

FOCUS

#9 JANUARY 2017

CORPORATE IDENTITY IN THE DIGITAL ERA

FROM JULIUS CAESAR
TO BLOCKCHAIN

THE PROMISE OF ARTIFICIAL
INTELLIGENCE

WHAT IF YOU WERE ABOUT TO START
RATING YOUR CLIENTS' KINDNESS?

THE ECONOMICS
OF "CREATIVE DISRUPTION"



BNP PARIBAS

The bank
for a changing
world

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WELCOME

First of all let me wish you all a Wonderful Year 2017.

I would like to open this first 2017 FOCUS edition by telling you about a recent encounter I had at a Tech Night organized by my colleagues from the BNP Paribas Digital community a few days before Christmas.

I met Sofia. Sofia was born in New York City a few years back. I had a nice chat with her. She is rather young and could not answer all my questions, but was wise enough to be honest about it, to ask fellows in her network for advice and get back to me at bit later. Her tutor was telling me that this is how Sofia (this is not her real name) learns. She was quite astonishing and could even analyse my mood. I kind of liked Sofia and will be happy to ask her to join my team some time down the road. I am pretty sure that you will meet her too, or her mates, later on.

Sofia is a chatbot. Sentiment Analytics, Natural Language Processing, Machine Learning were the themes of that Tech Night. And I must say it was an amazing Artificial Intelligence experience.

It reminded me of another story when I was a young graduate and intern at IBM. At the time I was attending the IBM Sales School and would learn to sell voluminous data storage devices or IBM 3090 mainframes (64 MB of memory plus 128 MB of expanded storage at the time!). My mentor during one of my training sessions asked me: Claudine, do you believe that in some years we could fit a computer the size of the IBM 3090 under my desk? I was not as wise as Sofia. I did not ask my network (I did not have Twitter, Facebook, Snapchat....) and said NO. WRONG ANSWER, and HUGE LESSON LEARNED.

In a VUCA¹ environment when digital disruption is accelerating and has tremendous implications on companies, industries and the society as a whole, when change is the only constant, it is wise to remain open to the new roads that technology draws, whether it concerns customer interactions, solving operational issues, improving customer experience or simply reinventing the way we work.

Just like Enigma changed the course of history, Blockchain could change the shape of financial services, and Sofia and her likes will bring new dimensions to our working ecosystem. As a Treasurer or a Banker, they will assist us, allow us to concentrate on what is the core of our responsibilities, bring to us relevant information in a structured way, enable us to take wise and timely decisions for our business.

To the words disruption or revolution, I personally prefer the word evolution.

I hope you will enjoy this new FOCUS edition.

CLAUDINE SMITH

BNP Paribas CIB Corporate Coverage EMEA - Head of Commercial Banking and Digital Manager

1 Volatility, Uncertainty, Complexity, Ambiguity

HOW CAN CORPORATES DIFFERENTIATE TO CREATE COMPETITIVE ADVANTAGE IN THE DIGITAL ERA?

By Bharat BHUSHAN, Industry Technical Leader for Banking and Financial Markets at IBM UK



Over 60 years the Information Technology (IT) industry has transformed organisations by automating tasks. Starting with simple mathematical operations, IT has now evolved to highly complex algorithms that, for example, can compute and predict national demand for utility consumption every few minutes. One by-product of this automation is the creation of digital data. What we do with this will be the story of the IT industry in the future. This ability to use data to model and ultimately predict any aspect of our work and daily life promises to fuel the next era of innovation.

The internet and its adoption have also changed the world in a way that was not obvious twenty years ago. It didn't just create a network of computers, it connected people from across the globe. Collaboration became easier and accelerated the development of ideas and new technologies within and across sectors. Just in the last ten years, we have seen a sea-change in how technology is embedded in our everyday lives. It now seems natural and acceptable that your fridge can automatically place orders to replenish the exact groceries you have used and that your running shoes can generate data to give you a real-time view of your performance – and even gamify this experience by competing with a friend who may be living 5,000 miles away.

All of this is possible through data; we are all consuming and generating enormous amount of it. So much so that each of us are creating 2.5 quintillion bytes of data every day (equivalent to 10 million Blu-ray discs). 90% of the data that exists in the world today has been created in just the last two years. Our ability to store and process structured data at scale is becoming commoditised; however, 80% of the data we create is unstructured - coming from a variety of sources such as photos, videos, logs, reports and social media posts. And, whilst our computers can save these as files, they have no idea what's in them.

Data is fuelling new industries too. A developer with a new idea can build a prototype within days – the infrastructure, tools and any data needed to realise the idea are available on the Cloud. Differentiation often comes from how varied data-sets are combined



BHARAT BHUSHAN

Bharat Bhushan is the Industry Technical Leader for Banking and Financial Markets at IBM UK. He leads the charge in helping his clients leverage digital and cognitive technologies to transform by creating engaging platforms and streamlining business operations. He drives the innovation agenda in the industry and is a champion of open technology, customer experience and security. He has twenty years of rich and hands-on experience in the IT industry.

He is a member of the advisory group to the UK regulator defining implementation standards for UK's Open Banking initiative. He is a mentor for FinTechs at Startup bootcamp; Guest lecturer at Warwick University on the topic of cyber security and the Chair of Digital Banking and Open API working group at techUK.

to create value for the consumer. These value-driven experiences are changing customer expectations and their interactions with brands. The most recent best experience from one brand soon becomes the lowest expectation from another brand that may be in a different sector altogether.

“An organisation with a culture of innovation, collaboration and true customer focus will be able to maintain differentiation.”



“Organisations should start on their journey by exploring how cognitive systems can uncover the value hidden in their data; it will help them disrupt new markets or innovate within.”

To meet these ever-increasing customer demands, corporations are embarking on “digital” journeys. Regardless of the specific project, the purpose is to use digital technologies to provide richer, smoother user experience by moving meaningful data around quickly, reducing inefficiencies and participating in value-driven ecosystems. We see these in digital platforms such as Uber and Airbnb that bring together the consumers and providers of services.

Whilst any two organisations may look the same in their digital capabilities, the real differentiation is in their execution. An organisation with a culture of innovation, collaboration and true customer focus will be able to maintain differentiation and identity in the digital world as they do in the physical world. The winners will use their digital capabilities to draw digital intelligence and transform to become cognitive businesses. To do this, organisations are now able to apply Artificial Intelligence (AI) to draw insights from structured and unstructured data.

AI is a collective term used for capabilities such as natural language processing, deep-learning, neural networks, vision and more. These capabilities support ingestion of structured and unstructured data. A system with these capabilities can learn the meaning of data and add to a constantly evolving corpus of knowledge. It can generate hypotheses and points-of-views. These insights will help organisations truly understand and even predict their customers’ needs and personalise services.

Unlike digital systems that are programmed, cognitive systems are taught. They learn, develop a neural network of knowledge and ultimately become experts in a field. Imagine the world’s best oncologist teaching a cognitive system how to detect cancer, identify treatment options and have an emotionally intelligent conversation. Cognitive systems have unlimited capacity to learn, remember and recall information and ‘join the dots’ to draw conclusions.

It may appear science-fiction but cognitive capabilities such as the one just described are already becoming an integral part of our lives and the wider society. We are using personal assistants embedded in our smartphones and chatbots to find information quickly and to perform tasks. Users no longer need to remember commands – they can simply speak or chat with the system as they would to another person - in natural language - and the system can understand the intent behind a question regardless of how its phrased. At work, experts in healthcare and advisers in the financial services sector are receiving evidence-based advice on diagnosis or financial advice, in real-time, that they can use with the clients. These expert systems are augmenting human intelligence by doing the heavy lifting of handling and processing huge amounts of data and drawing insights which humans cannot do at scale.

Organisations can no longer look to their competitors to decide what to do next. Innovation and reinvention is key to existence in this rapidly changing world. Anticipating and delivering customers’ needs with agility and pace is vital. Organisations should start on their journey by exploring how cognitive systems can uncover the value hidden in their data; it will help them disrupt new markets or innovate within.

Digital is a pre-requisite and a journey, it is not the destination. Creating magical experiences that consumers will pay for is the end game. ●

THE PROMISE OF ARTIFICIAL INTELLIGENCE

Interview of Edouard d'ARCHIMBAUD, in charge of the
Data Science and Artificial Intelligence Lab
at BNP Paribas Corporate and Institutional Banking (CIB)

Today's world is becoming binary. On one hand, there are a few giants such as Google, Facebook, Uber, and Amazon that have discovered "the magic formula" and have become the only reference in their field in just a few months or years. On the other hand, some large traditional well-established companies can disappear overnight as recent history has proved. In this new world, the companies that will be successful have to integrate Artificial Intelligence (AI) in their strategy and way of thinking which will often imply that a paradigm shift is required.

In order to be a player of this revolution, BNP Paribas has recently created a Data Science and Artificial Intelligence Lab both at the service of its Corporate and Institutional Banking division and of its clients. Interview of Edouard d'Archimbaud the Data Scientist in charge of the Lab.



EDOUARD D'ARCHIMBAUD

Edouard d'Archimbaud is a Data Scientist in charge of the Data Science and Artificial Intelligence Lab at BNP Paribas CIB. He joined the Group in 2016 having previously held different positions focusing on advanced technological research and operational projects in major banking institutions and hedge funds.

Edouard graduated from Ecole Polytechnique Paris with a specialization in applied mathematics and computer science. He holds a M.Sc. in Machine Learning and Computer Vision from ENS Cachan.



1 TO START, COULD YOU COME BACK TO THE BASICS AND EXPLAIN WHAT ARTIFICIAL INTELLIGENCE IS ABOUT?

Artificial Intelligence is an attempt to imitate the way a human brain works. Actually there are two major ways to think about approach to Artificial Intelligence: weak and strong intelligence. Weak Artificial Intelligence is about creating intelligent programs that replicate certain behaviours of the brain. For example automatic translation system or Voice to Text programs are weak Artificial Intelligence applications. Strong Artificial Intelligence attempts to understand what a human brain is and how it works to duplicate human brain power. The latter remains a dream for now, as we are still far from being able to do this.

2 WHY IS ARTIFICIAL INTELLIGENCE SO IMPORTANT FOR ALL BUSINESSES?

Just to put things into perspective since the development of digitalisation all the information in the world is stored in a digital format, i.e. a format that can be readable and computed by a machine. Companies that will manage to exploit this layer of analytics and create added value for their clients are the ones that will succeed. Uber, for instance, could be seen as a payment platform connecting passengers and drivers. If it was the case, the customer would pay a few basis points for this service as a standard payment via a bank transaction. Uber's margin is tenths of percents because the added value created is not in the payment service but in the capacity to help drivers to find passengers and passengers to find drivers thanks to data analytics processed by a clever Artificial Intelligence program.

3 ARTIFICIAL INTELLIGENCE SEEMS TO BE AT THE HEART OF THE SUCCESSFUL STORIES OF SOME OF THE TECH GIANTS, CAN YOU EXPLAIN WHY?

I strongly believe that the leading tech giant companies like Facebook, Google, Amazon, YouTube, Netflix, Twitter, Airbnb and BlaBlaCar are the ones that have understood something fundamental: DATA is the key asset. To use Artificial Intelligence you need 3 types of components: data, computing power and brain understanding. Computing power has become a commodity in today's world. In a similar way,

algorithms are now easily accessible in a collaborative economy. For instance, one of the best facial recognition algorithms is now accessible in open source. The treasure of a company nowadays really lies in its data, and some companies have totally understood this.

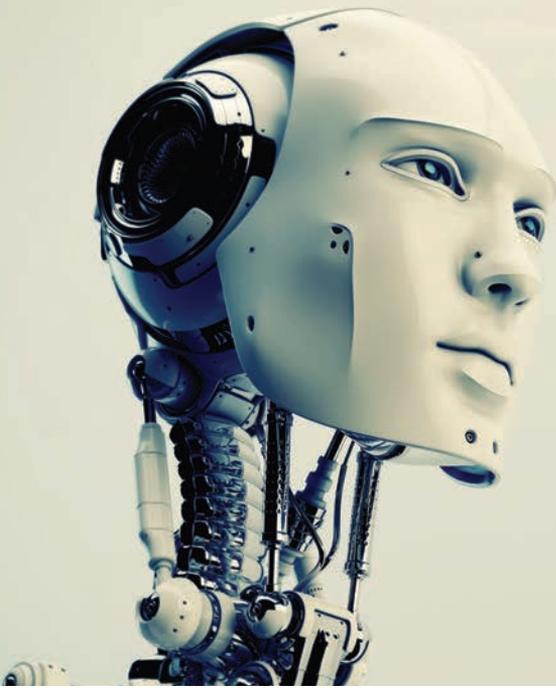
4 IF WE LOOK SPECIFICALLY AT THE BANKING INDUSTRY WHICH BANKING PLAYERS ARE BEST POSITIONED TO USE ARTIFICIAL INTELLIGENCE?

For traditional banks like BNP Paribas, we have everything needed to do Artificial Intelligence. We have computing power, brain power and most of all: a big volume of data. Remember this is one of the core assets for Artificial Intelligence and this is what start-ups, "new challenger banks", do not have. It is very encouraging and we are working a lot to build customer centricity through data centricity. Companies have not historically been built with data as the central point. This is the paradigm shift that is necessary for us to make and that we have engaged in to deliver value to our customers through Artificial Intelligence.

"DATA is the key asset."

5 CAN YOU GIVE SOME EXAMPLES OF WHAT THE LAB IS WORKING ON?

Yes, we have already engaged in many projects. We are working on a compliance screening system for instance. The idea is to automate the screening of contracts to check if they contain names that are on sanction lists. For this, we are building several bricks: one program that transforms documents into plain text format, one name recognition program that is able to identify and extract the names of people, ships, organisations, places that are included in the text, and finally there is a fuzzy matching program that checks if the extracted names are or not on the sanction lists. We are also working on ways to improve our clients' experience when interacting with the Bank. For the moment we are aware that we have quite a "siloed" relationship with our clients (for instance with multiple web pages). With AI we can build a natural language user interface and intelligent navigator that will help a client go straight to the information needed.



“(...) we want to create a club to give our clients access to part of the technology that we develop so that they can use it on their own data.”

6 ARE YOU WORKING ON ANYTHING THAT WILL BE OF PARTICULAR INTEREST TO CORPORATE TREASURERS?

Yes, we have just worked on the second edition of the **Corporate Treasury Insights Survey**⁽¹⁾ that BNP Paribas and the Boston Consulting Group (BCG) co-published mid-2016 to create a web tool⁽²⁾ that enables a treasurer to navigate interactively through the data. More generally we want to create a club to give our clients access to part of the technology that we develop so that they can use it on their own data. Our clients and us are part of the same ecosystem where our data and knowledge are interlinked. Using AI programs will benefit to clients before anything else.

7 YOU OBVIOUSLY NEED TO KNOW A LOT ABOUT HOW THE HUMAN BRAIN WORKS TO BE ABLE TO IMITATE SOME OF ITS FUNCTIONS. HOW DOES THE LAB CONDUCT RESEARCH AND IMPROVE ITS KNOWLEDGE OF THE HUMAN BRAIN?

First of all, there are many publications available on the topic and we spend time reading and studying these of course. We have also developed partnerships with some research labs and PhD students specialised on these topics. For instance, we have a partnership with a person working on text mining. Banks know how to process and analyse figures, but they are not as good when it comes to process efficiently text format data. We are also working with specialists in recommendation engines to bring more intelligence to our clients.

8 IN YOUR VIEW SHOULD WE BE SCARED OF THE INTRODUCTION OF SO MUCH INTELLIGENT TECHNOLOGY IN OUR EVERYDAY LIFE? IN OTHER WORDS, WHAT IS YOUR VISION OF THE RELATIONSHIP BETWEEN HUMAN AND TECHNOLOGY?

We are still very far from being able to really and totally replicate the way a human brain works. Technology is not going to replace mankind. Introducing weak AI in our everyday life and work enables human beings to be more efficient and so frees up time for people to concentrate on tasks with a higher added value. For the moment we spend 25% of our time just searching for data, this time is not spent on doing something more useful!

9 WHEN IS THIS PARADIGM SHIFT GOING TO HAPPEN?

It is happening as we speak. Artificial Intelligence is inevitably spreading across all businesses just as IT spread a few decades ago! •

1 https://cib.bnpparibas.com/adapt/it-s-all-about-client-experience_a-2-69.html

2 <https://cib.bnpparibas.com/treasury-survey/home.html>

WHAT IF YOU WERE ABOUT TO START RATING YOUR CLIENTS' KINDNESS?

By Sandrine PLASSERAUD, Founder and Managing Director
of We Are Social France



The digital world has reached a great level of maturity. The mastery of new technologies is no longer a condition for entry. Digital through smartphones, tablet computers, connected devices gives easy and democratic access to Web apps designed for the main public.

At the beginning, the Web was a new contact point between customers and brands. This was amplified by the advent of social networks. With such an easy access to these new technologies based on sharing, customers' expectations and behaviors have changed significantly and brands have had to adapt.

The development of digital has greatly increased the opportunities of contact between the brand and its clients.

The customer has understood the power of social networks. The first objective of social media was to keep in touch with ones community. But today consumers are shifting from being spectators to being actors. Every individual counts and the customer knows this. The generation referred to as the "Millennials" - that is so well personified by the character of "Petite Poucette" in the book by the philosopher and historian Michel Serres - wants everything, immediately, in just a click.

The new and agile economic players that were born with the digital culture understood naturally the expectations of these new clients. Who could have predicted that Uber, a transportation network company (TNC), would revolutionize in just a few years the historical taxi industry? And this by connecting a request to an offer via a simple platform supported by powerful analytics. This new phenomena of platform-based companies has even come to be referred to as "Uberisation".

"Today consumers are shifting from being spectators to being actors."



SANDRINE PLASSERAUD

Sandrine Plasseraud is the Founder and Managing Director of We Are Social France. After joining We Are Social - an agency born from the social web era - at its creation in 2008 in London, she created We Are Social France at the beginning of 2010. Sandrine has just been honored as one of the "20 Women to Watch Europe 2016" by the famous AdAge magazine.

<http://wearesocial.fr>

With 12 offices on 5 continents, We are social puts its creativity and ambition at the service of visionary brands. In just a few years, the agency has forged itself a strong image and has positioned itself as a leading agency in social media and digital, both on the strategic and creative side.



Start-up companies and Tech giants have engaged into this new era qualified as "third industrial revolution" by the well-known American economist Jeremy Rifkin and that started at the end of the 20th Century with the development of new information and communication technologies. Traditional companies need to reinvent themselves in the emerging new economic system of collaborative commons supported by social media, innovation and the sharing culture. Technological evolution is so phenomenal that it is no longer a competitive advantage as such and has necessitated a change of mindset from the established companies to maintain their identity.

One can witness the behavioral changes with this young generation that is very sensitive to the sharing economy through social networks. It's an ultra connected generation: they are connected 24/7, 365 days a year and their first reflex in the morning is to open their Facebook news feed to discover what has happened



“A brand needs to be present where the consumers are and this means in particular on social platforms (...) But a simple presence is not enough.”

during the past few hours (photos of their friends, local and international news, life of their favorite celebrities etc.)

In order to be considered today, a brand needs to be present where the consumers are and this means in particular on social platforms such as Facebook, Twitter, Snapchat & co. But a simple presence is not enough. A brand is not only in competition with other brands, it is also in competition with the friends, family, favorite celebrities of its customers/prospects and in reality with anyone who stages his/her life on social media using a simple smartphone. When one considers that 90% of the content ever produced has been produced over the last 2 years, one realizes just how difficult it has become to emerge as a brand on social networks and to capture “available human brain time” of clients and prospects.

In reality the biggest competitors for brands in this battle for attention are the content creators such as the YouTubers who have understood how to talk to this new generation. For instance, PewDiePie, the biggest YouTuber in the world, generates 4 to 10 million views at each of his videos. He has over 48 million subscribers to his YouTube channel while a worldwide giant such as McDonalds only has 275 000...

Is it necessary for a brand to create content all year round to engage its audience on social networks? Brands just don't have a choice. For 50 years they have simply had to push a communication message every 6 months thanks to good media coverage on TV, in the press or on billboards to be present in consumers' minds. But this technique is no longer sufficient. Consumers are ultra connected, 365 days a year. It is no longer conceivable not to have an ongoing presence where people are. As the expression puts it “Fish where the Fishes are” and the fishes nowadays are on social media.

So how can brands emerge in the long run in this ultra competitive context? They need to develop their brand messages in a way that will improve and enrich the life of their audience. A brand that simply talks about the price-quality ratio will not interest their audience. Brands must show their tangibility and utility. This is especially true since when a person likes a brand on Facebook or Twitter, this person engages in an intimate relationship with the brand: he/she will embark it on his/her mobile and keep it in his/her pocket (84% of people are unable to do without their smartphone for one day). And just as in a couple, this intimate relationship needs to be worked on. If a brand posts on average 3 to 4 Facebook statuses and 7 Instagram/Twitter publications per week, this means it sends on average 900 messages per year to its target audience. It is therefore necessary to go from a relationship based on injunctions and interruptions to a truly engaging relationship with the objective to embark the audience and get it to like, repost, share the messages of the brand. In other words create a relationship that recognizes the key concept of reciprocity between the brand and its clients.

Easier said than done? It is merely common sense. Instead of concentrating on the way to engage in conversation with their targets, brands should ask themselves why they deserve to engage in conversation with them in the first place. “Why” instead of “how”. And it is possible to discover “why” through the big data available on the Internet. Analyzing the behaviors, issues, and interests of users is what will enable a brand to engage in a true relationship with its target. In a world where the pace of innovation is accelerating and is constantly creating greater expectations from consumers, this understanding is essential.

To better understand tomorrow's consumers here is a list of a few important 2017 trends that brands will need to embrace to better serve their clients: “bots”, “virtual reality”, “digital detox”, “Artificial Intelligence” and “behavior as currency” where people's behaviors become exchangeable currency. Last one is a trend to be followed very carefully...

The launch of “PeepLe”, the app that was supposed to allow anyone to rate other people, was aborted a few months ago following criticism over concerns of

cyberbullying and possible abuses. Yet the idea that it will soon be possible to rate people in the way that one rates hotels and restaurants seems to be gaining ground. With the development of the “sharing economy” and services such as Uber and Airbnb, people’s behaviors are already scrutinized, analyzed and rated. Our behavior is correlated to our reputation. What if our reputation was soon to become a currency that could be exchanged as the 1st episode of Season 3 of the British TV series Black Mirror seems to suggest? Lacie, the main character of the episode, lives in a world where only the people that have received the best rates from others are given access to the best services: apartments in the nice neighborhoods, upgraded rental cars, last minute access to some flights etc.

Without going as far as this scenario that implies a permanent quest for general endorsement, some companies are already rating the kindness of their clients and offering discount vouchers to the highest

“Brands should ask themselves why they deserve to engage in conversation.”

rated ones. In Australia the Seven Miles Beach Kiosk cafe in Gerroa doesn’t only encourage its clients to be more polite, it even makes them smile: “a coffee: \$5; a coffee please: 4,50\$; hello, a coffee please: 4\$”. Also in Australia, the Art Series Hotel Group has recently launched the “Reverse Reviews” program: the employees of the hotel rate the clients. The best-rated clients receive free stays and upgrades that encourage of course everyone to be kind and in a good mood. The virtuous circle of behavior as currency is a trend to be followed closely in 2017! ●



PUTTING THE CUSTOMER IN THE DRIVER'S SEAT OF DIGITAL TRANSFORMATION

By Richard OWEN, President and CEO of Satmetrix



Amongst the commonly cited motivations for digital transformation, improving the customer experience has the highest unrealized potential. The promise of transformative results may be a powerful motivator, but so far, those hoped-for results have proven elusive for the majorities of companies. It doesn't have to be that way. A more systematic approach to building customer experience data into the digital strategy puts the focus on better customer outcomes, not just technologies. Richard Owen, CEO of Satmetrix, offers his insight on how to improve customer management.

When we launched the Net Promoter Score (or NPS®) over 15 years ago, we demonstrated financial linkage for investments in customer experience with this innovative metric. The goal was to break through the reticence of corporate leaders to invest hard dollars in uncertain, hard-to-measure future returns from their customers. The immediate visibility of operational streamlining, or cost reduction, would be at least considered in the context of the impact on customers and their lifetime value. In that regard, the adoption of the Net Promoter Score® as an ideal measure of the loyalty of customers was a success. Thousands of companies now measure NPS® as a critical operating metric and held their leadership accountable for NPS® improvement.

However, if our measure of success is improvement, the results have to be considered less than satisfactory. According to our benchmarks, the average company has only increased their NPS® performance by 2%. More alarming, frequently cited NPS® results by companies themselves (often in earnings releases) rarely bear scrutiny, often due to the lack of quality and process behind their metrics.

“Improvements require focus of resources and a broad strategy to engage the entire organization in a transformative effort.”



RICHARD OWEN

Richard Owen is President and CEO of Satmetrix, responsible for all aspects of strategy and day-to-day operations. Previously, he was Chairman and CEO of NASDAQ-traded AvantGo, Inc., the leading provider of Enterprise Mobility Solutions to Fortune 1000 companies. Before AvantGo, Richard spent eight years at Dell Computer Corporation in various executive positions.

www.satmetrix.com



So if the first wave of customer-centric enthusiasm has gained us executive attention, but not necessarily business results. Will digital transformation represent a second opportunity for success?

DIGITAL TRANSFORMATION VS. DISRUPTION

Many established enterprises identify the risk of massive disruption through new entrants as at least one of their motivations for transformation. Disruptors do seem to provide a better experience to customers, as demonstrated by higher NPS® than incumbents, so that battle could easily be imagined as a conflict over superior ways to delight the customer. Uber vs Taxis, Amazon vs retail are often cited examples.

However, it's a mistake to attribute the sky high NPS® of these businesses to a process of digital enablement or transformation. Rather, it is a product of their radically different business model. They are digital natives – “not digital transformists” – taking innovative approaches to exceeding existing customer expectations. Established large businesses cannot typically follow that path.

What they can do is combine a willingness to innovate within the realities of their own business with a focus on the creation of better customer experiences (higher NPS®) through those innovations. If this has eluded most businesses over the past decade, what have we learnt and what can we do better?



“One size does not fit all (...) so firms need to focus on high potential or high profit segments.”

Improvements require focus of resources and a broad strategy to engage the entire organization in a transformative effort

MANAGEMENT, KNOW THYSELF

Perhaps unsurprisingly, meaningful improvements in the Net Promoter Score are more likely if a business significantly lags behind peers in basic customer management. In that eventuality, the introduction of the NPS® metric into the management framework for the company, together with leadership focus on the customer experience, may well be sufficient to get results. Getting from very poor to average in your industry is less about science, more about attitudes.

For the majority of companies, improvements require focus of resources and a broad strategy to engage the entire organization in a transformative effort. Put differently, companies need a sophisticated, data-driven view of how they can improve their NPS® and at what cost, together with an ability to influence the culture of the entire organization so such changes are feasible. Neither task is trivial, but both are achievable when firms acknowledge the nature of the opportunity and go about it in a methodical fashion.

IT'S THE JOURNEY, NOT THE DESTINATION

Customers do not consider their interactions with a company as tied to the organizational structure of the company. They have tasks to complete, such as purchase, renewal or service, but most of the time those tasks cut across modes (retail, online etc.) and departments (sales, manufacturing and so on). To understand how to delight those customers as they engage in their journey, firms must measure their performance along all aspects of that journey, weigh

the relative importance of different interactions on the customer, then focus resources on those areas where improvement yields the greatest benefit.

Companies face several surmountable challenges in this undertaking. First, different customer segments have different expectations and needs around the customer journey. One size does not fit all, and more to the point, few companies are capable of creating promoters out of all segments of their customers. So firms need to focus on high potential or high profit segments; map out the ideal journey for those customers and optimize the journey for that group – potentially at the cost of other segments. That also means accepting that a high aggregate NPS® might mean nothing compared to the performance of individual segments.

That view of the customer requires an organization of customer feedback and KPIs in an integrated design – one that reflects and accurately documents the customer journey. More often, companies survey their customers for feedback in an ad-hoc fashion, with different departments working to optimize their own needs often in ways that conflict with others. Re-structuring the data view of the customer around the journey is not technically herculean, but it runs across organizational and ownership boundaries and requires a unified design. Politics can easily go against logic.

There is an art to data design around the customer journey. Different types of survey feedback, operational key performance indicators and customer financial data need to align around this new viewpoint, or the connections between the customer perspective and the firms' execution won't be optimal, or even sensible.

LET'S GET ENGAGED

The best data is of limited value if it can't be put to work in the organization. Once upon a time, researchers did an annual presentation of customer experience feedback and NPS® to the board of the company. Today, the notion of annual data seems absurdly slow, the idea that experts are needed to “translate the findings” feels like job protection. Instead,

data democracy – the idea that every employee should be able to act on information – is an expectation of any analytic system.

Leaders will leap ahead to social models of information sharing – an expectation that goes beyond millennials wedded to Facebook or Twitter – but at the very least employees need timely data around their impact on the customer experience, how they compare with peer groups and what to do to improve. Sales teams need complete and current views on their customers' experience; everyone needs information that shapes their participation in building a great customer experience.

TAKE THE PLUNGE

Customer journey thinking, employee engagement driven. The digital transformation of the firm is tied to NPS® improvements directly through this strategy. Leaders will think less of digital transformation as the driver of customer experience, rather prioritize the customer view of the journey and employee data needs as the driver of the digital investments. ●

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NET PROMOTER SCORE®

NPS ASKS THE QUESTION

“HOW LIKELY IS IT THAT YOU WOULD RECOMMEND [BRAND] TO A FRIEND OR COLLEAGUE?”

AND MEASURES RESPONSES ON A 0-10 POINT SCALE.

RESPONSES TO THIS QUESTION FALL INTO THREE CATEGORIES:

● DETRACTORS

This group is dissatisfied with your company. Research shows that these customers are more likely to take their business elsewhere and recommend AGAINST your company.

● PASSIVES

These buyers may be satisfied, but are not fully invested in your company. According to research, this group could easily be attracted to a competitor with a better offer.

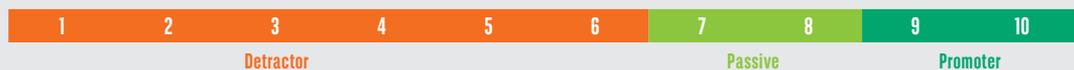
● PROMOTERS

These are your loyal, invested customers. Research shows they will stay longer, buy more, and recommend your products or services to other buyers.

NOT AT ALL LIKELY

NEUTRAL

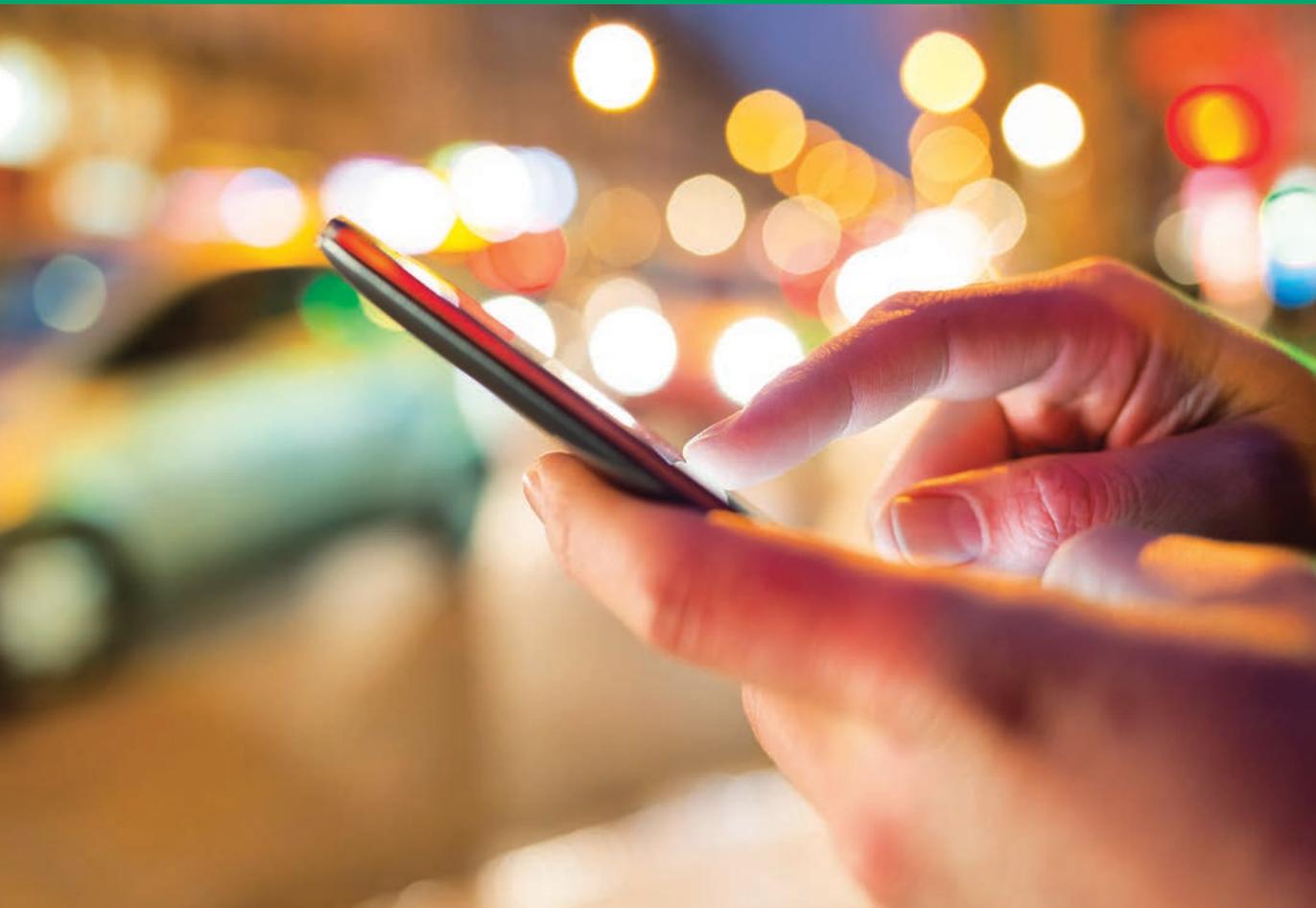
EXTREMELY LIKELY



NPS (NET PROMOTER SCORE) = % PROMOTERS - % DETRACTORS

DIGITIZATION OF THE CLIENT EXPERIENCE

By Karen BRUNOT, Marketing Director at BNP Paribas
Arval France



Customs are changing faster than ever, the situations in which we are mobile are evolving, tools and devices are constantly developing and becoming connected ... Arval is a recognized European expert in long term vehicle leasing. It offers innovative and interactive services both to fleet managers and to drivers. Mobility is at the heart of these new customs. Confronted to a strong environmental pressure combined with a challenging economical and financial context, the expectations of car users in ever more congested cities are evolving.

FROM CAR TO MOBILITY AND FROM POSSESSION TO USE

In the near future we will certainly be brought to use multiple alternative means of transportation in substitution to the car such as walking, bikes, public transport, carpooling, carsharing, car borrowing, car renting between individuals, and even home office.... Using multiple means is facilitated by the use of smartphones. Just as new companies like Blablacar, Koolicar or OuiCar have done, established companies will need to offer turnkey mobility services where the car is just one of the possible answers to the transportation needs. Fleet managers within companies are now in charge of complex and strategic topics such as tax and regulations. They are also challenged by the technological evolution of vehicles, the management of the TCO (Total Cost of Ownership¹) of their fleet and the quality of the service for the drivers.

Driven by this analysis, Arval - a subsidiary company of BNP Paribas specialized in long-term vehicle leasing for companies and professionals - offers a range of innovative solutions. Karen Brunot, Marketing Director at Arval France confirms that "digital is core to Arval's initiative to bring true added-value services at all steps of the client relation".

With the "Arval Smart Experience" program the objective is to increase the proximity and interactivity between the leasing company and its clients from the fleet manager to the driver by integrating connected

¹ The global cost of owning a car that integrates all the costs linked to using the vehicle and therefore enables objective comparisons between vehicles.



KAREN BRUNOT

Karen Brunot is Marketing Director, in charge of product development, digital marketing, and business intelligence at BNP Paribas Arval France. She has worked over 15 years experience in marketing, digital experience & customer engagement for retail industry & financial services, in international environment & matrix organization.

Founded in 1989, Arval specialises in full service vehicle leasing. It offers its customers - large international corporates, SMEs and professionals - tailored solutions that optimise their employees' mobility and outsource the risks associated with fleet management. In 28 countries, Arval's total leased fleet adds up to 949,000 vehicles throughout the world.

tools (smartphones and tablet computers) and embedded tools (real time data management), while using social networks to increase engagement with the client.

Arval does not see its client relationship as a basic B2B relation between Arval and the company, but more as a B2B2C interaction between Arval, the Fleet manager and the Driver on the one hand and between Arval and the Driver on the other hand.

By digitalizing their journeys in a global and customized way, Arval enables fleet managers and drivers to access at any time the key indicators and information about their vehicles. The objective is to give even more flexibility and autonomy to their clients.



“Digital is core to Arval’s initiative to bring true added-value services at all steps of the client relation”

INNOVATIVE AND TAILOR-MADE SOLUTIONS FOR FLEET MANAGERS

Thanks to a customized platform called Arval Connect, fleet managers get a global view on the performance indicators of their fleet as well as news and advise... Recently the digital transformation went a step further with the launch of Arval Active Link, an integrated solution of on-board telematics that processes automatically and in real time the vehicle’s data. This solution captures a large amount of data about the use of the vehicle in the respect of private life. In this way the fleet manager can proactively monitor the fleet, which helps optimize the TCO and increase the driver’s security is increased thanks to the collected data.

To further improve the services offered to its clients, Arval has also created a community platform called, My Arval Community, dedicated to professional users where they can converse and share information amongst peers. On My Arval Community they share their feedback and interests and thus the platform becomes a lab for the Arval teams that can analyze client feedback and make recommended ideas emerge. All the operational teams are involved in this virtuous circle to adjust, co-create new solutions and remain close to clients’ expectations.

Following the logic of shared intelligence, Arval provides fleet managers with training modules to help them remain up to date on business issues and key drivers for improving performance of their fleet. Via e-training, they are more confident when choosing the solutions that are best adapted to their situation.

A FULL COMMITMENT TO THE DRIVERS

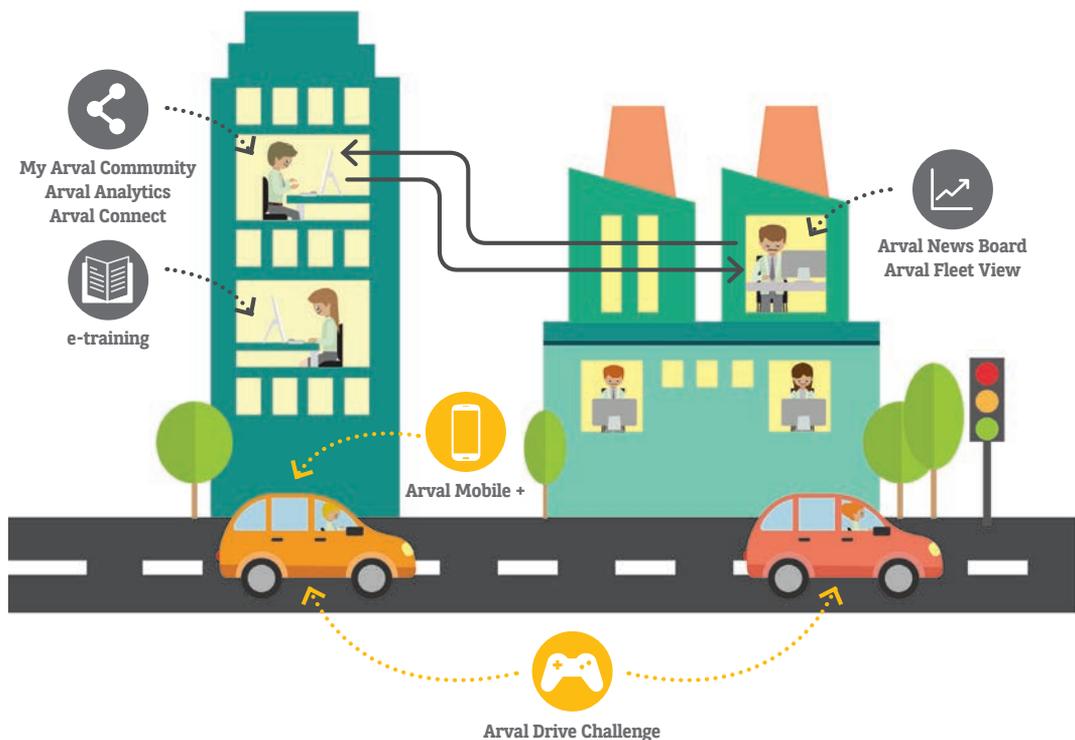
Arval has developed a full range of services dedicated to drivers, aimed at improving their security and facilitating their daily life. In this regards, Mobile + offers useful information that should also help improve

people's driving habits. A "serious game" called Arval Drive Challenge completes this offer. The app helps the driver measure and improve his/her behavior on the road. Following the same logic, Arval has recently got up to speed on the shared mobility topic with a carsharing solution for companies. With the simple use of his/her smartphone the driver will be able to access all these services including to open and close his/her car. For the fleet manager, this solution will be useful to optimize the use ratio of the fleet. All these initiatives are sustained by Arval's presence on social networks with news feeds about its activity and content in relation with the automotive world. According to Karen Brunot, "to create links with our clients we need to be present on the platforms and networks where they are browsing: Arval successfully animates a community of 57,000 fans (across all social networks) and is about to reach 500,000 YouTube views."

The digitization of the client experience at Arval was only made possible thanks to the commitment of its employees to go beyond the traditional internal work silos. "Account teams" were put in place to manage collaboratively the client needs should they be commercial, administrative, or technical in order to improve the customer journey and efficiently meet his/her needs. Karen Brunot is convinced that "every member of the "Account team" - situated close to each other - participates to improving client service while learning a new and more agile type of organization" •

observatoire-vehicule-entreprise.info

Arval Smart Experience



FROM JULIUS CAESAR TO THE BLOCKCHAIN: A BRIEF HISTORY OF CRYPTOGRAPHY

By Côme JEAN JARRY & Romain ROUPHAEL, cofounders
of BELEM



The world's most important asset is information. Now more than ever. With computer theft and hacking becoming a common threat, protecting information is crucial to ensure a trusted global economy. E-commerce, online banking, social networking or emailing, online medical results checking, all our transactions made across digital networks and insecure channels of communication, such as the Internet, mobile phones or ATMs, are subjected to vulnerabilities. Our best answer is cryptography. And it has always been. As a science and as an art, it is an essential way to protect communication. Cryptography goes back to older times, as far back as the Ancient World.

Early cryptography was solely concerned with concealing and protecting messages. In modern times, cryptography has grown from basic message confidentiality to include message integrity checking, digital signatures, sender and receiver identity authentication. Today's cryptography safeguards the general public from being compromised by those who monitor private communications. Hackers constantly challenge it and cypherpunks¹ privacy activists keep watching. So let us look back in time to understand how cryptography has evolved from simple methods of dissimulation to ultra-sophisticated mathematical algorithms.

From the Greek scytale and the Caesar cipher to the mechanization of coding.

THE ART OF TRANSPOSITION

The earliest known use of cryptography dates back to Ancient Greece. During the Peloponnesian War, the Spartans used a wooden stick, called scytale, with a strip of parchment wound around it on which the

message was inscribed lengthwise. Once the parchment was unrolled, the letters of the message were mixed up and the message meaningless. The receiver would need an identical stick to decipher the text. The scytale transposition cipher relied on changing the order of the letters, rather than the letters themselves. This cryptographic technique still prevails today.

THE ART OF SUBSTITUTION

Julius Caesar was also known to use encryption to convey messages to his army generals posted in the war front. The Caesar cipher is a simple substitution cipher in which each letter of the plaintext is rotated left or right by some number of positions down the alphabet. The receiver of the message would then shift the letters back by the same number of positions to obtain the original message. It is the very first system to use a coding parameter called the encryption key. The encryption key, secretly shared by the sender and the receiver, becomes an essential feature of cryptography. Without it, the only option to decipher the scrambled text would be to do a brute-force check and try all the possible keys. A very tedious work.

Modern cryptology owes a lot to the Arabs, their study of the Coran, its phonetics and syntax. Around AD 800, Al Kindi is the first to document cryptanalytic methods, developing a frequency-analysis technique able to break monoalphabetical substitution ciphers by using the occurrence of letters in language.

Despite this discovery, cryptography remains very basic, until the 16th Century when Frenchman Blaise de Vigenère created a polyalphabetic cipher known as the Vigenère Cipher. It works like the Caesar Cipher but changes the key throughout the scrambling process, using a grid made of 26 alphabets offset from each other by one letter called the Vigenère Square. The Vigenère Cipher is said unbreakable as it resists frequency-analysis. In 1854, Charles Babbage, an eccentric Englishman, solves the Vigenère Cipher by discovering that enciphering the plaintext with a keyword renders the ciphertext subject to modular arithmetic.

¹ A cypherpunk is any activist advocating widespread use of strong cryptography and privacy-enhancing technologies as a route to social and political change. Source: wikipedia.



ENIGMA AND THE BIRTH OF THE COMPUTER

In 1918, the German Arthur Scherbius patented the Enigma, an electromechanical machine used for encryption and decryption made of several shiftable rotors and electronic gears that converted every letter typed on the keyboard. The different scrambling configurations and initial settings of the machine allowed a nearly endless number of encryption keys. It wasn't until World War II that Enigma gained its fame. Nazi Germany, overconfident about its security, used it to encode most secret messages. It drove Enigma, and to some extent Hitler, to their end. Poland, and later the Allied, exploited the built in weaknesses of the machine and the German operators errors to decrypt many coded messages. During the 1930's, Poland's Marian Rejewski built the first "bomb", an electromechanical machine that mimicked Enigma's process to brute-force test potential encryption keys in order to find the correct one. This "bomb" was later improved by British Alan Turing who eventually cracked Enigma.

The British cryptanalysts also broke the Lorenz cipher used by Hitler to communicate with his generals. The German dictator made use of an electromechanical

machine that exploited the binary code to convert the letters of his messages into a sequence of 0 and 1 called "bits". In order to mechanize the codebreakers' breakthrough, Max Newman designed the very first programmable electronic computer, Colossus, built by Tommy Flowers in 1943. Cryptology was at a new turning point. It could now count on the computer's efficiency and velocity, paving the way to new means of coding.

ON THE TRAIL OF ASYMMETRIC CRYPTOGRAPHY

By the end of World War II, both cryptography and cryptanalysis had become very mathematical. With businesses using more and more computers, it had become necessary to standardize cryptography to enable firms to safeguard their transactions and secure their data from competitors. In 1976 the Data Encryption Standard answered just this requirement. Cryptography was no longer a government and army prerogative. Ciphers were getting harder and



Source: GNU free documentation license

harder to crack, mostly because computing power was not yet strong enough to brute-force attack every possible encryption key. The longer the key the safer it would be. Yet, an old issue remained, making it the Achilles heel of cryptography: the key distribution. Encryption keys were often locked inside briefcases carried around by secret agents, just like in Hollywood movies. The digital era of the 1970's caused a need for a more secured system.

In 1976, Martin Hellman, a Stanford professor, along with Whitfield Diffie and Ralph Merkle, introduced a revolutionary method of distributing cryptographic keys, known as the Diffie-Hellman key exchange. The answer came from non-reversible mathematical functions and modulo arithmetics. Sender and receiver could now agree on a key without meeting in person, and despite being spied on. Each one would choose a secret number that he would keep to himself, sending to the other the result of a modulo arithmetic computation. But sender and receiver were still dependent on each other. This solution had room for improvement.

It triggered the discovery of a new coding method, the asymmetric key algorithm, also known as public-key cryptography. Up to this point, every method of encryption required a special secret key previously and securely established, shared both by the sender and the receiver, distributed through a confidential channel. Using the same key for encryption and decryption is the principle of symmetric key encryption.

The asymmetric key algorithm requires two different keys, one is made public and shared with all, whereas the other one is kept secret. The sender uses the receiver's public key to encrypt his message and the receiver uses his own private key to decrypt it. The challenge was to find a mathematical function that could generate two keys independent from one another. In August 1977, Ronald Rivest, Adi Shamir and Leonard Adleman, researchers at MIT, solved the problem by accident. They were trying to prove that Diffie's idea was going nowhere. The RSA (Rivest, Shamir, Adleman) Cipher was born and soon became a universal protocol for businesses. It is still believed to be unbreakable, all hacking attempts having failed. But time is pressing, its security only relying on today's computers' low computing power.

PRIVACY: FROM PRETTY GOOD PRIVACY TO CRYPTOCURRENCIES

The Age of Information that followed the democratization of private computers and the development of the Internet in the 1990's presented a new challenge: securing private data. The RSA was not scaled for personal computers. In 1991, the American Phil Zimmerman was adamant about finding a cipher freely accessible to all and easy to use. He combined the simplicity of a symmetrical algorithm (to encrypt the message) with the technicality of an asymmetrical algorithm (to encrypt the key), naming his cipher PGP (Pretty Good Privacy).

Private communications through digital channels were now safe but governments had other tricks up their sleeves to monitor their citizens such as tracking financial transactions, enraging cypherpunk privacy activists. This is when cryptocurrencies emerge.

In the early 1990's, David Chaum creates DigiCash, the first digital currency of many, designed to allow secured and anonymous financial transactions. Unfortunately the cryptocurrency fails at preserving the money's independence as Chaum introduces a central authority to validate the digital signatures behind every transaction.

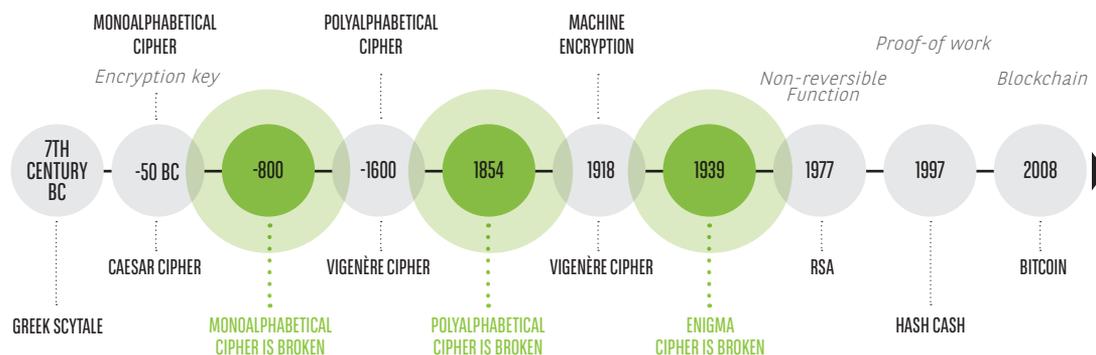
In 1997, Adam Back introduces the Hash Cash, a cryptocurrency relying on a revolutionary protocol called "proof-of-work": the participating members to the network are challenged to recover a specific hash print using their computer's calculating power. The first one to find the answer receives a specific amount of money. This is how the currency is issued. Adam Back creates an independent currency but he is unable to find a way to exchange each unit of money more than once.

Other cryptocurrencies are conceived - Nick Szabo's Bit Gold, Wei Dai's B-Money, Hal Finney's Reusable Proof of Work - but a major weak point remains: a contributor to the network with a disproportionate computing power can win more easily the competition, producing more and more currency units, thus mechanically reducing its value.

Satoshi Nakamoto finds a way to solve this deficiency and the double spending problem in October 2008 with his Bitcoin thanks to a new coding protocol called the "Blockchain". It is a distributed database that validates transactions inside records called "blocks", every block including a hash of the previous one, linking them one another as in a chain. It combines asymmetric ciphering, digital signature, hash functions and the proof-of-work protocol. The system uses a unified and public ledger, approved by all members of the network, to track the Bitcoins and make sure they are not copied or spent more than once at a time. It uses a peer-to-peer network to manage autonomously the database. To solve the Hash Cash's weakness, the system sets the time necessary to validate a block of transactions to

10 minutes, hence regulating the currency production. The units are now gradually introduced. For the first time in History, a currency is created and transferred without a centralized trusted third-party. The Blockchain is a revolution. As a disruptive innovation it promises to bring significant changes to many business structures. ●

TRANSPPOSITION ENCRYPTION → **SUBSTITUTION ENCRYPTION** → **PUBLIC-KEY CRYPTOGRAPHY** → **CRYPTOCURRENCY**



BELEM

Founded by Côme JEAN JARRY & Romain ROUPHAEL, **BELEM** (www.belem.io), is a start-up that relies on cryptography to deliver the next wave in data sharing. BELEM enables independent parties to organize decentralized calculation on private data without revealing their inputs.

“Any organization can easily set up a community of players, customize all calculation rules, and may decide to share the result directly with an external party, like a client or a regulator. Transparency and data privacy are no longer antithetical.”

THE MORE DATA WE EXCHANGE, THE CLOSER WE GET

By Frédéric CROUÉ and Hubert de SOLAGES, BNP Paribas
Cash management

As always with change, different forces are at work. Digitalization in the cash management sphere is no exception to that rule: at one end of the spectrum, some fear that it might spread confusion by making it more difficult for banks to prove their differences; to others on the contrary, digitalization is a formidable opportunity to further mark their territory. Both senior executives within BNP Paribas Cash Management, Frédéric Croué and Hubert de Solages, support the latter view, and they explain why.

DIGITALIZATION STRENGTHENS ITS Foothold

The digital trend continues to spread, as demonstrated by research published in the 2016 World Payment Report (WPR). Co-edited by BNP Paribas for the first time this year, the WPR is part of the leading references for payments worldwide. Amongst other findings, its 2016 edition shows that corporates expect more and more digitalization from their banking partners.



FRÉDÉRIC CROUÉ

Frédéric CROUÉ is Deputy Head of BNP Paribas Cash Management



HUBERT DE SOLAGES

Hubert DE SOLAGES is Head of sales for large corporates at BNP Paribas Cash Management

Quite interestingly, the Report's digital maturity assessment chart (cf. chart at the end of the article) shows a discrepancy between the perception that banks have of their own digital maturity and how corporates rate their banks from the same digital



“Banks have no choice but continue to improve their corporate clients’ digital experience, while better communicating on their digital achievements.”

perspective (see box below). The thing is, perception is reality; so banks have no choice but continue to improve their corporate clients’ digital experience, while better communicating on their digital achievements. As always, spreading the word is key to fostering a new perception as well as a strong driver for wider adoption. And as it happens, adoption remains a challenge to be raised.

HIGH HOPES, HIGH STAKES

All this comes in a context where corporates’ fundamental expectations from banks have not changed significantly over time, whereas the pace of change is

indeed accelerating. The WPR 2016 highlights that centralising account management, increasing automation to better manage operations, and relying on customer-focused solutions based on data and analytics are and remain at the top of corporate agendas. Would there really be nothing new under the sun?

“While everybody agrees that the pace of change is accelerating, it sometimes takes longer to gain adoption than to design and implement a new digital process”, ponders Frédéric Crové. Similar observation from Hubert de Solages whose team of eight relationship managers handle treasury management activities for major worldwide corporations: “Considering the size of these organisations and the complexity of their non-standardised environments, conducting change remains a challenge and as a result, adoption is naturally a slow process”.

Expectations for more digitalized services are tremendous but corporates insist on being able to leverage on existing platforms as opposed to new, proprietary solutions. Indeed, most of their digital expectations could be met today as the Bank’s digital offering is already considerable. In addition to solutions, which are the most visible part of our digital response, support services like onboarding or Bank Account Management (eBAM) are already in the digital innovation pipeline

- some still at proof-of-concept while others are already at pilot stage. “After digitalizing the core of the relationship with corporates, we have engaged in an active journey to digitalizing support processes”, explains Frédéric Croué. “This is part of our co-development approach”, adds Hubert de Solages.

DATA BRINGS US CLOSER

Initiatives like BNP Paribas’ “corporate on-boarding for a new customer journey” are precisely heading in that direction. Here, the objective is to simplify and harmonise new clients’ contracting experience using a collaborative digital workspace to collect KYC data, open accounts and activate requests using e-signatures.

In addition to paving the way to a highly digital – simple and efficient – client journey, such initiatives have the potential to bring the Bank even closer to the corporate market thanks to data analytics – a vision that is strongly shared by Hubert de Solages:

“The more data banks and corporates exchange, the better they know each other, and the closer they get. That is why we see digitalization as an opportunity to further anchor into our core values: understanding corporates, providing long term support and building partnership as trusted advisors”.

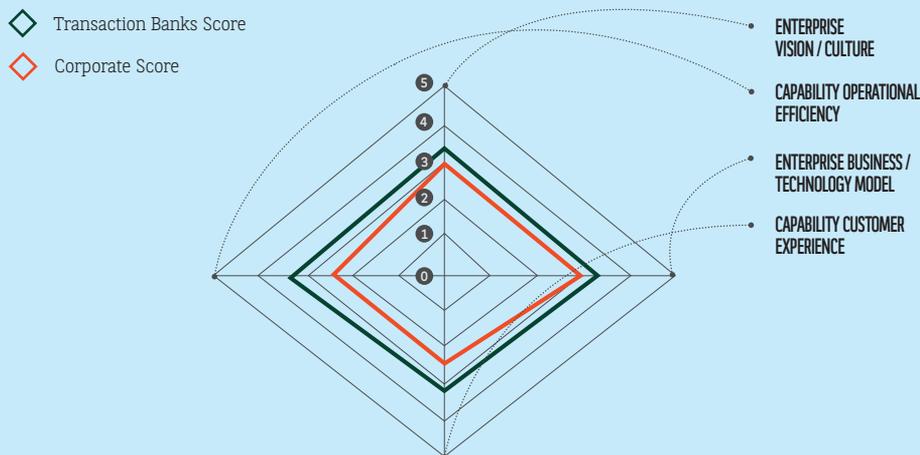
Client knowledge and understanding allow the Bank to respond precisely to corporate needs while positioning itself at the very heart of a new ecosystem whose guiding principle is co-development. In addition to corporates’ first-hand input, such ecosystem integrates the creative drive of new entrants like FinTechs.

“Client servicing is part of our DNA, and digitalization means that while the core and support processes are safely dealt with, we can provide more added-value and bring stronger innovation to our clients”, concludes Croué. With such conviction in mind, who’s still afraid of the *big digital wolf*? ●

Further reading: www.worldpaymentsreport.com and www.cashmanagement.bnpparibas.com

BANKS’ DIGITAL MATURITY ASSESSED BY CORPORATES AND BANKS

The WPR 2016 Transaction Banking Digital Maturity Assessment model shows a gap between corporates and banks in assessing banks’ digital maturity. The Report also highlights that digital offerings are key enablers for banks to meet corporate demands, and that corporate perception of banks’ digital maturity should be improved.



Further reading at www.worldpaymentsreport.com.

COLLAT'SHAKER: AN INNOVATIVE SOLUTION CO-DEVELOPED WITH CLIENTS

An interview of Ronan PIERRE, Jérôme HAYOZ and Chiheb KOURDA, BNP Paribas CIB Specialized Trade Solutions



Collat'Shaker is a web-based interface designed to facilitate collateral management and sharing of information for commodity-finance transactions using Blockchain technology.

Three Corporate and Institution Banking (CIB) specialists offer insights on how an innovative project was initiated and developed rapidly and to a set budget. This project was developed internally, jointly with clients, during an innovation cycle launched in early 2016 with the BNP Paribas Blockchain Biz'Hackathon in January 2016. This led to the delivery of a successful prototype, which is now being improved and developed with a view to undergoing live testing. This initiative is highly supported by the BNP Paribas Group as proved by an Innovation award recently won by the Collat'Shaker team.

WHAT IS COLLAT'SHAKER AND HOW DID IT COME ABOUT?

JÉRÔME: The idea of Collat'Shaker was born during the BNP Paribas Blockchain Biz'Hackathon in January 2016. During the two-day sessions, Blockchain experts and developers, corporate clients and BNP Paribas employees devised and started designing applications to ease "pain points" in the cash, trade and working-capital finance value chains, making use of the powerful features of Blockchain technology.

Our team focused on the commodities' trading value chain. The lifecycle of commodities' trading is complex: each transaction involves 10 or more stakeholders, who each monitor and track their position and risk throughout the transaction cycle.

Between a trader and the bank offering a trade finance solution, a major pain points relates to sharing of information on the collateral [i.e. the physical guarantee on the underlying goods which secures the financing]. It is a tedious and time-consuming process, involving paper-based manual reconciliation. In our team, roughly 45% of an account manager's time is spent on checking positions and price, by phone, fax and email. Some of our trader clients spend roughly the same amount of time performing the same tasks, which is quite simply an enormous total amount of time. Also, due to asymmetry of information, risks of disputes exist.



RONAN PIERRE

BNP Paribas CIB Specialized Trade Solutions Program Director



JÉRÔME HAYOZ

BNP Paribas CIB Specialized Trade Solutions Account Manager Soft Commodities



CHIHEB KOURDA

BNP Paribas CIB Specialized Trade Solutions Project Manager

Our objective was to make sharing of collateral valuation painless and less time-consuming. We believe that Blockchain technology can contribute to designing a more efficient process.

WHAT IS IT ABOUT BLOCKCHAIN TECHNOLOGY THAT FACILITATES THE SHARING OF "TRUE INFORMATION" BETWEEN DIFFERENT PARTIES?

RONAN: Imagine that you have a shared ledger in which you record each change in the value of your collateral. Your client has access to the same ledger, and everything you record in the ledger is automatically and almost immediately visible by the client, and vice-versa. This is the added value of Blockchain in this situation: there's no need for manual reconciliation, as reconciliation is performed by the system itself.

Collat'Shaker thus connects the Bank and clients for collateral management. It can also connect other participants in the commodities' value chain via the same platform.



WORDS OF THE CLIENTS

WILLIAM VINCK, MANAGING DIRECTOR OF PACORINI GLOBAL SERVICES GMBH:

“Collat’Shaker is a promising initiative that will help to rationalize collateral management information flows. This integrated real-time system will enable us to reduce the workload and save time. This is a real benefit to all stakeholders. For us as warehousing specialists, this represents a further step towards improving efficiency *vis-à-vis* our clients.”

NICOLAS TAMARI, SUCAFINA CEO:

Collat’Shaker is offering an innovative service for sharing and management of positions with our partners, in real time, thus bringing all the parties involved in a given transaction closer together. This tool, which is highly intuitive and easy to use, provides an effective and efficient response to the issues that our industry has to cope with.”

HOW DID YOU GO ABOUT “CO-CREATING” COLLAT’S HAKER WITH SOME OF YOUR CLIENTS?

CHIHEB: We started from the perspective that manual collateral management was a mutual pain point, shared equally by us and our clients. From this starting point, we immediately sought to integrate our clients’ perspective and business expertise to develop a common understanding of the goals and process. This enables us to determine that the platform design should focus on ease of use, it should be intuitive and address the key business needs of both the bank and its clients.

We placed a specific emphasis on the user’s experience at every stage: what content a user is viewing, what value said content brings and how the primary requirements of the user are satisfied in the simplest manner.

Based on our clients’ feedback, we rapidly repeated the process and communicated progress regularly across the team and with end users. It has been a continuous process of adjustment and amendment.

When the prototype was ready we presented it to additional clients, and received excellent feedback: they find the solution simple and easy to use, with useful information and features. Furthermore, they would like to add more functionality, more business rules and also connect the platform to their own IT systems.

JÉRÔME, YOU ARE AN ACCOUNT MANAGER IN THE SPECIALIZED TRADE SERVICES TEAM IN GENEVA. DESIGNING A NEW SOLUTION IS TYPICALLY NOT YOUR REGULAR JOB: HOW DO YOU MANAGE TO INTEGRATE DESIGN, CO-CREATION AND DEVELOPMENT OF A NEW SERVICE INTO YOUR DAY-TO-DAY ACTIVITIES?

JÉRÔME: When we started this project, we felt it was necessary to involve our clients from the outset, not only to understand and meet their needs, but also to confirm the usefulness and possible barriers to adopting a new communication/valuation tool. An Account Manager seemed to be the best placed to instigate a dialogue on an informal basis, and get regular client feedback: we typically have a close relationship with our clients as we are in contact with them every day. It is part of my job to provide solutions to support my clients’ business development.

Collat’Shaker is a huge improvement for all stakeholders, so it seemed natural for our team to free up resources to develop the project, and we received excellent support from both our direct managers and CIB top management. They offered regular feedback and concrete support to solve problems as they arose and secure the necessary budget during the project’s development.

Finally, our way of working allows our small team to work with agility and autonomy. This was instrumental in enabling us to create Collat’Shaker with our unique touch. Our very different backgrounds (Business and IT) and complementary skills offered a good environment to develop our project rapidly. ●

BRICKS AND MORTAR ENTER THE DIGITAL BAZAAR

By Jean-Baptiste Natali, Head of Digital and Technology at BNP Paribas CIB Corporate Banking EMEA

Long driven by Venture Capital (VC), the rapid growth of the digital sector is now seeing a new kid on the block: the corporate. Old economy “bricks and mortar” firms are increasingly eager to harness the opportunities presented by the new economy and have started to enter the digital technology bazaar.

The digital sector’s rapid growth has predominantly been backed by venture capital firms’ deep pockets, with financing for VC-backed companies soaring from \$50bn in 2013 to \$130bn in 2015.

However, old economy firms are catching on to the sector’s potential, beefing up their innovation teams and investing directly in VC funds, launching their own venture divisions, or buying up stakes in digital firms.

Digital is a growing component of the tech sector, which is on track for a record-breaking 2016 in terms of mergers and acquisitions. The global tech M&A market topped \$475.4bn in the first three quarters of 2016, exceeding the previous high of \$446.1bn for the same period in 2015, according to Dealogic.



JEAN-BAPTISTE NATALI

Jean-Baptiste Natali, Head of Digital and Technology at BNP Paribas CIB Corporate Banking EMEA.

Over 20 years of Corporate Finance experience, he joined BNP Paribas early 2016. Prior to that, he worked in London at Nomura and Lehman Brothers since 1999 in different roles in Investment Banking notably as Head of Technology, EMEA.

The US remained the dominant acquisitive force, although Asia is seeking to aggressively expand internationally, exemplified by the high-profile purchase of UK-based chip designer ARM Holdings by Japan’s telecoms and internet firm SoftBank.

However, in contrast to VC firms, traditional corporates are often still unnerved by the difficulty of accurately valuing digital firms, says Jean-Baptiste Natali.



“Europe is still seeing pretty healthy activity because VC funds are still growing in size in Europe.”

HOW DO YOU DEFINE DIGITAL AND WHAT TRENDS DO YOU SEE IN DIGITAL IN TERMS OF CAPITAL RAISING AND M&A DEALS?

Digital is everything related to the new economy. It's pretty transversal. It can be found in technologies around SaaS (Software as a Service), cloud and big data, but you also find it in media in the form of advertising tech, telecoms (Internet of Things), industrials (smart manufacturing), utilities (smart cities and smart grid), banking (FinTech) and insurance (InsurTech). It's

particularly related to the digital revolution, the move to online, off-premises, mobile, everything related to innovation in the past 10 years. It crosses every single sector.

Most digital companies are funded by VC firms, and very few are profitable. They are funded on a 12-24 month cycle and grow very fast, so they go through the cash and then need to raise new capital. This means that financing is the primary driver of activity. Last year was an historic high in the history of digital for capital financing and deal activity. Financing for VC-backed companies was \$130bn worldwide, after \$90bn in 2014 and \$50bn in 2013, which underlines the kind of explosive growth in digital financing for recent years. Deal sizes have also increased because valuations increased in that period.

In the fourth quarter of 2015 in the US there was some excess in valuations of digital companies, and that led to a slowdown that was confirmed in the first half of this year. So we have seen a roll-back in activity this



year but it is still at a high level, similar to 2014 and well above the levels of 2012-2013. We're still probably going to top 2014 this year, but it will be some way off 2015 because of a realisation that valuations have reached unsustainable levels, especially in the US.

WHERE IS MOST ACTIVITY TAKING PLACE?

The US has seen the most deal activity and the highest valuations, but Europe is still seeing pretty healthy activity because VC funds are still growing in size in Europe, despite a less buoyant environment compared to last year.

The one element that has dampened the atmosphere in Europe is Brexit. FinTech was a big focus in the UK, because of the passporting of financial activities that was possible through Europe and the fact that London was the financial hub for Europe. In the second quarter there was a slowdown in deal activity in the UK, specifically in FinTech, and capital raising was down 40% in the UK in the quarter.

In contrast, Germany did very well in the first half. Germany is known for e-commerce because of Rocket Internet, one of the leading financing houses for e-commerce. France has also been very robust

WHAT ARE THE BIGGEST DEALS OVER THE PAST YEAR?

The largest deal we have seen, at the frontier of tech and digital, is the acquisition of ARM in the UK by Softbank for €28bn, which Softbank presented as a play on the Internet of Things. There was also Microsoft's acquisition of LinkedIn for €25bn, which is a big symbol of traditional tech buying into digital. The other very large deal was Unilever buying Dollar Shave Club, a new on-line subscription-based service, for more than \$1bn. There was also talk of Lyft, an Uber lookalike, being in discussions with General Motors at about \$6bn, so these are big numbers.

In Europe one of the most talked-about acquisitions was Nokia buying Withings, a French business that manufactures wearables for health, for close to €200m. There has also been some capital raising

“None of these businesses are profitable or cashflow-generating. So it requires an effort to project forward [...] then you can define some level of potential future profitability.”

in Europe at fairly high valuations. Online fashion and e-commerce firm FarFetch raised \$110m; Cabify, another Uber-type business, raised \$120m; Number26, a digital-only bank in Germany, \$40m; and Letgo, a consumer-to-consumer goods market place, \$100m.

HOW EASY IS IT TO PUT A VALUATION ON DIGITAL COMPANIES?

It is an area of discomfort for traditional bricks-and-mortar firms, which are used to looking at discounted cashflow analyses and using profitability multiples for valuation purposes, because none of these businesses in the new economy are profitable or cashflow-generating. So it requires an effort to project forward and look at a few key things: What is the addressable market of the business over time? And what is the likely success and market share? Once you have done that, then you can define some level of potential future profitability. But the risk attached to those ventures is significantly higher than in a traditional business. That is something that traditional corporates struggle with, whereas the VC community is completely used to it.

WHICH SEGMENTS OF DIGITAL ARE MOST ACTIVE?

Today the two biggest sectors for activity, especially M&A, are Internet of Things and big data analytics. The other hot spot remains Cloud and SaaS. Healthcare and payments are also growing.



TO WHAT EXTENT ARE TRADITIONAL BUSINESSES INVESTING IN DIGITAL?

There is clearly a large focus by corporates on digital. Most groups now have chief digital officers or chief innovation officers. We are seeing a more aggressive approach from some groups, as shown by the Unilever Dollar Shave Club deal and Nokia/Withings. And companies as mainstream as SNCF and Peugeot have also done deals in the digital segment. It is definitely picking up and it is a trend that will accelerate.

HOW DO THESE CORPORATES INVEST IN DIGITAL?

Some of them start by investing in venture funds to test the water. Others set up their own venture arms - corporate venture capital now accounts for 25% of all VC financing, and the largest VC funds in the world are corporates, such as Google Ventures, Intel Capital, Cisco Ventures. And the final step is direct investment, including a majority or 100% stake, through M&A. So there are three planks and some do all three. •

NEW ECONOMY FINANCING TRENDS KEY Q3 2016 FUNDING TAKEAWAYS

GLOBAL



year to date
2012-2016 var.
+134%

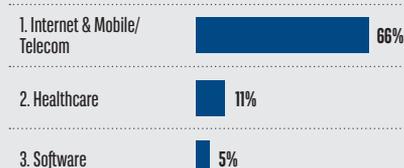


year to date
2012-2016 var.
+24%



year to date
2012-2016 var.
+4 pts

TOP 3 SECTOR BY DEAL SHARE (in Q3 2016)

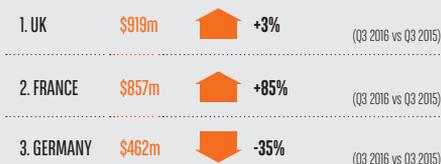


EUROPEAN FOCUS (IN Q3 2016)



North America sees total deals and funding dollars fall in Q3 2016. Europe Q3 2016 deal activity rises, but funding drops below \$2.5bn. Asia slowdown continues as investors pull back.

TOP 3 EUROPEAN COUNTRIES BY INVESTMENT VOLUME (in Q3 2016)



TOP 5 EUROPEAN FUNDING DEALS IN 2016 (in \$m)

E-COMMERCE	INTERNET INFRA	MARKET PLACE	MARKET PLACE	INTERNET OF THINGS
Germany	France	United Kingdom	United Kingdom	France
\$365m	\$279m	\$275m	\$192m	\$162m
Global Fashion Group	OVH	Deliveroo	Skyscanner	SigFox
Kinnevik Access Industries, Kinnevik, Ontario Teachers' Pension Plan, Rocket Internet, Summit Partners, Tengelmann Ventures, VerInvest	KKR & TowerBrook Capital Partners N.A.	Bridgepoint Accel Partners, Bridgepoint, DST Global, Entrée Capital, Felix Capital, General Catalyst Partners, Greenoaks Capital, Hoxton Ventures, Hummingbird Ventures, Index Ventures, JamJar Investments, Khaled Helioui, Nokia Growth Partners	N.A. Sequoia Capital, Yahoo! Japan, Scottish Equity Partners	Air Liquide, Alto Invest, Bpifrance, Elaila Partners, Elliott Management, ENGIE New Ventures, Eutelsat Communications, Fonds Ambition Numerérique, Henri Seydoux, IDInvest Partners, Intel Capital, IXO Private Equity, NTT Docomo Ventures, Omnes Capital, Partech Ventures, Salesforce Ventures, Samsung Electronics, SK Telecom, SWEN Capital Partners, Tamer Group, Telefónica Ventures, Total Energy Ventures, Zouk Capital

THE ECONOMICS OF “CREATIVE DISRUPTION”, A PLACE FOR EVERYBODY ON THE CHAIR?

By William De Vijlder, BNP Paribas' Chief Economist

Imagine a ballroom with 10 tables and 10 people at each table. There is a podium with a band and a master of ceremony. He invites the participants of one table to exchange seats with the participants of another table. Everything goes fluidly. Transition is harmonious. Then he asks everybody to stand up, go to another table but warning them that in the meantime one table and its chairs will be removed. People without a chair will have to leave the party. The result is chaos, not to say panic or should we simply say 'disruption'!

Checking an on-line bookstore for titles referring to 'disruption' yields an impressive list. Disruption is hot because by its very nature it causes fascination and fear and also because it comes in different guises. The sources of disruption are multiple: geopolitical events, political or social developments in a single country, the environment, regulation, financial and monetary factors, change on the demand or supply side of the economy.

The factors from this non-exhaustive list have in common a big impact on society, business, the economy; a long adjustment process; a prolonged



WILLIAM DE VIJLDER

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period of uncertainty. Uncertainty is a key attribute of any type of disruption and helps to explain why the economic costs can be considerable. Uncertainty implies reduced confidence in forecasts which are relevant for business decisions. This will weigh on the willingness to invest, cause slower growth or make the recession last longer and this may in turn make the economy structurally weaker because potential growth slows and productivity growth declines. However, it will also trigger a quest for efficiency enhancement by means of innovation.



The Austrian economist Joseph Schumpeter called this 'creative destruction': challenging economic times create an urge to innovate but in doing so it causes profound change because it gives innovative companies at least temporarily a competitive edge pushing competitors out of business or forcing them to imitate the innovator. Creative disruption may sound less frightening than creative destruction but the change it imposes on the economy is nevertheless huge not to say colossal.

In analyzing this change, a demand side and a supply side perspective can be adopted. The former emphasizes the offering of new products (e.g. driverless cars), more sophisticated yet cheaper products, new types of services (Airbnb, Uber).

Generally speaking one can argue that the consumer experience will be enhanced (economists would say that consumer utility increases) and/or that spending power will increase because of downward pressure on prices: consumers who were willing to pay a high price and previously were doing so, now get the same goods or services at a lower price (in economics speak: the consumer surplus has increased).

On the supply side it's another story: the aggregate producer surplus declines as companies make less from the same quantity they sell (of course overall demand can increase though there are limits to this). Moreover, some companies or even sectors may thrive whereas others suffer. Financial market investors and bank credit departments face the challenge of identifying the future winners whilst avoiding the losers: company-specific risk increases. Then there is the issue of the labour market. It is here that the differentiated consequences of disruption are perhaps most visible.

Somebody working in a company or being self-employed is both a consumer who benefits from the consumer surplus (more products at a cheaper price) and a producer, a factor in the production chain, who can benefit from disruption when employed by a 'disruptor' but will suffer when working for an incumbent which is now under attack. In case of the latter, increased job uncertainty, if not job loss altogether, will weigh on his consumption and in the aggregate on economic growth. This is nothing new though and this process of technological change/innovation/destruction/adjustment has repeated itself many times since the industrial revolution.

Is this time different? No, when looking at the basic characteristics of disruption which forces companies and societies to adapt and find a new edge. Yes, in the sense that today's disruption has many faces (demographic, environmental, monetary and financial, technological) and is impacting many sectors simultaneously (think of the metaphor of the tables in the ballroom at the start of this article). Technology in particular plays a key role in view of the labour savings which digitalization, robotisation and artificial intelligence will entail whereas the jury is out on the number and types of jobs which will be created in new areas. This creates huge challenges for governments: the quality of education, fostering research and development, facilitating access to risk capital, creating and maintaining a social safety net, etc.

Success in this respect is all the more important because the ensuing economic growth will allow to reinvest tax money so as to be well prepared for future disruptive shocks. •

DEMAND DISRUPTION IN SHARING ECONOMY: airbnb example

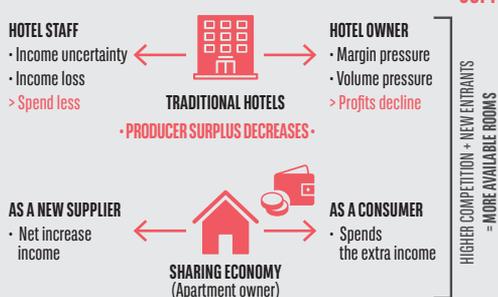
Apartment/room for renting during holiday season



DEMAND



SUPPLY



PRICE DECLINE TRIGGERS INCREASE OF DEMAND AND HENCE SUPPLY

EVENTS CALENDAR

FIND US AT THESE GLOBAL CONFERENCES FOR TREASURERS



BAFT EUROPE BANK TO BANK FORUM

SPAIN, MADRID 16/18 JANUARY

The Bankers Association of Finance and Trade will host a day and a half conference covering specific issues facing the transaction banking industry.

• baft.org/events



19TH ANNUAL GLOBAL AIRFINANCE CONFERENCE

IRELAND, DUBLIN 17/19 JANUARY

Organized by Airfinance Journal, this conference puts networking at the heart of the event.

• euromoneyseminars.com/global-airfinance-dublin/details.html



SMART CASH MANAGEMENT

UK, LONDON 8/9 FEBRUARY

Organized by the Association of Corporate Treasurers, this conference will be focusing on the way to optimize liquidity in the digital age.

• treasurers.org/cashmanagement



INTERNATIONAL PETROLEUM WEEK 2017

UK, LONDON 21/23 FEBRUARY

The IP Week is a thought-leadership forum organized by the Energy Institute and gathering global oil and gas industry stakeholders to discuss future challenges and opportunities in the sector.

• energyinst.org/events



ACT TREASURY FORUM 2016

USA, SAN FRANCISCO 9/10 MARCH

EUROFINANCE organizes the 2nd annual conference on Rapid International Growth and will focus on how Finance and Treasury are supporting change.

• eurofinance.com/conferences



TURKEY TRADE & EXPORT FINANCE CONFERENCE 2017

TURKEY, ISTANBUL 21 MARCH

Organized by Global Trade Review, this annual event in Istanbul has become one of the most important gatherings in the region for companies involved in international trade.

• gtreview.com/events

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