General Motors: a story of a vertically integrated firm**

Preface

Before World War I, the Du Pont Powder Company[1] was employing many of the management accounting procedures for planning and control known today. In order to monitor and control the intermediate output, produced by each single-activity department, Du Pont utilized accounting systems, which had been developed by manufacturing and distribution firms during the 19th century. Furthermore, Du Pont had the merit to develop new budgeting and return on investment systems to plan and control the use of capital. With its comprehensive accounting systems, the Du Pont Powder company was able to evaluate internalized operations which encompassed every activity in a single industry, from gathering raw materials to serving the final consumer.

The founders of Du Pont and other entrepreneurs created integrated firms because they recognized opportunities for higher profits in a well-managed organizational structure. However, in order to search for and manage opportunities for higher profit, vertically integrated firms relied heavily on internal accounting information. Two obstacles particularly could hamper the success of the integrated firm, that is:

a) the complexity of the vertically integrated firms;
b) the managerial indifference to owners' goals.

The growth in size during the volatile and unpredictable course of the 20th century economic history and the potential loss of management control resulting from complexity and the failure by professional non-owner managers to concentrate on profit-oriented goals, were overcome by transforming the unitary, or centralized, organization into a new structure, the multidivisional organization. Referring to the multidivisional structure as "American capitalism's most important single innovation of the 20th century", Oliver Wlliamson credits it with preserving the vitality of the giant enterprise by permitting "the corporation to limit the degree of control loss and sub goal pursuit that were predictable

** This article is taken from JOHNSON, T, R, KAPLAN, *Relevance Lost: The rise and fall of management accounting,* 1987.

[1] The Du Pont Powder Company was founded in 1903 by three Du Pont cousins, Alfred, Coleman and Pierre. The Du Pont Powder Company supplanted the operations of E.I du Pont de Nemours and Company, and explosives manufacturer in America since 1804.

consequences of large size. Rather than be overcome by these serious bureaucratic disabilities, the corporation has responded with a demonstrated capacity for self-renewal”[2]. The first integrated firms to become multidivisional, such as Du Pont, were owner-managed. The multidivisional organization was created primarily to alleviate the loss of control, the chaos and confusion that diversification brought to a centralized, multi-activity organization. Some authors assert “multidivisional organization offered a less costly means to manage product diversity”.

The multidivisional organisation appoints to top management the task of planning the company’s strategy, while assigning to subordinate managers the task of coordinating and controlling the operating activities for each of the company’s different product lines or sales regions. The manager who heads each of the internalized multi-activity organizations, known as divisions, concentrates fully on the operating activities of a single product line or a single geographic region. To point these separate management groups towards common firm-wide goals, multidivisional firms relied on management accounting systems for data to monitor, assess and evaluate divisional performance, company-wide performance and future company policy.

General Motor: a story of a giant enterprise

Founded in 1912 by the visionary William C. Durant, General Motors (GM, hereafter) combined into one organization several integrated units, each of which manufactured and sold a unique line of autos or parts. Each unit performed all the operating functions that an independent manufacturing company performs, such as marketing, manufacturing, purchasing and selling. Each unit’s administrative system resembled a unitary form of organization. Durant, in consolidating these autonomous auto and parts manufacturing units into one giant firm, hoped to achieve economies in areas such as manufacturing, finance and management. He originally envisioned a consolidated enterprise whose total profits would exceed the combined profits that would have been earned by the individual units operating as separate companies. Despite this noble goal, Durant’s practice at GM nevertheless failed, primarily because he was unable to resolve the problems entailed in administering a diversified company. He did not have an administrative system that could direct activities of each operating unit toward common goals. Durant’s inability to control GM’s diverse operating units caused an inventory crisis in 1920 that led to Pierre Du Pont succeeding Durant as company president. Pierre Du Pont’s leadership, coupled with the

[2] Oliver Williamson, *Corporate Control and Business Behavior: an Inquiry into the effects of organization form on enterprise behavious*”, p.175.

brilliant insights of Alfred P. Sloan, one of Durant's executives, led to developing GM's well known multidivisional structure in which top management coordinates, appraises and plans GM's diversified activities without having to supervise its day-to-day operations. With this organizational structure full responsibility for operating performance was placed on the general managers of each division, instead top management were free to concentrate on policy making and to coordinate divisional performance with company policies. In GM a key component of this Du Pont designed organization was a sophisticated set of management accounting procedures introduced by Donaldson Brown, who applied the Du Pont Company's advanced and sophisticated financial control techniques to GM.

In particular, GM's management accounting system performed three tasks to permit what Brown described as "centralized control with decentralized responsibility". First, it provided an annual operating forecast to compare each division's ex ante operating goals with top management's financial goals. Top management used the operating forecast to coordinate each division's expected performance with the company-wide financial policy.

Secondly, the system provided sales reports and flexible budgets that indicated promptly if actual results were deviating from planned results. They further specified the adjustments to current operations that division managers should make to achieve their expected performance goals. The sales reports and the advanced flexible budget system provided the control for each division's actual performance.

Thirdly, the management accounting system allowed top management to allocate both resources and managerial compensation among divisions on the basis of uniform performance criteria. In this way, it was possible to encourage both a high degree of automatic compliance with company-wide financial goals and, also, divisional managers' autonomy.

Finally, what seems clear is that in GM an innovative management accounting system was set up in order to facilitate the coordination, monitoring and control of organizational activities. We shall describe in some detail how this innovative management accounting system was working.

GM's fundamental goal was to secure the permanent welfare of the owners of the business. Brown said that a "business owes its existence to its owners" and therefore is "expected to operate for their benefit". The basic financial policy that guided GM's top management after 1921 was to earn the highest long-run return on investment "consistent with a sound growth of the business".

At GM, or any automaker, sales and profit in the 1920s fluctuated enormously over seasonal and cyclical trends that were difficult to predict. Contributing to these fluctuations were the volatile demand for automobiles, a durable capital good whose purchase or replacement consumers could postpone for long periods. Rigid annual prices and high fixed costs meant that an automaker's profits and return on investment varied greatly, depending upon annual fluctuations in the ratio of output to average annual capacity. These largely unpredictable short-run variations made it difficult to coordinate short-run operation plans with long-term financial goals.

In order to respond to this difficulty, Brown designed an unique "Price Study", that was a system that enabled GM's top management to coordinate each division's annual operating plan with the company's long-term return on investment and standard volume policies. A division's price study consisted of three basic elements: i) a forecast of operations calculated at the coming year's expected volume; ii) a forecast of operations calculated at the standard volume; and iii) a determination of each product's standard price. The top management used two of the elements, i.e. the forecast at expected volume and the standard price data, to coordinate each division's ex ante operating plan with the company's long-run financial policy.

A division manager's initial task in preparing the annual Price study was to forecast the coming year's expected revenue, costs and return on investment. First, he estimated the two components of total revenue: proposed selling price and expected sales volume. Between the two components, price was presumably the least difficult to predict. Next, the manager estimated sales volume. Each division manager had sole responsibility for establishing the number of vehicles the division would sell to ensure that division's ultimate sales goals were met. After determining an estimate of the coming year's total revenue the division manager estimated operating costs, capital requirements, and return on investment. It has to be emphasized that GM did not use standard price data to determine the actual prices to be charged during any given model year. Rather, the apparent purpose of the standard price policy was to determine the minimum markup needed to make the planned operations of a division comply with the corporation's long-term financial policy. Top management assumed that the proposed selling price for any particular year was calculated in the competitive marketplace. The divisional manager's main responsibility was to adjust costs and capital turnover ratios in order to assure that his return on investment corresponded to long-term objectives.

In summary, clearly the standard price formula provided top management with a compact and powerful means of coordinating a division's forecast operating plan with the company-wide financial policy.

Furthermore, GM developed two management accounting procedures, sales reports and a flexible budget system. Modern management accountants use the "flexible budget" to compare forecast results with the results attained at actual levels of output. The flexible budget distinguishes between variable and fixed costs and thereby forecasts total costs and profits at any level of actual output. Accounting and business historians suggest that flexible budgeting was barely discussed in accounting literature before the 1920s. However, Donaldson Brown, in a series of three articles on GM's pricing and budgeting procedures, described an ingenious technique for relating cost, net profit, and return on investment to short-term output variations. Nowhere in these articles does Brown refer to his techniques as "flexible budgeting"; nevertheless, he does make it clear that his pricing and budgeting procedures were designed primarily to assist managers in the running of GM.

Conclusions

The multidivisional structure and management accounting procedures that GM's top management devised in the early 1920s enabled giant industrial firms to overcome the inefficiency and bureaucratic disabilities that economists once thought were endemic to large-scale organizations. In large, diversified enterprises, the multidivisional organization reduces the volume of communication between divisional and corporate managers, thus enabling managers to employ resources more efficiently and effectively if centralized organizations were used. In addition, internal accounting procedures, such as those used at GM in the 1920s, enabled top management to transmit to operating managers in sharp, unambiguous terms the goals for company-wide profits and growth. While the procedures forced all operating managers to pursue the same corporate goals, they also permitted them enormous freedom to exercise initiative in deciding how to employ resources most efficiently. The internal accounting procedures were undoubtedly essential to GM's remarkable performance record after 1921 and also to the performance of countless large firms in the world that adopted the multidivisional structure after the 1920s.