About Clipperton

Clipperton is a leading European corporate finance boutique dedicated to the High Tech and Media industries. Clipperton advises high-growth companies on mergers and acquisitions, financial transactions and capital increases. With teams based in London, Paris and Berlin and an international reach, Clipperton has arranged over 200 transactions in the high-tech sector.

September, 2017

Stéphane Valorge, Partner
Olivier Combaudou, Vice President
Théodore Chastel, Senior Analyst
Mathilde Lyet & Vasco Alexandre, Analysts

Deep Learning: From Hype to Maturity?

September, 2017

Stéphane Valorge, Partner
Olivier Combaudou, Vice President
Théodore Chastel, Senior Analyst
Mathilde Lyet & Vasco Alexandre, Analysts

About Clipperton

Clipperton is a leading European corporate finance boutique dedicated to the High Tech and Media industries. Clipperton advises high-growth companies on mergers and acquisitions, financial transactions and capital increases. With teams based in London, Paris and Berlin and an international reach, Clipperton has arranged over 200 transactions in the high-tech sector.

This document has been produced by Clipperton Finance (‘Clipperton’) and is communicated to you solely for your information and should not be construed as a solicitation or offer to buy or sell any securities or financial instruments. Clipperton Finance Limited is authorized and regulated by the Financial Conduct Authority. Registered No.5707020
DEEP LEARNING IS THE LATEST BUILDING BLOCK OF THE A.I. REVOLUTION WITH THE POTENTIAL TO DEVELOP NUMEROUS DISRUPTIVE APPLICATIONS.

Deep Learning is the latest newcomer in the Artificial Intelligence family. First (re)emerging in the industry around 2012, Deep Learning has really been on all VCs’ lips for the last 18 months, and on the agenda of technology giants (GAFA, Microsoft, IBM, Baidu, etc.). With €717m raised in 2016 i.e. 40% of Artificial Intelligence funding (vs. €316m, i.e. 16% in 2015), 2016 was clearly the year of take-off for Deep Learning start-ups

Yet, Deep Learning is not a new topic and has been discussed since the early 1970’s as a sub-field of Machine Learning and more broadly of Artificial Intelligence, with the idea to imitate through algorithms the way the human brain works with neural networks & complex feedback loops. Then an intellectual vision – or even a fantasy back in the 70s – Deep Learning is now an emerging disruption:

- Deep Learning has proven it is able to deliver tremendous results and tackle new problems that no other field of Artificial Intelligence has ever achieved. It then represents the most realistic opportunity to further progress towards a self-learning artificial intelligence.

- **It is in everybody’s daily lives**: new applications of Deep Learning emerge every week and become already mainstream, with the most noticeable example being the major breakthrough in autonomous cars, but also in Healthcare, E-commerce, Chatbots and even in more traditional industries like agriculture.

WHY NOW?

We believe 3 major factors that were limiting deep learning’s development so far changed drastically and are now favoring its explosion:

1. **Data availability**: To be efficient, Deep Learning needs a lot of data, and more importantly, high quality data. The emergence of mobile and cloud infrastructures have allowed to collect and store such data at marginal cost.

2. **Computing Power**: Increase in computing power is still keeping up with Moore’s law and the amount of readily accessible power opens up new possibilities, including the capacity to manage the huge datasets required by Deep Learning techniques.

3. **Better algorithms & teams**: The previous works on Machine Learning could be applied to Deep Learning: new teams got formed with talented people (Yann Le Cun now at Facebook, Andrew Ng formerly at Google & Baidu etc.) who are now leading the innovation in the field.
MATURATION OF A BREAKTHROUGH TECHNOLOGY

However, times are still early, and some level of caution needs to be taken – Artificial Intelligence has already gone through several "winters" during its long history. It is a complex topic and it can be sometimes hard to sort out who is really leveraging the full extent of the power of the technology, and who is “Deep-Learning-washing”.

In the recent years, and even more particularly in 2016, lots of start-ups using Deep Learning were launched and funded by VC funds (but mostly seed round or Serie A), but a very few minority have reached the commercial phase. There was also some activity on the M&A side, but most companies were acqui-hired (by tech giants mostly) before having tested their product on the market.

2017-18 WILL THEN BE CRUCIAL YEARS FOR DEEP LEARNING AND WILL DETERMINE:

▪ Will it become a commodity – the new Mobile or Cloud?
  Yes, but this will take some time – We anticipate the value at stake of mastering Deep Learning will go down significantly over time, and will be part of our digital world as a core component. As such, strategic positions will be taken, be it at the infrastructure level or at the service/vertical integration level.

▪ Which companies will be able to raise growth equity round (industrialization phase) and/or lead to big exits?
  Mainly vertical players – We believe that the Internet giants (GAFAMIBA) will keep on developing their infrastructure/platform play but that numerous vertical initiatives will allow start-ups to create massive returns, including in the healthcare sector, in the agritech segment and many others.

2/2
1. **Deep Learning: Real Breakthrough or Just Another Hype?**

2. **Why is Deep Learning Emerging Now?**

3. **Who Will Win the Deep Learning Race?**

For a long time, Artificial Intelligence was mainly a topic of study with the hope of building a computer as intelligent as a Human (or even more), with the ability to build things autonomously, to think, to interact and even to create Art.

Today, despite much progress in various fields, true Artificial Intelligence remains a dream.

**First Golden Age:**

Herbert A. Simon

*AI Scientists said:*

“Machines will be capable, within twenty years, of doing any work a man can do”

**Second Golden Age:**

*850M FUNDING FROM THE JAPANESE GOVERNMENT*

To finance the fifth generation computer project

**First AI Winter**

(cold war)

1956-1965

1974-1980

1981

1987-1990

**Second AI Winter**

(raise of the PC)

1965

1974-1980

1981

1987-1990

**1997**

**2012**

**2016+**

**New Golden Age:**

REAL-LIFE APPLICATIONS OF AI EMERGE QUICKLY

- Personal Assistants
- Autonomous vehicles
- Healthcare research

IBM's Deep Blue beats Garry Kasparov at chess, AI become mainstream

Andrew Ng makes a breakthrough on “deep” neural nets

Optimism brutally vanishes as research provided no tangible results (eg. failure of translation automation from Russian to English).

As a consequence, public fundings were stopped and research programs put on hold, opening a period where nothing happened in Artificial Intelligence.

The main problems encountered were:

- Not enough computing power to show « impressive » results
- Lack of data available

With the new generation of desktop computer becoming more powerful (Apple and IBM), the AI-specialized hardware market completely collapsed.

Investors then became wary and turned away from the AI market.
Deep Learning is a real game-changer in Artificial Intelligence history. With AI systems having never been closer to human-level intelligence, Deep Learning algorithms currently represent the most realistic opportunity to further progress towards a self-learning artificial intelligence.

Compared to Machine Learning which needs to be supervised by a human being during the learning phase, Deep Learning is almost autonomous. The main benefit is that its own capacities do not depend on the capacity of human brain anymore: the computer can process and store significantly larger amount of data and can detect the slightest variation in a model.

**With Deep Learning, computers not only analyze information, but understand it**

Deep Learning opens new possibilities for Artificial Intelligence. Unlike previous breakthrough in AI, Deep Learning has already proven it is able to have concrete and extremely powerful applications in real life:

**Understand complex and inconsistent situations & datasets**
- **Self-autonomous car**: Computer Vision enables cars to detect and avoid obstacles
- **Agriculture**: Image recognition is heavily used to analyze field and crops conditions
- **Replacing human** for the analysis of raw unstructured data

**Use partial information from past experience to build prediction models**
- **Cybersecurity**: Detect suspicious behavior and predict potential threats
- **E-commerce/Retail**: Predict consumer behavior to push him personalized offers
- **Healthcare**: Make the link between differents symptoms to detect diseases

**Create original content & advanced interactions with humans**
- **Art**: Deep Learning is able to create & "emulate" paintings or music from scratch
- **Chatbots**: are able to understand and answer using natural language
- **Smart homes**: Enhance humans wellbeing and reduce resource consumption
2016
The year of take-off for Deep Learning

2016 was an exciting time for AI with Deep Learning being responsible for sizeable leaps forward.

Deep Learning algorithms, applications and players have been getting a lot of media attention since then.

2016 saw a surge in M&A and financing activities: lots of start-ups using Deep Learning were launched and funded by top VC funds whereas tech giants became more and more acquisitive in the area.

Artificial Intelligence is enjoying a renaissance

« In the past couple of years there has been a dramatic turnaround. Suddenly AI systems are achieving impressive results in a range of tasks, and people are once again using the term without embarrassment (...) In fact, it is more accurate to say that the current boom in AI is really a boom in Deep Learning. (...) Whatever you call it, the field is finally starting to deliver on its promises. »

Artificial Intelligence swarms Silicon Valley on wings and wheels

« Now Silicon Valley has found its next shiny new thing. And it does not have a "Like" button. The new era in Silicon Valley centers on artificial intelligence. A transformation that many believe will have a payoff on the scale of the personal computing industry or the commercial internet. (...) Yet Silicon Valley has faced false starts with AI before. »

Why Deep Learning is suddenly changing your life

« Even the Internet metaphor doesn't do justice to what AI with Deep Learning will mean. Just as 100 years ago electricity transformed industry after industry, AI will now do the same. (...) Five years from now there will be a number of S&P 500 CEOs that will wish they'd started thinking earlier about their AI strategy. »

Google, Facebook and Microsoft are remaking themselves around AI

« Yes, artificial intelligence is all the buzz in the tech industry right now, which can make it feel like a passing fad. But inside Google and Microsoft and Amazon, it's certainly not. And these companies are intent on pushing it across the rest of the tech world too. »

“We will move from mobile first to an AI first world.”
– Sundar Pichai, Google

“Artificial Intelligence is our biggest existential threat.”
– Elon Musk, Tesla
Clipperton screened **1,980 fundraisings** in the AI industry between 1983 and 2017, in all geographies.

**Deal Count and Largest Transactions**

**Deep Learning**

**Machine Learning**

**Total Artificial Intelligence**

**Deal Value (M$)**

<table>
<thead>
<tr>
<th>Year</th>
<th>Total</th>
<th>Deep Learning</th>
<th>Machine Learning</th>
<th>Deep Learning Landmark Transaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>205</td>
<td>126</td>
<td>80</td>
<td>geoiQ, Jul-10</td>
</tr>
<tr>
<td>2002</td>
<td>65</td>
<td>126</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>2003</td>
<td>126</td>
<td>512</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>2004</td>
<td>204</td>
<td>215</td>
<td>49</td>
<td>AYASDI, Dec-16, $120m</td>
</tr>
<tr>
<td>2005</td>
<td>215</td>
<td>856</td>
<td>126</td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>191</td>
<td>512</td>
<td>40</td>
<td>$5.7m, Dec-12</td>
</tr>
<tr>
<td>2007</td>
<td>856</td>
<td>1,056</td>
<td>126</td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>512</td>
<td>611</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td>1,056</td>
<td>792</td>
<td>126</td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>611</td>
<td>576</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>792</td>
<td>576</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td>576</td>
<td>1,227</td>
<td>126</td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td>1,227</td>
<td>1,740</td>
<td>126</td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td>1,740</td>
<td>2,010</td>
<td>126</td>
<td></td>
</tr>
<tr>
<td>2015</td>
<td>2,010</td>
<td>1,793</td>
<td>126</td>
<td></td>
</tr>
</tbody>
</table>

Source: Clipperton analysis
... AND SURGE IN M&A

AI LARGEST ACQUIRERS

M&A DEAL COUNT

M&A activity in Artificial Intelligence from Q3-11 to Q2-2017

Source: Clipperton analysis
Questions to be answered in this paper

- Is Deep Learning only a fad or are there strong companies in the field?
- Is it a real industry segment or a pervasive technology like mobile has been in the past?
- Why now and what does it take to succeed in this industry?
- Is Deep Learning relevant for all kind of start-ups?
- How are different industries affected by Deep Learning?

Until now – just the beginning

- In the last few years, a lot of companies have raised funds but mostly seed or A-round
- On the M&A side, most of the transactions were acqui-hires of companies with no product but good R&D and product teams
- Most of companies that raised funds state that they are « AI/Deep Learning companies » but level of technologies in these companies is varying widely

2017-2018: The years of maturity for Deep Learning?

The barrier for financing has been leveled up significantly and we believe this will require from start-ups extremely robust technologies and/or strong revenue momentum.
DEEP LEARNING: REAL BREAKTHROUGH OR JUST ANOTHER HYPE?

WHY IS DEEP LEARNING EMERGING NOW?

WHO WILL WIN THE DEEP LEARNING RACE?

WHERE ARE WE TODAY? – A FEW EXAMPLES OF THE IMPACT OF DEEP LEARNING IN OUR LIFE
The newfound interest in Deep Learning comes from a successful experiment led by Andrew Ng, then a Google engineer. By feeding a neural net with 10m pictures of cats extracted from YouTube, the network learned by itself the distinguishing features of a cat.

The term “Deep Learning” was coined in reference to the hidden neuron layers structuring the way the algorithm works, allowing increased abstraction and problem solving capabilities along the number of layers, the number of neurons in any given layer and the number of paths between neurons.

Learning algorithms are able to learn from and make predictions on data without being explicitly programmed

1. **TRAINING PHASE**
   - A very large volume of data with tags is fed in the network, a process that can take weeks and is extremely computationally intensive
   - The neural network can recognize patterns and extract key features, it improves its model thanks to backpropagation (the neurons who gave the right answer are rewarded with more weight)

2. **TESTING PHASE**
   - Apply the training phase model to new data and compare results to expected answers
   - Test and measure the algorithm output, useful to detect problem such as overfitting

3. **APPLICATION PHASE**
   - The model is ready to be used in real situation where there is no expected output
   - Apply the algorithm to real world data and use the answer for whatever necessary
Deep Learning recent popularity has encouraged businesses to use its technology more than ever. However, Deep Learning is time and memory consuming and is not always the right option without large amount of data. Deep Learning algorithms are powerful and prove more useful as data sets get bigger.

Multi-layered neural networks clearly outperform other learning algorithms in analysing massive amounts of data.

The more you feed a Deep Learning algorithm, the best results you will get.

Deep Learning algorithm can’t be trained properly with small datasets such as some time series and rare phenomena modeling.

**What is the difference between Deep Learning and Machine Learning?**

Deep Learning algorithms are able to create a specification function defining characteristics to analyze as well as to optimize its own model. These tasks were previously done by developers with much less success considering the complexity and the time needed for programming it.
WHAT CAUSED THE SUDDEN TAKE-OFF OF DEEP LEARNING?

A BOOM CAUSED BY A CONJUNCTION OF 3 ENABLING FACTORS

1. DATA

More data available for training

- Data – both structured and unstructured - has never been more abundant. Having the largest data sets possible is instrumental in developing powerful Deep Learning applications.

2. COMPUTING

Exponential computing power

- Increase in computing power is still keeping up with Moore’s law. Whether in personal devices or on the cloud, the amount of readily accessible power opens up new possibilities.

3. TECHNOLOGY

More powerful algorithms – and bigger pools of DL engineers

- Research has hit important milestones in developing algorithms performing better while using less computing power.

14 million

The number of hand-annotated pictures in ImageNet open-source data set any developer can use to train a neural network on image recognition.

50x

Performance boost for data center applications with the latest Nvidia Tesla P100 GPU with Nvlink.

4.9%

The error rate in speech recognition of Google’s latest technology (May 2017) – on par with humans.

CLIPPERTON
Smartphones and IoT devices are able to collect massive amounts of information from its users: location, text, photo, historical & real-time operational KPIs. This is leading to large-scale datasets that cloud technologies can now easily store and analyze.

Collect real-world data...

...Process and analyze it

KEY PLAYERS IN DATA COLLECTION

**UBER**
- 40 million active riders/month

**Facebook**
- 300 million photos uploads per day

**Android**
- 1 billion phones sold per year

**Netflix**
- 10 billion hours/month

**WhatsApp+WeChat**
- 60 billion messages/day

**Google**
- 1.2 trillion search queries per year
1. Processing is shifting from CPU\(^{(1)}\) to GPU\(^{(2)}\)

GPUs with better parallel processing capabilities than CPUs are the go-to choice for training neural nets.

Nvidia’s PX2 now powers every Tesla. The company ambitions to become the 1st computing platform for self-driving cars.

2. Dedicated cloud-enabled AI will rise

Microsoft, Google & Amazon offer Deep Learning-optimized cloud infrastructures to power AI applications.

Applications like self-driving cars, where latency is key, can’t rely entirely on the cloud.

3. Still, specialized on-boarded chips will matter

AI-dedicated FPGA\(^{(3)}\) and ASIC\(^{(4)}\) are the next natural step to supercharged AI computing.

---

\(^{(1)}\) CPU: Central Processing Unit  \(^{(2)}\) GPU: Graphics Processing Unit  \(^{(3)}\) FPGA: Field Programmable Gate Arrays  \(^{(4)}\) ASIC: Application-Specific Integrated Circuit
**Tech giants have set foot in Europe or developed partnerships with prominent research institutions (selection)**

**Google DeepMind – London**
- Opened in 2010
- 300+ researchers focus on AI (AlphaGo, WaveNet, Neural Turing Machine, etc.)

**German Research Centre for AI (DFKI)** *(Kaiserslautern, Saarbrücken, Bremen)*
- Started in 1988
- 480 scientists, 240 research projects
- Public-Private Partnership w/ 16 private shareholders inc. Google, Nvidia, Airbus, BMW, Nuance, SAP, Microsoft & Deutsche Telekom

**Microsoft Research Lab – Cambridge**
- Opened in 1997
- 17 researchers focus on Deep Learning

**Amazon – European ML Center - Berlin**
- Opened in 2013 as 1 of the 4 centers along Seattle, Palo Alto & Bangalore

**IBM – Global Watson IOT HQ - Munich**
- Opened in Feb 2017 - $200m invest.
- 1,000+ engineers

**Facebook “FAIR” AI Lab in Paris**
- Opened in June 2015
- 25 researchers
- Example of publications: language learning that relies on multi-agent communication

**Google AI Lab in Zurich**
- Opened in June 2016
- 100 researchers
- Examples of publications: the conversation engine **Allo**, image recognition in videos

---

**Yann Le Cun – Head of AI at Facebook**
- Considered as one of the founding fathers of Deep Learning (e.g. check reading system @ NCR)
- 130+ publications on neural nets and computer vision
- Inventor of convolutional networks, a state of the art computer vision technique

**Yoshua Bengio – Founder at Element AI**
- Considered along with Le Cun as a Deep Learning pioneer
- The duo worked together for years at the **University of Montreal**
- His research have profoundly impacted how Deep Learning is implemented today

**Andrew Ng – former Chief Scientist at Baidu & Google**
- The rebirth of Deep Learning is attributed to Ng when he was working at **Google** and conducted his famous cat experiment* 
- Ng is a also an artificial intelligence teacher at **Stanford** and the co-founder of **Coursera**

*Recognition of pictures of cats using a Deep Learning algorithm trained on 10m Youtube videos.*
“The cost of acquiring a top AI researcher is comparable to the cost of acquiring an NFL quarterback.”
- Peter Lee, Microsoft Research Chief – nov. 2016

Because Deep Learning is quite different from traditional computer engineering, the pool of available talent is narrow and the competition for skilled developers fierce.

However 2016 saw increased training in Deep Learning, with new courses in top universities run by first-class researchers. The number of Deep Learning experts should be less of a major concern in the next few years.

Two solutions to acquire AI/Deep Learning skilled talents:

- Direct hires from academic
- Acqui-hires

For image recognition, Deep Learning algorithms now outperform humans

ImageNet is a competition with classification tasks on a data set of 150,000 images held since 2010. The winning system of the 2017 challenge had a classification error rate of 2.7% beating the human benchmark of 5.1% for the third time since 2015.

Source: ImageNet
1. **Deep Learning: Real Breakthrough or Just Another Hype?**

2. **Why is Deep Learning Emerging Now?**

3. **Who Will Win the Deep Learning Race?**

Tech Giants are in a Winners-take-all position...

At first sight, Tech giants check all the boxes...

Technology

Tech giants are at the edge of AI technologies development thanks to top research centers and massive investments.

Computing

Beyond access to huge data centers, tech giants are developing AI-dedicated proprietary hardware (FPGA etc.).

Data

“GAFAMIBA”¹ have pioneered the systematic and continuous collection of data.

¹ Google, Apple, Facebook, Amazon, Microsoft, IBM, Baidu, Alibaba
Most acquisitions in the Deep Learning space have been made with target companies still at an early stage, before a tangible product launch. Indeed, startups often created great AI engine without being able to build a successful business model out of it. But startups have a great talent pool and AI key skills remain difficult to attract.

Buyers were commonly tech giants looking for AI talent and know-how rather than additional revenue or profitability. That could explain why Deep Learning acqui-hires have demonstrated a huge price paid per employee.

**Today AI may be the only sector where employee value far exceeds performance value. However it may be questioned that these incredible valuations based on team potential will endure over time.**

*Source: CapitalIQ, Crunchbase, press releases*
BUT....
Tech giants have all chosen to open source their Deep Learning tools and to push for their own standards as there is little advantage to be gained by keeping them secret while top universities are also developing their own frameworks.

Many Deep-learning-as-a-Service companies have recently emerged, enabling any startups to leverage easily the power of Deep Learning for their business.

Verticalized players can now build on a full stack infrastructure that are affordable and easy to use.

"Progress in science and technology accelerates when scientists share not just their results, but also their tools and methods"  
Facebook AI Research (FAIR)
... BUT: COMPUTING: OPEN TO EVERYONE

Picks & shovels players such as *Intel* and *Nvidia* already have a strategic position in the AI landscape and will probably benefit from it in the next few years. Their success will depend on their ability to accelerate the adoption of their products and to make them affordable for everyone including early-stage startups.

### Historical hardware designers and manufacturers

- **Intel**
  - Dominates the Deep Learning hardware market with its GPU chips that allow massive parallelization.

  *"We want to bring Deep Learning compute resources to everyone"*

- **Nvidia**
  - Designs Tesla P100, the first GPU designed for hyperscale datacenter applications (April 2016).
  - Objective to train 100,000 developers in Deep Learning to bolster health care research (May 2017).

  *"Teaching you to solve problems with Deep Learning"*

- **Qualcomm**
  - Built the first Deep Learning Software Development Kit for Snapdragon 820 processors (May 2016).
  - Design Snapdragon 835, 35% smaller and uses 25% less power than previous model (Jan-2017).

  *"Meet the increasing demand for running deep neural networks"*

### Tech giants moving increasingly into hardware

- **Google**
  - Designed TPU, a custom ASIC built specifically for machine learning (May 2016).
  - Equips its data center infrastructure with GPUs to accelerate Deep Learning applications (Nov-2016).

  *"Artificial Intelligence is going to be a lot of computation"*

- **Apple**
  - Works on a processor devoted to AI-related tasks known as the 'Apple Neural Engine' (May 2017).
  - Two new frameworks for doing DL on iOS: BNNS and MPS CNN (Feb-2017).

  *"Two of the areas that Apple is betting its future on require AI"*

### Startups also bring innovation to the market

- **Cambricon**
  - The company launched in 2016 a processor for deep learning, named Cambricon-1A.
  - The product can be applied in a number of fields, such as smartphones, security, drones, wearable devices and autonomous driving.

  *"Brain of intelligence devices, Core of Intelligence Era"*

- **Graphcore**
  - Graphcore is a hardware systems company developing IPU-Accelerator™ cards and IPU-Appliance™ products that will accelerate machine learning applications. It lowers the cost of AI in the cloud and improves performance and speed.

  *"Let's innovators create the next generation of machine Intelligence"*

- **LightOn**
  - LightOn is a technology company developing novel optics-based computing hardware.
  - Their technology uses light to perform some computations of interest to Machine Learning.

  *"We use light to provide insights"*

---

Big players involvement in AI hardware fosters computing availability for everyone including startups.
Data is the crux of AI while massive amounts of information are still untapped. In particular, some specific verticals have yet to have all of their data collated, filtered and analyzed. Specialized startups and industrial data owners are best placed to address this challenge.

Data is scattered and still at stake in numerous areas (health, cars, etc.)

**Industrial data owners**

- Corporates have **massive amount of data** thanks to their interaction with customers
- But information are often unstructured (**data silo problem**)
- Industrial companies have to develop, partner with or acquire an AI unit to take advantage of their existing datasets

**Deep Learning startups**

- Startups have **little data to begin with**
- But they can **tailor their product** to maximize useful data collection
- Specialized startups have to collect and screen untapped datasets in **unexplored verticals**

The war for access to data is now

This opens **massive opportunities to data owners AND new entrants inc. DL start-ups**
SO START-UPS HAVE A CHANCE...
AND INVESTORS A CASE IN DEEP LEARNING
Companies leveraging Deep Learning today can be segmented according to their position in the value chain: first deep tech, then enablers and finally verticalized. Startups at the end of the value chain have significant growth opportunities as many AI products remain to be used at large scale.

<table>
<thead>
<tr>
<th>Category</th>
<th>Goal</th>
<th>Possible challenges</th>
<th>Industries</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEEP TECH</td>
<td>• Develop state-of-the art algorithms or hardware and drive science</td>
<td>• Manage to raise enough funding to successfully turn research into proof of work</td>
<td>Computer vision</td>
<td>TERADEEP, Accelize, Linguamatics</td>
</tr>
<tr>
<td></td>
<td>forward</td>
<td>• Attract buyers</td>
<td>Speech recognition and NLP</td>
<td>LightOn, Graphcore</td>
</tr>
<tr>
<td>ENABLERS</td>
<td>• Pick-and-shovel play</td>
<td>• Become a widely adopted standard</td>
<td>Cloud</td>
<td>Snips, Movidius, BigML</td>
</tr>
<tr>
<td></td>
<td>• Provide the tools or infrastructure for others to integrate an</td>
<td>• Complete successful monetization</td>
<td>Deep-learning-as-a-Service</td>
<td>Clarifai, Craft AI</td>
</tr>
<tr>
<td></td>
<td>intelligence component in their own products</td>
<td></td>
<td>Development tools</td>
<td></td>
</tr>
<tr>
<td>VERTICALIZED</td>
<td>• Develop and distribute a intelligence-based product or service</td>
<td>• Make the leap between tech and a production-ready product</td>
<td>Automotive</td>
<td>DeepL, Linguec</td>
</tr>
<tr>
<td></td>
<td>powered by proprietary technology</td>
<td></td>
<td>Consumer products</td>
<td>EyeEm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>eCommerce</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Marketing automation</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Security</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Finance &amp; legal</td>
<td></td>
</tr>
</tbody>
</table>

**Different startups profiles among potential AI winners**

**Current probability of success**
| Deep Tech | **Accelize** | Inception: 2010  
Country: FR  
FTEs: 100 | Accelize enables technology companies to build and deploy FPGA accelerators quickly, seamlessly and without FPGA expertise. Accelize addresses the next challenge of the cloud industry: process soaring volumes of data at speed & manage new Artificial Intelligence applications |
|---|---|---|---|
| Enablers | **Clarifai** | Inception: 2013  
Country: US  
Funding: $40m  
FTEs: 50 | Clarifai provides advanced image recognition systems for customers to detect near-duplicates and visual searches. Its visual recognition API allow customers to automatically tag, organize and search visual content with machine learning. |
| Verticalized | **Heuritech** | Inception: 2013  
Country: FR  
Funding: $1m  
FTEs: 13 | Heuritech offers a Deep Learning solution (trends detection, tagging and analytics) for Fashion, Beauty and Luxury sectors. Its algorithm is tailored for fashion industry and identifies items and people in both text or image. |
Deep Learning fundings are still largely Seed and Series A to support young companies with R&D and product commercialization. But there is a change underway since Q1 2017 saw more later rounds (19% Series B+ compared to 14% in Q1 2016) and is likely to be the year where many startups launch viable AI applications.

**Fundraisings for Deep Learning startups**

### Series A/B+ distribution

<table>
<thead>
<tr>
<th></th>
<th>Q1-16</th>
<th>Q1-17</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deal count</td>
<td>18</td>
<td>12</td>
</tr>
<tr>
<td>Deal value</td>
<td>$56m</td>
<td>$420m</td>
</tr>
</tbody>
</table>

**Deal count**

- **Series B+**
- **Series A/Seed**

<table>
<thead>
<tr>
<th></th>
<th>Q1-16</th>
<th>Q1-17</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deal count</td>
<td>21</td>
<td>20</td>
</tr>
<tr>
<td>Deal value</td>
<td>$51m</td>
<td>$74m</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Q1 2016</th>
<th>Q2 2016</th>
<th>Q3 2016</th>
<th>Q4 2016</th>
<th>Q1 2017</th>
<th>Q2 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deal value</td>
<td>$130m</td>
<td>$202m</td>
<td>$64m</td>
<td>$321m</td>
<td>$471m</td>
<td>$512m</td>
</tr>
</tbody>
</table>

**Deal count**

- Q1 2016: 21
- Q2 2016: 20
- Q3 2016: 23
- Q4 2016: 21
- Q1 2017: 24
- Q2 2017: 23

WILL 2017 & 2018 BE THE YEARS OF LATER ROUNDS FOR DL STARTUPS?
As on many other fronts, AI is led by US investments and research centers. More than 60% of AI deals were made in the US in 2016 thanks to very dynamic hubs like the Bay area, New York or Seattle. But it is not only up to the US to make the running. The growing number of Asian and European startups led to successful businesses such as Chinese iCarbonX and British BenevolentAI.

**Geographic distribution of AI deals in 2016**

- **US**: 62%
- **Canada**: 3%
- **India**: 3%
- **Israel**: 4%
- **France**: 3%
- **Germany**: 3%
- **Others**: 15%

**Most active AI investors since 2010**

<table>
<thead>
<tr>
<th>World</th>
<th></th>
<th>Europe</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Data Collective</strong></td>
<td>14 deals</td>
<td><strong>serena Capital</strong></td>
<td>3 deals</td>
</tr>
<tr>
<td><strong>khosla ventures</strong></td>
<td>12 deals</td>
<td><strong>Notion Capital</strong></td>
<td>3 deals</td>
</tr>
<tr>
<td><strong>Intel capital</strong></td>
<td>12 deals</td>
<td><strong>PLAYFAIR Capital</strong></td>
<td>3 deals</td>
</tr>
<tr>
<td><strong>AME CLOUD VENTURES</strong></td>
<td>11 deals</td>
<td><strong>Amadeus Capital</strong></td>
<td>2 deals</td>
</tr>
<tr>
<td><strong>IQT Ventures</strong></td>
<td>8 deals</td>
<td><strong>EARLYBIRD</strong></td>
<td>2 deals</td>
</tr>
</tbody>
</table>

Average deal size remains small because Series A are usually relatively small and AI companies are often bought before their Series B or C.
... But Europe is a Deep Learning-rich environment

**Key Considerations**

- London is the most dynamic European city in terms of financing opportunities and know-how. About 50 Deep Learning companies have their headquarters here.

- Other strong hubs with presence of Deep Learning start-ups are Paris (21 companies) and Berlin (18 companies).

- Two thirds of European Deep Learning companies were founded in the last three years. And 38% were created in 2016 alone.

- Total amount raised by Deep Learning start-ups in Europe have a median size of $1.8m.

- Common investors and acquirers are tech giants like Google, Intel, Apple and Salesforce.
A huge opportunity for start-ups

**KEY TAKEAWAYS**

- Tech giants are in an oligopoly position and leave little opportunity for start-ups to lead Deep Learning technologies development.

- But technology and computing power are not an issue anymore for Start-ups.

- Funding is pouring for AI Start-ups, with very active funds in the sector, both in the US and in Europe.

- Large datasets are widely available but building its own proprietary datasets will be a key differentiator.

**OPPORTUNITES & CHALLENGES**

1. **Verticalized start-ups are the most attractive for investors:** Investors mostly look for start-ups addressing one vertical and being able to acquire or build the best dataset and develop on top of it the best algorithms and the best application layer.

2. **Verticalized start-ups can disrupt whole industries and make traditional leaders obsolete:** By addressing one vertical, Deep Learning start-ups can offer significantly more efficient products and at a much lower price than traditional players do.

3. **Deep Learning will eventually become a commodity:** Most of start-ups will integrate AI features in their product but few of them will leverage the full power of Deep Learning.

4. **Alliance with Data Owners:** Corporates have massive and long historical datasets Start-ups cannot build from scratch. Working jointly with Data Owners can help them to have access to premium data.

5. **Next years will be key for European Deep Learning Start-ups:** Most of start-ups in Europe raised Seed or Serie A with a technology but no product. The ones raising a Serie B/C will have to prove they are able to move from the development phase to the commercialization phase.
DEEP LEARNING: REAL BREAKTHROUGH OR JUST ANOTHER HYPE?

WHY IS DEEP LEARNING EMERGING NOW?

WHO WILL WIN THE DEEP LEARNING RACE?

WHERE ARE WE TODAY? – A FEW EXAMPLES OF THE IMPACT OF DEEP LEARNING IN OUR LIFE
Deep Learning has already applications across many industries

We have tried to identify industries on which Deep Learning will have the greatest impact in the near future. This potential impact was determined based on industry experts interviews, volume of data available and volume of funded startups.

### Main use cases

<table>
<thead>
<tr>
<th>Image/video (Computer vision)</th>
<th>Text (Semantic analytics)</th>
<th>Voice (Natural Language Processing)</th>
<th>Predictions / Time Series</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automotive</td>
<td>B2B Ecommerce</td>
<td>Robotics</td>
<td>Finance</td>
</tr>
<tr>
<td>Ecommerce</td>
<td>Enterprise application</td>
<td>IoT</td>
<td>Energy/IoT</td>
</tr>
<tr>
<td>Agriculture</td>
<td>Legal</td>
<td>Wearables</td>
<td>Cybersecurity</td>
</tr>
<tr>
<td>Healthcare</td>
<td>Chatbots</td>
<td>Consumer apps</td>
<td></td>
</tr>
<tr>
<td>Robotics</td>
<td>Research</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Security</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AR / VR</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Focus of this section**

**Potential impact**
Self-driving cars will soon be part of our everyday life. Up to 15% of new vehicles sold by 2030 could be fully autonomous.

All traditional carmakers and tech giants want a piece of the pie and most of them have already made significant investments in prototypes, testing and Deep Learning technologies.

Vehicles of the future will be powered by neural networks, able to process sensory data and make informed decisions, allowing vehicles to communicate with its passengers, other cars and its environment.
A couple of years to make a dream a reality

“The auto industry will change more in the next 5 years than it has in the last 50”
Mary Barra, CEO and Chairman of General Motors
2015

Carmakers and tech giants have been talking about self-driving cars for decades, but the race to build cars only really accelerated in the past 3 years thanks to rapid advances in AI and Deep Learning technologies.

The year of the driverless car is coming sooner and sooner
(Fully autonomous vehicles in meaningful numbers on the roads)

**Accelerating factors**

1. Advances in AI & Deep Learning
2. Partnerships between carmakers & technology providers
3. Technological race

**Potential concerns**

**Unpredictability**
- Not reliable enough
- Difficulties to understand novel situations

**Easy to fool**
- Detection lasers can be fooled by sending “echoes” of fake cars through laser pulses
- Vulnerable to remote hacks

**Legal issues**
- Who will be responsible for accidents?
- Moral dilemma: which lives to save in a crash?

Car makers still have a lot of work ahead of them in order to commercialize 100% secure vehicles.
Self-driving cars are able to communicate with their passengers, other cars and their environment.
Traditional car makers, tech giants and computer vision companies are racing to develop autonomous vehicles. Partnerships, acquisitions, private placements: all means are permitted.

**2016: A TURNING-POINT YEAR FOR AUTONOMOUS DRIVING**

January 2016: GM acquires Cruise for €600m
- Software for autonomous vehicles

February 2016: Google invests €500m in Lyft
- Long-term strategic alliance to create a network of on-demand autonomous vehicles in the US

March 2016: Barra, Ford and Velodyne invest $150m in Lyft
- Light-sensitive radar sensors (LiDAR)

April 2016: Google and FCA
- Partnership to create autonomous minivans

May 2016: May 2016: Google and FCA
- Partnership to create an end-to-end autonomous platform

June 2016: Google
- Prioritizing the development of an autonomous driving system rather than car construction

July 2016: Intel
- Strategic shifts

August 2016: Apple
- Anticipated end of partnership

September 2016: Daimler
- Daimler will use Uber's network to deploy its own self-driving cars

October 2016: Google
- $1bn to be invested in AI technology

November 2016: IBM
- Partnership (Watson AI technology)

December 2016: Ford, Argo AI
- $15b to acquire Sensors & cameras
## PROMISING EUROPEAN SELF-DRIVING CARS STARTUPS

Major players in the self-driving ecosystem are in the US but few European startups have achieved results.

<table>
<thead>
<tr>
<th>Company</th>
<th>Nat.</th>
<th>Inception</th>
<th>Description</th>
<th>Funding</th>
<th>Investors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chronocam</td>
<td>FR</td>
<td>2014</td>
<td>Provide bio-inspired computer vision solutions for autonomous navigation and connected objects</td>
<td>$18m</td>
<td>Intel Capital, iBionext, Robolution Capital, CEA Investissement, Renault, and Robert Bosch Venture Capital</td>
</tr>
<tr>
<td>Five AI</td>
<td>GB</td>
<td>2015</td>
<td>Build one of the world's most reliable autonomous vehicle software stack</td>
<td>$3m</td>
<td>Amadeus Capital Partners, Kindred, Notion Capital</td>
</tr>
<tr>
<td>Nauya</td>
<td>FR</td>
<td>2014</td>
<td>Develop driverless electric vehicles for the specific site transportation of goods and people</td>
<td>$38m</td>
<td>Gravitation, CapDecisif, Robolution Capital, Keolis, Valeo, Group8, 360 Capital Partners, Orkos Capital</td>
</tr>
<tr>
<td>Mobileye</td>
<td>IL</td>
<td>2015</td>
<td>Develop artificial intelligence-based software for self-driving cars to make automated driving safe and affordable</td>
<td>$9m</td>
<td>Portfolio, Tamares, Inventure Oy, Robert Bosch Venture Capital, Draper Associates, Day One Capital Fund Management, Nvidia</td>
</tr>
<tr>
<td>German Autolabs</td>
<td>DE</td>
<td>1999</td>
<td>Develop vision-based advanced driver assistance systems that help prevent and mitigate collisions</td>
<td>$515m</td>
<td>Goldman Sachs, Sailing Capital, Morgan Stanley, FIBI Holding, GlenRock Israel, Delek Group, Daniel Gutenberg, Gandyr Group Acquired by Intel on March 2017 for $15bn</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2016</td>
<td>Develop “Chris”, a digital co-driver device for a safer, more entertaining driving experience, powered by hands-free speech and gesture recognition technology</td>
<td>$2m</td>
<td>Target Partners</td>
</tr>
</tbody>
</table>
Deep Learning applications for e-commerce & marketplaces have been getting much less press attention compared to the ones for self-driving cars. However, computational power of neural networks based algorithms are here again able to totally transform a sector, allowing transactional players to build products and streamline processes for a more personalised purchasing experience.

« Enable people to see and buy things they weren’t even aware existed or even knew they wanted »

Antoine Blondeau, CEO of Sentient Technologies (Nov. 2016)
DEEP LEARNING TO FACE THE BIGGEST CHALLENGES OF TRANSACTIONAL BUSINESSES

E-COMMERCE & MARKETPLACES

CHALLENGES

- Improving user experience
- Processes streamlining
- Inventory optimization
- Personalization & Conversion

DEEP LEARNING SOLUTIONS

- Reverse image search 
  (Image recognition)
- Auto tagging 
  (Image recognition)
- Purchase prediction 
  (Data analysis)
- Product recommendation 
  (Data analysis)

EyeEm builds technology to showcase the best images from the world’s leading photo community. The company uses artificial intelligence technology to crowdsource and curate high-quality, authentic photography for leading brands and agencies.

HQ: Berlin
Funding to date: $24m
Main investors: Earlybird Venture Capital, Valar Ventures, Passion Capital, Wellington Partners, Open Ocean, Atlantic Labs
KPIs: 100m images / 22m photographers

Q: How a community of photographers sharing pictures can relate to Artificial Intelligence and Deep Learning?

Florian Meisner: Actually technology was the only way for us to follow our community of 22 million photographers in a scalable way. To identify relevant pictures that could interest advertisers or publishers, we needed to find a solution providing an automated tagging and keywording of pictures (we’re talking about 100+ millions).

Q: Couldn’t you use the help of tech and service providers for this?

FM: At the beginning, we relied on third party specialized vertical suppliers and started to benchmark our algorithms against these human-based solutions. Quickly, our in-house software proved to be more efficient – and also richer: it is not only about finding the mere description of the photo (ie portrait vs landscape, dog playing with a ball or couple laughing in a restaurant) or its quality (eg blurry vs focus) but provide a ranking and a commercial potential of these UGC pictures.

Q: So which edge does Deep Learning give to EyeEm in the market?

FM: With our neuronal networks, we’re able to rely on an ever increasing base of 15,000 keywords and the more we grow, the more powerful & relevant the system gets in image recognition and auto-tagging.
Google, Amazon and Etsy recently stepped into the world of Deep Learning through some e-commerce related acquisitions.

**Google**
- **Image recognition for mobile devices**
  - Inception: 2008
  - HQ: Paris
  - Funding: <$1m
  - Moodstocks introduced its Deep Learning based image recognition technology in 2012
  - The company was providing an API and a cross-platform SDK for developers to integrate scanning
  - The acquisition seems to be primarily an acqui-hire

**Etsy**
- **Deep Learning for search**
  - Inception: 2013
  - HQ: San Francisco
  - Funding: Undisclosed
  - Blackbird used AI to provide shoppers with more relevant search results, to understand complex search queries and to catalogue photos
  - This acquisition helped Etsy to compete against large players such as Amazon that are also turning to AI
  - The acquisition seems to be primarily an acqui-hire

**Amazon**
- **Image recognition tool**
  - Inception: 2012
  - HQ: Sunnyvale, California
  - Funding: <$2m
  - Orbeus was the company behind ReKognition, a tool that software developers can use to add facial or object recognition to their own products
  - The team's expertise could bring improvements to Amazon Cloud Drive's applications as well as the market-leading Amazon Web Services (AWS) public cloud

**Ebay**
- **AI-based data analysis platform**
  - Inception: 2006
  - HQ: Malmö
  - Funding: Undisclosed
  - Expertmaker has been working with eBay since 2010 to organise and crunch massive data sets
  - One application hypothesized by eBay is filling in product info that might otherwise not be listed
Certainly one of the top technology trends of 2016, chatbots are computer programs that you interact with by chatting. Often powered by Deep Learning algorithms, they are able to remember past conversations and learn from new ones, improving their responses over time.

Planning a trip, ordering a taxi or buying a dress, will be soon as easy as chatting with a friend. Chatbots can do – almost – anything.

« Chatbots are the new apps »

Satya Nadella, CEO of Microsoft
(March 2016)
KEY UNDERLYING MARKET TRENDS

CHATBOTS HAVE BEEN BOLSTERED BY MESSAGING APPS...

6 of top 10 most used apps globally are messaging apps

Mobile App Time Spent 2016 YoY growth

+394%

+43%  +31%  +25%  -4%

Messaging & Social  Business & Finance  Shopping  Sports  Games

... AND PROGRESS IN NATURAL LANGUAGE PROCESSING

Natural Language Processing is a field of study focused on the interaction between human language and computers

Traditional NLP

• Based on a lot of rules
• Requires a lot of coding to anticipate words and phrases
• The user can’t deviate from the expected path

NLP powered by Deep Learning

• Neural networks trained with a large amount of data
• Bugs can be easily corrected by providing the bot with more data
• Enhanced user experience

Source: KPCB, Flurry
Benefiting from the rise of mobile texting and from recent developments in Deep Learning, chatbots are trying to replace mobile apps but their adoption is not as fast as expected.

**Chatbots Strengths**

- **Easy-to-use**
  - Easier to install than mobile apps
  - Seamless user experience

- **Fast**
  - Able to access information almost instantly, much quicker than a real person

- **Fun**
  - Funnier to ask something in natural language
  - Able to tell jokes

- **Smart**
  - May incorporate artificial intelligence
  - Able to learn from past conversations

**Chatbots Weaknesses**

- **Most chatbots are not really artificial intelligence**
  - They are still not AI-powered but just « scripted » bots only based on rules

- **Lack of reliability**
  - Not 100% reliable
  - Difficulties to understand new situations

Although chatbots remain controversial because most of them are still far to be able to have a complex human conversation, recent moves from tech giants towards this new user interface should accelerate their adoption among customers.
## Overview of the Chatbot Landscape

Tens of thousands of chatbots have already been developed across many platforms. Tech giants, brands and AI-based framework builders are all trying to provide the best user experience.

### Integrated Tech Giants

Most tech giants are developing their own voice-based technology:

- [Amazon Alexa](#)
- [Google Home](#)
- [Cortana](#)
- [Microsoft](#)
- [VIV](#)
- [Samsung](#)

### Chatbots

More and more brands across sectors want their own chatbots to interact with their customers, create a relationship of trust with them and benefit from their growing popularity.

<table>
<thead>
<tr>
<th>Commerce-focused bots</th>
<th>Entertainment bots</th>
<th>Customer support bots</th>
</tr>
</thead>
<tbody>
<tr>
<td>Restaurant</td>
<td>Taxi</td>
<td>Fashion</td>
</tr>
</tbody>
</table>

### Frameworks & Enabling Technologies

People don’t need any coding skills to build a chatbot, they can use platforms for bot development:

- [wit.ai](#)
- [RECAST.AI](#)
- [Chatfuel](#)
- [api.ai](#)
- [RAINBIRD](#)

### Messaging & Deployment Channels

- [WhatsApp](#)
- [Telegram](#)
- [Line](#)
- [QooLA](#)

### Customers
Deep Learning has recently received a widespread attention from agricultural researchers and could turn out to play a decisive role to take up the biggest challenge of the 21st century: producing more food while consuming less resources.

Main makers of equipment and seeds such as Monsanto, John Deere and DuPont are now actually becoming data-driven technology companies.

« Can Artificial Intelligence feed the world? »

AI.Business (Jul-2016)
**N**eed to produce more and better in using fewer resources

**PRODUCING MORE**

There is a consensus among specialists: to keep pace with population growth, current rate of food production will have to double by 2050.

Increasing the amount of arable land is not a viable option as it would have negative environmental impacts.

**MAIN LEVER:**

INCREASE YIELD

**PRODUCING BETTER**

Agricultural sector consumes about 70% of the planet’s accessible freshwater.

Wasteful farms irrigation systems are major contributors to water scarcity on the globe.

**MAIN LEVER:**

INCREASE PRECISION

**ROOM FOR INNOVATION**

Data can provide new efficient decision making tools for helping agricultural development.

The future of agriculture definitely seems to be in the hands of AI-based technologies
### FROM INTENSIVE FARMING TO PRECISION AGRICULTURE

#### INTENSIVE FARMING
- Intensive agriculture is an agricultural production system characterized by the high inputs of capital, fertilizers, labour, or labour-saving technologies such as pesticides relative to land area.
- This form of agriculture often leads to cheaper priced products because of better general production rate for the cost of raw materials.

#### PRECISION AGRICULTURE
- Precision agriculture helps farmers know how much and when to apply nutrients, water, seed, and other agricultural inputs.
- The basic idea behind this concept is to manage large fields as they are a group of small fields.
- It reduces misapplication of products and increased crop and farm efficiency.
- AI technologies are used to analyse geo-referenced data gathered through sensors, drones or satellites.

---

Monsanto is standing out from its peer group in embracing Deep Learning technologies

- Founded: 1901
- HQ: Missouri, US
- FTEs: 25,000
- Revenue 2015: $15b
- Leading producer of genetically engineered seed and Roundup, a glyphosate-based herbicide

**ACQUISITION OF AN AGRI-ANALYTICS COMPANY IN OCT-13 FOR €930M**

AI-based technology platform combining hyper-local weather monitoring, agronomic data modelling, and high-resolution weather simulations.
Agriculture is currently experiencing a tech revolution and new AgriTech players have recently emerged. Most of them are using Deep Learning to analyze large sets of data.

### Yield Optimisation
- Use of image recognition to identify crop problems and improve harvests
- **Clients:** Farmers

### Crop Production Forecasting
- Use of Deep Learning technology to analyze imagery faster and predict the future
  - **Clients:** Farmers, Finance/Insurance
- **Prospera**
  - Founded in 2014
  - Raised $7m in Jul-16
- **Descartes Labs**
  - Founded in 2014
  - Provides high performance access to calibrated satellite imagery and machine intelligence solutions (incl. agriculture forecasting)
  - Raised $5m in Nov-15

### Animal Health Monitoring
- Analysis of video data of animals in feeding-lots to monitor animal health and well-being
  - **Clients:** Farmers
- **Connecterra**
  - Founded in 2014
  - Deep Learning based « Fitbit for cows »
  - Helps farmers increase herd productivity by improving animal health
  - Raised $1.8m in May-16
The gap between the number of patients and doctors across the world is growing. There is a need for tools able to increase the efficiency of the healthcare industry.

Deep Learning is able to power those tools. It is used for genomic testing and sequencing, diagnostic image analysis, drug development, and early detection of disease.

« Artificial intelligence will augment doctors, not replace them »

Kaveh Safavi, Senior Managing Director at Accenture (Dec-2016)
**Big Data: A Game Changer in Healthcare**

**Healthcare Data is Complex to Gather and Analyse**

1. **Multiple sources**  
   Hospitals, clinics, doctors, individuals

2. **Different formats**  
   Pictures, text, paper, videos, etc

3. **Inconsistent definitions**  
   Variable criteria for the same pathology

**Individuals**

- Sensors in every smartphone
- Smart devices and wearables able to track and monitor wellness & physical fitness (activity tracker, pedometer, etc)
- More and more impartial and accurate data for researchers

**Hospitals & Clinics**

- IoT architecture able to remotely monitor, store and process data from thousands of medical devices
- Doctors can take better and faster decisions

**Research Labs**

- Researchers can rely on large volumes of high-quality data

---

*CLIPPERTON*
Over 100 Healthcare AI startups have raised funds in the past 5 years
Most active investors in this space include Khosla Ventures and Data Collective

**Solutions for Research Labs**
- Research
- Drug discovery
  - BenevolentAI
  - Globavir
  - Atomwise
  - Envisagenics
- NuMedii
- Numerate

**Solutions for Hospitals & Clinics**
- Medical imaging & diagnostics
  - Cardiologs
  - SIGUPLE
- Emergency room & surgery
  - gauss Surgical
  - Medly Match
- In-patient care & hospital management
  - Qualaris
  - Jvion
- Patient data & risk analytics
  - Oncora Medical
  - Hindsa

**Solutions for Individuals**
- Lifestyle monitoring
  - Wellframe
  - Welltok
- Virtual assistants
  - medWhat
  - Buoy
- Wearables
  - TinyKicks
- Nutrition
  - Vitl
  - Nuritas

**Research Medical imaging & diagnostics**
**Emergency room & surgery**
**In-patient care & hospital management**
**Patient data & risk analytics**
**Lifestyle monitoring**
**Virtual assistants**
**Wearables**
**Nutrition**
Artificial Intelligence and Deep Learning will change the way we work in the next decades, starting with repetitive tasks and evolving towards more complex actions.

Robots and AI-based algorithms are indeed able to increase productivity of a large portion of workers and probably supplant some jobs entirely.

« The robots will take over routine jobs »

Erik Brynjolfsson, MIT Professor (2015)
AI is changing the way we work

45% Of the activities individuals are paid to perform can be automated by adapting currently demonstrated technologies
(Source: McKinsey, 2016)

Artificial intelligence could replace the two labour resources: Time and Knowledge

- **Time**
  - Image recognition (auto-tagging)
  - Recruitment tool
  - ✔️ ✔️ ✔️

- **Increasing productivity of a large portion of workers and probably supplanting some jobs entirely**
  - Clarifai
  - Riminder

- **Knowledge**
  - Data platform for predictions
  - ECG analysis (Healthcare)
  - ✔️

Source: McKinsey, Clipperton analysis
DEEP LEARNING IS A VALUABLE TOOL FOR INFORMATION EXTRACTION

WHAT DO ALL THESE JOBS HAVE IN COMMON?

They require to deal with a large amount of documents
- Extracting specific information
- Checking errors
- Evaluating data using analytical and logical reasoning

Those tasks are today still largely done manually although artificial intelligence algorithms are able to complete them and to be:

- FASTER
- BETTER
- CHEAPER

FROM UNSTRUCTURED DATA TO STRUCTURED DATA

Massive volume of unstructured raw data largely unlabeled

DEEP LEARNING ALGORITHMS

Structured data

- Extracting complex patterns
- Semantic indexing
- Data tagging for information retrieval
### AI Will Affect Work in Most Sectors of the Economy

#### Manufacturing
- Automation Potential
- Selected Companies
  - Large scale 3D printing
  - Predictive analysis for electronics manuf.
- Total Equity Funding
  - $<1m

#### Finance
- Automation Potential
- Selected Companies
  - AI trading
  - Trading platform
- Total Equity Funding
  - $<1m
  - $1m

#### Agriculture
- Automation Potential
- Selected Companies
  - Plant health analysis
  - Crop production forecasting
- Total Equity Funding
  - $7m
  - $8m

#### Legal & Real Estate
- Automation Potential
- Selected Companies
  - Intelligent information extraction for RE
  - Legal discovery automation
- Total Equity Funding
  - $5.5m
  - $14m

#### Administration
- Automation Potential
- Selected Companies
  - Cost optimization
  - Clerical tasks automation
- Total Equity Funding
  - €2.5m
  - $4m

#### Transportation
- Automation Potential
- Selected Companies
  - Driverless shuttles
  - Software for self-driving cars
- Total Equity Funding
  - $38m
  - $515m (IPO)

Source: Clipperton analysis
OTHER APPLICATIONS OF DEEP LEARNING

We have deliberately chosen to stay focus in this paper on a small number of industries which get most attention: self-driving cars, e-commerce, chatbots, agriculture and healthcare.

However there are of course dozens of other promising areas which are currently disrupted by AI-based companies.
## Other Applications of Deep Learning (Selection)

<table>
<thead>
<tr>
<th>Category</th>
<th>Applications (Sample)</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Energy</strong></td>
<td>▪ Smart lighting (analysis of data about occupants’ presence, count, and positioning)</td>
<td><img src="image1.png" alt="PointGrab" /> <img src="image2.png" alt="nervana" /></td>
</tr>
<tr>
<td></td>
<td>▪ Identification of sites for oil exploration (analysis of complex seismic and environmental data)</td>
<td></td>
</tr>
<tr>
<td><strong>Cybersecurity</strong></td>
<td>▪ Discovering, prioritizing and explaining security threats inside enterprise networks</td>
<td><img src="image3.png" alt="deepinstinct" /> <img src="image4.png" alt="sentryo" /> <img src="image5.png" alt="ITrust" /></td>
</tr>
<tr>
<td></td>
<td>▪ Protection for machine-to-machine networks and critical industrial systems</td>
<td></td>
</tr>
<tr>
<td><strong>IOT</strong></td>
<td>▪ Recognizing human activity in Smart Home</td>
<td><img src="image6.png" alt="Rokid" /> <img src="image7.png" alt="netatmo" /></td>
</tr>
<tr>
<td></td>
<td>▪ Security camera</td>
<td></td>
</tr>
<tr>
<td></td>
<td>▪ Smart irrigation systems</td>
<td></td>
</tr>
<tr>
<td><strong>Robotics</strong></td>
<td>▪ Self-driving cars</td>
<td><img src="image8.png" alt="DLR" /> <img src="image9.png" alt="Netradyne" /></td>
</tr>
<tr>
<td></td>
<td>▪ Natural Language Processing solutions help robot understand verbal commands and interact with users</td>
<td></td>
</tr>
<tr>
<td></td>
<td>▪ Industrial robotics</td>
<td></td>
</tr>
<tr>
<td><strong>Logistics</strong></td>
<td>▪ Software to help retailers optimize their supply chain</td>
<td><img src="image10.png" alt="vekia" /> <img src="image11.png" alt="KIVA Systems" /></td>
</tr>
<tr>
<td></td>
<td>▪ Mobile robotic fulfillment systems</td>
<td></td>
</tr>
<tr>
<td><strong>Enterprise Application</strong></td>
<td>▪ Analyzing media, image and sound to locate and quantify patterns that impact businesses</td>
<td><img src="image12.png" alt="ripjar" /> <img src="image13.png" alt="C-Radar" /> <img src="image14.png" alt="MarianAIQ" /></td>
</tr>
<tr>
<td></td>
<td>▪ Optimizing B2B marketing, identifying prospects, increasing conversion rates</td>
<td></td>
</tr>
<tr>
<td><strong>Company</strong></td>
<td><strong>Business description</strong></td>
<td><strong>AI usage</strong></td>
</tr>
<tr>
<td>-------------</td>
<td>-------------------------</td>
<td>--------------</td>
</tr>
<tr>
<td><strong>EyeEm</strong></td>
<td>EyeEm is a photography company building computer vision technology to connect its creative community to leading brands and agencies.</td>
<td>Image recognition</td>
</tr>
<tr>
<td><strong>Cardiologs®</strong></td>
<td>CardioLogs® provides an innovative software technology enabling healthcare professional to accurately and reliably screen patients for cardiovascular diseases.</td>
<td>Medical diagnosis</td>
</tr>
<tr>
<td><strong>Sentryo</strong></td>
<td>Sentryo protects critical industrial networks and M2M against cyber attacks and provides OT/IT managers with full situational awareness.</td>
<td>Cyber security</td>
</tr>
<tr>
<td><strong>Deepomatic</strong></td>
<td>Deepomatic helps companies and scientists build massive, high quality, image-based datasets to unlock the new generation of AI.</td>
<td>Image recognition (specialized in the fashion industry)</td>
</tr>
</tbody>
</table>
**Business description:**
Cardabel provides a new management of risks and frauds in capital markets activities leveraging unsupervised machine learning research.

**AI usage:**
Finance

**Inception:** 2015
**HQ:** FR
**Funding:** n.a.
**KPIs/financials:** 1st deployment in mid-2017

---

**Business description:**
NAVYA is a French company specialized in the conception of electric and autonomous systems using its AI expertise.

**AI usage:**
Self-driving cars

**Inception:** 2014
**HQ:** FR
**Funding:** $38m
**KPIs/financials:** 70 vehicles sold
2016 revenue
€5-10m

---

**Business description:**
Vekia designs and edits predictive planning software that uses the latest advances in research to model the complex problems of supply chains.

**AI usage:**
Logistics and retail

**Inception:** 2008
**HQ:** FR
**Funding:** $2.7m
**KPIs/financials:** 12 clients

---

**Business description:**
Smart Me Up face recognition enables any device to react smartly depending on the profile of the person, but also her behavior and emotions.

**AI usage:**
Internet of Things

**Inception:** 2012
**HQ:** FR
**Funding:** $2.2m
**KPIs/financials:** 20 FTEs
<table>
<thead>
<tr>
<th>Company</th>
<th>Inception</th>
<th>HQ</th>
<th>Funding</th>
<th>Business description</th>
<th>AI usage</th>
<th>KPIs/financials</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Blippar</strong></td>
<td>2011</td>
<td>UK</td>
<td>$99m</td>
<td>Blippar is an image-recognition platform and visual browser for mobile that uses augmented reality and artificial intelligence.</td>
<td>Image recognition</td>
<td>Annual revenue of $7.9m and loss of $23m</td>
</tr>
<tr>
<td><strong>ITrust</strong></td>
<td>2007</td>
<td>FR</td>
<td>$2.2m</td>
<td>ITrust is a cybersecurity service provider that uses strong Machine Learning algorithms to predict unusual behavior.</td>
<td>Cybersecurity</td>
<td>35 FTEs</td>
</tr>
<tr>
<td><strong>LEVERTON</strong></td>
<td>2012</td>
<td>DE</td>
<td>$5.6m</td>
<td>LEVERTON develops and applies disruptive Deep Learning technologies to extract, structure and manage data from corporate documents.</td>
<td>Business information extraction</td>
<td>100+ global corporate and investor clients</td>
</tr>
<tr>
<td><strong>Source{d}</strong></td>
<td>2015</td>
<td>ES</td>
<td>$6m</td>
<td>Source{d} builds the first AI that understands code by applying neural networks to source code from over 17 million software repositories.</td>
<td>Automatic programming</td>
<td>200 clients 2016 revenue €1m</td>
</tr>
<tr>
<td>Company</td>
<td>Region</td>
<td>Country</td>
<td>Date</td>
<td>Amount</td>
<td>Description</td>
<td>Investors</td>
</tr>
<tr>
<td>------------------</td>
<td>-------------</td>
<td>---------</td>
<td>--------</td>
<td>--------</td>
<td>------------------------------------------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Mobileye</td>
<td>Europe</td>
<td>IL</td>
<td>Jul-13</td>
<td>$400m</td>
<td>Develops vision-based advanced driver assistance systems</td>
<td>Goldman Sachs, Morgan Stanley, Sailing Capital</td>
</tr>
<tr>
<td>SenseTime</td>
<td>Asia</td>
<td>HK</td>
<td>Dec-16</td>
<td>$120m</td>
<td>Develops face recognition technology that can be applied to payment and picture analysis</td>
<td>CDH Investments, IDG, StarVC, Wanda Group</td>
</tr>
<tr>
<td>Mu Sigma</td>
<td>North America</td>
<td>US</td>
<td>Dec-11</td>
<td>$108m</td>
<td>Helps companies institutionalize data-driven decision making and harness big data</td>
<td>General Atlantic</td>
</tr>
<tr>
<td>Sentient Technologies</td>
<td>North America</td>
<td>US</td>
<td>Nov-14</td>
<td>$104m</td>
<td>Develops a powerful intelligent system to transform how businesses tackle complex problems</td>
<td>Nicole Junkermann, Tata Communications, Horizons Ventures, Access Industries</td>
</tr>
<tr>
<td>Element AI</td>
<td>North America</td>
<td>CA</td>
<td>Jun-17</td>
<td>$102m</td>
<td>Tackles the world's biggest business challenges with artificial intelligence.</td>
<td>Data Collective, Real Ventures, Nvidia, National Bank of Canada, Microsoft Ventures, Intel Capital, Hanwha Investment Corp</td>
</tr>
<tr>
<td>CloudMinds</td>
<td>North America</td>
<td>US</td>
<td>Feb-17</td>
<td>$100m</td>
<td>CloudMinds is developing an end-to-end ecosystem to support cloud connected smart machines</td>
<td>Foxconn, Keytone, Softbank, Walden International</td>
</tr>
<tr>
<td>Benevolent AI</td>
<td>Europe</td>
<td>UK</td>
<td>Aug-15</td>
<td>$100m</td>
<td>Uses AI in order to accelerate biomedical discoveries</td>
<td>Lansdowne Partners, Lundbeck, Upsher Smith Laboratories, Woodford Investment Management</td>
</tr>
<tr>
<td>Xueba100.com</td>
<td>Asia</td>
<td>CN</td>
<td>Jan-17</td>
<td>$100m</td>
<td>Connects students and teachers to share their education materials</td>
<td>China Merchants, Grand Fight, Vertex, Trustbridge, etc</td>
</tr>
<tr>
<td>Trax</td>
<td>Asia</td>
<td>SG</td>
<td>Jun-17</td>
<td>$64m</td>
<td>Develops a computer vision platform designed to provide data insights for consumer goods companies and retailers</td>
<td>Warburg Pincus</td>
</tr>
<tr>
<td>SenseTime</td>
<td>Asia</td>
<td>HK</td>
<td>Apr-17</td>
<td>$60m</td>
<td>develops face recognition technology that can be applied to payment and picture analysis</td>
<td>Sailing Capital</td>
</tr>
<tr>
<td>AppsFlyer</td>
<td>Europe</td>
<td>IL</td>
<td>Jan-17</td>
<td>$56m</td>
<td>Develops a platform for Mobile Attribution &amp; Marketing Analytics</td>
<td>Qumra, Deutsche Telekom, Eight Roads, Goldman SACHS, etc</td>
</tr>
<tr>
<td>Bilippar</td>
<td>Europe</td>
<td>UK</td>
<td>Mar-16</td>
<td>$54m</td>
<td>Specializes in augmented reality, artificial intelligence and computer vision</td>
<td>Khazanah Nasional</td>
</tr>
<tr>
<td>Anki</td>
<td>North America</td>
<td>US</td>
<td>Jun-16</td>
<td>$53m</td>
<td>Brings artificial intelligence and robotics to our everyday lives</td>
<td>JP Morgan, Andreessen Horowitz, Index Ventures, Silicon Valley Ventures, Two Sigma Ventures</td>
</tr>
<tr>
<td>Rokid</td>
<td>Asia</td>
<td>CN</td>
<td>Nov-16</td>
<td>$50m</td>
<td>Utilizes artificial intelligence to develop smart home devices</td>
<td>Advantech, IDG Capital, Walden International</td>
</tr>
<tr>
<td>Drive.ai</td>
<td>North America</td>
<td>US</td>
<td>Jun-17</td>
<td>$50m</td>
<td>Creates AI software for autonomous vehicles</td>
<td>GGV Capital, HOF Capital, New Enterprise Associates</td>
</tr>
</tbody>
</table>
## TOP 15 Deep Learning Fundings Europe

<table>
<thead>
<tr>
<th>Company</th>
<th>Country</th>
<th>Date</th>
<th>Amount</th>
<th>Description</th>
<th>Investors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobileye</td>
<td>IL</td>
<td>Jul-13</td>
<td>$400m</td>
<td>Develops vision-based advanced driver assistance systems</td>
<td>Goldman Sachs, Morgan Stanley, Sailing Capital</td>
</tr>
<tr>
<td>Benevolent AI</td>
<td>UK</td>
<td>Aug-15</td>
<td>$100m</td>
<td>Uses AI in order to accelerate biomedical discoveries</td>
<td>Lansdowne Partners, Lundbeck, Upsher Smith Laboratories, Woodford Investment Management</td>
</tr>
<tr>
<td>AppsFlyer</td>
<td>IL</td>
<td>Jan-17</td>
<td>$56m</td>
<td>Develops a platform for Mobile Attribution &amp; Marketing Analytics</td>
<td>Qumra, Deutsche Telekom, Eight Roads, Goldman SACHS, etc</td>
</tr>
<tr>
<td>Blippar</td>
<td>UK</td>
<td>Mar-16</td>
<td>$54m</td>
<td>Specializes in augmented reality, artificial intelligence and computer vision</td>
<td>Khazanah Nasional</td>
</tr>
<tr>
<td>Blippar</td>
<td>UK</td>
<td>Mar-15</td>
<td>$45m</td>
<td>Specializes in augmented reality, artificial intelligence and computer vision</td>
<td>Qualcomm Ventures</td>
</tr>
<tr>
<td>Graphcore</td>
<td>UK</td>
<td>Oct-16</td>
<td>$30m</td>
<td>Accelerates the processing of complex Machine Learning models for training and inference</td>
<td>Robert Bosch, Samsung, Amadeus, C4, Draper Esprit, Pitango, Foundation Capital</td>
</tr>
<tr>
<td>Wayray</td>
<td>CH</td>
<td>Mar-17</td>
<td>$18m</td>
<td>Develops augmented reality technologies for vehicles of the future</td>
<td>Alibaba Group, Sistema JSFC</td>
</tr>
<tr>
<td>ZenRobotics</td>
<td>FI</td>
<td>Sep-12</td>
<td>$17m</td>
<td>Specializes in robotic recycling technologies and products.</td>
<td>Invus, Lifeline Ventures</td>
</tr>
<tr>
<td>Dataiku</td>
<td>FR</td>
<td>Oct-16</td>
<td>$14m</td>
<td>Develops a tool that lets data scientists and analysts do machine learning on any data</td>
<td>FirstMark Capital, Serena Capital</td>
</tr>
<tr>
<td>Snips</td>
<td>FR</td>
<td>Jun-17</td>
<td>$13m</td>
<td>AI voice platform for connected devices</td>
<td>Korelya Capital, MAIF Avenir, Bpifrance, Eniac Ventures</td>
</tr>
<tr>
<td>Zebra Medical Vision</td>
<td>IL</td>
<td>May-16</td>
<td>$12m</td>
<td>Develops a medical imaging research platform</td>
<td>Dolby Family Ventures, Intermountain Healthcare, Khosla Ventures, Marc Benioff, OurCrowd-Gcai</td>
</tr>
<tr>
<td>Your.MD</td>
<td>UK</td>
<td>Jun-17</td>
<td>$10m</td>
<td>AI-based health information service platform and a marketplace of health service providers and products</td>
<td>Orkla Ventures, Smedvig Capital</td>
</tr>
<tr>
<td>Featurespace</td>
<td>UK</td>
<td>May-16</td>
<td>$9m</td>
<td>Provides behavioral analytics solutions for fraud prevention and customer management</td>
<td>Cambridge Angels group, Imperial Innovations, Nesta Ventures, TTV Capital</td>
</tr>
<tr>
<td>Mapillary</td>
<td>NO</td>
<td>Mar-16</td>
<td>$8m</td>
<td>Offers street-level imagery and data solutions</td>
<td>Atomico, LDV Capital, Playfair Capital, Sequoia Capital, Wellington Partners</td>
</tr>
<tr>
<td>Tractable</td>
<td>UK</td>
<td>Jan-17</td>
<td>$8m</td>
<td>Develops deep learning algorithms to learn expert tasks</td>
<td>Andy Homer, Greg Gladwell, Ignition Partners, Scott Roza, Tony Emms, Zetta Venture Partners</td>
</tr>
</tbody>
</table>
ABOUT CLIPPERTON
WHO WE ARE

CORPORATE FINANCE ADVISORY FOR INNOVATORS.

220+ TRANSACTIONS
55% CROSS-BORDER TRANSACTIONS

79% CLOSING RATE

18 COUNTRIES DEALS IN

5,000+ INNOVATION SPECIALISTS CONTACTS
125 MAN-YEARS EXPERIENCE
MERGERS & ACQUISITIONS

Over the years, Clipperton teams completed a large number of M&A transactions covering mergers, sell-side & buy-side deals, leveraged buy-outs, divestitures, secondary transactions & other restructurings. We have developed unique expertise in dealing with complex transaction structuring, intensive levels of due diligence and harsh negotiation processes.

FINANCING

Clipperton has been focused on delivering tailor-made financing solutions to fast-growing technology businesses. We have built longstanding relationships with investors looking to finance the growth of promising technology companies globally, from traditional venture capital, growth financing and private equity funds to strategic corporates and family offices.

WHAT WE DO

WE FOCUS ON CRAFTING FIRST-CLASS DEALS FOR INNOVATIVE BUSINESSES WITH INTERNATIONAL AMBITIONS.
OUR VALUES

LOYAL & CLIENT DRIVEN

SELECTIVE

INTUITU PERSONAE

SECTORIAL EXPERTISE

Fred Destin
Atlas Venture - Accel Partners

David Jones
Former CEO - Havas
CEO - You & Mister Jones

Cédric Ciré
Founder - Webedia

Amedeo D’Angelo
Chairman - Inside Secure & Linxens

Bernard Liautaud
Founder - Business Objects
Partner - Balderton

Fred Wilson
Founding Partner - USV

Marc Read
CEO - WPP Digital

Eric Carreel
Founder & CEO - Withings

George Karam
Founder & CEO - Sequans Communications

Antoine Papiernik
Partner - Sofinnova

Lee Fixel
Partner - Tiger Global Management

Harold Mechelynck
Founder - Ogone
SOLID & ESTABLISHED TRACK-RECORD

CATEGORY LEADERS

Dailymotion
$168 million
Sell-side to Orange

Webedia
$200+ million
Cum. transaction value

Vestiaire Collective
$70 million
Growth financing

Aramisauto
Strategic Alliance with PSA Group

GLOBAL REACH

55
the data agency

Vodeclic
Sell-side to Skillsoft

$34 million
Cum. funding

$100+ million
Cum. transaction value

NETWORK OF MARKET MAKERS

Vestiaire Collective investors

Cityvox sold to

Hitmeister sold to

And many others

Vodafone
Balderton Capital
Condé Nast
yelp
Metro
USV
Highland Capital Partners
Elasta Partners
ParTech
Stéphane Valorge
Partner
svalorge@clipperton.net

Olivier Combaudou
Vice President
ocombaudou@clipperton.net

GET IN TOUCH.

corporate@clipperton.net
clipperton.net
@clippertonfin

PARIS
8 PLACE DE L'OPÉRA
75009 Paris
+33 1 82 83 98 30

LONDON
31-35 KIRBY STREET
LONDON, EC1N 8TE
+44 207 492 1018

BERLIN
NEUE SCHÖNHAUSER STR. 2
10178 BERLIN
+49 30 257 405 41