Taylor and after: paradigms in the history of management[1]

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This paper seeks to answer the question "Why and how management practices and ideas changed over time?" We assume that the history of management can be defined by several "paradigms" and the study of their evolution can provide an answer.

The history of management in the US from 1900 to 2000 can be defined as a set of different paradigms with different managerial dilemmas, solutions and main advocates for each. We refer to these management paradigms as "Scientific Management", "Human Relations", "Structural Revolution" and "Global Competition", this last one being proposed by the author. Their evolution coincides with the development of the practice of management in corporations. These paradigms followed each other but did not "die" when the next emerged, only faded somewhat, so the author assumes it is normal that practices, ideas and tools from each still prevail today. As a synthesized teaching of management history, the author identifies two main types of paradigm which can help the readers to evaluate the development and the national states of management system of different industrialized countries. Thus, the general framework of this paper can serve as a means to better understand management both in theory and in practice.

Keywords: taylorism, scientific management, management paradigms

1. Introduction

This paper shortly reviews management theories from the 1910s to the present day. Our objective is to place Taylor in a historical perspective in order to better grasp his contribution to the management studies. Based on his Scientific Management theory, other "management paradigms" will be identified which followed his era. In this introduction, we will look at how the first large enterprises were created, able to develop a conscious management and scientific practices in production, and define what we understand under management paradigm.

The birth of modern factories is greatly due to the railway constructions which brought the "revolution" of transportation, bigger markets, separating ownership and management (as few were being able to finance alone a complete railway line), and growing companies with more hierarchical levels. For the governance problems caused by professional managers, like differences in personal goals or performance information, the development of agency theory was to give a solution.

By the Civil War, the interchangeability of parts in production (first in weaponry) could be established, and so standardization with less skilled labor became reality. In addition, from the 1870s, a growing number of continuous-process machinery were introduced in American factories in order to increase the volume of production (*Locke* 1996). The industrializing world entered in an era dominated by the power of economies of scale, where the first priority of the firms was growth[2]. The steam power made mechanized production cheaper, so prices could be lowered as well. Lower prices meant higher demand which pushed factories to employ more workers, buy more machines; and this race could be won only by those who achieved the cheapest prices by larger-scale production. By the 1900s, the aspect of scale turned to be a great advantage on the yet relatively more developed Western-European economies. As argued by *Litterer* (1961), technical skills and innovation in America was not used to make products, as in Europe, but to make production lines. To sum up, the key drivers

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[2] *Skaggs* and *Leicht* (2005) call this period (1860-1910) Entrepreneurialism.

behind the rise of Big Business in the late 1880s were technology, management, mass markets, and economies of scale and scope (*Koehn* 2009).

However, management of those ever growing companies presented a serious challenge, because their owners were lacking professional training or any kind of education about how to organize and coordinate the work of so many at the same time. In addition, an important part of workers were illiterate or, due to the immigration, could not even speak English.

In those early times management faced multiple problems. The most serious were recruitment, especially that of skilled labor, training of the uneducated, unmotivated workers, and keeping discipline (*Wren* 1994). The given responses included using "stick" (punishment), "carrot" (rewards, bonuses) and building a sort of "factory ethos", often linked to religious morals and values, in order to stabilize hierarchy.

People were learning from their co-workers, production did not have standardized methods, and innovation was often blocked or resisted by labor. Employers promoted low wages because when a worker got enough money to survive for a few days, he or she simply did not return to work for that time. Workers did not make long term plans, or saved money; and management also operated in the same, ad-hoc way, without serious experience-transfer or conscious methods. It was believed that a good manager is merely made by the personality and owners recruited mainly family members in managerial positions, simply as a matter of trust.

Standardized mass-production required a more professional management, different of the previous manufacturing systems supervised by family owners. Large firms reached a size where their owners could not directly supervise work and train workers by themselves. This new management style emerged under the name of "Scientific Management", which we will examine as our first paradigm.

When speaking about the term "paradigm", we do not want to enter into full details described by *Kuhn* in 1962. This perspective would mean paradigms with distinct sets of ideas for each, in their own language, which would make them "incommensurable" with each other. Yet, what we need is to compare greatly different ideas and management patterns within this same framework. For that, we will admit that a "paradigm" in management is a set of ideas, questions and answers, which form the dominant business practices and thinking for a certain period of time and geographical area. *Guillén* (1994a) who also used this term noted that paradigms ought to have a normative approach, complete arguments and impact in more than one country. In this thesis we will describe paradigms by answering the following questions: What kind of business and social environment characterized the specific era? What were the main managerial questions and challenges? What were the answers and solutions and how were they diffused? We will make a difference between "paradigms" and the management practices of any specific company which are only a sort of mirror or layout of the actually dominant paradigm.

2. Scientific management: the engineered production

Management literature abounds in confirming Taylor's Scientific Management from the 1910s to be the first management "model" or "paradigm" (*Pindur* et al 1995)[3]. The difference compared to previously described practices was that a systematic, conscious and planned approach appeared in management. Why then, and why there? Were the 1900s clearly different for the working population than was the 19th century? We can argue that they were, first because factories grew much larger than ever before[4]. Size can be an advantage in terms of scale economy on one hand, but on the other, it represented a big challenge for the

[3] See also in other works: (*Guillén* 1994a), (*Wren* 1994), (*Waring* 1991), or (*Levie* 1993).
[4] As an example, Ford employed 53,000 workers by 1919 (*Wren* 1994).

managerial society which was still lacking professional training. Organizing the work of such masses often turned into violence and created clear tension between blue and white-collars. In addition, those masses were generally uneducated, which hindered seriously the complex work with machines.

Also, the 20th century was clearly different for the workers because a new professional group appeared in the more and more complex American companies: the engineers. Breaking the European dominance, the US became number one in number of engineers in 1900 – with Germany as second (*Guillén* 1994a). Familiar with numbers, they quickly became the business elite, often combining the professions of businessman and engineer. Both skills were important, as there was an urging need for methods dealing with labor unrest, with growing complexity in factories, and helping managers to gain further economies of scale (productivity).

Charles Babbage (1791–1871), an English mathematician and engineer was among the firsts in Europe developing a rational, systematic approach to management, but his voice did not reach very far. *Guillén* (1994a) states that both in leading business literature and in practitioners' writings, issues specific for Scientific Management appeared in the 1880s, and became dominant mainly in the 1910s and the early 1920s. Parallel to publications, techniques and ideas of the Scientific Management were taught in the curriculum of leading business schools as Wharton, Harvard, Dartmouth. Although the authors of those articles and books were numerous, the one with most of the fame, apostle of scientific approach in management was Frederick Winslow Taylor (1856–1915). In spite of government investigations due to strikes in military factories[5], and a general resistance from blue-collars, by 1915 his main ideas were introduced or at least tried in 140 establishments totaling 63.000 workers. The original appeal was important: Taylor proposed a system which could use unskilled workers instead of unionized, expensive and rare skilled workers, raise productivity and reduce organized resistance through pay rise.

Taylor did not have any management background and after his apprenticeship, he started to work as a common laborer in 1878, and earned his scientific degree (mechanical engineering) in 1883, in a home study course while he was still working full time at Midvale Steel (*Wren* 1994). Although as a gentleman's son, he had this unique experience of working with blue-collars. Taylor developed certain empathy for the workers' point of view and his field experience helped him to understand the managerial problems of his era, like workers' restriction of output, or the lack of management methods for proper job design and incentives. The pay system at that time in factories was often based on the daily or hourly wage, which did not encourage hard work. Piece-rate systems, even if introduced, proved to be a failure as standards were often poorly set, and management would have cut rates if workers earned too much. When he became a supervisor, Taylor was looking for a new industrial scheme to prevent the hitherto common, bitter labor-management encounters. *Gabor* (2000) wrote on this experience: "The combination of the technical complexity of Midvale's military contracts and the surge in demand that followed the depression of the mid-1870s furnished much of the impetus for Taylor's most innovative work at the company" (*Gabor* 2000, p. 12.).

At Midvale, Taylor was looking for new standards, new industrial practices which led to time study, and he worked on a new incentive system where workers and employers could benefit together from the increased level of production. Since this pay system required accurate cost calculation, Taylor also pioneered standard cost accounting (to replace historical cost) and budgeting techniques, as better ways to measure performance. He established a new, scientific approach in management.

[5] Taylor had several hearings from 1911 to 1912, especially due to strikes in the Watertown Arsenal.

Was he the only creator of these new ideas? Certainly not. James Watt and Matthew Robinson Boulton from Soho Engineering Foundry, Great Britain, introduced systematic and planned management techniques as early as in the late 1790s (*Pindur* et al 1995). We already mentioned the name of Babbage, who also established a systematic approach in Britain. But they were lacking the power of economies of scale to raise production to a weight high enough. During railway construction, McCallum created some system and designed the first org-charts to help organizing large companies. But still, the New World was waiting for a scientific man from large-scale industrial production who could create universally applicable managerial methods, solving all major labor-problems of that time. It happened to be Taylor, with his Scientific Management, which gave appropriate answer on how to deal with uneducated labor, workers' resistance towards piece-rate pay, underperformance, and tensed manager-worker communication at the same time. He called it scientific because, for the first time, he calculated piece-rates by precise measurements: their base became facts instead of whims, estimation, or even past performance. Also, he designed the proper and sustainable way of performing each task through time study and calculation. His management philosophy was new, because he wanted to recognize and pay "first-class" workers instead of positions. As the result of several years of experiment, Taylor designed a system based on time study, performance standards, selection of workers, careful assignment to the right job, separation of planning from performance, task management and functional foremen (*Taylor* 1911).

Taylor's concept as a whole apparently failed in widespread practice as managerial tasks proved to be too complex for uneducated clerks (*Wren* 1994). Also, organized labor caused much trouble. His system ensured total and objective control both on workers and on clerks for the first time – he certainly gained enemies. That was in spite of his widely read books[6] and the effectiveness of his system[7], on which he was giving classes at Harvard from 1909. Statistical evidence also shown that manufacturing output per working hour counted as 100 in 1958 went from 21.2 in 1890 up to 52.0 in 1929 (*U.S. Dept. of Commerce, Bureau of the Census* 1975)[8].

Taylor's work was finally continued, polished and spread worldwide by his followers: Gantt, Barth, the Gilbreths, Brandeis, Le Chatelier, Emerson, and others. Especially Henry Laurence Gantt (1861–1919) was successful in this quest as one of the first management consultants and lecturer at numerous universities, with over 150 titles published, and more than a dozen inventions patented. As an example, the basis for the Soviet central planners to control their five-year plans was Gant's work: his famous chart designed for project planning (*Wren* 1994). Also, Frank and Lillian Gilbreth improved the methodology of time-and-motion studies and Emerson made further clarification on efficiency (*Luthans* 1969). Due to these improvements, more and more managers and engineers accepted Scientific Management. World War I and the resource-efficiency promoted by Roosevelt played also an important role in its popularization. Beyond that, the biggest effect made by one single person may be the one of Brandeis in the Eastern Rate Case, who successfully proposed that Scientific Management can help the railways to gain efficiency, and cut cost without raising fare prices (*Aldrich* 2010). New disciplines as industrial psychology with Hugo Münsterberg, Social Gospel or industrial sociology also supported the efficiency movement, although already paving the way for more "human" solutions (*Wren* 1994).

Going further with the practical impact, we must also mention the name of Ford and Bedaux. Henry Ford (1863–1947) made extensive use of Scientific Management techniques

[6] Taylor's most famous writings are his book 'Shop Management' from 1903, and 'The Principles of Scientific Management' from 1911.

[7] After Midvale, Taylor worked as a consultant for several companies where he could achieve spectacular raises in performance for lower labor cost.

[8] Cited by *Wren* (1994).

and improved its production process with gravity slides, automatic and endless-chain conveyors and other technological innovations. While speeding up the production line, Ford also increased the pay of his workers as Taylor proposed, although he disagreed with a few of Taylor's ideas. Charles Eugene Bedaux (1887–1944) played also an important role due to his popularity as business consultant. He was working for raising efficiency with Scientific Management methods, for instance through the standardization of the time to spend on a specific task. Between 1918 and 1942, over 700 American companies with 675.000 workers were advised by Bedaux (*Guillén* 1994a).

The era of Scientific Management marked not only companies but also other big organizations: Max *Weber*'s work (1947) contributed to the development of bureaucratic structures in general (for instance, in the state administration) serving as a basis for following organization theories, and Morris Cooke extended its main principles to educational and municipal organizations (*Luthans* 1969).

At the same time, organized protest of workers nearly caused a civil war: in the US it reached higher level and was more savage than in any other industrialized country, especially between 1900 and 1920. Not only companies but also government and the courts were becoming increasingly hostile to unionism and accordingly, their membership declined from around 5 million in 1920 to 3.5 million in 1921 (*Wren* 1994). Blacklisting, strikebreaking, physical violence were common practices and employers attempted to attenuate tension by different ideologies like Social Darwinism or New Thought, justifying the subordination of employees. Critics also highlighted that some research data described by Taylor were simply not true, that he caused exploitation, ignored human nature of workers, and some observers even questioned to what extent Scientific Management was scientific (*Marosi* 1983). The shift to the HR movement could be considered as a failure of the paradigm, though both ideas and practices of Scientific Management survived the era (as did the Taylor Society), and can be found even today.

3. Human relations: the"awakening" employee

In the previous point we already listed some problems caused by the rise of large-scale industry; labor unrest appears to be on the top of that list. Scientific Management attempted though to give a technical solution to "soldiering" by increasing the size of the pie which could be divided between the owner and the workers. But wage appeal itself proved to be insufficient as strikes worsened and endangered profit. Continuous problems made shift general attention from the technical to the social-psychological aspects of work: that's how a new paradigm arose from the uncooperative, individualistic background of the Scientific Management based on American Puritanism, Social Darwinism, and New Thought[9].

What was different in the 1920s, compared to thirty or twenty years earlier? The slower immigration, the electrification of the industry, and urbanization certainly had an important effect on society (*Guillén* 1994a). American labor prospered, too, witnessing real wages to double between 1865 and 1890, and once more from 1890 to 1921. In parallel increased life expectancy, and the average industrial work week decreased from 60 hours in 1890 to 55 hours in 1910, and then to 50 hours in 1920 (*Wren* 1994). In addition to these better conditions, Scientific Management apparently generated a need for greater welfare and better cooperation with unions in companies, some care that workers would have appreciated as human beings.

Psychology gained broader acceptance as early as during the Scientific Management era for its role in supporting selection at workplace. Also, corporate care on personnel was not a new idea: before industrialization business was more family-sized with paternalistic

[9] For more details, see *Wren* 1994.

management. Early factory owners, such as Robert Owen (1771–1858) or Benjamin Seebohm Rowntree (1871–1954) provided a large scale of company benefits to the workers like meals, housing, education, health care, recreation, or dancing lessons. Owen also set up cheap company stores and raised the minimum age for working children (*Pindur* et al 1995).

Welfare services were developed in large companies from the 1900s, and here women played an increasing role: it can be that they had managerial career opportunities for the first time in business. In the 1910s, the term "welfare work" was replaced by "employment management" and the first professional organizations for personnel staff specialists were born. One of the model organizations of the Taylor system, Plimpton Press, created its employment department and named the first employment manager in 1910 (*Wren* 1994).

The somewhat symbolic beginning of the Human Relations paradigm is usually associated with the Hawthorne studies, although Hawthorne was not initiated as a breakthrough research. It began as a Scientific Management-inspired experiment in 1924, conducted by a professor of electrical engineering from MIT, who was looking for enhanced productivity while bettering light conditions (*Gillespie* 1991). As during the research performance tended to rise regardless to lighting, the illumination tests were abandoned in 1927 concluding that there were too many variables, among which "the most important could be the psychology of the human individual" (*Wren* 1994, p. 236.). That's how the management of Hawthorne plant (Western Electric) decided that the experiments should continue. Two new researchers took on further studies and to test new hypotheses, a control group was also added to the experiment.

One researcher came from MIT (Clair E. Turner), looking at fatigue and mental attitudes. The second was the Harvard professor George Elton Mayo (1880–1949). It was known that dealing with the problems of workers, Mayo does not try to explain the situation by one factor but looks at the whole context from a mainly psychological perspective (Mayo, 1923)[10]. One of his greatest merits was certainly the new methods introduced in 1929 for interviewing the subjects of the research, which made the interviews more conversational: their average length went from 30 to 90 minutes. As a result of the study on one hand, it became clear that the simple action of being listened to made the workers feel better about their conditions, even if this improvement was only a false impression. On the other hand, workers' complaints during the interviews often proved to be irrelevant to facts, unveiling hidden personal problems from the private life of workers[11]. Interviewers step-by-step separated a manifest and a latent side of each phenomena. Then, after another comparative experiment in 1931, researchers finally concluded that management must "take into account sentiments along with the logic of efficiency. This position resulted in the admonition to management to view every organization as a social system" (*Wren* 1994, p. 246.)[12].

The Hawthorne research made it clear that pure technical skills were not enough for successfully managing people. There was a need for a good sense of diagnosis to understand human behavior, and interpersonal skills to be able to motivate, engage, lead and communicate with workers, or somehow deal with the shock of the 1929 stock market crash and the following economic depression[13]. But first-line supervisors with both technical-economic and human relation skills were rather rare in the early 1930s…

[10] Cited by *Wren* 1994.

[11] For instance, complaints on the air pollution were found irrelevant to the facts but the interviewee's brother happened to be recently died of pneumonia.

[12] The findings of the experiment are written down more in details by William J. Dickson, chief of employee relations research department at Hawthorne, and Fritz J. Roethlisberger, also from Harvard, who joined the research project after Mayo (*Roethlisberger–Dickson* 1939).

[13] Unemployment rate rose to about 25% and the Norris-La Guardia Act of 1932 protected unions and supported the unionization of workers (*Skaggs–Leicht* 2005).

The new paradigm, called HR (Human Relations) movement, emerged as a response to this need in two waves (from the 30s to the mid-40s on one hand, and from the late-1940s on the other), with ambassadors mainly from social and psychological sciences. Those sciences apparently developed as a means to give more scientific basis to practical ideas, like Lawrence J. Henderson with Paretian sociology, or Elton Mayo with Hawthorne. For *Levie* (1993), the first true representative of the first wave, in the 1920s, was Mary Parker Follett, followed by Mayo and Roethlisberger. Wren adds Chester I. Barnard, Jacob L. Moreno and Henderson to the list.

Effectiveness and productivity remained first target for the HR advocates, like it was for the Scientific Management, only their ways of achieving it differed. When McGregor wrote about it first, he could only hope that a more positive attitude towards workers (the "Y-view") would be developed and would improve management, although the reality of the late 50s was still not that bright (*McGregor* 1960). Mayo's toolbox for managerial problems was more about listening, using group pressure for at least standard performance and initiating worker participation. Using the metaphor of Scientific Management, we can call the early stage of HR a closed system, where workers perform predefined tasks, and call the latter phase an opening system, were people have the skills to solve problems, in connection to their work environment, and not only perform tasks (*Bakacsi* 2011).

The above mentioned second wave of the HR movement started in the late 1940s[14]. Its leading scientists were Chris Argyris, F. L. W. Richardson, Jr., C. R. Walker, Arthur N. Turner, or Rensis Likert, Kurt Z. Lewin, Abraham H. Maslow, Frederick I. Herzberg, Douglas McGregor, Alex F. Osborn, Robert R. Blake and Jane Mouton[15]. Reaching the 40s, HR interest went more towards job enlargement and enrichment, work design, rotation, motivation, leadership, group dynamics, participative management. Finally in the late 1950s, Keith Davis redefined HR and wrote an important book with a modern approach of it, differentiating the terms "organizational behavior" for the understanding of human behavior, and "human relations" for the application of this understanding to operational situations (*Davis* 1957)[16]. Equipped with more knowledge on motivation, the second wave of HR went further in transforming jobs and interpersonal relations. Organizational Behavior and decision making theories delegated more power to the employees, henceforth decision makers, than before, while employees got also better educated (skilled) and better socialized at work (motivated) from the 1950s. Yet, up to this point, two of the main authors of the Human Relations paradigm have been ignored because of a difficulty to categorize them as either the first or the second wave. Considered as transitional figures, their work created a link between the two waves in a sense. Yet regardless to their category, Barnard and Simon merit our special attention.

Scholar from Harvard[17] but first of all management practitioner, Chester Barnard (1886–1961) made great theoretical contributions to the field of management study. He is credited as the creator of numerous theories, including acceptance theory of authority, the role of informal organization, the functional and dysfunctional aspects of status systems, the importance of and nature of decision processes, or the role of the executive organization as a communications system. Denying the validity of economic models on the rationality of human beings, and as a contrary to the transaction cost theory, he stated that organizations come into existence simply when there are people who are able to communicate with each other, they are willing to contribute to action, and they do this for a common purpose. This system, called organization, can be maintained when equilibrium is created between the

[14] That is also when the HR finally found its ways into the management mainstream.
[15] For more information on the first vs. second HR waves, see *Waring* (1991).
[16] Cited in *Wren* 1994.
[17] He actually did not finish his degree when he left Harvard in 1909 (*Witzel* 2005).

system and its external environment on one hand, and within the system itself on the other (*Witzel* 2005). Another breakthrough theory from Barnard deals with the acceptance of authority based on free will and outside forces: he identified a "level of acceptance" under which employees would accept orders from managers automatically, without any questioning process. This level is set by non-written norms and understanding of cooperation and trust, and accordingly, the employee would accept a directive if he understood it, was able to follow it, and he believed it was appropriate regarding the organizational goals, at least as the employee understood them (*Barnard* 1938). Under this new light, managers were not giving orders anymore but gaining the cooperation of their employees (more and more capable to make decisions by themselves which is further developed by Simon). But Barnard not only redefined theories on authority, cooperation and communication: he was also able to develop a wider perspective of organizations, wider than their formal structures, and identify them by their investors, suppliers, customers, or other contributors as well (*Barnard* 1948).

Herbert A. Simon (1916–2001) was greatly influenced by Barnard in developing his theory about "bounded rationality". In his classic Administrative Behavior, he criticized that management would be based on principles, as in the work of Gulick, Urwick, or even Fayol, and called for a new theoretical framework able to deal with the real causes of bureaucratic disease, not only symptoms. As a key to this new framework, he described the psychology of decision making in organizations. He stated that rationally behaving individuals do not optimize their situation but make decisions, based on the environmental constraints, which are good enough rather than optimal (*Simon* 1947). This emphasis on "open system" (in connection with the environment), acquired with his colleague James March, will be mentioned in the next point.

Contrary to previous studies, like the one of *Bendix* (1974) which claimed HR was merely an ideology, *Guillén* (1994a) affirms that there was an important practical impact of HR techniques. Adoption of HR techniques was often associated with the creation of personnel departments but also concrete techniques have been implemented into corporate practices. New institutes and research groups have been formed, especially in the US and the UK. Their basis was often Gestalt psychology and Social Gospel. The work of Jacob L. Moreno (1892–1974) must be highlighted as he developed sociometry, an analytical technique for representing interpersonal relationships on a so-called sociogram, but also psychodrama and sociodrama, serving rather therapeutic purposes (*Moreno* 1953). Another important construct for analyzing behavior was group dynamics, credited generally to Kurt *Lewin* (1890–1947) and his famous leadership studies. For the benefit of forthcoming company practices, Lewin also found that changes in behavior were more easily induced through group participation and involvement than through simple orders (*Lewin* 1948). According to *Wren* (1994), this also led to his unfreezing-refreezing theory on change. Other techniques from this era included human relations training or sensitivity training (increasing interpersonal awareness), suggestion systems, magazines & newspapers directed to employees for better communication, brainstorming and group discussion methods, job enlargement and enrichment, psychological testing of personality traits, morale survey, etc. Knowing themselves better in relationship to others apparently fostered the workers' emotional and moral well-being, essential to group cohesion (*Locke* 1996).

Accordingly, teamwork, leadership and trained managers became highly emphasized during and after World War II. "Founded on the Mayoists' call for socially skilled supervisors, enhanced by the ideas and techniques of Moreno and Lewin, and carried out in research centers and associations, human relations training reached its apogee in the 1950s" (*Wren* 1994, p. 281.). Also, individual incentives promoted by Taylor gradually faded compared to group incentives. In 1945, research directed by Rensis Likert (University of Michigan) shown that employee orientation rather than production orientation in leadership

led to higher productivity and less turnover. At the same time in the Ohio State University, instead of identifying a single style which leads to the best results, researchers differentiated more dimensions in every situation as in the contingency theory. With his research done in the restaurant industry, William Foote Whyte gave important contribution to the meaning of "status" as a motivator at the workplace (*Whyte* 1948)[18].

For a complete picture of the Human Relations paradigm, we must also look at its ambiguous impact on the labor soldiering problem. Needless to neglect, HR was not made to represent workers, but at least it did not attack unions directly. Mayoists looked at the worker from the management's perspective and accepted the need for "using" them as a means to higher productivity and lower costs. Also they didn't bring any alternative to solve industrial conflict (e.g., collective bargaining). Briefly, they didn't really take unions into account for building social solidarity. Moreover, unions' voice raised when techniques like "moral surveys" were introduced, creating direct communication between workers and management and contouring labor leaders (*Guillén* 1994a). These strong lines of "power games" can make some of the reasons to usually neglect unions in developing main management ideas. Labor seemed to gain substantial power through legislation in the 30s (i.e. the Norris-La Guardia Act of 1932), which made resistance actually worse than it was in the 20s. However, from the mid-1930s, strikes and tension decreased again and organized labor caused henceforth less trouble for companies. Other critics of HR state that rather than defining a new ideology, it was just a revival of earlier humanist thinking driven by the prestige of Harvard and MIT to build a "conflict-free dream" although conflicts are necessary (*Wren* 1994). Authors also question the credibility of Mayo as evidences prove that his will was to show that material incentives play only a secondary role in productivity.

To sum up, the HR paradigm, with all of its merits and valuable contributions, was not wrong: it just became "too big", exaggerated, compared to its scientific content. At least, from the 1950s, it could not bring appropriate answers anymore for several new managerial challenges. By that time companies were massively internationalizing which still needed good communication, interpersonal and intercultural skills. However, only skills were not enough as bad structures were often blocking further growth and international development. As summarized by *Wren* (1994): "after World War II, the search for general management theory would emerge as a solution to the complexities of managing in the modern era" (*Wren* 1994, p. 342.).

4. Structural revolution and open systems

The United States enjoyed nearly unlimited markets until the 1950s when arrived to a point of saturation. In parallel, the international environment had only limited impact on the development of American capitalism, except for the two wars (*Guillén* 1994a). Then, the Marshall Plan and the postwar period brought new international opportunities for the hitherto stagnating USA: the end World War II meant economic recovery due to new markets, new products, and new technologies. This opening also brought a greater need for coordinating product development, manufacturing, and marketing on a world scale with adequate corporate structures. Management had to shift from the prewar production oriented practices to a new, "top-management" viewpoint coping with the increasing need for coordination, the larger-scale enterprises and markets, and the better-educated workforce. From a specialized standpoint, managers had to grow into generalists able to manage specialists. A new era came with business expansion and diversification.

The 50s and 60s are the era of "organization men" with tremendous opportunities for management careers in internationalizing companies. While increasing size, becoming more

[18] Cited by *Wren* (1994, p. 289.).

complex and decentralized, corporations massively adopted M-form structures and therefore expanded middle-management ranks. By the mid-1950s half of the largest American manufacturing firms were operating under multidivisional structure (*Fruin* 1992). Chandler in 1962 and Palmer et al. in 1987 claimed that the multidivisional form replaced the unitary (functional) form as the prevalent administrative structure among large American corporations. Palmer et al. introduce the M-form structure as a practical way to "regulate the nature and extent of territorial growth both within and between nations" (Palmer et al 1987, p. 25.). Also in the early 1950s, a new system theory was developed by Bertalanffy, followed by the development of the contingency theory as described in the previous chapter. Herbert Simon, with his colleague James March, stated that the classical principles of organization were incompatible with their actual contexts and therefore projected the birth of new ideas, new frameworks, or perhaps a new paradigm.

As noted by *Locke* (1996), a "single-product, single-function" enterprise, like railways, had to be managed at two levels: day-to-day operations and central decisions. The "single-product multi-function" firm, integrating forward and backward, needed administration also for elaborate marketing and raw material procurement. But the "multi-product multi-function" firms with even more layers could not organize their operation in the old, functional structure anymore. They had to split management into divisions with a full set of functional departments for each[19]. The diversification of firms, as the M&A, also increased the role of controllers and financial experts, who could provide accurate information on the performance of different parts[20]. With the development of the contingency theory, authors sought to identify all valid elements of the environment and build a model leading towards "organizational fit" or a better match between their structure and the environment. Examples are works from *Chandler* (1962), *Galbraith* and *Nathanson* (1978) or from *Mintzberg* (1981).

Obviously, there are not many managers who wouldn't manage according to the situation or circumstances. But we must not underestimate the power of focus on the environment in management research, consulting and education, in a world where the business elite used to seek to enhance performance by mainly looking into the organization (production process, employee welfare, etc.). Parallel to its impact on organizational structure, the situational approach gained terrain also in leadership (Fiedler et al)[21], or in Strategic Management developing in the 1970s (e.g. SWOT analysis). Thus, in this quest for organizational fit, a robust organization theory had to be developed as to provide a framework for researchers.

Thus, management education developed based on Henri Fayol and later theorists such a William H. Newman, George Terry, Harold Koontz, Peter Drucker or Cyril O'Donnell (*Wren* 1994). The number of undergraduates studying management grew each year after the 1950s; being already 370,000 in 1950 (nearly double the ones in engineering). A real breakthrough was brought by the graduate business schools and the MBA programs: 4,814 graduates in 1960, 23,400 in 1970, 49,000 in 1980, 70,000 in 1990 (*Locke* 1996).

The framework of the internationalizing and bureaucratizing firms with the increased care for general theories on management and organizational structure was named "Structural Analysis" by *Guillén* (1994a). In this paper, we named it Structural Revolution to highlight its impact on organizational structures and management education. Completing the work of Henri Fayol and Max Weber, the forerunners of the Structural Revolution paradigm felt that efficient structures and operation of organizations were an alternative to the Mayoist school to solve the misery of the economic holocaust of 1929. They attempted to develop the "right" management functions and structures, stressing these as means to both employee satisfaction

[19] Of course not entirely new, the multidivisional structure was used already in the eighteenth century by the French military.
[20] Mainly through ROI (Return-On-Investment) and other similar indicators.
[21] For more information, see *Bakacsi* (1996).

and productivity. In a sense, especially compared to HR ideas, the toolbox of the Structural Revolution meant a return to the "hard" side of management. We count among these early advocates for example, James D. Mooney (a General Motors executive), C. Canby Balderston, Charles L. Jamison and William N. Mitchell (professors who initiated the founding of the Academy of Management), Luther Gulick and Lyndall F. Urwick, or Ralph C. Davis[22].

We do not have precise measurements or any representative survey indicating to what extent managers took into account these authors, but the practical impact of the Structural Revolution paradigm is hard to overestimate mainly due to the rise of the consultancy business. Consultants and the mainstream literature all popularized the contingency approach. It was logical, easy to understand, close to the needs of internationalizing companies, so managers just followed the wave. McKinsey; Robert Heller & Associates; Cresap; McCormick and Paget; Booz, Allen and Hamilton; A. T. Kearney and others assisted to countless structural reorganizations in the US, seeking for a more adapted, better fit organization (*Guillén* 1994a).

Structural Revolution, with the context of open systems certainly shown the way and originated many new thought, although it had its critics as well. Several researchers in social sciences deplored, on one hand, the analogy with plants and animals. They claimed that success in human organizations was more complex than adaptation and survival and that congruency or fit theories could help to explain the past but not to "predict what fits will lead to high performance in the future" (*Wren* 1994, p. 392.). Indeed, compared to the Scientific Management and HR movements which promised a better world in a utopian way, the paradigm of Structural Revolution remained rather vague about the future. On the other hand, we still remember the debate on contingency determinism, described in Chapter 1. Criticisms from the 1970s denied what the early findings suggested: that a change in contingency would directly cause a move within the organization in order to reset the best possible fit. These debates attenuated however, and the contingency theory of organizational structure, basic theory of the Structural Revolution, continues to be a mainstream theory for organizations.

5. Strategies for the global competition

Management and organizational theories massively emerged from the 1950s to help managers' education, but some had their doubts on how well these theories were implemented in the practice of management. The modest (1.5–4%) rate of growth of American companies was later shadowed by the spectacular rise of other countries. Whereas in 1950, the US provided half of the world's industrial output, this became only 21 percent by the mid-1980s. And the same figure went up to 19 percent for a new competitor challenging the US hegemony: Japan (*Locke* 1996). Moreover, for the first time in the history of developed nations, the trade balance of the US and then many other Western countries had been broken by this "developing" country. This trade deficit kept growing even after the Plaza accord and reached in 1986, despite the dollar's plunge, a record 148 billion dollar; in contrast to the Japanese 56 billion trade surplus with the US (*Tsurumi* 1987). This emerging, new "competition" had huge impacts on the status quo of developed countries: both on economy and on society as a whole.

In the 1980s, the US (Carter and Reagan) initiated a huge deregulation campaign to free the economy. The strength of unions declined seriously with a constantly falling private-sector membership. Interest rates escalated high along with the reinforcing international competition which led to job losses, loose labor market and decreasing power of the HR departments. From the 70s, strategic planning and forecasting emerged as a new-old corporate

[22] For more details on these authors, see *Wren* (1994. pp. 295–313.)

function in order to help companies to improve competitiveness. Thus, parallel to deregulation, the 70s and 80s opened up an enlarged, global competition for the American firms, never experienced before. This competition made the business sector rethink efficiency, productivity, and competitiveness. New functions were needed in order to find ways to survive and to compete, and real strategic thinking which simple strategic planning could not provide (*Mintzberg* 1994). New, instant solutions had to be found. Theorists and practitioners tended to look abroad for best practices in order to find remedies for the lost productivity. This research led to Japan and made her a management example not only for the US, but to the whole industrialized world.

Prominent books soon appeared on the managers' bookshelves on the rising Japan, especially from *Vogel* (1979), *Pascale–Athos* (1981), *Ouchi* (1981), or *Ohmae* (1982). This list can be topped by the broadcast (24 June 1980) of the NBC White Paper (If Japan Can, Why Can't We), the 1980 Special Issue of Business Week (The Reindustrialization of America), or the countless articles throughout the 1980s in the Quality Progress, The Harvard Business Review, the Fortune and other specialized journals. Deming Societies were founded in every region; the Association for Manufacturing Excellence was created… to name only a few events highlighting the theoretical impact of the new competition. "For the first time, beginning in the late 1970s, American management found itself singled out for its shortcomings in terms of efficiency among capitalists forms of management" (*Locke* 1996, p. 5.). This entire echo gave to the Japan focus a huge theoretical impact, fueled by the Nippon economic success. After a content analysis of California Management Review, *Locke* (1996) confirmed that during the decade of the 80s the topic of Japan rose in a spectacular way, leading to 1985–86 when the journal indexed Japan as a "special" category. In parallel, the popular business weekly, Fortune, granted 2.4 percent of its article content to the Japanese business and manufacturing, or American subjects related to the Japanese challenge, in 1980. The same figure rose to 9–15 percent for the following years. To sum up, the theoretical impact of Japan rising and redesigning global competition was doubtlessly heavy in the USA. Beyond that however, we must understand its general significance for the American management history and the paradigm-framework of this thesis.

One of the most important concepts of the 1970s and 80s was called "Lean Management" which, among other factors, led to a redefinition of management in general: it characterized indeed the era's management philosophy and practices. *Guillén* (1994b) mentioned two "great managerial trends" for the late 80s: lean production and total quality management, which leads us to the practical impact of the paradigm. Guillén calls them trends; they are indeed not simply production-line techniques but methods with impact on the services sector and the general organization of work as well. Their impact is such an important one that it seems to be adequate to reformulate them into a more general, philosophical setting.

Our first main point with this period is the emergence of strategy and strategic thinking in business. In Darwinian competition (even in trade and commerce) random chance is the major factor. As Henderson pointed out: "In fact, business and biological competition would follow the same pattern of gradual evolutionary change except for one thing" –which was for him the strategy (*Henderson*, 1989, p. 140.). Peter Drucker stated in 1954, that decisions that really matter were "strategic". *Chandler* described strategy as influencing organizational structure of firms (1962). From issues concerning planning and forecasting in the 1960s and 70s, strategy evolved in common American business press as well[23]. Concluding previous thoughts, and based on the ideas of Drucker and Chandler, Igor *Ansoff* (1918–2002) formulated his book on corporate strategy (1965) and built a comprehensive framework for

[23] As observed during the content analysis of Harvard Business Review articles.

further contributions. The contribution of Ansoff, also called the father of strategic management, cannot be overestimated: his strategic product-market matrix, his contingency view of strategic management or the strategic decision making are taught and known worldwide. Even the term strategic management can be credited to him: what he previously described, he renamed later the action of formulating objectives and plans on an analysis of the environment as "strategic management" (*Ansoff* 1976).

The other important element leading to the new paradigm was globalization, the extreme widening of the competitive area. According to the findings of *Gause* and *Witt* (1935)[24] from the University of Moscow, two small living creatures could survive and persist together, given a certain amount a food in a bottle if different species, but two of the same specie could not. When competing for the same essential resource or food, one of the two, sooner or later displaced the other. The bottle in this experiment gives us the area of competition whereas the food is the living basis (income) of firms. According to the example taken from biology[25], companies which are "perfectly" identical, making their livings in the same way, cannot coexist in the long run in the same area of competition. Thus, through globalization and the development of information and transportation technologies, this competition area is widened nearly to the whole planet! The widening arena became a matter of fact with the rising Japan and other emerging economies from Asia, while the economies of Latin-America or Africa will soon take their stakes as well.

We may conclude from the biological experience that only competitive strengths, unique skills can ensure for a living entity or firm a unique advantage in getting resources it requires, and therefore maintaining certain equilibrium in the area of competition. The same conclusion led Porter to write his famous book series on competitive advantage[26]. The idea that strategies like product differentiation or focus on niche are necessary alternatives to cost leadership for companies, in order to successfully compete and survive, became a key for the American business to recover from the competitive crisis of the 1970s and early 80s. "Each must be different enough to have a unique advantage", argued *Henderson* (1989, p.140.), and they can survive. This idea proved to be true even with the cheaper Asian competitors and, as just one example, saved Harley Davidson after its bankruptcy (*Porter* et al 2000). Moreover, with Japan becoming number two economy in terms of GDP, more than before, American companies needed to differentiate themselves from their competitors, and create a stronger sense of belonging through corporate culture: a clearer identification of "us vs. our competitors". The force of difference or culture encouraged employees to give more effort for the same price, and customers to pay more for nearly the same product closer to their "heart".

One is tempted to conclude that the Japanese success was indeed the main cause leading to the rise of strategic management. However, the argument of this thesis is that the Global Competition paradigm is far beyond Japan's influence. It is true that the answers and tools for the competitiveness challenge came basically from there in the 1980s. But if Japan didn't exist, the same wave would have arrived a few years later from China or Korea. Thus, we believe that the practical impact is credited more to the competition with emerging economies than merely to the uniqueness of the Japanese production systems. Beyond real success stories in some cases, the adoption itself of these techniques, the difficulties of transplantation and cooperation with the Japanese managers, the cultural differences caused in fact heavy troubles in many American corporations. By Japanese standards, workers in the US lacked loyalty to the company, had too high salary claims, and were still commanded in a bad, Taylorist sense.

[24] Cited by *Henderson* (1989).
[25] The example is obviously an exaggeration as we have seen with the critics of Structural Revolution, but serves as a good illustration on the globalizing competition in business.
[26] His most famous ideas are the five forces of profitability or the "diamond model"; the value chain of firms; or the generic strategies cited above (low cost, product differentiation, and focus). For more details, see *Porter* (1980 or 1985).

Japanese typically criticized American managers for their lack of commitment, and abuse of power, whereas Americans resisted assimilation and sometime cooperation (*Locke* 1996). As a possible solution, Ouchi was for long time looking for a hybrid type of organization, combining advantages from both the American and the Japanese side, but with limited proven impact on practice (*Ouchi–Jaeger* 1978).

Partly due to the cultural differences previously mentioned, the Global Competition paradigm had also its critics. Like Scientific Management, the lean production concept could not be implemented as a whole in different organizations. As Dohse, Jürgens, and Malsch argued: "The contemporary Japanese management works within a system of industrial relations that limits the articulation of collective interests by employees. The Japanese organization of the labor process is, therefore, not easily transferable; it is at best possible to adopt some of its elements" (*Guillén* 1994b, pp. 82–83.). Strategic planning also received wide critics as for many authors strategy is not about plans but about "insights". That is at least the point for *Campbell* and *Alexander* (1997) who argue that "strategy development is the process of discovering and understanding insights and should not be confused with planning, which is about turning insights into action" (p. 42.). The message that firms should separate strategy development from implementation is also confirmed by *Mintzberg* (1994). Others even added that the future could not be predicted anyway and so completely new ways were needed to think about strategy in uncertainty (*Courtney* et al 1997).

These critics don't mean, however, that strategic management would not have brought appropriate answers to the challenge set by Japan and newly emerging countries. In the early 1990s, the US could finally march towards the 21st century with stronger, more reactive firms and better economic figures. As a sign of good corporate performance, in the late 90s, the US had the lowest unemployment rate since the 60s; and the forthcoming lost of the hegemonic status quo did not harm much its regained competitiveness. At the same time, the US also became much more shareholder-oriented than before (see the next part on finances), firms have been following typically short-term financial goals based on stock market information. Even since then, as *Jacoby* (2007) pointed out, except for employee ownership cases, full stakeholder view in the US remains extremely rare.

6. Conclusions

Writers can basically attempt to approach management history in five different ways. These different approaches are: (1) discussing management developments of a given time period; (2) using the "schools" way; (3) the institutional approach with focus on events; (4) the biography-based study of famous people; and (5) the combining of ideas and biographies (*Gibson* et al 1999). In this paper we basically used a time-based model, but our theoretical framework made it possible to use this time-line approach to define paradigms, categorize schools, and to better understand the life of management gurus or events at the same time.

The aim of this paper was to identify typical managerial dilemmas, philosophy and practices characterizing each period of time since mass production has been in use. These paradigms were certainly adequate for the socio-economic circumstances of each given period, but the solutions proposed by a paradigm did not stop with a new paradigm emerging. Scientific Management was resurrected as automation, management science, operations research, or management information systems, described as quantitative management movement by *Pindur* et al (1995) or as mathematical school by *Koontz* (1961 or 1980). Human Relations covers also latter organization behavior, personnel management, human resources management, empowerment, etc.; or the Human behavior (Koontz) or Behavioral schools (Luthans). Structural Revolution was based first on contingency theory of structure, but initiated also general management theories and management education, theories of international firms, the study of matrix and virtual structures, and so on. Accordingly, it

contains references to the Management process school, and even to the Empirical school (*Koontz* 1961), or the System approach (*Pindur* et al 1995). Global Competition stands for the study of Japanese business but also for competition in general, strategic planning or strategic management, and corresponds to the strategic management and Japanese-style management and even the excellence approaches described by Pindur et al. Thus, our summary of management paradigms ought to help management thinkers to place techniques or practices in their original context. But beyond that historical contribution, this review of paradigms gives us another, more pragmatic idea as well.

After the industrial revolution, the United States could emerge and defeat the European economies on their markets due to the mass-production and the resulting cheaper prices, despite expensive labor and transportation. Early paradigms reflected the rule of scale economy. The big change occurred in the 80s when the US nearly lost its hegemony against the high quality goods produced by cheaper labor in emerging industrialized economies. The new paradigm found new ways to compete beside scale economies and price: differentiation, communication of values, and the establishment of an emotional-driven consumer behavior. Global competition makes this new model, what we can paraphrase as Paradigm 2.0, a must for other economies as well (*Porter* et al 2000). Curiuously, Japan, formerly the main competitor, takes longer time than expected to adopt a "2.0 paradigm" and other scale-oriented economies face the same problem. The teaching of the Global Competition paradigm may show the way of sustainability for those economies.

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