Accounting for Entrepreneurship: A Knowledge-Based View of the Firm

By

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Abstract

The paper articulates a knowledge-based balance sheet with reference to the location of knowledge and the structure of accountability. This framework shows that there are several generic strategies open to entrepreneurs. Although always constrained by general framework of the capitalist mentality, historically variant structures of accountability explain changes in the more detailed patterns of entrepreneurial behaviour. The paper briefly reviews the main areas of entrepreneurial theory and takes an integrative and analytical view of entrepreneurship, offering the possibility of reconciling divergent interpretations of entrepreneurial behaviour, according to the location of knowledge and other assets and the structure of accountability. From this it goes on to develop and test a typology of entrepreneurship.

Rather than accept the argument that the 'knowledge based economy' is a new phenomenon, based on recent technical discoveries, the paper takes the view that knowledge distribution and accountability structures are perennial features in a capitalist economy. The main empirical focus of the paper is therefore the process of industrialisation, exemplified by the experiences of British entrepreneurs in the latter part of the eighteenth and the nineteenth centuries. These examples illustrate how entrepreneurs were able to use knowledge to appropriate and accumulate wealth, both fraudulently and legally, as mediated by historically variant structures of accountability.

The paper deals first with the generic business strategies of entrepreneurs and examples of opportunistic and fraudulent behaviour, then goes on to consider their

attitudes towards networking and then their political lobbying stance. Conclusions argue that the analytical framework developed in the paper is well supported by historical evidence, showing that accounting theory can deepen our understanding of significant events, such as the British Industrial Revolution and offer useful commentary on other social phenomenon, such as the role of entrepreneurs in 'dynamic' economies.

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Introduction

The vast majority of the literature on accountability, governance and corporate finance, especially where derivative of principal agent and transaction cost theory has been concerned primarily to explain managerial behaviour, in terms of monitoring, incentives and contracts. This approach has also dominated much of the accounting and finance literature (Watts and Zimmerman, 1986), has been the focus of critical analysis (for example Tinker et al 1982), including alternative models of accountability (Grey, Owen and Maunders, 1991). The starting point for conventional and critical analysis has been the separation of ownership and control between shareholders and managers, rather than managers and other providers of finance, including working capital suppliers. Also relatively little attention in the accounting literature has been paid to entrepreneurs as individuals or to entrepreneurship as a functional set of responsibilities. This is partly because the standard dichotomy implies an arbitrary assignment to either the principal or agent functions or combination of the two. The reasons also reflect the historical, but contingent dominance of 'Berle and Means' style companies in the US and UK economies during the 20th century. Powerful managers and weak shareholders suggest that the entrepreneurial function is subsumed within a managerial bureaucracy (Pollard, 1962, p.2). A final and very important problem is that if the focus of accountability is shifted from managers to entrepreneurs there is an apparent endogeneity problem

since the creation of (or escape from) accountability structures might be considered part of the function of entrepreneurship. As Hopwood (1987, p.213) suggests, organisational accounts are not merely a technical reflection of pre-given economic imperatives but are actively constructed to create economic visibility, as a powerful means for positively enabling the governance and economic control of the organisation. The purpose of this paper is therefore to analyse accountability and entrepreneurship concurrently and dynamically with reference to historical evidence from the British industrial revolution.

The paper begins by explaining the sources of entrepreneurial knowledge and its appropriation using a simple model. It is then tested with reference to the mainly nineteenth century examples from the British economy during the process of industrialisation. It deals first with the generic business strategies of entrepreneurs, including a typology of fraudulent activity in the absence of regulation. It then goes on to consider their attitudes towards networking and then their political lobbying stance. The propositions from the model are illustrated with reference to the business strategies of British entrepreneurs in each of these areas. The paper ends with a discussion and conclusions.

Entrepreneurship, Knowledge Assets and Accountability

Entrepreneurs are often viewed as an important determinant of economic success. Recently they have been lauded as the source of creativity in dynamic knowledge driven economies. Attribution of virtue in entrepreneurs, such as 'creativity', and different and implicitly superior cognitive processes, is a common starting point for many researchers (for example Alvarez and Busenitz, 2001, Gavetti and Leventhal,

2000, McClelland, 1961, Zahra, 1996). Other defenders of entrepreneurs have pointed to their ability to 'optimise within constraints' (McCloskey and Sandberg, 1972).[1] This is essentially a 'managerialist' view in which entrepreneurs perform managerial tasks, competently or otherwise (Lazonick, 1991). Schumpeterian entrepreneurs engage in creative destruction and such like activities to remove constraints upon business activity. (Schumpeter, 1939, Lazonick, 1991). An important necessary condition for such activities is access to external capital resources, a requirement that is accentuated where there are significant exit barriers associated with existing activities. Exit and subsequent development of new ventures may give rise to habitual, serial or portfolio patterns of entrepreneurship. The Austrian view suggests that heterogeneity of beliefs about asset values give rise to both entrepreneurial opportunity and the discovery of market prices, implying alert entrepreneurs profit from price differences (Casson, 1982, Kirzner, 1979, 1989). Such entrepreneurs for example might provide information in a price system. Entrepreneurs may also appear as 'rentiers' able to defend monopoly and privilege through effective lobbying (Green, 1988). The current paper takes an integrative and analytical view of entrepreneurship, but one offering the possibility of reconciling Schumpeterian, Austrian and other views. Such an approach is also consistent with the view that all economic agents within capitalism, including entrepreneurs follow a similar rational approach to decision taking (Weber, 1928, p.334) and adopt a similar calculative mentality (Bryer, 2000a, 2000b). Entrepreneurial strategies are the eclectic pursuit of surplus value and maximum return on capital employed (Bryer, 2002). Combining these elements, the discussion below sets out a model of entrepreneurship based on an analysis of the origins of valuable knowledge and the basis of its appropriation.

[1] Scale is one factor that might explain the subsumption of modern entrepreneurship

The model takes a rationalist view of entrepreneurship. If the outcome of entrepreneurial activity is the generation of superior returns (Cannon, 1991, p.17), then entrepreneurial activity necessarily comprises identifying sources of economic rent. This may or may not involve additional risk. Risk seeking behaviour is often irrational and in any case if entrepreneurial opportunity is based on superior knowledge it is likely that the circumstances allow risk reduction or avoidance. This view is consistent with known theories of value, but inconsistent with views that attribute systematic positive return outcomes and hence value to apparently the superior human attributes possessed by entrepreneurial types (for examples of the latter, see McClelland, 1961, Ronstadt, 1984).

The entrepreneurs of industrial Britain have been subject to such stereotyping, as often derogatory as complimentary. These hard nosed penny pinching pragmatists were at the same time the dynamic engine of the industrial revolution and through their attachment to tradition and old-fashioned business attitudes, its ultimate break lever (Aldcroft, 1964, Landes, 1969, McCloskey and Sandberg, 1972). These views have influenced the historiography of the industrial revolution and its aftermath, particularly in terms of the apparently developmental and then regressive role played by entrepreneurs during industrialisation and maturity. Whilst the primary purpose here is to develop and test a model of entrepreneurial behaviour rather than reinterpret the historiography of the nineteenth century British industry, some reconciliation of these stereotypes is nonetheless a logical outcome of this investigation.

The starting point for the analytical model is the two sources of business secret or types of valuable knowledge accessible by entrepreneurs. These are organisation-specific sources that might create idiosyncratic or 'tacit' knowledge (ISK) (Castanias

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within this managerialist view. Pollard, 1962, p.2).

and Helfat, 1991).[2] Such knowledge might be developed through organisational learning at the general level.[3] Specific examples might include identification of more than one use for non-fungible assets, including human capital assets (Teece, 1980). Internal knowledge, where valuable, has the characteristic of being difficult to imitate, reflecting the heterogeneous nature of assets advocated in the resource-based theory of the firm (Alvarez and Busenitz, 2001). An alternative source of knowledge comes from outside the organisation. These are external pools of knowledge, (Marshall, 1890, Kamien et al, 1992), which usually have a public good element such as local pools of experience and skilled labour.[4] This is defined as public good knowledge, PGK. If the knowledge is valuable, there are two ways in which the value can be appropriated: as private rent (perquisites, PQ) or as external financial stakeholder return (profit, Π) plus monitoring cost (MC). Two types of knowledge and two types of appropriation provide us with an alternative 'knowledge' balance sheet'. This might be represented as:

$$\boldsymbol{PGK + ISK = PQ + MC + P} \qquad \textbf{(1)}$$

Or:

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[2] This approach follows the intuition of the resource-based view of the firm and subsequent elaboration. See for example, Penrose, 1959, Teece, 1980. Such resources might include specialised production facilities, trade secrets and engineering experience (Teece et al, 1997).

[3] For current purposes, organisational learning is defined as 'encoding inferences from history into routines that guide behaviour'.

[4] These can include linkages with higher education research bases and explain the success of some industries, for example the German synthetic dye industry (See Murman, 2000).

$$PGK + ISK - PQ - MC = P \quad (2)$$

In the limiting case where all knowledge is ISK, production efficiency is achieved through internalisation of economies of scale and scope. From a financial market perspective all risk is firm specific, Although there are theoretical gains to investor diversification where risk is specific, the opportunities for diversification may be undermined by monopolistic control of product markets.[5] Abnormal profits are generated and significant rents are available for appropriation between managerial and ownership groups, split according to the effectiveness of monitoring arrangements. Conversely, if all knowledge is PGK, allocative efficiency is achieved through specialisation. From a financial market perspective all risk is systematic and again, although for a different reason, there are no gains to investor diversification under such circumstances. Profits are normal and accrue to solely to owners.

An important dimension to the equations is the extent to which knowledge is appropriated privately by owner managers (minus supervision costs) or publicly by external providers of finance (minus monitoring costs). The split depends on the socialisation of capital. Systems of accountability depend on the exercise of social power within and outside the organisation (Hopwood, 1987). The process of socialisation,[6] or pooling of money reserves, whether through banks or capital

[5] Financial theory contrasts systematic risk, where returns on an individual security fluctuate in line with general market fluctuations, with specific risk, where fluctuations in an individual security's return reflect firm-specific events. Diversification by portfolio investors only eliminates specific risk. For a review, see Bodie, et al, 1999).

[6] Social capital refers to the accumulated wealth attributable to capitalist production. Such capital is individual in the sense that it is represented by monetary claims of

markets (Campbell, 1988), that leads to different forms of business organisation, governance and accounting. On the one hand social capital represented by the pooled capital of sophisticated investors, demands accurate financial information through the medium of modern financial reporting (Bryer, 1993). On the other private capital has no such responsibility to outside investors. As a result monitoring costs are avoided and the owner/managers appropriate all profits. Such a perspective also accords with the Political Economy Contingency Theory of Capital Accumulation (PECTA), which suggests that corporate profitability is a product of institutional arrangements well as internal arrangements (Zey and Swenson, 2001, p.464). These include capitalist relations of production and the political-legal relations of the state (Gordon et al 1982, Bowles, Gordon, and Weiskopf, 1983, Kotz, et al 1994, Zey and Camp, 1996, Zey and Swenson, 2001). In other words capital dependency on outside investors including governments is an important determinant of accountability and organisational behaviour. [7]

Where knowledge is internalised within the organisation, both socialised and private capital share the problems of monitoring and supervision. This is because the valorisation of knowledge, such as the application and commercialisation of a new technique will involve some degree of delegation. As suggested above, this situation is often exploited through scale economies, which in turn suggest labour specialisation, and which also necessarily imply supervision. In contrast, the

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individuals, but collective in the sense that the claim is on the pooled capital, not on a specific asset and freely transferable between members (Bryer, 1993, 1997, 2000a).

[7] PECTA or capital dependency is also viewed as a special case of resource dependency (Zey and Swenson, 2001, Prechel, 2000).

Figure 1: A Knowledge Based typology of Entrepreneurship

		ACCOUNTABILITY	
		High	Low
Location of knowledge	Internal	1. ISK = Π [Venturers/co-operators]	2. ISK = MR [Intrapreneurs]
	External	3. PGK = Π [Arbitrageurs]	4. PGK = MR [Serial entrepreneurs]

merchanting function, along the second row of the matrix, typically involves trading claims where the number of staff is relatively small (Pollard, 1962, p.9).

This analysis can be used to suggest a typology of entrepreneurship, set out in figure 1. Each quadrant is explained in turn, with reference to historical examples. The columns of the matrix suggest different modes of accountability, depending on the degree of dependency on outside capital. The rows suggest value creation through the control of labour (typically manufacturing capital) on the first and through exploitation of price differences on the second (typically merchant capital). These categories are related dynamically through the process of economic growth. As technological progress builds on previous knowledge and discovery, so the internalised base of knowledge and publicly located knowledge bases increase. Within the firm this increases the scope of managerial activity and layers of bureaucracy, deskilling from the bottom of the organisation upwards as the impact of increased specialisation develops. However, managerial and entrepreneurial rents are only available to the extent that knowledge remains located in the private domain of the firm, whilst technical progress and innovation demands increased utilisation of generic skills supplied in the public domain through education etc. At the same time, increased financial resources are required to secure commercial exploitation, likely to

increase the involvement and scrutiny of socialised capital. However, entrepreneurial or managerial rents can only be privately appropriated to the extent that such scrutiny can be avoided. Hence, in the Marxian sense the development of productive forces and their ownership are in contradiction. Historical development proceeds through the dialectical resolution of these objective and subjective factors. In terms of the matrix, precise location reflects the relative strength of these historic forces.

Historical examples from the British Industrial Revolution

The above framework has suggested four generic modes of entrepreneurship.[8] In this section, each is discussed in turn with reference to examples from the British Industrial Revolution. The framework has also suggested possible patterns of fraudulent or manipulative behaviour, which had important impacts on the development of the British economy during this period and examples of these are also used to illustrate the cases.

In Figure 1, in quadrant 1, reliance on internalised, potentially patented knowledge means that this group most closely resembles the rentier model of entrepreneurship. Socialised capital, implying co-operation amongst owners or venturers relies on pooled capital to exploit shared knowledge and to secure equal returns for the capital advanced (Bryer, 2000a, 2000b). The East India Company is an early example, later followed by canals, railways and other infrastructure projects. These required significant accumulations of engineering and other technical

[8] This is not the first paper to suggest a typology of entrepreneurs. For a contrasting example see Casson, 1982).

knowledge and ultimately large managerial staffs, which in turn demanded significant mobilisation of social capital.

In quadrant 2, the mode of entrepreneurial operation is 'intrapreneurship', including cliques, family and managerial groups. They operate as secretive cliques shunning dependence upon and accountability to external resource providers. Desire for secrecy means that they economise on resources and shun growth in favour of control, so this group most closely resembles the optimising model of entrepreneurship. Their internal knowledge of the value chain is reinforced by the generic strategy of vertical integration. Between 1815 and 1841 the medium sized firm emerged as the optimum business unit in Manchester (Lloyd-Jones and LeRoux, 1980). This was based on vertical integration between spinning and weaving and more intensive use of capital and human resources. Growth beyond medium size was constrained by uncertainty, competition for orders and lack of managerial talent (Lloyd-Jones and Lewis, 1980, pp.200-208). So new entrants increased output and reduced prices (Lloyd-Jones and LeRoux, 1982) and entrepreneurs ignored growth opportunities presented by further scale economies (Gatrell, 1977). Vertical ownership rather than process integration was used to control of the value chain. Hence prosperous provincial manufacturers such as Peel and Horrocks and Fielden established warehouse businesses in Manchester goods (Chapman, 1979, p.219, Chapman, 1996).[9] One reason for their success was that combined firms such as Fielden were able to transfer resources between merchanting and manufacturing

[9] In Manchester in 1815, 42% of warehouse units were controlled by combined manufacturer/merchants (Lloyd-Jones and Lewis, 1980, p.57), and despite subsequent revolutions in trade (Chapman, 1977, p.13) remained entrenched until mid century (PP *Royal Commission on the Depression in Trade*, Third Report 1886, pp.15, 21 (ev Sir J.C. Lee)

utilising partner's capital accounts (Chapman, 1996). These mechanisms illustrate how this entrepreneurial group sought maintained private control over disparate business empires.

In quadrant 3, the mode of entrepreneurial operation is arbitrage, exploiting differences in publicly available knowledge, and using published prices to exploit disequilibria. Of the four types, these entrepreneurs most closely respond to the Austrian model. The play an important role in capital market making and in the development of futures markets, for example the Liverpool merchants and brokers trading in cotton futures (Dumbell, 1927, Hughes, 1960, Chapman, 1996b).[10] Other examples included exporters on commission and commission agents resident abroad. Such firms encouraged customers into British markets, providing them with finance for their purchases. Many of these new entrants began with small capital, but took advantage of plentiful and cheap capital available in Britain in the 1830s from competing accepting houses (Chapman, 1977, pp.14, 24). These provided export finance provided by discounting facilities creating opportunities for those prepared to take the risks of international trade away from industrialists (Chapman, 1984, Roberts, 1993).[11] According to some (Casson, 1993, Pollard, 1972), this amounted to a 'web of credit' underpinned by a high-trust culture that controlled access and sustained the flow of working capital.

In quadrant 4, the mode of entrepreneurial operation is serial entrepreneurship. These entrepreneurs accumulate at the individual rather than firm level, and resemble

[10] See also, F. Engels, footnote to Marx, *Capital* III, p.409. Although not referred to as 'entrepreneurs', market participants with asymmetric access to information are a necessary condition for the functioning of capital markets (Grossman and Stiglitz, 1980).

venture capitalists by ploughing previously accumulated savings from previous activities into new, often unrelated, business ventures. Withdrawal and redeployment of capital is an attribute that makes this group most closely resemble Schumpeterian entrepreneurs. It is this entrepreneurial group that most resembles those identified by Pollard (1962), who were concerned to avoid the managerial costs associated with controlling and supervising labour. Merchants such as Gott used capital accumulated from merchanting to participate vicariously in manufacturing by hiring technical expertise (Pollard, 1962, p.30). This accounted for the survival of out-working and subcontracting in industries such as textiles. In any case fixed capital requirements were low, for example in the Lancashire cotton sector before 1830, allowing such capitalists to make serial investments in unrelated businesses, thereby perpetuating systems of localised, personal and informal systems of finance (Wilson, 1995, p.48). Warehouse-based businesses also avoided narrow specialisation and diversified their activities. Owen Owens did so in order to keep capital in constantly employed (Clapp, 1965, p.23, Lloyd-Jones and Lewis, 1988, p.114). Manchester merchant manufacturers like Owens used the domestic system to impose short credit cycles and rapid exit in the event of a downturn in trade (Clapp, 1965, p.20). Owens and his successor John Owens constantly exited unprofitable markets and used the capital to seek out new opportunities. These included the equity investment in the manufacturing partnership of Samuel Faulkner and Company. More striking was the diversification in products that accompanied switches from one market to another. For example the switch from the North American export market in the 1820s to South

[11] By 1833, only around 2% of firms in the cotton industry were shipping abroad on their own account *Select Committee on Manufactures* (PP 1833, VI), pp.314, 317 and 319.

America in the 1830s.[12] Activities in the latter included a joint venture with Fielden Brothers and Co. and William Whittaker and Co. to import goods from Buenos Aires in 1840.[13] By the 1840s Owens and others diverted much of their activity and capital to investments through loans to other businesses and in railway shares.[14] Thus although these firms were nominally integrated merchant/manufacturers, they also to some degree resembled venture capitalist organisations. Whilst they diversified their investments, it was not on the basis of a portfolio approach of simultaneous diversification into unrelated activities. Owens in particular was a serial investor, with significant commitment to each of the chosen successive fields. For these firms, the distinction between fixed and working capital was relatively meaningless, since all the capital was recycled on a regular basis. Working capital provided 'massed reserves' (Florence, 1933, p.17) against risks of trade. [15] At the aggregate level, increased fixed capital requirements in spinning and manufacturing caused cotton magnates to move into joint stock banking in the 1840s, partly because external financial support was

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[12] F. Baker, Owen Owens and Son Archive, 1805-1874 (Unpublished guide to the archive, John Rylands Library, University of Manchester).

[13] Owen Owens Archive, John Rylands Library, OWN/3/2/4/11.

[14] For evidence on Owens, see Baker, Owen Owens and Son Archive and details of Owen's portfolio of railway investments in the 1840s, John Rylands Library, Ledger OWN/1/1/1/4. Another firm that used its accumulated capital from manufacturing to diversify into loans beyond the core activity was John Heywood and Company (Lloyd-Jones and Lewis, 1988, p.118). Fielden Brothers also diverted a significant proportion of their capital into railway investments in the 1840s (Chapman, 1996, p.17).

[15] Profits varied enormously from market to market, but an average profit of 3-5% on capital 'over and above interest' was considered an adequate risk premium. Parliamentary Papers, *Select Committee on Handloom Weavers' Petitions*, 1835, p.329. ev. W. Graham.

otherwise particularly important during the ebb of the trade cycle (Jones, 1978, p.105).

Some authors have suggested that there were benefits associated with these highly individualised patterns of entrepreneurship (Wilson, 1995, p.53), particularly as suggested by quadrants, 2, 3 and 4. However this is disputed. For example, others have argued that the financial institutions 'failed' British business (Gerschenkron, 1966). It has also been suggested that inadequate access to working capital finance stunted the growth of some industries, for example cotton (Chapman, 1979). Although these are important issues in the historiography, the model in Figure 1 has entrepreneurship rather than economic growth as its dependent variable. The above review is limited in the historical sense, but nonetheless intended to be sufficient as an illustration of the Figure 1 typology.

Entrepreneurship, opportunistic behaviour and fraud

Rather than regard one particular mode of entrepreneurship as a success or failure an alternative perspective is to suggest that there are opportunities for fraud or rent seeking whose character varies depending on the parameters of the model. If entrepreneurs are self-seeking, as might be commonly expected, they might also be expected to use guile in the process. In other words entrepreneurship might be analysed according to Williamson's (1985) definition of opportunistic behaviour. Figure 2 suggests the sources of surplus, excess or fraudulent profits and offers examples of different types of opportunistic behaviour and fraudulent activity.

Figure 2: Entrepreneurship, Opportunistic Behaviour and Fraud

		Accountability	
		High	Low
Location of knowledge	ISK	1. Extraction of surplus. Asymmetric information Examples: *Fraudulent prospectuses* *Railway swindles*	2. Extraction of surplus Examples: *Health and safety neglect* *Child labour scandals*
	PGK	3. Extraction of rent Asymmetric information Examples: *South Sea Bubble* *Arbitrage*	4. Extraction of rent Examples: *Veil of incorporation frauds* *Money laundering* *Cotton swindles & corners*

Quadrant 2, being a special case, is dealt with first. Where capital is unsocialised there is no opportunity for entrepreneurs to defraud outside equity investors. Due to the internalisation of resources and knowledge and absence of external scrutiny, this leads to scandals rather than fraud, for example of poor health and safety and exploitation of female and child labourers. Profits therefore depend on the extraction of surplus value through the control of labour and of the working day. It was over these issues that moral battles between philanthropic and rapacious entrepreneurs were fought out. Robert Peel's claim that he delegated to overseers who in turn hired children and perhaps exploited them, but that this was none of his own responsibility (Pollard, 1962, p.270), illustrates one example of how accountability within the labour process

was conveniently covered up. In this case by the entrepreneur denying knowledge and control over what was happening in his own factories. Whilst labour exploitation is not ruled out in the other 3 quadrants, these also present opportunities to earn rents through swindles and frauds or simply by accessing information asymmetries.

In the left-hand column of figure 2, there are opportunities for entrepreneurs to act fraudulently, exploiting either PGK or ISK. In the former case, represented by quadrant 4, information asymmetries arise as a result of imperfect capital markets. For example in the South Sea fraud capital was initially raised from credulous investors on the promise and nothing more of untold riches from the spice trade. This was not based on inside knowledge, merely a believable lie and ignorance of geography (Neal, 2000a, 2000b). Cotton swindles (Marx, 1984, p.411) provide further examples of systematic fraud arising from issue of additional bills on the same goods leaving businesses vulnerable to sudden rises in discount rates during commercial crises.

Where knowledge is internal, as in quadrant 1, there is a moral hazard problem that can be exploited by managers to mislead socialised capital. If knowledge is external, information asymmetries arise from the distinction between informed and naïve investors and 'swindles' are more likely when monitoring and transaction costs or the costs of becoming informed are high.[16] These costs are dependent on the socialisation of capital and the effectiveness of the accountability structure. Manager/entrepreneurs with inside technical knowledge are able to fool uninformed outside investors. Railway flotations in the nineteenth century, characterised by some as 'swindles' and satirised by Trollope in *The Way We Live Now*,[17] and more recently

[16] This logic is derivative of the relationships suggested by Grossman and Stiglitz, (1980).

[17] Railway 'swindles' are referred to in Marx (1984, p.410), and analysed in more detail in Bryer, R. (1991). For a discussion of the impact of railway flotations and

dot-com companies, illustrate the importance and potential ineffectiveness of accountability structures and supporting regulatory institutions from the perspective of the naive investor. In the cotton industry, operators such as John Bunting exploited new flotations in similar fashion, ultimately undermining the collective accountability of the co-operative system (Toms, 2002).

Finally in quadrant 4 the 'veil of incorporation' style fraud occurs where an entrepreneur uses a business to establish a credit network, but controls the equity of the firm, then withdraws capital thereby defrauding the creditors.[18] In this case capital is unsocialised, there is no intention of attracting long-term investment in the internal knowledge base and the entrepreneur exploits external contacts and networks to perpetuate the fraud. Other examples include fraudulent issuing of bills of exchange. Merchants created a credit bubble in the 1840s using this mechanism (Marx, 1984, p.409). These operations typically used unsocialised privately held merchant capital and exploited existing vertical and network trading structures. The use of Commission agents for the first time in the 1840s facilitated this activity. Before then manufacturers and finishers such as calico printers bought and sold their own cloth (Howe, 1984. p.16). Further risk arose from political uncertainty in overseas markets and bad debts arising from certain customers or markets. Money laundering is another type of fraud to be found within the parameters of network based external knowledge and secrecy of privately held capital, particularly through poorly regulated banking systems (Strange, 1998, ch.7). A final example is the use of private capital such as a hedge fund to engage in market manipulation or to corner a market. Due to the interventions of such financial syndicates, cotton ‘corners’ became regular

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business behaviour in general on the Victorian novel, see Alborn (1995).

[18] Salomon v. A. Salomon & Co. Ltd (1897)

occurrences affecting the Liverpool and New York markets from the early 1870s onwards (*Oldham Standard*, 24th August 1889).

All of this suggests a calculative rational view of entrepreneurs, in which they get away with what they can or are allowed to. It stands in contrast to the many famous examples of ethical enlightened entrepreneurs of this period. However, the purpose is to explain aggregate behaviour and individual entrepreneurs might be expected to fall along some continuum of good and evil. Even in the case of apparently philanthropic entrepreneurs such as John Bright and John Fielden, the model goes some way towards explaining their attitudes towards the political regulation (or lack of) of business activity. This is dealt with below. First it is necessary to extend the model to consider dynamic and network elements.

Entrepreneurship and Network Characteristics

Based on the above relationships, entrepreneurial network participation reflects the location of knowledge and other resources and by how the resources are accessed. A resource-based view of the firm can be extended to the context of a resource-based view of the cluster as a whole or system. Where resources are ISK and internal, this is likely to promote internalisation with a hierarchic structure. Similarly, where knowledge is PGK, small-scale and specialised firms are promoted and these will draw on a narrow resource base and will draw on market inputs for non-specialised functions. Resource sharing and specialisation at individual firm level promotes

heterarchic network structures, with high density,[19] whereas greater internalisation by a single firm promotes network with greater centrality.[20]

If entrepreneurs organise networks where there is previously a pure market, then market processes are substituted along heterarchic lines. Examples might include inter-firm arrangements to control supply and price, particularly where firms with narrow resource bases lack the market power to do so singly. Similarly if there is hierarchy, network development by entrepreneurs substitutes for the original internal relationships (Fruin, 1998, p.9). Examples might include outsourcing to associated companies, 'subsidiarisation',[21] enforcement of supply via dedicated contracts, and horizontal amalgamation of semi-independent firms within a federal combine structure.

Transparency and opacity are a function of the degree of capital dependency as defined earlier by the PECTA model, which create reciprocal agency, monitoring and transaction costs. Opaque networks are unaccountable to external stakeholders and more likely to be self sufficient in resource terms. Transparent networks on the other hand demonstrate accountability and are more likely to be capital resource dependent. Thus on the horizontal axis, self-sufficient and resource dependent networks correspond to opaque and transparent accountability. Transparent governance and accountability is more likely to be socially constructed whereas self-

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[19] Density refers to the actual number of ties as a proportion of all the possible ties within a network structure. As density increases norms are diffused and behaviour becomes more similar. For a discussion see, Meyer and Rowan (1977).

[20] Centrality refers to the prominence of an individual actor within the network structure. For a discussion see, Brass and Burckhardt (1993).

[21] Subidiarisation refers to the transformation of tightly controlled divisions into more autonomous subsidiaries in large US corporations in the 1980s and 1990s. For a detailed definition see Zey, 1999.

sufficiency is more likely to be naturally occurring. In a longitudinal framework, economic action is 'embedded' (Granovetter, 1985) by *ex ante* resource distribution and accountability structures. It should be noted that this discussion implies two levels of accountability. The main concern here is the degree of accountability by the network to outside stakeholders. However, there is also the question of intra-network accountability. This will depend on network density and centrality, as defined earlier, so that dense networks will tend to diffuse norms of accountability within the network, whereas centrality may limit the degree of information sharing.

Another important determinant of network characteristics is the rate of capital accumulation and growth. This in itself is a function of the rate of technological change, which establishes the available internal and external economies of scale within the industry, district or economy. Self-sufficient networks are almost by definition unconcerned with growth and may be appropriate to low-growth industries or to support rationalisation, patent based monopoly production, etc. Conversely in high growth industries, firms and networks require funds for production facilities, advertising, research and development that can only be obtained externally. In general past growth influences the current resource base whilst future growth impacts on the degree of resource dependence. Combining these influences, this suggests the following network typology corresponding to the matrix quadrants in figure 3:

1. Hierarchy substituting, high external resource dependency (resource dependent) networks. These are most suitable for co-operator style entrepreneurs, operating in joint stock and managerial capitalism underpinned by high past growth and with high future growth prospects.

2. Market substituting, high external resource dependency (resource dependent) networks. These are most suitable for arbitrageur style entrepreneurs, operating in joint stock and alliance capitalism underpinned by low past growth and with high future growth prospects.
3. Hierarchy substituting, low external resource dependency (self-sufficient) networks. These are most suitable for cliques, proprietors and family groups style entrepreneurs, operating in managerial and proprietary capitalism underpinned by high past growth and with low future growth prospects.
4. Market substituting, low external resource dependency (self-sufficient) networks. These are most suitable for serial entrepreneurs style entrepreneurs, operating in proprietary and alliance capitalism underpinned by low past growth and with low future growth prospects.

Figure 3: A Typology of Network Structure

		Strategic Context: Degree of Accountability	
Strategic Content: Organisational Resource Base	**Extensive**	**Transparent** *Quadrant 1* Hierarchy substituting, high capital dependency networks	**Opaque** *Quadrant 3* Hierarchy substituting, low capital dependency networks
	Narrow	*Quadrant 2* Market substituting, high capital dependency networks	*Quadrant 4* Market substituting, low capital dependency networks

At the earliest stages of the industrial revolution, entrepreneurs created networks primarily to substitute market processes. The domestic putting out system allowed entrepreneurs to avoid supervisory costs and the requirement to assimilate technical knowledge personally whilst sharing risks with subcontractors (Pollard, 1962, p.38). Such credit-based networks were significant in GDP terms and assisted industrialisation by facilitating distribution at competitive prices (Brown, 2000).

These arrangements as in the post bellum American Deep South often empowered the credit brokers at the expense of poor sharecroppers (Jacobson and Smith, 2001). Such arrangements were not necessarily superseded by further industrialisation. In the road haulage industry of the 1930s sub-contracting was promoted by Clearing houses, established to allocate loads on return journeys, were able to dictate the profits of sub-contracting hauliers by exploiting informational asymmetries and controlling entry and exit through HP agreements and service contracts (Scott and Reid, 2000).

In certain cases as the industrial revolution progressed, networks substituted for hierarchies, partly reflecting a refusal by entrepreneurs to commit themselves to the labour management and accountancy skills required for the management of multi-unit operations (Pollard, 1962). In charcoal and iron and the early coke blast furnace industries, interlocking partnerships secured control of the value chain through mutual co-operation and delegation of managerial responsibilities. (Pollard, 1962, p. 40).

These partnerships promoted self-sufficiency within the network. Hence intra-network accountability was strong but low dependence on outside resource provision and control of the value chain meant these networks could avoid accountability to wider society. A common intra network enforcement mechanism is the trade association, which has often served to establish rules of business conduct and the regulation of competition through governance practice (Scranton, 1998). Such organisations together with the other network attributes described above are also important as a basis for political activity and lobbying.

Lobbying strategies and political economy

The earlier analysis suggests a further taxonomy of entrepreneurial action, this time in relation to political lobbying. This is summarised in figure 4.

Figure 4: Political Economy and Lobbying Strategies

		Capital Dependence	
		High	Low
Scale Economies	Internal	High regulation High intervention	Low regulation High intervention
	External	High regulation Low intervention	Low regulation Low intervention

Differential rates of capital accumulation create divisions among major business sectors (Berg and Zald, 1978). The strongest class segments are those where economic concentration is highest and this results in a low level of state autonomy, (Baran and Sweezy, 1966, Poulantzas, 1978) and high levels of resource sharing and inter-dependence between industry and state, or capital dependence. PECTA suggests that political institutional arrangements become more aligned during periods of prosperity, but break down in periods of declining profitability (Gordon et al 1982). Concentrated class segments are therefore more likely to lobby for state intervention and exploit such interventions to their advantage. Conversely they may experience intervention as a result of their dominant position, for example industries such as steel and railways whose internal economies form the basis of external economies for other industries. These industries are able to mobilise influence and resources in favour of production efficiency. Where economies of scale are more difficult to internalise and knowledge is more typically PGK on the bottom row of the matrix in figure 4, markets are more likely to be allocatively efficient and firms face lower risk of intervention. At the same time, knowledge and resource dispersal reduces the effectiveness of lobbying for political intervention by these groups. Finally self-sufficiency and capital resource dependence may reflect the politics of regulation and ideology (Davis et al, 1994). Competition policy, company law and rules governing financial institutions are the obvious examples (Fligstein, 1990). The absence or presence of such rules influences the viability of secretive cartels and the level of protection offered to external stakeholders. Meanwhile prevailing ideology may influence the extent to which managers acquiesce to or promote accountability to external stakeholders (Lazonick and O'Sullivan, 2000). Therefore in the columns of

figure 4, a high degree of capital dependency is likely to promote greater regulation, thereby modifying accountability structures. In the left hand column future growth and higher capital dependency promote greater accountability to external stakeholders and create the scenario where governments usually need to regulate to protect external investors, as in the Bubble Acts and company legislation. Meanwhile the pay-off for less resource dependent entrepreneurial groups is greater freedom from regulation.

Returning to the entrepreneurial typology in figure 1, if the political lobbying matrix is superimposed, this predicts the attitudes of different types of entrepreneur towards lobbying and regulation. In quadrant 1 where entrepreneurship is takes the form of managerialism under the rentier capitalism model, there is likely to be greater emphasis on lobbying for resources and a high degree of regulatory intervention. This is well illustrated by the railways. Railway entrepreneurs lobbied for recognition as national institutions, thereby avoiding the requirement to pay local taxes and later for state backing of loan finance. Legislation in 1844 and 1846 imposed rules for book-keeping and private audit and proposals for state auditing in the Monteagle committee of 1849 (Alborn, 1998, pp.177 and 186).

In quadrant 2, cotton merchants and brokers, primarily operating in Liverpool exemplified Austrian style entrepreneurs. Their activities demanded standardisation of cotton grades and they helped evolve rules, which resulted in the emergence of a formalised exchange. From 1849 purchases of 'arrivals' became common and this activity increased markedly in the late 1850s (Dumbell, 1927, Hughes, 1960, p.94). After 1870 futures trading was formalised in New York forcing Liverpool to follow suit (Chapman, 1996, p.87). These and similar groups looked to the Bank of England for regulatory stability, particularly monetary policies that allowed sufficient liquidity for discounting bills.

In quadrant 3, secretive entrepreneurial cliques will resist regulation but may lobby for resources. Private capital owning Preston manufacturers and spinners demonstrated these characteristics. In response to shortages of supply and the threat of speculative buying in 1839 and to prohibitive raw material prices in 1847, cotton manufacturers organised short time working (Hughes, 1960, Ward-Perkins, 1950, p.84). They organised collectively in response to labour, as in the Preston strike of 1854 (Chapman, 1904, pp.209-239) as well as to brokers and importers and in 1857 in response to the shortage of cotton supply at Liverpool.[22] Preston entrepreneurs acted on a joint resolution at a general meeting in response to these problems. This contrasts with their oft repeated condemnation of the public companies and socialised capital of Oldham (Toms, 2002) and with the refusal of Manchester merchants and manufacturers to organise collectively as a political force.

Manchester school capitalism corresponds to quadrant 4 and the most 'laisser faire' resistance to resource lobbying and collective action, other than to resist regulation. In the 1846 crisis, although 'a binding combination' was sought (Hughes, 1960, p.92), that city's merchants refused to join organised lobbies from elsewhere in the manufacturing regions for a repeal of the Bank Act, which many believed to be responsible for the credit squeeze and the resulting crisis. Manchester capitalists instead relied on secret networks on close network relationships with powerful banking interests, reducing capital dependence. The established mainly Manchester merchants and manufacturers were the winners according to the status quo. They had knowledge of and access to markets via networks of agents, and financial contacts on

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[22] The Indian mutiny effectively 'suspended' the important Indian export market in July 1857 and also threatened the supply of Indian cotton *The Times*, 27 July, 1857. Contemporary estimates suggested stocks covered only eight weeks supply Callender (1858), *The Times*, 25 June 1857.

the boards of local joint stock banks (Jones, 1977, Jones, 1978, Rose, 2000, pp.72-4). Cotton magnates also participated on the boards of these banks, enforcing a culture of strict commercial secrecy and opaque accountability to customers, shareholders and even in some cases to fellow directors (Jones, 1977, pp.106-109). Many had large reserves of capital, itself an insurance policy against cyclical fluctuations, but which was also represented as personal wealth diversified into land and other industries (Howe, 1984, pp.28-43). The Manchester Chamber of Commerce, in a spirit of independence, refused to join others, including Liverpool, in lobbying the government to suspend the credit restrictions of the 1844 Banking Act. Opponents of limited liability were not necessarily the enemies of accountability. Bright opposed the East India Company partly because of its culture of secrecy but also because it diverted resources to military expansion instead of infrastructural investment (Alborn, 1998, pp.39-40).

Divergent behaviour in figure 4 is also a function of economic growth and differential rates of accumulation. Manchester capitalists as discussed earlier reinvested much of their surplus profits in railways, leading to overexposure to that sector. This resulted in simplistic and misguided condemnation of railway speculators for causing capital shortages in the 1840s.[23] Speculation in railway shares only had a detrimental effect on Manchester capitalists because they were serial and portfolio investment had led them to invest surplus capital into an industry they did not

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[23] The real causes were political promises arising from the lobbying of others for entry into the China market, which led to a wave of mill building by speculative entrepreneurs in 1845. Parliamentary Papers, (Secret) Committee on Commercial Distress, 1848, viii, p.375, q.4950. .[23] Crop failure in India was an important contributory factor (Farnie, 1979, p.106, Ollerenshaw, 1870, p.114). The Irish famine increased food imports and caused an exodus of Bank of England gold reserves (Evans, 1969, p.55, Marx, 1986, Vol.3, p.408).

understand. Many were hit severely as a result. As one Manchester merchant put it: 'if we had had a thousand tigers or leopards upon us, they could not have destroyed more people than the railways have done.'[24]

As Manchester business interests learned these lessons, the formation of industry associations became increasingly important as a response to threat and uncertainty. In Manchester the initial impetus came only from the manufacturers, with the spinners forced to follow suit later (Hughes, 1960, pp.91-92). However, as the cotton industry encountered demand-constrained limits to expansion (Clark, 1992), manufacturers increasingly recognised the risks of dependence on cotton from the American South (Hughes, 1960, p.89). This was recognised following the cotton shortages of the 1840s when Manchester cotton interests began to lobby for railway investment in India as a basis for a cotton import trade (Alborn, 1998, p.39, Bearce, 1961, Silver, 1966). In February 1857, the Manchester Chamber of Commerce urged the formation of a 'cotton league' to seek government aid in developing new sources of supply (Hughes, 1960, p.90). In 1853 Manchester and Newcastle Commercial associations petitioned parliament arguing that the East India Company should set aside 10% of its revenues 'for the construction of trunk lines of railways ...and all other engineering agencies required in a commercial and civilised country' (Alborn, 1998, p.39). A memorandum to the East India Company outlined proposals for transport infrastructure to facilitate the growth and export of cotton from India (Watts, 1871, pp.119-23). In June 1857, the Cotton Supply association voted its articles of faith as the extension of the growth of cotton in the dominions and all other accessible countries (Redford, 1934, p.227). This was a long run response to an increasingly limited supply relative to the growth of productive capacity (Hughes, 1960, p.93).

[24] Parliamentary Papers, (Secret) Committee on Commercial Distress, 1848, viii,

The Manchester cotton interest was in general resistant to regulation but sufficiently endowed with accumulated capital resources to be able to operate as a powerful lobbying group. The helped the cotton industry as a whole overcome demand based constraints on growth. Hence British foreign policy had an important impact on the expansion of overseas markets. The opium war introduced the Chinese to the benefits of free trade 'at the point of a bayonet' provoking a mill building boom when Peel and Palmerston suggested that the trade might be expanded into this market.[25] A decade later the Crimean war provided a similar opportunity. The British government provided Turkey with a loan of £5m, a substantial proportion of which was used to import British cotton goods (Mann, 1860, T.25). Income generated by army expenditures during the Indian mutiny fuelled an export boom to India in the 1858-1860 period (Hughes, 1960, p.96, *The Times*, 3rd Jan., 1859).

Whereas the powerful Manchester merchants had high ex ante capital resources by 1850 and therefore low capital dependence, other less powerful groups faced difficulties in accessing private capital and potentially high bankruptcy risk. Relatively weaker lobbying groups, with limited access to internal economies of scale, were less forceful in seeking political intervention, but tended to favour a protective regulatory environment. The spinners and manufacturers of the south east and north east of Lancashire had small capital requirements but lacked access to secure trade finance. Their dependence on commission agents, acceptance houses and banks increased capital costs and risk. This group that sought capital elsewhere by advocating changes in the law on business regulation, thereby being able to exploit the vehicle of limited liability. In the higher reaches of the Rossendale valley

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p.371, q.4892. ev. Gardner

associations of artisans hoped that the joint stock form of organisation would provide the means of escape from the thraldom of capital (Farnie, p.216). Their enthusiasm for the corporate form was reinforced when they were refused credit by the established institutions (Farnie, p.217). Robert Slaney MP, a campaigner for working-class enterprise and limited liability called for a Royal Commission in 1852 (Bryer, 1997). In contrast, much of the opposition to the proposals for limited liability put forward by the Mercantile Laws Commission came from Northern metropolitan industrialists, including the Liverpool and Manchester Chambers of Commerce (Jefferys, 1938, p.41). Those that supported it were sensitive to the absence of outlets for the profitable investments of accumulated capital (Jefferys, 1938).

Conclusions

The paper has taken a simple view of the purpose of the accountant's balance sheet - to account for what is valuable (in this case knowledge) and the claims against that value. It has extended this by showing that the categories on the knowledge balance sheet correspond to the development of productive forces, their ownership and the fact that these are in contradiction. This allows further analysis, via a typology of entrepreneurship, as developed from a knowledge balance sheet and knowledge-based view of the firm. The typology was used to explain business strategies, fraudulent activities, network participation and political lobbying by entrepreneurs. In general the empirical evidence supports the validity of the typology and the analytical matrices suggested by it. These are summarised in figure 5.

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[25] Parliamentary Papers, (Secret) Committee on Commercial Distress, 1848, viii,

Figure 5: A Typology of Entrepreneurship

	Quadrant 1 'Rentier'	**Quadrant 2 'Austrian'**	**Quadrant 3 'Optimiser'**	**Quadrant 4 'Schumpeterian'**
Business Strategy	Managerialism	Arbitrage	Intrapreneurship	Serial entrepreneurship
'Opportunistic' behaviour	Creative accounting	Market manipulation	Exploitation	Third party frauds
Networking characteristics	Transparent, hierarchy substitution	Transparent, market substitution	Opaque, hierarchy substitution	Opaque, market substitution
Political strategy	High regulation High intervention	High regulation Low intervention	Low regulation High intervention	Low regulation Low intervention

If this analytical view of entrepreneurship is accepted, it helps reconcile a number of divergent views from the literature about what constitutes entrepreneurship. It also follows that regulation to encourage entrepreneurship, for example through changing governance arrangements (Short et al, 1999), will alter its character rather than its aggregate level. Similarly it will alter the character of fraudulent opportunity without necessarily altering the aggregate level of fraud. This is not to suggest that regulation is undesirable and comment on this issue was beyond the scope of the paper, except to say that regulation itself is partly a product of the processes that also explain the characteristics of entrepreneurship.

The discussion also leads to some possible reinterpretation of the history of the British Industrial Revolution. By the 1830s many firms depended on banking style institutions for the finance of working capital. On the one hand this dependence provided cotton spinners and manufacturers with access to the external economies of scale required for selling their products in export markets. On the other, it limited

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p.375, q.4950.

their freedom of entrepreneurial action. In the cotton industry and others this dependence implicated many firms in the often-disastrous consequences of intermittent commercial crises. Two strategies were adopted to secure independence from commercial risk. On the one hand, entrepreneurs accumulated large capital reserves and privately diversified their investments. They became venture capitalists and supporters of the individualist 'Manchester School'. On the other hand, groups of operatives and their representatives turned to the principles of co-operation, first by establishing independent societies and later through advocacy of incorporation and limited liability. Neither strategy was sufficient to control important linkages in the value-chain as the industry became increasingly specialised. So although both strategies provided the means to finance larger mills in the second half of the nineteenth century, neither secured the desired independence from external financial stakeholders and the vagaries of the trade cycle.

However, applying theory to history is full of pitfalls. Although the selection of evidence might appear contrived to fit the model, that is partly a problem of required brevity rather than historicism. Another problem in interpreting the evidence is that entrepreneurs do not rigidly conform to one part of the typology through time. Identifying longitudinal changes is the task of detailed historical enquiry, made easier it is hoped through analysis of the matrix parameters outlined in this paper.

Whilst the use of historical examples has tended to confirm the validity of the typology as an analytical tool and has stressed the importance of integrating the location of knowledge with the structure of accountability, there is scope for extension to more recent examples. The role of new knowledge based assets and their mis-representation by accountants to defraud investors is one possible example. Analysts of globalisation may also claim for example that centralisation of corporate

power means that executives are operating simultaneously in all four boxes. They simultaneously raise enormous capital from world stock markets, and arbitrage them, they promote and dominate alliances of other companies, and they locate secret factories violating labour standards in the third world beyond the scrutiny of domestic accountability. These global entrepreneurs may be a new phenomenon, but nonetheless, as the historical examples show, there are perhaps some perennial truths concerning particular aspects of entrepreneurial behaviour.

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