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TRANSFORMATION

New technologies:
Destruction or opportunity?
Or both...

THIERRY DERUNGS

DESIGN THINKING

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DEAR READER,

Design thinking, a collaborative, human-focused approach to problem-solving, is no longer just for the creative industries. It has become an important management trend across many industries and has been embraced by many organizations. Its results are hard to ignore. Indeed, design-driven companies regularly outperform the S&P 500 by over 200 percent.[1]

To date, the financial services industry has not led in adopting this approach. However, leaders are recognizing that important challenges, such as engaging with millennial customers, can be best addressed by using design thinking, through the methodology's exploratory approach, human focus, and bias towards action. This edition of the Journal examines the value of design thinking in financial services.

Design thinking introduces a fundamental cultural shift that places people at the heart of problem-solving, which is critical in a technology-driven environment. If the customer's real problems are not fully understood, technological solutions may fail to deliver the desired impact. In this context, design thinking offers a faster and more effective approach to innovation and strategic transformation.

The case studies and success stores in this edition showcase the true value of design thinking in the real world, and how this approach is an essential competitive tool for firms looking to outperform their peers in an increasingly innovation-driven and customer-centric future. At Mastercard, design thinking has become a part of almost all organizational initiatives, from product development, research and employee engagement to solving challenges with customers and partners. Meanwhile, at DBS Bank in Singapore, a data-informed design model has been firmly embedded into the bank's culture, enabling them to successfully move from being ranked last among peers for customer service in 2009, to being named the Best Bank in the World by Global Finance in 2018.

I hope that you enjoy the quality of the expertise and points of view on offer in this edition, and I wish you every success for the remainder of the year.

Lance Levy, **Capco CEO**

[1] http://fortune.com/2017/08/31/the-design-value-index-shows-what-design-thinking-is-worth/

NEW TECHNOLOGIES: DESTRUCTION OR NEW OPPORTUNITIES? OR BOTH...

THIERRY DERUNGS | Chief Digital Officer, Head Digital Solutions, IS Investment Solutions – Wealth Management, BNP Paribas sa

ABSTRACT

When people mention 'new technologies,' they are typically referring to the ones that transform, or create, business models, and have a deep impact on the organization and/or its processes. Other technologies could also be complex but are in fact just a day-to-day technical upgrade. New technologies are all about innovation together with disruption and cut across the entire organization. While the first key step is to start the process, the change itself needs to be managed more cautiously and steps must be taken to ensure it is methodical, coordinated, and instituted step-by-step. In this article, I will share our experiences in practice and walk through what we have done in the artificial intelligence domain.

I love to connect, speak, and exchange not only with my peers but also with many people. From CEOs to desk employees, from CTOs to project managers and developers.

I must say that if many people speak about new technologies opportunities, I observe quite often some fatalism or some wishful thinking. As I like to say, new technology is like teenage fantasies: many speak about it, few do it for real and often the first experience is disappointing. The good news is that you learn by doing.

I see CEOs who want to transform their companies but who do not go beyond a wish or a statement, and limit themselves to tangible short-term returns or efficiency gains while not considering new business models.

I see CTOs who have old legacies to maintain that are not compatible with the new technologies their businesses clamor for the next day.

I see CMOs who continue traditional marketing while trying some limited, and too isolated, web marketing activities.

I see project managers who have brilliant ideas but are blocked by unclear business cases.

I see developers frustrated to not be allowed to jump on new technologies.

Last but not least, I see employees afraid to be replaced by artificial intelligence or simply afraid of new technologies as they do not know what to do with 'that.'

You must think that I only walk on the dark side, and that I am one of those people who oppose new technologies.

No, I am a Chief Digital Officer living a success story in my company. However, I am also fully aware of all the issues, constraints, and challenges that a profound transformation raises.

For many companies, digital is fatalistic from the start. But they imagine that there must be some value somewhere as the others are moving forward.

Several CEOs told me that they must move to new technologies because their competitors are, or because they must reduce their costs. What a mistake.

This article is to deliver a message of hope. New technologies provide real opportunities and there are simple ways to apply them, without destroying or turning your company upside down. At least not from the start…

I wish to take you on this journey and demonstrate how you could also take your company, step by step, into the digital age.

Through simple steps, based on my 20 years of personal experience, I will walk you through the discovery of these new opportunities.

"We must go blockchain." Sure... and what color for your blockchain?

I love the cartoon in which a CEO is telling his CTO that they must build a blockchain. To check that he at least knows what he is talking about, the CTO asks him in which color he would like his blockchain. The CEO says that mauve has the most RAM.[1]

We all know about hype and the convincing power of consulting firms to persuade us that not using a given technology will soon put an end to our business.

If you are also a digital veteran, as I am, I am sure you remember the time when your company was not expected to survive without having a WAP (web application protocol) site. WAP was expected to replace html for mobiles towards the end of the 90s, but by 2001 its 2.0 version was already dead.

The technology itself was not the main issue. It was the fact that companies were creating useless and/or senseless sites on mobiles that was the real cause of failure.

Even if you are an IT firm, new technologies without a business purpose or perspective are just a waste of time and money.

You do not need to institute blockchain. You have new business models that demand new capacities, and while evaluating how to acquire them the blockchain technology could be one of the answers.

These few lines are to draw your attention to one of the key success factors. You do not need a new tech guru. You should avoid a dreaming business witchdoctor. You need a down-to-earth digital geek. You need that rare individual who can fluently speak in both languages of business and IT, who understands all the capabilities, and weaknesses, of the new technologies, and who can connect them to the new business models and use cases.

And to ease your hiring process, that person should also be a charismatic leader with extensive communication (and persuasion) capabilities.

That dual personality is the one who can highlight the potential business capabilities of the new technologies, opening a business use case dialog with IT.

They are also the best person to guide your IT through the technologies that need to be anticipated, and mastered, and how they should be best integrated.

1. YOUR FIRST CHALLENGE? JUST START...

The term 'new technologies,' typically in terms of digital, is often quite broad in context. Any check-up you do will reveal many opportunities for improvement (automation, analytics, client experience, etc.), new ideas, innovations, and unfulfilled expectations. Just pick just one.

As it is your first step, you must carefully choose THE use case. The one with a clever balance between simplicity and expectations.

For your selection, you should consider several factors.

- **Be simple and audacious:** select one simple, but visible, initiative that not only generates improvements for your clients but also, preferably, provides value to your employees as well. Ensure that you are in incubation, focusing on delivering an MVP (minimum viable product) rather than rushing for industrialization or turning your company's core business model upside down.

  And audacious? This is not always contradictory with simplicity. As your objective is to explore new capacities, your initiative must just be impossible, or very difficult, to achieve with your current capacities.

- **Be pragmatic:** you must be able to easily manage your initiative. No giant technical challenge, no extensive investments, no high risk to manage, no business revolution, just a small but bright idea to fulfill a need or fill a gap.

[1] https://bit.ly/2I7x199

Do not forget that you are a newbie. Be humble in your first ambitions.

- **Pilot:** you must be able to pilot your initiative within two to three months. It cannot be difficult as you have been simple and pragmatic. The pilot can simply be the delivery of the first part of your initiative, or a test with a limited target before a wider deployment. Whatever it is, its objectives are: test, learn, and adapt.
- **No (full) business case but a pragmatic and tangible business use case:** costs are pretty easy to evaluate, but the returns are not that easy to calculate. Do not stop yourself or slowdown because you cannot define proven and tangible returns for your first idea. As you have been simple and pragmatic, your investments are limited and so are your risks.

  Your business use case must solve a precise pain or provide, partially, a missing link.

- **Find the right partner(s) for incubation:** Partners for your ambitious use case must be wisely selected. You need a business matter expert who is (very) open-minded and fully cognizant of the fact that their usual way of working could be fundamentally changed by your initiative.

  An out-of-the-box thinker as the technical leader also plays a key role. No, your IT must not necessarily develop and/or master everything. The technical leader should support you to find the right partner for incubation, not for a full-scale industrialization. Your initiative is to allow your business to explore and learn new capabilities to deliver a use case. Working with a startup or a fintech is perfect for going fast, while acquiring knowledge, during incubation. Of course, you hope that this partner will also be the one for acceleration and industrialization. That is the second job of your tech leader: to already think about the industrial integration and deployment without slowing down your incubation.

2. WHILE STARTING, PREPARE YOURSELF FOR THE MESS

These two simple letters, AI (artificial intelligence), cover a very wide domain: NLP and NLG (natural language processing and generation), semantic, machine and deep learning, automation, big data, etc. The newness of 'new technology' is, of course, in the eye of the beholder: new for who? To be very clear, it is new for your company.

This is all about new capabilities for your company, which come with a huge challenge of integrating the underlying technologies with your legacy systems.

As it is worthless to have a car in your garage without using it in your day-to-day life (except if you are a very wealthy collector) any new capability must be integrated to enrich your current ecosystem. We all know how difficult it could be to combine (old) legacy systems with new technologies.

Difficult does not mean impossible but demands that you prepare your environment. From my point of view, there are two key work areas to invest in from the very first day.

Data is one of the most crucial for sure. Most new technologies are hungry for data, especially anything related to AI.

In addition, AI is a gourmet – it does not like junk food and requires gastronomic data. Data quality has always been important, but within AI it's even more so, since it takes you from the classic 'garbage in, garbage out' to 'garbage in, total mess out'. Data quality needs to be almost perfect for AI.

Although I am stating the obvious here, let me stress that data quality with a capital Q is your first key work area. Allow me to further explain and walk you through a simple example.

Many new technologies initially involve data crunching to build models, patterns, and/or knowledge. Beyond any new technology considerations, the simplest targeting work demands accurate data. Nevertheless, as a statistical analysis, data quality variation is smoothed inside the margins. Needless to say, that your target accuracy relies on decent data quality. This is already the case for any traditional business intelligence, hence no surprises here.

The key differences with the new technologies, especially while using AI in an analytic domain, are that you extend the number of data sources and of transformations (such as detecting intents in natural language to enrich your client data model), and that you are able to apply a model individually to all your clients, products, etc. Not only do the number of sources and transformations drastically amplify margin error, applying a pattern individually also diminishes the traditional mass tolerance.

Prepare yourself to discover that even if you manage your data very well, using new technologies will certainly create data quality issues. You need to be aware of your true data quality levels from the very first day and determine whether you could afford to improve them. These evaluations are crucial as they determine how far you can, or will be able to, dive into the new technologies.

It goes without saying that if your data quality is average, it will be a waste of time and money to start any business use case with new technologies.

And it will not do any harm to underline that this key work area is mostly a business duty.

So, you need quality data, what next? You have most probably heard many times that data is the new gold, but sitting on the richest gold mine is in vain if you cannot fully tap its potential and extract it at an affordable price. The opening of your mine is in my point of view the second key area to invest in as soon as possible.

This is all about API (application programming interface), hence I will not be discussing open banking or the Payment Services Directive (PSD2). My focus will be on the API-zation to open your legacy systems to new technology(ies) integration and easier data access. API is nothing new, but it becomes crucial as the standard way to connect and integrate any new technology.

Many executives view this transition as a basic and easy task for the IT. I should state that this is true and totally wrong.

Legacy systems are often accompanied by the good old MQSeries fellow (IBM messaging known as the software-glue), or other middle-layers. I must also state that Cobol is the IT Loch Nessie: many people think it has disappeared while in fact it is still widely present through legacy systems.

It is certainly the case that developing API on top of your systems is easy, though many in IT might respond by saying that it is not that obvious. However, while I agree that it does take time, the development itself is not rocket-science.

The real API challenges are not purely in the coding but in the strategy and the control you need. Indeed, new technologies are very often the open door to high volumes of data request that could lead to system overload and, potentially, crash. You need then to put a full API stack in place, usually referred to as an API Store, to set up all consumption controls and limitations according to your legacy capabilities.

If data quality was mainly a business work area, this one is much more for IT. Nevertheless, business must not be far away. Understanding business expectations in the short and long term is key, as usual, to set priorities for the API development and deployment.

3. AI'S ADVENTURES IN WONDERLAND

Pushing AI inside a company is not, always, an easy job. For sure you will be like Alice and (re)discover many Wonderland characters.

The Mad Hatter and the March Hare: they can discuss issues forever. Come back after some time and they will still be talking without acting.

The White Rabbit: for him, you should have delivered yesterday, or the day before. Fair enough, as time to market is always key, but what does he expect exactly?

The Queen of Hearts: too many consulting firms push you too fast to widen the projects, predicting the end of your business if you do not invest massively immediately, preferably with them. Indeed, you have to start, but you have to do so wisely and progressively.

The King of Hearts: he does not question what the Queen says. I hope for you that you do not have too many such characters in your company. We all know that, without denying that consultants can add value, they are there to sell their services.

The Dormouse: instead of questioning himself, he prefers to keep going as today for ever.

The Dodo: he is at the opposite of the Dormouse and wants to change through extreme actions without thinking about any side effect or impact.

Tweedle Dee and Tweedle Dum: I love them, since they always have a good story to tell to ensure that you will not open their Pandora box. They begrudge AI intrusion into their organization and processes.

The Cheshire Cat: he disappears each time you need a decision or have a question. He is there but not really.

The Caterpillar: find one. Always calm, thinking wisely, he works with you to move forward.

Please do not misunderstand me, I am not trying to scare you. However, you must be aware that AI, as with other new technologies, will change your company.

As your first challenge is to start, keeping an open mind about, and focusing on, all the potential difficulties and hiccups should guide you to make the right choice for your first move.

And the good news is that there are some safer AI domains to start with.

I will now provide some ideas and examples of practice. As these are based on our experiences, I will illustrate them with some of our partners. Be aware that we selected them based on our precise needs and expectations. These examples are not in any way product recommendations as there are no fit-for-all solutions.

4. ANALYTICS: THE NEWBIES' SAFE HARBOR

Analytics is easy: you just need a bunch of data and play with some tools. I am being a bit cartoonish even if it basically is as simple as that. As such, analytics is a safe area to start on AI.

Do not misunderstand me: safe does not mean restful.

In addition, we all need, and use, analytics to drive our businesses or operations. Starting with AI inside a well-known domain allows for easier discovery of new data approach added value.

Nevertheless, there is a compulsory condition before starting your AI analytic work. You must already have a

decent data environment, meaning data-warehouse(s) or data lake, with a good quality level. As mentioned previously, if you do not have such infrastructure or if your data quality is not at least good, do not start any initiative.

> "Let me stress that data quality with a capital Q is your first key work area."

Assuming that you have these, your IT should be able to build fast enough an isolated data environment which will be your playground.

As a first step, I would recommend that you select an existing model or client targeting. You then know which set of data you need (allowing your IT to prepare your first environment), you have an expert (the one who built the model or target and who knows the involved data), and you have a benchmark (your current model or target accuracy).

Finding the right partner to start with is then much easier. But, do not try to find the golden goose! Of course, you must search for a solution that will allow you to do more than just have your first experience, and hopefully one that will allow you to industrialize and integrate within your legacy. Nevertheless, this is a learning expedition and keep in mind that you could need another partner based on your newly acquired knowledge.

Our discovery of the artificial neural network analytics started exactly in that manner. Based on a set of existing target models and on some foreseen ones, we took advantage of our startup ecosystem and found DreamQuark.

Our first step was to do a fast (six weeks) first proof of concept (POC). Taking the most out of our agile and lean startup approach, our small team of business and data experts discovered and learned with DreamQuark what a neural approach could provide.

As the added value was promising, and as our partner seemed to be a perfect fit for us, we moved to a longer (four months) pilot. In that step, we decided to build a new model. But how do you benchmark it? As we had some sceptics, we launched in parallel a traditional statistical approach. It is important to highlight that it had also been the start of the in-depth technical assessment of the solution by our IT.

As the results came in, the model was built faster and much more accurately (in theory and in practice as we used the model with a set of our relationship managers). Last, but not least, our IT confirmed our capacity to integrate, at decent and affordable efforts, the solution in our framework.

Today, we are in the industrial deployment stage, not only in terms of the number of models but also across our different entities.

As you have seen, we have been able to move from a low risk and costs POC to the full acquisition of new analytic capabilities, based on a new technology and approach, in less than one year.

5. SECURITY AND FRAUD: AI GIFT OF X-RAY VISION

Security and fraud are unfortunately a common nightmare for all types of industry.

Regarding security, beyond the classic safety nets, such as firewalls, reverse proxies, etc., the key challenge remains to anticipate new attacks, such as identity theft.

Fraud detection typically relies on processes compliancy, complaints, and random, even if guided, controls. Again, the key challenge is not only to anticipate but also systematically control without having a controller per employee (and even then, who will control the controllers?).

For both, AI provides very high added value.

For example, I was worried by the growing importance of our corporate mobile devices in the day-to-day work of our employees. Of course, they were already secured, through a mobile device management solution, like other corporate applications. Nevertheless, my concerns were on the surroundings and the devices themselves.

Through one of my pilgrimages – I go regularly to events to meet startups and fintechs – I discovered Wandera and I was very interested in their security solution for mobile devices, as it seemed to fit my expectations for our employees.

Moving to a proof of concept (POC), then a pilot, demonstrated the added value of AI in identifying in real time patterns of risk, understanding behaviors, and reacting to deviations.

> "It goes without saying that if your data quality is average, it will be a waste of time and money to start any business use case with new technologies."

In this case, we left this highly specialized analytics to our partner, as it is based not only on our own traffic but also on its global footprint (the worldwide traffic from all devices connected to Wandera) and expert training on device, apps, and access points behaviors.

With regards to fraud detection, our approach is very different as we need to fully master internally the fraud patterns, since most of the requested data are highly sensitive and internal.

Our key objectives were not only to have the capacity to scrutinize every transaction but to also anticipate potential fraud cases. Again, these are all about patterns detection and behavioral analysis.

Our path and expectations were very clear as we started our journey with homemade developments. We were aware from early in the process of our limitations and started to search for a specialized partner matching our specific needs.

In this case, we moved to a mature startup, NetGuardians, as they matched a number of our key requirements: strong experience in finance, an on-premises solution, a model-based approach that we can fully master and control, and a behavioral- and pattern-based approach through AI and machine learning. As you might have noticed, knowing exactly the way to go, having pragmatic use cases, and possessing a vision are crucial for selecting the right partner or deciding on whether or not you should develop in-house.

In addition, it was also important for us to be able to deploy progressively not only across our different locations but also in terms of fraud detection scope.

Aligned with our specific expectations, NetGuardians' AI allows us to control all transactions with different perspectives and to combine them.

6. BOTS: THE CLASSIC

Bots are perhaps classic, however moving from a good old script bot, often a bit dumb, to a clever bot is not an easy path. Indeed, behind the 'bot' word are hidden several complex technologies: NLP (natural language processing), semantic and/or intent detection, machine or deep learning and, finally, sometimes, NLG (natural language generation).

The good news is that there are plenty of out-of-the-box solutions.

The bad news is that they too often promise magic when the bot training takes a lot of effort and time

In this case, we decided to dedicate our annual hackathon in Singapore to find a partner. Impressed by GoodAtlas, the winner, we took them to our Factory (our internal incubator and accelerator) to deliver not a classic bot but a voice bot dedicated to support our front people.

On our way to deliver a running MVP (minimum viable product), some five months into the project, we realized that they would not be able to support us in our industrial ambitions.

I want to underline that it had been a truly win-win situation. We had the opportunity to deep dive in all these topics and technologies and learned a lot, allowing us to find our new industrial partner much easier. For GoodAtlas, it had been the opportunity to learn too and, finally, to rotate their business model and focus on their key added-value.

And now? We are moving forward on industrialization with two different tracks.

The first one is to develop a homemade clever chatbot dedicated to our clients by using the API from a new external partner.

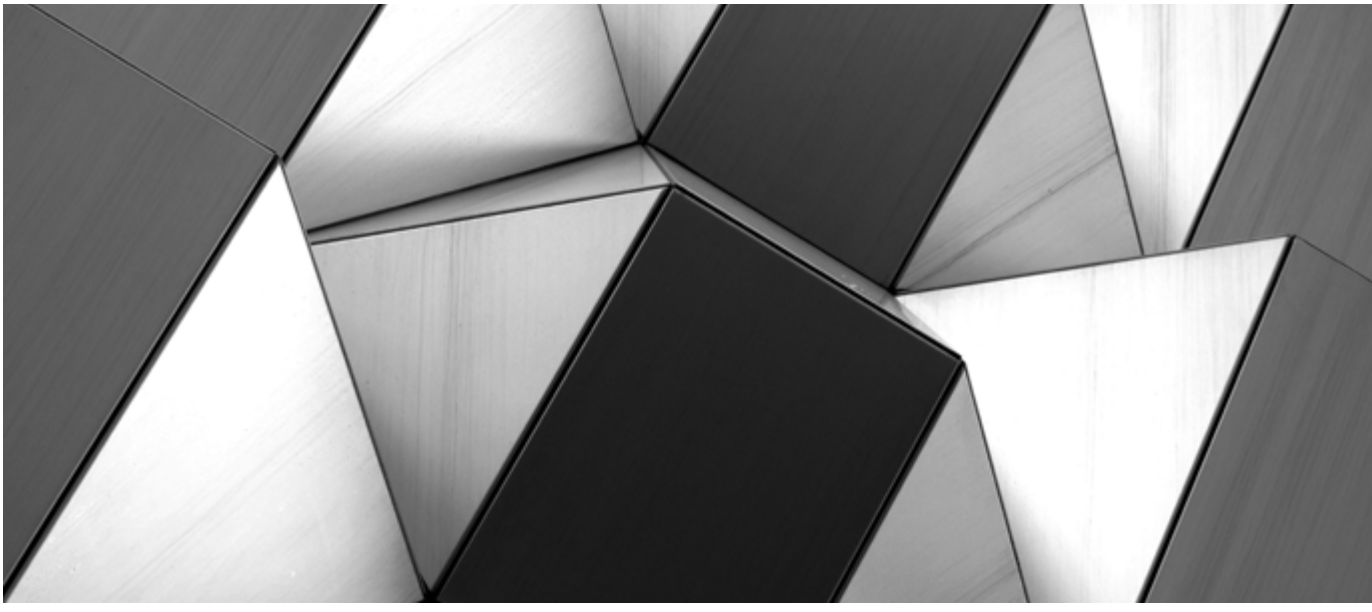
The second took over the work done in our Factory and develops with a fintech our voice bot to augment our relationship managers.

7. MY TWO CENTS…

I hope that sharing my experience will help you build yours.

My intention was to highlight the challenges you could encounter while starting on the new technologies, especially on AI.

Having gone through this experience, I can assure you that there are many ways to move from the Wonderland to the promised one, and to embrace the new opportunities of our modern, fast evolving, world.



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