# Entropy and Entrepreneurship: The Centralisation of Capital as a Barrier to Innovatory Behaviour.

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It is the central theme of this paper that the apparent tendency toward centralisation of capital in a nation inhibits innovatory behaviour. After initially defining some key concepts, the paper looks at the work of other writers who have identified such a tendency from different perspectives before reviewing how a selection of major institutions may be interpreted as contributing to the situation. The paper indicates how this process of centralisation may be expected to continue to the extent that, in what are called the developed economies, innovation may become the exclusive preserve of the major corporations and, ultimately, the state. The paper concludes with a review of the potential implications of the trend and tentative proposals for the avoidance of centralisation and the preservation of scope for individual entrepreneurial behaviour.

**Key words:** entropy; negentropy; entrepreneurship; intrapreneurship; capital; centralisation

## 1. Introduction

This paper suggests that within any given economy, capital, in the form of money, particular intellectual property and general knowledge (organised information), is subject to growth in negentropy, ie the distribution of capital becomes more "disbalanced" (Beer, 1966) over time. It is considered that this tendency acts to inhibit individual innovatory behaviour by reducing the opportunities available for it, since the capital required for innovation, in whatever form, is available to only a diminishing portion of the population.

This is seen as a threat to societary cohesion, since if possession of capital equates to possession of power, then a minority elite may ultimately control and conceivably coerce the thinking, beliefs, knowledge and behaviour of the majority, making Orwell's (1949) fiction a future reality. Creativity may then become dedicated to survival of the individual within a system which may be perceived to be oppressive, rather than development of the individual to cope with what Oliga (1990), cited by Flood (1992), has called "phenomenal changes and ever growing diversity and complexity in societal practices".

It is assumed in this paper that self-regulation is preferable to state regulation. It is further assumed that development of self-regulation in society is not only more effective and efficient than state control but also emancipatory, since it reduces the power of others over the individual, enabling them to be, more nearly, themselves.

## 2. Concepts

Before moving into the argument itself, this section serves to explain some of the key concepts which have been drawn upon in the building of the argument. Those familiar with the key words may choose to pass directly to Section 3. Despite the difficulties which may be encountered by some readers in addressing a number of, perhaps, unfamiliar concepts in one section rather than spread throughout the paper, perseverance will enable the reader uninterrupted access to the balance of work.

### 2.1 Entropy

Entropy is defined in physics as a thermodynamic quantity that changes by an amount equal to the heat absorbed or emitted (by an object) divided by the thermodynamic temperature or, alternatively, as a lack of pattern or organisation. In management cybernetics, it is defined by Beer (1981) as “the measure of a system’s inexorable tendency to move from a less to a more probable state,” i.e. an evening out of the energy available to a system, which reaches a standstill at unit entropy,” which “for a viable system equals death”. This means that as the states of two connected subsystems converge, the entropy increases.

In simpler terms, if there is a difference in energy levels between two connected systems, the energy will tend to equalise itself between the two over time, i.e. to reach a more probable state. For example, an ice cube taken from a refrigerator and placed in a bowl of boiling water will absorb heat (energy) over time from the water until the temperatures are equalised. This is a self-organising property – the energy evens out without being “managed” to do so, although the process can be speeded up or slowed down by external interference in the system.

Entropy is a measure of difference between the levels of energy in the two subsystems, and the more even the balance of energy, the higher the level of entropy.

### 2.2 Negentropy

Negentropy is the negative version of entropy, and is a “measure of information” (Beer, 1966 p.347). In this case, negentropy is the measure of the difference in degree of organisation between two or more connected systems and measures the information “disbalance” between the systems, a “disbalance which tends to increase.” Thus the difference between a more organised system and a less organised system will tend to increase rather than decrease. Beer (1996, p.347) elaborates on this as follows:

> Suppose that two sub-systems both begin with the same amount of energy. Sub-system A uses up a lot of this energy in the process of organising itself internally. Sub-system B uses up less of its energy in organising itself to a lesser extent. So A is more organised than B. Accordingly, since interaction occurs, energy must, by the rules of entropy, flow from B to A. It is now, as it were, too late for B to catch up in degree of organisation with A. It has a decreasing supply of energy available to use for organising itself, while A has an increasing supply. So the more organised A feeds on the less organised B. Eventually A will destroy B altogether (in an isolated system). Note that the boundary of

A, which is its interface with B, has to be visualised as advancing into B's territory. That is, the degree of organisation moves against the direction of the flow of energy.

This tendency of differentials in levels of organisation to increase is a typical example of positive feedback, that is, the tendency of some change to be automatically reinforced.

## 2.3 Entrepreneurship and Intrapreneurship

Flood (1992), in seeking to establish an overview appreciation of entrepreneurship, has defined an entrepreneur as "a person (or group) who initiates and manages enterprising new ventures," while an intrapreneur is "an innovative person (or group) in a project situation who (re)vitalises management (the five functions) to sustain and strengthen enterprising new, establishing or established ventures."
These definitions, which taken together incorporate a time perspective for the nature of entrepreneurial activity, move beyond the standard conception of a focus on profit and loss and allow for innovative activity, whether profit-oriented or not, to be regarded as entre- or intrapreneurial. The definitions are used uncritically in this paper and it should be noted that the entrepreneur is seen as opportunity focused, while the intrapreneur is problem focused.

## 2.4 Capital

Lipsey (1975) gives the definition of capital as "all those man-made aids to further production, such as tools, machinery, plant and equipment, including everything man-made which is not consumed for its own sake but is used in the process of making other goods." In this paper, capital is more broadly defined, to include not just money and "things" but also information, concepts, and all intellectual property, whether proprietary or not. This approach is chosen since, increasingly in an information-oriented society, possession of conventional capital is insufficient to ensure success in innovation. Possession of, or access to, information is vital.

## 2.5 Centralisation

To centralise, conventionally, means to move something toward central control. In this paper it is used to describe negentropic drift, that is, the gradual movement of capital toward the more organised elements of society, e.g. governments, public institutions and corporations, and away from the less organised, i.e. the individual. This process, which may be considered to be entirely natural, is seen as a key inhibitor of entrepreneurial behaviour.

## 2.6 Summary

This section has introduced a number of key terms and explained their meaning in the context of this paper. The next section looks briefly at the work of other authors who have identified aspects of this problem.

## 3. Theoretical Perspectives

This section briefly reviews the work of other authors, putting in place a theoretical support for the proposition.

### 3.1 Vilfredo Pareto

Vilfredo Pareto, an economist, cited by Lipsey (1975), suggested that inequality of income is a social constraint determined by forces "possibly beyond man's understanding and probably beyond his influence." He found, by analysing the population of a country, that a small proportion of the population received a large part of the total income. Early investigations in Italy suggested that 20% of the population received 80% of the income; his subsequent work was aimed at proving that his income distribution curve was applicable to all countries. Since Pareto's time, other scientists have demonstrated that while the 80/20 ratio is not absolute, the general shape of the "Pareto curve" is evident. This curve has been found to be applicable not just to income distribution but to other areas of statistical analysis. Beer (1979), for example, makes entertaining use of it in his "machine for eating the railways."

While Pareto suggested that this process was beyond human understanding and control, the development of cybernetics in more recent years indicates that, while perhaps still beyond human control, the process is not beyond human interpretation. Nonetheless, the inequality of income distribution suggests that while the poor will dedicate an increasing proportion of their income just to survival, the rich will have an increasing excess of income over expenditure enabling the accumulation of what we have called "capital." Thus, with Karl Marx, the poor will get (relatively) poorer, while the rich get (relatively) richer.

### 3.2 John Kenneth Galbraith

Galbraith (1974) wrote of "a world of great corporations – a world in which people increasingly served the convenience of these organisations which were meant to serve them." He showed how markets, rather than being the controlling power in the economy, were "more and more accommodated to the needs and convenience of business organisations" and that what counted as success was "less what served the individual than what served the goals of great industrial and military bureaucracies which had come…to comprise so large a part of the economic system."

Challenging conventional economic theory about the power of markets, Galbraith shows how the production of sophisticated goods demands large investment of capital and considerable elapsed time. He quotes the example of the Ford Motor Company, which was formed in June 1903 and put its first car in the market place in October of the same year. He then moves on to the sixties and relates that the Ford Mustang tokk 3.5 years from conception to delivery. Galbraith argues that the commitment of capital required for such a venture demands that the market be created by the manufacturer to ensure success; complete failure cannot be sfforded. The Mustang project was undertaken by an organisation with $6 billion of assets and cost $59 million in development and tooling costs. Galbraith goes on to show that the major proportion of savings (those economic resources devoted not to current consumption but to investment in future production) is, for the United States, generated by corporations, rather than individuals. The ratio which Galbraith cites for 1969 was 2.5:1 in favour of the corporations. It can be seen from this theory in practice that capital is again moving toward the larger (more highly organised) organisations, practical negentropic drift.

Two lessons can be drawn from this example. First, any industry which has a large capital requirement is effectively closed to an individual new entrant. A state may undertake such as an enterprise, as has recently been demonstrated in the motor industry by Malaysia with the Proton and Korea with the Kia, but individual entrepreneurship is limited to relatively small component and accessory suppliers, the survival of whose organisations is entirely dependent on the larger company – a parasitic relationship. Second, consumer choice is limited to the products the manufacturer is committed to, since the individual cannot significantly influence the product range. Choices are limited to aspects such as colour and detail; the essential qualities and features of the product are fixed. This suggests that if I wish to be a motorist, I must reinforce the strength of one of a limited number of suppliers, creating a positive feedback loop which reinforces his chosen position, further weakening my own.

Again, as with Pareto, there exists a plausible cybernetic explanation of this phenomenon which perhaps parallels the Darwinian theory of evolution, i.e. the survival of the fittest, in this case the one with the largest supply of capital. Certainly it makes a useful analogy, in terms of both the process itself and the end result, an adaptive species of organisation which, much like humankind, seeks to procure an ever-increasing volume of resources to satisfy its maintenance and development needs. The negentropic drift in this case is of individual capital to corporate capital.

### 3.3 Michael Porter

Porter (1980) provides an understanding of, and techniques for, analysing competitive rivalry in industries. In his structural analysis of industries he examines the structural determinants of the intensity of competition. Porter shows how in certain circumstances, while competitive rivalry is high in an industry, it is difficult for either new players to enter or existing players to leave, and the jockeying for marginal improvement in position between players drives down prices and returns on invested capital. This state of affairs generally occurs in mature or maturing industries, i.e. those where

- There are numerous or well-balanced competitors
- Industry growth is slow

- There are high fixed costs
- There are low switching costs
- Capacity increments are large
- There are high strategic stakes

This again may be compared to the process of evolution, as only the strongest will survive long-term in that competitive environment. However, once the industry has reached the point of relative maturity, there will be poor prospects for any new entrants. Such capital as is available will be directed toward more profitable investments, and the capital that is already in the industry may atrophy; it cannot easily be used for other purposes, it cannot earn an adequate return, and the assets which have been acquired will potentially decay – the entropy of the industry is approaching unity.

### 3.4 Peter F. Drucker

Drucker (1985) cites Schumpeter's (1911) view, which postulated that "dynamic disequilibrium brought on by the innovating entrepreneur, rather than equilibrium and optimisation, is the 'norm' of a healthy economy and the central reality for economic theory and economic practice." This may be interpreted as a recognition of the danger of negentropic drift, which is the apparently normal behaviours of economies, i.e. the movement of capital from individual to corporation and, ultimately to the state. Of particular interest is the use of the word 'healthy'; I have taken Schumpeter to mean that equilibrium and optimisation mean total stability, which, for an economy in a dynamic environment would mean inertia, or decay and death. It has been argued by others, e.g. Beer, Espejo and Harnden, that organisations, and an economy is an organisation, must be in a state of dynamic equilibrium with their environment to survive. While approaching the problem from different perspectives, and using different words, Schumpeter and the latter authors seem to be calling for a fluid interrelationship between organisation and environment, leading to a state of dynamic balance, not inertia.

Also referred to is what Drucker calls the "Kondratieff wave." Based on a 50-year cycle, which drew from the then perceived inherent dynamics of technology, Kondretieff asserted that waves of technology existed, which, in the last 20 years of their lives, generated apparently very high profits for the organisations in the relevant industry. These profits were held to be fictitious and to be instead repayments of the capital which that industry had gathered to itself in the prior 30 years. While this might suggest that capital then reverts to the individual, in the nineties, it is much more likely to revert to the institutions which provided it, i.e. the government, banks and investment houses.

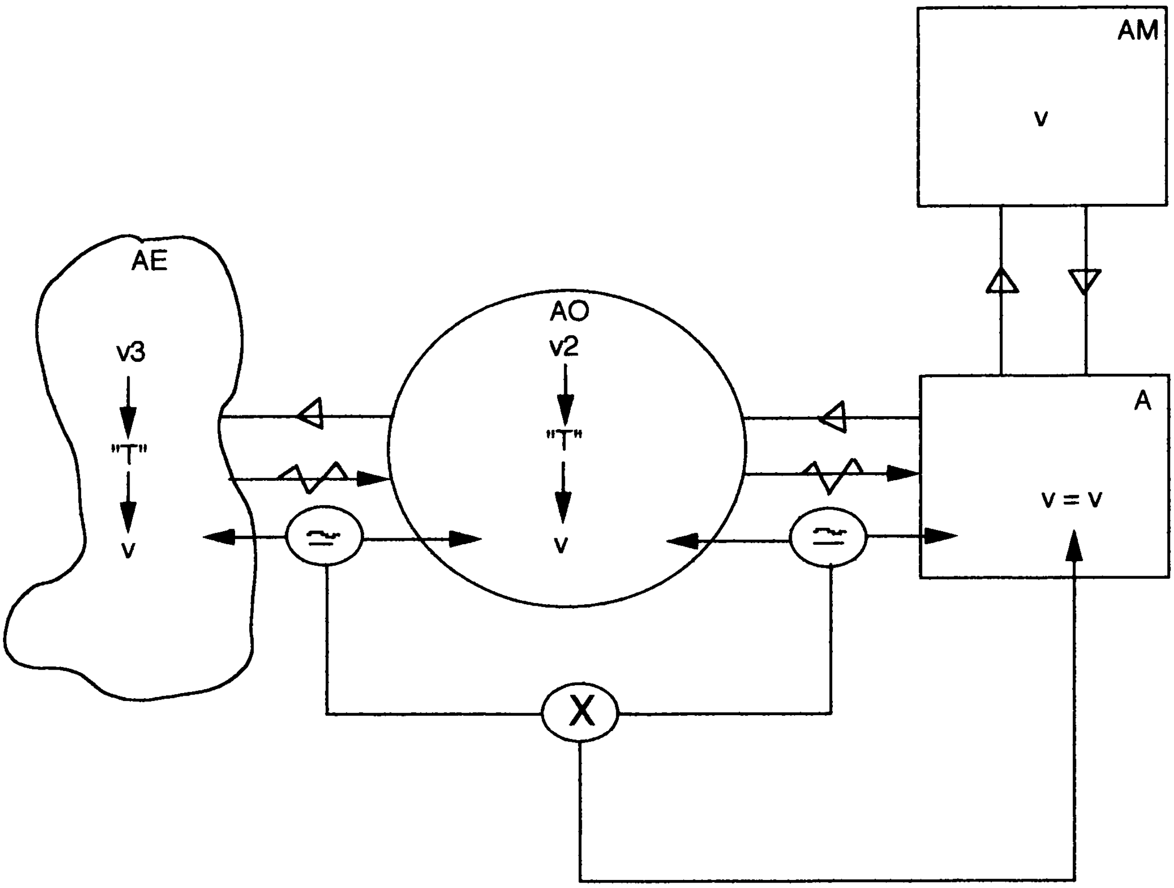
Drucker (1985 pp. 93-106) shows how industry structure alters with an increase in size; he suggests that, with a doubling of volume, "it can be predicted with high probability that its [the industry's] structure will change." While Drucker suggests that this is an entrepreneurial opportunity, it is frequently the case that existing successful players in the market acquire, merge with, or destroy their weaker competitors. Evidence of this can be seen in most major industries e.g. motor manufacturing (where only the minor players concentrate on highly “niched” markets e.g. Morgan and Ferrari), or banking (where, again, apart from the majors, the minor players focus on highly differentiated, low-volume, high-cost, specialist products.

### 3.5 Anthony Sampson

Sampson’s work (1993) broadens the argument considerably. Sampson has written consistently since 1962, offering an overview of the “main centres of British power.” In his latest work, he focuses on what he considers to be “the essential crisis points,” particularly in the weakening of the democratic process in Britain, a; a weakening which he postulates has accelerated during the 1980s. He shows how this phenomenon has also developed in the commercial sector, where “decision making has been taken over by a few groups and people, most visibly in the highly centralised media,” and how, while “businesses claim to offer the consumer greater choice, major decisions are taken by a tiny group of people, and shareholders’ representation is now threatened as much as the voters’.”
Sampson systematically reviews the workings of the state, the law, education, commerce and journalism showing how, in each one, what I have called capital (and he calls power) has become concentrated. He suggests that, despite the much vaunted liberalisation of choice in Britain during the 1980s, “ the gap between government and governed looms wider than ever, and Britain is run by one of the most centralised and least accountable systems in the industrial world”.

### 3.6 Stafford Beer

Beer (1993) follows a similar theme, reviewing what he calls the “spectacular transitions” of increasing human misery and societal collapse; he proposes that, worldwide, we are governed by an oligarchy of “power, greed and terror.” Suggesting that humankind manages its affairs with “breathtaking incompetence,” Beer goes on to propose that the world, as currently managed, is suffering from “dysfunctional overcentrality,” that is, attempts to manage our affairs are being undertaken at such a distance from the problems that the “solutions” are doomed to fail since the managers do not have sufficient variety [a measure of the possible number of states (or in this case, responses) of the system] to undertake properly the task they have set themselves. (The notion of variety was proposed by W. Ross Ashby and can be explored further in the work of Beer, Flood, Carson and Jackson). Beer is essentially arguing that individual autonomy has been hijacked by the operation of the worlds’ governing system, which reinforces its position through ever less accountable mechanism of state control, e.g. police forces, central control of education, and health authorities in the United Kingdom. Beer extends his argument to the European level, through the structure of the European Union, and to a global




"T"= Transformation

v = Variety

X = a comparator

≃ = a meter of approximate equality

A = a management box

AO = Operations managed

AM = a management model

AE = Environment

A Management System

(Adapted from Beer (1993))

Figure 1

Beer’s (1993) model of a simplified chronic societary triage management system.

level by looking at the United Nations. He sees the flawed structures and ruinous policies at national level being replicated at global level and the initiative is lost to local hands."

Beer considers that what he calls the "ideological oligarchy in government" tends to "sort" the people into three arbitrary categories, 'A's,' who constitute the ruling group; 'B's,' who are aspirant A's; and 'C's,' who are the alienated mass of the population, obliged to adhere to the strictures of the other groups.

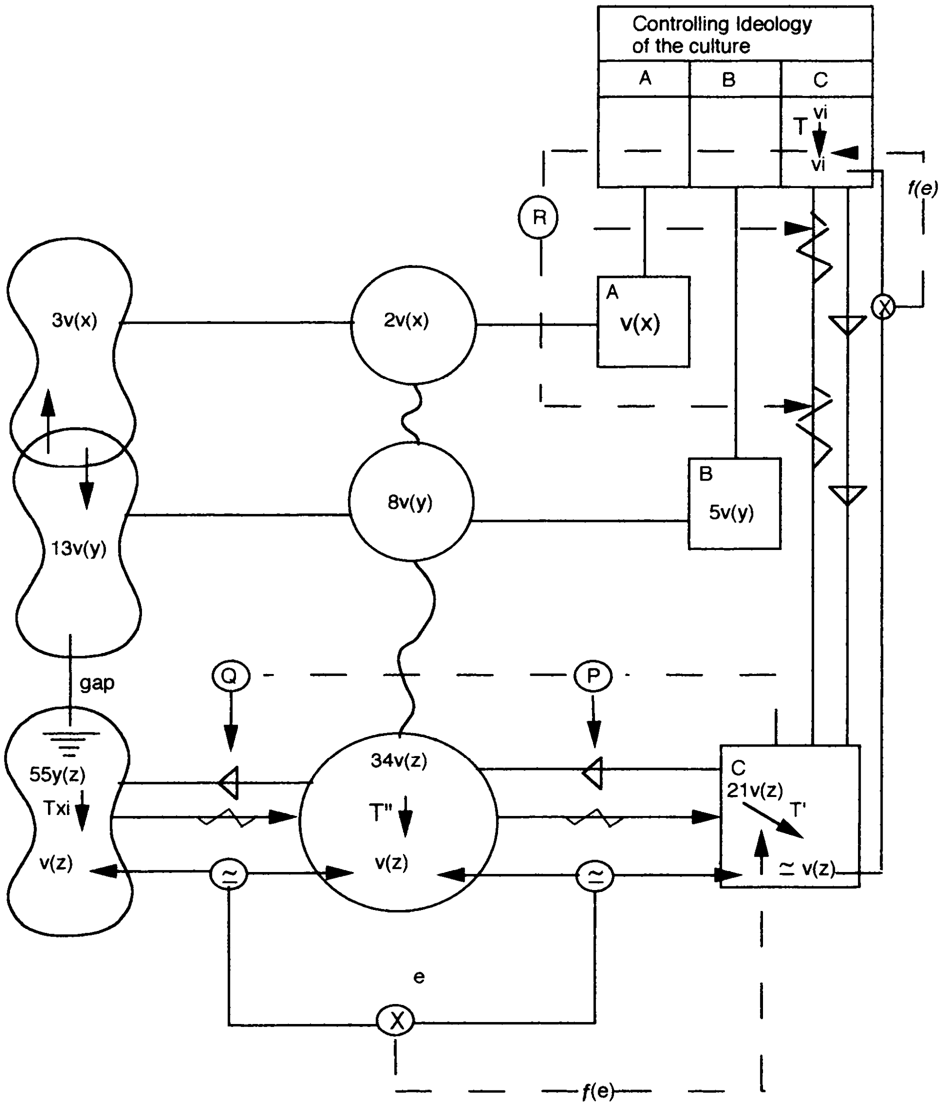
Beer describes the "organisation of the world" through which he considers this process to occur as "chronic societary triage," a "triage pump." In much simplified form this operates as described below; Figure 1 provides the description in diagrammatic form.

A management group, *A*, seeks to manage its operations, *AO*, using a model, *AM*, which represents its understanding of how the world is. The whole is contained in an environment, *AE*. However, the variety of the model, *v* (the number of responses it is capable of generating for the management group, *A*), is far less than that of the operations, *A* must attenuate (reduce) the variety transmitted upward through the system and amplify (increase) its own variety as transmitted downward such that the variety becomes balanced at v throughout the system. Properly designed, this mixture of strategies should amount to a transformation "*T*," which enables the system to answer to Ashby's law or requisite variety, in which the variety of the controller must be equal to that of the controlled.

Beer contends that *A* monitors this management process, through the two metres of approximate equality which feed back to the management box. The results of this activity are fed back to *A*, which since its model also contains the variety *v*, considers that the system is properly managed. The amplifiers and attenuators are constantly adapted to maintain this equilibrium. Thus the *A* system is experiencing constant self-satisfaction; everything is all right with its "world."

The problems occur when the links of this system to the B and C systems are revealed (Fig. 2). Here it can be seen that while the essential structure of control is the same for each level, the B and C systems, each with its own model, are forced to take account of the A model and compromise by B people, who perhaps aspire to be A's, and subjugation of C people, who are obliged "to work within a low variety model imposed from above which they do not see as at all relevant."

Beer proceeds to raise a number of theoretical and practical points, but the essential one for this paper is made from a cybernetic perspective; the organisation of the world tends toward greater centralisation. Readers who desire a fuller view of the argument are directed to Beer's (1993) Presidential Address to the Triennial Conference of the World Organisation of Systems and Cybernetics, entitled "World in Torment."




Beer's model of chronic societary triage, in which the ideological model of the "A" class is tolerated by the "B" class in order to gain acceptance, and imposed upon the "C" class.

Beer (1993)

Figure 2

### 3.7 Summary

This section has introduced some of the work of other authors which seems to point to the process of centralisation of capital, which I have called “negentropic drift.” Pareto’s work was seen to highlight the inequality of income distribution, which has been subsequently found to hold true in a wide range of situations. Galbraith demonstrated the increasing power of the corporations and their propensity both to create markets and to acquire increasing amounts of capital to pursue their objectives. Porter’s model for structural analysis can be seen to confirm the process and links to Drucker’s work, which featured Joseph Schumpeter’s recognition of a need for “ dynamic disequilibrium” and the “Kondratieff wave,” in which industries, as they mature, are suggested to become oligopolies, and whose excess profits are considered to be repayments of capital previously used by the industry. It was suggested that this capital reverts not to individuals but to other large organisations. Sampson’s work, written from a much broader perspective, suggested that the democratic process in Britain has been considerably weakened over recent years, complemented by a similar process in the commercial sector, concluding that the power of the individual has been considerably eroded. Finally, Stafford Beer’s recent exposition of the working of the world was used to illustrate a possible process by which the eradication of freedom and centralisation of effective power can occur.

Taken together, these contributions are drawn from economists, management theorists, a political analyst and author, and a cybernetician cum philosopher. Each, from his own perspective, has identified the same phenomenon, a progressive centralisation of capital. Section 4 examines some of the United Kingdom’s major contemporary institutions to reveal if their behaviour supports belief in this phenomenon.

## 4. Empirical Observations

This section reviews an arbitrarily selected group of U.K. institutions to evaluate whether their behaviour fits the observed pattern and looks for the barriers to innovatory activity which this may be considered to cause. Those chosen are banks (since I used to be employed by one, and they are central to the operation of any economy), conglomerate corporations (since they seem most likely to have behaved in the way suggested), universities and professional institutes (since I belong to both), and government (since we are all affected by them).

### 4.1 Banks

Banks, as already been suggested, are central to the operation of any developed or developing economy. Regardless of state, public, or private ownership, they provide, and usually control, the primary mechanisms for the transmission, deposit and lending of monetary capital. Every organisation, whether or not in existence for profit, and every individual seeking acceptance as a “normal” member of society, needs a banking relationship. Through this can be obtained the appearance and appurtenances of respectability, e.g. credit and debit cards, a cheque book, the ability to obtain financial references and so on. Provided the individual or organisation conducts transactions in a manner approved by the rules of both the banking system in general and the particular bank concerned, they will be considered “a good credit risk” and have conferred upon them the awards of financial probity.

I defend the right of the banks to conduct their business in a manner which, having developed over centuries of practice has proved to be reasonably sound in the protection of their depositors’ and shareholders’ financial interests; however, we should look at its implications. The banks prefer customers who behave in accordance with their own self-image, demonstrating the same stability and certainty that they themselves perceive they enjoy. Thus an individual, or organisation, who frequently relocates may have a lower credit rating than one whose location is stable. An individual earning a regular salary, of whatever size, will enjoy a higher credit rating than one of uncertain or irregular income. The people who constitute the banking system are seeking the same qualities in their customers that they enjoy themselves, regular income and other relatively stable conditions.

This process is self-reinforcing and has potentially major impacts on the way in which people and organisations conduct their existence. Survival and growth in a developed economy depend on financial acceptability, a situation most easily achieved by adhering to the conventions of the system; thus in pursuit of acceptability, more and more are driven to accept the norm of the large organisation. As a teenager in the 1970s, uncertain of how I wished to make my way in the world, I was driven by the vociferous encouragement of my parents to seek a “proper job,” rather than to pursue the, admittedly unsatisfactory, course of casual employment. On reflection, I would not have missed either experience, but the ideal proposed for me was the course of then-perceived maximum security. As an aside, the 1980s in banking proved to be an exceptional time and I benefitted greatly from my employment in banking, as did many others. The 1990s are proving somewhat different, with major restructuring and loss of job security for many bank employees. The security which many perceived has proven to be relatively short-lived. I should add that I left banking of my own volition; I was not pushed – I jumped.

The banks, then, are pursuing customers who reflect their own self-image. Those who do not conform are considered to carry a higher risk than those who do. The consequence of this comes through quite clearly in the pricing of banking services. Assuming that an individual or organisation represents a good enough risk to become a borrower in the first place; for a borrower in a high-risk category, e.g. low or irregular income, non-existent or inadequate security (illiquid capital!), the price of borrowing will be higher than for a conformist borrower. Thus it is that the individual, normally undercapitalised borrower, who needs support most, is paying the higher price for that support – a situation which guarantees a harder fight to survive, since it has implications for costs, pricing, and hence competitiveness of product. The large corporation or wealthy individual can borrow more easily, from a wider range of potential sources, and at a lower cost.

The difference in cost between the conformist and the nonconformist borrowers may be as little as 3% on the cost of money; however, in a competitive industry such as the retail motor trade, this may represent the margin between profit and loss for the organisation.

We can derive two substantial, and demonstrable, barriers to innovatory behaviour at this point. First, the cost of capital for an innovator is higher than for an established organisation; and with Porter (1980), the higher the barrier to entry, the lower the chance of success. The second barrier can be seen in the differential pricing which constitutes a capital pump whereby the higher rate paid by the innovator effectively subsidises the borrowing of the established player; the advantage of the bigger player is continuously reinforced.

In summary, the organisation and behaviour of banks, while in the interests of their existing depositors and shareholders, inhibits innovatory behaviour. Their right to act in the best interest of their current stakeholders having been defended, the question is raised of how the barriers can be overcome.

### 4.2 Conglomerate Corporations

These organisations have been selected for examination simply because they seem to demonstrate the point being made; the centralisation of capital of all types into the hands of a few decision makers.

Conglomerate diversification is referred to by Ansoff (1987) as “a move into businesses which are not related to the firm’s present business”. Conglomerates are normally formed by acquisition, and while there is an on-going argument among strategic management theorists about its value and intent, an interesting claim is restated by Ansoff that conglomerates “ offer no synergistic advantages which can be translated into lower prices to the consumer and they insulate the component companies form the pressures of competition”. Regardless of the lack of an agreed motive for the process of conglomeration, and there may be many and various motives, it is possible to examine the effect of this activity.

First, to acquire another organisation, it is reasonable to assume that it is currently fairly successful. [There are suggestions given elsewhere in the entrepreneurship literature (e.g. Silver, 1986), “When in trouble, buy something,” but that may be seen as a special case and outside this argument.] In general, an organisation on the acquisition trail will already enjoy some degree of success. It is also possible to say about these organisations that, since they are not in any particular industry, they must be in the business of what Schumpeter described as achieving “equilibrium and optimisation” of returns to shareholders. In doing so they will seek a broad balance between an acceptable short term rate of return on capital invested coupled and acceptable growth in capital value, a process which seems certain, as with the

banking process already described, to minimise risk in protecting the capital base, thus reinforcing the position held.
If, as Ansoff has stated, there is no lower cost offered to consumers, and protection from competition is increased, it can again be seen that the creation of conglomerates raises further barriers to innovatory behaviour. Protection from competition will inhibit new entrants to the particular industry protected, and the maintained cost to consumers acts to transfer capital again from the individual to the corporation.
One example of this can be seen in the recent acquisition of Rank Hovis McDougall (RHM) by Tomkins, where, despite reductions in the costs of RHM's operating companies achieved through the new owners, and an increase in short term profitability, there has been no reduction in costs to the consumer. Another example is Hanson Trust, which continues to trade in other companies, seeking to maximise the profits of both parties, again with arguably no benefit of price or choice to individuals but rather a continuation of the propensity of Hanson to accumulate capital.
As with the banks, it can be seen that the creation of conglomerates acts against diverse individual interest, pumping ever-increasing amounts of capital toward the already large organisations. It may be argued at this point that ultimately the beneficial owners of this capital are individuals, either through direct ownership of shares in the conglomerates or indirectly through their holdings in insurance companies, pension schemes and other forms of investment. While this may be partly the case, it also seems true that effective power of decision making with regard to those investments rests not with the individual investors, whose views are rarely if ever sought, but with the fund managers and investment analysts who are employed to act on their behalf. The ritual of an annual general meeting of shareholders is most often simply that, a ritual. The individual shareholder's voice counts for little against the larger blocks of institutional shareholders. It can be suggested from this that these institutions are not effectively accountable to the providers of their capital, and Sampson quotes the Cadbury report of 1992, which showed that "up to 80% of the appointments to the boards of large British companies are still made on the old boy network." If the nonexecutive directors of organisations are supposed to be the shareholders' "watchdogs" on the behaviour of the corporation, but their individual interests are aligned not with those shareholders, but with the other members of the board, then in whose interest do they act? This brings us to the subject of "clubs and societies" i.e. the universities and professional institutions, which may be seen as an enabling factor in the negentropic phenomenon.

### 4.3 Universities and Professional Institutions

The universities and professional institutions deal in two forms of capital which are very different from the monetary form but, nonetheless, seem to be subject to the same process of centralisation: information and contacts. Each of these may be seen as essential ingredients for success in contemporary society.

It seems to increasingly the case that the world revolves around “information” rather than “things,” and while there remain useful arguments about what constitutes knowledge, it is treated here, as suggested in Section 2.4, as information (which enables decisions and increases options), concepts, and both proprietary and non-proprietary intellectual property.

Universities and professional bodies seem to act in similar ways to commercial organisations, attracting intellectual capital to themselves through the conferring of degrees or professional membership and then seeking to erect barriers to others seeking similar status, progressively making the award of such status more difficult to achieve, in order to “preserve standards.”

(At this point it seems appropriate to declare that as the holder both of a degree and of a corporate membership in a professional body, I am as interested as any in the preservation of the perceived value of my status. Therefore I would not wish to see the standards lowered, but, no doubt, some prior holders of these honours would look at my work and consider that standards have already fallen!)

What seems to be the case, however, is that once the intellectual capital has been accumulated at a particular place or institute, e.g. a university library, it becomes more difficult rather than easier to gain access to it. For instance, it is understood that to study for the professional accountancy examinations, employment has to be obtained in an accounting role. Since in the recent U.K. recession such positions have become more difficult to obtain, professional qualification has become similarly so.

Similarly with educational institutions, initial acceptance requires the achievement of some prespecified objective, perhaps A-levels or their equivalent in the case of a university or, as in my own case, a level of accumulated experience and career success which is deemed acceptable to the decision makers in the particular institution. Having been accepted at the “input” end of such a system, the candidate is then granted access to all the information which is denied to others; he or she has become party to and a part of that information capital.

Those who, for whatever reason, whether it be lack of opportunity, late development, or the exercise of power by others, do not achieve sufficient academic or career success to obtain entry to either sort of institution are forever denied the opportunity. This reinforces their position as “non-members” and reinforces the position of the members. It may be the case that the truly determined will overcome all obstacles, but I consider that this is the exception rather than the rule.

Those who have been accepted at the “input” end of the system, and who persevere to the “output” end, accumulate two things. The first is, as already stated, lifetime access to the information held. The second is a permanent and ever-involving network of people from the same profession or university. A subculture is created of members of the university of wherever, which will open doors which would otherwise remain closed. The supreme examples of this old boy network are the “great universities" of Oxford and Cambridge, the famous public schools such as Harrow and Eton and, finally, the traditional military regiments.

These "clubs" act in the same way as the organizations already mentioned; they seek to enhance their own capital, in this case information and contracts, accepting into membership only those who reflect their own self-image. The networks which are generated have, in the past, ruled the British Empire and, even today, are administratively and sometimes politically at the head of the nation.

Summarising, this process may be seen by the anthropologist as completely normal human behaviour, accepting only those who are "of our tribe"; it again seems to confirm the notion of negentropic drift, except this time it is of information and access rather than monetary capital. The information becomes centralised in universities and professional institutions, which as they develop knowledge and reputation, and hence become more organised, attract to themselves yet more information, to which they then allow access only to those whom they, on their own terms, consider suitable. They are again unaccountable to the individual. If information is what enables us to recognise an opportunity for innovation, as Drucker's (1985) work suggests, the denial of access to it is an effective barrier to innovatory behaviour.

### 4.4 Government

Jay (1987) stated that

> In all important ways states and corporations are the same – in particular in the framework they construct within which economic and political necessity interact with the minds and wills of men. State and Corporations can be defined in almost exactly the same way: institutions for the effective employment of resources and power through a government (board) to maintain or increase the wealth of the landowning classes (shareholders) and provide safety and prosperity for their citizens (employees).

This provides a suitable starting point for this review: if states can be argued to exist for the same purposes as corporations, then do they behave in the same ways and to the same effect?

The state deals in all kinds of capital, gathering to it money through the systems of taxation and borrowing, directly controlling certain information through devices, in the United Kingdom, such as the Official Secrets Act and other legislation and, indirectly controlling other information through the exercise of both financial and political control.

It should be remembered that the supposed birth of national government rests in the United Kingdom on the Magna Carta, which transferred a portion of the power and responsibility for running the country from the sovereign to the then barons. This transfer has evolved into a system of universal suffrage whereby, in theory, the government is elected by the people for the people. This system is subject to some criticism since, while at the constituency level a parliamentary seat is won by the candidate receiving the greatest individual number of votes, he or she need not be elected by a majority of those voting.

Hence, at a national level, the present government, with a small majority, was elected by about 45% of those voting.  A different voting system would produce different results, but it may be suggested that the electoral system does not ensure that parliamentary seats are held in accordance with the wishes of the majority of the electorate.  Thus, not only does the government gather to itself capital of all kinds, but it does so without the expressed support of the people.

Following this it seems desirable to examine the affiliations of the members of Parliament (MPs), and here it is found that MPs have become increasingly polarised around two political schools of thought: one principally socialist, the other principally capitalist.  Two phenomena can now be highlighted.  First, the degree of difference in policies between the two main parties has become less over recent years i.e. the difference in their intellectual capital has been subject to a process of entropy such that they are now offering relatively undifferentiated approaches – their political energy is becoming equalised.  Thus effective choice by the electorate becomes focused on personalities rather than politicies.  Second, rather than the MPS representing the views of their constituents in parliament, they now represent primarily the views of their parties, since this is their route to career success in politics; this reflects the behaviour suggested in Section 4.3 of wishing to be accepted as ‘part of our tribe’.

This paper is not a protest at the apparent inequities of the current parliamentary system, but an investigation of the process of negentropic drift.  So how is the government centralising capital?  First, in the name of the welfare state and the benefit of society as a whole, it levies an ever-increasing range and burden of taxes; second, under pressure from lobby groups, it seeks to impose rules and legislation on a widening front, impinging further on the rights and freedom of individuals, developing what has been called the ‘nanny state’, in which government knows best and makes all decisions on behalf of the people.  This process of ‘nannyisation’ may be considered to take away not just the rights and freedom of individuals but also their ability to think and act for themselves and hence their accountability and responsibility for their actions.  The natural progression from this, as perhaps could be interpreted from beer (1993), is a further increase in state intervention, since the people are no longer able to make their own decisions.  Practically evidence is seen of this on a regular basis in the news, with individuals and groups recognising a problem and demanding that ‘they’, the government, should do something about it.  It seems to me that the more self-regulation is forgotten and government regulation is demanded, the more centralisation of capital will occur, of both knowledge and money, since the government will be unable to fulfil the supposed demands for action without increasing supplies of both.

In summary, first, we can detect a polarisation of politics toward an almost consensual view, such that there is little left to choose between the options offered by different political parties.  While this may be seen as providing scope for the entrepreneurial politician, it should be noted that the electorate tends to vote for a party rather than an individual; those of radical or individual views, such as Screaming Lord Sutch, rarely achieve a significant proportion of the vote.  Second, once elected, the MPs represent in parliament, not their constituents, but their parties.  Third, the denial of individual responsibility in favour of state responsibility for behaviour and action reinforces the intervention of the state in all aspects of life. It can be suggested then, that the process of negentropic drift is occurring also at this level and that three barriers to innovatory behaviour are being established.  The first is the 'tribal' political mentality, the second is the ineffectiveness of the individual vote and the third is the progressive loss of freedom, which reinforces the other two.

### 4.5 Summary

This section has reviewed an arbitrarily selected group of UK institutions seeking evidence to support or deny the proposition that capital tends to centralise.  It is suggested that their behaviour fits the pattern of a progressive movement of all kinds of capital toward the more organised and away from the less organised – the process called negentropic drift.

- Cost of capital
- Differential pricing of capital
- Protection from competitive pressure through the creation of conglomerates.
- Limitations of access to information capital.
- Ineffectiveness of elector/shareholder votes.
- 'Tribal' acceptance.
- Polarisation of ideological models.
- Representation by MPs of party, not constituents.
- Loss of the sense of individual responsibility (self-regulation).
-

For what is no more than a first look at this area of research, the identification of such potential barriers suggests a need for work to further confirm or deny the problem.

## 5. Critical Reflections

This section seeks to examine the possible implications of the process which has been identified, to make proposals for overcoming the barriers to innovatory behaviour and to make suggestions for further research.

### 5.1 Implications

The apparent conclusion to the process of centralising capital is that all the capital may ultimately reside with the state, and as power seems to reside with capital, we may be moving toward a capitalist totalitarian state. The state of government in the United Kingdom has already been referred to as an elective dictatorship (Beer, 1993), and there is a common aphorism in the United Kingdom – Don't vote; the Government will get in!" This perhaps reflects the feelings of some British people, that they are so subject to central control that the political flavouring of the ruling party is immaterial. This progressive centralisation has been shown to occur through a number of processes and so to inhibit innovatory behaviour.

First, there is a reduction in access to capital of all kinds and an increasing differential in the price paid for it. The difference between the 'haves' and the 'have nots', coupled to the increasing absolute size of capital required for innovation, suggests that, over time, it will become impossible for an individual to innovate in any meaningful sense. It will be essential to belong to one of the 'powerful' tribes. It might be suggested that the erosion of student grants in favour of student loans, far from increasing access to intellectual capital will reduce it. Whichever way it works, the price of education for the less well-off, with a greater need to borrow, may be expected to be greater than for their better-off counterparts.

Second, there is the loss of competition through the creation of conglomerates and intercorporate collaboration. Examples of the latter phenomenon can be seen, particularly in the motor and electronic industries, and would make a worthwhile study. Their collaborative activities will reinforce an already strengthening position. These organisations, which have been shown to be not effectively accountable to individual shareholders, may behave as they see fit.

A pre-final state for industry and commerce would see increasing numbers of conglomerates acting in a cartel-like fashion. Evidence suggestive of this can already be seen in industries such as financial services and oil. These conglomerates will enjoy, in the short and medium term, increasing power in relation to their consumers and increasing lobbying power, perhaps through tribal relationships, with government. This power may be expected to be used to protect further the position of the conglomerates and defeat new competition. At the same time the conglomerates will be 'trading off' power with those in government control, who will retain ultimate control. However, as a government control of the overall state increases, so the capital pump will draw in increasing amount of available resources to them, reducing the power of the corporations. It might be suggested that this has already occurred in areas such as education, the arts, scientific research, and other activities, which, once principally funded by private capital, are now increasingly state dependent. Central funding and increasing protection for industries will inhibit further entry. It might be suggested that the capital pump is primed by the first request for intervention and that it is then only a matter of time before the requestor is totally subject to the whim of the state, not just for funding but also on matters in which that state may not be competent such as artistic value, aesthetics and so on.

Third, ‘tribalism’ will increase and there may be further pressure to conform to the expectations of the powerful. It has been noted that in the House of Commons, MPS represent largely the views of their party, and not their constituents, a phenomenon which also seems to occur at the local government level. The polarisation of political views, which represents a convergence of the low-variety ideological models of reality held by the different parties, will further reduce the scope for useful political debate. It might be said that the flurry of government scandals in late 1993 and early 1994, far from being an example of deteriorating moral behaviour, simply reflects the lack of scope for reporting of political debate, since there is none. That is to say that there are not issues of concern to the ordinary votes, but that they are not available for discussion by the major parties since they are satisfied with their own converging models of the world.

Fourth, it is suggested that, as with addictive drugs, once a dependency has been established, the ‘user’ will require a ‘fix’ which increases in both volume and frequency. In other words, a dependency on the state will be established which eradicates individual freedom and increases again the pressure to conform. Once the dependency is absolutely established, then the holder of capital perhaps holds the power absolutely, and with Lord Acton (1960), “Power corrupts, absolute power corrupts absolutely”. Control of this power is being rapidly lost to the electorate, since many fail to use their vote and all are offered only the choice between the low-variety models offered by the dominant groupings.

## 5.2 Proposals

A difficulty of making significant proposals in this area is in avoiding further increase in the power of the state, i.e. greater centralisation of control of capital. It is apparent that we need, if we cannot reverse negentropic drift, to ensure that mechanisms exist to pump capital back to the individual, thereby seeking to maintain an appropriate balance of central and local control, since neither is adequate on its own, perhaps a form organised anarchy.

For monetary capital, returning it to the individual might be taken to imply some form of state-managed redistribution of wealth or, alternatively, state intervention in the behaviour of banks and other commercial enterprises, both of which have been attempted before. Rather than that, which in effect would increase the power of the state, at cost to both individuals and corporations, it is suggested that the state should seek to reduce the burden of public finance and hence taxation. This could be done through a re-examination of state intervention to focus only on those areas where state intervention is absolutely required for cohesion, rather than ideologically desirable. The reduction in levels of taxation in both absolute and relative terms would necessarily increase the capital available to individuals, many of whom could enjoy a surplus of disposable income, increasing the potential of savings at the individual level.

Contradicting the previous paragraph, and such a contradiction is almost inevitable, to support the increase in monetary capital, there is a need to guarantee access to information capital. This could be achieved through devices such as open learning schemes. If individuals are to retain the freedom to exercise control over their own lives, i.e. to make choices, the responsibility of the state, through its citizens, is to ensure that they are adequately equipped to do so in an increasingly complex world. It is suggested that this can be achieved through education, by which I mean not simply passing on simple models which determine decisions, but developing the critical faculties of individuals and their communication skills, in order that they may make informed, but undirected choices. It is to be expected that while, in the short term, this may lead to withdrawal symptoms and potentially to a lack of societary cohesion, persistence would lead to a lesser reliance on the state and an increase in self-regulation and self-determination. The alternative is a continuing increase in the volume of resources used for the maintenance of the state, perhaps leading to a sense of oppression through state intervention in all aspects of our lives.

The proposed change carries with it a commensurate responsibility on the individual electors to become politically active. This does not mean that we should each join the political party whose ideological model of the world most nearly matches our own, but that we should use our votes and our remaining freedom to explore and understand the machinations of the state and to protest those issues which are not to our liking. If all electors were to do this, and to participate in the democratic process, then we would not have, as suggested by Sampson (1993), a ‘democracy in crisis’. Any government would be elected by the majority of the people, and would be obliged to follow their wishes to retain its position since failure to do so would lead to protest and unrest.

It has been suggested by some that either alternative governments, alternative electoral systems, or even other forms of self-government, e.g. Beer’s ‘team syntegrity’ (1993), should be used to achieve these ends. I see these suggestions as ‘Nero’ solutions since much like fiddling while Rome burns, altering the way the capital pump operate does not alter the fundamental problem of the flow of capital.

### 5.3 Further Research

Further research is proposed on three fronts: first: to examine relevant literature more widely and deeply to determine whether there is other theoretical support; second, to undertake empirical work to examine whether quantitative and qualitative evidence of the drift and its suggested implications can be identified and third, to develop and evaluate possible alternative solutions.

## 6. Conclusion

This paper is a first attempt to identify barriers to innovatory behaviour arising from the process of the centralisation of capital. The research undertaken so far draws from a relatively narrow theoretical base, and the empirical observations have been taken from an arbitrarily selected group of institutions. Nonetheless, in a work of this length it would be difficult to examine, however briefly, a wider range of sources.

It is proposed that within the limitations established, the hypothesis holds good, i.e. capital of all types, through a process of negentropic drift, tends to centralise in a nation. As this process occurs, so barriers are raised to innovatory behaviour. Some outline suggestions have been made as to possible remedies for this and proposals for further research.

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