope of business operations. Most of all, it helped the company adjust to modern business practices and uncovered a whole new dimension of opportunities to base their business on for decades to come.

Worth checking out

→ https://www.elsevier.com

→ https://www.facebook.com/ElsevierConnect

→ https://www.linkedin.com/company/elsevier/

→ https://twitter.com/ElsevierConnect

CATEGORY FMCG

AI SOLUTION NATURAL LANGUAGE PROCESSING / MACHINE LEARNING

McDonald's

Case Study

The company and the problem to solve

McDonald’s - the world leader in the fast-food restaurant business - is always expected to be one step ahead of the competition and to set new directions for the industry. However, the growing industry of fast-casual restaurants became a real threat to their share of the market.

It’s no wonder then that management’s eyes quickly turned to the new power in technology solutions - Big Data and AI programming.

The goals were simple: to collect more data about customers’ preferences and then to create an intelligent response to that data. Once again, AI and Big Data joined forces.

The solution

In 2017, McDonald's created their mobile app. Using smart marketing tools, the company attracted a lot of their customers to sign-up and leave a bunch of information about themselves and their behaviors (it could be one opinion that people sold their data very easily, but on the other hand, who doesn't like free burgers and daily discounts? ;)). This data got McDonald's vital customer intelligence about when and where they go to the restaurant, how often they do that, if they use the drive-thru or tend to dine in, and - finally - what they purchase. Based on that data and using Machine Learning tools, McDonald's prepared discounts and daily recommendations for every group of their customers that share common parameters.

Not only that, but in Canada, the world's biggest fast-food chain began testing an AI-based system that adjusts recommendations and discounts to weather forecasts. On a sunny day, you're most likely to be welcomed with an ice cream offer or a salad, but when the weather gets sad and blurry, the app recognizes you'll need some comforting, via a Double Quarter Pounder with extra cheese.

In 2019, McDrive services were also enhanced by AI technology; to be exact, by natural language processing. To optimize the ordering process and reduce the costs of staff (and staff recruitment), McDonald's announced the acquisition of Dynamic Yields, a start-up that specializes in personalization and decision logic technology. Thanks to that cooperation, when using designated Drive-Thrus you won't need to talk to a human anymore - a machine will recognize your speech, receive your order, and process it to the kitchen. The first 8,000 pieces of machine learning tech have already been installed across the US and Australia.

It's worth mentioning that McDonald's is also using Dynamic Yields AI solutions to automate the restaurant's supply chain.

The Outcome

Their study shows that Mobile App implementation in Japan **increased** McDonald’s average check by up to **35%** and the weather-based recommendation system increased sales in Canada by **3%**. While we don’t have reliable data on how McDrive technology affected sales yet as the technology was introduced shortly before the first COVID-19 outbreak, Drive-Thru sales all over the world have greatly increased against this backdrop. Nevertheless, we know already that while in 2019 the average McDonald's drive-thru took six minutes and 18 seconds, the company trimmed that to five minutes and 49 seconds in 2020.

McDonald’s wisely recognized the functionality of AI solutions in their business on many levels, such as customer service, upselling marketing, and supply chain management. Without a doubt, this is not the end of the story yet.

49 SECONDS
DRIVE-THRU ORDER

15 YEARS
OF DEVELOPMENT

60 MILLIONS OF DOLLARS
WORTH

CATEGORY INTERNET

AI SOLUTION MACHINE LEARNING / DEEP LEARNING

Google

Case Study

The company and the problem to solve

Google - the biggest internet company in the world - is obviously an example of pioneering and successful AI technology implementation. Machine learning algorithms of course have hugely affected their key product usabilities, such as search engine or ad optimization, but here we'll focus on something entirely different - AI technology use in Google's ecology policy.

Google data centres account for as much as 2% of GLOBAL energy consumption and that's why it was crucial to come up with an idea for the most efficient system that could be designed. A minor - but not less important - challenge was also to reduce the amount of waste within the data centres that were going into landfills. Google decided to overcome both challenges using the superpower they're known for - technology.

The solution

If we have 10 devices and each one has 10 settings, it gives us 10 billion potential configurations - even at this level definitely not something a human could optimize. But a computer can.

Machine learning involves feeding complex algorithms, designed to carry out data and processing tasks in a similar way to the human brain, with tremendous amounts of data not able to be processed by a human. The result is a computer system that becomes capable of learning. That was the solution adopted in Google data centres - to give machines the ability to learn the devices, to learn the settings, and then to optimize them.

The second challenge - reducing waste - required an aggressive look at every aspect of operations, even the food that was distributed from the company's restaurants. That's where AI tools were used once again. Google employees are fed three meals a day from over 1200 cafes and self-service restaurants - that, of course, results in a significant amount of food going to waste through miscalculated demand or spoilage. The solution was to install smart scales equipped with cameras to measure the amount of food going to waste daily - either in the kitchen or on the plates already - and then to automatically adjust supply to demand.

The Outcome

Both solutions came out as a success for Google. **The electricity consumption by cooling systems, for example, dropped rapidly by over 40%**. Of course, growth of the company and growth of the demand for internet services causes constant need for more electricity usage. That's why it's worth mentioning that, besides pursuing efficiency, Google invests a lot in green energy: this year, for the 3rd year in a row, the company purchased enough renewable energy to match 100 percent of their annual global electricity consumption.

Waste was also limited. **The AI system Google introduced is credited for cutting the amount of food waste by 3 million lbs since it's introduction in 2014.** It may be a drop in the ocean on a global scale, but the Google brand succeeded in showing other companies the path to follow in order to achieve sustainability.

2014
YEAR
OF INTRODUCTION

3
MILLIONS LBS
FOOD WASTE CUT

CATEGORY HR

AI SOLUTION MACHINE LEARNING / IMAGE PROCESSING

Eightfold

Case Study

The company and the problem to solve

How many recruitment processes happen each day in companies? How many CVs are passed through employers emails? How many people are paid to study them carefully? How many great talents were omitted by human lack of time, negligence, or insufficient competencies? Eightfold was created to solve these issues.

Eightfold was founded by some of the early engineers at Google, and their original vision was to build an end-to-end AI-based platform for talent. It is in fact a powerful AI tool that supports recruitment processes, but that's not all it is. The company's mission - as their VP of Marketing Mihir Gandhi states - is to find the right job for everyone in the world. It takes cojones to say that, and machine learning to make it happen.

The solution

To make a great recruiter, it’s necessary to know the business you’re recruiting for; to know the people and their mental capabilities and - as a result - to know who to reject and who to invite for a conversation based on a piece of paper sent to a company’s email. That’s tough, because it’s a huge amount of data that takes both experience and a lot of time to process properly. That’s why it’s perfect for a machine to learn.

Eightfold was designed to automatically collect, index, and analyze millions of candidates’ profiles, using advanced AI to match them to jobs, opportunities, and career paths. It’s worth mentioning that, in this area, Eightfold can also do the job that a candidate fails to deliver themselves. For example, if he or she forgets to mention their familiarity with Watson technology, but the candidate claimed at the same time to work at IBM in 2016 where it was developed, Eightfold will add this to the probable skills of this person’s profile.

The Outcome

Thanks to machine learning, Eightfold built a powerful tool that streamlines the recruitment process and gives benefits to both employees and employers. Their brave mission to find the right job for everyone is also coming along - recently, Eightfold was widely praised for their project to match military veterans to jobs in the private sector.

In October 2020, the value of the start-up that originated in 2016 reached 1 billion dollars, and it's safe to say that is just the beginning of their upwards journey.

2016 YEARS OF FOUNDING

1 BILLION OF DOLLARS WORTH IN 2020

CATEGORY HEALTH CARE

AI SOLUTION COMPUTER VISION

SkinVision

Case Study

CATEGORY HEALTH CARE

AI SOLUTION COMPUTER VISION

The company and the problem to solve

“What we know is that skin cancer is the most common cancer in Western countries. And the amount of patients is rapidly growing. We embrace the idea that technology can take away the barriers that stand in the way of early detection of skin cancer, and get you to a doctor at the right time."

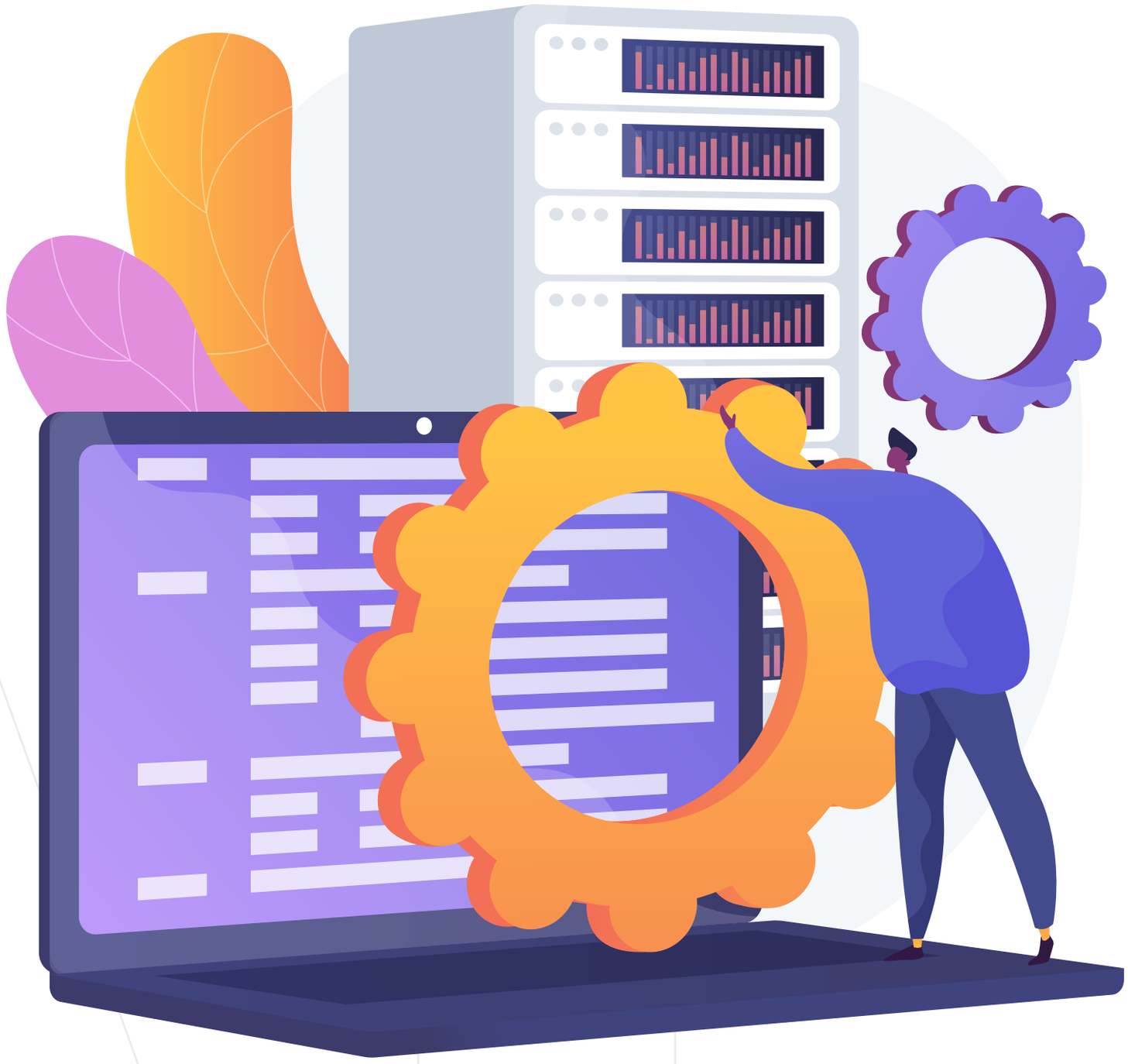
- Erik de Heus, CEO of Skin Vision

Approximately 1 million people are diagnosed with skin cancer every year, with a death toll of around 100,000. If detected early enough though, there is a 99% chance of surviving. SkinVision, established in the Netherlands, was created in order to revolutionize the skin cancer diagnosing process and save human lives. The aim was to create a tool enabling people to scan their bodies in their own homes using their phones in order to keep their skin health up to date. AI solutions play a leading part in that brave goal.

The solution

SkinVision offers a **free-to-download app that allows people to scan their bodies in their own homes and have the pictures assessed by SkinVision's machine learning-based algorithms in just 30 seconds.** Based on a huge amount of images already processed, the app is able to - with great and still growing accuracy - determine whether a skin change is malignant or not.

Of course, after the pre-elimination AI phase, staff dermatologists examine the image to control accuracy, which has already grown to over 90 percent. With 200 images processed an hour, SkinVision AI has already millions of images to use for learning purposes.



The Outcome

AI technology has already revolutionized the diagnosing process of skin cancer. With its accessibility and pace of data processing, it eliminated the queues at dermatologists' offices, streamlined diagnosis, and raised awareness among people to take care of their own health and check their bodies. **The diagnosis accuracy is now assessed to be 97% per cent**, while a dermatologist visit (in the same research) is rated only between 75% and 92%. The app's development is entirely supported by the Crunchbase community, now with a sum of over 12 million dollars.

97% DIAGNOSE ACCURACY PER CENT

12 MILLIONS OF DOLLARS WORTH

> Without a doubt, SkinVision is just one of the few first steps on the road to automating the diagnosing process and - in result - improving our healthcare quality.

CATEGORY MARKETING

AI SOLUTION NLP, COMPUTER VISION

GumGum

Case Study

The company and the problem to solve

In the future, AI practices will become a normal part of campaign development, execution, and measurement.

- Ben Plomion, GumGum's CMO

Today, in order to be successful, brands need to be visible everywhere. Companies' marketing teams these days produce a monstrous amount of ads and those ads are placed mostly by fully automated ecosystems, like Google or Facebook. While it certainly helps with quantity, sometimes it affects the quality of placement. Imagine McDonald's advertising their Big Mac set under an article about obesity and junk food. Or a banner set in a World Cup finals so tiny it can't possibly be visible to television viewers

GumGum goals were simple: to analyze, optimize and create engaging ads that can turn into revenue for their clients.

The solution

GumGum aims to become an omnichannel marketing tool that enables companies to track and analyze their ad campaigns. It uses artificial intelligence tools with a focus on computer vision (CV) and natural language processing (NLP). GumGum's technology reviews webpages, identifying and classifying the content it finds in order to help advertisers place digital ads in relevant and brand-safe contexts. Instead of relying on behavioral targeting, which enables the targeting of ads based on users' personal online history, GumGum's contextual technology shows ads that are connected with the audience's interests without infringing on their privacy.

By analyzing hundreds of billions of ads throughout the Internet and various media, GumGum is also able to choose the best and most engaging formats for a given audience. This knowledge is used to offer brands an advertising tool to optimize their creativity.

The Outcome

AI takes a lot of shapes within marketing - and is most certainly not all created equal. The AI use case that seems to get a lion's share of coverage is chatbots but Marketing AI practices in computer vision will see an explosion in use cases in the coming years.

- Ben Plomion, GumGum's CMO

With their big and advanced tool, GumGum has become a necessary tool for the biggest brands wanting to optimize their vast ad budgets and nurture their brand value as well. **GumGum, founded in 2007, after almost 15 years of development, is now worth close to $60 million.** Pretty neat, huh?

2007 YEARS OF FOUNDING

15 YEARS OF DEVELOPMENT

60 MILLIONS OF DOLLARS WORTH

CATEGORY RETAIL / FASHION

AI SOLUTION MACHINE LEARNING / IMAGE PROCESSING

Stitch Fix

Case Study

The company and the problem to solve

Who hasn't just once ordered some clothes online and then returned half of them? For most retail companies, returning items is an issue. For Stich Fix, it’s a business model: the company sends you some items on a monthly subscription. You keep what you like and return what you like less.

Stitch Fix was established in 2011 in San Francisco and meant to disrupt the fashion retail industry once and for all. With input from the customer and collaboration between artificial intelligence (AI) and human stylists, the online styling subscription service aims to eliminate the need for their customers to go out and shop for clothing or even browse for it online, because they deliver personalized recommendations right to their clients’ doors on a regular schedule.

The solution

Data science isn't woven into our culture; it is our culture. We started with it at the heart of the business, rather than adding it to a traditional organizational structure, and built the company's algorithms around our clients and their needs. We employ more than 80 data scientists, the majority of whom have PhDs in quantitative fields such as math, neuroscience, statistics, and astrophysics. Data science reports directly to me, and Stitch Fix wouldn't exist without data science. It's that simple.

- Alanna Hall, CEO of Stich Fix

Stitch Fix has combined the expertise of personal stylists with the insight and efficiency of artificial intelligence to analyze data on style trends, body measurements, customer feedback, and preferences, to arm the human stylists with a culled down version of possible recommendations.

Using AI solutions, including machine learning and image processing, Stitch Fix is able to analyze human needs, learn their preferences, and - with the help of human designers - personalize customers' monthly subscriptions in order to keep them happy with their service.

A lot of returns means Stitch Fix needs advanced inventory management. This was also obtained using machine learning technology. Stitch Fix is just as concerned with inventory management as traditional brick-and-mortar stores. As clients receive and keep merchandise, they need to restock their inventory to give stylists a large enough inventory to meet demand. They need to figure out how many of each style to purchase so that it meets demand, but there are no extras they can't sell. The company uses algorithms to help optimize these and other complex inventory management issues.

The Outcome

After 10 years of business, the company's value is estimated on the stock market at 5.5 billion dollars.

In 2020, their revenue reached the level of 500 million dollars. And Stich Fix isn't stopping there. The company is constantly working on improving their artificial intelligence and user experience, making it easier and easier for people to buy the clothes they dream of.

10 YEARS OF RUNNING

5.5 BILLIONS OF DOLLARS STOCK EXCHANGE

500 MILLIONS OF DOLLARS REVENUE LEVEL

idego

Summary

Summary

The Summary

Artificial Intelligence solutions are trending around the world. Research indicates that the AI market is supposed to reach its highest growth by 2025, so now may be the best time to introduce AI in your company as something fresh and gain leverage over your competition.

Elsevier **McDonald's** **Google** **SkinVision**

Eightfold **GumGum** **Stitch Fix** **Idego**

As you can see from the cases described above, AI solutions are not only designed for the biggest companies with massive budgets and operations. AI is becoming a part of regular business success and can be a trampoline to business expansion, redirection, or successful start-up development.

At Idego Group, with our skilled AI developers, we're helping companies on the road to their transformation. If you want to talk about introducing AI solutions in your business, just click the button below and schedule a free 30-minute consultation with our specialists.

Contact us