

The Support Of Strategy Consulting To Italian SMEs In Regaining Competitiveness in the IT sector

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The current Italian macroeconomic scenario, characterized by the introduction of Euro and the recent financial crisis, is considered by many scholars, economists and politicians one of the main causes of the loss of competitiveness for the Italian SMEs, already penalized by a chronically weak productivity. This situation of low competitiveness was compounded and triggered, at the same time, by the slow digital transformation undertaken by Italian companies compared to the rest of Western Europe. In this context, strategy consulting companies have already massively invested and anticipated this digitalization process; they are now willing to accompany and share the risks of digitalization with their clients by offering end-to-end project support, from the definition of the Digital Strategy (now automatically embedded in the Strategic Plan) to the implementation of the final deliverable. The consulting support in the main strategic activities will be the key element and the opportunity for Italian SMEs to recover the lost ground.

Introduction

This paper has the purpose to describe the trend of Strategy Consulting in Italy with particular focus on Digital Transformation. The Italian economic system competitiveness was initially negatively affected by the digital disruption (especially the SMEs representing the system backbone).

The role of strategy consultants is more and more focused on driving these companies in considering this disruption as an opportunity to improve their current results and better competing with their peers in the local and international markets. Leveraging on their past industry/service line experience, consulting companies are able to assess, suggest and implement their clients' digital strategy; in particular, thanks to the massive investment in digital transformation (e.g. acquisitions of IT companies, alliances, specialization in software and tools and internal reorganization) strategy consulting companies are able to accompany their clients in the implementation of all their strategic initiatives.

Plan of the Paper

In the first part are described the trends in the Italian consulting sector, how its growth is driven by the investment in digitalization initiatives and the main paths followed by the different groups of consulting businesses.

The second part describes how the classic strategy consulting has evolved to embed the digital component and to better compete in this new challenging scenario.

Finally, the third part is divided per *strategy area* and focuses on the positive impacts of digital technologies in the completion of strategy activities, together with some examples of tools & software commonly used by strategy consultants in supporting their clients

The Sector of Management Consulting in Italy

Italian Management Consulting has deeply changed in the last years in term of organizational structure and services content thanks to Digitalization. The overall turnover (~4.1 bn Euro in 2017) is constantly growing (+7.8% in 2017 and +8.3% in 2018) and the CAGR for the four-year period 2014-2017 is equal to 7.1%, thus going beyond the period of crisis / stagnation that has characterized the sector in the five-year period 2009-2013 when has been recorded a CAGR of -0.6%¹. Starting from 2014, Management Consulting has recorded significantly higher rates than the Italian GDP (CAGR 2014-2018 of 7.4% versus 1.7% for the GDP)². This trend can be interpreted with the anti-cyclical nature of this sector³: when client companies oversee a possibility of recovery, they start to invest in consulting to regain the competitiveness lost⁴.

The IT consulting is the most requested area in Italy (~ 20%), followed by the Strategy area (17%) and Operations, Financial & Performance Management (~ 14-13% of the market). In the last years, the IT consulting registered the highest growth rate (almost 30%), mainly due to the growth of large consulting firms heavily investing in this area⁵. Also, the Operations area recorded strong growth rates (~ 24%) mainly due to the higher offer of consulting services for digital transformation⁶.

In Italy, the Digital Transformation has recently represented the main growth driver of the consulting sector, in line with what happened in Western Europe. In 2017 the two areas strongly connected to Digital Transformation (IT and Operations) grew respectively by 29% and 24%, becoming thus the first and third areas of specialization for the Italian consulting companies. The growth of consulting services in digitization interested mostly the large consulting companies that, in 2017 and 2018, saw their turnover increased significantly thanks to digital projects⁷.

Among the large consulting companies, 96% have a significant or very significant part of their activity portfolio linked to digital. The medium-sized companies also go in the same direction: in 2017 approximately 75% of them saw an increased incidence of digital projects. In this category of companies, 60% of consulting firms have a significant or very significant part of their activity portfolio linked to digital. Different is the situation of the small consulting companies⁸. From the analysis, it clearly emerges the link between the growth of digital area and growth in turnover: the small consulting companies that developed digital projects saw their turnover recording a double growth compared to similar companies that maintained a stable (and low) presence in the digital area⁹.

Impact of Digital Transformation on the Consulting Industry

Digital Transformation doesn't represent a new service line within Management Consulting but has a pervasive nature that requires a profound strategic and organizational transformation of the consulting companies¹⁰. Clients initiating a Digital Transformation project require end-to-end support, from the initial needs analysis to the realization of the prototype, until the final IT implementation and the relative management of the organizational

¹ Assoconsult, *Osservatorio Management Consulting in Italia- 9 Rapporto*, 2018

² C. Cape', "Management Consulting, l'Italia è in ripresa", *Il Sole24Ore*, 2016.

³ A. Biondi, "La consulenza oltre la crisi: dal 2008 ricavi in crescita del 17,6%", *IlSole24Ore*, 2016.

⁴ Consultancy.org, "Italy's management consulting market grows 7% to €4.3 billion", *Consultancy.eu*, 2018.

⁵ F. Astone, "4.0 vede il ritorno della consulenza strategica", *Industria Italiana*, 2017.

⁶ Eurostat, *Key figures on Europe*, 2017.

⁷ F. Poulfelt & T. Olson, *Management Consulting Today and Tomorrow*, Routledge, London, 2017.

⁸ SourceGlobalResearch, *The Italian Consulting Market in 2017*, 2017.

⁹ Istat, *L'innovazione nelle imprese 2014-2016*, 2018.

¹⁰ J. Kohlen & F. Holotiuk, "Consulting Firms under the influence of Digitalization", *AcmSigmis*, 2017.

impacts. In this scenario, consultants are hired as partners taking the responsibility, and sharing the risk, of the entire project (in a "value-based" approach). Furthermore, due to the pervasive and fast-changing nature of digital technologies, in these projects the deliverable is a close integration between IT aspects with the management/organizational one's¹¹.

This different approach has progressively changed the consulting sector, its boundaries (towards IT) and its HR structure¹².

The Digital Transformation projects are "end-to-end" projects, where consultants are focused on the final outcome and are the single referents, coordinating the whole activity, from the start (strategy) to the end (implementation). This triggers the close integration between the management consulting (knowledge of business processes) and IT development¹³.

Digitalization has therefore contributed to the growth of the consulting market, characterized by the presence of new entrants and new opportunities for incumbent companies whose support is fundamental in the data analysis and introduction of new IT.

Based on their investment strategy, consulting companies can follow several paths in Digital Transformation. Some of them decided to acquire other IT consulting companies or innovative start-ups specialized in specific business areas or with business/technical development skills. Their way to interact with clients has also changed and is sometimes based on a network of experience/competence centers¹⁴. Other consulting companies just decided to leverage on their business processes knowledge and to offer their services in partnership with other IT consulting companies.

On the other hand Digitalization had a disruptive impact also on the same consulting companies, on their skills, organizations and business models. The consulting companies adopted, in the majority of the cases, the same IT tools advised to their clients, and they leverage on their knowledge to speed some activities performed manually in the past (e.g. process mining software with an algorithmic approach); also the expertise required to compete on digital projects are different and clients can benefit of consulting professional profiles able to help them in their digital journey¹⁵. In term of organization many consulting businesses overcame the classical structure per service line/industry and, since the digital competencies are transversal, they created a separate service line supporting all the projects¹⁶; others decided to keep their classical structure and to manage the technological aspects through dedicated competence centers.

Strategy Consulting and Digitalization

The services offered by the main strategy consulting companies radically evolved during these last years to embrace the digitalization wave and offer sound opportunities for improving the Italian companies' competitiveness. The traditional IT competencies (that 20 years ago were concentrated in a separate IT service line) are now automatically embedded in the "Strategy product" offered to clients. Some consulting companies already had a set of IT resources and capabilities (mainly coming from the era of ERP implementations) while the pure strategy boutiques had to build progressively these skills in partnership with other IT players.

¹¹ Talent Garden, *La digital transformation e l'innovazione tecnologica delle PMI Italiane*, 2018.

¹² Feaco, *Annual Survey of the European MC market*, 2018.

¹³ J. Curuksu, *Data Driven: An Introduction to Management Consulting in the 21st century*, Springer, Berlin, 2018.

¹⁴ J. Kohlen & F. Holotiuk, "Consulting Firms under the influence of Digitalization", *AcmSigmis*, 2017.

¹⁵ V.Nissen, *Digital Transformation of the Consulting Industry*, Springer, Berlin, 2018.

¹⁶ D. Marconi, "Consulenza, la nuova relazione consulente/cliente", *Professione Finanza*, 2018

In this way, as anticipated, the traditional “strategy offer” was enriched by the digital component; this helped the Italian SMEs to be more and more aware of the importance of digital innovation. In Italy, the need for strategy consulting is still alive. The only difference is that in current projects the digital component is automatically embedded to reflect the opportunities to innovate the business model through new Digital technologies (the final product of a technological project is delivered with an average short “time to market” of 2/3 months).¹⁷

Therefore strategy projects are still offered to Italian clients willing to understand their strategic direction in this delicate period of crisis and strong competition. The traditional pure strategy short projects are now replaced by longer projects where the consultants follow the clients all over the process till the release of the final product, sharing the risks and adopting the optimal digital solution (with an extended presence in the “orchestration” and development phase).

In the last 15 years the classic “strategy boutiques” (Bain, Atkearney, Mckinsey, BCG...) traditionally focused on short term projects, with high margins and high acquisition efforts, tended to expand their offer toward “the bottom area” of consulting services (operational implementations) while the traditional “big 4” (PwC, Deloitte, Kpmg, EY) tended to expand their offer toward the “upper area” (with higher margins), through the acquisition of specific competencies, profiles and/or the direct acquisition of strategy boutiques.

As automation increasingly influenced businesses, the digitalization tools (such as *artificial intelligence, machine learning* etc.) became essential in supporting the definition and implementation of strategic activities aimed at improving their competitiveness in the digital, cloud-based and data-driven world. Since this transformation corresponds to an enormous increase in the volume of data, it’s fundamental to adopt several digital solutions in the strategy process together with a tailored digital strategy (embedded in the strategic plan)¹⁸.

In this context, the big challenge in Italy for Strategy Consulting has been to strongly involve the SMEs (representing a consistent share of the economic system) whose competitiveness was endangered by the recent macroeconomic events in Europe. In particular the consultants’ role is fundamental in explaining to them how to grow their competitiveness through digitalization and how to reduce the delocalization trend (e.g. use of IoT to reduce labour cost differentials and to offer a flexible customized product and service with fast response to market requirements). In the past, many businesses have been helped by consultants to apply for the government digital plans (e.g. “CalendaPlan” 150M digitalization plan) and to overcome their cultural limits in some strategic aspects of digitalization (e.g. cybersecurity). Some consulting companies created a network of specialized Digital Experience Centers (e.g. PwC in Rome) where are offered workshops (roadmap for business models/strategy innovation), people (e.g. data scientists) and technologies (eye tracking clients apps, use cases, system integrations etc.), in addition to a network of several Centers of Excellence (with the purpose to avoid the replication of local competencies).

Strategy consulting companies like *Strategy&* (a practice created in 2014 after PwC’s acquisition of Booz & Company) have a separate digital service line (Digital Strategy and Innovation) focused on several strategic activities such as Business Model Innovation (e.g. from traditional products to services), engaging customer experience, innovation of sales and distribution channels and cost efficiency in Manufacturing and Supply Chain (e.g. through IoT, AI and machine learning). Further IT support is provided through several vertical IT resources available to help on a project basis.

¹⁷ Assoconsult, *Osservatorio Management Consulting in Italia- 9 Rapporto*, 2018.

¹⁸ A. Patel, P.C. Kalita, S. Asthana, “Design for future: Strategic planning and design innovation framework for digital organizations”, *Design Society*, 2018.

As anticipated, a complete digital service is offered to clients businesses also thanks to consulting alliances. In the traditional alliance model (e.g. SAP) the consulting company offers the high-level functional analysis and customization while the provider the SW licensing; the innovative alliances model is represented by the creation of technological ecosystems for digital innovative strategies (e.g. collaboration with universities, start-ups, technological partners etc.).

It's now clear the importance of Strategy Consulting in helping SMEs to understand their current and potential Digital situation. Consultants can suggest viable alternatives to harness this important transformation since all the main strategy activities can be made more efficient and effective by Digitalization.

Strategic Plan

The increasing need of having a Strategic Planning cycle completed in shorter time (from 12 to 24 months) is strictly linked to the different speed of business (e.g. high innovative products with a shorter life cycle, the fast evolution of digital tools). Action plans are able to map what needs to be immediately executed together with the investments and resources required (e.g. in the next months). This rolling action planning is shorter and includes realistic plans able to respond quickly to the new business trends¹⁹.

In term of contents, the traditional analysis of markets, competitors (e.g. market shares, swot analysis etc.), regulations (impacting on sales opportunities and new markets) is now always integrated with the analysis of current and emerging digital technologies, in particular of their impact on the company in the next months. In this new context the strategic planning team, traditionally used to collect and analyze a huge amount of data (prior to giving their recommendations), now acts as a project manager and operator in the field of the immense opportunity offered by Digital Transformation. For example, the customer analysis included in the Strategic Plan usually considers the main clients representing the higher percentage of company turnover; with the implementation of solutions supported by *cloud technology*, *mobile* business models and *data analytics* is possible to track also the small underserved segments of clients, analyzing their trends and needs, since these segments could be important for the business in the next future.

Cloud technologies (software, storage, networking, virtual machinery and applications) are now available on the internet (through SaaS platforms) also to SMEs, allowing them to operate in a more efficient way²⁰. Thanks to the support of this technology many opportunities can be achieved in term of efficiency with the enhancement of communication and collaboration (all the players can access simultaneously to data and give their contribution). Every department/level involved in the elaboration of the Strategic Plan can equally contribute and work for the same goals, by accessing a common cloud platform (inefficiencies and discrepancies are avoided).

Interoperability allows systems to move to *the cloud* and be more compatible with other systems (e.g. *data analytics* and *enterprise mobility* are usually part of the cloud package). *Flexibility* and *productivity* are boosted by the possibility to work on data everywhere; the real-time nature of cloud software keeps updated staff and business on the latest developments in the strategic plan process. Risks can be quickly identified and promptly communicated to the organization. Some applications offer specific functions able to improve the visibility on the Strategic Plan process through dashboards showing the status/progress: this function allows the organization to address any issue in time²¹. Since the resources are provided by the hosting service, businesses can scale up or down based on their operations and storage requirements. At this purpose, the cloud-based software can be adapted in size and scope to the evolving needs of the organization (in term of growth or change of goals). *Data security* is enhanced since business data are safe, recoverable and backed up. With the model "*pay as you go*" it's

¹⁹ F. Desai, "The Digital Era Is Crippling The Five Year Strategic Plan", *Forbes*, 2016.

²⁰ J. Tanwar, "How Cloud Technology Brings New Opportunities For Businesses", *D!gitalist*, 2017.

²¹ F.Tiong Wee & X. Colin Ting Si, "Benefits and Challenges of the Adoption of Cloud Computing in Business", *International Journal on Cloud Computing*, 2016.

possible to reduce the costs of equipment & systems, maintenance and IT upgrades, consulting fees, energy consumption and any issue is solved more quickly. Finally *agility* allows companies to access the latest business strategies since cloud technology offers a platform for rapid development, distribution, deployment and experimentation of new technologies.

In this context, the support of consultants can be necessary for structuring a *cloud strategy* able to facilitate a smooth transition. Before the start of the strategic planning process, it's important for consultants to understand the IT requirement of the client company (databases, applications, interfaces, extensions, networks and customized hardware)²². Second, consultants can help in evaluating the opportunities, risks and challenges of adopting the *cloud technology*, assessing the feasibility of deploying in the cloud the current business applications. The last step is the adoption of the right *cloud strategy* by researching the right *cloud service provider* able to maximize the ROI of the business.

Big Data represents an important innovation of *Artificial Intelligence* with serious impact as a Strategic Planning tool since it relies on a huge amount of information from all the company departments, from customers and from society. All this data is fundamental to build viable and efficient scenarios.

Big data integrated with *AI* is a powerful tool for *Data Analysis* since it generates, interprets data and presents results; strategic planning departments are strongly supported in this by software development/data engineers provided by consulting companies. The level of success is measured by the capacity to transform the *Big Data* in viable scenarios, in a logic of *Data Flow system*; the quick collection and analysis are aimed at building quality data for strategy departments. A good *Data Flow system* is supported by a good *Big Data system* and *Agile Methodologies* to keep the flow always efficient²³²⁴.

As anticipated, the digital strategy is now automatically embedded in the Strategy Plan, and the role of consultants is to drive clients in accepting the importance of using *Big Data* and *Data Analytics* combined with the implementation of digital technologies.

The disrupting positive impact of implementing *AI* and *Machine Learning* solutions are always advised by strategy consultants, daily supported by their *Data Engineers* (able to organize the data flow and design the proper structure), *Data Scientists* (analyzing the information collected), *Software Engineers* (creating tools for the use and distribution of the information) and *Data Curators* (able to understand the data and technologies for its collection and use), working in strict contact with the Chief Digital Officer²⁵.

Emerging Tech Radar (Graph Analytics and NLP) and *Semantic analysis* are interesting technologies useful in the elaboration of Strategic Plans.

Graph Analytics is an area of analytics workload represented by tools used to determine strength and direction of relationships between objects in a graph²⁶. In particular *Graph analytics algorithms* help to complete specific kinds of analysis as *path analysis*, *connectivity analysis*, *community analysis* (on groups of interacting people in a social network) and *centrality analysis* (on most influential people in a social network or on highly accessed web pages).

NLP (Natural Language Processing) is one of the most important branches of *AI* with the purpose to develop algorithms able to analyze, represent and therefore understand natural language (written or spoken). The computerization of business processes and digitalization of documents contributed to a continuous and exponential increase of data, mostly textual, produced and held by public administrations, hospitals, banks, law

²² Cloud F.Tiong Wee & X. Colin Ting Si, "Benefits and Challenges of the Adoption of Cloud Computing in Business", *International Journal on Cloud Computing*, 2016.computing in business, Markovic, 2014.

²³ J. Orsini, "Artificial intelligence: A way through the strategic planning crisis?", *Long Range Planning*, 1986.

²⁴ S. Mohanty, *How to compete in the age of artificial intelligence: implementing a collaborative human-machine strategy for your business*, Apress, New York, 2018.

²⁵ M. Chen, *Big data: related technologies, challenges and future prospects*, Springer, Cham, 2014.

²⁶ M. Ferguson, "What is graph analytics?", *ibmbigdatahub*, 2018.

firms, private companies²⁷. In this context (characterized by an extreme variety and quantity of content expressed in natural language) the use of *artificial intelligence* has strategic importance, and strategy consultant encourages the creation of innovative solutions for processing, understanding and producing textual data automatically. The integration of *NLP* with *deep learning algorithms*, produces extraordinary results in different application scenarios like translation of texts or speeches between different languages automatically, extraction of relevant insights (with both informative and predictive value), generation (from huge amounts of textual data) of content in natural language (summary of key opinions on products/services/individuals included in documents or texts)²⁸.

Semantic analysis helps companies to exploit, organize, examine, structure and finally use *Big Data*. Consultants are able to offer these solutions and give their clients important quantitative (time savings) and qualitative advantages (data organization). In business it's possible to rely on two types of data: *structured* (coming from organized sources, such as a client database) and *unstructured* (e.g. opinions or reactions from social media are time-consuming to collect and, on a larger scale, don't bring much value).²⁹ *Big Data* is characterized by "Three V's" (*Volume, Variety, and Velocity*), but a proper data exploitation requires two additional V's (*Veracity and Value*) in checking the accuracy and data sources. *Semantic analysis* is able to provide the "4th V" (*Value*) since it's the link between computer and human processing (it qualifies texts or voices out of a large set of different elements, selecting only the most relevant for the analysis and displaying them properly)³⁰. Consultants can help in implementing models (based on their way of working) integrated into their *semantic analysis*. In particular, while the IT system hosts the *semantic analysis* tool, *API's* scatters the lexicon throughout the whole of the IT system. The applications of semantic analysis are particularly useful in the fields of elaboration of the Strategy Plan. For example it's possible to elaborate strategies to improve customers and employees' experience since the combination of *semantic analysis* and *AI* mechanisms allow to fully unravel customer behaviors. In addition to text and voice, *semantic analysis* can also interpret customers' feelings and helping CS in prioritizing information (offering a quick customized experience) or isolate unhappy customers. This allows companies to elaborate proper strategies as a better response to customers' needs. Also, HR strategy can benefit from the *semantic analysis*: for example, with the support of grammatical modeling in recognizing skills and expertise (e.g. in cv shortlisting) and cross-referencing them with information already online (to validate the analysis results).

Bright Idea is Tool/Software commonly used by consultants supporting in the elaboration of clients' strategic plan. *Bright Idea Innovation Cloud 2.0* (BIC 2.0) includes some programs for innovation allowing the participation of employees to the strategic planning processes (via web portal, mobile app, email etc.) and tracking the progress (together with the ROI calculation of any process improvement)³¹. Employees can participate in the strategy plan elaboration with discussions on company values, targets, processes, projects. It's possible to explore new market opportunities (through *crowdsourcing* initiatives and ranking ideas on process improvements), bypassing barriers, creating ecosystems, catching new business proposals, finding funds and calculating the project's business/financial impact³². The *project evaluation* function is able to track trends on the most appealing projects, to estimate how to use an emergent technology (for processes improvement or new

²⁷ H. Leopold, W. Aalst, J. Mylopoulos, M. Rosemann, M. Shaw & C. Szyperki, *Natural language in business process models : theoretical foundations, techniques, and applications*, Springer International Publishing, Cham, 2013.

²⁸ J. Chu-Carroll, K. Hammond, Y. Carmiel, M. Musbah & J. Mugan, *AI and deep learning for NLP: tools and techniques for the enterprise*, O'Reilly & Associates, New York, 2017.

²⁹ M. Thébault, "Semantic analysis – exposing the value of your company's data", *Sopra Steria*, 2017.

³⁰ F. Casati & M. Shan, "Semantic analysis of business process executions", *Lecture Notes in Computer Science*, 2002.

³¹ M. Heck, "Brightidea opens channels for innovation - Well-designed idea management service helps users collaborate on big ideas", *InfoWorld*, 2005.

³² Brightidea, *A history of Innovation*, 2019.

product launch), to investigate on clients' needs (with specific researches or engaging audiences) or to incubate several projects (by setting timelines and tracking the progress).

The program is also able to evaluate *ecosystems* by promoting and developing partnerships (focused on new technologies and trends); through accelerator programs is possible to improve collaborations by tracking strategic technology providers or financing ventures, together with monitoring the project progress and the financial impacts and ROI³³. In the elaboration of HR Strategy, consultants use *Bright Idea transformation software* to help clients in building flexible organizations focused on new business models and company innovative culture; in this way, the transformation process (products, services, operations and processes) is managed centrally. Finally, this software allows (through gig economy platforms) to match short term job requirement with profiles in the market, to create internal consulting teams (the *crowdsourcing* ideas in promising projects are routed to the right decision maker) and to set websites for research and selection of new digital opportunities.

Design of Business Models

One of the main strategy activities where consultants' skills are often required is the elaboration of the clients business model; it passes through the definition of target customers, their value proposition and the value chain architecture. *Digital transformation* gave companies the flexibility to redesign their value chain architecture and this is also the occasion to create new value propositions and look for new customer targets.

The redefinition of supply chain can result in changing some activities position (e.g. production of specific works in progress or new inventory position based on shorter lead times), in a redefinition of supply chain nodes or how the information on demand can be aggregated/disaggregated on digital platforms to create new customer value (e.g. e-commerce)³⁴.

Digital technologies can help in many steps; for example, whenever there is a process order waiting for production capacity to be allocated, or whenever there is capacity that risks of being unused. With the use of *digital technologies*, sales operations and planning can benefit from the fast allocation of the overcapacity and customer needs can be better addressed (especially in periods of processes customization and products standardization).

Consultants with industrial and functional knowledge enhance the adoption of business model innovation methodologies enabled by digitalization (*IoT, AI / Machine Learning, Data Analytics, Cloud* etc.); in this field, consultants are able to work on *BXT models* (Business, Experience and Technology) together with *User Experience/User Interface designers*. Once the new digital and customer-focused business model is elaborated and the feasibility phase (with the evaluation of benefits) is completed, consultants use *prototypes* to validate it and refine it. The comparison of the abilities required in the new business model with the current ones allows the drafting of the *blueprint*³⁵. The extended *digital ecosystem* helps the process of business improvement, in addition to target customers needs and develop the new product portfolio. This allows the adjustment of the traditional business model (including company value, mission, goals, process and activities) to the new digital business model.

In this context, consultants provide their professional services to enable clients to design, engineer, implement, migrate and manage workloads and applications on several software and tools.

SalesForce is a *cloud-based CRM application* (including a portfolio of products in a secure platform) enabling the digitalization of business models³⁶. It allows to look for clients, to configure sales quotes, pricing,

³³ Brightidea, *Brightidea Ecosystem-Integrate External Innovation*, 2019.

³⁴ R. Prakash Mathur, "Redefining The Business Model Through Digitalization", D!igitalist, 2018.

³⁵ D. Schallmo & C. Williams, *A Digital Transformation Now: Guiding the Successful Digitalization of Your Business Model*, Springer International Publishing, Cham, 2018.

³⁶ L. Fagan, Laura, "Marc Benioff Announces Salesforce Customer Success Platform, Analytics Cloud", *SalesforceBlog*, 2015.

negotiations, to organize agents with the support of *AI* and *Predictive Analysis*³⁷. *SalesForce PDM* is able to acquire B2B/B2C customers' data and to manage customized advertising, budgets, campaigns and events. *SalesForce Commerce Cloud* can perform clients merchandising, promotions, omnichannel order management (integrating *predictive intelligence*, *design mobile-first* and *agile cloud*). *SalesForce Einstein Analytics* (with *AI*) can perform customized predictive analysis³⁸. *SalesForce Industries* is able to create solutions for clients from specific industries.

Microsoft Azure is another interesting *cloud computing service* in the field of business models definition; *Azure* is able to build and manage applications and services with Microsoft data centers in the typologies of *SaaS*, *Paas* and *IaaS*³⁹. It offers *Self service analytical & BI solutions* (turning company data into analysis), *Big Data & Analytics* tools (taking predictive decisions, based on data coming from several sources as Point of Sale Systems, e-commerce, socials and IoT sensors), *Digital Marketing* (creating personalized and scalable digital campaigns), *AI* platform and *SAP on Azure* (to run SAP products in MS cloud environment).

AWS Cloud is an Amazon subsidiary offering *cloud computing platforms*. Consultants can help clients in delivering a proper *cloud strategy* and adopting *agile operation models*. In particular, *Data Lakes & Analytics* is a portfolio of *analytics* and *machine learning services* allowing clients to access, store and analyze data, in addition to build *data lakes* and *analytics solutions*. Data are moved to the cloud through *network connections* and applications allow to store on-premises data. It's also possible to catch *real-time data* (with websites, mobiles, *IoT* devices etc.), to work on *Analytics services* (*Interactive analysis*, *big data processing*, *data warehousing*, *real-time & operational analytics* and *dashboards & visualizations*) and complete *predictive analysis* (thanks to *Machine Learning* services).

Finally, *SAP Predictive Analytics* is a *BI* software enabling companies to analyze a big set of data and predict future outcomes⁴⁰. This advanced analysis tool, available stand-alone on premises (creating and maintaining predictive models) or as an "all in one cloud" solution (*business intelligence*, *collaborative enterprise planning* and *predictive analysis*), helps businesses to analyze churn rates, potential products, sales channels efficiency, regional performances and customer segmentations⁴¹.

In the Customer Analysis phase consultants offer several methodologies for *Customer Journey Design* to illustrate customers' expectations and experience, and get the most from *Digital Transformation*⁴². Starting from the AS-IS customer status is possible through design models (e.g. storytelling, cart sorting etc.) to analyze customers decision making process together with the TO BE picture; this helps companies to evolve in *Digital Transformation* (*analytics*, *mobile*, *cloud*, *IoT* etc.) and to enhance their customers experience. Once the digital possibilities are overlaid upon the customer journey, it's possible to improve/change the current business model⁴³. *Customer journey design* is always dynamic and the information collected with the support of technology can trigger several "digital touch points" with the customers (enhanced by *Digital Transformation*).

³⁷ M. Lager, "Salesforce.com Expands the Cloud to Sales – CRM Magazine", *Destinationcrm*, 2012.

³⁸ L. Dignan, "Salesforce launches Wave analytics cloud, boosts enterprise reach", *ZDNet*, 2015.

³⁹ M. Copeland, J. Soh, A. Puca, M. Manning & D. Gollob, *Microsoft Azure: planning, deploying, and managing your data center in the cloud*, Apress, Berkeley, 2015.

⁴⁰ Sap, "Predictive Analytics for Business Departments", *ENP Newswire*, 2018.

⁴¹ Sap, "Predictive Analysis Software Helps Businesses Uncover Hidden Insights From Big Data", *Newswire*, 2012.

⁴² Ntt Data, *Customer Journey Mapping Is at the Heart of Digital Transformation*, 2015.

⁴³ C. Kuehnl, D. Jozic & C. Homburg, "Effective customer journey design: consumers' conception, measurement, and consequences", *Journal of the Academy of Marketing Science*, 2019.

Consulting companies can work also with *eye tracking software*, helping their clients to predict users intentions based on knowing where they look (e.g. analytics based on visual attention)⁴⁴. The combination of software with other tools (e.g. *infrared camera, infrared illumination* etc.) is useful in getting some *behavioral diagnostics* insights (e.g. for advertising purposes)⁴⁵.

Another software often used Customer Analysis is *Google G-suite*, a productivity tool for *cloud computing* and collaboration. Consultants can offer their skills on *Google* to help their clients to evaluate and to enable their move to the cloud for *analytics*, improving their processes and enhancing their customers' experience. In particular, one of the solutions enhanced by *Google Clouds (Cloud and analytics transformation)* enables companies to access technologies, app tools, data & analytics with *cybersecurity*. In addition, with *Google*, customer analysis activities are enhanced with the creation of online surveys, getting data & responses in real time, building graphs and charts with the support of *Google Sheets*.

Also, Product analysis is strongly supported, especially with *teardown analysis* (products cost analysis and benchmark with competitors) with technologies such as *fast prototyping, 3D prints, batch production* and *customizations*⁴⁶. Software used in this phase are focused on the possibility to test in advance products prototypes, in offering to clients customized services & products (*Azure E-commerce* offers customized e-commerce experience, improved by inventory management and reduction of shipping costs thanks to historical order information and customer data), optimizing the production process (*Bluetrack* makes the workflows visible and performs value chain and efficiency analysis through high-precision indoor and outdoor real-time tracking-system⁴⁷) and reducing inventories and time-to-market (*Predix Tracker* helps to understand the real-time sequence requirements in production).

Business Planning

Big Data & Data Analytics became an important point of competitive differentiation in delivering the analysis of business processes performances and driving the process of forecast. In this fundamental journey consultants can help their clients with *data sourcing* (identification, combination and management of multiple data sources), *model building* (analytics models can predict and optimize business outcomes) and *organizational transformation* (structuring and managing the organization for a better decision-making process based on the data and models)⁴⁸.

These three important aspects cannot work independently and should be part of a common vision, with the coordination and involvement of several managers. In addition, in this process should be clear the strategy on how using data and analytics and the right technology to deploy⁴⁹. In *data sourcing*, consultants are able to focus clients on specific business problems, driving the identification of relevant data (e.g. customers or manufacturing data). The “creative” support of consultants is also important in the identification of unstructured data sources (e.g. from social media, sensors, processes, demographics etc.). In this phase is fundamental the involvement of clients CIOs: the IT legacy is a precious source of data and analysis, even if current IT infrastructures don't allow the integration of “siloes” information and the management of unstructured data⁵⁰. In the *model building* phase, the role of consultants is focused on identifying clients' business opportunities and how the new model can improve the performances (in a less complex way). This creates a practical relationship among the data collected that allows managers to predict and optimize the outcome. The last task of *organizational transformation* is achieved by consultants helping clients' managers to align the current culture and capabilities

⁴⁴ J. Boardman & S. Fletcher-Watson, “What can eye-tracking tell us?”, *BMJ Publishing Group Ltd*, 2017.

⁴⁵ Pwc, *The secrets in your eyes*, 2016.

⁴⁶ R. Noorani, “3D Printing: Technology, Applications, and Selection”, *MRS Bulletin*, 2018.

⁴⁷ Pwc, *Smart manufacturing analytics platform overview deck*, 2017.

⁴⁸ L. Clack, & J. Woepfel, “Data analytics drives strategic planning”, *Journal of AHIMA*, 2018.

⁴⁹ D. Barton & D. Court, “Three keys to building a data-driven strategy”, *McKinsey Digital*, 2013.

⁵⁰ A. Sahay, “Business analytics: a data-driven decision-making approach for business”, *Business Expert Press*, New York, 2018.

with the analytic model. For this reasons, consultants elaborate a *Strategy blueprint* including a guide for the *modeling phase* (model are compliant with company's processes and decision-making since managers are facilitated in using *Big Data & Analytics*) together with the indication of *intuitive tools and interfaces* allowing the frontline managers to use the new models and algorithms. Consultants are important to reinforce managers' capabilities in working on a daily basis with *analytical tools*; this justifies the choice of many consulting companies to invest in *experience centers* where clients are invited to experiment real business cases on *Big Data & Analytics* successful implementations.

The consulting activities on business planning are now supported by technologies such as *Cloud Computing* and *Business Analytics*. *Salesforce Einstein Analytics*, *Azure*, *AWS-Cloud*, *SAP Analytics Cloud* and *Predix* are valuable examples.

SalesForce Einstein Analytics, enhanced by *AI*⁵¹, can perform customized *predictive analysis* to support several business planning scenarios⁵².

In *Azure*, the initial phase of data analysis is covered by *Analytical* and *BI solutions & tools*, while the predictive models can be built through *Big Data* and *Analytics* solutions (based on data from different sources).

AWS-Cloud allows the data access and analysis through *Data Lakes and Analytics* and with *Analytics services* is possible to perform interactive analysis, big data processing, real-time analytics, dashboards, and visualizations.

SAP Analytics Cloud capabilities are built on *SAP Cloud Platform* and enhanced by in-memory technology of *SAP HANA* (*in-memory computing* allows to quickly process and analyze a huge amount of data in planning simulations and what if analysis). *AI* and *Predictive analysis* allow collecting important business insights (through *Machine Learning*, *Search to Insight feature*, *Conversational AI* etc.). Several modules are useful to build many scenarios: *Smart predict* (building *predictive models* integrated with *BI*), *Smart discovery* (helping users to identify the main key strategy drivers, to complete simulations and to take actions through dashboards), *Smart transformation* (able to automate data preparation and to facilitate the work of predefined models), *Smart insight* (allowing to quickly understand complex data thanks to *NLP* and *Visual explanations*) and *Smart Grouping* (comparing specific data points, as customers groups, based on specific parameters).

Finally, *Predix* is a software platform (in the model *PaaS-Platform as a service*) for the collection and analysis of data from industrial machines⁵³; in this way, it's possible to perform *predictive analysis* and to implement statistical analysis, data mining and retrieval processes for *BigData* (with the possibility to identify trends and insights). These functionalities are extremely useful to the business planning activity.

Business Valuations

The use of *data analytics* is rapidly expanding and it represents a good opportunity in "stand-alone vs with synergies" valuation of businesses. Since business valuation is crucial for many types of projects (e.g. M&A, competitive negotiations etc.) consultants help clients to leverage on *business analytics tools* by collecting relevant historical and predictive data, and ultimately, in transforming them into strategic information (e.g. scenarios analysis). *Business Analytics* play an important role for strategic planning in delivering tactical value (through the correct selection of value-added initiatives and activities), in creating competitive advantage (in line with business goals) and in preparing potential scenarios to implement new strategies.

⁵¹ L. Dignan, "Salesforce launches Wave analytics cloud, boosts enterprise reach", *ZDNet*, 2015.

⁵² J. Martin, "Integrating and Customizing Salesforce", *BedRock Data*, 2017.

⁵³ GE, *Predix the industrial internet platform*, 2016.

Strategic Planning activity is focused on targeting opportunities for growth (pursuing innovation with impact on the market and differentiating from competitors) and for this reason, it's important to collect information on industry trends (identifying opportunities), on competitors and on customers' expectations. *AI* and *Machine Learning* can be extremely useful (*Data Crunching and Visualization*) especially in projects focused on synergies valuation (e.g. M&A).

Many consulting companies use *Python*, an *open source general purpose programming language* used to build enterprise programs (to embed analytics) and perform analysis on large amounts of data (it's now one of the most popular languages for data management and analysis). In particular, *Python Data Analytics Stack* addresses any step of the Analytics workflow⁵⁴. These tools like are assembled in *Python Libraries*. There are *Libraries* importing and assessing outline analysis and statistics (*Panda*), performing metrics and mathematical operations (*NumPy and SciPy*), applying *Machine Learning* techniques (*Scikit-Learn*) or processing a huge amount of data (*Apache Spark*). Consulting companies' clients benefit from the possibility to analyze a huge amount of data (structured or unstructured), to keep the deployable codes and to get models to predict future strategy or operational scenarios.

M&A
Digital capabilities can be applied to M&A activities in a number of ways. More and more M&A consulting professionals are familiar with *virtual data rooms* providing a secure online environment (regardless of the location of team members) or allowing the review of the huge amount of data associated with potential targets. *Cloud-based enterprise resource planning systems* are able to simplify some recurring IT problems during the integration phase (e.g. the integration of different software suites). *Natural language processing* allows the M&A team to easily analyze an enormous quantity of contracts and documents (in an automated way) and *data visualization tools* help to discover, behind complex financial figures, some important hidden insights. Finally, several businesses use *crowdsourcing* initiatives to identify potential M&A targets⁵⁵.

Meanwhile, a new class of software can be applied directly to the core M&A activities (target research, valuation and post-merger integration), as well as addressing the so-called soft disciplines (e.g. employees engagement and corporate culture enhancement) that once seemed outside the scope of technology. These activities are now more efficient thanks to the use of digital tools (often sponsored by external consultants) able to automate and digitally enable core M&A processes⁵⁶.

Target Screening:

Targets scouting tools can literally narrow down the list of potential targets based on selection criteria (defined during by the acquisition strategy) and speed the approach and negotiation phases. During the screening activity, the tools collect data of potential targets coming from external sources; it analyzes industry trends, growth paths, and financials with the purpose of short listing the most interesting targets. An interesting function is represented by “simulators of acquisition scenarios” enhancing proficient discussions on growth pathways.

Emerging Tech Radar (like *Graph Analytics*) can support this phase thanks to *Graph analytics algorithms* (useful to read and interpret graphs⁵⁷). In particular *Graph analytics algorithms* can help to perform centrality analysis on a big group of potential targets.

⁵⁴ F. Nelli, *Python data analytics: data analysis and science using Pandas, Matplotlib and the Python programming language*, Apress, Berkeley, 2015.

⁵⁵ Deloitte, “How Digital Tools Are Helping Unlock M&A Value”, *The Wall Street Journal*, 2018.

⁵⁶ M. Kotarba, “Impact of Digitalization on M&A Transactions”, *Zeszyty Naukowe Politechniki Poznańskiej Organization and Management*, 2018.

⁵⁷ M. Ferguson, “What is graph analytics?”, *ibmbigdatahub*, 2018.

NLP (Natural Language Processing) as part of *AI* can help in processing, understanding and producing a huge amount of data; it can work with huge amounts of textual data, synthesizing key information or analyzing texts that include several opinions on target companies⁵⁸.

Also, *Semantic Analysis* can have a strong application on selection and short listing of target companies for M&A. This can happen by comparing a long list of companies (from several data sources) with the keywords indicated in the M&A selection criteria, or with the recognition (e.g. with grammatical modeling) of specific businesses competencies⁵⁹. The reliability of the information is confirmed by the *semantic analysis tool* (cross-referencing the outcome with information already online).

Digital ecosystem scouting is a technology used to enhance target screening (data incorporated is coming from external sources) and to narrow down the targets of a potential acquisition. It's useful to analyze industry trends and compare targets data (growth, financials etc.) based on selection criteria identified by the acquisition strategy. This can really help the company to quickly progress to discussion with the shortlisted targets, based also on simulations of acquisition scenarios (focused on growth trends and potential synergies).

Finally, since more companies are now relying on *crowdsourcing* tools for identifying potential targets *Bright Idea* can be also used. In particular with *Bright Idea Jumpstart Employee Innovation* employees can be involved in the identification of selection criteria (discussions on company values, targets, processes and projects) and market opportunities (e.g. new markets, high performing targets). In addition, *Bright Idea Transformation tools* help in targets identification (e.g. with gig economy platforms matching selection criteria with the companies in the market) by testing and ranking them based on their potential.

Project Management:

Project management tools can easily, in complex transactions, help consultants in coordinating the dependencies between the huge amount of activities and milestones completed by several teams.

In particular, *Data visualization tools* are able to identify critical milestones, by combining several work plans and highlighting information on key risks, issues and dependencies. These tools are in part supported by consulting companies' database of similar roadmaps in the industry that help the quick identification and management of the interdependencies. Once identified these interdependencies, the tool can also help project managers in the analysis of relevant gaps and elaboration of mitigation plans to address them.

Organizational Design digital tools allow the project leaders to draw (with a logical approach) the future post-integration organization leveraging on key talents critical for this process. Workforce alignment (based on post-integration goals) is facilitated by the use of internal data and industry benchmarks (always provided by consultants) finalized to the creation of custom organizations and cost models. In addition, the new organization will impact also on future company culture.

Purchase Accounting tools are able to simplify this complex process by aggregating data and reducing errors and processing time for journal entries (including documentation), calculating automatic periodic adjustments (periodic purchase price, deferred taxes, goodwill and currency translation) and automating the error-checking activities.

Divestiture financials processing tools help to map the main drivers of the business through the elaboration of historical financials that are automatically adjusted. In this way, the time to close (from data acquisition to audit) is dramatically reduced

The selection of the appropriate M&A tool should be done with the support of consultants helping to speed the process, to make it more efficient (in term quantity, accuracy and reliability of the insights produced) and less

⁵⁸ J. Chu-Carroll, K. Hammond, Y. Carmiel, M. Musbah & J. Mugan, *AI and deep learning for NLP: tools and techniques for the enterprise*, O'Reilly & Associates, New York, 2017.

⁵⁹ F. Casati & M. Shan, "Semantic analysis of business process executions", *Lecture Notes in Computer Science*, 2002.

expensive; in particular, the tool should be able to fit into the company strategic approach to execution, enhancing collaboration, decreasing manual activities and finally shouldn't pose any security concern⁶⁰.

Due Diligence:

One of the most important phases of M&A is the Due Diligence since from the outcome of this activity depends on the success of the deal, the negotiation and the integration phase.

With the use of *Digital Technologies*, the due diligence time can be reduced by 30- 90%.

In particular, business applications based on *Artificial intelligence* (e.g. *The Brain*, *Kira* etc.) and *cognitive computing* could represent a great resource able to analyze data in the due diligence and understand the connection among all the data elements. After identified the main threads in a due diligence, consultants can use systems (*Kira Systems*, *Seal Software*, *eBrevia*, *Rage Frameworks*) able to reduce time and overheads in the phases of gathering, processing and presenting data^{61,62}.

The adoption of *AI* during an M&A process can really take the emotions out of the process and help both buyer and seller willing to transparently share the info, to avoid risks and discover new opportunities.

The Legal area is not the only one to benefit from *Digital Technologies* in Due Diligence. Other areas can be strongly interested, like Human resources, Finance, Product R&D engineering, Sales and marketing, Asset management (uncovering asset reporting discrepancies potentially missed), Real estate and Operations. Digital support is fundamental also in international M&A transactions where multiple languages are involved.

Kira is one of the most used *machine learning software* since it's able to identify, extract and analyze texts in contracts. This technology, initially conceived to review thousand of contracts (not already organized in a common file format), is enhanced by *powerful machine learning tools* (e.g. *Quick Study*) allowing all users to teach this *AI* system to identify and extract any provision from any type of contract⁶³.

In M&A Due Diligence, Spinoffs and Divestitures this tool helps to review contracts (errors and unexpected liabilities) since data is extracted, analyzed and properly reported.

During the phase of Client Contract Analysis and Advisory it allows analyzing a mass of contracts that usually are reviewed only in the post-merger integration phase (with the risks to discover missed exclusivities, provisions, indemnities, obligations). In the traditional activity, there is usually a loss of ~5-12% contracts value due to lapses in the administration of contract obligations (e.g. invoices to be issued, credits to be asked and renewal dates on auto-renewal contracts).

These functionalities can be also useful in the areas of Contract simplification /optimization (improvement of templates and playbooks by identifying standards and outliners), Obligation management (tracking and management of the required activities like notice, confidentiality, exclusivity, indemnification and insurance), Revenue recovery and cost savings (identification of missed opportunities to reclaim revenues or to eliminate costs by checking renewal dates)⁶⁴.

This software can also help in the fields of Real Estate Advisory and Transactions (by summarizing the terms of lease contracts), Knowledge Management (consistency and accuracy is assured with the identification of any clause and reorganization in a standard language on a document repository), Deal Points and Market Intelligence Studies (with the reorganization of previous deals data in deal point studies and market intelligence reports), Risk Management and Compliance/Potential New Business Lines (contracts review allow the identification of non compliance with CA rules, export control, regulatory issues) and Foreign and Multi-language Contract Review (the system can be trained to recognize any important provision/clause in any language in order to redirect the contract to the right expert).

⁶⁰ J. Zhao, "Digitalization - The Pill For M&A Failures?", *M&A, Technology and innovation*, 2018.

⁶¹ M. Burdon, "Artificial Intelligence – An Authentic Opportunity for Mergers And Acquisitions", *The Deal Room*, 2016.

⁶² H. Otto, "Kira: Contract Extraction Software for M&A Due Diligence", *Colorado Lawyer*, 2018.

⁶³ Kira, *Machine Learning Contract Analysis, How Professional Services Firms Are Using Kira*, 2017.

⁶⁴ H. Otto, "Kira: Contract Extraction Software for M&A Due Diligence", *Colorado Lawyer*, 2018.

Finally, there are many other technologies used by consultants to support their clients in speeding the Due Diligence activities through *Data exploration* and *interactive visualization*, *Collaborative work tools*, *Data Analytics* and *Visualization tools*.

Tableau is a *visualization tool* allowing to connect to a huge volume of data. In this way, consultants' clients are able to bring spreadsheets & databases in big data sources and creating interactive deliverables (visualizations, reports and dashboards). In the past, data preparation was performed by technical profiles, such as data engineers and data scientists and, only once the data was prepared, analysts and business users were able to work with their analysis. *Tableau Prep* allows any user to prepare data faster and more intuitively, to safely combine/model/clean up data and to take better business decisions. The tool enables to summarize and visualize graphically many records of data analyzed (charts, graphs and maps). In this way consultants can work on data and, using several visualizations/interacting views, are able to answer several clients' questions.

G-Suite Hangout is a tool able to facilitate the collaboration and interaction among the due diligence team members. In particular with *Hangout Chat* is possible to rely on a messaging platform and dedicated virtual rooms (hosting projects and conversations per threads, with progress monitoring); in addition this tool helps to upload items from Drive (enhancing collaboration on documents), to attend online meetings (with *Hangouts Meet*), to use Google's search engine (when members are looking for rooms, past conversations and shared files), to inform when files are shared and to schedule automatically meetings (since it's integrated directly with members' Calendar).

Finally, *Microsoft SharePoint* is a *Content Management System (CMS) software platform*, with the purpose to share information and/or documents in different ways (it's possible to create lists, document repositories or synchronize calendars). It enhances teamwork with dynamic and productive team sites for each project team, department and division (in or outside the organization, via PCs, Macs or mobile devices). Thanks to powerful search features, it's possible to look for information, skills and insights. The *SharePoint content-management* allows the team to increase and share the level of knowledge on the project (e.g. on contacts or past conversations).

Conclusions

Digital transformation is deeply modifying the Italian Management Consulting sector, its borders, its actors and its managerial and organizational choices. This transformation appears almost "mandatory" for consulting companies providing services in line with their clients' needs, and for clients businesses focused on recovering the competitiveness lost after the introduction of Euro and the financial crisis.

In this context of profound change consulting companies, even if embracing a deep transformation, didn't lose their roots and traditions; since they already went through this Digital transformation, they preserved their ability in knowing and anticipating their clients' needs.

Finally, they invested globally and locally a huge amount of resources in digitalization and in understanding the characteristics of the industries in which they operate; in addition, they leveraged on their past experience in managing the transformation processes. For this reason, consulting companies represent a serious opportunity, even for Italian SMEs, of embracing the digital transformation by guiding its implementation on high priority areas and processes.

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