

THF Working Paper

Working Papers Series No.8/2015

DEALING WITH THE COMPLEXITY OF CAUSES OF SOCIETAL INNOVATIVENESS

Social Enabling and Disabling Mechanisms
and the Case of China

Gordon Redding

INSEAD

gordon.redding@gmail.com

Anthony Drew



The
HEAD
Foundation

Abstract

Societies progress by the influence of two forces: innovativeness and cooperativeness. A capacity for enabling these forces constitutes a society's transformative capacity. The paper proposes a vocabulary for certain universal requirements for use in comparing the various societal trajectories aiming towards shared prosperity. Progress to date has in consequence normally seen the growth of empowerment and of more benevolent forms of domination over time. Economic action fosters the sharing of prosperity when systems encourage competition to cooperate. Studies are considered that stress the heritage of ecological context in shaping relevant responses in the present-day social psychology. The specific field of innovativeness is considered by an analysis of Silicon Valley. From this, and from other studies, seven features are identified for an ideal type of societal system high on innovativeness. These are: capacity to scale up; worker creativity; individual autonomy; property rights and incentive; open society; stable institutional order; rationality. China is assessed against these criteria, and found to have certain inadequacies that are currently the subject of policy attention.

Introduction

In his detailed study of the first industrial revolution in the UK, Mokyr (2009,12) suggested that below the surface of the mass of activities involved between 1700 and 1850 there were essentially two things going on. They were to do with knowledge and institutions. He saw 'the economic game' as being played at two levels: a game against Nature played via technology; and a game of interacting with other people played via institutions. The two processes were in constant interplay and 'it is in this complex of interactions that the answers to the big historical questions must be sought'. This paper takes such complex interactions as its field of interest and proposes an approach to defining their nature.

The paper also takes note of the role of *ideas* in the historically evolving processes of development, and sees much to be gained from tracking how ideas affect the societal and political balancing act when and if vested interests are to give way to market rationality (or something else) in the pursuit of progress. The account by Mokyr and Nye (2007) is instructive here, as they depict the way the first industrial revolution matured in conditions where (a) a very strong and legitimate parliament, and (b) a two party system, made possible the shift from self-seeking legislation to public-good legislation. In this century-long shift, the ideas of the Enlightenment fostered the rise of a new *bourgeoisie*, which in turn facilitated the distribution of political power away from land, and towards capital, commerce, and eventually labour. This change was driven in large measure by the 'high minds' or 'virtues' of key holders of power (Heffer 2013, McCloskey 2006). The earlier power elite of land-holders in this long-drawn out and never-before-witnessed scenario 'could not guess the inversion that would later come' (Mokyr and Nye 2007, 60). They kept their wealth until well into the nineteenth century (Cannadine 1990) and with it their acceptance of the radical political changes that went with the ideals of empowerment slowly but steadily driving them. In the context of a concern with the study of government policy and innovation, and especially for this paper in the contexts of

Dealing With The Complexity of Causes of Societal Innovativeness: Social Enabling and Disabling Mechanisms and The Case of China

developing societies still experimenting with 'modernization', the following observation is relevant:

'Perhaps the most important and least noticed change in policy was the growing support for the bearers of technological progress and innovation. The British political establishment simply refused to cave in to the local special interest that tried to resist innovation in an attempt to preserve the technological status quo.'

(Mokyr and Nye 2007, 67)

We note also, as part of the blending of ideas with institutions, the key role of its being financially worthwhile to make the effort of innovation. At the most basic level this refers to the innovators (a) getting rich and (b) keeping their wealth under safe conditions of regulation. This point was illustrated in the recent posted responses to a new ratings system measuring societal success in building high levels of the kind of human capital that sponsors innovation (The Global Talent Competitiveness Index) ¹. The best results were attributed to government policies on openness in trading, vocational education, research investment, and (for the top three - Singapore, Switzerland and Luxembourg) small populations. There was an immediate outcry from bloggers, saying in effect 'you have missed the point; these winners are English-speaking tax havens; what do you expect?'. The combination of property rights and acquisitiveness remains quite central here, but is often represented by surrogates in policy debate. The extensive work of McCloskey (2006, 2010) on economic history shows that unless the acquisitiveness matures to include the 'bourgeois virtues' it will lose its societal legitimacy and influence. The world of banking provides the most recent object lesson.

If we take the meaning of 'the game against Nature' to refer to the use of science to enhance technology then we are close to accepting 'innovation' as a surrogate label for this first game. One further step in the defining process is to consider this feature as a capability of society. This is harder to grasp but it goes well beyond a collection of specific inventions and exploitations. The ideas of human and social capital similarly express the concept of societal capability, such capital being a resource for use. The accumulating by societies of higher and higher levels of 'transformative capacities' of this nature is seen by scholars such as Eisenstadt (1968) and Fukuyama (2014) as the essence of politico-economic achievement, and it normally rests on stable empowerment. As Fukuyama summarizes it (2014, 513).

'A high degree of autonomy is what permits innovation, experimentation, and risk-taking in a bureaucracy. In a well-functioning organization, the boss gives general orders to get something done, and the subordinates figure out how best to do it.'

¹ This is sponsored by INSEAD, the Human Capital Leadership Institute of Singapore, and ADECCO.

Dealing With The Complexity of Causes of Societal Innovativeness: Social Enabling and Disabling Mechanisms and The Case of China

A wider historical view comes from Mokyr as interpreted by McCloskey (2006, 14): 'Above all modern capitalism encourages innovation. Joel Mokyr has emphasized the institutions of modern Europe that prevented the sins of envy or of anger or injustice from killing innovation'. Parallel work on this 'liberating' phenomenon is visible in the empirical tracking of it via the World Values Survey and 'freedom rising' (Welzel 2013); so too the organizational implications of it for releasing the creative energy of 'distributed leadership' (Ancona and Bresman 2012).

We therefore propose to identify the object of interest here as Innovativeness, rather than Innovation, in other words as a society's collective capacity for combining scientific invention with its practical and progress-inducing application. This includes the amount and quality of the scientific invention that starts the process, but also brings into play the fostering and the organizing of its being applied. Mokyr also brings our attention to the complex reciprocity between these forces. Technical change, and the social organizing of the individual human energies to take the advantages available, worked together as (in the western response) markets began to exert their logic. Such organizing, when seen historically, invented step by step a set of new social relationships due to which, as Heilbroner (1985, 40) has observed, 'the domination represented by capital emancipates society from harsher previous modes of domination'. Key in this, for all successful societal transformations was the stabilizing of property rights, a special case of the more general conceding of rights deep into a society's structure (de Soto 2000, Holt 1985, North and Thomas 1973, Welzel 2013). Put at its simplest, it was this empowerment that released the autonomy that then underpinned the innovativeness, while at the same time fostering the spontaneous emergence of new forms of cooperativeness. It is this cooperativeness that can be argued to be the main catalyst for both growth and well-being (Halpern 2010). These forces were largely expressed inside and between organizations as the willingness to cooperate grew exponentially. The mistrust of strangers was gradually counteracted by new institutions and by information flows that gave people reason to re-calibrate the grounds for trust, and dismantle the old suspicions. You could for instance reliably judge another company by its published accounts. As markets added competitive stimulus, the essential business dynamic became, and has remained, competition to cooperate (Beinhocker, 2007). Without this, the drive to meet the ultimate criterion of per capita productivity would not have led to the large organizations that make up the Fortune 500 and their emulators. Nor would we be seeing the information revolution leading to new structures for continuing the same search for efficiency at scale. Nor could we explain the parallel expansion of system trust, via law and regulations, that proved crucial in enhancing both the innovativeness and the cooperativeness. The interplay between these twin forces is the field of interest in this paper. In consequence, following socio-economics and complexity theory, it is appropriate to take brief note of frameworks of explanation for such dynamics.

We need here to enter a caveat. It is not assumed that there is one trajectory providing 'the' answer to the societal mastering of such capacities, and pioneered in the western historical experience of development. Other answers are currently visible in Japan and (differently) South Korea, Taiwan and Singapore. Further trajectories are in early stage process, most notably that of China. It is instead our

Dealing With The Complexity of Causes of Societal Innovativeness: Social Enabling and Disabling Mechanisms and The Case of China

purpose to search for unifying core principles of a universal nature that might then allow for comparisons to be made between the trajectories.

Approaches to explaining societal economic progress

The macro explanations necessary for economic and societal progress have tended to cluster in and around the discipline of economics, but (with the exception of certain adventurous thinkers) to reveal its paradigm as incomplete. From Adam Smith, who knew the power of 'moral sentiments' in the larger equation, through Max Weber, who also knew the power of 'the ideal' to shape 'the material' and vice-versa, and Alfred Marshall who saw economics as closer to biology than to physics, we see an acknowledgement of the complexity. But in more recent post-Keynes scholarship, affected perhaps by sensitivity to discipline boundaries, there has been a tendency for economics to stop short of expanding into other fields such as genetics or culture. Instead the study of institutions has grown as middle ground where those of a positivist persuasion can research. Three Nobel prize winners are representative of both the priority of the challenge and the limitations of meeting it: Douglass North (2005) now acknowledges the way in which culture constrains the scaffolding of societal institutions, and the role of 'intentionality' in explaining behavior. Elinor Ostrom (2009) had to break new ground with her 'social-ecological systems' framework in order to understand how spontaneous institutionalizing permitted the sharing of common-pool resources. Michael Spence, on economic success, acknowledged 'there is a bit of a mystery as to how these reinforcing growth dynamics get started and why they don't when they don't' (Spence 2011, 41). Other distinguished economists have said similar things, perhaps most notably David Landes (1998, 516) with his comment that 'If we learn anything from the history of economic development, it is that culture makes all the difference'. But he shied away from that question as a field of enquiry *per se* due to implicit possible racism. We address this point later as a more recent and empirically powerful dismissal of racial influence by Welzel, Inglehart and Alexander (2015) gives hope for moving forward into taking account of culture. The emergence of socio-economics as a field now provides a home for such cross-fertilization.

Other fields are now contributing rich additions to relevant theory-building. Complexity theory is demonstrating how the industrial economics that lies behind much business strategy theorizing can be enhanced with evolutionary logics (Beinhocker, 2007). A number of writers have brought new insights from evolutionary theory to issues such as human cooperativeness and inventiveness (Elster 1989, Nowak 2011, Pagel 2012, Ridley 2011, Seabright 2010, Wrangham 2010). New thinking is also emerging at the intersection of biology and the behavioural sciences (Stoelhorst and Richerson 2013). And institutional theory continues to expand to include for instance an institutional logics perspective that reaches back into cultural determinants (Thornton, Ocasio and Lounsbury 2012).

Clusters of determinants

Several ideas that have evolved with socio-economics have led to improved ways of analysing determinacy. One has been the concern with systematically accounting for

Dealing With The Complexity of Causes of Societal Innovativeness: Social Enabling and Disabling Mechanisms and The Case of China

the 'context' of economic action (Kogut 2003, Whitley 1999). Related has been the holism advocated by Ragin (1987) in his advice on comparing societies. Influential also has been interest in the coupling of determinants and their locking together into strings of connected forces. These appear in the varied literature in several guises: complementarities where change in one feature is connected with change in another, configurations in which an account gathers them into strands to explain a phenomenon, co-evolutionary coupling in which explanation rests on the study of the interactions, or autocatalytic networks transferred as an idea from biology to social systems analysis.

We propose to develop an explanation of the state of innovativeness in China using such a configuration of determinants. As an introduction to that we compare accounts using a similar method to explain the evolving of Silicon Valley as an innovative nexus of forces within the wider context of the US. We look at two explanations for the workings of this nexus. By doing so we may then throw light on the contribution of government policy to the total set of effects. We will follow this with an exploration of the situation in China, and here expand the analysis to include the other side of reality – the configuring of social *disabling* mechanisms. When innovation performance is weak these may justify a shift in policy focus away from the pursuit of positive features alone. An assumption is that the negatives may not be just the opposite of the positives. We will also propose the inclusion of certain catalysts; normally these are societal features of a 'deep' nature that serve to underpin or legitimize forms of response at the surface. An example would be a tolerance of failure within an essentially competitive collective mind-set.

Explaining Silicon Valley

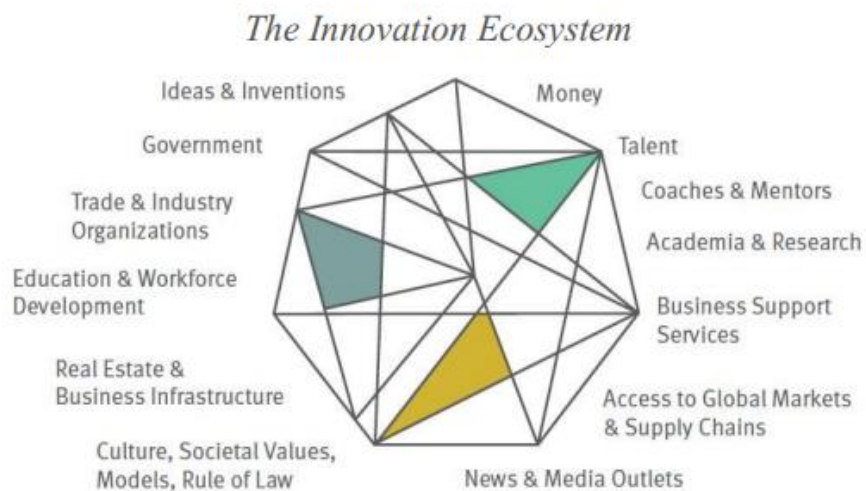
Redding (2005) in following Geertz (1973) and advocating the use of 'thick description' as a means of societal comparison, added certain lessons from complexity theory (Kauffman 1995) and holistic analysis (Ragin, 1987) to develop a model in which societies are seen as complex adaptive systems. One aspect might be the business system (Whitley 1990), and within that a feature might be the social architecture of innovation. In using such a framework to achieve understanding of a phenomenon that is itself complex, the process of analysis becomes one of connecting threads, usually across institutional spheres like labour markets and capital markets, but also often across disciplines, as when a civilizational ideal such as a belief in freedom (values) is paired with an organizational response to decentralize authority (structures). This thick description avoids simple causes, themselves often uprooted from their context and so only partially understood. Guiding the construction of such configurations is the search for *complementarities* that exist when the presence or efficiency of one complements the returns from or efficiency of the other. For example a norm that it is ok to fail.

With this framework it is also necessary to include the question of evolution through time of such systems. For this another pattern of determinacy runs from the socio-cultural legacy, via the experience of specific historical events such as the US Declaration of Independence or the Meiji Restoration, into the co-evolution of

Dealing With The Complexity of Causes of Societal Innovativeness: Social Enabling and Disabling Mechanisms and The Case of China

institutions for order, on to current forms for the coordination and control of economic exchange.

Figure 1 is of the innovative ecosystem of Silicon Valley as seen by Hwang and Horowitz (2012). It lists thirteen features that make up the workings of this hyper-innovative region, seeing it via the metaphor of a rain forest. In other words it is dense, fertile, full of different species, of rich interactions and interdependencies, an environment for competition, and hard to penetrate. The components proposed include ideas, institutions, processes, plus various assets: human, social, physical and knowledge-based. Their position is that the 'rainforest' as context supplies the conditions in which new forms of coordination can evolve, compete, and grow. The context is not in itself a determinant of the outcomes, as they emerge spontaneously and are unlikely to be imagined prior to that. Instead the context is catalytic. For government policy therefore a concern with fostering such a context will be a concern with stimulus and encouragement, not with direct control. This may well run counter to the proclivities of some governments if their instinct to control is high, a point with some relevance in China.



Victor Hwang and Greg Horowitz, *The Rainforest*, 2012. (Silicon Valley)

Figure 1. The Silicon Valley Ecosystem

In a similar manner, but with a different and wider framework, Redding (2005) has proposed a form of 'thick description' to help understand the complexity of a societal business system. The model sees the system in terms of three interconnected layers. At the base is the realm of meaning (Culture). This interacts

Dealing With The Complexity of Causes of Societal Innovativeness: Social Enabling and Disabling Mechanisms and The Case of China

with the realm of order (Institutions). These both then interact with the realm of coordinated action (Organizations) (see Figure 2). Following Whitley (1999) the coordinated action is seen in terms of three connected design logics: what kind of firms; the relationships between such firms; and the nature of the internal 'glue' that holds each unit together. The short terms for these three coordinating features are ownership, networks, and management

These features of the business system are in constant co-evolution with the realm of order i.e. the society's framework of institutions. This consists of the rules of the game, and the consequent systems for delivering predictable order in three fields: the sourcing and allocation of capital; the creation and use of human skill and talent; and the architecture of trust. So capital, human capital, and social capital.

Underlying all of the above is the realm of meaning or culture, seen as (i) the most commonly held views about the core purposes of economic action, (ii) the most commonly shared perceptions of where the individual belongs in society and (iii) the normally adopted view of who has authority and why. So rationale, identity, and authority.

The model acknowledges that certain historical events are likely to have left their mark, as for instance did Maoism in China. It also acknowledges that the object of study is an open system, not normally protected from external influences, and these are seen as both material and ideational.

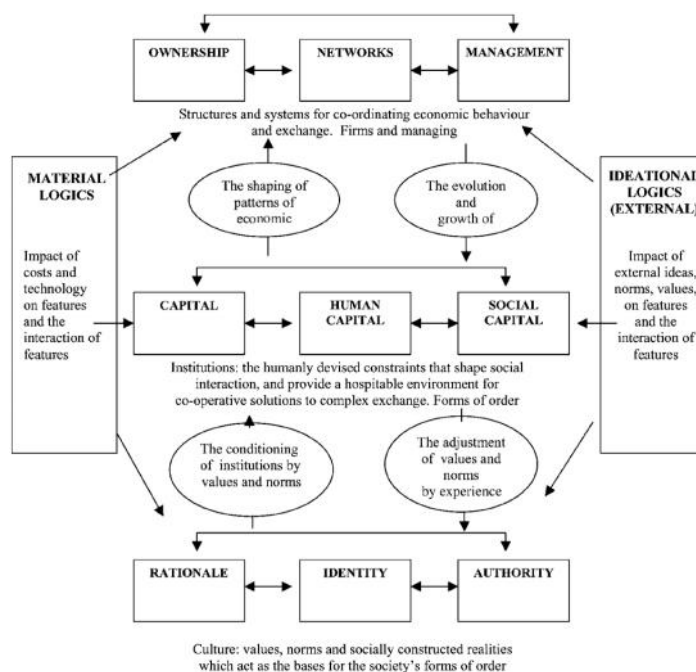


Figure 2: The elements of a societal business system

It is not intended to explore this explanatory framework in detail here. Such accounts are available for several societies in Redding (2005), Redding and Witt (2007),

Dealing With The Complexity of Causes of Societal Innovativeness: Social Enabling and Disabling Mechanisms and The Case of China

Hasegawa and Noronha (2009) and Witt and Redding (2014, 2015). Reference to it is simply to allow a laying out of one attempt at manageable completeness. It also provides the conceptual background against which another view of Silicon Valley may be presented. Its findings are now built into a combined model that builds further on the insights of Hwang and Horowitz (Figure 3).

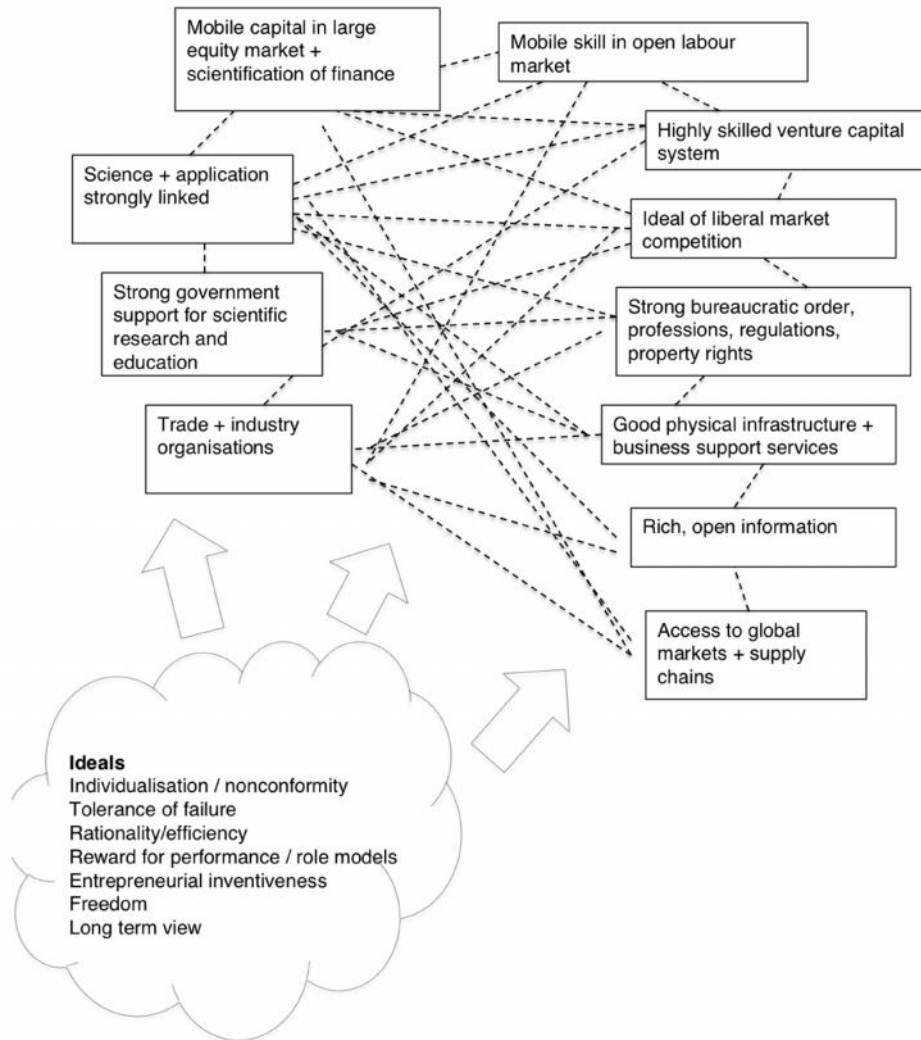


Fig x : The Silicon Valley configuration of determinants: an amalgamated model

This combined configuration is intended to show what works in the Anglo-Saxon case. It is currently not known how much of this set is in some sense 'universal' and capable of being carried forward as a check-list to China, a society with a different legacy. What we do know however is that the possibility of borrowing and collaborating is changing the nature of the global competitive game. The decline of manufacturing and the rise of knowledge industries is also changing the global game. Even so, regardless of any possible new forms of economic coordination and

Dealing With The Complexity of Causes of Societal Innovativeness: Social Enabling and Disabling Mechanisms and The Case of China

control, we would contend that the core capacities to innovate and cooperate are unlikely to lose their central roles in the arena of competition.

We turn later to consider whether China can meet this challenge. We will be arguing that China will find it impossible to keep up its rapid ascent beyond the US\$15,000 GDP per capita that it will reach in about ten years from now, that this challenge has much to do with its limited capacities for innovativeness and cooperativeness, and that adjustment to escape the trap will require a re-defining of its societal ideals concerning authority and control. We believe this may be possible, given that the Chinese government is aware of the threat (World Bank/China State Council, 2013), but the complete form of response is neither obvious, nor likely to be straightforward. There are also many other countries with their own versions of the same dilemma.

But before considering China's position, it will be necessary to look in more detail at certain arguably non-negotiable implications of the historical and pre-historical legacy.

The lessons from evolutionary theory

Taking it as read that ethnocentrism is unhelpful even if often subconscious, we begin this section with an interdisciplinary review of literature from fields including evolutionary biology, evolutionary psychology, population genetics, neuroscience, psychiatry, ethology, ecology and climatology, in order to identify the ontological foundations of human innovativeness and cooperation (i.e. the shared determinants amongst all modern humans) and then propose how contextual factors, time and path-dependence result in different modes of cooperation and innovativeness in different societies. New knowledge is building fast in these fields, as evolutionary theory benefits from technical advances in DNA reading.

North, (2005, 170) suggests, 'economists have the correct insights that economics is a theory of choice. But to improve the human prospect we must understand the sources of human decision making. That is a necessary condition for human survival'. He (2005, 30) also suggests that the immense variation between 'the performance characteristics of political/economic units over time makes clear' that both culture and genetics must be central to the understanding of the decision frameworks of individuals, groups and organized societies and further suggests that 'the exact mixture between the genetic predispositions and cultural imperatives is far from resolved, however, and represents an important frontier for further research'.

Much research in evolutionary biology (Boyd and Richerson, 2007, Hamilton, 1964, Trivers, 1971, 2006) suggests that reciprocal altruism is a genetic/biological function that underpins and drives interaction and exchange behaviours in all social creatures. Research in fields including evolutionary psychology and institutional theory argue that neurological and psychological processes in the brain (Buss, 2005, Cosmides and Tooby, 1994, Hodgson, 2010) habituate the expression of reciprocal altruism and its application to social circumstances. All social creatures engage in habitual behaviours in order to maximise the fitness and survival capacity of the species (Trivers, 2006). The foundations of such behaviours are largely driven by the ecological context in which the species evolves (Georgas and Berry, 1995, Parker,

1995, Ridley, 2010, Trivers, 2006). Human mental processes have evolved over millions of years as adaptive mechanisms to contend with a complex external environment and ecological context (Cosmides and Tooby, 1994, Parker, 1995). The ecology in which a community of a species evolves, and the concomitant resource abundance/scarcity, determine how reciprocal altruism will be expressed in social interaction and exchange (Georgas and Berry, 1995, Parker, 1995). In humans, reciprocal altruism is moderated through psychological systems and Trivers (1971) argues that any complete definition of human reciprocal altruism would contain the following behaviours: helping in times of danger (e.g. accidents, predation, intra-specific aggression); sharing food; helping the sick, the wounded or the very young and old; sharing implements; and sharing knowledge.

Higher level mammals such as humans, chimpanzees and gorillas evolved hard wired modules in the limbic system (emotional brain) millions of years ago to govern habitual exchange behaviours; dependent upon the ecological context and resource contestability (Chance and Jolly, 1970, Cummins, 2005). That such behaviours are shared by apes, chimpanzees and humans suggests that such behaviour has been part of our hard-wired repertoire since at least the time the three species branched out from the same evolutionary tree (Drew and Kriz, 2012).

Such behaviours have been defined in the ethology literature as *agonic* and *hedonic* (Chance, 1988, Chance and Jolly, 1970). Agonic behaviours occur in ecological contexts where resources are clustered together and abundant; in predictable locations; with individual acquisition of the resources highly visible to other group members; and where consumption is delayed. Agonic groups tend to be strongly hierarchical in terms of resource allocation amongst group members and this appears to limit destructive conflict within the group (Pierce and White, 1999). Agonic groups are also low in trust (Kortmulder and Robbers, 2005). Conversely, hedonic behaviours occur in ecological contexts in which resources are scarce and there is the requirement for members of the group to go out in search of their basic needs. Hedonic groups tend to be more egalitarian and nurturing. Agonic or hedonic behaviours are shared by members of a community as a means of shaping norms for exchange behaviour, enhancing community adhesion and maximising the collective fitness of the community (Chance, 1988).

Anatomically Modern Humans (AMH) have experienced the concomitant development and functioning of both the neocortex (rational brain) and complex language over approximately 100,000 years (Ridley, 2010, Rizzello, 2004, Searle, 2005). Such evolution has permitted humans to engage in higher level mental functioning such as assigning and communicating collective intentionality, function, and status (Dunbar, 2003, Gifford, 2009, Searle, 2005). Further, it is the relatively recent evolution of these three functions, along with language, that give all humans the ability to develop, share and rely on complex institutions (Searle, 2005). However, despite our recent psychological development, human behaviour is not fully rational and is governed to an extent by innate drives (Knoll, 2003). In their four drives theory, Lawrence and Nohria (2002) provide compelling evidence that rational decisions are influenced by four independent hard-wired drives in the limbic system that motivate behaviour through conscious emotions. Of these, the drive to defend (reactive) and the drive to acquire (proactive) were the primary drives in archaic

Dealing With The Complexity of Causes of Societal Innovativeness: Social Enabling and Disabling Mechanisms and The Case of China

Homo sapiens some 500,000 years ago, whereas the drive to bond and the drive to learn (both proactive) were only secondary drives. They suggest that these latter two drives only became primary drives as recently as 100,000 to 75,000 years ago. This was the time of a 'great leap forward' in human cognitive capacity (Lawrence and Nohria, 2002, 29) during which religion, art and complex technology evolved rapidly (Ridley, 2010). Here much larger brain size, enhanced by the invention of cooking and the subsequent efficiency of 'fuelling' the body (Wrangham 2010), permitted much richer social interaction and cohesion through language, and through the related retention and transmission of learning.

When faced with novel situations or a change in resource availability, humans do have the ability to switch from agonistic to hedonic modes (Chance, 1988, Pierce and White, 2006). However, 'a switch at the societal level is much more difficult as it requires compatible cognitive reasoning, collective intentionality and collective agreement at the population level' (Drew and Kriz, 2012, 86). The configurations by their nature include constraints. As evolutionary psychologist Cummins (2005, 693) suggests, 'Darwinian processes have produced a complex network of cognitive, emotional and physiological systems that bias us toward producing this kind of social structure' and 'we are wired from high cognition right on down to our neuroendocrinology to detect minute changes in our status vis-a-vis others'.

The shaping of societies by ecological context

According to population geneticists (for example, Appenzeller, 2012, Rassmussen et al., 2011, Wells, 2002), although our species has been evolving over millions of years, the ancestors of every person on the planet today can be traced back to a population bottleneck of as few as 10,000 people in north-east Africa around 70,000 years ago. From around 115,000 years ago until that time, the world was going through waves of ice-ages. However around 71,000 years ago, the world was rocked by the cataclysmic explosion of Mt Toba in Sumatra which released 800km³ of volcanic ash and resulted in a deadly six year volcanic winter, then a further 10,000 years of severe cold and drought, leading to a reduction in vegetation (Ambrose, 1998). To put this explosion into perspective, the explosion of Krakatau in 1816 released only about 15 km³ of ash (Huff, Bergstrom and Kolata, 1992). This critical era in the evolution of AMH coincided with the major cognitive changes and more complex social structures referred to above (Ridley, 2010, Wells, 2002). Bands of migrating humans moved out of northeast Africa towards the south-east beginning at least 50,000 years ago and in a northerly direction from at least 45,000 years ago. We note now for later explanation the probably crucial nature of this division and its aftermath. We note also the strong possibility of a real threat of extinction serving to stimulate human ingenuity as a survival response. Innovativeness as an instinct may have been greatly strengthened in this context.

Recent research (Drew, Kriz and Redding, 2014, Welzel, 2013) suggests that groups following the southern route along tropical and sub-tropical lines of latitude, and eventually populating Asia, experienced relative climatic stability and resource abundance and therefore evolved agonistic orientations over many thousands of years. Conversely, the ancestors of modern Europeans migrated along lines of longitude following and hunting large game animals out of Africa and across the steppes

(Wells, 2002). They would have experienced greater climatic instability and resource scarcity due to fluctuating ice-age conditions and in response evolved hedonic orientations. We also suggest that such orientations were later reinforced and embedded by the different resource endowments and climatic conditions in the east and the west, when the last ice age receded from around 12,000 years ago and small groups started to form larger communities based around agriculture and animal husbandry. The unusually concentrated distribution of genetically transmitted lactose tolerance (Welzel, 2013) in the plains of northwest Europe is perhaps tribute to the millennia of dependence on such food supply.

Such shared orientations arguably became the basis for path-dependent evolution of the cultures that assisted growing communities to make sense of their social world. They would have also provided those holding power to organise the social world. Such sense-making permits the structuring of social order and the beliefs, values and axioms on which it rests (Drew and Kriz, 2012, Drew, et. al, 2014). These in turn, are congruent with their underlying agonistic or hedonic value orientations. Such values-based meta-traditions inform and institutionalise social behaviours such as cooperativeness and innovativeness and such behaviours are transmitted from generation to generation through social axioms and semantic spaces (see Drew et. al, 2014, Leung and Bond, 2004, 2008 and Redding, 2008 for comprehensive discussion on these constructs). Theory development along such lines can be traced back across a number of academic fields including original institutional economics (Veblen 1919), anthropology (Fleck 1935, Douglas 1987), sociology (Weber 1930) and ethology (Chance 1988). In cross-cultural psychology, the existence of two massive blocs of societal responses has been apparent for decades (Hofstede 1980) and reinforced consistently since. Put at its simplest, the world is clearly divided into (1) societies with hierarchy and collectivism, and (2) societies with equality and individualism. There is further clustering within the detail but a recent review of decades of cross-cultural research (Ronen and Shenkar 2013, 890) concluded that the clusters remain and 'the role of the ecocultural variables is supportive of the stability/slow change hypothesis, since religion, and in particular language, are unlikely to change in the near term'. This does not mean no change; it means very slow and partial change.

Meta-traditions are deep seated collectively shared explanations of social reality, such as filial piety in Chinese societies and the Ten Commandments in the west (Redding, 2008). Social axioms are informed by meta-traditions and social conditioning and reflect accumulated learning and coping on how to act in different generalised social circumstances. Leung and Bond (2004, 17) argue that social axioms are general beliefs held at a high level of abstraction and as such, are 'context-free and are related to a wide spectrum of social behaviours across diverse contexts, actors, targets, and time periods'. Semantic spaces are more context specific than social axioms and reflect the shared understanding of how members of a society ought to act or behave in specific reoccurring social circumstances (Redding, 2008). Therefore in the Chinese context we might expect the Confucian meta-tradition of filial piety to inform the social axioms of religiosity and reward for application, which in turn might inform semantic spaces relating to specific issues such as cooperativeness and innovativeness. The outcome of such is then

Dealing With The Complexity of Causes of Societal Innovativeness: Social Enabling and Disabling Mechanisms and The Case of China

institutionalised into practice through culturally embedded modes of cooperativeness and styles of innovativeness.

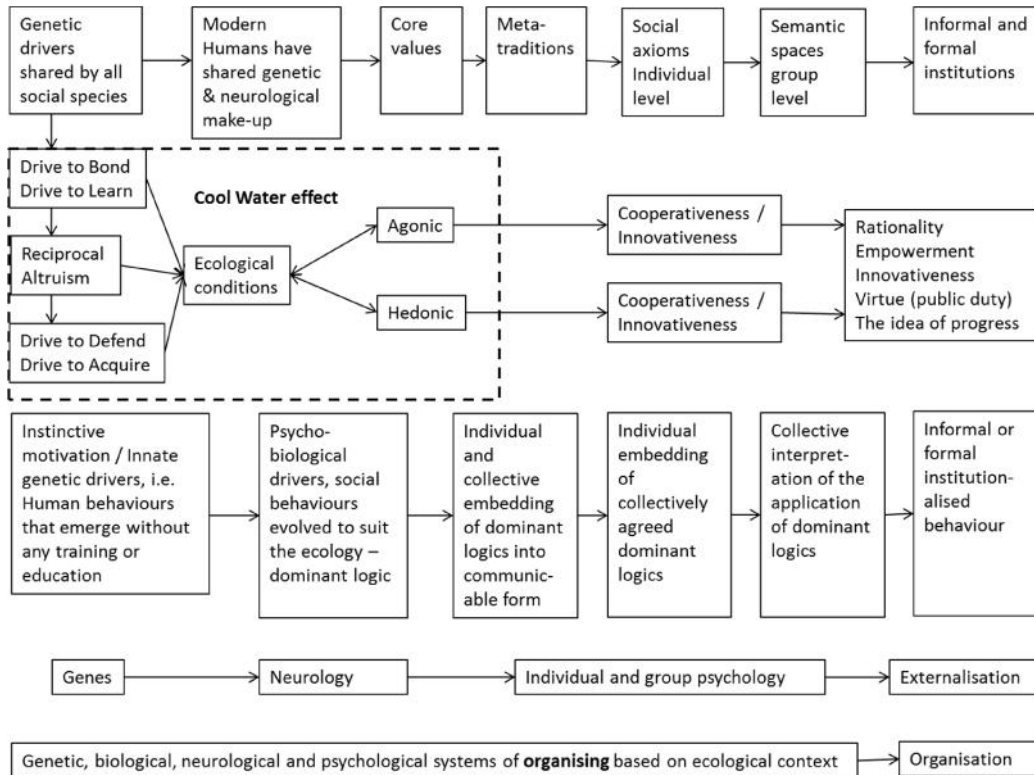
What is the eco-cultural legacy?

What can we make of the research findings from a range of disciplines? To date, the research findings suggest that physical differences between people such as eye, skin and hair colour, epicanthic eye folds and physical height are simply physiological adaptations to living in different ecological settings since leaving Africa. Further given the relatively short time, in evolutionary terms, since some of our ancestors left Africa, and given our DNA, anatomical, physiological and neurological similarities, differences between groups of AMH are unlikely to be due to *genetic* evolution. Rather, and as with external appearance, differences appear to be rooted in the ecological contexts in which different groups settled, formed communities and developed their respective systems of shared meaning (culture) – underpinned by their pre-existing agonistic or hedonic orientations.

This answers, at least in part, North's (2005, 30) important question regarding 'the exact mixture between the genetic predispositions and cultural imperatives' and their influence on the decision frameworks of individuals, groups and societies. Our shared biological and neurological make-up may also go a long way in explaining why humans share universals (Brown, 1991) such as 'universal understandings of number, time, space, movement and physical bodies, some conceptual universals in interpersonal language and some universals in fundamental motivational mechanisms' (Runciman, 2009, 72). The species has not had evolutionary time to take other than a fundamentally single form. So race is not a determinant of human capacity. It is simply an indicator of specific adaptation on the surface by sub-groups to certain ecological surroundings. Given sixty million years of uninterrupted evolution, new species might result. Given only 60,000 years however, we remain the same in all essentials as individuals, but we have learned to live together in subtly different ways, and to have varyingly acquired a limited number of physical adaptations to cope with our environments. Figure 3 presents a conceptual framework derived from the interdisciplinary literature illustrating the psychosocial evolution of Anatomically Modern Humans.

Figure 3 Psychosocial evolution of Anatomically Modern Humans

Dealing With The Complexity of Causes of Societal Innovativeness: Social Enabling and Disabling Mechanisms and The Case of China



What about China and Innovativeness?

We now argue from the above that China carries the heritage of a society that is essentially agonistic, in line with an ancient ecological context over many millennia that provided food and safety on condition that resource allocation remained under central control. It retains that legacy: powerful hierarchy, strong dependence on its centre, and high collectivism that restrains and conditions individual initiative and at the same time, protects the welfare of the core survival unit of family in conditions of competition for resources. It is in consequence untrusting of strangers but trusting within the interpersonal networks that hold the societal workings together. The perpetuation of these responses has been supported by ancient traditions and a proud cultural legacy based on their codification.

Such a context is a long way from that in which Silicon Valley is immersed, and we proceed now to consider for China how far and why. Our case may be summarised as follows:

There are certain universals that have applied just as much to Japan, and Korea as they have to western societies. These are:

1. For world standards of competitive efficiency the economic unit, regardless of its ownership, must be capable of being efficiently scaled up (with the exception of certain service or craft industries resting on individualskills)

Dealing With The Complexity of Causes of Societal Innovativeness: Social Enabling and Disabling Mechanisms and The Case of China

2. In such scaling up it is necessary to retain the psychological engagement of those with skills strategic to the organisation, so that they are motivated to be creative for, and cooperative with, the enterprise.
3. Such individuals need to be able to express adventurousness with a high degree of autonomy and without fear of punishment.
4. Such individuals need to be able to safely keep a fair proportion of any rewards that come from their inventiveness
5. It should be possible for information to flow through the society in a way that fosters both learning and collaboration.
6. It should be possible to trust that the surrounding system of order and regulation will act protectively and predictably and express shared ideals.
7. There should be a fundamentally neutral position in decision-making about risk that rests on objective and rational calculation of evidence-based judgement. Effort devoted to innovation should be applied in conditions of competitive fairness

1. The scaling up of economic units.

Marie-Claire Bergere (2007, 20) in her history of China's economic structures, noted that in recent times its potential bourgeoisie was being subsumed into the state's system of control

'Acceptant les entrepreneurs mais refusant la bourgeoisie, il a entrepris de creer un systeme capitaliste sans capitalistes'.

To attempt capitalism without capitalists means that entrepreneurs are encouraged up to the point where they might have societal influence, at which stage they need to be constrained to conform with the state's policies. The mechanics of this process are well understood. They rest on the use of Party membership as a means for entrepreneurs of securing (a) low-cost capital, (b) licences (c) state contracts, (d) support for business initiatives and contacts, and (e) freedom from interference. These advantages, seen pragmatically, have value and approximately a third of China's richest private business leaders are Party members (Lardy 2014). Such exchanges of obligation are informal and are also attached normally to the person of the CEO/owner. A variation is the use of a crucial intermediary 'middleman' on whom the firm becomes dependent for such essential liaison, and this is common in alliances with foreign investors (Feldman 2013).

This process is seen by many as a sign of state-driven capitalism taking over the initiative, but a corrective is offered by Lardy (2014) who argues that the great 30-year surge of growth based on the 'workshop of the world' formula, and private business, will be continued. In summary he makes three claims: market forces not government interventions explain the huge growth since 1978; state influence did not increase significantly in the decade just past; and planned reforms will continue to strengthen the role of the market and diminish the role of state-based vested interests. Some caution needs to be exercised in trying to find where reality lies between the accounts of Bergere and Lardy. A key factor here is that the full reactions of entrepreneurs to government co-optation will remain unspoken.

In matters of scaling up of organization, however, one point becomes clear. China's private sector does not have many firms employing large workforces and

there are many reasons in recent history why this might be so, most stemming from the risks of exposure to government intervention. There are in addition a number of cultural predispositions that limit the capacity to scale up (Redding 1990) and these have much to do with the mistrust, nepotism, and personalism that evolved as protection against high levels of uncertainty in the business environment. Until that environment changes the instincts are likely to remain. The effect on innovation is predictable. Unlike many of the *Mittelstand* firms of Germany, Chinese private sector firms do not become major technical innovators. Only 6% of China's small enterprises have R&D activities, and only 30% of large and medium firms (World Bank/China State Council 2013).

2. Motivating the use of individual creative skills in the organization.

A number of accounts have reported the difficulty of releasing worker creativity in large organizations in China. In a recent McKinsey 'CEO's guide to innovation in China' Orr and Roth (2012) note the difficulty of instilling a culture of risk-taking, and explain:

'Failure is a required element of innovation, but it isn't the norm in China, where a culture of obedience and adherence to rules prevails in most companies. Breaking or even bending them is not expected and rarely tolerated. To combat these attitudes, companies must find ways to make initiative-taking more acceptable and better rewarded'

Business initiative in the Chinese economy rested traditionally on the boss in each firm. There was always plenty of that, given the competitive striving implicit under the 'materialistic familism' of a 'minimally integrated' society (Lau 1982). But such dependence only works well in certain forms of industry where the concentration of strategic initiative is appropriate. Such forms of industry include small-scale manufacturing and assembly, property, trading, and retailing. These may be enhanced by co-opted skills, as in OEM, where design, supply chain logistics and market access, are handled by alliance partners. Serious organizational growth requires either strong co-optation of political support (as in China and SE Asia), a high level of reliable surrounding institutional context (as in Hong Kong, Taiwan, and Singapore), or - in rare cases - the absorption of heavy amounts of professionalism and bureaucracy permitting rational resource allocation and use under distributed leadership. The rarity of this latter response is worthy of note, as is - paradoxically - its success (in for example the Cheung Kong/HWL group).

3. Individual adventurousness and the fear of punishment

In few Chinese organizations is scale reached based purely on market forces injecting an urge to innovate, and funded rationally by those same market logics. Size is instead normally reached under quite heavy government subsidy. The state sector where large scale is normal has a return on assets of 4.9% compared to the 13.2% of the private sector (Lardy 2014, 98). In Lardy's view the low growth of total factor productivity in the state sector indicates low innovative capacity. He points to the e-tail sector led by Alibaba and Tencent as showing the power of the private

sector. Here innovation has benefitted in myriad ways from imported technology as its starting stimulus, then built much further. In some industries such as solar power heavy state investment in R&D has brought great success but this has been largely (and rationally) motivated by the society's need to clean up its environment.

In most large Chinese organizations, the social psychology is one of strictly hierarchical control and heavily socialized compliance. This has two effects (Lieberthal and Lieberthal 2003): the creation of organizational silos across and between which there is little natural coordination; and downwards control, based on discipline and conformity, leading to inhibited initiative. Behind all this is anxiety about the capacity of the government to punish either individuals or organizations for non-compliance. As noted by Chu (2013, 101) who was brought up in China and is now a western journalist, in assessing the current psychology within the politico-economy of China 'What always strikes me when I try to engage Chinese friends for the first time in discussions about the prospect of political reform in the country is the fear that exists....Most people know what savagery the regime is prepared to sanction in order to survive. And many Chinese have learned to keep their heads down'.

One of the authors of this paper recalls an incident he discussed with the Danish manager of a joint venture factory in central China. The executive had decided on a campaign to clean the factory and had arranged the buying of a new machine for scrubbing the factory floor. Two untrained workers who had previously used sweeping brushes were assigned to the new machine, switched on the power, and set off with it down the central aisle. Across the floor was a stream of clear liquid which they innocently did not know was nitro-glycerine. They ran over it. The machine exploded, and the two men were hospitalized with severe burns. The following day at the end of the morning meeting, the manager asked if there was any other business. This led one of the supervisors to ask how the two cleaners were to be punished. It took the manager 45 minutes to persuade the meeting that the badly burned men should not be punished. He then went to his office to find an item of mail from the city's chief of fire services, requiring a report on the incident including what punishment had been decided on for the cleaners.

4. Keeping the rewards for innovation

There is a long Chinese tradition of entrepreneurship and private ownership that fosters the privatizing of added value inside the circle of owners, usually family and/or close friends. In a modern economy such responses are usually boosted by new forms of access to capital that allow the protection of such assets inside various financial envelopes. Spare capital has always also been the basis for much hedging, especially in property investment, in recent years often abroad. China has also in recent years added new formulae such as IPOs and new centres for their registration, and has benefitted from related institutions especially in Hong Kong. As a result there are now many rich Chinese innovators, their leading members being visible in the annual Hurun reports (Hurun, 2014).

But access to risk capital does not entirely follow an international model. Informal lending remains strong. Secrecy remains high. State banks still disfavour

Dealing With The Complexity of Causes of Societal Innovativeness: Social Enabling and Disabling Mechanisms and The Case of China

the private sector. And the co-opting of political support remains a necessity for many. Capital and its use remains a politicized issue.

5. The openness of society

The role of information in any society is crucial in determining how its institutions and organizations function. A theory of how this issue is evolving for China is proposed in Boisot, Child and Redding (2011). It argues that information needs to be understood as working over two main dimensions: codification and diffusion. When societies are rich in available information then that information has been both accessibly codified and conveniently diffused. It tends then to become a means of redistributing influence down a hierarchy as long as its universal use is encouraged. Censorship will normally prevent empowerment: in that case the de-stabilizing role of accessible information will be stifled, but so too will its positive role in facilitating exchange, cooperation, and innovation.

In the circumstances of China the theory argues that the private sector, designed as it is to respond to a context of opaque uncoded information, and elastic enough in its patterns of organizational response to cope with other challenging circumstances, will be uniquely suited to survive in such a limited-information setting. But in doing so it will stretch itself across a wide response mode with *fief-like* structures for information-starved spaces, and larger market-responsive structures where data are becoming more codified and diffused. The state sector would remain essentially bureaucratic, and so inefficiently conservative. The local corporates would adopt *clan* structures in the intermediate space.

The implications of this scenario are all variations on the theme of where societal control is to be located. Should China find the formula it has acknowledged it is seeking, so that market logics feed the economic dynamism, then the resulting empowerment will release the necessary innovation. If power remains centralized the economy will lose its competitiveness in a fast changing world, where the widespread trends towards expanded participation are clear (Welzel 2013).

6. Reliable surrounding order

The sources of crucial surrounding order for business, when they are functioning well, rest on two features: a neutral rationality based on the wider social good; and a practical deliverability to the actors concerned. The neutral rationality exists in systems of law, regulation, credentials, professions, and in accessible mechanisms of protection. These are all normally supported by a free press, an impartial judiciary, and political enfranchising. The important sense of protection rests on systems of stable, fair, and efficient interaction between the public and the wider system.

Essential to all these features as they function to underpin order is the absence of corruption. China's record here has been very poor, especially where bribery is concerned. Transparency International's Bribe Payers Index for 2011 placed China 27th out of 28 countries analysed. For the broader Corruption Perceptions Index its position is 100th out of 175. The campaign begun in 2014, led by the Central Commission for Discipline Inspection is sending shock-waves through the Party and elsewhere.

7. Neutrality in the decision process

We refer here to the transition from a system based on the cultivation of personal connections of exchanged obligation to a system of rational pursuit of legitimate larger purposes agreed by all as superordinate. This lies at the heart of the transition to the modern condition, and even more so to the postmodern, and is seen by many as the acid test. It is what political scientists refer to as the problem of clientelism. In discussing the difference between a prosperous northern Europe and a struggling southern Europe, Fukuyama (2014, 96) observes that 'The real division is not a cultural one, at least if we define culture by religious heritage; it is between a clientelistic and nonclientelistic Europe'. He suggests as an indicator the South's chronic inability to control public sector employment. For Acemoglu and Robinson (2012) in answering the question *Why Nations Fail?*, their commentary on China adds the feature that regularly accompanies *clientelism*, namely *extraction*. In the worst cases this becomes *predation*. Their warning is relevant to our theme, and is as follows:

... 'growth under authoritarian, extractive political institutions in China, although likely to continue for a while yet, will not translate into sustained growth, supported by truly inclusive economic institutions and creative destruction....we should not count on authoritarian growth leading to democracy or inclusive political institutions.... China, and several other authoritarian regimes currently experiencing some growth are likely to reach the limits of extractive growth before they transform their political institutions....and probably before there is any desire among the elite for such changes or any strong opposition forcing them to do so' (Acemoglu and Robinson 2012, 445).

We have already noted the awareness of such contentions shared among some of the elite in China and visible in State Council planning documents. Whether and how such a state can change in this way remains of more than local concern.

Discussion

We return now to the question of societal capacities, and specifically that of innovativeness. We have seen how this is achieved in a western free-market capitalist context. How might it be achieved in a totalitarian state hovering between socialist and market ideologies, and concerned with its responsibilities for a fifth of the world's population?

We propose the seven features discussed above be seen as the parts of a configuration of social enabling mechanisms appropriate to China. They are the components of a societal 'fitness function' similar to one (at a different level of analysis) that determines a firm's capacity to survive and grow in a competitive environment (Beinhocker, 2007).

Caspin-Wagner and Lewin (2014) propose further that to understand how one socio-economic system succeeds and another fails requires an additional

characteristic to be examined. This is the way in which the positive influences stemming from the configuration are coordinated and integrated into the workings of the organizational system. This integration is as important as the configuration, and its workings cannot be assumed to stem simply from the configuration being available to start with. Here the 'socially enabling mechanisms', are seen as 'unobservable socially embedded meta capabilities' that have been internalized and assimilated by actors. Such societal features are familiar from work on societal development by Eisenstadt (1968) with his concept of 'transformative capacities' and by Fukuyama (2014) with his notion of levels of social mobilization and societal capacity. We also acknowledge the option of identifying configurations of disabling mechanisms. A real-world example might be the attempt by Singapore to sponsor indigenous creative industry, by establishing a very advanced infrastructure of seemingly encouraging features, but still finding it difficult to release local inventiveness, and to break the reliance on imported skills. The socially disabling mechanisms in that case are such things as educational rote learning, respect for hierarchy, and the stifling of individual independence. Strenuous efforts by the government to change these features are indications of their continued embeddedness.

The argument of this paper is that context in socio-economics is so crucial that to leave it out of any account will leave that account always subject to correction. A second contention is that new forms of analysis are emerging to meet this challenge and that they are accessible and useable. A third argument is that the trajectory of history has great influence on current events in ways not often enough accounted for. Patterns of human behaviour are now more readily understood and classified as new knowledge in specialized disciplines grows fast to explain the historical and pre-historical processes. We also have a means of making new progress in disciplines that previously have displayed understandable reservations over engaging with the issue of race. In all this fast changing work, we continue to see certain stable facts. The typical human society has evolved to survive and expand on the basis of two acquired capabilities. One of those is innovativeness, and it works well in some conditions but not others. We contend that the many of the logics that connect its workings with those conditions are not negotiable, even though there may be variation in their being interpreted. Much learning and adjustment may be needed in societies where the behaviours and the contexts are misaligned, even if those misalignments may remain currently invisible to the naked eye.

Acknowledgment

The authors would like to thank the following colleagues for discussions and ideas that have contributed to this paper: Michael Bond, Christian Welzel, Misho Minkov, and Henrik Bresman. They also thank the HEAD Foundation for sponsoring a workshop on the subject in November 2013. They also thank Lucas O'Donohue for valuable assistance. The hospitality of Kellogg College, Oxford is gratefully acknowledged.

Note

The HEAD Foundation Working Paper Series© are preliminary papers subject to further revisions, and are circulated to solicit comments and suggestions for improvements. The Working Papers are unedited and unreviewed. The views and opinions expressed are those of the author(s) and do not necessarily reflect those of The HEAD Foundation. No part of the article may be cited without permission from the author(s).

References

- Acemoglu, D. & Robinson, J. A. (2012). *Why nations fail: The origins of power, prosperity and poverty*. London: Profile Book.
- Ambrose, S. H. (1998). Late Pleistocene human population bottlenecks, volcanic winter, and differentiation of modern humans. *Journal of Human Evolution*, 34(6), 623-651.
- Ancona, D. & Bresman, H. (2012). *X-Teams: How to build teams that lead, innovate, and succeed*. Cambridge MA: Harvard Business School Press.
- Appenzeller, T. (2012). Eastern odyssey. *Nature*, 485(3 May), 24-26.
- Beinhocker, E. D. (2007). *The origins of wealth: Evolution, complexity and the radical re-making of economics*. London: Random House.
- Bergere, M. (2007). *Capitalisme et capitalistes en Chine: Des origines a nos jours, XIXe-XXIe siecle*. Paris: Perrin.
- Boisot, M., Child, J., & Redding, G. (2011). Working the system: Toward a theory of cultural and institutional competence. *International Studies of Management and Organization*, 41(1), 63-96.
- Boyd, R., & Richerson, P. J. (2007). Culture and the evolution of the human social instincts. In S. Levinson & N. Enfield (Eds.), *Roots of human sociality*. Oxford: Berg.
- Brown, D. E. (1991). *Human universals*. New York: McGraw-Hill Inc.
- Buss, D. M. (Ed.). (2005). *The handbook of evolutionary psychology*. Hoboken: John Wiley & Sons.
- Cannadine, D. (1990). *The Decline and fall of the British aristocracy*. New Haven: Yale University Press.
- Caspin-Wagner, K. and Lewin, A. Y. (2014). Configuration, integration, and socially enabling mechanisms: A multidimensional approach to interdependencies fit". *Working Paper Duke University - Fuqua School of Management, August 2014*.
- Chance, M. R. A. (1988). Introduction. In M. R. A. Chance (Ed.), *Social fabrics of the mind* (pp. 1-29). Hove: Lawrence Erlbaum Associates, Ltd.
- Chance, M. R. A., & Jolly, C. J. (1970). *Social groups of monkeys, apes and men*. New York: Dutton.
- Chu, B. (2013) *Chinese whispers: Why everything you've heard about China is wrong*, London: Orion Books
- Cosmides, L., & Tooby, J. (1994). Better than rational: Evolutionary psychology and the invisible hand. *The American Economic Review*, 84(2), 327-332.

Dealing With The Complexity of Causes of Societal Innovativeness: Social Enabling and Disabling Mechanisms and The Case of China

- Cummins, D. (2005). Dominance, status and social hierarchies. In D. M. Buss (Ed.), *The Handbook of Evolutionary Psychology* (676-697). Hoboken: John Wiley & Sons, Inc.
- de Soto, F. (2000). *The mystery of capital*. London: Bantam Press.
- Douglas, M. (1987). *How institutions think*. London: Routledge & Kegan Paul Ltd.
- Drew, A. J., & Kriz, A. P. (2012). Towards a theoretical framework for examining societal-level institutional change. In L. Tihanyi, T. M. Devinney, & T. Pedersen (Eds.), *Institutional theory in international business and management* (25, 65-98). Bingley, UK: Emerald Group.
- Drew, A., Kriz, A., & Redding, G. (2014). Paternalism in Chinese business systems. In F.-L. Yu & H.-D. Yan (Eds.), *Handbook of East Asian Entrepreneurship* (121-131). London: Routledge.
- Dunbar, R. I. M. (2003). The social brain: Mind, language, and society in evolutionary perspective. *Annual Review of Anthropology*, 32, 163-181.
- Eisenstadt, S. N. (1968). The Protestant Ethic in an analytical and comparative framework. In S. N. Eisenstadt (Ed.), *The Protestant Ethic and modernization: a comparative view*. New York: Basic Books.
- Elster, J. (1989) Social norms and economic theory. *Journal of Economic Perspectives*, 3(4), 99-117.
- Feldman S. P. (2013) *Trouble in the middle: American-Chinese business relations, culture, conflict, and ethics* London: Routledge.
- Fleck, L. (1935). *The genesis and development of a scientific fact* (T. J. Trenn and R. K. Merton, Trans.). Chicago: University of Chicago Press.
- Fukuyama, F. (2014) *Political order and political decay: From the industrial revolution to the globalization of democracy*. New York: Farrar, Straus and Giroux.
- Geertz, C (1973). *The interpretation of cultures*. New York: Basic Books.
- Georgas, J., & Berry, J. W. (1995). An ecocultural taxonomy for cross-cultural psychology. *Cross-Cultural Research*, 29(2), 121-57.
- Gifford, A. (2009). Culture, cognition and human action. *Journal of Socio-economics*, 38(1), 13-34.
- Halpern, D (2010). *The hidden wealth of nations*. Cambridge: Polity Press.
- Hamilton, W. D. (1964). The genetic evolution of social behaviour. II. *Journal of Theoretical Biology*, 7(1), 17-52.
- Hasegawa, H., & Noronha, C. (Eds.). (2009). *Asian business and management: Theory, practice and perspectives*. London: Palgrave Macmillan.
- Heffer, S. (2013) *High minds: the Victorians and the birth of modern Britain*. London: Random House.
- Heilbroner R. L. (1985). *The nature and logic of capitalism*, New York: Norton.
- Hodgson, G. M. (2010). Choice, habit and evolution. *Journal of Evolutionary Economics*, 20(1), 1-18.
- Hofstede, G. H. (1980). *Culture's consequences: International differences in work-related values*. Newbury Park: Sage.
- Holt, J. C. (1985). *Magna Carta and mediaeval government*. London: Hambledon Press.

Dealing With The Complexity of Causes of Societal Innovativeness: Social Enabling and Disabling Mechanisms and The Case of China

- Huff, W. D., Bergstrom, S. M., & Kolata, D. R. (1992). Gigantic Ordovician volcanic ash fall in North America and Europe: biological, tectonomagmatic, and event-stratigraphic significance. *Geology*, 20, 875-878.
- Hurun Report (2014). "China Rich List", available at <http://www.hurun.net/EN/HuList.aspx> (last accessed 11th February 2015)
- Hwang, V. W. and Horowitz, G. (2012). *The rainforest: The secret to building the next Silicon Valley*. Regenwald.
- Kauffman, S. (1995). *At home in the universe*. New York: Oxford University Press.
- Knoll, J. (2003). Enhancer regulation/endogenous and synthetic enhancer compounds: A neurochemical concept of the innate and acquired drives. *Neurochemical Research*, 28(8), 1275-1297.
- Kogut, B. (2003, June 21). *Context in international business theory*. Presented at the JIBS First Annual Conference on Emerging Research Frontiers, Duke University.
- Kortmulder, K., & Robbers, Y. (2005). *The agonistic and hedonic styles of social behaviour*. Lampeter: The Edwin Mellen Press Ltd.
- Landes, D (1998). *The wealth and poverty of nations: Why some are so rich and some so poor*. New York: Norton.
- Lardy, N. R. (2014) *Markets over Mao: The rise of private business in China*, Washington DC, Peterson Institute for International Economics.
- Lau, S. K (1982). *Society and politics in Hong Kong*. Hong Kong: Chinese University Press.
- Lawrence, P. R., & Nohria, N. (2002). *Driven: How human nature shapes our choices*. San Francisco: Jossey-Bass.
- Leung, K., & Bond, M. H. (2004). Social axioms: A model for social beliefs in multicultural perspective. *Advances in Experimental Social Psychology*, 36, 119-97.
- Leung, K., & Bond, M. H. (2008). Psycho-logic and eco-logic: Insights from social axiom dimensions. In F. J. van de Vijver, D. A. van Hemert, & Y. H. Poortinga (Eds.), *Multilevel Analysis of Individuals and Cultures* (pp. 199-221). New York: Lawrence Erlbaum Associates.
- Lieberthal, K., & Lieberthal, G. (2003). The great transition. *Harvard Business Review*, October, 3-14.
- McCloskey, D. N. (2006). *The bourgeois virtues: Ethics for an age of commerce*. Chicago: University of Chicago Press.
- McCloskey, D. N. (2010). *Bourgeois dignity: Why economics can't explain the modern world*. Chicago: University of Chicago Press.
- Mokyr, J. (2009). *The enlightened economy: an economic history of Britain 1700-1850*. New Haven: Yale University Press.
- Mokyr, J. & Nye, V. C. (2007) 'Distributional coalitions, the industrial revolution, and the origins of economic growth in Britain', *Southern Economic Journal*, 74(1), 50-70.
- North, D. C. (2005). *Understanding the process of economic change*. Princeton, N.J.: Princeton University Press.
- North, D. C., & Thomas, R. P. (1973). *The rise of the western world*. Cambridge: Cambridge University Press.

Dealing With The Complexity of Causes of Societal Innovativeness: Social Enabling and Disabling Mechanisms and The Case of China

- Nowak, M. A. (2011). *SuperCooperators: Altruism, evolution, and why we need each other to succeed*. New York: Free Press.
- Orr, G. & Roth, E. (2012). 'A CEO's guide to innovation in China'. *McKinsey Quarterly*, Feb 2012.
- Ostrom, E. (2009) A general framework for analysing sustainability of social-ecological systems. *Science*, 325, 419-422.
- Pagel, M. (2012). *Wired for culture: The natural history of human cooperation*. London: Allen Lane.
- Parker, P. M. (1995). *Climatic effects on individual, social and economic behaviour: A physioeconomic review of research across disciplines*. London: Greenwood Press.
- Pierce, B. D., & White, R. E. (1999). The evolution of social structure: Why biology matters. *Academy of Management Review*, 24(4), 843-853.
- Pierce, B. D., & White, R. E. (2006). Resource context contestability and emergent social structure: an empirical investigation of an evolutionary theory. *Journal of Organizational Behavior*, 27, 221-239.
- Ragin, C. C. (1987). *The comparative method*. Berkeley CA: University of California Press.
- Rasmussen, M., Guo, X., Wang, Y., Lohmueller, K. E., Rasmussen, S., Albrechsten, A., et al. (2011). An Aboriginal Australian genome reveals separate human dispersals into Asia. *Science*, 334(7 October), 94-98.
- Redding, G (1990). *The spirit of Chinese capitalism*. New York: de Gruyter.
- Redding, G (2005). Principles of the comparative method in the analysis of societal systems of business: the example of China. *Working Papers: the Euro-Asia and Comparative Research Centre, INSEAD*.
- Redding, G. (2008). Separating culture from institutions: The use of semantic spaces as a conceptual domain and the case of China. *Management and Organization Review*, 4(2), 257-289.
- Redding, G., & Witt, M. A. (2007). *The future of Chinese capitalism: Choices and chances*. Oxford: Oxford University Press.
- Ridley, M. (2010). *The Rational optimist: How prosperity evolves*. New York: Harper Collins.
- Rizzello, S. (2004). Knowledge as a Path-Dependence Process. *Journal of Bioeconomics*, 6(2), 255-274.
- Ronen, S. & Shenkar, O. 2013. Mapping world cultures: Cluster formation, sources and implications. *Journal of International Business Studies*, 44(9): 867-897.
- Runciman, W. G. (2009). *The theory of cultural and social selection*. Cambridge: Cambridge University Press.
- Seabright, P (2010). *The company of strangers: A natural history of economic life*. Princeton NJ: Princeton University Press.
- Searle, J. R. (2005). What is an Institution? *Journal of Institutional Economics*, 1(1), 1-22.
- Spence, M. (2011) *The Next convergence: The future of economic growth in a multispeed world*. New York: Farrar, Straus and Giroux.
- Stoelhorst, J. W. & Richerson, P. J. (2013). A naturalistic theory of economic organization. *Journal of Economic Behaviour and Organisation*, 90S, S45-S56

Dealing With The Complexity of Causes of Societal Innovativeness: Social Enabling and Disabling Mechanisms and The Case of China

- Thornton P. H., Ocasio, W. & Lounsbury, M. (2012). *The institutional logic perspective: A new approach to culture, structure and process*. Oxford: Oxford University Press.
- Trivers, R. L. (1971). The evolution of reciprocal altruism. *The Quarterly Review of Biology*, 46(1), 35-57.
- Trivers, R. L. (2006). Reciprocal altruism: 30 years later. In C. P. van Schaik & P. M. Kappeler (Eds.), *Primates and Humans: Mechanisms and Evolution* (67-83). Berlin: Springer-Verlag.
- Veblen, T. (1919). *The place of science in modern civilisation and other essays*. New York: B. W. Huebsch.
- Weber, M. (1930). *The Protestant ethic and the spirit of capitalism* (T. Parsons & R. H. Tawney, Trans.). London: G. Allen & Unwin, Ltd.
- Wells, S. (2002). *The journey of man: A genetic odyssey*. Princeton, N.J.: Princeton University Press.
- Welzel, C. (2013) *Freedom rising: human empowerment and the quest for emancipation*. Cambridge: Cambridge University Press.
- Welzel, C., Inglehart, R. & Alexander, A. C. (2015). *The great diversion: How civilization turned into human empowerment, (draft)*
- Whitley, R. (1992). *Business systems in East Asia*. London: Sage.
- Whitley, R (1999). Competing logics and units of analysis in the comparative study of economic organization. *International Studies of Management and Organization*, 29(2), 113-26.
- Witt, M.A. and Redding, G. (Eds.) (2014). *The Oxford handbook of Asian business systems*. Oxford: Oxford University Press.
- Witt, M. A. and Redding, G. (2015). Advancing indigenous management theory: Executive rationale as an institutional logic. *Working Paper INSEAD, 11th February 2014*
- World Bank/China State Council (2013). *China 2030: Building a modern, harmonious and creative society*, Washington DC: World Bank.
- Wrangham, R. (2010). *Catching fire: How cooking made us human*. Croydon: Basic Books.