Contracts, Coordination, and the Construction Industry: The Case of Worldwide Plaza, New York

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1 Introduction

This case study is about the challenges of managing a large project, the compatibility of vertical disintegration with innovation and close complementarity. The context is the construction of the Worldwide Plaza complex on the site of the old Madison Square Garden in New York over the period 1985 to 1989, which was the subject of a documentary series for Channel 4 Television and a book by the series director Karl Sabbagh (1989) (all subsequent page references in this chapter are to Sabbagh's book, except where otherwise stated). Sabbagh's account is fascinating in engineering terms but much of it is concerned with the business side of this giant project, particularly its 50-floor, 770-foot-high skyscraper. This tower was a bold architectural venture, for around 40 floors were clad with an intricate brick curtain wall. The lower floors were clad in granite and the building was topped by a massive and very expensive copper pyramid roof and a 43-foot-high glass lighting pinnacle. Its major tenants came to include Ogilvy and Mather, a major advertising agency, Cravath, Swaine and Moore, one of New York's largest law firms, and Polygram Records. This crop of prestigious tenants was the result of a major marketing effort, for Worldwide Plaza was built several blocks away from the main business district, in an area that had long been rather run down. The complex included not merely offices but also shops and

* For a slightly longer version of this case study, see Chapter 7 of Earl, P.E. (ed.) (1996) *Management, Marketing and the Competitive Process*, Cheltenham, Edward Elgar.

residential accommodation which would provide a hub for the rejuvenation of the district. Sabbagh's warts-and-all account includes material on the relationships between the property developers and the local community but is primarily focused, on the business side, on the relationships between the very large number of contractors involved in the projec—relationships that were often strained as progress fell behind schedule.

In originally preparing this case study, my primary concern was to see how it relates to the modern literature on economic organization. When I say 'relates to' I have in mind a two-way relationship: Sabbagh's book can be read more usefully by those who study it from the standpoint theories of the firm, but it also has implications about the capabilities of rival theoretical frameworks. For this reason, my analysis begins not by describing the organization of the construction project but with a short discussion of the transaction cost and resource-based perspectives from which I viewed the case as I read it. However, this case study also may help us to understand why, despite its concern with avoiding wasteful use of resources, economics has not embraced the territory of project management: as we shall see, project management is an activity in which attempts at optimization collide with the realities of deficient foresight and inconvenient surprises.

2 Theoretical perspectives

Within a firm, coordination is achieved by a managerial hierarchy. As events unfold, superordinate staff decide what should be done, and by whom, and issue directives accordingly. Subordinates then get on with the tasks allocated to them, using their own expertise and discretion as and when the need arises. The firm is a flexible, adaptable institution because many changes in its operations can be achieved within

the parameters of existing, rather vague contracts—primarily employment contracts, but also customary ways of doing business with other input suppliers. Such arrangements do much to eliminate the need to engage in costly search for, and negotiations with, new suppliers of specific services as and when the need arises, or to form complex deals with suppliers who would deliver such services contingent on a particular, previously anticipated state of the world coming about, as occurs with insurance contracts.

While firms achieve coordination by direction, well-developed markets permit coordination to be achieved via price signals in the form of offers to buy and sell particular goods and services. In pure market transactions, buyers do not direct, they ask for expressions of willingness to deliver particular goods and services under particular conditions; they choose what seem to be the best available deals and await delivery in accordance with the terms of the deal. If circumstances change in ways not accommodated by the original contract, it may be torn up and/or renegotiated, subject to penalty clauses. According to Coase (1937), the choice between these rival means of coordination will depend on assessments of the likely differences in their costs: firms are created and continue to be used to coordinate particular activities because the transaction costs of using markets are higher than the costs of using managers and vague, discretionary contracts.

The transaction cost literature inspired by the work of Coase developed particularly after extensions by Williamson (1975, 1985), who focuses on the significance of concerns that the party with whom one arranges a contract will exploit information advantages and act with 'opportunism', i.e., in a guileful, self-serving manner. Opportunism could be a problem if outside firms are hired to provide services, but it could also arise from those who are hired to provide services

internally. Hence the strategic question is which way of organizing provision of a particular service is going to be/can be designed to be the least prone to be affected by opportunism and what it entails in terms of the costs of making and trying to enforce contracts.

But although Williamson's way of analyzing business organization earned him a a Nobel Prize his transactions cost view of industrial organization has not been without its critics. The critique offered by Richardson's (1998) is particularly relevant in the context of the construction industry. He extends ideas from his classic (1972) paper in the light of two decades of practical business experience as Chief Executive of Oxford University Press. The earlier paper is well-known in the literature on the resource-based view of the firm for highlighting cooperative behavior and various forms of what are now known as quasi-integration and relational contracting as means of getting business done, and for differentiating firms not according to the products they produce but according to the activities that they undertake based on their distinctive sets of capabilities. In his 1998 paper Richardson argues, first, that the firm/market dichotomy neglects the potential role of cooperative arrangements as a third means of achieving coordination. Secondly, he suggests that in many cases where coordination is achieved by direction the choice is made not because it is a cheaper way than market contracting of getting the desired outcome but because market contracting would be incapable of achieving it. This, he contends, is particularly the case in situations of systematic complementarity.

There is a further element in Richardson's 1998 paper that needs to be noted before we move on to the case. Unlike Williamson and his close disciplines, Richardson's focus when he writes about managers in a directing role is not on a manager's role as a monitor to counter opportunism. Unlike Williamson, who has the

sort of perspective that is perhaps to be expected of scholars in the litigious US, Richardson has a much more 'Japanese-style' view of business. In his analysis, a good manager is not like a police officer but is someone who is good at judging to whom particular tasks should be given and left to get on with them, and who can judge when new instructions should be given in order to redirect activities in the face of major changes of circumstance. Opportunistic behavior, by and large, is not part of Richardson's vision because he treats relational contracting as the norm and recognizes that business takes place in a social setting where word gets around about slack or shoddy performance. Short-run temptations to engage in opportunistic activities are attenuated by the adverse long-run effects of being revealed to have behaved in such a way. In transaction cost analysis, vertical integration is portrayed as coming about due to fears that subcontractors may behave in an opportunistic manner, whereas Richardson, like other contributors to the resource-based theory of the firm (see Foss, ed., 1997), sees it as hazardous due to differences in the capabilities needed to perform tasks at different stages of a production process. In the resource-based view, vertical integration makes sense primarily in cases where there are (a) difficulties in communicating one's needs; (b) difficulties in persuading subcontractors that they should have grounds for confidence in investing in the line of production in question (particularly with new products); or (c) where no competent subcontractors can be found and by undertaking a task in-house one might develop a superior capability in the long run.

3 The organization of the project

Worldwide Plaza was developed at a cost of over $550 million by ZCWK Associates, a partnership comprising the Zeckendorf Company (whose head Bill Zeckendorf

Junior was the overall project leader), Arthur G. Cohen Properties, World-Wide Holdings Corporation, and Kumagai Gumi, a large Japanese construction company. Not long into the project a major tenancy for the lower floors of the tower was negotiated with advertising agency Ogilvy and Mather (O&M), who became not only prestigious payers of future rents but also equity partners. The primary roles of ZCWK were to acquire the land, negotiate with the New York city authorities over zoning and other issues, raise the outside finance on the strength of potential rental earnings—something that the deal with O&M made much easier (pp. 18–19)—and market the space to tenants. Virtually everything else was put in the hands of contractors and subcontractors whose bills ZCWK ultimately paid. Around 60 different types of subcontracting specialists participated in the project.

ZCWK hired Skidmore, Owings and Merrill (SOM) as architects, with partner David Childs taking the key design role and partner Leon Moed devising the system of drawings and instructions for getting things built. As soon as O&M had signed up as tenants there was considerable consultation between SOM and O&M about the design of the lower parts of the tower, though the interior designs for O&M's floors were handled by O&M's own bought-in consultants. Work on mechanical engineering (mechanical, electrical, lighting, plumbing and elevator systems) was organized by another company, Cosentini Associates. It should be noted that companies such as SOM and Cosentini offer a variety of related services—as do advertising agencies such as O&M—that could in principle be supplied by separate firms. From a transaction cost standpoint we might make sense of such partnerships in terms of their ability to offer the convenience of one-stop shopping and the hostage of a combined reputation to be placed at stake as an incentive to make sure that all functions are performed well. By contrast, the resource-based view would stress that

an unbundling of their activities into independent operations could well make sense, given their differences in expertise, were it not for the advantages that integration offered in terms of coordination.

SOM's use of in-house structural engineers, for example, was a recent policy with both advantages and problems compared with farming the work out: Sabbagh reports that, on the one hand, it led to better day-to-day communication, crucial in projects of this magnitude replete with close complementarities; on the other hand, senior SOM staff felt they had less clout with in-house engineers when things went wrong or got behind, for if they complained the engineers would eat into their budgets by going out and hiring more staff to get on top of the problem (p. 39). This instance of internalization has elements that are redolent of both theoretical perspectives but the preference for integration despite loss of clout suggests that, on this occasion, Richardson's perspective ono business organization dominates over that of Coase and Williamson.

The third major player is surely the company whose role would most fascinate both Coase and Richardson, namely, HRH, 'a company named after its three founders, Hymowitz, Ravitch and Horowitz, whose job was to manage the construction by supervising and coordinating all the different subcontractors who would actually build the building' (p. 10). In other words, the entrepreneurs, ZCWK, delegated the management role to another firm, HRH, who set up contracts and tried to ensure the goods and services were delivered to schedule.

In some cases, HRH hired subcontractors only after negotiating with them over which other subcontractors they in turn would hire to perform related tasks. An example of this complexity concerns the stonework in the lower floors. Granite for the exterior cladding was mined in Brazil and shipped to Italy for shaping alongside

Italian marble that was to be used for the main lobby floors. To facilitate erecting the stone on the unusual curving walls, it was attached first to steel trusses or, in some cases, to precast concrete moldings, and then brought to the site to be installed. The stonework in Italy was supplied by collaborators of Hunts Point, a New Jersey firm hired to erect it, which also put engineering work on the steel trusses out to a Long Island subcontractor, and put the precast concreting work out to a Canadian firm. The first engineer hired by Hunts Point to design the trusses produced a series of late, amateurish, poor quality drawings. After three months of growing impatience at HRH and SOM, HRH insisted to Hunts Point that they should fire the engineer and find a replacement who could provide detailed work at high speed (pp. 190, 193).

Further up the exterior was the brickwork and HRH contracted a firm called La Sala to lay it, using 1.2 million bricks which La Sala proposed to buy in from Glen-Gery, a brick manufacturer (p. 135). Thus when Glen-Gery's quotation for the bricks seemed too high, HRH sought to exert leverage by suggesting to La Sala that, if necessary, precast concrete, made to look like brickwork, would be used if a better deal could not be had and, in that case, La Sala would not be needed (p. 136). Another major instance of secondary subcontracting was the mechanical engineering: prime contractor Cosentini Associates put work out to a dozen other firms. Since their tradespeople were performing under pressure in cold conditions, mistakes were bound to be made by these secondary contractors but Zeckendorf and HRH did not get involved in trying to find out where responsibility lay; rather, they simply paid Cosentini as prime contractors and left them to resolve the disputes (p. 237). What we have, then, soon starts looking rather like an organizational hierarchy rather than simple contracting.

HRH's general role is an antidote to thinking about firms and markets in simple dualistic terms. In pure market-based subcontracting, a contract would be signed and, if the output was delivered late and/or below specifications, penalty clauses would come into operation or, if the subcontractor would not come up with an acceptable fix or compensation, lawyers would be brought in. Worldwide Plaza was far from being pure market-based coordination despite the great use of subcontractors: HRH's role in relation to the subcontractors was much more like that of an employer overseeing the work of employees. HRH, like a manager within a firm, did not monitor every operation of its hired agents but was there to kick up a fuss when they appeared not to be delivering, and to negotiate, normally within existing contracts, revised schedules when another contractor got irretrievably behind and wrecked the existing plans. For example, by agreeing to SOM's ideas on Brazilian granite and Italian marble, HRH appeared to have saddled itself with major scope for opportunism due to the arm's length nature of the arrangement, not least of all because the head of Hunts Point, the firm in the middle of this set of contracts, was known to have Mafia connections. But HRH did not simply wait to see if the stone was delivered as specified and then use litigation to handle any difficulties; rather, HRH sent a team of senior staff, including representatives from SOM and Hunts Point, to Italy to monitor progress with 'their' stonework (pp. 196–205). The situation was very similar to the quality control quasi-integration practiced by Qantas and Singapore Airlines whose own staff seek to maintain their firms' reputations for safety by keeping an eye on how their aircraft are being assembled in Boeing's Seattle factory. In the case of the bricks, likewise, HRH were not about to let the inconvenience of arm's length subcontracting jeopardize their schedule: they

continually sent spies to Glen-Gery's Pennsylvania brickworks to check whether their bricks were being made (p. 171).

It is very difficult to see what might be gained by going from this modus operandi of quasi-integration to having a vertically integrated property company in which employee-managers coordinated the work of employee-tradespeople. By limiting the contractual involvements to Worldwide Plaza, ZCWK ensured that all the players would need to deliver performances good enough to win future contracts. To be sure, this would mean further contract-formation costs would be incurred—the project involved 600 documents as well as contract specifications (p. 59)—but the ongoing nature of this style of contracting would ensure that the companies involved would become adept at devising and deciphering such contracts, many of which would include standard clauses. With no ties to particular types of construction methods and materials, a property developer can switch between them with ease, rather than feeling locked into particular construction modes in the event that surplus capacity could not be subcontracted to others. The sheer scale of the construction industry in New York ensured that in most trades, all of which were based on special expertise, there were many contractors between which to choose, who could offer prompt starts to work (p. 9). Moreover, the regular experience of these contractors, and their concern with their reputations in order to ensure a steady run of contracts, permits 'tight and efficient costings' (p. 10). Like the fashion textiles industry of Northern Italy, construction in New York is very much an industry that conforms to Marshall's (1890) idea of an industrial district reaping the advantages of external economies of scale.

In hiring HRH to oversee the project, ZCWK had certainly been 'thinking transactionally' in the Coase/Williamson sense, for the partnership, mindful of the

incentive structure they were creating, had chosen HRH when they might instead have used a general contractor (p. 53). Within ZCWK's scheme, HRH were counterweights to architects SOM and their success or failure would to a considerable extent be judged in terms of their ability to make suggestions that helped SOM design a building that was cheaper to erect, and not just in terms of the time taken to erect it. For example, HRH argued a case for using prefabricated parts rather than hoping that certain items could be fabricated successfully by welders working precariously high up in a cold wind (p. 55). A more major instance concerned the construction of the copper pyramid roof (pp. 250–61). Arthur Nusbaum, HRH's senior project manager, came up with what initially seemed a masterfully innovative suggestion for saving thousands of dollars by using prefabricated copper panels to simplify the construction of the roof. This enabled just one trade to be used, instead of four trades and much scaffolding. He also suggested that SOM could create a penthouse floor with an extra 10,000 square feet of rental income by moving cooling equipment up into the pyramid's space. Nusbaum expected that this would pay his salary many times over. Unfortunately, the two changes, taken together, necessitated further changes which turned out to be very costly: since the roof was no longer merely a decorative structure and its decks would need to support the weight of copper panels awaiting fitting, its steel frame had to be redesigned. There were also corrosion difficulties to be circumvented when the copper panels were bolted to aluminum subframes instead of being made on site in the traditional manner by laying copper sheeting over plywood.

Such well-intentioned suggestions were made by HRH in the hope of winning further business by keeping the overall cost down, for they had no way of benefiting from commissions from subcontractors and no incentive to keep the budget as high as

possible: HRH's only income from Worldwide Plaza was a prearranged fee (p. 54). By contrast, a general contractor would normally build whatever the architect designed after negotiating a budget to build it, some of which would be used to pay contractors hired to do specialized tasks. Though Sabbagh highlights this difference, he appears not to recognize that in other contexts it could be entirely rational not to use a construction management company. In particular, a general contractor would be more likely to be hired, after a tendering battle with other similar companies, for work on projects of a non-idiosyncratic, less innovative nature where architects were less likely to get carried away with their visions. In such cases, the project could be taken as given but opportunistic tendencies on the part of contractors would be attenuated by the tendering process. In the case of Worldwide Plaza, HRH ultimately paid a price in terms of lost goodwill due to some unfortunate judgements they made, which resulted in completion four months late (on a two-year construction task) and at a price $15 million (about 10 percent) in excess of estimates they had made based on SOM's original drawings (pp. 242, 274). ZCWK were not amused, not least of all because it was only very late in the project that they discovered this outcome was likely.

4 Systematic complementarity and fast-track construction

HRH's roles in suggesting cost savings and as an overall coordinator were crucial because the project was undertaken in a 'fast-track' mode in which some parts were designed while construction took place. This way, ZCWK aimed to bring forward by at least a year the time at which the complex would start bringing in rental income to pay back interest on outside finance—which was 'running at over $3 million a month in January 1989'—and eventually generate a net return (p. 75). However, it meant that

construction started well before ZCWK had a firm estimate of the cost of the building (p. 11). At times, even HRH found it hard to keep up and attempts by other contractors to help keep the project on track merely added chaos. For example, delays to tests of window mock-ups loomed when HRH got behind on hiring contractors to do caulking and waterproofing work on the windows. The masons were fearful that this in turn would delay the laying of the curtain wall and so, despite objections from SOM, they got the mock-up ready by doing caulking and waterproofing work themselves. Unfortunately, to save time they used a ready-mix sealant instead of the specified two-pack product and damaged the rubber flashing with their trowels as they pushed it into its crevice; the result was that the mock-up initially failed its test (pp. 151–4).

Even on a fast track, Worldwide Plaza was a four-year project. This meant that it was not always easy to ensure that participants had realistic views of the last point at which a particular change might be requested. One example was how SOM's David Childs caused exasperation within HRH and ZCWK by dithering over the choice of color for the brick (pp. 126–32). Dominic Fonti, the project manager for HRH, cared little about the precise shade of pink but was annoyed because of the implications of delays and changes of mind for his ability to get the building finished on time. Not only was there a sixteen-week lead time in getting the brick, but the choice of brick color affected the choice of window color and caulking material for the windows and thereby the experimental safety test of window design. Another spectacular example was how O&M, having signed up early on as major tenants, requested major changes to their lower floors (p. 74). These added $3 million to the total cost of building to the planned schedule because they required changes to drawings for steel work, even though at the time O&M asked for them the project on site was still only at the hole-

in-the-ground stage. That sum typically would have been avoided if the design had been frozen before construction began and materials were ordered, but slow-track construction would have delayed O&M's move into the building as first tenants by around six months, resulting in loss of rent of around $5–6 million.

With such large rental sums at stake it was vital for moves to be achieved on time: if O&M's interior construction contractors could not get access at the contract time, O&M would not be able to vacate their existing premises in time, which would cause problems for their replacement tenants, and so on down the chain. Likewise, any delays in the delivery of materials could cause cumulating problems for subcontractors further down the line: if the steel frame were late, the steel floors could not be laid, and concreting of floors could not be done until the steel was welded in place; if the window mock-ups did not pass safety inspections, the bricks could not be laid, and so on. This is a far worse Just In Time scenario than anything with which Toyota, the pioneers of this method of manufacturing, would have to contend: not only was actual manufacturing taking place while the project was still being designed, but HRH also had to deal with the vagaries of harsh New York winters.

It is here that one sees the power of Richardson's view that a management team is a device to be used not primarily to save transaction costs but to ensure that a project actually meets the goals of those who instigated it. The Coase/Williamson perspective encourages us to believe that, in principle, the use of HRH could have been avoided if ZCWK (a) contracted all of the necessary inputs and services themselves; or (b) sold the development site to the excavating contractors, who would then sell the excavated site to the foundation-layers, and so on, until ZCWK bought back the finished building from whichever contractor put the finishing touches to it; or (c) if some combination of scenarios (a) and (b) were employed. The first scenario

is ruled out because of the fact that ZCWK's skills lay in devising and marketing property, and in raising finance: they were developers, not a construction firm. The pass-the-parcel approach, in which value is added by successive contractors, is a recipe for disaster, not simply in terms of legal conundrums associated with ownership of parts of the building in different stages of completion but also because no one would be taking an overall view of what was going on even if architects had supplied a complete design. With fast-track construction, someone was needed who could piece together the complex implications of design changes as well as of delays: if no one had been hired to do this, the consequence of treating an intrinsically indecomposable system as if it could simply be aggregated from a series of component tasks would very likely have been something that was both incomplete and a monstrosity.

The sheer scale of the building and cost/time barriers to trial assemblies being conducted at ground level meant that, even with HRH to manage the project as a whole, it was still possible for on-site discoveries to be made of poorly fitting components, possibly simply a result of an accumulation of manufacturing and assembly tolerances (p. 220), or of top masonry walls that had been laid in the wrong place (pp. 265–8). The hazards of relying on arm's-length third-tier contractors were likewise evident when HRH found that even after they had got Hunts Point to fire their first engineer, delays occurred because the trusses ended up being designed too large to fit on the trucks that were meant to take them to Manhattan (p. 210). In the light of such examples and other incidents recounted by Sabbagh, I conclude that, if it is difficult to disagree with Richardson (1998) when he suggests that the D-Day invasion could not have been achieved on the basis of market contracts without a strategic command team, then it is equally difficult to imagine the completion of

Worldwide Plaza without bought-in managerial coordination and with direction on the basis merely of a set of pure market contracts.

The appointment of HRH enabled much work to be done prior to many contracts being signed, with HRH advising ZCWK of the likely total cost on the basis of estimates that relied extensively on intuition or tacit knowledge applied to a broad-brush picture of what they were trying to create (p. 57). Precise charges could not be specified until the precise nature of what was being contracted had been worked out and many subcontractors beyond just HRH and SOM played a role in the design process. Subcontractors from SOM downwards initially won the right to be suppliers of goods and services either on the basis of their own sketches of what they would do or on the basis of their claims to be able to supply for a particular price something that as yet existed only in a schematic form (pp. 73–4). The subcontractors, likewise, had very much to rely on their experience and general 'feel' when deciding the price to quote, yet Worldwide Plaza's boldly innovative design features ensured that it was by no means a replica of any previous project.

In describing how the detail was gradually inked in after the successful bidder had been decided, Sabbagh (p. 74) captures well the essence of the close complementarity problem and need for overall direction:

> The successful bidder, usually the lowest, then prepared what are called 'shop drawings', showing in more detail how he would do the job; these might include his interpretation of how to do things—using different types of fastenings, different materials, even suggestions for changes in the design of some component of the building. The architects had to approve such revisions, to ensure they conformed to the overall plan, and HRH was then supposed to

> check them to make sure that some seemingly insignificant changes wouldn't produce a problem with the work of another subcontractor. Any single cubic foot of the building might require the attention of several subcontractors, none of whom necessarily knew what the others were doing.

Though a skyscraper is hardly precision engineering product compared with, say, aviation and defense contracting, and though components may seem to get assembled as if they are pieces of a child's construction set, it still involves many specialized parts and a concern with engineering tolerances. For this reason, endless design adjustments by SOM and the major changes insisted on by O&M after designs had been 'finalized' were a major irritant to firms such as Mosher, the steel fabricator, who were trying to fit in with the requirements of the fast-track schedule by wasting no time in getting their detailed contributions finalized (pp. 88–92).

Risks associated with the weather should have been relatively straightforward to deal with in contractual terms compared with issues associated with the building's design. During the winter of 1987–8 heating was required to keep work going on concrete pouring, bricklaying and fireproofing the interior. Its $1.5 million cost proved to be a major bone of contention between ZCWK and HRH. ZCWK had been under the impression that this was already covered within HRH's fee under a 'general conditions' clause but HRH had made no such provision—not because of a desire to avoid haggling over how the burden of the risk was to be distributed if a fixed number of days of winter protection were specified, but because it was hard to judge how many days would be so cold as to justify heating (p. 208). This would depend both on the weather and on how close to schedule the building activities were. HRH had not bothered to make a provision for a fixed number of days and preferred to quantify the

actual costs as they were incurred, rather than overcharge the developer if the winter was mild or themselves be overcharged if it was severe. In the end, ZCWK paid for the actual outlay.

5 Opportunism, delays, and cost blow-outs

Tendencies to pursue sub-goals with guile are to be expected in a project that is being fast-tracked, is replete with complementarities, and involves contributions by subcontractors who each have special expertise. Much of the drama of Sabbagh's book does indeed concern difficulties that HRH had in getting contractors to deliver the goods on time and in keeping the budget under control. Their schedule meant that often they had very little leverage over poorly performing subcontractors. Managers at HRH were well aware that it is difficult to make credible threats to cancel a contract and spread the word about this within the industry when the other party knows that time taken to find and induct a new contractor will cost even more; they were also aware that in some cases it might not be possible even to find a replacement and they would then have to go back to the one they had dismissed (pp. 193, 199). It was risky enough just to 'read the riot act' to those whose mode of operation was jeopardizing the project, for they could retaliate by moving even further in the direction of offering only perfunctory cooperation (p. 210). Their best chance to exert leverage came towards the end of a subcontractor's work when HRH could hold back 'signing off' work that had not been completed to a satisfactory standard, for without their certification ZCWK would not pay the subcontractor's 'retention fee' (p. 237). Otherwise, they had to rely upon their ability to cajole, to act with an eye to the dramatic context, and to try to show their subcontractors ways of solving the latter's problems.

While managers from HRH and ZCWK had little leverage over many of their clients they had to operate under considerable leverage themselves, occasionally from the most meek-looking sources. During the construction of Worldwide Plaza staff from HRH found themselves having difficulties with three elderly women who refused to move out of rundown accommodation in one of six nearby buildings that ZCWK had agreed to upgrade for the local authority in order to get approval for the amount of up-market accommodation they wanted to include in the complex itself (pp. 35, 107). Examples of individuals disrupting major projects by refusing to sell in an effort to extort enormous payments would be predicted by transaction cost theory and they were only too familiar to managers working on this project (p. 109). Had it not been for the refurbishing work outside the complex, Worldwide Plaza would have had no hold-out difficulties because ZCWK had bought the entire site. But the trouble they did have seems in fact to have had nothing to do with opportunism on the part of the women and is better understood in terms of psychology. The elderly women were perfectly content with their accommodation as it was and were fearful of what was going to be done to them, whereas ZCWK felt they were simply doing what they had agreed to do for them. The women, in other words, saw ZCWK as potential opportunists and they dismissed contracts in general as 'just writing on paper' (pp. 107–8). Given their lack of wealth to use to enforce in the courts any promises made on paper by ZCWK, their desire for some other basis for believing they could trust the project managers does not strike me as unreasonable. But despite the lack of interest of the women in lavish lifestyles, ZCWK believed there was a risk that attempts to use money to free the impasse might give them ideas and turn it into a hold-out problem. In the event, ZCWK showed them what had been done to apartments whose tenants had already temporarily moved out; they also emphasized that they were making no

attempts to pay to get these tenants to move elsewhere and replace them with ones who would pay higher rents

Another aspect of ZCWK's dealings with the local authorities provides us with a perfect example of a leverage phenomenon discussed by Williamson (1985), namely, the use of 'hostages' to guard against opportunism. The city planners let Worldwide Plaza have a larger-than-usual 'floor area ratio' for the size of site but only on the condition that tenants would not be allowed to occupy ten floors of the building until the Transit Authority had signed off major improvement that ZCWK agreed to make to the local subway and the city planners had signed off the plaza as properly completed. These ten floors were known, appropriately enough, as 'hostage floors' (p. 30).

Nowhere was HRH's lack of leverage more evident than in dealings with Hunts Point over the delivery and erection of the stonework. HRH hired Hunts Point, by far the cheapest tenderer, knowing that the firm had Mafia connections. These connections resulted in some members of the Migliore family, who were at the top of the firm, being involved in a major court case during the period of the contract, with Aniello Migliore being found guilty as a racketeer (pp. 194–5). Given nervousness at HRH about hiring Hunts Point in the hope of saving $1.5 million for ZCWK, the decision had been taken directly in consultation with Bill Zeckendorf (p. 212). But it was HRH who were blamed when Hunts Point caused the project to get four months behind schedule, delaying the tenancy of O&M and activating a $1.8 million penalty clause.

The relationship with Hunts Point was in difficulties over doubts about the Italian stonework even before the contract was signed—by which time up to $9 million had already been spent on this aspect and HRH felt it was too late to switch to

a different supplier of stone than the one towards whom they had been steered by Hunts Point (p. 199). (On this occasion, as noted earlier, a trip to Italy dispelled their fears.) However, although it is clear that Hunts Point did let HRH down and often laid blame for the delays with other subcontractors working on the trusses, it remains far from clear that we should see their actions as opportunistic in Williamson's sense of the word. Despite Hunts Point's Mafia links and attempts at buck-passing, the debacle was summed up by ZCWK's project manager Jack Schuster more in terms of unwitting incompetence and Hunts Point's management having too much to handle: 'It was the steel truss which was a technology they didn't understand that killed them. Plus the contractor carried with him certain personal problems which in the end destroyed him' (p. 212). The second-lowest tender had also come from a firm that had 'problems', and while there were no question marks about the competence of the third-lowest tenderer their quotation was very much higher. It was thus difficult not to take the risk with Hunts Point, particularly given that HRH had grossly underestimated what the tenders were likely to be.

A major part of the difficulties, in terms both of the technical problems faced by Hunts Point and of apportioning blame, concerned the amount of novelty in the project (p. 210). The lack of an exact precedent for what was being done also repeatedly crops up—the copper roof is another example—as a key cause of difficulties that HRH had in forming accurate estimates of cost and completion times. Though much was said about 'the search for the guilty' being one of the six phases of construction, what normally happened was that ZCWK reluctantly signed the cheques for bigger-than-budgeted payments and no action was taken against culprits if they were identified. To be sure, each contractor might point the finger at someone else in the production chain when a problem was discovered by HRH, but there seemed to be

a widespread recognition that, since the scope for error was great, it was inappropriate to shout too loudly as, in the words of HRH's Arthur Nusbaum, 'the innocent today might be one of the guilty tomorrow' (p. 209). The sentiments of HRH's site manager Dominic Fonti on this topic were likewise very much those of one who saw his firm's role as a coordinating agency: 'My main concern is to getting the job built. It doesn't matter to me who made the mistake, what, when and where, just get the job built. That's our goal here, not to cover your ass' (p. 122).

Sabbagh also devotes considerable attention to problems caused by the behavior of the architects, SOM. Architects are an obvious target in any investigation of the extent to which contractors with special expertise can pursue their own sub-goals at the expense of others. In his autobiography Herbert Simon (1991: 97–100) comes to the brink of calling them opportunists as he recalls his experiences of teaching urban land economics to architecture students at Illinois Tech., whose Department of Architecture was then chaired by Mies van der Rohe of Bauhaus fame:

> [His gospel was that] the architect was an artist whose task is to build beautiful buildings (or cities) either in collaboration with or despite the client.
> Any rights of the client to determine the amount of resources to be applied to the task, or the functionality of the final structure, were not included in Mies's view. On the contrary, the client was to be educated, persuaded—I won't say duped—to contribute the resources necessary to produce a great work of art, as defined by the architect. The client was an instrument, a means. ...
> [M]y subsequent encounters with architects have taught me that this attitude was not peculiar to Mies but is widely shared through the profession.

> Architects are notoriously prone to design buildings that are bid in at 40 percent over the agreed budget. (Simon, 1991: 99)

Simon evidently would not be at all surprised to hear of inconvenient aspects of behavior by SOM's staff during the Worldwide Plaza project, ranging from dithering over brick colors to petulance if anyone dared suggest that the roof—whose complexity was for purely architectural reasons (p. 248)—did not need to be made of copper to achieve its green visual effect (p. 250). Along the way were many instances of 'drawing creep' (p. 77), i.e., additional refinements of designs that everyone else thought were finished. Sometimes SOM staff kept very quiet about the drawings they were making, and then engineered a fait accompli by pointing out that if ZCWK and/or HRH did not like the designs then it would take four or five months to redraw them.

Architects are advantageously placed to push for expensive materials and concepts given that their work generally comes ahead of detailed costings by those who build what they design. At an early stage in the project, HRH and ZCWK were more likely to give in and accept luxuries insisted on by SOM because the pressure on costs was not so great as it would later become (p. 250). Here, it is worth keeping in mind cognitive dissonance theory, which suggests that people may choose both how they see things and the information they gather in order to enjoy the convenience of maintaining a particular set of expectations.

Before the finance for a project is fixed up, the owner needs both costings and a vision that will impress financial institutions. If there is no finance there is no project to manage and hence the company provisionally selected to manage construction will be tempted to provide a good looking schedule and accompanying

figures. As Sabbagh puts it, ‘Since both owner and construction manager want the project to happen, a certain amount of wishful thinking and finger-crossing helps them arrive at pleasing rather than entirely realistic estimates’ (p. 60). Professionals involved in the process know from experience that this goes on and that the inking in of details will add extras to the cost, but they never know in advance to what extent they are being kidded (p. 61).

It is doubtful that problems with architects would be lessened if major developers internalized this activity, for then the threat to put future projects out to another design team would be less credible as a means of curbing architectural excesses. Nor would a requirement that the architectural consultants took out an equity stake in the project be a particularly good anti-opportunism device so long as the equity stake was only a minor one. This much is clear from the difficulties that tenants and partial equity owners O&M caused with changes they insisted on in respect of the lobby, lower floors, and escalators—changes which presented endless scope for argument about who should pay for them (p. 106). O&M’s role in the project is again useful for highlighting how a transactor can be seen as a victim one moment and look opportunistic the next: though the delays associated with Hunts Point and the steel trusses seemed a major nuisance for O&M, the latter did not display great flexibility over the conditions under which they would finally take over their floors in the tower; they gained more rent-free time for completion of their interior work via their ability to keep pointing out details that needed further work (p. 277). Major tenants in such situations would have little incentive not to use every possible ruse to delay the start of rent payments, for any learning about their deviousness on the part of the property developer or wider construction community

would be unlikely to be relevant for another ten or fifteen years when next the firm wished to relocate.

Since, in most other cases, the players had to keep in mind the damage to their reputations that might come from being revealed as untrustworthy opportunists, we must be careful not to jump to conclusions about the presence of deliberate opportunism each time we consider disputes that arose in the construction of Worldwide Plaza. No less relevant is the possibility that, in contrast to what Williamson would have us believe, many economic agents conduct their lives according to moral codes that prevent them normally from engaging in self-serving behavior at the expense of others even when they would have little fear of being found out. When subcontractors seemed to be stalling on delivering their outputs and yet in most cases managed to deliver them at a time which did not disrupt the overall schedule, a fairer interpretation of their actions may be to label them as attempts to keep pressure within tolerable bounds by exploiting organizational slack (cf. Cyert and March, 1963). To tell a lie now in order to take the pressure off does not necessarily imply any intention ultimately to 'rip off' the other party.

If there are risks that things will go wrong, it is perfectly reasonable for a construction manager to ask for materials to be delivered before they are really needed; if in the event the materials arrive a little early, that is one less thing to worry about and there will be less need to delegate other decisions or risk of poor judgment in the face of stress (pp. 238, 274). For the subcontractor, likewise, the ability to negotiate a bit of slack into a delivery schedule may reduce their risk of defaulting on a contract and also enable a lower price to be quoted by keeping the firm's operations occupied with rather more business than can comfortably be handled. In the case of brick deliveries, for example, Steve George of Glen-Gery understood perfectly well

why HRH's Dominic Fonti wanted the bricks on site before the bricklayers were ready to lay them, but from his own intelligence gathering and experience of fast-track projects he judged, rightly, that he had no need to commit his manufacturing capacity to their order nearly so soon as they wished (pp. 170–3). Close complementarity and tautness of operation only go together in a world of certainty. In a world of surprises, breakdowns and unpredictably bad weather, it is rational 'to keep a bit up one's sleeve' and that may also be advantageous to the customer even if it involves being somewhat economical with the truth. The problem is to ensure that slack is kept within reasonable bounds. The senior managers from ZCWK and HRH ultimately concluded that they could have put more pressure on some of their subcontractors but also that trying to keep staffing to a minimum had sometimes prevented them from grasping opportunities that would have saved more money than it cost to have extra staff who at times had little to do (p. 290). Overall, the delay and cost blow-out were undesirable, but both came within tolerable bounds, particularly considering the innovative features of the project.

6 Contestability and the building of reputations

In this penultimate section I examine further the contestability of some of the activities entailed in the construction of Worldwide Plaza. Before I do so, a few cautionary words are in order for those not familiar with Richardson's broader critique of conventional views on how the competitive process works. His interest as a theorist has not focused merely on complementarities between different layers of the production process. Richardson (1960) has also written at length about the coordination of competitive investments, i.e., investment by rival firms in assets capable of undertaking similar activities. A fundamental difficulty he raises is that, if

entrepreneurs are to commit themselves to risky investments in specific assets, they require grounds for believing confidently that there will be adequate limits on the amount of similar investment undertaken by others. Markets that are really hotly contested at present may give customers good deals right now but in the long run such deals may not be available due to a reluctance on the part of entrepreneurs to continue putting money into them given the difficulties of earning adequate returns.

These considerations are important in the construction industry owing to its boom-bust tendencies (in large part associated with failures to coordinate competitive investment in what is being built, leading to, for example, over-supply of office space or hotel rooms) and swings in fashions for design and materials. Swings in confidence that affect the willingness of firms to move into prestigious new office space, or the viability of financial services and hotels, can result in major swings in the amount of building work that is available. Contractors cannot expect to earn supernormal profits over the course of the business cycle without prompting others to invest in an expansion of capacity. In boom times they can be more relaxed about putting in high tenders and risk not winning a particular contract on the expectation of getting another contract in the near future as more of their rivals' capacity becomes committed. Such lucrative contracts offset ones signed when the industry is short of orders and business is worth taking in as a means of keeping the firm's pool of skilled tradespeople together (cf. Andrews and Brunner, 1975, Chapter 5).

Both kinds of deals were struck in the Worldwide Plaza project. The steel framework's components were fabricated from steel bought from Luxembourg, after careful shopping around the world, by Mosher, a Texan company who were keen to develop business elsewhere due to the decline in construction locally (p. 85). There were major logistical difficulties entailed in bringing in the steel from such a distance

to Texas and then moving the kit of steel parts by barge to New York. These would have frightened off companies less keen for the business and might also have made their customers nervous were it not for the fact that Mosher had already done three high-rise projects in Manhattan in the previous three years.

At the other extreme, and clearly far less worried about not winning the Worldwide Plaza deal, were Glen-Gery, the brick suppliers (p. 133). There was no other company who could really be called upon to deliver such a large quantity of color-coated bricks, many of which were molded into unusual shapes, and both parties knew this. Though the order was for the largest brick project around, it was still only equivalent to about one per cent of Glen-Gery's total annual output. Brick had become fashionable and all the suppliers competent to work with such volumes were busy (p. 132). Even so, Glen-Gery's initial tender dominated in the wide spread of quotations received from five major New York brick subcontractors, all of which were way in excess of HRH's budget. For these reasons, HRH's attempt to make the market look contestable and hence extract a lower quotation from Glen-Gery did not involve threats to turn to another brick manufacturer but to use concrete, cast to look like brick (p. 137). Yet Glen-Gery were adamant that they were not overpricing, merely quoting a just price that reflected because of the difficulty of the job, including costs of developing new brick colours in their laboratories each time the architects changed their minds (p. 134). Given the extreme specificity of the assets of Glen-Gery's plant—which included, for example, a 500-foot kiln tunnel (p. 139)—it becomes easy to see that this is not an industry into which incumbent suppliers would lightly risk attracting new competition by being greedy in the prices they charged. On the other hand, new competition would be deterred by the scale of non-recoverable

costs so entry might be unlikely unless existing brick manufacturers developed a reputation for being very greedy indeed.

The extent to which a market operates as if it is hotly contested should not be seen simply as a function of objective conditions but as depending on how it is seen by actual and prospective suppliers. Potentially opportunistic tenders may fail to materialize if managers of a would-be supplier do not that currently no one else is trying to get the contract. This is precisely what happened in the case of the tender for the copper roof panels and their aluminum supporting frame: managers in a Canadian firm, Wernher Dahnz, had no idea that they were the only team tendering for the job. Their problem was that, because they were fabricating the parts from generic materials, they had no way of gaining intelligence about the presence or absence of rivals as they shopped around for materials in any of the thousand places that could supply them, and HRH, of course, were not about to tell them they were the only horse in the race (p. 256). By contrast, in areas such as mechanical systems, where subcontractors have to buy specific components that are available from only a limited range of firms, it becomes quite easy for the latter suppliers to build up a picture of who the players are. That picture is then prone to seep out to the players whilst negotiations proceed, as would-be component suppliers try to ensure their potential customers know whom they are up against in order that they can tender successfully with the construction management company. In contrast to typical presentations, then, it appears that contestability is a complex multi-layered issue.

Also clear from Sabbagh's account is the fact that, regardless of general industry conditions, some clients are able to get better deals than others because they are seen as low cost ways of promoting the business as a whole. For example, Bill Zeckendorf Junior insisted that Marvin Mass of Cosentini Associates should be

appointed as mechanical engineering consultant, having had good work done by Mass over many years (Zeckendorf Senior, in fact, had been his first client). Mass is quoted as follows (p. 232):

> We never made a lot of money on his fees, but we were able to survive. As a result of doing work for him, we got an enormous number of other clients who said 'If you're doing Bill Zeckendorf's work, you've got to be a pretty good engineer', and that's how we grew.

The boot was very much on the other foot when Zeckendorf's company came to negotiate with Cravath, Swaine and Moore (pp. 161–2). The representatives of this old-established law firm were well aware that if they signed up as tenants the move would go a long way towards dispelling fears among other prospective tenants about the Worldwide Plaza's location in a hitherto low prestige neighborhood. They therefore argued for a rental below the market rate and for ZCWK to absorb much of the cost of their interior fitments. Initially this ruse failed, for Zeckendorf's representatives shook hands on a deal with Viacom for the group of floors in question, but before that deal reached the formal contract stage the Black Monday share price crash occurred and Viacom pulled out. Cravath were then well placed to capture around $25 million of ZCWK's profits (p. 169).

To end this section I will note briefly differences in contestability in terms of markets for human resources. Opportunistic behavior among construction workers is limited by a pride in their work that comes from the knowledge that if they are discovered not doing a good job they can be replaced immediately (p. 206) except in trades where skills are temporarily in short supply. By contrast, senior staff with very

specialized skills may be headhunted and leave gaps that are very hard indeed to plug. When SOM architect Rob Schubert left after three years on the project, they appointed as his successor Jim Parker, who had only arrived in New York ten days earlier as a result of SOM closing their Denver office. Parker initially could do no more than chair meetings and let the project run; until he became familiar with the project, he had to rely upon the expertise of other team members (pp. 166–7) (cf. Penrose, 1959, on the limited ability of firms to grow by building up managerial teams on the basis of newly hired staff). Though the move was disruptive, SOM did not try vigorously to deter Schubert from switching to his new career with a firm of brokers that specialised in finding and making ready new premises for large companies: to double his salary and match his new offer would also have been disruptive, but in a different way, within SOM. Moreover, the loss of a staff member as a result of a change of profession was less of a worry than if he had gone to a direct rival, not least of all because he would be quite likely in the long run to bring design business back to SOM on behalf of his clients (p. 164).

7 Conclusion

This case study reveals how it is perfectly possible to undertake closely complementary construction activities in a satisfactory manner without a need to internalize them in order to save on transactions costs associated with designing foolproof contracts and risks of opportunistic behavior. Here is an industry in which an entrepreneur can dream up a basic idea and turn it into reality without having production expertise, by contracting to have other parties supply virtually everything, including the brokering and coordination of most of the contractors. The industry works like this because ongoing demand is on a big enough scale to permit contested

opportunities for repeat business between specialized firms whose interests in maintaining their reputations normally provide safeguards for their present customers. Both suppliers and purchasers (or their agents) develop expertise in judging potential deals, but uncertainties in projects involving radical innovations can result in miscalculations, recriminations and changes of trading partners. Worldwide Plaza had enough novelty to generate difficulties but was a success despite the enormous scope for far greater coordination problems. However, though an integrated construction and property firm did not get created in any legal sense to make Worldwide Plaza happen, it is difficult to read Sabbagh's account of the project without seeing the network of contracting and personal relationships as a 'virtual' firm. The essence of what was going on was not the delivery of pre-specified goods and services according to a set of simple contracts but a set of arrangements that worked on the basis of cooperation and direction.

In seeking to understand how the competitive process works in this industry it is useful to have in mind both Richardson's rather sanguine, modern-day Marshallian analysis and more cynical perspectives from transaction cost economics. But in this context, it is Richardson's (1998) analysis, with its focus on complementarities, that is particularly illuminating, notwithstanding the fact that at times relationships between players got rather sour. In much of Sabbagh's account there is an overwhelming sense of the inability of financial compensation to turn the clock back once something has gone wrong and an opportunity has been lost. Inquisitions tend merely to get in the way when time will not stand still. When there is good business to be done it can make sense to cooperate to get the present project finished and signed off, so that one can compete for the next one.

Finally, it should be noted that the New York construction industry is by no means unique in the extent of its formal lack of vertical integration and great division of labor. Richardson's (1972) inspiration came initially from the tobacco industry and retailing. Nowadays, European manufacturing firms such as Fiat are increasingly coming to follow their Japanese counterparts in contracting to preferred suppliers work that in the past would have been undertaken in-house in line with Henry Ford's vision of a single-company car plant in which iron ore and coal came in at one end and finished Model-T Fords emerged at the other. Likewise, considerable unbundling and brokering of services is taking place in sectors such as advertising, finance, and transport, as well as in the provision of medical, security and educational services. One implication of all this is that greater efforts should be devoted to studying the business of purchasing: the traditional business school focus on management and marketing has diverted attention from the customer's problem of working out which prospective supplier should be awarded a particular contract. Skill in purchasing—which, in the case of Worldwide Plaza, ZCWK believed HRH to possess in addition to managerial skills—is a crucial requirement for making the most of opportunities for flexibility permitted by a strategy of avoiding internalization.

References

Andrews, P. W. S., & Brunner, E. (1975). *Studies in Pricing*. London: Macmillan.

Coase, R. H. (1937). The nature of the firm. *Economica, 4 (new series)*(16 (November)), 386–405.

Cyert, R. M., & March, J. G. (1963). *A Behavioral Theory of the Firm*. Englewood Cliffs, NJ: Prentice-Hall.

Foss, N. J. (Ed.) (1997). *Resources, Firms and Strategies: A Reader in the Resource-Based Perspective*. Oxford: Oxford University Press.

Marshall, A. (1890). *Principles of Economics* (1st ed.). London: Macmillan.

Richardson, G. B. (1960). *Information and Investment*. Oxford Oxford University Press.

Richardson, G. B. (1972). The organisation of industry. *Economic Journal, 82*(327, September), 883–896.

Richardson, G. B. (1998). Some principles of economic organisation. In N. J. Fosss & B. J. Loasby (Eds.), *Economic Organization, Capabilities and Co-ordination* (pp. 44–62). London: Routledge.

Sabbagh, K. (1989). *Skyscraper: The Making of a Building*. London: Macmillan/Channel Four Television.

Simon, H. A. (1991). *Models of My Life*. New York, NY: Basic Books.

Williamson, O. E. (1975). *Markets and Hierarchies: Analysis and Anti-Trust Implications*. New York: Free Press.

Williamson, O. E. (1985). *The Economic Institutions of Capitalism: Firms, Markets and Relational Contracting*. New York: Free Press.