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PROJECT MANAGEMENT BEYOND PROJECTS:

an Outsider's View on the SCOPE AND THE FOUNDATIONS OF THE DISCIPLINE

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ABSTRACT

Increasingly specialized tasks with an organization of production which is more and more globalized require larger and larger amount of management services. The growing popularity of project management can be explained, partly by a growing demand for management services in general and partly by project management specificities. The conceptualization of production and the conceptualization of the firm have been a long-term quest in economic analysis. The first part of the paper contains some preliminary considerations on economic analysis. The second part describes the creation of value, using a value classification of products; this shows how industrialization and globalization generate a growing demand for management services and firms in order to organize production. The third part characterizes project management among other management disciplines. The fourth part demonstrates how certain production conditions in the new economy call for a growing use of methods of project management. The analysis presented is essentially empirical rather than normative in the sense used by Savage (Foundations of Statistics).

1. Introduction

Project Management and other fields of administration

As an intellectual construction, project management has focused on the realization modalities of a project and it has developed a body of knowledge gathering tools aim at facilitating the work of people responsible for this realization. These tools can be found at the level of task conception and ranking as well as at the execution level. Among these tools, there is an analytical framework for the decomposition and sequencing of project realization time horizon, and connected to this decomposition and sequencing, there are follow-up methods. These tools are not only aimed, however, at supporting decision making by people responsible for projects and who are faced with a changing world, which is never fully predictable. They are framing principles for the actions of the project manager; in order to be so, there is a high level of codification, which is a prime differentiation of project management within the world of administrative sciences. For instance, framing principles of project managers' actions are divided into forty-seven subsets or processes (*Project Management Institute Guide, 5th edition, (2013)*), grouped into five categories (*initiating, planning, executing, monitoring and controlling, and closing*).

Historically, administrative sciences have grown largely from the study of commercial organizations and firms. Classical contributions in marketing, management or cor-

porate finance have analyzed business entities.¹ Project management has a much more ancient origin, not related to business entities; it proposes a conceptualization of things, in the domain of administrative sciences, which is beyond the commercial non-commercial separation. It will also be the case, but for different reasons, of fields of administration with more recent recognition, for instance, organizational behaviour.

Organizations are made alive through interacting persons. Their motivation, a dear subject of organizational behaviour, will have some effect on organizations' performance, whether they are commercial or not; the common denominator of organizations derives in this case, from a conceptualization of performance determinants. In project management, relevance to all organizations derives from the notion of project, conceptualized following a philosophy of realization and of execution.

Sectoral origin and growing popularity

Construction and defence have been fertile grounds for the inception of project management. Productions introduced by the Industrial Revolution embodied product standardization with continuous processes; construction had been largely immune to that since its output is largely composed of unique things which tend to be produced separately. Moreover, physical infrastructures, particularly for transportation, are produced by the construction sector, and as for defence and the military, are under public administrations responding to population' needs or demands.

In addition, and over a more recent past, a growing popularity of project management outside its traditional areas is reported (*H. Kerzner (Project Management, 10th ed., 2009)*), particularly in the business sector, beyond the construction industry. An indicator of the thing is the proliferation of project management training, offered by centers dedicated to project management but also by universities, at their engineering faculties or their business schools. The business world being made of entities, the firms, already equipped with management skills, how can we account for this growing use of project management?

¹ See for instance « The growth of management disciplines », in Morgen Witzel (2012), *A History of Management Thought*.

Objectives and Plan

The objective of the communication is to present the thoughts of an external observer of project management about its fundamentals and its increasing scope. What makes project management valuable? What is the nature of the project management contribution to organizational performance? As for its growing reach, from which perspective is it appropriate to interpret this trend? Some authors have proposed explanations of it. For instance, Kerzner (*Project Management, 2009*) focuses on factors related to the macroeconomic environment of businesses.

In production, management services are one category of inputs among others: energy, raw materials, abilities of technicians, A variation in the size and scope of one sub-category of management services, for instance project management, has two possible sources: a variation of the importance of the management category among other input categories and / or a substitution among sub-categories of management services. In other words, is project management increasingly in demand because management services are increasingly in demand in the new economy and therefore all management disciplines are increasingly in demand and / or because ways of doing in project management are more suitable than other management disciplines with the requirements of this new economy. The interpretation that is retained is not without consequences for the evolution of project management. In the first interpretation, there is no need to think more specifically about project management than about other disciplines, or to pause on the underlying management philosophy of project management which could make it more in demand; in the second interpretation, specific considerations are desirable.

The laudable aim of improving things steadily generates proposals for changes to management practices. We could provide many examples of such proposals. An example of particular interest for this analysis is that advanced in 2011 by Raymond Levitt "Towards project management 2.0" (*The Engineering Project Organization Journal*), suggesting the introduction of more flexibility in the practice of project management. If the increasing use of project management is accounted for, in whole or in part, by a better adaptation of project management practices to the requirements of the new economy, it is important to

ensure that proposed changes do not compromise this better adaptation.

In order to answer questions raised above, there are a number of challenges. The first and not least is to find an analytical framework that identifies the contribution of management to production while providing a basis for comparison between project management and other management disciplines. One way to reduce the difficulties is to focus on the production of business - the value of this production being easier to grasp than the “production” by public administration and the non-business sector - and to use the tools of economic analysis. The weak point of economic analysis is its level of abstraction; but the “strength of this weakness” is to formulate a number of proposals on the nature of things at a sufficiently broad level to meet the objectives that are being pursued here.

The conceptualization of production and the conceptualization of the firm or of its top decision makers’ contribution have been a long-term quest in economic analysis. A first attempt at systematic production description is presented by Quesnay in 1758 in response to military concerns of Louis XV, who wanted to know the capacity of the French treasury to support a war effort, that is to say the size of the tax base of the realm. These first attempts led, two centuries later, to national accounting systems used to monitor the business cycle and to weigh the effects of macroeconomic factors, including those mentioned by Kerzner cited above. We can trace roughly around the same time, middle to end of the 18th century, in the writings of Cantillon and of Turgot on trade and on wealth, the first conceptualizations of what a firm does.

With the numerous researches since Turgot, economic analysis can now propose a theory of pretty large scope on the nature of the firm and on the role of management. This theory is used in the third part to characterize project management among other management disciplines and to explain its value, and in the fourth part to demonstrate how certain production conditions in the new economy call for a growing use of methods of

project management. The second part describes the creation of value, using a value classification of products; this shows how industrialization and globalization generate a growing demand for management services and firms in order to organize production. The first part contains some preliminary considerations on the analysis and the arguments made. Finally, apart from a few lines in the conclusion, the analysis is essentially empirical rather than normative in the sense used by Savage (*Foundations of Statistics*) in the interpretation of the postulates of a theory of decision; in other words, the analysis is to account for a situation rather than evaluating.

2. Types of production and nature of the firm

Concept of production and limited management production

In economic analysis, the term “resource”, whose meaning is similar to that given in project management, means anything that can contribute to production and “production” means any activity that can meet a need. The grocers produce alongside the farm. Farms produce agricultural commodities and grocers produce distribution services which make them accessible to the population, in their raw state, such as fresh tomatoes and sand carrots, or in a processed form, following the production of a food manufacturer. All these productions are qualified as commercial because producers do not aim at fulfilling directly their needs and those of their relatives; their objective is to trade their products for money if we are in a monetary economy, or for other useful things, if we are in a barter economy.

The previous agricultural products could also be described as household production if, as was the case in ancient times, this production was to fulfill directly the needs of the household members. Even today, household production is still important, think

of the time and effort of parents for meal preparation, for the education of children, for the care of elderly relatives, and for self-drive transportation to work.

Commercial production may be lucrative if the organization within which it takes place is subject to profitability constraint, or may be non-profit, when this constraint does not apply. The profitability constraint is applicable to a given production when productivity of resources allocated to it can be measured in monetary terms. Production by public administrations is commercial in the sense that those involved trade their working time, their competence and their products if suppliers, for money generated hopefully by taxation, rather than a printing press. But these administrations are nonprofit because they generate outputs which do not lend themselves to value measurement in monetary terms. The profitability constraint can be efficient if the true cost of all resources, especially environmental ones, is taken into consideration in management decisions. When the profitability constraint does not apply, other forms of controls are needed to limit the waste of resources.

A full description of all production situations requires expanding the taxonomy of the types of production. The simple classification presented above is nevertheless sufficient for the purpose of the analysis.

The specialization of tasks transcends, in varying degrees, the different types of production with a very low level of specialization in household production and, at the other extreme, the level of specialization in commercial production under the profitability constraint and in the context of globalization. It is reasonable to argue that a growing quantity of management services will be required as the level of specialization increases.

Historical perspective on the origin of the firm

The Industrial Revolution marked a turning point in the ways human societies have met individual needs. According to Thomas Ashton, classical author to whom we owe the term

“industrial revolution”, this period would have started in England around 1750. Before that, the person who needed a pair of shoes relied on an expert craftsman, the shoemaker, to satisfy his need. It was the same for clothing: from the raw material, linen, wool, ... , to the thread, the textile, and then the garments, handicraft production was the way to go. Various factors, including innovations in tools and standardization of components, in combination with the fine control of different energy sources, have extended the principle of task specialization beyond existing categories of artisans. This transformation was the beginning of an almost continuous series of productivity gains, that is to say increases in productivity of human effort.

About a century earlier, the agricultural sector had also been brought to change, with the increasing use of natural fertilizers and crop rotation; this also marked the beginning of an almost continuous series of productivity gains. In the same way that artisans gave way to the production of standardized goods, household production in agriculture gave way gradually to a commercial production, more specialized in a smaller number of products. Task specialization derives partly from product specialization, and the agricultural sector, as for the production of goods, applied increasingly the principle of task specialization.

It would be false to claim that the specialization of tasks is the fact of the Industrial Revolution coupled to the second agricultural revolution that preceded it. The Middle Ages’ domains or equivalent places in antiquity, have applied the principle of task specialization as it had been the case for the family unit with its division of labor, dictated in part by biological differences between men and women. The big change, started in the last centuries and which continues with globalization, is the increasing intensity with which this applies. This intensity and organizational constraints arising from it, are sometimes underestimated because its spatial and temporal scope is not always well captured, such as in a popular discourse on banks and the financial markets. The reallocation of tasks between an individual A and individual B is one aspect of the specialization of tasks involving production activities concentrated on categories of goods or services more and more specific, in order to satisfy eventually human needs.

If one goes back half a century ago, a ball bearing plant, located for example in the US Midwest, manufactured dozens and dozens of ball bearings models, each model being used in the assembly in the subsequent months, across the United States, of a large number of different product categories. Since then, the number of models of ball bearings and of other roller bearings have increased significantly; furthermore, the production of a ball bearing plant in India will supply around the world enterprises assembling, sometimes a year later, rolling equipment belonging to a limited number of categories of products, for instance bottling equipments, with low speed rotation, supporting a small load and whose occasional failures do not result in astronomical costs.

As the Industrial Revolution that preceded it, but this time on a global level rather than a national or regional level,

globalization by increasing the degree of task specialization increases the distance between resources and needs. In other words, the resources must travel a distance in space and time increasingly high to meet the needs; financial sector growth in recent decades is closely linked to the financing of resource shifts over longer and longer distances in space and in time.² This has raised many challenges in the organization of things. The institution of the modern enterprise in its various forms or labels (*corporate, commercial company* ...) was the main method used by human societies to meet these challenges.

The legal status of the firm and its economic nature

The modern firm is an entity that was established very gradually, especially by rules of law, through trials and errors. Each country having its economic, political and legal history, international comparisons show a great diversity for the analyst seeking to identify the concept of firm. Canada is a very decentralized country with each province having distinct legal rules in various areas. If we take the Province of Quebec, for instance, the Quebec Civil Code (*section 1525*) identifies the business concept indirectly by defining what constitutes the operation of a business: “the exercise by one or many persons of an organized economic activity”; in order to recognize the existence of such activity, there must be indications to the effect there is or there will repetition of economic acts.³ According to N. Lacasse (*2011*), “the qualification of organized economic activity involves some degree of structural and material organization of the activity”.⁴ The same author also stresses that “the doctrine and jurisprudence converge to establish a set of criteria necessary to conclude to the existence of a firm”, but that “the firm is basically an economic concept rather than a legal one”.⁵

The concept of firm refers to production organizations tied to a market environment. In a text entitled “The Nature of the firm,” published in 1937 and becoming a classic on the subject some decades later, Ronald Coase is the first author known to have raised the following question: since there are already markets and prices for organizing production, what is the use of firms, why do they exist? In other words, since there are already markets where people can make transactions to get the products they need or to sell the resources they have, why do we need a level of intermediaries, the firms, between people willing to buy and people willing to sell? In shorthand, the Coase’s answer is that there are transaction costs and for some transactions, the market will offer a cheaper solution, while for others it will be the firm.

² The alternative to financing, that is to say, to have the “need” or the final recipient to pay in advance the use, is limited because of transaction costs; for instance a shipyard requests advances on the total price of a ship as the construction proceeds, but advances as a source of financing would not be feasible for the production of milk up to consumer packaging. With the increasing specialization of tasks and the growing distance between resources and needs, financial needs for production increase; on the other hand, transaction costs increase, limiting the scope of the solution “pay in advance”. By reducing the costs of financing, the zero or low discount rate policy of several major central banks in recent years contributes to more globalization in a way which is similar to innovations that have reduced the costs of communication and of transportation.

³ From N. Lacasse (2011).

⁴ Op.cit., p.46; translation by the author.

⁵ Op.cit., p.49; translation by the author.

3. Classification in product value and value creation

Value creation by the firm comes from contributing to satisfaction of human needs; this contribution is direct, with the production of consumer goods or services, or indirect, with the production of goods or services upstream of finished products, and in the form of raw materials or semi processed products. To represent this value creation, it is useful to establish initially a value classification of products. For illustration purposes, a classification limited to goods is sufficient. In the classification of Debreu (1959), A Theory of value, defined in order to demonstrate some proposals in the theory of general equilibrium, a product will be identified by its physical characteristics as well as the place and the date it is available. In terms of physical characteristics, such classification seems quite obvious: a ton of steel has characteristics that give it more value than all the tons of ore including iron used in its production. Although a ton of steel will go through some other transformation processes before contributing to the satisfaction of a need, such as a home appliance in the need for eating, the characteristics of steel make it a product closer to a satisfaction of needs than ore. Regarding the place and the date, one must be immunized from the fallacy of the tangible in social sciences and management sciences, in order to grasp the merits of the classification.

If your cell phone works well today, say January 24, 2015, the value you place on a second identical cell phone will be quite low. But if in three days, January 27, 2015, you drop it in crossing the street and a car rolls over, the value that you will give this second identical cell phone will be much greater. The value of a thing depends on its ability to satisfy a need and this ability is not only a function of its physical characteristics but also the date it is available, and similarly for the place where it available. In a northern country as Canada, a cord of firewood in the forest, two hundred kilometers from a city in July, has much less value than in January, when it is - 30 degrees Celsius, and the same cord is kept in stock by a city merchant.

The value classification of Debreu can be represented by a space of multiple dimensions: the three dimensions of physical space, the time axis and the hundreds of millions of dimensions to establish the product physical characteristics which allow distinguishing things, for instance two means of transport, a scooter and a huge charter plane. The growing distance between needs and resources, mentioned above in connection with increasing the degree of specialization of tasks is a distance in this space of multiple dimensions. Specifically, value creation stems from some travel in this space of multiple dimensions; more specifically, there is creation

of value when the distance traveled brings some resources closer to a need.

Know-how, knowledge and physical as well as intellectual human effort are required in all sectors of production. For changes in physical characteristics, value creation will require equipments and buildings used in the primary and secondary sectors. For changes of locations, value creation will require infrastructures, built or natural, such as canals, rivers and highways, and transport equipments. For changes in dates, value creation is achieved by means of inventories of wholesalers and retailers of the distribution sector. These inventories are analogous to the carriers of a trucking company, in changing locations, or to the furnace of a steel plant, in changing physical characteristics of ore.

The value classification of Debreu is useful to describe value creation in a way which is very general, as well as to describe in a generic way the contribution of the firm to this creation. In reference to the image of distance used earlier, the firm can be seen as a vehicle moving resources, which it owns or manages temporarily, towards needs; value creation can be interpreted as a shortening of the distance between resources and needs. For a deeper understanding of the role of management, that is to say, the steering of this vehicle, and in order to capture, in this world of management, the specificity of project management, we must now go beyond the vehicle analogy. The curriculum of business schools offers an avenue.

The approach often advocated in business school curriculum is based on fields of specialization, as Corporate Finance, HR, Marketing, ..., usually built around “best practices” and to which will be integrated applications of disciplines, such as sociology, psychology or economy, external to management. This approach, which can cause the silo effect emphasized by Witzel (2012), A History of Management Thought (p.174-176), does not allow to explain the creation of value by firms, to explain how they get resources closer to needs. The view of business management carried by the fields of specialization is not sufficiently articulated around the value creation process to go beyond the vehicle analogy and to circumscribe project management and its contribution. For example, the tools of financial analysis allow to order according to their profitability, or the expected value created, various investments and to make informed choices, but the implementation of the chosen option or the ways of undertaking it are not explicitly related to value creation.

Frequently, the nature of a firm is identified with its resources; if you ask someone to describe the company Wal-Mart or Siemens, there is a good chance that the person evokes distribution centers or centers of research and manufacturing, which are some of the resources that these companies manage. In such a popular discourse, a concept of firm, distinct from the one of resources does not exist. In order to go beyond the previous analogy of a vehicle, the firm must be defined; as with any exercise of definition, it should specify its function and its composition.

4. The functions of management and the value of project management

The role of the firm

Analysis of management tasks by the founders of a management science, particularly Fayol when talking about foresight and coordination, proceeds from a fundamental reflection on the management; it carries an integrated vision which is typical of economic analysis. The measure of economic activity (“the tax base of the kingdom”) and the understanding of its terms and determinants are at the heart of economic thought; early on in its history, the entrepreneur with his business have emerged as subjects for reflection, think of Turgot in the 18th century, of Cournot in the 19th, or Schumpeter and Knight in the middle of the 20th and many others since then (Alchian, Demsetz, Kirzner, Spulber, Williamson, ...).

Economic analysis has the strength of its weakness: concerned by systemic and general equilibrium considerations, it does not focus primarily on the analysis of specific management practices. It carries however an integrated vision of management relying on the general descriptive model of value creation presented in the previous section. The intuitive synthesis of this analysis by Barreto (1989), The Entrepreneur in Microeconomic Theory, distinguishes three functions of the entrepreneur: uncertainty bearer, coordinator and arbitrageur.⁶ As evidenced by the proliferation of enterprises since the Industrial Revolution, a trend that is strengthened with globalization, it can be argued that a growing distance between resources and needs requests more of each of these functions; in other words, it multiplies management tasks and increases the role of the firm in the social organization of production.

With Barreto, as well as with earlier authors, there is, through the personality of the entrepreneur, a correspondence between on one hand management or the functions of the entrepreneur and on the other hand, the firm as a concept distinct from resource. The analysis will treat, similarly, as synonymous expressions, the functions of management and the functions or role of the firm. Furthermore, there are many common denominators between the three functions identified by Barreto for the entrepreneur and the fields of specialization composing business school curriculum. Barreto entrepreneur functions are a different classification of the many items or tasks and practices composing business school fields of specialization, a classification attempting to further highlight the contingencies and factors affecting val-

ue creation, that is to say the value of the firm for the people it connects: suppliers, clients, employees,

The shift of resources towards needs is subject to all sorts of uncertainty because there is always the possibility, when the product finally joined the need that product characteristics do not correspond as expected to those of the need or that the need has just been satisfied by a substitute. A prepaid production is partly sheltered from this uncertainty but, as noted above, in a world of increasing specialization of tasks, it is more and more limited. In this context, the firm is more and more useful to support this uncertainty and it is its first function, which it fulfils with funding from various sources: supplier credit, loan, and equity. These sources does not indicate which activity to choose, which market to move in, in which direction to innovate, or in which direction to focus its efforts to reduce costs; in other words, these sources do not indicate what decision to take in order to create value. All this comes under the arbitrage function.

For the technician or engineer, production corresponds to a set of physical processes while for the manager the same production is a series of decisions guiding the use of resources under his responsibility. The arbitrage function focuses on information sources illuminating these decisions to create value. In its original sense, the term arbitrage refers to buying currencies or products in a time and a given place at a given price, followed by resale elsewhere at another time at a higher price; to the extent that a higher price indicates a greater need, arbitrage gains indicate value creation.⁷ In the same way that the creation of value by the wholesale or retail store, including the carrier that brings supplies to store location, stems from price differences between given places and given dates, value creation by the manufacturer derives from price differences between products with different characteristics and / or price differences between inputs or resources with different characteristics. For example, in a value creating innovation at product level, new product features will be more valued by the buyer than the cost of introducing these features.

In its arbitrage function, relevant informations on resource availability and on needs are searched for by management in order to guide decisions related to the choice of the geographic market or product characteristics and to guide decisions related to the choice of resources to use. But the arbitrage function does not explain how to turn these decisions into results. This is up to the third function, the coordination function. Coordination is an issue for firms and organization in general because “the best action for one person to take will often depend on the actions taken by others”⁸

The late or premature arrival of a stock of products or raw materials can result in increased costs or loss of income preventing the creation of value, although the decision from

⁶ In order to report faithfully Barreto's analysis, a fourth function should be added: the innovation function. But within the general model of value creation used here, and as argued later on in the text, innovation is a form of arbitrage.

⁷ Arbitrage gains do not always mean value creation; if the purchase is made on a market where there is intense competition among sellers and if the sale is made on a market where there is little competition among sellers, the arbitrage gains can simply be a redistribution of value among some market participants.
⁸ Besanko (2010), p.78.

the arbitrage function was well-informed. This can happen for a one-person firm as well as for a firm with numerous employees. Coordination will also be an issue in the fine detail of daily operations and especially as the number of people involved is large: the productivity of human effort depends on the actions of other people involved in the same task and related tasks in a team, and the actions of people downstream and upstream.

Generally, we distinguish problems of coordination from agency or motivation problems, these problems focusing on the quality of the effort made by a person within the organization, rather than the attributes of this effort from the point of view of its interaction with other actions. The agency costs are specific to the relationship “principal - agent” or agency relationship which “occurs when one party (*the agent*) is hired by another (*the principal*) to take actions or make decisions that affect the payoff to the principal”.⁹ Beyond the distinct issues that are raised, both sets of problems refer to human behavior; the analysis will treat agency or motivation problems as a subset of coordination problems. In order to circumscribe the value of project management, we must now turn to the second part of the definition of the firm: its composition.

The composition of the firm

All individuals within an organization have some power on the organization's resources; the individual's rank in the administrative hierarchy is usually a good indicator of this power in terms of quantities of resources. Even for the individual at the bottom of this hierarchy, there is some power, at the level of the individual's effort, subject to various constraints depending on the level of observability of this effort. The big challenge of the firm is to ensure that individuals associated with it, either as employees and managers, or on its periphery, as suppliers, adopt behavior conducive to value creation. The alternative is the consumption of firm's resources; given human imagination, the possibilities here extend to infinity, from the extreme of the obvious fraud by an employee managing liquidity, to more subtle misuses or consumptions of organization's resources, for instance in choosing or overlooking unnecessarily costly means to support human effort (*long pauses, meetings in gorgeous hotels, ...*). The firm is made of elements designed to meet this challenge. In a conceptualization of the firm, as distinct from its available resources, what are these elements?

First, there is the culture of the firm, that is to say customs and traditions inherited from its past and that constitute a first guidance of individuals' behavior. Secondly, there are the numerous clauses of contracts pooling financial and real resources made available to the firm through employees, shareholders, suppliers, lenders and other stakeholders. Third, there are the directives, more or less numerous, depending on the level of centralization of the operating mode of the firm. Fourth, there are controls in place, such as a floor supervisor along an assembly line, and which include the numerous ways to affect the welfare of the

individual within the organization, positively with incentives like performance bonuses, and negatively with disincentive like non-promotion or dismissal. The three functions of the firm, uncertainty bearing, arbitrage and coordination, are carried on by the use of elements in one or more than one of these four categories.

All elements in the previous categories can be seen as the specific rules making up a firm, beyond and besides general rules under laws and regulations (*labor law, corporate law, competition law, bankruptcy law, ...*) entering also into the framing of social interactions within and around firms. The managerial time which helps instituting firm specific rules does not have value by itself. As for fiat money, it does not contribute directly to the satisfaction of human needs or value creation. But it does indirectly by reducing the transaction costs associated with the functions of the firm, particularly coordination costs, including agency and motivation costs.

Project management adds to the four sets of rules described above a fifth set of rules, usually implicit in the many processes and ways of doing of this field of management and which are adapted to the particular circumstances of the project to achieve. Unlike repetitive activities of the firm, the project has little or no comparable; the realization of a project represents an additional level of expertise, in addition to various forms of specialization of tasks described above. A project manager is the agent of a “principal”, the organization within which the project takes place. But given the particular circumstances of the project, the manager is able to acquire a position changing the sense of this relation; like H. White argues (1985), inspired by the ideas of K. Llewellyn (1930), a lawyer specialized in institutional analysis: “... the problem is a tendency to inversion of control, the principal ... falling under the control of the agent ... and this undermines the achievement of objectives ...”.¹⁰

In other words, the realization of a project carries large coordination costs, and especially agency and motivation costs which are particularly high. The completion of construction projects had faced these costs for many centuries and even millennia, long before the world of business management has been exposed to it. The value of project management, ie the value of the detailed task codification inherent to project management and to the various processes underlying it, is to keep these costs down, reducing by the same token the total amount of transaction costs, and thereby increasing value creation beyond these costs.

5. The increasing scope of the project management

The modes of production which began to develop with the Industrial Revolution and the growing task specialization underlying them have increased the utility for manage-

ment services. The growing popularity of project management, a subset of these services, may be partly explained by these transformations. These transformations are, however, heavy trends that date back more than a century and which have operated gradually. To the extent that the increase in the popularity of project management has accelerated on a more recent time frame, other explanatory factors are needed.

In their treatise, Economics, organization and management, Paul Milgrom and John Roberts present a short summary of the economic analysis of property; this analysis focuses on two attributes of ownership: residual control rights and residual profits. The application of this analysis helps to quickly identify issues raised by the exploitation of the public domain and environmental resources. At the level of the firm, it also helps to identify who are, in fact, its effective “owners”, beyond legal titles held by shareholders.

Thus, it can be shown that managers as well as employees participate to the ownership of the firm although they do not held legal titles, because of their ability to exercise, directly or indirectly, part of the residual control and to capture part of the residual profits. This view of Milgrom and Roberts is reinforced by some changes in recent decades. Among all resources required by production, intellectual ability, rather than physical effort usually combined with a significant amount of equipment and physical capital to support its productivity, occupies a place which is more and more important. It implies that shareholders own a smaller and smaller portion of the overall resources contributing to production. This observation provides some indication of the origin of an increasing popularity of project management among other management services.

Production conditions in the new economy are different from those of the industrialized world of the 20th century. In this earlier period, production combined a widely observable human effort with tools and physical capital whose life expectancy could be fifteen, twenty or even thirty years. In this relatively stable universe, products and production outputs are a good source of information on performance. Furthermore, observability of much of the human effort involved allows the use of relatively simple ways to ensure the maintenance of this effort at an agreed level, for example the hiring of a foreman or floor supervisor. The industrialized world of the 20th century was therefore suitable, in order to support performance, to the use of means operating simultaneously with the production activity or applicable downstream, as in the analysis of results. These means are less effective at reducing motivation and agency costs in the new economy.

In the new economy, with the help of robotics in mass production, a smaller and smaller portion of human effort is a physical one. Innovations are more frequent and life expectancy of capital is shorter. In increasing proportions, human effort is an intellectual one, for the conception of new products, of new processs and of ways of adjusting to new situations. This implies that means for limiting agency and motivation costs must, to some extent, be displaced upstream of production activities. The situation is analogous

to that which was faced by project management from time immemorial, specifically construction projects.

Because of the peculiarity of each geographical site where a building is to be erected or of sites and routes where an infrastructure will be layed down, because of the variation in the local availability of resources and in surrounding circumstances, and because this variation can impact significantly on costs, various construction outcomes are not easily comparable for performance evaluation purposes. The outcome of a completed construction project offers little clue for evaluating the performance of a team for a current project under realization. This realization can, on a continual basis, raise problems and call for quick decisions with cost and outcome quality implications; managing these situations requires an intellectual effort at problem solving and this effort is largely non-observable. Therefore, the treatment of agency and motivation problems, in project management, is mainly done upstream of the production activity itself and this is done in two different ways.

First, and for each project, there is, in the preliminary stages, a very detailed planning exercise. The future is unpredictable, it goes without saying. But by demanding an effort of imagination to recognize as many possible situations ahead and by planning ways to address these situations in a coherent way with other aspects of the project, the planning exercise create upstream of the project “comparables”, that is, reference scenarios that the manager has to refer to during project realization. These comparables or reference scenarios play a role which is similar, from the perspective of agency and motivation problems, to repetitive productions in the industrialized world of the 20th century, and which have been used for performance control in ex post or downstream evaluation.

Second, the high level of codification of many ways of doing of project management, for instance the follow-up procedures once project realization has been initiated, ensures that the logic of reference scenarios, internal to each project, is effective at inducing desirable behaviors among decision makers responsible for project realization. In other words, this codification makes the planning and baseline scenarios exercise more effective for addressing motivation and agency problems which arise in the implementation of a project.

These considerations tend to show that the approach or management philosophy of the “Project Management” field is particularly well suited to solve agency and motivation problems that arise increasingly in the new economy. These factors specific to project management, and in connection with the new economy, come in addition to those who have contributed and contribute to the value of management services for the production in the contemporary world.

The use of codification in project management is reminiscent of the civilist tradition in law. For several decades, there has been a debate on the respective merits of the common law tradition and of the civil law tradition, the latter favoring codification. This debate has intensified ten years ago with the launch of the World Bank's Doing Business research program, in order to assess the quality of the legal environment of each country for making business. Canada is

⁹ Besanko (2010), p.73.

¹⁰ White (1985), p.205.

a political entity that combines multiple legal traditions: the customary law of First Nations, the French civil law tradition and the common law. The issues raised by bankruptcy and insolvency, along with the law regarding firms in distress are, in the Canadian Constitution, a government responsibility at federal level and the last two traditions are present in Canadian law. As outlined by various authors, for instance Papillon (2009, 2012a and 2013), insolvency raises agency problems and in the last reform, the Canadian Parliament has followed largely a codification approach to address these problems.

6. Conclusion

Increasingly specialized tasks with an organization of production which is more and more globalized require larger and larger amount of management services. This trend, which can be traced back to the Industrial Revolution, has become stronger in the contemporary world. The growing popularity of project management can be explained by a growing demand for management services in general. But this does not explain everything.

Production conditions in the new economy imply a greater reliance on intellectual abilities rather than on an observable physical effort combined with large amounts of equipment and physical capital. With this change and other factors related as the higher rate of innovations, management practices, which are concomitant with the production activity, such as hiring a floor foreman, or downstream, with the analysis of output, are less able to solve agency and motivation problems within production organizations. Because of the specificity of each project, the approach advocated by project management to solve these problems uses means that are, from the point of view of the production cycle, rather upstream of the practices that have just been mentioned. It makes project management better adapted to meet some of the management challenges that conditions of production in today's economy raise. Do more flexibility in the approach of project management, as proposed by some experts, would make it even more useful? This will depend on the form of this flexibility.

If more flexibility means less codification of project management practices, it is unlikely that it will make them

more valuable. It is codification, which is inherent to the management philosophy of project management, which makes it well suited to the new economy. A likely argument to accredit the call for more flexibility is the concern for performance. It has been the argument, as recalled by Papillon (2007), to introduce new management practices, focused on outcome, in public administrations and to remove many rules constraining the decision rights of civil servants. Birnbaum (2000), through an historical account of these management "fads" in public administration, underlines their lack of foundations; frequently, it will be fed by some magical thinking about the virtues of the market, which overlooks the stringent conditions to be met for the market to be virtuous: a revelation of needs which is reliable and binding for decision makers, availability of information about comparables, some competition among suppliers,

The French public administration has held up to some extent to recent management fads. Its performance in realization of large projects, from the Canal du Midi many centuries ago to the Pont du Millau, has been and continues to be uplifting. Far from excluding the private sector, this performance depends of it to a large extent; it appears that with a rich civilist tradition, the public administration has been able to design in advance rules adapted to the complexity of these huge projects, while reconciling the incentives for private agents with the public interest. According to Krivosheeva (2015), public administration in the Russian Federation would choose a similar path with increasing application of project management principles.

Therefore, if more flexibility in project management means that, as its eminent domain gets larger, new practices which could be more adapted to new circumstances are searched for and, then, codified, there is reason for optimism.

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