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Assets, Organizations, Strategies, and Traditions: Organizational Capabilities and Constraints in the Remaking of Ford Motor Company, 1946–1962

David A. Hounshell

During World War II, Detroit became widely known as “the arsenal of democracy.”¹ The sheer magnitude of the automobile industry’s output of jeeps, trucks, tanks, aircraft engines, machine guns, bombers, and other tools of war was staggering and played a critical role in the Allied victory.² After the war, the automobile industry served as an engine of growth for the domestic economy. In the decade after Detroit had fully reconverted to domestic automobile manufacture, factory sales of automobiles increased from 2,148,699 in 1946 to 7,920,186 in 1955. By 1965 that number reached 9,305,561. In that first full decade of domestic production after the war, labor productivity in motor-vehicle factories more than doubled, rising from 4.7 vehicles per worker to 10.2. Total factory sales of vehicles in these two decades were 141,001,445, representing a value of \$235.5 billion.³ Factory sales of motor vehicles in 1955 and 1965 represented, respectively, 3.6 and 3.2 percent of the United States’

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1. For evidence of Detroit’s role in the war effort, see Thomas D. Wolff, “Safeguarding the Arsenal of Democracy: A History of the Detroit Office of Civilian Defense in World War,” M.S. thesis, Wayne State University, 1952; *Freedom’s Arsenal: The Story of the Automotive Council for War Production* (Detroit: Automobile Manufacturers Association, 1950); Allan Nevins and Frank Ernest Hill, “Arsenal of Democracy,” in *Ford: Decline and Rebirth, 1933–62* (New York: Scribner’s Sons, 1962), 197–227.

2. For a succinct statement of Detroit’s output of war matériel during World War II, see James J. Flink, *The Automobile Age* (Cambridge: MIT Press, 1988), 275–76.

3. All statistics cited above derive directly from or were calculated from *Automobile Facts and Figures, 1957* (Detroit: Automobile Manufacturers Association, 1957) and *Automobile Facts and Figures, 1967* (Detroit: Automobile Manufacturers Association, 1967). Figures are not adjusted for inflation.

gross national product.⁴ The expression “the car culture” well described American’s love affair with and dependence upon the automobile.⁵

While the automobile industry grew in size and output in the two decades after the war, it virtually also completed the profound restructuring, commonly known as a shakeout, that had actually begun in the 1910s. By the end of the 1930s, the number of firms in the U.S. automobile industry could be counted on two hands.⁶ After the war, the industry became even more highly concentrated. In 1946, the so-called Big Three (General Motors Corporation, Ford Motor Company, and Chrysler Corporation) accounted for 84.7 percent of the passenger cars made in the United States; by 1955, they made 95.6 percent.⁷ Most of the “independents” had folded or were near extinction.

When World War II ended, the Ford Motor Company itself, by all accounts, appeared to be heading toward bankruptcy and perhaps even extinction. Ford’s market share had declined sharply from its high point in the early 1920s, and the company’s once-famous manufacturing assets had eroded greatly during the Great Depression of the 1930s and the war.⁸ The company became leaderless during the war when Edsel Ford, the son of the company’s founder Henry Ford, died prematurely, when Henry Ford himself became too senile to manage, when the company was bleeding cash at a rate unrealized because its accounting systems were so poorly designed, and when the company’s top managers engaged in internecine rivalry for managerial control of the firm. Yet, in spite of these severe problems, the Ford Motor Company endured. For reasons partially explored in this essay, the company actually experienced what the historian Allan Nevins and his coauthors called a “rebirth.”⁹

How Ford Motor Company successfully staved off extinction, regained market share, and restored profitability surely constitutes one of the great stories in the history of American business. This transformation is not, however, the central focus of this study, although it certainly motivates it. My goal is to account for the outcome of a single meeting of Ford’s Executive Committee—

4. These figures are calculated from GNP statistics reported in current dollars in Series F1-5 of U.S. Bureau of the Census, *Historical Statistics of the United States: Colonial Times to 1970* (Washington, DC: Government Printing Office, 1975), 224, and from values of motor-vehicle factory sales reported (in current dollars) in *Automobile Facts and Figures, 1968* (Detroit: Automobile Manufacturers Association, 1968).

5. I borrow this expression from James J. Flink, *The Car Culture* (Cambridge: MIT Press, 1975).

6. Philip Hillyer Smith, *Wheels within Wheels: A Short History of American Motor Manufacturing* (New York: Funk & Wagnalls, 1968). On the shakeout, see Steven Klepper and Kenneth L. Simons, “Innovation and Industry Shakeouts,” *Business and Economic History* 25, no. 1 (1996): 81–89.

7. Charles E. Edwards, *Dynamics of the United States Automobile Industry* (Columbia: University of South Carolina Press, 1965), table 1, 13.

8. The Ford Motor Company’s Annual Report for 1947 shows that the company’s market share had dropped from about 42 percent in 1930 to below 20 percent in 1941 and showed no signs of reversal had the war not intervened. The report also noted that “for five of the past ten years the Company has used up plant, property, and equipment faster than it has replaced it, leaving a substantial capital deficit.”

9. Nevins and Hill, *Ford: Decline and Rebirth*.

an outcome that decisively changed the strategic course of the company, a course that had been formulated and implemented with no little care, a course devoted to bringing about a major revitalization of the company in the years after World War II, a course charted to make the Ford Motor Company a formidable competitor of General Motors, which had long since eclipsed it. The meeting itself, however, was not supposed to be about the strategic direction of the company; its nominal purpose was to settle a question about how funds would be allocated to build engine-manufacturing capacity for the company. But, in fact, the meeting transformed an operational question into a strategic one, and in doing so it put on the table the company's history, its in-place physical assets, and its core capabilities alongside its strategic objectives and opportunities.

For our purposes, the archival records surrounding this fateful meeting could not be more ideal. We have detailed reports of the plans that led up to the meeting, and we have reasoned commentaries on those plans. We have documents that executives carried into the meeting. We have a list of all the executives who attended the meeting, and we know a good deal about the backgrounds of these executives and the positions they came into the meeting with. Finally, we have minutes of the meeting itself. Fortunately for us, however, the minutes report only the final decision arrived at in the meeting—a major departure from a unanimous decision reached by the same Executive Committee less than a month earlier. Other than reporting on how the initial positions were laid out, the minutes provide only the barest shreds of evidence of what took place in the meeting, who said what, and who did what. We are left with nothing but our own wits—our theories of firms, organizational behavior, and organizational capabilities—to explain the outcome. This paper is, therefore, an exercise not unlike those relished by Sir Arthur Conan Doyle's fictional character Sherlock Holmes—shifting through seemingly contradictory and often parsimonious evidence, bringing behavioral insights into the analysis, making careful and reasoned inferences, and testing theories against known “facts.” Such an exercise can be both entertaining and illuminating.

5.1 The Fateful Meeting

On 2 December 1949, the Executive Committee of the Ford Motor Company, the second largest automobile company in the world, convened a meeting that included not only its own members but also a group of top managers representing the company's manufacturing, marketing, product engineering, and internal control and monitoring organizations. One item stood at the top of the committee's agenda: deciding how the company would produce engines for its future models. But everyone attending the meeting knew that a lot more than engine production lay at stake. All comprehended at some level that Ford's strategic plans and the very organizational design of the company as a whole turned on the meeting's outcome. The issues faced by the group were not new.

Indeed, Ford's top executives had called this meeting specifically to reconsider a decision the Executive Committee had made just a month earlier, after which the full logic of that decision had perhaps become clear.¹⁰

At its meeting of 4 November, the Executive Committee had adopted the recommendations of its Facilities Committee, a special committee created the previous May by the company's president, Henry Ford II, and his executive vice president, Ernest R. Breech.¹¹ This new committee essentially functioned as one of the standing committees that reported to the Policy Committee, which had charted all aspects of the company's strategy since its creation three years earlier. The Facilities Committee had been charged with responsibility for resolving production facilities issues. Delmar S. Harder, vice president of Ford's Manufacturing Division, chaired the committee. Other members included Lewis D. Crusoe, the head of the newly created Ford Division, Benson Ford, head of the Lincoln-Mercury Division, Robert S. McNamara, controller, Stanley W. Ostrander, manager of operations for the Lincoln-Mercury Division, and R. T. Hurley, Ostrander's counterpart in the Ford Division.¹² When it was created, the Facilities Committee faced the problem of ensuring the continued manufacture of Ford V-8 engines, which had been in production since 1932, while also providing for the manufacture of completely new overhead-valve engines for new model Fords, Mercuries, Lincolns, and, it was anticipated, a new, small, European-like automobile.

Since Henry Ford II had assumed control of Ford Motor Company in 1945, he and the management team he recruited to rebuild the beleaguered company had been moving toward a decentralized organizational structure modeled explicitly after that of the General Motors Corporation.¹³ GM was then widely recognized as the best organized and best managed company in the United States, if not the world, and its diversified, multidivisional management principles and design had been well captured in a now-classic book by Peter Drucker, *The Concept of the Corporation*, published in 1946.¹⁴ Henry Ford II had brought to Ford Motor Company several GM executives, including his executive vice president, Ernest R. Breech; Ford Division head Lewis Crusoe; and vice president for manufacturing Del Harder.¹⁵ Even before Breech joined the company, the young Ford had created the Lincoln-Mercury Division and

10. Minutes of the Executive Committee, 2 December 1949, Ford Industrial Archives, Dearborn, MI, 84-63-1217:1.

11. Minutes of the Executive Committee, 4 November 1949.

12. On the creation of the Facilities Committee, see Ernest R. Breech to D. S. Harder et al., Executive Communication, "Appointment of Special Facilities Committee," 20 May 1949, and Henry Ford II to E. R. Breech, 16 September 1949, Ford Industrial Archives, 65-71:15.

13. Nevins and Hill, *Ford: Decline and Rebirth*, remains the most compelling account of Henry Ford II's accession to the throne of the Ford Motor Company and his efforts to rebuild the company.

14. Peter Drucker, *The Concept of the Corporation* (New York: John Day, 1946).

15. Harder had come from the presidency of E. W. Bliss Company, one of the leading stamping press manufacturers, but he had been in that position only briefly. He spent most of his career as a manager for GM.

given his brother Benson Ford responsibility for its management and performance.¹⁶

With the arrival of Breech and the numerous executives and managers lured away from GM, commitment to the principle of decentralization grew within the executive ranks of the Ford Motor Company. Throughout 1946, 1947, and 1948, as executives charted the company's strategy for restructuring and renewal in the postwar years, they not only educated employees throughout the company about the principles of decentralization, but they also committed the company to its realization.¹⁷ In early 1949, the company took a giant step in that direction when it created a distinct Ford Division to manage the design, production, and marketing of Ford cars and trucks. Henry Ford II and Ernest Breech tapped the former GM executive Lewis Crusoe to be the first head of the new division, and Crusoe was highly committed to the central tenet of decentralization: achieving the highest performance by a division requires divisional autonomy, thereby providing adequate incentives and demanding full accountability. Throughout this entire period, from mid-1946 through the fall of 1949, all planning in product design and engineering and manufacturing facilities had been predicated on the assumption that the Ford Motor Company was committed to decentralization.

Thus when Del Harder delivered the report and recommendations of the Facilities Committee to the Executive Committee on 4 November 1949, no one could have been surprised by the assumptions and goals that underlay the Facilities Committee's work. Its report laid out four alternative plans for meeting the company's future engine manufacture but endorsed only one plan as being clearly superior to the other three. The preferred plan called for the adaptation of the Parts and Accessories Building at Ford's famous, massive River Rouge plant (the Rouge) to engine production and the destruction of the Rouge's Motor Building. Using machinery and equipment moved from the Motor Building, the renovated facility would produce 4,135 V-8 engines per day to meet the continuing demand for this power plant. To make the new higher-horsepower, higher-performance overhead-valve engine planned for new Ford, Mercury, and Lincoln models, the Facilities Committee recommended the construction of two new engine plants, one to produce the engine for the Ford (a six-cylinder overhead-valve design) at the rate of 2,205 per day, and the other to make engines for the Mercury (1,973 per day) and the Lincoln (376 per day). Both the Mercury and the Lincoln engines were to be overhead-valve V-8 engines manufactured from the same block casting, but they were to be bored differently, contain different crankshafts, have different strokes, and thus be of different horsepower. The Facilities Committee addressed the issue

16. For an overview of the organizational aspects of Ford in the postwar period, see David A. Hounshell, "Ford Automates: Technology and Organization in Theory and Practice," *Business and Economic History* 24, no. 1 (1995): 59-71.

17. The company's "master plan" for organizational development and decentralization was adopted by the Policy Committee in July 1946.

of supplying castings to the three engine plants, but the plan specified only that the new engine plant going into the Parts and Accessories Building at the Rouge would continue to rely upon the Rouge's famous foundry for its castings. The other two plants, one to be managed by the new Ford Division and the other to be operated by the older Lincoln-Mercury Division, would either have to contract for their castings or be supplied by new foundries built for those plants. As Harder stressed in his presentation, this plan met two principal criteria—one to supply new engines for new models while maintaining production of the older-model engine, and the other to ensure the principle of divisional autonomy that so much of the revitalization and long-range strategy of the company was predicated upon.¹⁸ Members of the Executive Committee found the Facilities Committee's recommendations compelling and voted unanimously to adopt and implement them. The Facilities Committee estimated the plan would take two years to carry out and cost \$187.4 million.

Two weeks later, however, Robert McNamara, Ford's controller and a member of the Facilities Committee, dropped a bombshell on the approved plan. McNamara sent a widely circulated memo to Theodore O. Yntema, vice president for finance, saying that, although as a member he had concurred in the Facilities Committee's recommendation to the Executive Committee, his office had since conducted a "review of the problem [of engine manufacture] on a somewhat broader basis" than had the Facilities Committee. As he noted, his office had gained this "broader" view by relaxing the criteria that had served as the starting point for the Facilities Committee. For example, as already noted, the Facilities Committee had based its analysis on the assumption—flowing out of decentralization principles—that "[e]ngine machining and assembly must be segregated by end product division without regard to engine interchangeability or relative operating costs of different plant sizes." Another criterion, which stemmed from the Executive Committee's earlier decision to lessen the company's dependence on the Rouge (thereby making the company less vulnerable to crippling strikes), called for the Rouge to supply no more than half the engines needed by the company. By relaxing this second criterion while preserving "the rule of organizational separation," McNamara proposed an entirely different strategy for meeting the company's engine needs. He called it "Plan A." The details of Plan A need not detain us here except to note that it also included a provision for the purchase of all castings for the new Ford and Lincoln overhead-valve engines. The bottom line, McNamara promised, was a savings of some \$46 million in investment and manufacturing costs.¹⁹

18. "Forward Engine Program Facilities Study," 4 November 1949, included in the Minutes of the Executive Committee, 4 November 1949.

19. Robert S. McNamara to T. O. Yntema, 18 November 1949, Ford Industrial Archives, 65-71:14. McNamara's Plan A called for the production of the new Ford 6 to be carried out at the Rouge. It thus violated one of the company's explicit criteria, which was to lower the Rouge's

McNamara's Plan A reopened a matter that Harder thought had been settled, and it put Harder very much on the defensive. Above all, it led to the pivotal Executive Committee meeting of 2 December 1949. Several members of the Facilities Committee attended the meeting, plus assorted other managers. Harder began the meeting by presenting the Manufacturing Division's point-by-point assessment of the costs associated with McNamara's Plan A.²⁰ By the time Harder had finished, Plan A lay in shambles, and the Executive Committee had rejected the principal elements of the McNamara plan.

Harder then distributed—and read—a new memorandum to the Executive Committee in which he reassured the committee members that the plan they had approved a month earlier had been well formulated. The Facilities Committee, Harder stressed, had carefully developed twenty alternative plans of which he had presented only the four most attractive ones. He reiterated that the Executive Committee's decision to build two new engine plants was sound. Presenting locational data for the two new plants, Harder then asked the committee to make a decision about where the plants would be built. The choices included Detroit, Chicago, and Cleveland and combinations thereof. With these choices Harder also presented cost estimates that included site costs, tax burdens, and freight rates but did not include wage rates and "labor efficiency" figures in each of the cities.²¹ As the minutes of the meeting note, discussion then "ensued."²²

When the meeting adjourned, the committee had determined to build only one new engine plant (complete with foundry) and to locate it in Cleveland. But unlike either the previously approved plan or McNamara's Plan A, the Cleveland plant would be built to manufacture 4,000 to 4,500 engines a day—essentially the combined daily output projected for the two previously approved plants. "The actual mix of engines to be manufactured in the new plant," note the minutes, "would be the subject of further study." The Executive Committee also reaffirmed the Facilities Committee's original recommenda-

production to 50 percent of the company's parts needs for any major product. (This particular criterion will be discussed below.) McNamara suggested that the company simply purchase castings for the new Ford 6 as well as those for the new Lincoln V-8. With some minor rearranging, he argued, the Rouge's foundry could produce the castings for the new Mercury V-8. He also suggested other alternatives to the approved plan, including using the company's Detroit-Lincoln plant for engine manufacture.

20. The Manufacturing Division's critique of McNamara's Plan A was submitted formally in a memorandum, "Facility Cost Study Comparison," dated 30 November 1949 and distributed to those attending the Executive Committee at its meeting of 2 December 1949. I have not located this actual document but have drawn its conclusions from the Minutes of the Executive Committee Meeting, 2 December 1949.

21. Delmar S. Harder to Henry Ford II et al., "Forward Engine Program—Facilities Study," 2 December 1949, Ford Industrial Archives, 65-71:14. Harder noted in this document that "the location of all three plants in Detroit provides the lowest cost point," but Breech annotated his copy of the locational cost comparisons pointing out that "no effect on costs [is] given to labor efficiency by locations."

22. Minutes of the Executive Committee, 2 December 1949.

tion to raze the Rouge's old Motor Building and to relocate and upgrade the classic Ford V-8 engine production to the site's Parts and Accessories Building.

The minutes of the same meeting also show that immediately after making its decisions on engine production, the Executive Committee deferred "consideration of the question of whether or not to make the Buffalo Stamping Plant a part of the Ford Division until such time as the plant was in full production."²³ The Buffalo Stamping Plant was then under construction, the first major components-manufacturing plant built by Ford Motor Company in the postwar period. The Buffalo Stamping Plant accorded with the Executive Committee's clearly delineated strategy of locating manufacturing capacity away from Detroit and the Rouge, thereby lessening the company's vulnerability to the labor militancy that had gripped Detroit and the Rouge since 1937. The committee sought in particular to restrict the company's dependence on the Rouge for any component to no more than 50 percent of total company needs.²⁴ Although the Buffalo plant had been authorized before the Executive Committee had created the Ford Division, Lewis Crusoe had staked a strong claim on organizational control of the new plant, arguing that its capacity should be devoted to Ford (as distinct from Mercury and Lincoln) products and that such a move would advance significantly the company's commitment to the principles of multidivisional decentralized management. Crusoe had carefully timed submitting his claim to the Executive Committee until it had embraced the recommendations of the Facilities Committee, which, as already suggested, it had done 4 November when it authorized an expenditure of \$187.4 million for two organizationally distinct engine-manufacturing plants. To Crusoe, this authorization was the clearest signal yet sent that the Ford Motor Company was truly serious about decentralization.

At this pivotal meeting of 2 December, however, the Executive Committee had undone its original decision to build two separate engine plants of different scales, each to be managed by an autonomous division, and it had decided instead to build a single, large-scale engine plant, the managerial control of which it left in the air. Executives had also equivocated on assigning managerial responsibility for the new Buffalo Stamping Plant. Soon afterward, however, the committee determined to vest responsibility for both the Buffalo Stamping Plant and the Cleveland Engine Plant, as well as their counterparts

23. *Ibid.* That the organizational responsibility for the Buffalo Stamping Plant was problematic is indicated by a set of documents in Breech's papers in which Harder and Breech struggled to draft a document that laid out the issues surrounding organizational responsibility for the plant. The final draft was issued as an executive communication to all members of the Policy Committee, 15 November 1949, Ford Industrial Archives, 65-71:7.

24. Executives had reaffirmed this decision in May 1949 when Ford Motor Company was hit by a twenty-four-day strike that cost it 1.7 million man-days of labor at a moment when the company was unable to satisfy the market for its cars. For more information and perspective on Ford's postwar labor situation, see David A. Hounshell, "Planning and Executing 'Automation' at Ford Motor Company, 1945-1965: The Cleveland Engine Plant and Its Consequences," in *Fordism Transformed: The Development of Production Methods in the Automobile Industry*, ed. Haruhito Shiomi and Kazuo Wada (Oxford: Oxford University Press, 1995), 56-58.

at the Rouge, in a “group” of the Manufacturing Division named the Engine and Pressed Steel Group.²⁵

The decisions made by the Executive Committee were clearly tantamount to the company’s abandonment of its strategy to rebuild Ford Motor Company in the image of GM. Without planning on it or considering the issue in a larger strategic context, the Executive Committee had essentially decided to end the three-year drive toward decentralization along product division lines, which Henry Ford II, Ernest Breech, and other executives recruited from GM had seen as the key to the renaissance of the Ford Motor Company. Instead, the Executive Committee set in motion a retreat from reorganizing the company based on products and a return of the Ford Motor Company to its historic, production-centered strategy. The imperatives of production ultimately overrode all other organizational matters. How did this happen?

5.2 What “Ensued” at the Executive Committee Meeting? An Exploration of Decision-Making and Organizational Capabilities

The official minutes of the Executive Committee’s meeting of 2 December clearly note that after Del Harder had made his case for the wisdom of the Facilities Committee’s original recommendations, “[a] general discussion then ensued.” These minutes note further that following this discussion, the Executive Committee made its already-outlined decision “upon motion duly made, seconded, and unanimously carried.” The recording secretary included no rationale for the decision, and no discussion is recorded in the minutes.²⁶

What went on in the Executive Committee meeting? Why did the committee change its decision about how future engines would be produced and what organizations would manage engine manufacture? What phenomena of organizational behavior or rules for decision making might have governed the final outcome? Did “organizational learning” occur as a result of this meeting or between meetings? What follows is an exploration of several hypotheses that might account for the phenomena observed at this meeting.

One simple possible explanation for the Executive Committee’s major reversal in its strategy might go as follows: Henry Ford II and his lieutenants misunderstood or miscomprehended the organizational tenets of GM and the full implications of those tenets for the Ford Motor Company until questions emerged about the Facilities Committee’s recommendations for the company’s future engine-manufacturing program. Although there is some merit to this argument, it must be weighed against the strong evidence that Ford’s executives well understood the organization of GM. Henry Ford II’s principal mentor after 1946 was, as has been already noted, Ernest R. Breech, a man who had

25. Henry Ford II to Vice Presidents et al., 27 December 1950, Ford Industrial Archives, 65–71:39.

26. Minutes of the Executive Committee, 2 December 1949.

risen to the top of one of GM's divisions and who succeeded in attracting to Ford Motor Company several highly successful managers who had gained experience in several divisions of GM. After Breech joined Ford as executive vice president, he conducted thorough briefings for Ford's top and middle managers about decentralized management principles through a series of "Management Meetings," which were tape recorded and out of which were published carefully prepared reports that were circulated throughout the company. Delivered 13 May 1947 at a meeting devoted to "Organizational Problems and Plans of the Ford Motor Company," Breech's first, foundational briefing was a tour de force. It presented a clear and persuasively argued case for the decentralization of management at Ford, and it clearly carried the endorsement of Henry Ford II.²⁷ In subsequent Management Meetings, other top Ford executives laid out how the principles of decentralization were being implemented in their respective domains of expertise and operations.²⁸ Never before in the history of the Ford Motor Company had such attention been given to matters of organization. In short, the evidence is overwhelming that Ford's executives well understood the principles of decentralized management.

Yet the application of these principles to Ford Motor Company proved to be particularly problematic. Ford was a highly centralized organization that historically had answered to the commands of a single voice—the firm's recently deceased founder, Henry Ford, who had publicly ridiculed the idea of organization and boasted that his company had no organization charts. The Flivver King was now gone, and his grandson commanded the company with a far greater appreciation of organization and organizational principles. But the decentralization of the Ford Motor Company was not straightforward. The company produced only three models of automobiles—the Ford, the Mercury, and the Lincoln. Henry Ford II had created the Lincoln-Mercury Division as one of his first acts of leadership of the beleaguered company, and, as noted, the company had established a Ford Division in early 1949. But deep questions of divisional autonomy existed, and surely much of the discussion on 2 December revolved around this issue. Since 1946, top executives in the company had bandied about the idea of creating an entirely new division of the company to manufacture and market a new European-style "lightweight" automobile. Discussion had grown so serious that the company formally announced the creation of a Light Car Division in August 1946. The new division appeared on organization charts circulated within the company and was always part of strategic discussions at the executive level.

Planning for the design, styling, manufacturing, and marketing of the small

27. Ford Motor Company, Report of Management Meeting, May 1947, Ford Industrial Archives, 65-71:36.

28. See, for example, Del Harder's presentation on the application of decentralization principles to the Manufacturing Division in "The Manufacturing Story," Ford Motor Company, Report of Management Meeting, no. 9, March 1948, Ford Industrial Archives, 65-71:36.

car proved to be problematic, however. The Ford Motor Company had rapidly deteriorated during World War II. Conversion of the company's manufacturing capacity to wartime products, the long, painful death of the company's president Edsel Ford (Henry Ford's son, whose administration had often been undermined by his father), palace intrigue over who would take the reins of the company, and failure to invest in new plant and equipment had crippled the company. During the war, the Roosevelt administration had actually considered taking over the management of the company because it deemed Ford's manufacturing assets and capabilities to be a matter of national security, and when those capabilities began to slip noticeably, alarms in Washington began going off. Reconverting the company's manufacturing capacity to automobile production, getting new models designed and into production, reinvesting in new plant and equipment, and rebuilding the organization proved to be an almost overwhelming task for Henry Ford II and his lieutenants. Thus the launch of an entirely new car division kept getting pushed back as debate grew over whether the American car buyer wanted a light automobile.²⁹

From the records I have examined, I have been unable to discern clearly who were the proponents of a European-style car among Ford's top executives. Henry Ford II and Ernest Breech appear to have been among the early advocates, but this assessment is not based on particularly strong evidence. Except for one person, the opponents are even less clear. Lewis Crusoe was clearly opposed to the light vehicle idea. As noted, Breech had recruited Crusoe to Ford where he initially served as vice president for operations (i.e., as Breech's principal assistant). Crusoe and Breech had worked together when Breech headed GM's Bendix Division. After arriving at Ford in 1946, Crusoe moved to various assignments, including head of the Division of Planning and Control, controller, vice president of finance, and then, as noted, as the first head (vice president) of the Ford Division.³⁰ Crusoe was an ardent champion of decentralized managerial organization and espoused the central tenet of divisional autonomy. Although championing decentralization, Crusoe nonetheless opposed the idea of the Ford Motor Company's manufacturing a light vehicle and thus by definition opposed the idea of a Light Car Division.³¹ By 1949 when Crusoe took charge of the new Ford Division, the consumer preferences of Americans

29. The 1946–49 debate about the creation of a small “Euro-style” car was not entirely new. Officials at Ford had waged the same debate in the late 1920s and 1930s, as is masterfully recounted in Allan Nevins and Frank Ernest Hill, *Ford: Expansion and Challenge, 1915–1933* (New York: Scribner's, 1957).

30. The best account of Crusoe's background at GM and work at Ford appears in Nevins and Hill, *Ford: Decline and Rebirth*.

31. Crusoe's opposition to the light vehicle emerges in his role as head of the committee examining the company's “forward engine program,” the records of which are quite extensive and are contained in the Ford Industrial Archives, largely in the papers of Ernest R. Breech, 65–71. In addition, in an interview with me in Washington, DC, on 7 September 1994, Robert McNamara told me that Crusoe was adamantly opposed to the idea of a small car.

had become increasingly clear. The move was toward bigger and more powerful cars. Ford's top managers quietly killed the light-vehicle project.³²

Ironically the abandonment of the Light Car Division may have undermined Crusoe's designs on the Ford Division's gaining control over its own manufacturing operations, a critical element of divisional autonomy in Crusoe's opinion. With the Light Car Division no longer in the strategic plan or on the organization chart, that left only the new Ford Division and the Lincoln-Mercury Division. Some managers had argued for dividing the latter division in two, but the arguments against this easily carried the day, principally because of the small sales of the Lincoln automobile.³³ More important was the overwhelming incongruity between the size of the Ford Division and that of the Lincoln-Mercury Division. The Ford Division was essentially the Ford Motor Company. This asymmetry could well have been a crucial factor in the discussion that ensued at the Executive Committee meeting of 2 December 1949. With the company's having only one significant product division, there may have seemed little point in giving the head of this division authority over new and upgraded components-manufacturing capacity such as the projected Cleveland Engine Plant, the nearly completed Buffalo Stamping Plant, and the refurbished engine plant that was to be moved into the Rouge's Parts and Accessories Building.³⁴

Since the company had first headed down the road toward decentralization, Ford's River Rouge complex had loomed as a huge obstacle to decentralization, both physically and psychologically. The Rouge was the physical manifestation of Henry Ford's and his lieutenant Charles Sorensen's obsession with large-scale, high-throughput, integrated manufacturing. Built in the late 1910s and the early 1920s, the Rouge was designed to take iron ore and coal in at one end of the complex and to ship finished automobiles out the other.³⁵ Henry Ford's goal was to make the Rouge an autarkical empire, and certainly that was

32. The Light Car Division continued its existence until the third quarter of 1947 when the Policy Committee reversed itself within a thirty-day period, going from a decision of "full speed ahead" in mid-August 1947 to total abandonment of the Light Car Division in September after the results of a Ford-commissioned survey showed that Americans wanted bigger, roomier, faster, more powerful cars. Nevertheless, the idea of a light car remained fixed in some executives' minds and thus intruded into much of the company's long-term planning process (Nevins and Hill, *Ford: Decline and Rebirth*, 333). Even as late as 8 February 1949, the idea of a small car was still a major agenda and discussion item at the meetings of the Forward Product Planning Committee. See the minutes of the committee for that date, Ford Industrial Archives, 65-71:14.

33. Even as late as October 1949, the idea of splitting the Lincoln-Mercury Division in two was still being bandied about but not very seriously. See C. E. Bosworth to Ernest R. Breech, 19 October 1949, Ford Industrial Archives, 65-71:39.

34. Breech's thinking about the problems of organizationally situating a plant that produced parts for two or more product divisions is interesting and is laid out nicely in Ernest R. Breech to All Members of the Policy Committee, "Question of Organization Responsibility—Buffalo Stamping Plant," 15 November 1949, Ford Industrial Archives, 65-71:7.

35. On the development of the Rouge, see Nevins and Hill, *Ford: Expansion and Challenge*, which remains the best treatment of this subject. See also Lindy Biggs, *The Rational Factory: Architecture, Technology, and Work in America's Age of Mass Production* (Baltimore: Johns Hopkins University Press, 1996), 137-60.

the image that he liked to promote and that the complex itself conveyed. But by no means was that the reality, at least not in the period under discussion. After Ford Motor Company changed over from the Model T to the Model A in 1927/28 and then was forced soon after to introduce the V-8, the company had increasingly relied upon outside suppliers for its components to save on capital costs associated with model changes and to decrease changeover times.³⁶ Indeed, when Ernest Breech and his associates defected from GM to Ford, they were shocked to learn that the degree of integration at Ford was significantly lower than that of GM. They immediately set about to reintegrate the Ford Motor Company.³⁷

The Rouge figured only negatively in Ford's decentralization and reintegration plans, however. Soon after GM was humiliated with the Flint sit-down strike and was forced to recognize the United Auto Workers as the collective bargaining agent of its workers, GM's executives had initiated a strategy of dispersing its factories—locating them away from Detroit in areas where labor was believed to be less well organized and less militant.³⁸ Ford's GM expatriates quickly brought this policy into force at Ford, and the Buffalo Stamping Plant was the first of many, many plants that Ford built away from Detroit in the two decades after World War II. Ford pursued this policy in spite of its economic studies showing that unit costs for components such as steel stampings and engines would be lower if capacity were added in Detroit (including at the Rouge).³⁹

This policy of dispersing Ford's manufacturing capacity caused enormous confusion among the company's workforce (including middle managers), especially because it was implemented after the company had begun to espouse and then execute its program of decentralizing its organizational structure. Confusion about what "decentralization" really meant reached such a level soon after the company announced its plans for the Cleveland Engine Plant that Ernest Breech, Theodore Yntema (vice president for finance), Del Harder (vice president for manufacturing), and John S. Bugas (vice president for in-

36. On Ford's increasing reliance on outside suppliers, see David A. Hounshell, *From the American System to Mass Production, 1800–1932: The Development of Manufacturing Technology in the United States* (Baltimore: Johns Hopkins University Press, 1984), 300. A good indicator of Ford's reliance on outside suppliers is the company's purchase of bodies at the time the Buffalo Stamping Plant was undertaken. Ford purchased 40 percent of its bodies from outside suppliers. See Project Appropriation Request, 23 June 1949, bound in "Proposed New Pressed Steel Plant," Ford Industrial Archives, 65–71:41.

37. Oral History Interview with John Dykstra, Ford Archives, accession 975, box 1, Dearborn. For quantitative estimates of Ford's and GM's relative degrees of integration, see Harold Katz, *The Decline of Competition in the Automobile Industry, 1920–1940* (New York: Arno Press, 1977), especially chapter 6.

38. On GM's dispersal policy, see Douglas Reynolds, "Engines of Struggle: Technology, Skill, and Unionization at General Motors, 1930–1940," *Michigan Historical Review* 15, no. 1 (1989): 69–82; James M. Rubenstein, *The Changing U.S. Automobile Industry: A Geographical Analysis* (London: Routledge, 1992).

39. Studies for what became the Buffalo Stamping Plant and the Cleveland Engine Plant showed Detroit, especially the Rouge, to have the lowest costs.

dustrial relations) felt compelled to give a company-wide briefing to tell managers and workers that the geographic dispersion of Ford's manufacturing capacity was not what the company meant by decentralization of management.⁴⁰ Geographic dispersion and organizational decentralization might have confused the bulk of Ford's workforce, but certainly the company's top managers understood these two strategies were not to be confused with each other even though they could be complementary. As Lewis Crusoe well recognized, the Facilities Committee's recommendation to the Executive Committee to build two separate engine plants away from Detroit, each managed by a different division, would simultaneously meet each condition.

The configuration of the huge Rouge plant's operations, which reflected the obsession of the post-1918 Model T Ford Motor Company with technically "efficient" production to the exclusion of other cost considerations, stood as a huge impediment to decentralization of management. In many respects, the Rouge *was* the Ford Motor Company, and to parse the company into autonomous divisions meant parsing the Rouge. And it simply would not parse along product lines. Despite considerable efforts by managers and executives who truly wanted to see the decentralization of Ford management *and* who truly understood the company's manufacturing operations, the Rouge would parse only along functional lines (steel production, foundry, engine plant, parts and accessories, etc.). The Ford Motor Company's assembly operations appear to have been the only easily product-parsed manufacturing facilities of the company, but this situation must have been so self-evident to executives that they never spent any time discussing it.

So, to return to the original hypothesis, does possible confusion over organizational principles on executives' parts stand up to the test? The evidence suggests that Ford's top executives well understood the principles of decentralization but that Ford's in-place physical assets—especially the Rouge plant—made the literal decentralization of the company along product lines problematic at best and impossible at worst. The simultaneous dispersal of manufacturing capacity away from the Rouge and the vesting of managerial responsibility for these new manufacturing assets in the hands of autonomous product divisions would certainly have moved the company toward its publicly articulated strategy of decentralization. Even committing the company to the long-term reorganization of the Rouge along product lines without dispersal away from the Rouge would, in theory at least, have been possible but was apparently ruled out. This discussion has centered only on the company's physical assets, and surely the Rouge's physical structures were paralleled by human, organizational assets that might also have seemed difficult to parse along product as opposed to functional lines.

But what explanation will hold up? In his Fels Lectures on Public Policy

40. Ernest R. Breech, "Decentralization—What It Is and How It Works"; T. O. Yntema, "The Profit Center System"; Delmar S. Harder, "Decentralization in Practice"; John S. Bugas, "Decentralization and Ford Men and Women"; all in Ford Industrial Archives, 71–20:5.

Analysis, published in 1974 under the title *The Limits of Organization*, economist Kenneth Arrow suggests that individuals and organizations develop “codes” that govern their operation over time. He uses the term “code,” as he notes, “both literally and metaphysically. It refers to all the known ways, whether or not inscribed in formal rules, for conveying information.” As Arrow argues,

[O]rganizations, once created, have distinct identities, because the costs of changing the code are those of unanticipated obsolescence.

Becker and others have stressed that a significant part of accumulation of human capital consists of training specific to the needs of a firm, an input of information to the worker which increases his value to the firm but not to other firms. . . .

One might ask, as one does frequently in the theory of the firm, why all firms do not have the same codes, so that training in the code is transferable? In the first place, in this combinatorial situation, there may easily be many optimal codes, all equally good, but to be useful in a firm it is important to know the right code. . . .

In the second place, history matters. The code is determined in accordance with the best expectations at the time of a firm’s creation. Since the code is part of the firm’s or more generally the organization’s capital, as already argued, the code of a given organization will be modified only slowly over time.⁴¹

Arrow’s notion of “code” has not been developed directly by many scholars, but it bears some semblance to ideas developed in the late 1980s and early 1990s by a wide range of scholars, all writing in one way or another about organizational capabilities.⁴²

In their highly influential, now-classic article, “The Core Competence of the Corporation,” C. K. Prahalad and Gary Hamel identify “core competencies” as those things that provide a firm competitive advantage over another firm, all else being equal.⁴³ David Teece, Gary Pisano, and Amy Shuen define core

41. Kenneth J. Arrow, *The Limits of Organization* (New York: Norton, 1974), 55–56.

42. This paper cannot purport to offer a comprehensive review of the literature on the organizational capabilities view of the firm. The following pieces do offer such a review: Alfred D. Chandler, Jr., “Organizational Capabilities and the Economic History of the Industrial Enterprise,” *Journal of Economic Perspectives* 6, no. 3 (1992): 79–100; Richard N. Langlois, “The Capabilities of Industrial Capitalism,” *Critical Review* 5 (1992): 513–30; Dorothy Leonard-Barton, “Core Capabilities and Core Rigidities: A Paradox in Managing New Product Development,” *Strategic Management Journal* 13 (1992): 111–25; Ross Thomson, ed., *Learning and Technological Change* (New York: St. Martin’s, 1993) (see especially the chapters by Chandler and William Lazonick); Richard S. Rosenbloom and Clayton M. Christensen, “Technological Discontinuities, Organizational Capabilities, and Strategic Commitments,” *Industrial and Corporate Change* 3 (1994): 655–85; William Lazonick and William Mass, eds., *Organizational Capability and Competitive Advantage: Debates, Dynamics, and Policy* (Brookfield, VT: E. Elgar, 1995). Of course, the work of Edith Tilton Penrose, *The Theory of the Growth of the Firm* (New York: Wiley, 1959), is fundamental.

43. “The Core Competence of the Corporation,” *Harvard Business Review* 68 (May 1990): 79–93.

capabilities as “a set of differentiated skills, complementary assets, and routines that provide the basis for a firm’s competitive capacities and sustainable advantage in a particular business.”⁴⁴ Historians such as Alfred Chandler and William Lazonick have for a long time been using the concept of organizational capabilities to account for some firms’ superior performance relative to their competitors, all else being equal.⁴⁵

Dorothy Leonard-Barton, however, has argued that core capabilities carry with them a Janus-faced twin, “core rigidities.” As she explains, “Core rigidities are the flip side of core capabilities. They are not neutral; these deeply embedded knowledge sets actively create problems.” Leonard-Barton maintains, moreover, that “core rigidities are more problematic for projects that are deliberately designed to create new, nontraditional capabilities.”⁴⁶

Within the evolutionary economics framework constructed by Richard Nelson and Sidney Winter, we find concepts that bear some similarity to Arrow’s notion of codes and the core capabilities ideas described above.⁴⁷ Nelson and Winter speak of informal decision rules and routines that economic actors, including firms, develop over time, which in large measure govern their behavior and performance. Some firms’ decision rules and routines bring favorable (i.e., asymmetrical) returns in an environment. These firms flourish. A change in the environment (e.g., a change in the underlying technology of an industry) can eliminate these firms unless either these decision rules and routines work well in the new environment or a firm changes its decision rules and routines.⁴⁸

Was the Executive Committee meeting of 2 December 1949 an occasion in which the “code” of the Ford Motor Company, which the organization acquired early in its history when Henry Ford and his lieutenants were committing the company to mass-production principles, overtly expressed itself in the decision to build a single, large-scale plant that would yield engines of the lowest unit cost? Was the “GM code” brought to Ford by Breech and the other high executives too meager to produce any radical shift in the company’s behavior? Were the costs of changing the Ford code too high? Had the former GM executives, such as Vice President for Manufacturing Del Harder, fallen into the Fordist decision rules and routines of old, opting for the principle of lowest unit cost at whatever the cost of organizational design, product flexibility, and other benefits attributed to decentralized divisional autonomy? Did the decision to build

44. “Firm Capabilities, Resources, and the Concept of Strategy,” Consortium on Competitiveness and Cooperation Working Paper 90–9, Center for Research in Management, University of California, Berkeley, 1990, as quoted in Leonard-Barton, “Core Capabilities and Core Rigidities,” 112.

45. See note 43 above. See also Alfred D. Chandler, Jr., *Scale and Scope: The Dynamics of Industrial Capitalism* (Cambridge: Harvard University Press, 1990).

46. Leonard-Barton, “Core Capabilities and Core Rigidities,” 118.

47. Richard R. Nelson and Sidney G. Winter, *An Evolutionary Theory of Economic Change* (Cambridge: Harvard University Press, 1982).

48. See also the now-classic paper by M. L. Tushman and P. Anderson, “Technological Discontinuities and Organizational Environments,” *Administrative Science Quarterly* 31 (1986): 439–65.

a single plant revolve around Ford executives' realization that rather than emulate GM the company had to rely upon and indeed renew Ford's fundamental core capabilities—efficient production engineering—to gain competitive advantage? Or was the decision a manifestation of core rigidities in which the logic of “but we've always done it this way” gained the upper hand?

The work of the Facilities Committee had been carried out in parallel with that of another committee created by the Executive Committee, the Forward Product Planning Committee, the group charged with developing medium- and long-range strategies for putting new Ford products on the market. Membership on the two committees overlapped to a certain degree, and clearly the most important overlapping member was Del Harder. Harder was joined on the Forward Product Planning Committee by, among others, the vice president for engineering (Harold Youngren, another defector from GM) and the vice president for finance (Theodore O. Yntema, who came to Ford from the business school at the University of Chicago). When the committee took up its work in the autumn of 1948, it had to deal with the question of exactly what engines would be going into the company's projected models. Indeed, the company's entire “forward product planning” revolved around decisions about engines. This fact is made clear by the review of the forward engine program carried out by the Finance Division when it was headed by Lewis Crusoe, just before he became the head of the Ford Division. This review fed into the work of the Forward Product Planning Committee.

For its review, the Finance Division, with the concurrence of both the Engineering Division (product design) and the Manufacturing Division, established at the outset five first principles or basic assumptions to guide the formulation and execution of its strategy vis-à-vis engines. One principle simply stipulated which new engine would be built first, while the second stated that the daily capacity figures were to be derived from estimations of anticipated sales of the new models. These two principles were highly pragmatic and had virtually no radical implications for the company's organization and operational routines. The third and fourth principles had rather profound implications that may well have conditioned the discussion that ensued on 2 December. Engines put in future products, the third principle specified, “would be processed without limitation by present practice.” That is, the company would not be bound by present manufacturing technology in the manufacture of new engines. This principle in effect declared that the company would pioneer new manufacturing technologies. The fourth principle stated that the new engines “would be made without regard to the present facilities” (i.e., the Motor Building at the Rouge and perhaps even the entire Rouge plant). This principle was certainly consistent with the company's emerging policy of dispersing capacity outside of Detroit. For the purposes of establishing high and low investment information, the cost of the “ideal” production process for engines would be estimated if installed in an entirely new plant (high) and if “fitted into existing buildings with a minimum of outside plant” investment (low). The committee's fifth prin-

ciple was that the Ford Motor Company should manufacture all its engines rather than relying upon any suppliers.⁴⁹

The Executive Committee, therefore, carried out its discussion on 2 December in the context of several of its members' having earlier committed themselves to the principles of self-sufficiency and of not being bound by present manufacturing technology and present manufacturing facilities. Did these commitments conflict with the organizational design principle of building two separate engine plants, each different in scale, each with different unit costs, and each managed by autonomous product divisions? In other words, did the organizational design principle so conflict with the self-sufficiency and technology principles as to be undermined by the latter?

Or did the plan that was adopted by the Executive Committee represent a compromise among those who attended the meeting? Here, too, history matters. When Henry Ford II took charge of the Ford Motor Company and set out to rebuild the failing enterprise, one of his first high-impact decisions was to hire as a package a group of ten young, intelligent, ambitious men who had been part of the enterprising and highly successful Office of Statistical Control within the Army Air Forces during World War II. Headed by their commanding officer, Charles B. "Tex" Thornton, who had created and managed the Office of Statistical Control, the group quickly became known as the Whiz Kids. Although none had ever set foot in an automobile plant, the group (both individually and collectively) maintained that they had the analytical skills necessary to manage any complex undertaking, including automobile manufacturing. Henry Ford II bought into this argument, and even after Ernest Breech and the other GM managers joined the Ford Motor Company, the Whiz Kids continued to impress their mark on the company. Two of the Whiz Kids would go on to become presidents of the company, and four would become vice presidents. Only the commander of the Whiz Kids, Tex Thornton, encountered rough waters at Ford. Thornton aspired to great things; Breech did too. Soon after joining Ford and seeing Thornton's mode of operation, Breech informed Henry Ford II that the company was not big enough for both Thornton and himself and that the president had to choose who was going to stay. Henry Ford II chose Breech. The remaining Whiz Kids, however, played critical roles in the rebuilding of the Ford Motor Company, and their talents and drive were quickly appreciated by Breech and his lieutenants from GM.⁵⁰

49. L. D. Crusoe to Henry Ford II, "Preliminary Review of Proposed Engine Program," 13 December 1948, Ford Industrial Archives, 65-71:14. As already noted, the GM personnel who came to Ford in the immediate postwar period were surprised at the extent to which Ford relied upon external suppliers for its major components. They believed that a high priority for the new Ford company should be to reintegrate manufacturing. The construction of the Buffalo Stamping Plant was predicated in large part in reducing Ford's dependence on outside suppliers for 40 percent of its bodies and body parts.

50. The history of the Whiz Kids is treated in Nevins and Hill, *Ford: Decline and Rebirth*; David Halberstam, *The Reckoning* (New York: Morrow, 1986); John A. Byrne, *The Whiz Kids: Ten Founding Fathers of American Business and the Legacy They Left Us* (New York: Currency Doubleday, 1993).

Since none of the Whiz Kids possessed experience in manufacturing operations, their principal work at Ford centered on organization, information, and analysis. Their fundamental premise was that, if the company could develop an effective system of information flow and control, they could maximize its performance using decision methods that some had learned at Harvard Business School before the war and that the group had developed further in the Office of Statistical Control during the war. Fundamental to this process was the reduction of information into quantitative units. Quantification of information allowed its manipulation while also ostensibly eliminating the bias that typically attended assessment of qualitative information. In the postwar years leading up to the 2 December meeting, the Whiz Kids had worked valiantly to develop an information-generating and -control system that Ford's top management could use to know truly what was going on within and at all levels of the corporation. This system went well beyond a traditional financial accounting system that kept tabs on monetary transactions. The Whiz Kids developed a control system that measured a wide spectrum of corporate performance—all based on quantitative indices.

The epitome of the Whiz Kids' fundamental belief structure was Robert McNamara, who by the time of the 2 December meeting was the Ford Motor Company's controller. He had studied and taught business management at Harvard Business School, where he had become a disciple of Robert Anthony, a professor of accounting whose philosophy was that accounting should provide the principal means of control and decision making in the corporation. Under Anthony, McNamara had mastered the case on return-on-investment calculations and decision criteria that Donaldson Brown had developed at the Du Pont Company and had then transferred to GM after Du Pont gained control of GM in 1919.⁵¹ Under Tex Thornton, McNamara had carried out statistically rich analyses of the Army Air Forces' operations that he believed could both account for and optimize that service's performance in the conduct of the war. At Ford, McNamara fell under Lewis Crusoe's wing, essentially following Crusoe's movement up the command structure while mastering the lessons the former assistant treasurer at GM taught him. McNamara had backed up Crusoe's work on the Forward Product Planning Committee, and after Crusoe became the first head of the Ford Division, McNamara, now controller, had served on the Facilities Committee with Crusoe, where he clearly supported Crusoe's pursuit of a GM structure and strategy at the Ford Motor Company.

Yet McNamara went beyond Crusoe in his work as controller. Under McNamara, the Controller's Office extended its reach throughout the corporation, gathering increasing amounts of information and using that information to assess—and challenge—the operations and decision making of units throughout the company. McNamara's 18 November memorandum questioning the Executive Committee's 4 November decision to build two engine plants in accor-

51. In an interview with me in Washington, DC, 7 September 1994, Robert McNamara was still able to recite chapter and verse of the principal aspects of Donaldson Brown's ROI formulation.

dance with the recommendations of the Facilities Committee (of which he was a member) typified his mode of operation, forcing managers like Del Harder to develop arguments that could withstand McNamara's quantitative challenges to operational and strategic decisions.

McNamara's memo was unquestionably the catalyst that forced the Executive Committee's reassessment of its earlier decision to build two separate engine plants. But what role did McNamara actually play in the 2 December meeting? Certainly the minutes of the meeting make clear that Del Harder succeeded, point by point, in showing how McNamara's plan to supply engines—developed only from numerical analysis rather than operational experience that took account of reality—simply would not work. But if McNamara's plan was rejected, does this mean that McNamara's credibility was effectively undermined at the meeting and in subsequent events at Ford? Certainly the postmeeting evidence suggests that McNamara's star continued its meteoric rise at Ford. (McNamara succeeded Crusoe as head of the Ford Division and then became president of the entire Ford Motor Company not long before he departed to become secretary of defense under President John F. Kennedy.)⁵² McNamara's challenge to the Facilities Committee's recommendations, as he went out of his way to point out, in no way questioned the organizational design criterion of preserving divisional autonomy over engine manufacture that had been fundamental to all product planning and corporate-wide organizational changes during the previous three years. Yet when the Executive Committee ended its meeting on 2 December, it had taken actions that, (1) essentially realized the spirit of McNamara's 18 November memo, which was fundamentally intended to save the company money, and (2) essentially abandoned the principle of divisional autonomy over manufacturing operations.

Was this outcome a compromise offered by Controller McNamara? Did it provide the proponents of Fordist lower unit costs with what they wanted (presumably a bigger, more specialized plant) while promising the proponents of divisional autonomy an attractive alternative? What was the alternative, and what role would McNamara have had in offering it? Although evidence is lacking from the meeting itself, postmeeting evidence suggests that McNamara could well have forged the compromise, a compromise in which his own office stood to gain as well. The compromise was simple: maintain the historic strength ("code," "core capability," "routine") of the Ford Motor Company by building the largest-scale, most technologically advanced, lowest-unit-cost facility to be managed by the Manufacturing Division; at the same time, employ the emerging information and control system being developed by the Controller's Office to allow the heads of product divisions to monitor costs and quality of components being made by the Manufacturing Division and "sold" to the

52. Byrne, *Whiz Kids*, provides a biographical sketch of McNamara and his subsequent career beyond Ford, but the best biography of McNamara published to date is Deborah Shapley, *Promise and Power: The Life and Times of Robert McNamara* (Boston: Little, Brown, 1993).

product division. The development of what became known as “transfer pricing systems” would allow the Ford Motor Company to develop itself into a hybrid organization—a firm showing many of the dominant characteristics of the highly centralized, efficient-manufacturing company that Henry Ford had first built while providing an ersatz or virtual expression of the information flows, accounting mechanisms, and control structures that characterized a multidivisional, decentrally managed organization like GM. Massive flows of quantitative data and sophisticated methods of analyzing these data—things that the Controller’s Office was specializing in—provided the key to this step. The controller would provide the heads of divisions with the means to gain all the benefits of decentralization without its higher unit manufacturing costs.

5.3 The Outcome

Whether Robert McNamara actually invoked transfer pricing as a kind of *deus ex machina* at the Executive Committee meeting of 2 December can only be a matter of pure speculation.⁵³ The same is true with our own offering of “codes,” “core capabilities,” “core rigidities,” and “organizational routines,” as mechanisms that account for the Executive Committee’s about-face of 2 December 1949. Readers may well have their own framework for explaining what ensued at the meeting. But the actual *outcome* of the Executive Committee’s decision at this fateful meeting is definitely not subject matter for speculation. The decision led directly to the design, construction, and opening of the Cleveland Engine Plant, complete with its own automated foundry. Less than six weeks after the Executive Committee’s meeting, the Ford Motor Company purchased a 200-acre tract of land in Brookpark, Ohio, a community adjacent to the Cleveland Airport. Five months later, construction began at the site, and in December 1951—two years after the fateful meeting—production of six-cylinder overhead-valve engines began at the Cleveland Engine Plant.⁵⁴ The plant itself was hailed as the most advanced factory in the world, and its opening will forever be tied to the advent of “automation,” a word that Ford’s Del Harder coined to describe the automatic loading and unloading of workpieces in machinery such as stamping presses and machine tools and the automatic movement of these workpieces between such machines.⁵⁵ The Cleveland Engine Plant was a piece of pure Fordism. It consisted of highly specialized ma-

53. This statement is only partially true. In my 7 September 1994 interview, McNamara asserted that his control system and especially the development of transfer pricing allowed Ford to reap the benefits of centralized management of production while maintaining a semblance of decentralization. McNamara went on to say that many of the Ford executives from GM remained so wedded to the GM way of doing things that they could not function well in the new Ford organization.

54. The development and early operation of the Cleveland Engine Plant are treated in Hounshell, “Planning and Executing ‘Automation.’”

55. James R. Bright, *Automation and Management* (Boston: Harvard Business School, 1958); Joseph Geschelin, “Engine Plant Operation by Automation,” *Automotive Industries* 106 (1 May 1952): 36.

chinery tied together with materials-handling equipment and fed by a continuous stream of raw materials. The pace of work at the factory was determined not by those who worked there but by the machines that dominated the factory. The Cleveland Engine Plant was the progenitor of several other automated engine plants built by Ford in the decade after 1952. Cleveland Engine Plant II was planned soon after Cleveland Engine Plant I opened; its product was geared to providing Ford's first major entrant into the rapidly developing "horsepower race" of the 1950s and early 1960s. Engine plants at Lima, Ohio; Dearborn, Michigan; and Windsor, Ontario, followed, each advancing the automation technology of the previous plant.

Although Del Harder's Manufacturing Division presided over the planning, construction, and operation of these engine plants and a host of other components manufacturing plants such as transmission factories, brake plants, and the like, the Controller's Office vigorously pursued control over the performance of these plants. The Cleveland Engine Plant itself became a battleground over cost accounting in a struggle between the Manufacturing Division and the Controller's Office. McNamara and his minions developed a costing system that projected theoretical costs and held them up against actually observed costs. This system provided algorithms by which observed costs could be adjusted to account for less-than-capacity output, but then these adjusted costs were held up against the theoretical costs to expose less-than-satisfactory operational performance. A long, heated dispute between the Manufacturing Division and the Controller's Office over Cleveland Engine Plant costs probably occasioned an actual tour of the plant by Ford's board of directors in 1954, at which time the Manufacturing Division gave an extended—and pointed—briefing about the manufacturing economics of the Cleveland plant in which data at variance with the Controller's Office was presented.⁵⁶

The battle between "the bean counters" and "the operations people" continued at Ford during the 1950s. The company's accounting and control systems became the stuff of legends during this period, and the Ford Motor Company became an important training ground for an entire generation of managers committed to quantitative analysis and management by numbers. At the same time, Ford's operations people continued to pioneer in the development of automation, and in the late 1950s the company took a vital leadership role in the standardization of transfer machines, the heart of "Detroit automation."⁵⁷ The

56. "Review of Cleveland Operations," October 1954, Ford Industrial Archives, 65–71:8. An example of McNamara's department's reviews of Cleveland Engine Plant costs is "Comparison of Monthly Costs with Planned Costs, 1952 Ford 6 Overhead Valve Engine," 24 November 1952, Ford Industrial Archives, 65–17:10. As one member of the Controller's Office wrote in 1954, "[T]he whole subject of the cost differential on engines has been such a touchy one for several years" (W. H. Guinn to L. P. Hourihan, 3 February 1954, Ford Industrial Archives, 71–2:4).

57. Ford's work on standardization of automation equipment, particularly transfer machinery, is reviewed in David A. Hounshell, "Automation, Transfer Machinery, and Mass Production in the U.S. Automobile Industry in the Post-World War II Era," paper delivered at the annual meeting of the Society for the History of Technology, London, 2 August 1996.

Executive Committee meeting of 2 December 1949 clearly offered a portent of this future.

During the 1980s, with the apparent growing weakness of the U.S. automobile industry vis-à-vis that of Japan, ironically both “bean counting” and “Detroit automation” came under attack as the root causes of U.S. decline, and of the Ford Motor Company.⁵⁸ Assessing whether this facile diagnosis was accurate will, I suppose, occupy historians and business analysts for a long time. Those who take up this subject should unquestionably ponder the events that led up to the Ford Motor Company’s Executive Committee meeting of 2 December 1949 and ask what decision rules, organizational principles, and interpersonal dynamics were in operation that day that changed the course that the company had charted a mere three years earlier.

Was the outcome of this fateful meeting preordained or inevitable? When examined through the lens of Arrow’s “codes” or Nelson and Winter’s “routines,” then perhaps the reversal taken at the meeting seems virtually inevitable. When viewed through the lens of history, Ford’s long-time and deep commitments to mass production, as embodied at the River Rouge plant, seem to have run over the attempts by some to reorient the company and to do things in a different way; the sheer mass of these commitments—both physical and psychological—moving through time gave them an inertia that was simply too great to redirect.⁵⁹ The demands of the post-World War II automobile market also surely played a role in the Executive Committee’s decision to reverse its course. Increasingly, Ford’s executives realized that, if they could just make enough cars to satisfy the enormous demand, they could return the company to profitability. The imperatives of production were enormous, and as those who have studied the postwar automobile industry have recognized, manufacturers (including the independents) pursued the same strategies of committing more deeply to Fordist production regimes. As Womack, Jones, and Roos write in *The Machine That Changed the World* (63), in 1955 “six models accounted for 80 percent of all cars sold” in the United States.

Yet even within Ford’s top ranks, sentiment remained for building a broader product line through the creation of an entirely new division that would have autonomy in both production and sales. Although most histories of the Ford Motor Company’s attempts to introduce the Edsel in 1957 focus on the car’s terrible design as contributing to the Edsel’s becoming one of the greatest disasters in marketing history, they often overlook the original idea for the Edsel. The Edsel was “created” in 1955 both to broaden the company’s product line

58. Sec, c.g., Michael L. Dertouzos, Richard K. Lester, and Robert M. Solow, eds., *Made in America: Regaining the Productive Edge* (Cambridge: MIT Press, 1989); James P. Womack, Daniel T. Jones, and Daniel Roos, *The Machine That Changed the World* (New York: Rawson, 1990).

59. Although my (more scientifically precise) language here varies from that used by the historian of technology Thomas P. Hughes, we are essentially discussing the same phenomenon. See Hughes, “Technological Momentum in History: Hydrogenation in Germany, 1898–1933,” *Past and Present* 44 (August 1969): 106–32.

and to serve as the vehicle by which the company created a new division. It led to Ford's splitting the Lincoln-Mercury Division into two separate divisions (recall that this was the same goal pursued in the immediate postwar period), an independent Lincoln Division and an independent Mercury Division (headed by the Edsel's chief promoter). The Edsel was supposed to give the Mercury Division enough product to warrant its autonomy in both sales and manufacture.⁶⁰ Ultimately, the strategy did not work, and the Lincoln and Mercury divisions were reunited. Robert McNamara, by then head of the Ford Division, opposed the plan for the Edsel. While the debacle unfolded, he pursued a different strategy of broadening his own division's product offerings, introducing the Falcon compact at the lower end and moving toward what became the Galaxie at the top end, with the traditional Fairlane in the middle. McNamara, whose promulgation of Plan A had led directly to the fateful meeting in 1948 that had reversed the strategy of decentralization of production, had triumphed again in the centralization of the Ford Motor Company. Soon, he would do the same for the U.S. Department of Defense under Presidents Kennedy and Johnson.⁶¹

Comment Sidney G. Winter

David Hounshell's paper sets forth a historical question about what happened at a single meeting that occurred at the Ford Motor Company in December 1949—but he doesn't answer the question. He just frames it very nicely, explores some possible interpretations, and then leaves it up for grabs. "Fortunately," he remarks, we do not know what actually happened during the meeting itself. We can only operate in the Sherlock Holmes mode, making inferences based on the specific historical facts that Hounshell carefully describes, and guided by our general theoretical understanding of organizations.

It is an understatement to say that I welcome the opportunity to address this challenge. In his sharply focused study, Hounshell not only invokes broad theoretical issues that have fascinated me for many years, but also raises more specific questions with historical connections to ones that I have previously encountered and thought about.¹

60. On Edsel, see Nevins and Hill, *Ford: Decline and Rebirth*, 380, 384–87.

61. On McNamara's centralization of the Pentagon, see David R. Jardini, "Out of the Blue Yonder: The RAND Corporation's Diversification into Social Welfare Research, 1946–1968," Ph.D. diss., Carnegie Mellon University, 1996.

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1. In particular, I have had the occasion to reflect on the managerial style and skills of one of the key protagonists in Hounshell's story, Robert S. McNamara. I had the opportunity for a relatively close-in view when I did a brief stint in the systems analysis office of McNamara's Pentagon in 1962.

In his quest for an explanation of the outcome of the December 1949 meeting, Hounshell considers a range of potentially helpful concepts and theoretical schemes. The key words here include several that happen to be current favorites in the strategic management literature, such as organizational capabilities, codes, routines, core competencies, and so forth.

Although there are distinctions among the ideas evoked by these terms, there is a sense in which they all come from the same family. In his classic book *Essence of Decision* (1971), Allison laid out three broad “models” (or paradigms) for understanding organizational decisions: unitary rational actor, organizational process, and bureaucratic politics. In the Allison typology, all of Hounshell’s candidates for an explanatory role fall under the organizational-process heading. In different ways, they all assert the tendency of an organization to adhere to its own established, and often idiosyncratic, behavioral patterns. To understand what an organization did or might do in a particular situation, one must look at how it responded to similar situations in the past. In this paradigm, the very idea of a *choice* of actions is subject to skeptical scrutiny. At most, top decision makers choose from menus defined and limited by organizational processes rooted in the past. Attempts to choose things that are not on those menus produce no result, or at least no coherent result.

The puzzle that Hounshell presents relates to the *outcome* of a *meeting*. It matters which word is conceived to hold the heart of the puzzle. I am going to proceed, tentatively, on the assumption that the mystery is in the meeting. A short period of unobserved behavior of a few individuals appears to hold the key to a mysteriously sharp discontinuity between the lines of strategic thinking favored by top management prior to the meeting and the actual course of action the Ford organization subsequently followed. We have, thanks to Hounshell, a large amount of background information about the meeting, but know nothing of its details. What could possibly have happened at the meeting?

If this is the puzzle, then the organizational process model is not the right tool kit, for it is not about meetings. Allison’s bureaucratic politics model,² on the other hand, *is* about meetings—in fact, about precisely the sort of meeting that is at issue here. In Allison’s terms, this is a meeting of “Chiefs”—of top managers who have distinct and generally dissimilar realms of authority and responsibility in the organization. The Chiefs in this case are gathered in the presence of a Senior Chief (Henry Ford II), and their legitimate role in such a setting is to advise their superior on questions relating to the overall direction of the organization.

Before applying the model to the case, let me review its key features. Organizational actions are viewed as the outcomes of internal political processes or “games.”³ The participants are “players in positions”—the players are differ-

2. Also known as the *governmental* politics model.

3. Allison notes (1971, 163) that his use of the “games” terminology owes something to game theory (particularly of the Thomas Schelling variety), but at least as much to Wittgenstein’s discussion of “language games.”

entiated by their managerial responsibilities. These responsibilities are not merely different but, in general, asymmetrical—the players have different *sorts* of responsibilities. In particular, they may have different ranks in the formal hierarchy of the organization, and different status in its informal hierarchies as well.

The situation of a player in a bureaucratic politics game is complex, both motivationally and cognitively. It is axiomatic that players have personal goals, especially career goals; they would not have attained the positions that admit them to the game if they were not both smart and ambitious. Typically, both the present position of a player and the organization as a whole can be viewed, from the player's perspective, as means to the end of greater personal success in the future. It is true, of course, that some basic goal alignment between the players and the organization is provided by the fact that few players are likely to gain if the organizational ship sinks under them. Similarly, the success of the organization *tends* to advance the interests of its top managers. In general, however, a given manager has strong grounds to prefer some directions of organizational success to others; indeed, there may be successful directions that are even more disadvantageous to an individual manager than a major organizational failure would be. "A successful career in a successful organization" is the common goal of managers—common in form but sharply different in substance from one manager to the next.

These considerations underlie the bureaucratic politics principle "Where you stand depends on where you sit." It is not to be expected, for example, that a player will be the leading advocate of the view that his or her own unit should play a diminished role in the organization's future.

Cognitive biases associated with organizational positions tend to amplify the effects of imperfect goal alignment. Indeed, it is simplistic to interpret the divergent views of different managers merely in terms of their individual proclivities to pursue personal goals at the expense of the organization. In myriad ways, the player's position shapes not only the information the player receives about what is going on in the organization and the environment, but also the mental models used to interpret that information and to project the consequences of action.

For example, much of the information the manager receives is filtered through subordinates; these subordinates typically have at least as much stake in the future standing of their organizational unit as the boss does and are consequently predisposed toward an "us against them" interpretive framework for many situations ("them" being the rest of the organization). To promote morale and loyal followership, an effective leader will repeatedly emphasize the importance of the unit's work—and even if these pep talks are largely role-playing when the leader is new in the post, mechanisms of cognitive dissonance and other considerations tend in the course of time to align the leader's beliefs with the talk. Also, the leader's intraunit credibility and influence depend on his or her success in conflicts with other units; this tends to make the

leader a more ardent advocate for the unit's cause (and for subordinates' views) than might otherwise be the case.

The list continues. An important section of the list is under the heading "top managers are presumptively subject to the same cognitive biases that psychologists have repeatedly verified in experimental subjects." These biases include tendencies to overoptimism, overconfidence (an exaggerated sense of the precision of judgments made under uncertainty), a preference for dealing with confirming rather than disconfirming information (even in the absence of a motivating stake in the relevant proposition), and the "hindsight bias" of believing retrospectively that what happened was largely foreseen. Considering the nature of the processes by which people arrive in top managerial positions, it would be logical to expect that these common biases are, if anything, *more* prevalent in the selected group than in the population in general. These general biases tend to reinforce the effects of the more situational biases noted above, making them highly resistant to challenge.⁴

These cognitive effects are aspects of the principle "What you see depends on where you stand." The evidence considered, its evaluation, and the stakes identified in the situation differ from player to player because of their different stands on the issues. More precisely, what you see depends on where you stand because, for example, of the preference for confirming information. It thus depends indirectly, and partially, on where you sit. But what you see also depends *directly* on where you sit, because, for example, of information filtering by subordinates.⁵

In the context of a meeting among managers from different units—and especially a meeting of Chiefs—the above considerations establish the following structure of stakes for an individual player: (1) Enhance your long-term prospects for promotion, expansion of authority, and other rewards. (2) Increase your power, or at least don't lose power. "Power" is reflected concretely in the allocation of control of action channels, that is, the buttons and levers that actually make things happen in the organization, in the specific action channels chosen for the problem at hand (you generally want your unit to "have the action on this problem"), and in influence derived from access to superiors. (3) Be on the winning side at the end of meeting; considerations of future influence and credibility are relevant here along with the specific issues of the meeting, so there are advantages to "winning" that extend beyond those of winning on the issues, and may even outweigh the costs of an unacknowledged loss on the issues.

Turning to the case at hand, the first thing that the bureaucratic politics model does for us is to deepen the mystery considerably. To see this, consider

4. See Gilovich (1991) for a lively discussion of some of the cognitive biases explored by psychologists. These biases are highly relevant to theories of decision making, and in many ways the psychologists' findings lend support to Allison's (unacknowledged) favorite among his three models, bureaucratic politics.

5. See Allison 1971, 178.

the winners and losers from the Executive Committee meeting, invoking the above conceptualization of the players' stakes and extending the evaluation beyond the end of the meeting proper to the few weeks that followed.

The Winners: (1) Vice President (Manufacturing) Delmar Harder. Harder ultimately emerged with control of important new action channels—the Cleveland Engine Plant and the Buffalo Stamping Plant, retained his authority over the Rouge, and seemingly scored a victory at the start of the meeting over Robert McNamara's challenge to the work of the Facilities Committee that he chaired.⁶ (2) Controller Robert McNamara. In spite of Harder's demolition of his "Plan A," the meeting outcome reflected greatly increased sensitivity to the cost issues raised in his 18 November memo, and a corresponding subordination of the goal of decentralization along product lines. Further, his own office could, and did, offer a path to partial reconciliation of the competing demands of divisional autonomy and cost control.

The Losers: (1) Lewis Crusoe, vice president and head of the Ford Division. Crusoe had sought organizational control of the new Buffalo Stamping Plant, which ultimately wound up under Harder. Further, as head of the dominant (by far) product division, he had the most to gain in power terms from the company's embrace of GM-style decentralization—an embrace that ended abruptly with the meeting, leaving him with a much-diminished brand of autonomy. (2) Ernest Breech, executive vice president. From the time of his move from GM to Ford in 1946, Breech had taken the lead in promoting and explaining decentralization as the key to the revitalization of the company. Had the company stayed on track in that direction, Breech would surely have played a key role in more substantive implementation decisions—but by the end of the meeting, the company had jumped that track. (3) Henry Ford II, president and CEO. Even before the arrival of Breech, Crusoe, and Harder, Ford had taken a small step in the direction of divisionalization by creating the separate Lincoln-Mercury Division. The movement toward decentralization that Breech spearheaded obviously had Ford's support, according to Hounshell. Hence, the setback suffered at the meeting by the general cause of decentralization necessarily reflected adversely on the credibility of the company's leader. Only by embracing a compromise that differed sharply from his orientation of the preceding years did Ford manage to emerge, formally, "on the winning side."⁷

What is striking about this list of winners and losers is that the winners are junior in status to the losers. Hounshell does not concern himself explicitly with the status ranking of the participants, but, based on the evidence put forward, a reasonable estimate would be Ford, Breech, Crusoe (?—head of dominant product division), Harder (?—head of preeminent functional division),

6. "Plan A lay in shambles" (Hounshell's paper).

7. Hounshell does not tell us of any change in Ford's leadership role in the aftermath of the meeting. One might speculate that it would evolve toward something more analogous to a constitutional monarch and less to a prime minister—but whether that would happen depended substantially on Ford's own choices.

McNamara (subordinate to VP finance, functional division). Hence, the basic mystery acquires the added dimension: how did the little guys prevail over the big guys? Curiouser still: how did Harder and McNamara emerge as winners in the immediate aftermath of a period of intense conflict between them? Fratricidal warfare is not generally recommended as a tactic for coalitions. These features of the meeting's outcome would be *extremely* unexpected and puzzling in almost any organization at any time; I confine myself to the italics rather than spelling out that case at length.

To unravel this deepened mystery, I first note the possible relevance of the bureaucratic politics maxim "Beware of Option B."⁸ This maxim is a warning to the holder of formal decision-making authority, in this case Henry Ford II. It warns against a particular threat to his or her *de facto* control: if the task of defining decision options is delegated to staff and subordinates, there is a possibility that the real discretion will be exercised in the design of the options, reducing the leader's "decision" to an act of *pro forma* ratification. The appearances of decision can be preserved as this goes on, if only one of the options presented can really withstand scrutiny. More specifically, it often happens that options A, B, and C can be arrayed along a continuum, and A and C can be deliberately designed to be too extreme, each in its own direction. The problem left for the leader is one that Goldilocks would get right. The important issues were those addressed in the design of a particular candidate for the role of Option B; some of those issues may have nothing to do with the A-B-C continuum. The staff work on the problem leaves those issues hidden below the surface when the leader finally sees the options.⁹

There are some parallels between this general "Beware of Option B" scenario and what happened in the Executive Committee. There are three options, McNamara's Plan A (which comes to us as the pre-labeled candidate for the role of Option A), Harder's plan (which we label Option C), and the course of action that actually emerges from the meeting, Option B. The three options can be located on a continuum of degree of conformity to the company's decentralization principles, as those were interpreted prior to the meeting. Harder's Facilities Committee accepted those decentralization principles as axiomatic and reported accordingly. McNamara's 18 November memo rejected the axioms, particularly the idea that "[e]ngine machining and assembly must be segregated by end product division without regard to engine interchangeability or relative operating costs of different plant sizes." Conciliatory words about the "rule of organizational separation" notwithstanding, McNamara's plan was

8. Option B is discussed briefly in Halperin 1974, 210. I cannot provide a specific cite for the maxim, but it (the maxim) is definitely out there.

9. This can all transpire regardless of whether those involved in the staffing actually conspire to withhold some issues from the leader's decision, or are simply and sincerely trying to help out. The process generally is helpful to the leader in at least the following senses: (1) the task of designing Option B forces resolution of conflictual issues among subordinate Chiefs, and (2) time and attention demands on the leader are reduced. The latter benefit is less valuable when a key strategic problem is faced, as in this instance.

essentially defiant of the company's decentralization thrust. The actual outcome, Option B, is intermediate on the decentralization dimension, and intermediate in a particular way—a way that turns out to be quite favorable to the bureaucratic interests of Harder and McNamara. Finally, it seems reasonable to doubt that Option B would have been well received by Ford if it had been advanced without the context provided by A and C. Thus, there are some hints here that boss Ford was “taken”—though perhaps to his long-term benefit—by his subordinates Harder and McNamara, by means of mechanisms suggested by “Beware of Option B.” But, of course, the standard analysis does not literally apply, because Harder and McNamara did not act as a team in framing the options.

Or did they? Here, my quest for an answer to Hounshell's challenge comes to a fork in the road. Down one branch lies the suggestion that the essential dynamics of “Beware of Option B” might have arisen accidentally in the meeting, and the thought that this might have happened makes a very puzzling course of events marginally less puzzling. It is “as if” the Option B device had been employed. This interpretation has some appeal, but it requires that the “winner” status of Harder and McNamara be regarded as coincidental, and it still leaves the basic outcome quite puzzling. In particular, virtually everything that is known about the episode up through Harder's demolition of McNamara's Plan A seems to point toward a reaffirmation of the committee's decision of 4 November, supporting Option C. How could McNamara's deviant and demolished plan have carried the weight required of it in this story?

I will take the other fork, which addresses these objections but is considerably more adventuresome. On this alternative interpretation, the hints of “Beware of Option B” mechanisms are valid clues to what happened, and the dramatic conflict between Harder and McNamara was, well, drama. I postulate that Harder and McNamara reached a meeting of minds on three points: (1) that the decentralization rhetoric of Breech and Ford was fundamentally out of touch with the economic and technical realities of the Ford Motor Company, (2) that the fact that President Ford himself was firmly identified with the decentralization cause, together with the bureaucratic power and stakes of Breech and Crusoe, made it very unlikely that any straightforward challenge to the policy would succeed, and (3) that a feigned conflict between the two of them could create an opening that would get key facts on the table for discussion. Implicitly at least, they also agreed that their individual interests in “a successful career in a successful organization” could be better served by this risky maneuver than by keeping their heads down while the boss made a big mistake. In “A Docudrama” (see below) I offer my speculation as to how the Harder-McNamara interactions might have been initiated.

Even the bold assumption of a Harder-McNamara conspiracy still seems inadequate to account for the outcome. The question of how McNamara's “demolished” plan could play the role required of it still rankles. There can be

only one answer: regardless of what happened to his *plan*, not all of McNamara's *analysis* was demolished. The point to the feigned conflict, I suggest, was this: when the dust settled, the Executive Committee was left staring at an important area of agreement between the combatants. From Hounshell's discussion, it is plausible that this area of agreement might have embraced (1) the existence of significant economies of scale in engine manufacture, (2) the fact that the River Rouge plant remained a valuable asset when its costs were correctly assessed on a forward-looking basis, and (3) the fact that the Rouge "simply would not parse along product lines." Taken seriously, these considerations are enough to open the door for Option B. Of course, these points could have been raised without the feigned conflict setting—but the question "what is your main point here" would probably have arisen early, and giving the answer "to challenge decentralization" would not have promoted constructive discussion. There had to be some cover.

A Docudrama

Conversation in a hallway at the headquarters of the Ford Motor Company, circa third quarter, 1949.

Controller Robert McNamara and Vice President (Manufacturing) Del Harder are in a group leaving a meeting led by Executive Vice President Ernest Breech. Breech has spoken, once again, about the virtues of GM-style decentralization. As Harder departs, McNamara strides alongside him—this is not the way to the controller's office.

MCNAMARA: I think decentralization will bring great things to the Company in the future . . .

HARDER [*noncommittally*]: Yeah.

MCNAMARA: . . . assuming of course that you don't mind losing money.

HARDER [*startled*]: How's that?

MCNAMARA: Well, we're finally coming to crunch time between the GM model and Ford realities. We're going to see whether the model fits. Frankly, I don't see how it can—except in some very costly and unprofitable way.

HARDER: Why shouldn't it fit? It worked pretty well at GM, even if Breech does exaggerate that point a bit.

MCNAMARA: For openers, Ford is a smaller company than GM and has fewer makes of cars—and the Ford models dwarf the other two makes in sales. Are we really going to have vertically integrated divisions where each division has its own manufacturing? That would mean big cost sacrifices because of the small scale of those operations. But that seems to be the picture that's developing.

HARDER: Yeah, a multidivision company with one division that counts. You can see why Lewis Crusoe cheers for "divisional autonomy."

McNAMARA: Then there is the Rouge, which is part of your responsibility. My figures show that, with reasonable utilization, costs there could be quite low compared to anything we could do in a new facility—partly because so much of the capital cost at the Rouge is sunk. But how can you divide up the Rouge among different divisions? It just doesn't divide that way—attempting to do so flies in the face of the idea that motivated the Rouge in the first place.

HARDER: I think you're right.

McNAMARA: —and there's the question of the organizational future of the Rouge facility. I've heard people say "The Ford Division is the Ford Motor Company," and I've also heard "The Rouge is the Ford Motor Company." Now, what does that tell you?

HARDER: Crusoe expresses nothing but contempt for the Rouge—white elephant, antiquated, insuperable union problems, and so forth. But I'm not sure that he fully expresses his views.

McNAMARA: Neither am I.

[Long pause: McNamara looks at Harder; Harder stares blankly into space.]

HARDER: You know, I've been puzzled myself about how this would all work out in the end. Maybe the two of us should have lunch somewhere and talk it through.

McNAMARA: Fine by me. I'll have my secretary set it up. *[He turns and walks back in the direction from which they came.]*

A final question about the meeting is who proposed Option B, the idea of pursuing a shallower type of decentralization using transfer pricing and other control schemes to reconcile a degree of product-division autonomy with the traditional Ford pursuit of economies of scale in production. Hounshell suggests that it might have been McNamara. While it is very plausible, almost inescapable, that McNamara was a principal architect of the compromise, it would not be tactically sound for him to offer it in the meeting (certainly not in the context of my interpretation of the events, but also more generally). My candidate for this role is Theodore Yntema, McNamara's immediate superior, an economist who would attend carefully to an argument revolving about costs, present values, and transfer pricing schemes, and a comparatively disinterested party in the battle over control of production facilities. Yntema need not have been aware of the postulated Harder-McNamara conspiracy. For example, one could imagine McNamara approaching Yntema with concerns about possible conflict at the 2 December meeting, and making a request for his assistance in keeping the strongest and most important points of his analysis from being lost from view in the scuffle. With Yntema's cooperation in that regard, both Harder and McNamara could play a subdued role in the latter part of the meeting and avoid looking like the winners they were.

So much for my speculative solution to the mystery of the meeting. I now

reopen the question of whether the meeting, the outcome, or something else entirely deserves to be at the focus of attention. In many ways, my account of the meeting simply adds color to the interplay of considerations that Hounshell set forth and interpreted from an organizational-process viewpoint. Indeed, so far as the *outcome* is concerned, the episode must be scored as a triumph for the organizational process/organizational inertia family of theories. Here is the question: in its first major postwar expansion of engine capacity, the Ford Motor Company will build X new engine plants; what is X ? Three years of top management talk suggest $X = 2$ or more; a historical look at capabilities and practices suggests $X = 1$, and the latter is correct. So who needs to understand meetings?

Allison's unitary rational-actor model also deserves a credit line here. Bureaucratic stratagems and skills aside, Harder and McNamara had, in my view, something very important going for them: they were basically right. They were right at least in the sense that their analyses started from the given situation in the company—its actual “idiosyncratic resource endowment,” as the proponents of the resource-based view of the firm would describe it.¹⁰ By contrast, the decentralization efforts seem to have started from a vision of a desired end state, “be organized more like General Motors.” The difficulties encountered in explicating this goal to the Ford community may reflect the persistence of organizational “codes,” as Hounshell suggests—but it could also reflect the failure of the proponents to think the problem all the way through. Thus, in spite of dramatic contrasts between the decision process and the conventional image of rational decision, one could argue that the outcome of the meeting was largely a consequence of reality constraints surfacing. (I am more tempted by this interpretation than Hounshell appears to be.) It is a virtue of the rational-actor model that it leads one to expect reality constraints to surface sooner or later—but it can be quite misleading about when.

A final lesson about the comparative merits of the organizational process and bureaucratic politics approaches can be drawn from this discussion. The trouble with the bureaucratic politics approach is that it has an unbounded appetite for data. Hounshell's experience of discovering a great deal of information about the meeting, but not what actually “ensued,” is illustrative of a general problem. Even if he had a videotape of the meeting, he still would not know whether my conspiracy theory is correct; there is no record of the conversation in my docudrama. While I have taken unusual liberties in filling the gaps in my story with my own speculations, no one can write a bureaucratic-politics account of a decision episode without some gap-filling—particularly the passive kind that accepts “absence of evidence as evidence of absence” when ignoring the possibility of hidden manipulations, stratagems, and other factors. This is a critical weakness in the bureaucratic-politics paradigm as a scientific program, and even more critical for real-time prediction pur-

10. See, e.g., the papers in the volume edited by Cynthia Montgomery (1995).

poses—though the paradigm remains a valuable area of study for aspiring players.

The models in the organizational-process family do not suffer this weakness. Relative to bureaucratic politics, the proponents of organizational-process models take a more positivistic view: give us enough opportunity for thoughtful study of how observable events up to T have apparently shaped those at $T + 1$ in various contexts in the past, and we will come up with insights that are helpful even though T 's events are imperfectly known and even when $T + 1$ is next year. I remain committed to my own "evolutionary" version of that general approach, and must accordingly concede that Hounshell's interpretive efforts were on the right track after all.

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