

The birth of a new organization

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Abstract

The years between 1900 and 1930 have been a crucial period for the formation of large organizations in the Western world. Managers and scholars were searching for appropriate business models given the institutional setting. This model has impacted (and still does) the way we look at organizations and organizational change. At the time, however, this enterprise concept was not a triviality or taken for granted. Also contemporary business historians are careful to explain its rise. The purpose of our study is to readdress the issue of the birth of an organization. We find that that the application of different theoretical angles hampers the comparability of the starting point and alternatives routes of organizations. This leaves the question open when we generally can speak of a new organization and gives us the opportunity to critically assess the reference to the dominant business model of the 20th century, namely the multi-divisional enterprise.

The birth of a new organization

Introduction

In the 19th century, small scale, artisan production was changing into large businesses in spectacular growing industries. The shoe and boot industry, for instance, started to resemble the capital-intensive factory-based production. Contemporaries seemed unsure how to account for these new industries; the clothing production was not even listed in the manufacturing statistics until 1850 (Zakim, 1999). Many contemporaries neglected these new industries with large-scale centrally controlled businesses and necessary managerial functions due to the fact that they were essential new. Large industrial enterprises had few precedents from earlier ages and had “to be pioneered within the framework of the Industrial Revolution.” (Pollard, 1965, p. 60). There were only few isolated thoughts on management and there was hardly a managerial profession.

The subsequent rise of these kinds of organizations resulted in giant enterprises. At that time, managers and scholars were searching for models to understand this new organizational type in order to support its management. Some writers viewed these new types of organization as very promising. “In this age of tremendous activities, enormous requirements and world-wide interests, to meet this industrial development a still further development of the business machinery was found to be necessary. There was thus evolved from this condition the latest development of business method, the so-called Trust, which (...) is not only the natural outgrowth of business conditions, but is the most intelligent and most useful business instrument in certain classes of business which business men have found it useful and necessary to employ.” (New York Times, November 18, 1889).

Others were confused. “The nature of General Motors Co (...) has never been clearly understood in the automobile trade” (Wall Street Journal, October 30, 1909). Also the great scholars of that time were changing position. At the start of the twentieth century “writing at the time that large corporations were being built on an unprecedented scale, Alfred Marshall felt the need to modify his favoured analogy of firms in the economy as trees in the forest (namely from) “sooner or later age tells on the all” (to)... “vast joint stock companies ...often stagnate, but do not readily die”. The work of business historians...has generally concurred with his view that something new was happening in the twentieth century corporate world.” (Hannah, 1997, p. 1).

These different perceptions on the rise of enterprises and the aligning managerial revolution have resulted in various claims about the reasons for the existence of huge organizations and their managers. The goal of this paper is to readdress this issue by an analysis of the birth and further development along different lines.

Nearly all enterprises that grew by merger into a combination followed a path with different turns:

- they gathered in associations.
- some of these association turned into trusts, which were later banned by Sherman Act.
- holdings came up as a new legal form after the New Jersey holding legislation.

- combinations administratively integrated into companies that aligned their manufacturing and/or distribution activities.

This road was taken with different speeds and order. Stages were even taken simultaneously. Growth was only successful when organizations took the final step into administrative coordination (Chandler, 1977). Scholars have described and explained this growth by several theories. Williamson (1985) and Mokyr (1993) enumerate these theories, such as:

- market power to control prices (e.g. Fligstein 1990; Perrow 1986).
- governance structures with different levels of transactions costs (e.g. Lamoreaux et al.; Williamson, 1985).
- coordinative structures to exploit technologies for lower production costs (e.g. Chandler, 1992; Langlois and Robertson, 1995).

We wish them verify these explanations for separate stages of growth and hope to unwind the different reasons. This paper is organized as follows to achieve this goal. First, we offer a theoretical vocabulary to typify the birth of an organization. Each type of birth is based on a different explanation for the existence of organizations. This section finishes with the introduction of the use of cases in the research. Next we present the results and we finish with the conclusions.

Theoretical vocabulary: how to typify organizational birth?

By definition, a (business) organization is a recognizable whole of consciously coordinated tasks of production units in order to produce market output. Barnard had emphasized the conscious element, which Williamson (1985) applied on the coordination of transactions whereas Chandler (1977) turned to the coordination of activities. Hannan and Freeman (1989) were the ones to introduce the relevance of the organization's identity and legitimacy in the environment (by their accountability and reliability) for organizational survival.

The existence and rise of organizations have been described from different angles, namely market power, transaction costs and production costs. These explanations have been put together in the so-called concept of business model of (Amit & Zott, 2001). The birth of an organization is defined as the beginning of a new organization (be it by chance, R&D, M&A) or a major reorganization of an existing organization into a wholly new model for that organization. We now turn to a more detailed description of the three theoretical angles of this study.

Organizational Ecology

Organizational Ecology (OE) explains the reasons for organizational existence by the legitimacy that it gains in the industry. The more the organization is accepted by the outside world (customers, state agencies), the higher are its chances for survival because it can offer a sustainable reliability to its stakeholders. Political rather than functional reasons are assumed for firm development. We follow definitions from Carroll and Hannan (2000) to typify the birth of organizations within this tradition.

Organizational foundings:

- de novo: entrepreneurial action without prior organizational existence (e.g. Henry Ford was involved in the creation of three new firms)
- merger and acquisition (M&A): a new entity is distinct from its constituents (e.g. British Motor Corporation starts with the merger of Austin Motors and Nuffield Organization). Major acquisitions are seen as the end of the two previous firms, and the beginning of a new one. It is natural to wonder if relatively small acquisitions (from the perspective of the buyer) and those in which buyers pay a large premium to acquire other firms with important new capabilities ought to be regarded as equal.

These mergers include the merge of independent companies to horizontal combinations such as trade organizations, trusts and holdings. Although they are of a different legal nature and administrative behavior, they are allowed to determine the market with their concerted actions and are accepted as such by their customers and state actors. Therefore, transformations between trade association, trusts and holdings or unitary companies are no change of identity.

- spin-off: an existing firm is the parent of a divestment in the same industry, often caused by selling off unrelated business (Lucent Technologies is the former Bell Laboratories from the parent AT&T).
- de alio: the move of an organization to another industry, e.g. by diversification attempts (e.g.: Studebaker from carriage to automobile industry).

Organizational mortality is defined by:

- disbanding: caused by bankruptcy, the common fate of the vast majority of firms.
- exit to another industry.
- M&A: valuable assets and capabilities are acquired by other firms. A true merger ends the identity of two or more corporations as independent social actors and creates a new actor (MGM studio: Metro Pictures and Goldwyn Pictures and Louis B. Mayer Productions, Citigroup: Citicorp and Traveler Group).

Hannan and Freeman (1989) add that an organization ends and restarts in the case of an equal-status merger. They no longer manifest their old form before the merger and do not represent itself in the same way to the outside world.

Governance

In order to indicate organizational birth in the tradition of transaction costs theory (TCT), we follow the method of Williamson (1985), for who the deliberate, conscious control by authority over the ownership of assets is the most important indicator of the governance form “hierarchy”. In “The economic institutions of capitalism” he summarizes the market form and three separate hierarchical forms. He answers Coase’s question about the reasons for the existence firms by explaining that hierarchical forms are most efficient in the situation of high conflict between market actors.

The market form contains, among other things, cartels, pools and trade associations. Although the constituents of these horizontal combinations had often bought stock in each other enterprises, they could not control the internal management of other individual firms. “The (cartel) agreements did not have the binding effect of a legal contract (...) owners of the leading firms purchased stock in each other enterprises (...which) permitted them to look at the books of their associates and thus better enforce their cartel agreement (...) none of the trade associations could make decisions concerning the internal management of firms (...). They were merely federations of legally independent enterprises whose representative met weekly and monthly to set prices and production schedules. More effective control over the companies in the combination requires the merger...in an single legally defined entity” (Chandler, 1977, pp. 317-319)

There are three separate hierarchies which differ in their (internal) transaction costs:

- trusts and holdings (H-form) are legal entities with a central command over distinct companies. They maintain a more rigorous control over the operations of the constituent companies than cartels. Trusts have a board of trustees with the authorization to acts as a board of managers. It enabled their members to make mutual agreements, for instance “to secure its members the use of (...) patents” (New York Times, March 26, 1903). Such policies led to complaints such as “automobile prices kept up by trusts” (New York Times, November 28, 1908). The Sherman Antitrust law of declared these trust combinations illegal. The New Jersey legislature provided the opportunity for trust to incorporate in order to combine the operating facilities of single-unit enterprises.
- unitary form (U-form): the former distinct companies became firms with a centralized, functionally departmentalized structure.
- multidivisional form (M-Form): “The M-form furthermore effected a split between operating and strategic decision-making and reserved the latter for the general office. Providing the general office with an internal incentive and control capability was required lest the potential benefits of effort be dissipated. Such a capacity had been lacking in the H-form organization and contributed to problematic performance therein.” (Williamson, 1985, p. 296).

The transition of market form to U-, H- or M-form is seen as a birth. Transitions between the hierarchical forms are defined as changes.

Capabilities

We follow the capabilities view as depicted by Langlois and Robertson (1995). According to them, capabilities are forms of knowledge about how to carry out productive tasks. The better the capabilities have been developed, the lower are the production costs. Tasks are similar if they draw upon they same capability (Richardson, 1972). Langlois and Robertson distinguish between two sets of capabilities, namely functional and coordinative (see also Chandler, 1992)

Functional capabilities are abilities to determine the skills of the organization as prescribed by functional routines. These include separate abilities in, for instance, production and marketing.

The coordinative capability is the ability to organize the functional routines. They are a major part of managerial knowledge. The coordinative ability is not restricted to internal affairs of companies. Also distributors in tight networks of organizations conduct conscious activities of coordination by searching markets and scheduling flow of materials (Casson, 1997). This 'spider-in-a web' function had already been visible in the logistic activities of textile merchants of the Middle Ages but is also of great importance in contemporary business (Hunt & Murray, 1999; Miles & Snow, 1994). Conscious coordination of manufacturing processes came up in the UK after the Industrial Revolution (Pollard, 1965). Fifty years later, this replacement also took place in the USA during the so-called Second Industrial Revolution (Chandler, 1977).

A birth can be defined as:

- the addition of new, previously non-applied capabilities to perform tasks but only if this addition radically changes the goals, structure and content of the organization's activities. Westinghouse for instance has diversified from a supplier of electric appliances into a conglomerate with, amongst other things, broadcasting services.
- the first emergence of coordinative capability to manage the different functional tasks.

We apply these three perspectives on organizational birth on four early 20th century American large companies (Du Pont, General Motors, Studebaker, and Chrysler). We use a combination of primary data from past times (annual reports, newspapers) and secondary business histories (Chandler, 1962) to interpret the views of those days about the reasons for organizing. In this study, we have used the annual reports from the 'Bedrijfseconomisch Archief' (Business economics archive), a 90-year-old archive that has been set up to collect and manage annual reports in the Netherlands¹. It is managed by the Erasmus University Rotterdam.

Data and results

Case 1: Du Pont

The company E.I. du Pont de Nemours & Co. was one of the constituents of the Gunpowder Trade Association. This "Association had been formed in 1872 when overproduction resulting from an increased output and surplus of Civil War powder threatened to collapse prices. The Association, with each member having a number of votes according to its size, set price and production schedules. After Henry du Pont, the company's president for 1850 to 1889, purchased a controlling interest in more than half a dozen of the larger powder companies during the depression of the 1870's, he held a majority of these votes. To assure compliance with the schedules he set, he worked them out in close cooperation with the executives of other firms." (Chandler, 1962, p.54)

¹ Comparable with Accounting Trends and Techniques for the American Institute of Certified Public Accountants.

This combination was not controlled by managerial power (New York Times June 7, 1896, p. 7: An agreement, not a trust). Even though Du Pont “had a powerful voice in how much other firms produced and at what price (...) they almost knew nothing about how each unit carried on its production and sold its quotas. Neither the individual companies nor the Association paid much attention to costs, to improving processes, or to developing more systematic purchasing and marketing techniques. There was little coordination between the marketing and selling companies (...). Effective administration was impossible because neither the separate firms nor the combination itself had the information or methods to reduce unit costs and increase output per worker.” (Chandler, 1962, p. 55).

The reorganization in 1902 provided the opportunity to transform the loose federation of many relative small firms into a consolidated, integrated, centrally managed industrial enterprise. “Methodically, the two cousins (...) embarked on the strategy of consolidation and centralization. (...). Coleman (...persuaded) the stockholders in these and many other explosives concerns to turn over their stockholdings to the du Ponts in return for cash or for stock in the new firm –the E.I. du Point de Nemours Powder Co.- formed to take over the combined properties. Then Pierre (... fashioned) a structure to administer them. The legal and financial changes were (...) necessary preliminaries to the operational and administrative ones (...) The formation of the Powder Company thus made it possible “to operate the properties in one name, through one set of selling agents, and under one manger, or operation”. Only in this way could the costly duplication of facilities and personnel be eliminated, the different functions – buying, manufacturing, shipping, and selling- be economically and systematically supervised, and the essential coordination between functions maintained.” (Chandler, 1962, pp. 55-56)

The organization diversified beyond explosives and smokeless powder as a reaction to a threat of excess capacity of unused resources in 1908. This problem was solved by the outbreak of World War I, but after the war the diversification developed along three lines Celluloid, Dye and Paint. The reorganization diversified in chemicals to use the organization’s existing resources, especially the knowledge in powder and nitrocellulose.

By 1919, Du Pont had changed the nature of its business. It was fabricating many different products but these were based on the same capabilities, namely those whose manufacture was similar with the making of nitrocellulose for smokeless powder. These products were sold in many different markets and in some cases used new types of supplies and materials. After the strategy of diversification, immediately the company began to have organizational problems. They were solved by the new decentralized structure. The new structure left strategic decision making to top management and the day-to-day control in the hands of operational managers (Chandler, 1962).

Application of the criteria to Du Pont

OE: birth during the early 19th century, rebirth in 1872 (reason: control of the level of output):

- since 1872, “E.I. du Pont de Nemours & Co” had been part of the Gunpowder Trade Association, a merged combination of several explosive organizations in order to gain price and output control. This merger of Du Pont and other explosives making companies was the start of a new identity according to the M&A criterion of Carroll & Hannan. The change of Association to a company in 1902 was the continuation of the Du Pont company because it was the dominant player in the combination.

Governance: birth during the early 19th century and rebirth in 1902 (reason: direct supervision of buying and selling transactions):

- pre 1902: Du Pont was a single company and part of a combination without managerial power.
- 1902: Du Pont bought out the other members and consolidated into a large, unitary company.
- 1920s: transition from the U-form to the M-form in order to reach more transactional efficiency (Williamson, 1985).

Capabilities: birth during the early 19 century and rebirth in 1902 (reason: the administrative coordination of different manufacturing and distribution functions):

- pre 1902: no administrative control.
- 1902: Du Pont became a large company that included the conscious, coordinative capability of integrating the former separate processes of the members of the combination. It even developed accounting methods to measure the impact of this visible hand on economic performance (Chandler, 1977, 447). In 1902, administrative and governance arguments coincide.
- 1920s: Du Pont changed from a centralized single-line business to a decentralized related diversifier. The new products lines were different but based on similar capabilities. After the strategy of diversification, immediately the company began having organization problems caused by the strains of this innovative strategy. The coordinative ability of the new decentralized structure was the suitable answer (Lazonick, 1991).

Case 2: Studebaker

In the early days of the automobile industry, the automobile model had not been standardized although the internal-combusting engine had become the industry standard. Hundreds of firms had an easy and cheap entry without legislative restrictions (Rae, 1984). These companies were small shops headed by owner-entrepreneurs base on personal experience with no professional management. Studebaker was one of these firms.

“The business was established in 1852 at South Bend (Indiana) by H. & C. Studebaker, blacksmith and wagonmakers (...). Three other brothers joined the business, and in 1868 it was incorporated as the Studebaker Brothers Manufacturing Company (SBMC). For two generations Studebaker was perhaps the world’s largest

producer of horse-drawn vehicles, and the Studebaker brothers became famous for their integrity and the high character of their products.” (Twelfth Annual Report The Studebaker Corporation, 1922). They were leading edge of technology and always looking for materials and methods to increase productivity (Curio, 2000).

“In 1897 it appears from the minutes of a board meeting that \$2,000 was appropriated for building and experimenting with a “horseless vehicle”, and in 1902 the company actually launched into the building of electric runabouts and trucks, which it continued until 1912. Also in 1904, it began building, in connection with another company, gasoline propelled automobiles known as Studebaker-Garford cars”. (Twelfth Annual Report The Studebaker Corporation, 1922). In this alliance, Garford supplied for gasoline engines, while Studebaker was specialized in the construction of car bodies but even more in distribution and finance. This combination did, however, not function as planned.

In the meanwhile, the character of the industry was changing. In 1908, Ford model-T was, according to Hounshell (1984), the major product model innovation in the automotive industry, and resulted in scale production. A shake-out followed because not all organizations could handle this scale. In the same year, Studebaker made an agreement with Everett-Metzger-Flanders Company (E-M-F) (Rae, 1984). This company delivered engines and bodies, whereas Studebaker distributed the cars (named: Studebaker-EMF) to their own dealer network. The agreement in this combination was based on contracts that went beyond price setting and output limits as in most combinations; there was a real chain of delivery between E-M-F- and the dealer network of 4000 outlets.

Friction between the companies caused troubles (Rae, 1984). Therefore “in 1910 (...Studebaker) bought out the Everett-Metzger-Flanders Company and became a full-fledged manufacturer of gas cars. The Studebaker Corporation, organized as of January 1, 1911, was the consolidation of this company and the Studebaker Brother Manufacturing Company, and it proceeded to operate the Detroit Plants for automobile production and the South Bend plants for horse-drawn vehicle production.” (Twelfth Annual Report The Studebaker Corporation, 1922).

After the acquisition, Studebaker integrated into a single unitary form where management had the authority to arrange and control mutual agreements. This solved the troubles. This new Studebaker Corporation started off very well and became one of the leading automobile producers in the early 1910s. “The fiscal year of the Company ended December 31st, 1911, produced results in volume of sales and trading profits from the Automobile division much greater than any previous year’s business of the constituent Companies” (First Annual Report The Studebaker Corporation, 1911).

Studebaker decided to focus on the lower segment in the market of internal combusting gasoline automobiles. “Towards the close of the year 1910 it was decided to discontinue the manufacture and sale of the present line of electric automobiles, high priced gasoline cars and two-speed medium priced cars, and to restrict to the output of the plants to manufacture for the popular and successful line of medium priced gasoline cars.” (First Annual Report The Studebaker Corporation, 1911).

Their first priority was the resurrection of quality control (in view of EMF nicknames such as “every mechanics friend” or “every morning fix-it”), and the tighter coordination of production. “Likewise extensive additions were made in the Detroit Plants and corresponding increases in manufacturing forces...As a result of these adjustments, I believe that the Company is today in an excellent condition, its various departments well co-ordinated, its selling forces extensive and stable, and, most important of all that its products are sought after and readily salable.” (First Annual Report The Studebaker Corporation, 1911).

Rapidly, the E-M-F heritage disappeared. Walter Flanders was the last of the three E-M-F foremen to leave Studebaker Corporation in 1912. This retreat did not deserve a honourable mention in the annual report of 1912, although otherwise his departure can be traced via the “ Suspense Account, Flanders Replacement.....\$472,270.07” (Second Annual Report The Studebaker Corporation, 1912).

More importantly, Studebaker Corporation dropped the EMF suffix and kept paying sharp attention to the development of their reputation. “We brought out an entire new line of “Studebaker” popular-priced automobiles...The personnel of the operating forces of the Automobile Division has been steadily improved since the formation of the Corporation.” (Second Annual Report The Studebaker Corporation, 1912).

In 1913, the EMF was past history. Nowhere in the annual report its role was mentioned and Studebaker finished their transformation. The business environment had become increasingly competitive, especially because Ford had just put the assembly line into use. In 1919, Studebaker had to change war production back into commercial production. The capacity of the company was not sufficient to carry on with the horse-drawn production at the expense of the growing automobile demand. Sixty-seven years after its first production of vehicles and twenty-two years after the first experiments with the “horseless vehicle”, Studebaker shut down the production of horse-drawn wagons. “In both automobile and horse-drawn production vehicle divisions, business offered was in excess of our capacity throughout the year. Production was hampered by shortages of materials, freight and labor, which increased costs and curtailed output, and these conditions continue today. Availing ourselves of the opportunity afforded by conditions, we discontinued the manufacture and liquidated our investments in all horse-drawn vehicle lines of products including harness, except farm wagons and farm trucks, which lines are retained. The factory space and investments previously devoted to these discontinued lines are now more profitably employed in the manufacture and closed bodies and other parts of automobiles.” (Ninth Annual Report The Studebaker Corporation, 1919)

Application of the criteria to Studebaker

OE: birth in 1852, rebirths in 1897, 1904 and 1908 (reason: market capacity)

- Studebaker entered the automobile industry in 1897 as a de alio producer.
- in 1904, Studebaker merged with Garford and in 1908, Studebaker partnered with E-M-F. These partnerships focused on the distribution automobiles of other suppliers. Finally, they acquired E-M-F. This acquisition was a change because it only concerned the purchase of E-M-F (no new partners involved).

Governance: birth in 1852 and rebirth 1911 (reason: lower transactions costs by avoidance of frictions between market actors)

- as 1852 born independent company, Studebaker had market relations with E-M-F, its main supplier. The combination Studebaker-E-M-F used contracts to seal their mutual transactions. After the acquisition in 1911, Studebaker consolidated into the U-form.

Capabilities: birth in 1852 (reasons: new functional capabilities), rebirths in 1904 and 1908 (reason: obtaining of external manufacturing capabilities and coordinating the manufacturing facilities and dealer outlets):

- 1852: main capability: manufacturing and distribution.
- 1904: main capabilities: gasoline engine manufacturing (by Garford) and finance and distribution (including the coordination of materials between Garford and the dealer network) by SMBC.
- 1908: main capabilities: gasoline engine and body manufacturing by E-M-F and finance and distribution (including the coordination of materials between E-M-F and the dealer network) by SMBC. Basically, Studebaker was a trader, and performed the productive task of coordinating several E-M-F and dealer units (Casson, 1997). This is comparable with present-day networks where companies outsource activities but keep a close eye on the logistics of the whole chain (Miles & Snow, 1994).

Case 3 General Motors

General Motors started in 1908 as a holding company. It controlled the stock ownership seventeen companies, including manufactures of cars and manufactories of parts (Wall Street Journal, October 30, 1909). Langlois and Robertson (1995) put the emphasis of Durant's taking stock in as many as automobile companies as possible as the only way to appropriate the benefits of his marketing innovations.

It "remained a combination as long as decisions on how to produce or market and how to allocate resources for the present and the future were left to the constituent enterprises." (Chandler, 1962, p. 31) .

"In carrying out expansion by combination and vertical integration (without administrative consolidation of the constituents), Durant (...) made no attempt to collect information about output and demand in order to make adjustments in production that might prove necessary. Nor was he interested in (...) information about and control over his operations or to help him achieve potential economies of integration and combination" (Chandler, 1962, p. 120). "He gave even less thought to effecting an over-all management structure or to building a general office so necessary for coordinating and supervising the activities of his rapidly expanding industrial empire (...) From 1915 until 1918, the general office at General Motors included little more than Durant and two or three personal assistants." (Chandler, 1962, p. 123).

This view of Chandler is a glaring contrast with the statement of Durant in the newspapers of those days, namely "its purpose is to enlarge its scope and the operations of the individual constituent companies by co-coordinating of them in a

plan for mutual co-operation and selling the cars of the manufactures through an efficient sales system.” (Wall Street Journal, October 30, 1909).

Chandler goes on by stating (1962, p. 125) “General Motors remained administratively a loosely knit federation of many operating enterprises. The relations between operating divisions and between the divisions and the general office became more haphazard, less coordinated, and less supervised”.

In the early 1920s, Sloan planned a new type of organization based on decentralized units with strategic guidelines for overall performance and marketing, centralized financial accounting and sharing of parts. “Sloan’s plan went into effect immediately (in 1920). The structure it created remains today as the corporation’s basic organization. It lasted because it transformed General Motors from an agglomeration of many business units, largely automotive, into a single, coordinated enterprise. This it did by successfully creating a general office to coordinate, appraise, and set broad goals and policies for the numerous operating divisions.” (Chandler, 1962, p. 120).

“Furthermore, because of its administrative structure, it was able to execute brilliantly a broad strategy of diversification into the making and selling of all types of engines, and products using engines, in the years after the automobile market fell off in the late 1920’s.” (Chandler, 1962, p. 46)

Application of the criteria to GM

OE: birth in 1908 (reason: positioning in the market by selling various lines of automobiles):

- in 1908, CEO Durant created a recognizable holding with loosely related firms such as Buick, Cadillac, Oakland and Oldsmobile.

Governance: birth in 1908 (reason: direct control of transactions and their benefits):

- CEO Durant created control over Buick, Cadillac, Oakland, Oldsmobile and combines them within a holding (H-form).
- In 1921, the new, developed M-form protected GM against the hazards of the opportunism of division managers (Williamson, 1985).

Capabilities: birth 1921-1925 (reason: administrative control of plants)

- 1908: CEO Durant: GM was a holding with selling capabilities but lacked administrative coordination: the market coordinated the activities of the several units (premature GM).
- in 1921, CEO Sloan started the implementation of a coordinated structure of the several divisions. This coordination made possible the exploitation of marketing capabilities, namely annual changes and a well-aligned line of car models (Lazonick, 1991).

Case 4: Chrysler

In 1917, Maxwell, a company in the lower market segment, and Chalmers, making luxury models, started a combination because Maxwell needed extra capacity for expansion. Maxwell leased Chalmers’ factories and the same managers took in charge of all facilities. In 1922, they finally merged.

Two years before, in 1920, Walter Chrysler had started a financial and managerial reorganization of Maxwell. He had restored Maxwell's car reputation by different marketing methods without additional production innovations.

In the transitional period between 1923 and 1925, Maxwell factories started to produce parts for new Chrysler cars. In 1924, the engineering capability of the Maxwell company strongly elevated. A team of engineers (nicknamed ZSB) innovated the design and performance of Maxwell-cars, which in 1925 became Chrysler-automobiles. These new models had the innovative Lockheed four-wheel brakes (Curio, 2000).

The legal start of Chrysler Corporation was 1925. New lines were brought to the market and the production of Maxwell cars was stopped. A year later, the number of lines and body styles had increased. All of these cars were known as technically advanced and had excellent performance and attractive styles (Rae, 1984). In 1927, again a new line was introduced. The innovative all-steel body concept became applied on all cars. This innovation and diversification approach on former Maxwell automobiles proved to be very successful. "Chrysler Corporation in 1927 established a new record for itself...Chrysler Corporation now ranks third place (behind Ford and GM) in dollar sales among members of the National Automobile Chamber of Commerce....This accomplishment is the result of the first full year's operations on four lines of cars...Expenditures on improved facilities have been reflected in decreased production costs and improve quality in the products" (Third Annual Report of Chrysler Corporation, 1927)

In 1928, Dodge was bought because it extra manufacturing capacity and distribution capabilities (dealer-network). "The Dodge dealer organization in point of capital, facilities, ability and experience compares favorable with any automobile distribution organization in the industry." (Fifth Annual Report of Chrysler Corporation, 1929)

The new Plymouth line for the mass market was introduced. The timing of this introduction was perfect because it was the year that Ford replaced the model-T for the new model-A, causing a market opportunity for other to jump in (Hounshell, 1984). This automobile was positioned in the low segment of the market where many replacement purchasing was going on (Curio, 2000).

In 1929, the depression year, Chrysler still had a mode rate performance. "Concerns regarding the effect of the present recession in general business upon the automobile industry has been quite prevalent, and invites comment (...). It is difficult not see how the present recession in the automobile industry can be regarded as anything but temporary...The physical condition of the corporation's properties and the efficiency of its productive facilities has still further improved. The corporation's products are competitive in price and value with anything on the market." (Fifth Annual Report of Chrysler Corporation, 1929).

In 1930, the crisis deepened but Chrysler held its position by means of strategies of improvement and attention for the lower market segment. The backbone of this success was the Plymouth. "No comment is necessary upon the adverse business conditions of 1930, and their responsibility for the reduction in earnings. It is, however, satisfactory to note that Chrysler Corporation substantially maintains its relative potion in the industry (...). By reason of the reduced spending power of the

public there was also a very definite shift of demand to lower priced cars (...) Plymouth cars in the low priced field made relatively the best showing against competition last year of any of the cooperation's products." (Sixth Annual Report of Chrysler Corporation, 1930).

In 1931, the business situation was still adverse, but one of the most successful product innovations for smoother driving was introduced that year. "The importance of the corporation's more aggressive entrance into the lower priced field, undertaken with the introduction of the Floating Power Plymouth last July (...that is) completely eliminating the vibration heretofore regarded as inevitable in four-cylinder automobiles, it had the effect not only of greatly increasing the corporation's business in the lowest priced field but also of materially aiding the sales of its other lines. The development of this new engineering principle has been recognized as the most important advance in automobile construction in recent years." (Seventh Annual Report of Chrysler Corporation, 1931).

The results were beneficial. "Chrysler Corporation produced 101 percent of its 1930 output as against the industry 70.4 percent of 1930 output." (Seventh Annual Report of Chrysler Corporation, 1931).

Not all innovations were successful. Two years later, the Airflow, which resulted in a much more streamlined design, would not be successful although it would change the face of the automobiles industry. "Chrysler Cooperation has pioneered many of the fundamental and lasting engineering advance in automobile design and construction in the last ten years. Its newest development, the Airflow design of 1934 Chrysler and De Soto model, has already met with an enthusiastic public response." (Ninth Annual Report of Chrysler Corporation, 1933)

Chrysler came out of the depression as the only producer with more cars sold than it had in 1929, and replaced Ford as the number-two producer without cutting research budget (Curio, 2000; Rae, 1984). Reasons for this prosperous course were the design flexibility and low vertical integration. It offered Chrysler the opportunity to exploit the external capabilities of suppliers (Langlois and Robertson, 1995).

Application of the criteria to Chrysler

OE: birth in 1917 (reason: capacity for market expansion), rebirths in 1925 (reason: new owner) and in 1928 (reasons: merger with new partner)

- since 1917, Maxwell and Chalmers formed a combination.
- the acquisition of Maxwell by Walter Chrysler in 1925 was an identity switch because Walter Chrysler was a new actor in the purchase. Klepper (2002), however, views Chrysler corporation as a linear descendant of Maxwell.
- the major acquisition of Dodge in 1928 and its implementation in the Chrysler organization can be seen as an identity switch of both.

Governance: birth in 1917 (reason: shared managers of all plants to control internal agreements) and rebirth in 1928 (reason: merger with new partner)

- 1917: transition of market form to holding form acknowledged by merger to the U-form in 1922.
- 1928: merger with Dodge.

Capabilities: birth in 1924 (reason: new innovative approach and central coordination of all design and manufacturing) and rebirth in 1928 (reasons: new capabilities in distribution and their coordination within the factory)

- in 1924, Maxwell was provided with the new ability to innovate Maxwell and Chrysler cars, which resulted in the best-practice engineering. The coordination of manufacturing and assembly resulted in the share of designs and parts by several factories.
- In 1928: Chrysler diversified and gained more scope advantages by the extra production of Dodge automobiles (Raff, 1991).

Conclusions

The cases show that the same organizations rarely have an equal year of birth according to the three applied theories:

- in the case of Du Pont, TCT and capability theories align for the 1902 but according to OE, Du Pont had already existed since 1872.
- Studebaker has been born in 1904 following OE and capabilities theory but TCT recognizes this firm only in 1911.
- OE and TCT have a comparable birth date for GM (1908) but the capabilities view sees company coming into being in 1921.
- in the case of Chrysler OE and TCT have a same birth in 1917, whereas capabilities theory recognizes its birth in 1924. All three theories do, however, date Chrysler's rebirth in 1928.

These results indicate that major moments in the life of corporations rarely align. This means that the different stages of their path to growth seldom coincide. This interpretation may explain the confusion of early 1900s.

Another conclusion is that the range of theories is limited to cover the whole path to growth of the giant organizations. In all cases, the search for market power and legitimacy were the first reasons for combining (OE). These combinations may have caused higher transaction costs between partners, but the prices were probably worth these extra costs.

Only secondly, internal reasons became important. In some cases transaction costs were decisive for an organizational birth before administrative coordination was attained. Where hierarchy preceded coordinative capabilities, a kind of venture capitalism seems at work. General Motors is an example. In 1908, Durant did not choose for an association but for a holding (the road to trusts had been cut off because the Sherman Act and the New Jersey general incorporation law for holding companies stimulated holding firms). Also Maxwell and Chalmers choose for a common hierarchical form before the innovative and coordinative capabilities of engineers had been developed.

In other cases, such as Studebaker (1904, 1908), administrative coordination was reached before a hierarchical form had been created. Such administrative coordination required knowledge of the engineers who knew about Systematic or Scientific Management of the late 19th century (Wren, 1994). Where administrative coordination preceded hierarchical development, a network form of organizations can be recognized (Studebaker 1904, 1908).

Together, these three approaches are helpful to describe and understand the growth of the later conglomerates. Their simultaneous application is to be preferred above the use of a single theory. These results correspond with Fligstein (1990), who argues that only since the introduction of anti-trust legislation productivity came forward as the major motive for the design of firms.

This conclusion leaves open the question about the content of theories. Especially in the situation where governance and administrative decisions co-evolve, as in the case of Du Pont, the efficiency effects are difficult to attribute to transactions or production advantages (Lazonick, 1991). Further theoretical development may benefit by the application of cases where the moments of birth clearly differ, as in the case of Studebaker, so that the empirical (efficiency) effects of the theories are easier to relate to their conceptual claims.

Literature

- Amit, R. & Zott, C. (2001). Value creation in e-business. *Strategic Management Journal*, 22, pp. 493-520.
- Carroll, G.R. & Hannan, M.T. 2000. *The demography of corporations and industries*. Princeton (NJ): Princeton University Press.
- Casson, M. (1997). *Information and organization: a new perspective on the theory of the firm*. Oxford: Clarendon Press.
- Chandler, A.D. (1962). *Strategy and structure: chapters in the history of American industrial enterprise*. Cambridge (MA): MIT Press.
- Chandler, A.D. (1977). *The visible hand: the managerial revolution in American business*. Cambridge: The Belknap Press of Harvard University Press.
- Chandler, A.D. (1992). Organizational capabilities and the economic history. *Journal of Economic Perspectives*, 6, pp. 79-100.
- Curio, V. (2000). Chrysler. *The life and times of an automotive genius*. New York: Oxford University Press.
- Fligstein, N. 1990. *The transformation of corporate control*. Cambridge (MA): Harvard University Press.
- Hannah, L. (1997). Marshall's 'Trees' and the Global 'Forest': Were 'Giant Redwoods Different?'. CEP Discussion Papers0318, *Centre for Economic Performance*, LSE.
- Hannan, M.T. & Freeman, J.F. (1989). *Organizational ecology*. Cambridge (MA): Harvard University Press.
- Hounshell, D. (1984). *From the American system to mass production 1800-1932*. Baltimore: The John Hopkins University Press
- Hunt, E.S. & Murray J.M. (1999). *A history of business in medieval Europe, 1200-1550*. Cambridge: Cambridge University Press.
- Klepper, S. (2002). The capabilities of new firms and the evolution of the US automobile industry. *Industrial and Corporate Change*, 11,4, pp. 645-666.
- Lamoreaux, N.R., Raff, D.G. & Temin, P. (2002). Beyond markets and hierarchies: toward a synthesis of American business history. Working paper 9029 *National Bureau of Economic Research paper series*, <http://www/nber.org/papers/w9029>, July.
- Langlois, R.N. & Robertson, P.L. (1995). *Firms, markets and economic change. A dynamic theory of business institutions*. London: Routledge.

- Lazonick, W. (1991). *Business organization and the myth of the market economy*. Cambridge: Cambridge University Press.
- Miles, R.E. & Snow, C.C.(1994). *Fit, failure and the hall of fame: how organizations succeed or fail*. New York: The Free Press.
- Mokyr, J. *The British industrial revolution. An economic perspective*. Boulder: Westview Press.
- Perrow, C. (1986). *Complex organizations, a critical essay*. Third edition. New York: Random House (First published 1972).
- Pollard, S. (1965). *The genesis of modern management: a study of the industrial revolution in Great Britain*. Cambridge: Cambridge University Press.
- Rae, J.B. (1984). *The automobile industry*. Boston: Twayne Publishers.
- Raff, D.M.G. (1991). Making cars and making money in the interwar automobile industry: economies of scale and scope and the manufacturing behind the marketing. *Business History Review*, 65, 4, pp. 721-754
- Williamson, O.E. (1985). *The economic institutions of capitalism*. New York: The Free Press.
- Wren, D.A. (1994). *The evolution of management thought*. Fourth edition. New York: Wiley (First published 1972).
- Zakim, M. (1999). A ready-made business: the birth of the clothing industry in America. *Business History Review*, Spring, pp. 61-90.