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CPS - GUIDE TO THE DIGITAL TRANSFORMATION

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IN BRIEF

History's most significant innovations only made their huge impact on people's lives, societies and on evolution once they became widespread and universally accessible. The combination of these innovations and their accessibility have had a larger impact than that of individual innovations on their own.
The Digital Transformation is the result of the spread of previous technological innovations amplified by developments to support infrastructure.

THE RECURRING CYCLES OF EVOLUTION

There are innovations that are so important that they can create history on their own. If you think about electricity, the telephone, the personal computer and the internet, or even the internal combustion engine and the railways you realise that these incredible inventions have a few things in common:

- They transformed landscape and cities. Their means of transport physically connect people and resources at previously unimaginable speeds.
- They rely on infrastructure. The transport relies on roads, railways and ports, the exchange of information and content on telephone networks.
- They are interconnected. For example, the telephone or internet would never have existed without electricity. Meanwhile electricity, engines and communication by air are vital for modern means of transportation such as commercial flight.
- They are universally consumable or usable. The exchange of goods and services flourishes in the presence of a range of operators and communications wouldn't have become universal if there weren't a huge number of connections.

Single innovations can work together to drive changes that go far beyond what was originally imagined when they were introduced.
In recent times there has been a rapid and widespread development of broadband infrastructure and the almost universal access to personal computers, smartphones and tablets, which combine the possibilities offered by telephones, photography and the internet.

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The Digital Transformation is founded on the following pillars:

- The diffusion of broadband networks, including those by air.
- The widespread diffusion of smartphones and personal computers, tools which aid the consumption of information.
- A drop in the cost of communications.
- The drop in cost and increased availability of semiconductors.

THE ELEMENTS OF DIGITAL TRANSFORMATION

The Digital Transformation promises to have an even more extraordinary impact on our lives than that we're already experiencing, but we may ask ourselves why this transformation is happening now and as such what is it that has made it possible today, rather than in the recent past.
Is it based on some extraordinary, recent innovation or instead on other factors?

If you think about how for instance artificial intelligence will increasingly support decision making in the future, there have been some significant innovations in algorithms.

But if we analyse more deeply, much of the currently implemented artificial intelligence is based on *Big Data* and related *Predictive Analytics*.

The widespread development of telecommunications infrastructure, the drop in the cost of connectivity, memory and semiconductors - thanks in part to their standardisation but also to increased competition - the diffusion of sophisticated processing tools like personal computers, smartphones and tablets, the cause and consequence of the dynamics described previously, have created the vast consumption capacity of the products of the Digital Transformation and the subsequent development of an immense range of tools and services.

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The Digital Transformation has an impact on production processes but can also transform entire *business models*.
This means that the organic and strategic implementation of the transformation is more complicated.

Innovating individual processes without hanging these changes together with a consistent business model design would be upgrading or adapting not transforming. It could lead to investments that are either fruitless or which the organisation cannot fully exploit.

IMPACT OF THE DIGITAL TRANSFORMATION

As happened during the development of computers and the internet, the digital transformation could bring about significant changes to every business model.
We will now briefly examine the impact the Digital Transformation might have on the nine key elements of a business model.

VALUE PROPOSITION

A crucial part of the *business model*, the *value proposition* (or *customer value proposition*) represents the value offered to the client or more in general the user (*customer*).

The tools made available by the Digital Transformation can not only significantly improve the *value proposition* by enabling the development of complementary digital services, but can also encourage the development of new ideas. Just think about Netflix, whose business model was simply unfeasible only a few years ago, the *Internet Of Things* or the recent rapid development of *eLearning*.

KEY ACTIVITIES

A business model is supported by and realised through a system of activities implemented thanks to the definition of individual processes that can be improved or even radically altered by new digital tools.

CUSTOMER RELATIONSHIPS

Regarding *Customer Relationships*, thanks to, for example, the development of smartphones and mobile apps, each of us as users is already testing new ways of building relationships with goods and service providers.
The spread and refinement of Analytics tools has led to the development of a more personalised *customer experience* thanks to an increased awareness of individual needs and preferences.

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CUSTOMER SEGMENTS

Any innovation able to affect the cost structure, accessibility or availability of a service may produce significant changes to that service's target customer segments. One example of this is *eLearning*, which has significantly changed the cost and revenue structures as well as the accessibility of education services, exponentially increasing their customer base. It should go without saying that the identification of the target market of a good or service is at the heart of the relating marketing strategy, which can be significantly affected by the introduction of digital innovations.

KEY RESOURCES

The usual tools of the *Digital Transformation* can become the *key resources* of new business models. Think about the changes to CRM systems or digital marketing, which make heavy use of analytics and correlation analysis.

KEY PARTNERS

As already well documented in the case studies of huge successful companies like Walmart or Amazon, partners need to adapt to the digital channels and *near real-time* models that clients are adopting, thus being forced into the transformation process.

CHANNELS

It's clear that the channels through which users are reached and brought on board are already changing significantly. Examples of this include apps, *webinars*, VOIP communications, personalisation of the *customer experience* or even online and smart TV targeted advertising, the latter two of which are increasingly using highly personalised messaging and are made more effective by *digital* marketing tools.

REVENUE STREAM

Even the structure and nature of costs are affected by the Digital Transformation.
We've seen access to new payment channels, which have forced quicker reaction times on traditional financial institutions and shaken up traditional business models due to less predictable revenue sources. Think for example about the way many websites or apps finance themselves through banner ads rather than through directly charging their users.

COST STRUCTURE

The transformation is even more obvious when looking at cost structures.
Cloud computing can enable companies for which IT is not a core business to free themselves from unnecessary management costs, increasing the standard of *in-house* or *on-premise* management at a lower cost while ensuring constant updates to practices and tools.

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Whether the Digital Transformation is able to create a competitive advantage, as with every other technological innovation, is a debate in which the experts seem to responded with a unanimous "no", at least when referring to business in broad terms.
Technology by itself has never been a source of competitive advantage for 99% of businesses.
It's certain though that not adapting to innovations in such a way as to make the most of their benefits, not only regarding efficiency, will lead to serious competitive disadvantage.

DIGITAL TRANSFORMATION AND COMPETITION

It is evident that the digital transformation, like most innovations, influences our everyday lives as it may dramatically change how and how much we consume and produce.
More simply, the Digital Transformation is about the supply and/or the consumption of processed information in order to refine, improve or complement existing value propositions and create new ones.

That information comes from a range of sources and is now easily stored and processed.
But can the digital transformation itself represent a competitive advantage?

The answer to that question is fairly simple and can be found both on historical and theoretical basis. Whoever is able to use information in such a way as to obtain unique results in terms of value and/or usability will come away with a competitive advantage. For example, any business or services working directly in the production of information processing tools will have a competitive advantage relative to how well those tools will be able to produce unique results from that information, even if the nature of that advantage will be affected by important factors like the ownership and availability of information and the uniqueness and exclusivity of information processing procedures.
Analogously, any business in possession of unique data, such as telephone or social media companies, will have a competitive advantage proportional to the quantity and quality of information produced.
Those who, like the majority of companies, are consumers of innovation - data and/or applications - won't gain any long-term competitive advantage from those tools.
For the vast majority of businesses, the ability to use data and implement automated processes enabled by the digital transformation could represent at best a temporary competitive advantage which could be expanded by the ability to establish themselves as digital ready organisations.

It's important to underline that as with previous global innovations, any business that doesn't digitally transform itself by at least adapting its processes or even its business plan to the possibilities provided by the digital transformation will certainly suffer a dangerous competitive disadvantage.

Therefore, the digital transformation process should be conducted strategically, putting every area of the business model up for discussion, revisiting the business or institution's strategic decisions in a structured, value-driven way so as to at least analyze its *core capabilities* or *core competencies*, which enable the redeployment of the strategy for each product or service, or even reformulating the entire business strategy.

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Given its impact on all areas of the business model and in particular the value proposition, as well as potentially all the business model's enabling processes, the digital revolution requires a strategic transformation that has an impact on organisational areas which in turn requires an unprecedented responsiveness and ability to coordinate among functions. Due to its holistic characteristics, the Digital Transformation, in order to produce the maximum possible value, can't be thought of a simple upgrade but rather as an opportunity to put the way the entire strategy is deployed up for discussion, while not neglecting to also constantly put up for discussion the individual elements of the transformation through a constant review of their performance.

DRIVING THE TRANSFORMATION

As a result of the above, it's clear that in order to be effective and generate maximum value the digital transformation process, as something that affects all areas of a business or institution's business model and therefore potentially all of their processes, needs to be conceived organically.
This becomes an essential part of a new layer enabling a possibly unique offer in which every part is function of the value created for the customer.
The tools of digital transformation enable the sort of analysis that would once have been unimaginable. Just think about the correlation or predictive analysis typical of *big data analytics*, made possible by behavioural data studies, or the increasingly detailed input offered by operating systems through the IOT, which enable collaborative models that are poorly suited to the traditional boundaries between business areas and therefore enable, or even force, new levels of responsiveness.
The digital transformation therefore may also hav a huge organizational impact in that it entails holistic, real-time feedback loop models, which are of particular value given a global environment characterized by enormous dynamism and unprecedented speed of innovation.
The digital transformation is as such an opportunity that can't be missed and needs to be taken on with a strategic and therefore structured approach.

Through the general outlook outlined above we have developed and refined the framework for the digital transformation outlined below, which has been met with enthusiasm from our clients. The framework puts the innovation of each function within a structure that is organic and strategically consistent for each business area.

VALUE ANALYSIS AND CLASSIFICATION OF BUSINESSES

An initial classification of individual businesses will help to establish a deep relationship between those businesses and technologies.
Normally, unless there are extreme differences between business lines, you can give a business or institution an IT profile.
Initially, considering the relative importance of technology to the competitive advantage of the specific business, we split organizations into IT *Core*, IT *Intensive* and IT *Neutral*.

INVOLVEMENT IN COMMUNICATIONS AND BUY IN

The digital transformation leads to significant changes to the overall organization and individual jobs that are normally subject to resistance.
A key, but not decisive, element in overcoming this resistance is raising awareness of the benefits brought by the change.
Given the potential size of the change, it is crucial that right from the initial definition of the innovation the key figures that will carry out the change are identified and actively involved.

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CONFIGURATION OF INNOVATION

In this phase we analyze the potential impact of digitalization on the organization's *core capabilities* and the activities relating to the *value proposition*.
This is a simulation phase, which is carried out together with the client and is aimed at hypothesizing different, innovative ways of setting up activities that support the *value proposition*.
As explained before, the tools of the digital transformation can revolutionize the way we analyze markets, supply services, manage relationships with customers and partners, affect the cost structure and much more.

DIGITALISATION OF PROCESSES

In this phase we simulate a complete redesign of the client's processes, rather than the adaptation of their old processes to new tools.
In this step in particular, it is crucial to keep in mind the digital culture within the organization in question and therefore the inclination of each business area to take on board new operational models, as well as how the digital choices relate to *"critical to customer"* features and requirements.
It's therefore the moment to raise awareness of the benefits digital innovation brings people and both internal and external users, through an understanding that then leads to the acceptance of new operational models and *buy in* from *stakeholders*.

ANALYSIS OF IMPACT ON ORGANISATION

The digital transformation has a fairly pronounced impact on the organization. Think about the emergence of new roles like *Chief Data Officer* or *Chief Data Scientist*, which often have tight relationships with the *Chief Marketing Officer*, or more simply about the skillset required by the management of *social media* profiles like Twitter, LinkedIn or Facebook.
These changes entail the redesign of both the business' functions and the relationships between them, and therefore the design of totally new processes and organizations.

PERFORMANCE MANAGEMENT

Like all plans, those relating to the digital transformation are based on the formulation of more or less reliable hypotheses.
While the costs and service levels, or rather the expected economic benefits, relating to the activation of digital services generally form a reliable appraisal that is worthy of consideration, the outcomes of the digitalization of processes or, even more so, the marketing or CRM areas' *customer engagement* activities could be disappointing or even damaging.
In brief: through the hypotheses strategies are created and put into action with the expectation of certain results. If such results do not occur we may conclude that those actions were either mistaken or poorly implemented, or that the previously formulated hypotheses were wrong.
A good performance management plan is structured with the following stages: definition of the trends and value related to the implementation of specific activities, timely analysis of the results of those activities, and on the basis of the results of that analysis, provision of corrective measures, revision of the activities or even, in the worst-case scenario, revision of the hypotheses at the basis of the strategy.

CONCLUSION

The digital transformation is a huge opportunity for improvement that can't be missed without having a terrible effect on the competitiveness of a business.

It is an all-pervasive phenomenon that can have an impact on every area of a business model and therefore needs to be integrated structurally into that business' strategic planning rather than just be a series of unconnected activities that simply follow the latest trends or the moves of competitors.

As happens with any innovation that brings about big change, including the acceptance of the digital transformation, there will be resistance that can often be linked to habit, cultural limits or organizational restrictions and can only be overcome through strong leadership.

The digital transformation is affecting rapid change to the range of required skills within both organizations and specialized consultants, which entails the quick formation of completely new skill sets.

Given the speed of innovation taking place, the process of change needs to be examined in a regular and timely fashion through the use of total quality management principles, but using new channels and methods on much faster feedback loops.

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