Genesis of a General Contractor: a Georgian Vernacular Builder Transformed

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INTRODUCTION

The emergence of pioneer contracting firms in the UK in the early nineteenth century has long attracted construction historians (Clarke 1992, Cooney 1955-6, Hobhouse 1971, Satoh,1995). Such firms, exemplified by Cubitt in London, are recognised as seminal in the subsequent development of the construction industry. They "…grew to match the spread of the system of contracting for the whole project at a fixed price or a 'lump sum'…" (Satoh 1995, p. 54). The novelty of the early general contractors lay in their willingness to do the work of all, or virtually all, of the building trades and not to limit themselves to a single trade such as bricklaying. Satoh conveniently brought together biographical notes of 22 of these early general contractors. They included Copland, Peto and Myers as well as Cubitt. Most made their names (and fortunes) in the largest market for building work, London. Of ten of them whose birth dates were noted by Satoh, the earliest was born in 1774 and the latest 1817. Few, if any, of them were local builders (i.e. small firms), information about whom was said to be "particularly inadequate" (Satoh 1995, p. 71).

Early local general contracting firms, those in the historically neglected second rank of size, soon grew into the first rank, numerically speaking. Becoming ubiquitous in the nineteenth century building world, they were soon to produce the great mass of smaller and medium-sized buildings which, in aggregate, made up most of the national building stock. Individually modest firms such as these were most typical of the industry as a whole and large, prestigious firms were the exception.

Historical sources for the study of these smaller, local firms are not conspicuously plentiful. Documentation was originally sparse and (like many of the firms themselves) often did not survive for long. Most firms of the earlier nineteenth century and before are now historically obscure, none more so than the smallest and earliest examples. (Powell 2004). While many of the buildings put up by such firms still survive, and the work of their craftsmen has been celebrated (Ayres 1998), the experience of the firms themselves deserves closer examination than they have so far received.

The case of one firm founded in 1770 in south west England for which some business records survive, provides an unusual opportunity. The firm of John Prawle and his successors was a smaller firm which transformed from a late eighteenth century builder of vernacular buildings into a nineteenth century general contractor. The aim of this study is to trace the experience of the firm

through that historic change: from Georgian market, products and methods in a traditional agrarian context, to their (recognisably modern) equivalents in an industrialising Victorian economy.

The scene will first be set by a description of Prawle's firm between 1770 and 1822. This will be followed by a description of the firm after ownership passed to Prawle's successors in 1822 and until the mid-nineteenth century (Coles 1970, DRO MSS 1937B: A1-7, A8, A9-12, A13-15, F1, Powell 1999, Powell forthcoming,). The study concludes by comparing the firm in the two periods, hereafter referred to as the Georgian and Victorian firms.

GEORGIAN VERNACULAR BUILDER

The origin of the firm coincided with a glut of building work following a catastrophic town fire in 1769 in the Devonshire town of Crediton (population c.5000 in 1800). John Prawle was about 20 years of age when he and his stonemason father began to trade. By the time the firm had matured in the 1790s much of its output was replacements and repairs for agricultural and associated buildings. Among Prawle's frequent customers were a few quite wealthy figures who owned sizeable country houses and estates. Below them in status were customers of yeoman farmer rank, together with local church and chapel authorities and tradesmen such as miller and maltster. Building types on which the firm worked included barn, coach house, dairy, dove house, ox shippon, school, smith's shop, stable, and workhouse. Most, if not all, buildings would have been traditional vernacular rather than polite. Much work was repeat business over periods of many years, mostly within about 6 miles of the base in Crediton. Only exceptionally was work undertaken at slightly greater distances in the surrounding countryside. Individual projects were numerous and fairly small, mostly intended by their owners to sustain existing activities rather than support expansionary new ventures. The flow of work appears to have been reasonably steady, or at any rate it avoided the worst of the steep fluctuations of fortune associated with prolonged national economic uncertainties of the Napoleonic war period.

The main factor of production of the firm was its workforce rather than plant or equipment, which seems to have been limited to a yard, some scaffolding, arch centreing and simple hand tools. Prawle employed a nucleus of full-time employees, supplemented mostly in summer by a few slightly lower-paid casuals according to short-term needs. For example, from mid-1793 to mid-1794 there were seven full-time men. For much of the three summer months two more men were employed intermittently, and occasionally a further one or two. By 1796 the workforce had grown to about a dozen and by 1816 to about 16. Not only did the number of employees fluctuate seasonally, but so did the hours per week worked by individuals: total wages paid in the slackest winter weeks could amount to as little as seven per cent of those of the busiest summer weeks. The seasonal nature of work may be attributed to the length of daylight hours as well as the occurrence of adverse weather which constrained site activity. Skill specialisation among the men is unclear. However, differentials in pay were apparent. With the majority of men earning about three quarters

of the weekly rate of the highest paid minority (8/-d. per week compared with 11/-d. in 1794, advancing to 9/-d. and 13/-d. respectively, twenty years later). Pay differences were amplified by the men on highest hourly rates working the longest hours.

The work carried out was somewhat specialised and did not amount to complete buildings. It ranged from stonemasonry, cob (rammed earth) wall building and paving to roof slating and tiling, plastering and colour washing. Most of it was heavy work and as such it roughly conformed with one part of the threefold division of labour to be found later among nineteenth century country builders. This comprised the trades of mason, carpenter and plumber-glazier-decorator (Rose 1952). Only Prawle's decorating activities were slightly at odds in this respect.

In order to get to work Prawle's men first had to walk to site. Taking an example selected at random, an employee (Dad, by name) travelled as follows in the week beginning 3 August 1795: Monday and Tuesday to Knole (3.5 miles each day); Wednesday to Four Mills (0.5 miles); Thursday to Mr. Ruddall's (3.5 miles); Friday to Mr Ocock's (3.5 miles); Saturday to Westercott (1.5 miles). The total distance for the week in this case was about 32 miles. The frequency with which the man was rotated between different sites (five in this case) from one day to the next was typical. Rotation accords with there being specialised skills within the workforce.

Having arrived on site, the men would join a small gang, often differently composed on each day. A typical gang was only of two men, but sometimes they might be solitary, or of three or more, up to about eight at most. When the firm got bigger the number of gangs (and projects) increased, but typical gang size remained unaltered. Prawle's day-to-day adjustment of gang size and composition suggests carefully considered matching of resources to specific project needs. Although the work was heavy and arduous its management appears to have been considered and responsive.

Typical site operations were excavating and sifting earth and screening gravel for cob walling, digging and laying stone foundations, building cob walls and laying stone and brick walls. Equally heavy work was transporting building stone, bricks and roofing slates (at least some by pack horse), plastering, rendering and laying pavings. Rather lighter work was "helling" (roof finishing) and colour washing walls. The process of cob wall building, which often occupied the firm, was necessarily a slow one. The timescale is apparent from an example of building a new pony linhay. Excavation for the foundations began on 23 February 1803. By 2 March twelve man-days had been expended (probably on stone foundations and plinth) and cob walling was ready to begin. The first cast (i.e. up to about half the finished wall height) was completed after a total expenditure of twenty-one man-days. The half-height walls were now left until 31 March when they were paired to a true shape. The second cast was begun on 6 April and, having reached a total of twenty-five man-days, was left once again to dry until 18 April. More pairing was done on that day and all was complete on 21 April, with totals of thirty-one man-days and fifty-nine calendar days on the job.

The activities of the firm were labour-intensive. Cob building relied on materials won on, or very near, the site. Rubble stone could be procured from quarries within a few miles. This was fortunate because, as sites receded from quarry, transport costs per unit of stone rapidly outstripped the cost of the material itself. Bricks were bought (loads of 25-500), as were loads of sand and lime, hair for plaster, clay tiles, slates (loads of 50-350), laths, nails, colourings and oil. Such materials were neither particularly numerous or large in quantity: Prawle's industry was locally self-sufficient to a large extent. The comparatively few materials that did not come from the vicinity of the site or from Crediton were likely to be bought in Exeter, about eight miles distant.

Contractual relationships between Prawle and his customers remain shadowy. From time to time he recorded projects as "contract work" and one, at least, was paid for at monthly intervals as it progressed. In the year 1793 the firm was paid a total of £170, with a maximum monthly total of £26 and a minimum of less than £1. It is calculated that Prawle spent of the order of ten per cent (possibly a little more) of gross income on raw materials and equipment and about 80 per cent on wages. The small proportion spent on materials was because cob as a raw material was generally free.

The human experience of working for Prawle can occasionally be glimpsed. Evidently regular employees missed an occasional day, often the "St Monday," of English peasant experience. All were at risk through sickness and inclement weather. When the elderly Prawle himself was temporarily incapacitated by gout in the winter of 1816 his firm soon began to run down; there was no second tier management to take over. Difficulties could also strike from other directions as on 13 April 1795 when Prawle laconically recorded "Men not at Work on account of the Riot." Another hint about the qualities of men in the building trade came in August 1816 when one Elston absented himself for two days at the height of a busy period. There soon followed the terse record "Elston at the Assizes" (he eventually returned to work, perhaps a reformed man). Then there was drink. Cider was customarily provided on site by building owners. This agreeable practice got the better of employee Perry on 17 March 1803 and again on the 21st of the month. Prawle recorded similar occurrences (in some detail) on three more days before sobriety returned, for a while, on the 25th. The trade was not a genteel one: Prawle must have been tough on occasions, though not invariably so. While dependent on a workforce which seems at times to have been both volatile and shiftless, he was capable of compassion. Two of numerous examples of his generosity were a Christmas gift of 2/6d. (two day's pay) to a man temporarily without work and at another time a loan of over £2 for new clothes, repayable in 20 instalments. Such were acts of enlightened self-interest, loyalty incentives to key men. Certainly some of them remained with the firm for a long time. Four employees of the 1790s each stayed two decades with the firm.

The picture of Prawle's firm which emerges is of a fairly stable concern slowly growing in the context of a slow-changing local market. The construction processes of the firm were quite few and simple, though heavy and demanding of craft skills. Work on site was likely to have been rough

and tough, with corresponding human behaviour, somewhat in contrast, perhaps, to the unremitting and finely calculated management of the owner. Although not necessarily sharply apparent at the time, the principal skill of cob wall building was nearing obsolescence; Prawle's death in 1822 occurred in the twilight of a centuries-old regional vernacular tradition.

VICTORIAN SMALL CONTRACTOR

Attention now moves to the experience of the firm as it was between 1822 and c.1860. The earlier decades of the nineteenth century were quiet ones for Crediton, with decline of the formerly-significant woollen trade, but a population growth to just short of 6000 by 1841. With John Prawle's death, the ownership of the firm passed to John Berry (1780-1863), a member of the same generation as the 22 early general contractors discussed by Satoh (1995, pp. 55-71). Berry had joined the firm as a youth in c.1794, married his employer's daughter in 1803 and three years before Prawle's death had made an agreement to work for a wage plus 50 per cent of profits. Berry retired c.1850 having introduced his son William (1807-1874) to woodworking in 1830. The business relationship between father and son remains indistinct, but early on it included William working from his father's workshop premises, mutual hiring arrangements for workmen and horse transport, and joint contracting for third parties (Coles 1970, pp. 4-6).

Within about a decade of Berry taking over, possibly sooner, the market served by the firm had been transformed. An indication of the change comes from 4 August 1834: "Self to Exeter to see Plan and Specifications of House…" (DRO MS 1937B. A4). The implications are: that the project had been initiated elsewhere, outside Berry's home town; that it involved documentation unneeded for the vernacular buildings of Prawle's time; and that competitive tendering was probably involved. The project represented a newly-emergent pattern of demand for buildings which differed from that of Prawle's day.

The entry of the firm into civil engineering work is further evidence of a transformed market. For example, in mid-February 1834 and after, the firm was engaged in work on floodgates, and early in October the same year on two bridges. These modest works were probably part of a general maintenance contract for about 20 county road bridges. Similarly on 23 July 1836 Berry bid £210 for constructing Higher Creedy Bridge according to a design by the County Surveyor (George 1997, pp. 57, 121, 161). The firm was working on site two days later. Also in the same year Berry won a road building contract at Crediton which involved a cutting depth of 15 ft and walling up to 12 ft high and 60 ft long. Two years later in May 1838 the firm was busy on another bridge, in January 1839 on a further one, and again a month later on three more.

Another departure for the firm was entry into joinery making. Unlike bridge building and repair it was intricate, workshop-based, small scale manufacturing. It involved vertically-integrated activities from the acquisition of standing trees all the way to supply of finished goods to customers.

No doubt some, but not all, of the products such as doors, window frames, stairs and shutters went direct to the firm's own building projects. Similarly, manufacture of ladders and barrows was probably for the use of the firm itself (as well as being a pointer to levels of local self-sufficiency). Additionally there was work on coffins and furniture such as tables, writing desks and clock cases, to individual order.

Rather different and bigger work came in the shape of railway building contracts. In 1848 there was work at Cowley Bridge and in 1852 on Newton St Cyres station, both on the Exeter to Crediton line. Bridge building on the North Devon Railway followed around 1853-5, for example at Lapford, 9 miles from Crediton.

One further category of work was miscellaneous building projects for a variety of institutional and private customers including, in Crediton, the Church, Union Workhouse and Butter Market, and on a site now unknown, stone cottages of which one pair cost £128. Such projects represented a degree of continuity with those of Prawle's time, although they were more intricate and the firm supplied all, rather than only some, craft trades. From road bridges and cuttings to railway stations and writing desks; the firm was prepared to tackle all.

How did the firm organise and operate in order to meet a changed market with more diverse products? To begin by considering labour and skills, the firm outsourced (to use a modern term) a greater proportion of its work than hitherto. The firm paid external concerns for such tasks as sawing timber (very frequent), sawing Portland stone (frequent), excavation, gasfitting, plastering and smith's work (all rare), and thatching (very rare). Such outsourcing enabled the firm to meet peaks of demand (for example for sawing floorboards) as well as meeting small and intermittent needs for specialised services seldom encountered (for example, thatching), some of which were new and technically demanding (for example, gasfitting).

A readily-apparent change affecting labour was the increased employment of youths, at least some of whom were apprenticed. With the notable exception of Berry himself, this had been very rare in Prawle's time, when physical strength presumably had been the criterion for the workforce. In January 1855 when there were 31 employees altogether, eight of them were paid half or less of the full wage rate, implying that about a quarter of the workforce were youths. Sons of existing employees seem commonly to have been introduced to the firm, there being at least three (possibly more) such cases in 1855. Terms of apprenticeship are seen in an example of 1 October 1834: "…Trill for to be Aprenticed [sic] for 3 Years at the rate as follows 4 Per Week the first Year 5 shilling Pr Week 2nd Year 6 shilling the third Year…" (DRO MS 1937B. A4). In another case the completion of T. Perkins' eight year apprenticeship in 1855 was marked by his being given 12/-d. to pay for new tools.

Another change was to more finely graded measurement of employees' time. The Georgian practice of recording names against projects to the nearest half day was replaced by the nearest

quarter day or nearest hour. A further aspect of employees' time was that spent on journeys to site. Typical distances from yard and workshop to building sites almost certainly increased. One consequence was the practice of workmen sometimes lodging overnight away from home. Taking one example during a busy time in the week beginning 24 June 1854, three employees lodged at a total cost to the firm of 3/9d. No record of lodging by the firm's employees prior to this has been found.

Fluctuations in the size of the workforce appear to increase, both upwards and downwards. At times during the mid-1830s the workforce seems to have been very small, with no more than four or five people. In deep winter even this number was liable to fall. By autumn 1851 the number of employees had grown to 17 and three years later it was around 26. The number peaked at 40 in May 1854, but by August 1858 it was down again to 16, and it subsequently fell further before recovering. Such amplitude of fluctuations was larger than in Prawle's time. The effect on numbers of man-days worked per week and on weekly wage totals was obvious. For example, in the week beginning 11 October 1851 when there were 17 employees, a total of 99.5 man-days were worked (some of them involving lodging) and total wages paid were £8-5-3d. In the week beginning 15 April 1854 24 employees worked 133.5 man-days for total wages of £15-9-9d.

The normal working week in both Georgian and Victorian phases of the firm was six days. A Victorian novelty was the introduction of some Sunday working as, for example, in November 1854 and in mid-May 1860 when eight of the 16 employees worked on a Sunday. Occasional Sunday working was more evidence of intensification in the activity of the firm. At the same time casual employment seems to have fallen. For instance, sample weeks in 1851 showed each employee working an average of fractionally under six days per week. The implication is that nearly all employees worked full six day weeks rather than intermittently.

The size of work gangs on site appears to have remained small. In the mid-1830s they were unlikely to exceed three people and most typically they were of a solitary individual. In 1851, when there were many more employees in total, mid-winter gangs typically were small (one or two people), but mid-summer gangs were a little bigger. The largest gangs were of the order of seven to ten people each.

Weekly wages in 1835 ranged from a top rate of 15/-d., down to 12/-d. or 9/-d. By 1851 the top rate had declined to 13/-d. and two years later it remained unchanged. It regained its earlier level of 15/-d. by 1855 and an upward trend continued thereafter. In 1861 the top weekly rate for key man Gillard was 16/-d., while Gillard junior earned one quarter of this sum. The lowest paid at the time, one Chamberlin, made do with 1/-d. per week. Probably he was the youngest person in the workforce. Berry very often made loans to his men, typically of 10/-d., repayable in small instalments. At Christmas some fortunates received a Christmas box often of about 3/-d..

Occasionally a few employees were directed away from construction into short-term agricultural work. In June 1851 they cut grass and made hay and in August 1858 they were hoeing turnips.

Whether this was providing for the horse-powered haulage capacity of the firm or was part of a small business sideline of Berry's is not known.

Turning from labour to plant and equipment, the introduction of a joinery workshop has already been mentioned. It must have represented a significant addition to the productive capacity of the firm and to its capital assets. Tools and equipment used on site and in yard may be expected to have increased over time in range, quantity and size. Although the technology was simple and relied on hand tools and sheer human and animal power, the move into civil engineering must have somewhat increased the scope of equipment. Scaffolding and shoring timbers, together with heavy arch centreing, barrows, ladders and hand tools would all have been needed.

Enough is known about at least some of the construction projects completed by the firm to be able to form ideas about the procurement of building materials and components. The firm procured greater quantities and a wider variety of goods than hitherto. With more employees (in boom times, at least), more bulk materials were used such as ashlar, rubble, bricks, slates, tiles, lime and timber. At the same time the firm now took on whole new buildings, not merely certain parts of them, so a greater variety of goods was needed. Also, new components were increasingly installed even in commonplace buildings. There were cast iron grates, ironmongery, clay tiles, chimney pots and plumbing as well as the gasfitting already mentioned. Further, while the firm had formerly built mostly rough and ready agricultural buildings, under Berry it built higher quality and more complicated buildings, railway stations and houses amongst them. The combined effect was for the firm to spend more time acquiring and moving a growing variety of goods. Many of them, if not most, would be obtained through suppliers in Exeter, although Berry also visited Plymouth (40 miles) and Totnes (30 miles). One recorded example of materials procurement from further afield than hitherto was in January 1852 when the firm acquired 3.5 hogsheads of lime from Topsham, over 12 miles distant and apparently not hitherto used as a source of that material. Procurement at such distances, as well as growing dispersal of project sites, lent greater importance to horse-drawn transport for the firm.

EARLY AND LATER FIRMS COMPARED

Having described historically-recoverable aspects of the experience of the firm in its Georgian and Victorian phases, some differences between the two will be summarized and implications noted.

The market served by Georgian firm was in a local, predominantly agricultural, economy. The firm provided replacements and repairs for parts of mostly plain buildings. Much work was for repeat orders from private individuals. While there was some seasonal variation in workload, fluctuations in trade appear to have been quite moderate. The Victorian firm, on the other hand, served a broader market on a larger scale. The firm undertook modestly-sized civil engineering work, erection of whole buildings, and manufacture of items of joinery and furniture of a comparatively

high intricacy. Much of the work under contract was for institutional customers creating infrastructure, while joinery work was for smaller, local private customers. Thus the market served by the firm became larger, more nearly district-wide than parish-wide, and divided into dissimilar parts. The firm had diversified in three ways: public works contracts, whole (not parts of) buildings, and small-scale timber manufactures. Diversification of the firm involving expanded breadth of knowledge and skills as well as geographical reach and seems to have been a strategy to cope with uncertainty in the market. Intermittent heavy commitments (civil engineering) were complemented by continuous light commitments (joinery manufacture).

As markets changed so, too, the types of products. The Georgian firm had produced heavy parts of vernacular buildings. These products were traditional and based on well-established precedent which was familiar to the firm and its customers alike. The buildings, through the nature of their constituent cob and stone materials, were necessarily slow and labour-intensive to erect. Works required no formal design documentation and little supervision of construction operations. What was sought and expected by customers was well understood in advance, quite simple and untouched by technical change. The Victorian firm, by contrast, produced polite buildings and structures (i.e. works designed by specialist professionals) in their entirety. Many embodied a growing range of materials and bought-in components, some of increasing complexity: the contrast between traditional agricultural buildings and railway buildings was marked both in intricacy and quality. The value of completed works was likely to be higher per unit floor area than hitherto and the works were probably quicker to execute. This is likely to have called for closer monitoring and control of the activities of the firm than hitherto.

The workforce and their skills were the principal factor of production in both Georgian and Victorian periods. The Victorian workforce, at its largest, was more than double that of the Georgian workforce at its largest. Productive time of Victorian employees was directed from site to site in more finely-calibrated intervals, suggesting more carefully-allocated and intense activity, presumably with a view to greater efficiency. Growing intensity of activity by the Victorian firm was also suggested by occasional Sunday working. Another novelty was the employment of youths by the Victorian firm, so that wage differentials within the firm increased markedly. The more complicated products of the Victorian firm called for a greater variety of craft skills, as well as occasional flexibility to deal with unfamiliar goods and techniques. Arduous bulk materials shifting and processing was increasingly accompanied by lighter and more finely skilled work such as joinery and smith's work: muscle was being supplemented by judgement and calculation. Further, in order for the Victorian firm to win new work it was becoming necessary to prepare and submit bids. This required a new set of skills: interpreting documents, estimating, negotiating, recording, checking and so on. Again, the growing complexity of goods incorporated in buildings brought a corresponding rise in the outsourcing of work. There was new need for transaction skills and knowledge: locating and investigating new products and services, negotiating their acquisition, supervising installation, and paying for them. The more bought-in components and the greater the

volume and variety of raw materials used on site, the greater the effort of the firm that went into transactions and the higher the material costs of the firm relative to wage costs. More transactions meant that the administrative and accounting workload of the firm was advancing: brute force on site was still essential, but paper pushing and number crunching were beginning their long ascent.

Regarding equipment, simple hand tools remained the mainstay of the Victorian firm, but there were two significant additions. One was the acquisition of precision hand tools and workshop space capable of producing small fine goods. The second was the rising importance of transport. The enlarged Victorian firm worked on sites further from home than hitherto, requiring greater movement of people and goods. Where the Georgian firm had often used building materials found on the site, the Victorian firm used bulk materials carried from somewhere else, as well as more made-up and bought-in items. Further, the workshop processed raw materials which required timber movement to yard before conversion into goods ready for delivery to site or customer. So it was that horse transport must have grown much in importance and efficiency, probably with a gradual change from pack horses to wagons.

CONCLUSION

Summing up, the experience of the firm as it moved from Georgian phase to Victorian was associated with four changes. Firstly, the firm diversified in the markets it served, in part into newly emerging fields. Secondly, as a result the firm also diversified its range of products, both upwards and downwards in scale. Thirdly, the array of skills and knowledge in the firm was broadened, especially its transaction skills, and the workforce was deployed more intensively. Fourthly, the scope of the equipment of the firm increased to enable greater physical mobility. Taken together, these changes amounted to a transformation from local activity in the vernacular to wider activity as one of the new smaller general contractors.

What light does the experience of this one firm throw on the more widespread emergence of smaller general contractors? There is the comparatively early date of the transformation, before c.1835, in view of the regional context of the firm, far from London. Then there are three factors of a general nature which can be seen to have played a part in triggering the transformation. The first factor was that the principal skill possessed by the Georgian firm, cob building, was falling obsolescent by the early nineteenth century; by 1822 demand for the core skill of the firm was under threat. The second factor was that change of ownership of the firm in that year involved the departure of the old founder, Prawle, and his replacement by the younger man Berry. Old proprietors typically may resist change, but newly empowered ones may be expected to embrace it. The third and key influence was the novel availability of competitive public works contracts for bridges, roads and railways. Taken together, these factors amounted to a fertile ground for change: diminishing opportunities in an existing market, opening up of new markets, plus accession of a younger generation. At the heart of the transformation of the firm was the new availability of competitive

public works contracts: open opportunities for sizeable projects of novel types on dispersed sites. Change in the firm came about through these new external opportunities initiated by the demand side at a particularly appropriate time for the firm.

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