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Schools and the Future

This report has been prepared by Riel Miller of OECD's International Futures Programme (IFP). It draws on on-going work by Riel Miller and Tom Bentley, Demos, for the National College for School Leadership (NCSL) England, which will be published in April 2003. The attached report considers the main conclusions of the OECD IFP series of 21st Century Transitions studies to apply "possibility-space mapping" in reflecting on the future of schools in contemporary societies.

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La Dynamique Atlantique

FUTUROSCOPE
le Parc

Introduction

Schools were in a pivotal position during the 19th and 20th centuries. Schools did a spectacularly efficient job of: safeguarding children while their parents were at work, ensuring that every young person was able to arrive on time and behave appropriately in a classroom, making sure that the majority of students would be able to function later on in a workplace and as citizens. School systems also stand out as perhaps one of a handful of pre-eminent institutional complexes such as the modern state bureaucracy and the multinational corporation that served as organisational models for society as whole. However, looking to the future the question is: if the 21st century ushers in fairly radical changes in the socio-economic landscape can schools, indeed, should schools be as central? Under what conditions could today's schools play the same roles as in the past? Can the school evolve along with the changing socio-economic context, and if so, how? Further, will the school serve as a brake or accelerator of desired changes?

The answers to these questions obviously matter because the responses will in large part determine their goals and how they measure progress towards the goals. The difficulty is that the future is unknowable. How can we develop new objectives along with the appropriate metrics and benchmarks for a world that does not exist? This is where Future Studies (FS) as a discipline for analysing plausible change comes in. For instance the "creative society" of the 21st century, analysed below, lays out an entirely new set of possibilities - not just for schools but for the way everyday activities thirty years from now might combine to reproduce daily life. So, for instance, if in the "creative society" the principal source of wealth creation is radically different from today, on a scale of change similar to the shift from agricultural to industrial society, then most aspects of everyday life also stand a good chance of being transformed. Under these new circumstances schools could play a wide range of possible roles and operate in many different ways. Schools might dispense with the custodial or screening functions, as these roles are taken on by other institutions. Or maybe, in the learning society of tomorrow, schools are no longer the big fish in a small pond of behavioural and cognitive training but simply one part of a much denser and elaborate network of reflection and continuously validated learning-by-doing.

The 21st Century Transitions discussed below and the "creative society" that might arise do not presuppose a particular role or operational mode for schools. Like other institutions that faded from the centre to the periphery of people's everyday preoccupations, such as the family farm or certain religious and military organisations, schools might also move off centre-stage. Any number of radical changes are imaginable as long as the ensemble of practices and institutions respect the basic conditions that make some future a plausibly viable way of reproducing daily life thirty years from now. There is no one road to the future nor any one sketch of its plausible contours. Indeed, change on a transitional scale is highly contingent on a complex set of inter-dependent forces working together.[1] And the goals that are chosen, the ones that inspire imagination and innovation, are likely to be decisive in transforming what is possible into a desired reality. This is the power of FS when it focuses on the potential for societal change in the world around us. It allows a wide range of different trajectories and values to coexist. There are no predictions or forecasts. The discussion below is intended to help us think about how schools might be most effective in shaping a desirable future.

[1] This topic is also discussed in the four books of the 21st Century Transition Series: *21st Century Technologies, The Future of the Global Economy, The Creative Society of the 21st Century, and Governance in the 21st Century,* OECD.

History of the Future and Possibility Spaces: the Example of 21st Century Transitions

How is it that each morning when we wake up the world around us restarts, functioning – at least most of the time – much as it did the day before? And, how is it that as we recreate life each day we also change it in ways that can lead to a radically different future? This approach to thinking about the future contrasts markedly with more traditional and familiar modes like mystical prophecy, grand ideologically inspired utopias and mechanistic predictive models. The yearning for predictive certainty responds to important human needs. But this is seeking the opposite of what Future Studies (FS) is about. The aim of FS is to evoke a much wider and deeper set of possible futures, in this sense entirely unlike the predictive traditions that depend either on close to perfect continuity or on entirely exogenous events like an apocalypse.[2]

There is one part of FS that is interested in short-term predication, usually based on the use of empirical models. These studies look at situations where the inertia of the immediate past can be reasonably expected to restrict the degree of possible change. Thus there is a limited capacity to predict with accuracy what might happen in a few days or months. However, futurists are interested in these efforts for different reasons than the specialists who produce them such as economists who try to forecast economic growth or stock trends, meteorologists who are concerned with tomorrow's weather or political scientists who talk to journalists about the probable outcome of an upcoming election. For futurists, short-run predictive models are important because they provide insights into the specific variables (forces) that reproduce daily life – or that slice of daily life that the forecaster is interested in. Done properly, a forecast offers a better understanding of the causal factors that change daily life, of the way the different variables interact and crucially to what extent (how far) the past is a good basis for looking into the future. Once forecasting bumps into the limits of its effective range, which in most cases is measured in months not years, efforts at prediction must give way to an exploration of what might be possible.

FS is then primarily about assessing the plausibility and/or probability of different configurations for the reproduction of daily life in the future. This is a task which bears many similarities to those of the historian who seeks to understand the key factors that altered (or not) daily life in the past, be it the decisions of kings, the outcome of wars or the composition of peasant meals. Neither the historian nor the futurist has direct access to the reality they are analysing, and both seek clues in the present and the past in order to substantiate their analyses of why and how life did or might unfold. There are, of course, some important contrasts between efforts to study the past and the future. The work of a futurist may be tested one day by the arrival of tomorrow, while the historian must be forever content with the traces of the past that are more or less buried under the weight of time that has elapsed. Historians can consult the historical record to show definitively that, for instance, a treaty was signed, while futurists, to take the same example, must use their imaginations to sketch the possible elements of tomorrow's global agreements. Ultimately, however, both are map-makers – trying to determine which essential features explain how life was or will be lived.

All analysts of how daily life is reproduced – past, present and future – must use theories and methods that can take into account multiple layers of complex interaction and causality. Like the discipline of history, FS is a polyvalent and neutral "social science". This is not in the sense of pretending that an

[2] To use a term from economics, FS embraces the non-ergodic while the predictive traditions rely very heavily on the world being ergodic or predictably constant. Also note that this has powerful implications for methodology and the viability of "controlled experiments" where the results of one researchers experiment can be repeated by another for verification. In a non-ergodic world the underlying conditions are expected to change in such a way that there is no basis for repeating the same experiment.

analysis can be value free or entirely objective, but in the sense that it is a collection of methods, theories and findings that provide insights about possible futures for people that may hold different beliefs and goals. There are, of course, many different schools of thought within each social science discipline. None has a monopoly on the truth and all benefit from the competition of ideas. One approach has been singled out here; the specific method and findings reported below are part of a relatively recent development in the field of future studies called "possibility mapping".

There are a number of distinctive attributes of this approach. First, the aim is to consider what might be possible rather than what is probable. In this sense the point is to imagine possible outcomes, for instance ways of living daily life, that according to best guesses could happen if all of the right things occurred to make such an outcome workable. This is a long way from saying that such an outcome is probable. Second, the axes of the map – the North-South and East-West dimensions – are formed by variables that track key aspects of change. Which indicators make sense depends entirely on the nature of the possibility (the change) that is being mapped. None of this should be confused with the actual scenarios that depict a particular future. Rather possibility spaces are a scenario building tool. Scenarios are the outcome of employing scenario-building methods to a specific topic. Furthermore, the possibility space methodology elaborated in some detail in the next sections is just one of many ways of developing a scenario of what the future might be like. Other methods are used, perhaps the most familiar one takes today's powerful trends and combines them in different ways to offer a range of scenarios. An excellent example of this approach can be found *in What Schools for the Future?*, which provides a series of scenarios for schools in OECD countries based on a careful assessment of current trends.

Exploring Possibility Spaces: Four Dimensions of Transition-scale Change

Making the case, at the outset of the industrial revolution, that agriculture would become a marginal activity was probably impossible. Even at the beginning of the 21st century our agrarian past still lies heavily on our thinking, school calendar, nursery rhymes and political map. It is therefore not surprising that it is difficult to get our institutions and imaginations beyond the much more recent memories of an economy and society dominated by mass-production and mass-consumption. The "post-industrial era", a term coined over thirty years ago by Daniel Bell, has in many ways been very slow in coming. In part this is because the most prominent elements of the service economy like finance, health care, education and even retailing have largely operated using factory methods. And, in part, it is because at the outset much of the intangible service sector was linked quite tightly into heavy industry and the manufacturing parts of the economy. That is no longer the case today. Intangibles, produced and consumed entirely outside the industrial sphere, make up the preponderant share of measured value-added in most OECD economies. We have clear evidence that people can live well and become better off even when most of them spend their time and work effort on "ephemera." Furthermore, we know that the constraints on the kinds of intangibles, from "fine art" to trash entertainment, are set by what sells for a profit.[3]

[3] Some condemn these luxury or entertainment economies. They make a value judgement about what is good or bad production and consumption. But markets, composed of investors and buyers, seem rather unconcerned. In this sense the market, purely as an exchange mechanism, has no values or goals. For its supporters, that is one of its great virtues. For its critics that is one of its great failings. Both sides of the debate agree that producers and consumers interact, more often than not with the investor trying to tempt the consumer into the market. Consumers are not sovereign in the active sense of deciding what is on offer, but they can exercise the more passive power of a veto and the mysterious power of hidden wants and desires.

Of course this begs the question of what forces might be held responsible for driving agriculture and subsequently industry off centre stage? It was not consumers deciding to stop eating or to punish farmers, steelworkers and secretaries. Although consumers did, in a largely personal and unreflective way, decide to buy cheaper food when they could or better consumer goods and services when they could. Generally, people did try to find better jobs when they had a choice or any job at all when they did not have much choice. And investors and producers did try to find new ways of making a profit by bringing more productive farming and manufacturing methods into play, by inventing entirely new products or by finding new, cheaper sources of supply. All of these decisions, taken together, end up gradually reallocating resources from one part of the economy to another, from one type of activity to another. Certainly, major events, like wars and depressions, along with collective choices like respect for property and the right to vote, have always been crucial parts of opening up new options and closing off old ones. But at the level of everyday life change is made up of incremental choices that can, over the span of a few generations, lead to radical transformations in the way everyday life is lived. We have seen this scale of transition in the move from agriculture to industry, from factory to office tower, and from today's fragmenting markets to tomorrow's… what?

Often the answer to this question – what next? – is based on an analysis of historical and current trends along with the forces that might influence the pace and direction of change in the future. There is great merit to this approach and it is an essential part of FS. However, the "possibility space" method adopted here poses the question differently in order to escape from the past in ways that are impossible when the analysis is based on extrapolation of existing trends. Furthermore, the goal here is not to predict or forecast the probability of a particular outcome but to provoke a reconsideration of what might be possible given existing assets and liabilities, hopes and fears. This means that the discussion of "what next?" is liberated, at least initially, from the more typical question - what is likely to be next? - to pose instead the question "what might be plausible thirty years from now?" This is a form of "objective" or non-ideological utopian thinking, "visioning" or "back-casting". The degrees of freedom can be just about infinite if the time frame is centuries or considerably more limited if the scope is only thirty years.

Working within a thirty year time frame has the virtue of opening up many assumptions without losing all contact with the inertia of today. Over the span of three decades a society can undergo a complex series of inter-related changes, sufficient to generate a radical difference between the starting and end points. But, as even the most resolute efforts to "revolutionise" society have demonstrated, there is still a good chance of strong continuity in many of the key parameters that shape daily life. For instance, the 21st Century Transitions series identified a number of elements that currently frame everyday life and seem likely to still be in place thirty years from now. Certain "timeless" values, like those articulated in the middle of the last century by the Universal Declaration of Human Rights, are likely to still frame people's aspirations in 2030. Similarly, after almost a century of struggle between mixed economies, based on representative democracy, rule of law and freedom of expression, and planned economies based on collective social goals imposed through state planning, the verdict seems sufficiently definitive in favour of the mixed market model. This forecloses the prospect of a radically different alternative moving to prominence within the next three decades.

Finally, entirely exogenous possibilities like being hit by a gigantic meteor, visited by aliens or having our species undergo a sudden natural evolutionary leap can be ruled out for consideration because speculation about these events can not produce any policy relevant or actionable conclusions.

Instead the next four sub-sections offer very brief overviews of an extended possibility space analysis that was undertaken by IFP from 1997 to 2001 to assess the plausibility of 21st Century Transitions. For this project the key metrics or indicators of change were attributes of everyday life, for instance: what types of economic activity account for the preponderant share of wealth creation (farms,

factories, services, knowledge), which social patterns and values predominate, where and in what conditions do most people live, etc.. The comparator or historical reference points for determining whether or not changes in the conduct of everyday life reach "transition-scale" were the major transformations already experienced such as the shift from agricultural to industrial society, that occurred in most OECD countries in the 19th and early 20th centuries, or the moves from plan to market, developing to developed country, that are still underway in many places. The task was subdivided into four analytically distinguishable but highly inter-related sub-components – the extent to which technological, economic, social or governance changes might contribute (or not) to transitional scale change in the initial decades of the 21st century.

a) Transition-Scale Technological Change

Transition-scale change has always involved the diffusion of pervasive technologies, meaning tools that become part of everyday life such as electricity or telephones. Equally clear from the historical record is that the timing and nature of the diffusion of these transformation-enabling tools and techniques is largely shaped by non-technological factors. Contrary to the sentiment, particularly rampant around the time this IFP Forum for the Future held in December 1997, "technology is not destiny" but the Forum did conclude that there is a range of new technologies that could become pervasive. For instance, contingent on a set of significant changes in the physical infrastructure and economic organisation of society computing might become ubiquitous and biotechnology might allow us to design our bodies, food and environment. Other tools also have the potential to become an integral part of everyday life such as software that flawlessly and instantaneously translates from one language to another using micro-scale, maybe even nano-scale hardware. However, the critical element from the perspective of transition-scale change turns on the issue of pervasiveness or how widely a technology is diffused throughout society – as an input and output, in many different sectors and areas of activity. Diagram 1 below offers a possibility space perspective on pervasiveness for electricity.

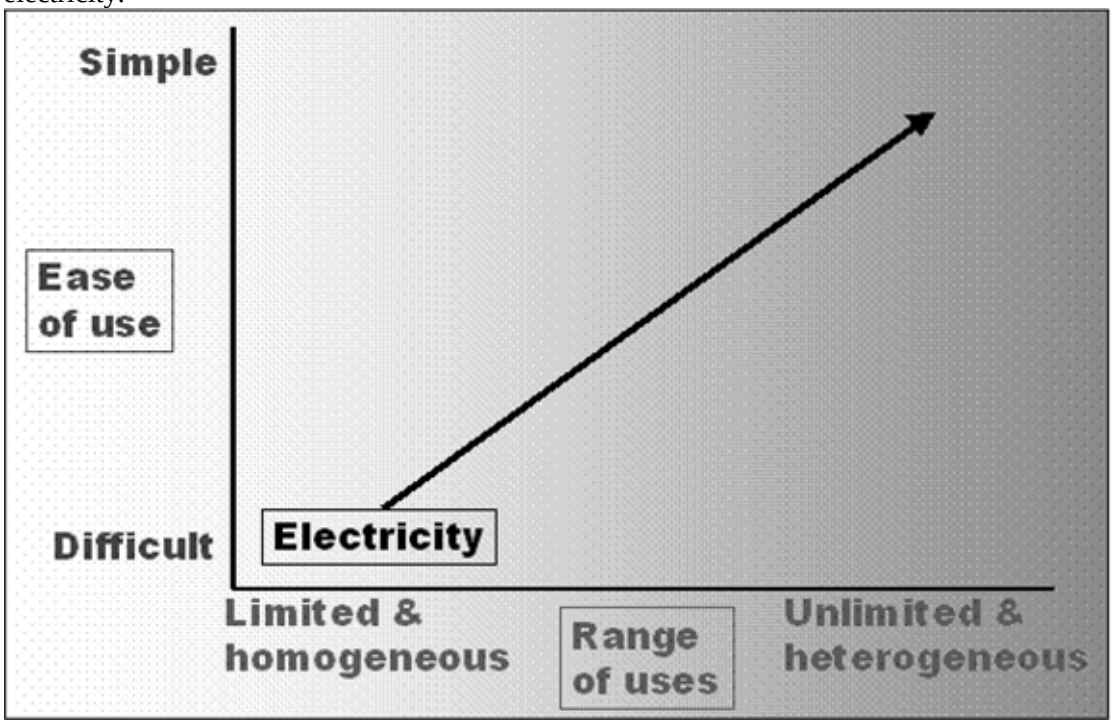

Diagram 1 Technology Possibility Space: Electricity

Turning more specifically to the question of what contribution currently limited or very crude technologies might make to transition-scale change in the 21st century the list of technologies is rather long. One example, however, might suffice to illustrate how a currently limited tool might become central to the everyday functioning of tomorrow's "creative society". A technology that might be pervasive in a creative society could be called "solid MP3". First what is MP3. MP3 is a software standard that allows music to be recorded and played back in digital form. MP3 is the standard that caught on in a significant enough way to provoke a pitched battle between the music distribution companies and the music file traders. Ownership rights, payment methods and the treatment of intellectual property in general have been called into question by the sharing of MP3 music files over the Internet. The "solid" part only exists in a limited way today. Solid objects are "printed" today by so called prototype machines. Using Computer Aided Design/Computer Aided Manufacturing (more commonly known as CAD/CAM) these printers create one-off models in three dimensions of the objects engineers are working on. These printers, (see picture), use plastic or graphite to build up layer upon layer of a solid object according to the designer's specifications. Although the experts can not be definitive, it seems like a fairly good bet that in much the same way that regular paper document printers evolved from slow and messy monochrome dot matrix technology to today's fast and highly detailed color laser printers, so too might 3D printers evolve from expensive prototypers to inexpensive all-purpose fabricators of solid objects.

Thirty years from now it is plausible that "solid MP3" printers could be pervasive. In which case many people would be printing out physical objects, often customised to their specifications, on site. Home versions of these printers might spit out coffee mugs, utensils, small electronic gadgets and who knows what else if composite materials and chip technology continue to advance. Bigger, white goods type items, from refrigerators to motor scooters (hydrogen powered-electric) could be printed out at the local copy-shop. And really big items involving particularly complex materials or special multi-stage assembly, such as a full-fledged car, might only be available from the local shopping mall specialty plant. Now this is not meant to sound like Star Trek's replicator or transporter that materialised matter out of no where. But even if "solid MP3" printers diffuse only modestly they could still have profound implications for trade patterns, supply networks, delivery services, shopping habits and the range of options for customising physical items to personal tastes. Seen from a purely technological perspective this trajectory only demands modest advances in engineering and materials science. However seen from the perspective of diffusion throughout society it is likely to require major leaps in the treatment of intellectual property, payment and trust on the Internet. Recent experiences with sharing music over the Internet demonstrate how difficult it is to find a functional solution for what the major record labels call digital piracy. Now imagine if the problem expanded to include companies that produce physical objects like General Motors, Nokia, Siemens and Whirlpool.

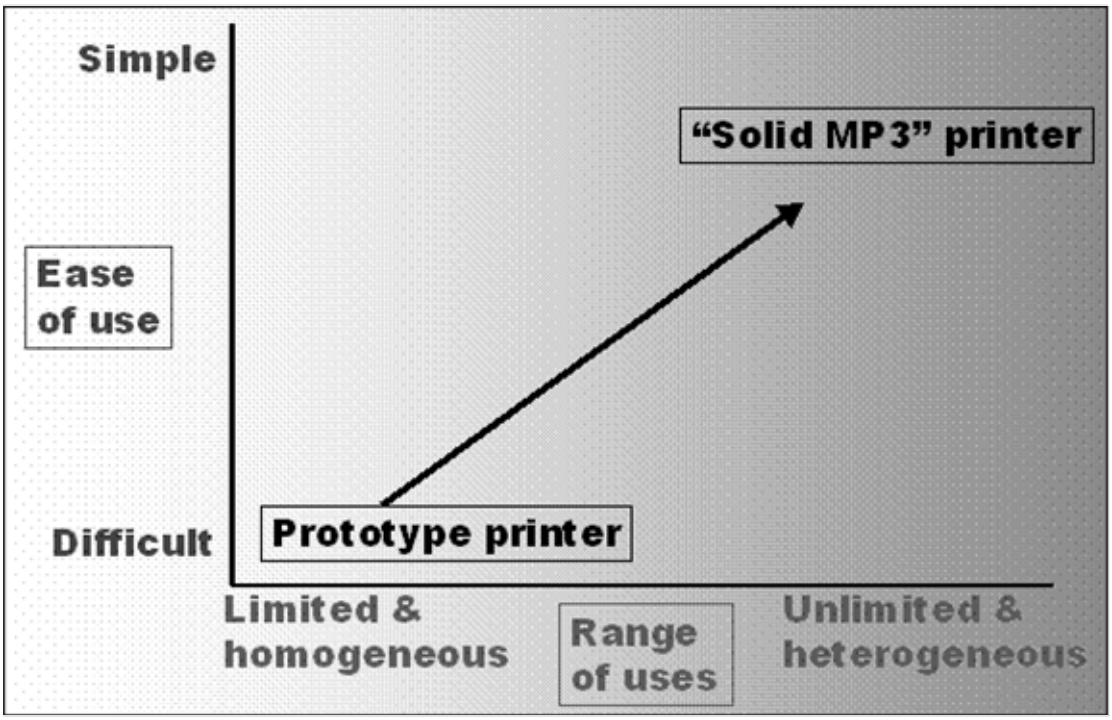

Diagram 2: Technology Possibility Space: Solid MP3

The development and diffusion of "solid MP3" is an example of how transition-scale technological change is contingent on a wide range of other similarly transformative changes. "Solid MP3" could facilitate major changes in how people live their everyday lives, but the diffusion of this new technology is contingent on a wide range of significant legal, economic, social and cultural developments. For instance new laws and enforcement systems (judicial, cultural, technological) are likely to be essential if "solid MP3" is to become profitable for producers and cost effective for consumers. Equally critical for this kind of technology to take-off is the emergence of new desires and capabilities amongst those who use the new tools. At the moment most consumers are both accustomed and largely satisfied with the vast but passive selection of the objects on offer from mass-producers. They may feel put-upon or inadequate faced with the chance to really design their own products. And, as we know too well from the introduction of PCs, a large part of the population finds IT hardware and software incomprehensible and/or frightening. Many people faced with the chance to design their own pen-set, tea cup, bicycle or dish-washer, might decline the opportunity to express what might be called "banal creativity". Either because they can not be bothered or because they believe that the systems for addressing the copyright, payment, privacy and quality dimensions of the transaction are too cumbersome – meaning time-consuming or expensive - probably both.

The verdict, at the conclusion of the first conference in the 21CT series, was that there are indeed many technologies with the potential to become pervasive – enablers of transformation in daily life. But this finding does not answer the crucial next question: what might drive the diffusion and refinement of these marvelous tools? This question forms a logical bridge to the analysis, undertaken in the second conference, of the plausibility that changes in the structure and functioning of the economy might contribute to 21st Century Transitions.

b) Transition-Scale Changes in Economic Activity

Transition-scale economic change can be imagined along a number of familiar dimensions. What is produced/consumed (e.g. food versus manufactured goods). How production and consumption take place (e.g. autonomously on the farm versus hierarchically in the factory/supermarket). Where production and consumption occur (e.g. country *versus* city). What are the main attributes of resource allocation methods (e.g. market versus planning, open versus closed). What is the relationship of the economy (the how, what and where of production/consumption) to the environment - the ecological footprint of economic activity (e.g. light versus heavy). By evaluating change along these dimensions it is possible to assess the scale of transition. Economic change reaches transition-scale when it alters the basic composition of the economy – shifting the shares represented by different types of activity and ways of doing things. In terms of the past benchmarks for transition-scale change, the shift from agriculture to industry in OECD countries, every one of the aforementioned variables was altered in significant ways.

Diagram 3 is an example of how possibility-spaces can be used to assess the nature and scale of economic and social change. Along the vertical axis is the predictability of tasks, be it at work or at home, as a producer or a consumer. Along the horizontal axis is the extent of individual autonomy or authority to take initiative. The lower left quadrant of this possibility-space describes situations, typical of the mass-production/mass-consumption post-WWII era in OECD countries, where tasks at work were predictable and largely imposed from above while consumption was largely constrained to the passive choice of what was on offer. Moving towards the upper right predictability decreases and autonomy increases, reaching at its maximum the entirely unpredictable and autonomous situation of the artist. The slightly less "free" cyber-producer/consumer also takes on one of the fundamental attributes of the artist, the attribute with perhaps the most important implications for transition-scale economic change. That is, the self-producer collapses one of the essential dichotomies of the industrial and mass-eras, the separation of the supply and demand sides of the economy.

This radical fusion, dubbed "unique creation", arises out of a concrete problem for producers trying to customise their output and consumers trying to satisfy their desires. For a long time now the dominant relationship between conception and execution has been one that strips away the thinking role for both front-line assembly workers and passive shoppers. This "alienation" or disempowerment is not inherent to the logic of the market as a exchange system, but is central to the efficiency of industrial production and mass-era practices. Unique production poses a fundamental challenge to this dichotomy. A product tailored exactly to the consumer's criteria depends, unless someone learns how to read minds, on the conscious addition of design ingredients from what was formerly the "demand side". Despite long years of waiting passively there are signs that consumers are no longer satisfied with letting the engineer, designer or marketing guru specify what they want. The cyber-producer/creator enters into the act. Such activism of necessity alters the workplace hierarchy because the final product can not be specified in advance. There has to be a joint effort that combines the know-how and imagination of the front-line worker and the actual consumer. The old divide, between the boss who conceives and the worker who executes, between the designer that imagines and the consumer that only chooses, breaks down.

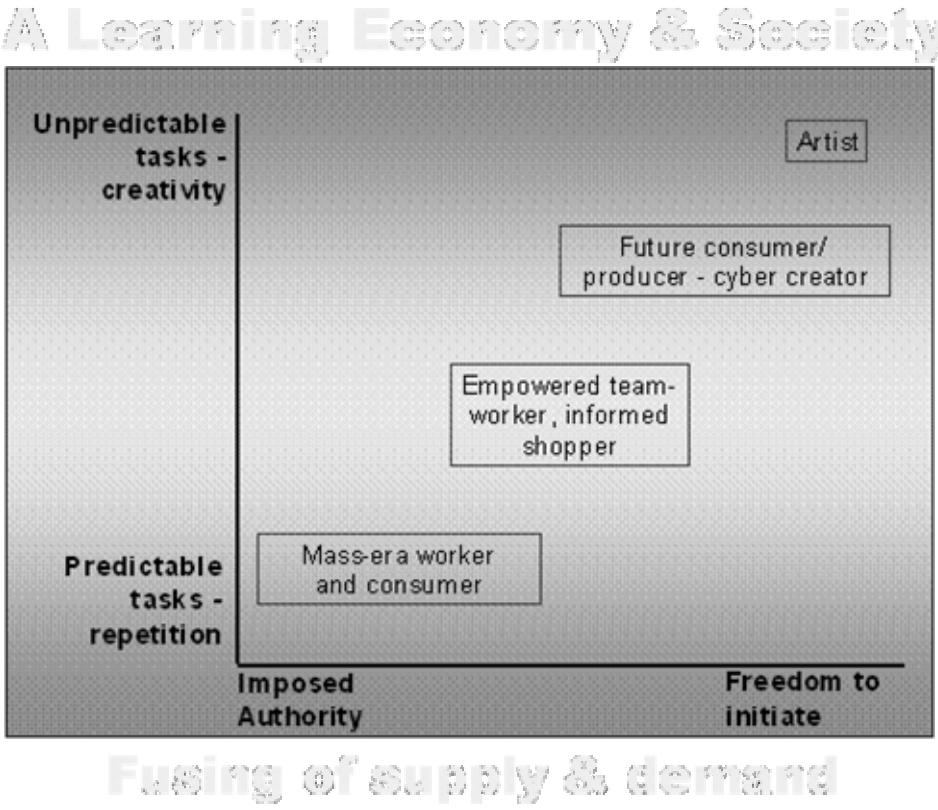

Diagram 3 Economic Possibility Space: Fusion of Supply & Demand in Unique Creation

However, moving to a "creative economy", one dominated by "unique creation", is not something that happens overnight. For one thing change is slowed down by efforts to maintain the old methods of organising production and consumption. Thus the "knowledge management" movement of the last decade has been largely about finding ways to bring the "problem" of worker and consumer creativity back "under control". Much of KM focuses on ways of getting workers and consumers to follow motivations that correspond with the interests of company profitability. Despite the difficulty of this task, considerable progress has been made in extending the functionality of industrial era practices into a more intangible economy. Other significant obstacles can also be expected to slow or block movement towards the upper-right of the possibility space sketched in Diagram 3. Without providing an in-depth or exhaustive review here, one constraint and two "false constraints" are worth noting. One serious obstacle is the difficulty of establishing the transparency and trust demanded by very high levels of creative activity and inter-dependency. The fusion of demand and supply can only be efficient, a viable alternative to mass-methods, if the ability to undertake joint-production activities is easy and low cost. As discussed in the next section, many pieces will have to be put in place in order to build a foundation for this degree of seamlessness. Two oft cited obstacles, that do not seem nearly as serious are the concern that a fusion of demand and supply is incompatible with market exchange and that such a high level of everyday creativity will mean that everyone will have to be both a genius and have a Ph.D.

Both of these are false obstacles. Markets are not only compatible with the integration of demand/supply, conception/execution and production/consumption, but are probably an essential element of achieving the requisite efficiency of supply networks, of specialisation/inter-dependency,

and of the exchange of ideas. With respect to the fear that a creative economy will require everyone to be a "rocket scientist", just the opposite seems likely. Not every personalised tea-cup, individual garden design or customised home energy system will be an artistic or scientific breakthrough. Learning about one's tastes, one's potential collaborators and other's ideas that are inspiring, does not take excessive amounts of university level training nor exceptional artistic genius. Instead "banal creativity" is likely to dominate. Most of the creative effort that adds-value will be reflected in millions of variations on similar themes and simply express the gradual maturation or what the French call "refinement" of taste. However, the generalisation of "banal creativity" to become the dominant economic activity will call for changes that move everyday life far away from the behaviour, expectations and organisation typical of mass-production/consumption. One of the main sources of these transition-scale changes – pushed by what people want to do and pulled by what happens around us – could be shifts in the social possibility space.

c) Transition-Scale Changes in Social Affiliation and Identity

In the past, changes in the way people identify themselves – their perceptions of self, their official status and the way they view their relationship to the society around them – have been good indicators of transition-scale change. This is because transitions foster the development of new identities, such as those of citizen, worker or member of an emerging social group. While a transition is underway such change is often only seen by looking across generations, as the elderly cling to identities that no longer correspond to the world around them and the young detect the traces of identities yet to come. Signs of this type of change can be revealed by posing questions like: what labels do you apply to yourself? What do you say if asked: what is different about you? Do you conform to social norms – consciously, unconsciously – out of convenience or fear or ignorance? Are you given choices and if so how diverse and life-changing are your choices? Do you have the right to change career, community, status? Do you have the desire, skills and experience to make such choices? On a comparative basis it is worth assessing the extent to which differences in identity are related to efforts to manage the risks of everyday life – both the perception and reality? The answers to these questions, as well as the questions that are asked, are usually altered in fairly dramatic fashion by transition-scale change.

One way of imagining this type of change is by using a possibility map as depicted in Diagram 4. Along the vertical axis is the scale of social affiliation/identity that is meant to pick-up on the extent to which people refer to mass or minority identities when they define themselves or are categorized by sociologists/anthropologists. Typically, over the past century, the predominant reference points have been nation, job (where you work – mine, home, etc.), trade (skill or profession), income and religion. Looked at closely there were usually important differences across groups and regions, but nevertheless most people tended to express and feel a commitment to certain widely-held and homogeneous identities that were championed and sustained by big and powerful institutions. At the other end of this axis is a much more heterogeneous, some might say fragmented, range of reference points. This is not to imply that just because a person's identity is, for instance, rooted in a powerless minority that they necessarily have a lot of choice over the affiliations that play a major part in shaping their identity.

As Diagram 4 indicates, the upper left quadrant of the possibility space applies to situations where identity is connected to heterogeneous and small bases while at the same time offering relatively little freedom of choice. Indeed, this is the dimension captured by the horizontal axis. On the left-hand side are situations where a person has relatively limited freedom (which should probably be thought of in terms of capability or capacity) to make many of the choices that play a major role in defining a person's identity. At the opposite end of the spectrum are those situations where freedom is fully exercised across a broad range of choices that shape the way one lives everyday life.

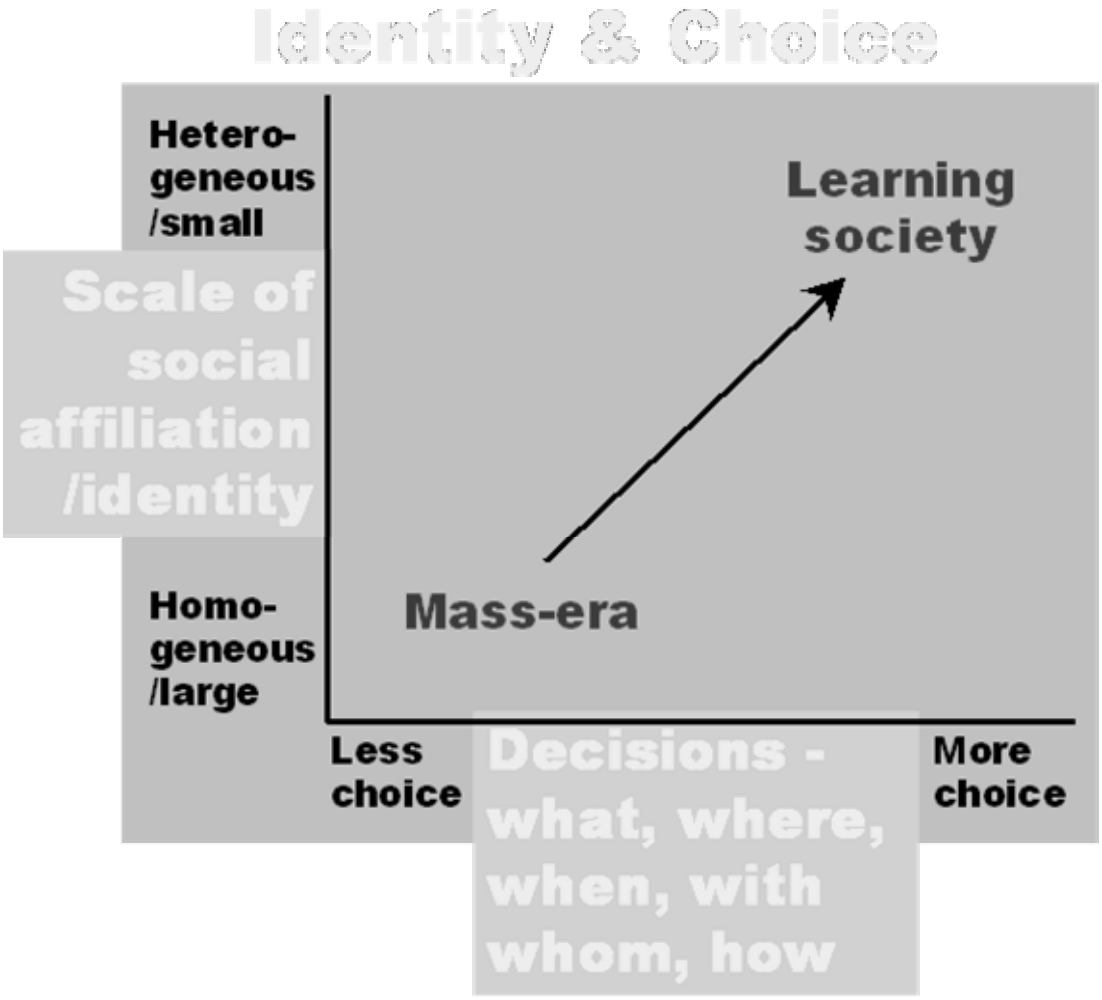

Diagram 4 Social Possibility Space: Changing Conditions for Identity

Diagram 4 allows us to imagine a range of possible social changes, such as the diagonal movement through the possibility space, from the identities of the mass-era in the lower left quadrant to those of the learning society in the upper right. The contrast between these two end points could be quite dramatic. In the mass-era it was normal to feel and express a strong affiliation to widely shared identities like country, class or company, ethnicity and/or religion. Usually a large and powerful institution, the state, trade union, political party, organised religion, sustained and reinforced these identities. Life experience also established and regularly confirmed both the meaning and symbols attached to these identities. Nationality was re-forged through full-scale wars, hot and cold. Class, political position and religion were handed on from one generation to the next. Life, as always was full of choices, but breaking out of the general patterns was difficult, relatively rare and carried heavy sanctions. Even the exercise of power, who had it and how they wielded it, ran in a predictable and generally top-down fashion – in the family, in the firm and in the state.

Now, for most OECD countries, this era is coming to an end. Not simply because we are "bowling alone", Putnam's famous syndrome of lost social affiliations[4], but because other possibilities are beginning to appear. Still, imagining the social maps for locating tomorrow's identities is not an easy task. Think of asking a 19th century farmer what it would be like to be a factory worker in the 20th century.[5] Here, once again, is where possibility spaces can help, first in terms of the potential evoked by Diagram 4 and second, by considering what might be possible if there is synergy across different aspects of transition-scale change – like an economy dominated by unique creation.

Starting with the learning society in the upper-right quadrant of Diagram 4, sources of affiliation are heterogeneous and specific while people have an immense freedom/capacity to really make choices about most aspects of daily life. Such a situation begs many questions, from how conflict amongst splintered groups is managed to what role does loyalty play when there is so much freedom? Clearly different "learning societies" will address these crucial issues in different ways. What these societies are likely to have in common is a change in the process of defining and sustaining identity. Initially, rooted as we are in industrial era ways of thinking, this looks like a change in the direction of the identity creation process from top-down to individual-up. But thinking through the everyday life aspects of this possibility space suggests another view, that as the individual seeks their identity they are immediately forced to discern its collective dimensions. Top-down and bottom-up identity creation are not symmetrical. When identity is imposed the collective is necessarily "the other" and hence the dualism of individual versus society. But when the individual seeks their own identity, an unavoidable quest of being human, they look to find and establish the collective references that make their identity meaningful.

In the upper-right reaches of Diagram 4 identity emerges from people's everyday choices (not necessarily thinking explicitly about their identity but more about how they want to live and be perceived). Such a possibility may seem improbably far removed from today's "couch potato" passivity, where few people vote, few volunteer, and an every growing share cannot even find the motivation to get out of the house to go shopping – they order over the Internet. But, without making any judgements about the probability of this transition-scale change, it is worth noting the potential synergy between the social and economic dimensions. Unique creation, combined with the implied potential to shift from life organised for work to work organised for life, could build up through practice (desire/necessity) a context where decision-making capacity is adequate to the perpetual task of self-generated identity creation.

One way to put this hurdle in perspective is to recall that industrial era capacities that we now take for granted, skills like reading and writing as well as behaviours like showing-up at the factory gate on time and obeying the foreman, were instilled through practice: getting to school on time, following the teachers instructions and repeating lessons. We are not born knowing how to function in an

[4] Robert Putnam, *Bowling Alone: the Collapse and Revival of American Community*, Simon Schuster, New York.

[5] Imagining transition-scale change is not easy. But one way to keep in mind both how radical such changes can be and how plausible, is to think about the upheavals taking place in people's sense of identity and social status in the developing world or as experienced by immigrants from the developing to the developed world. Transition-scale social change is their everyday experience. OECD countries may go through this scale of change with slightly lower absolute costs (in terms of violence, civil war, etc.) but in relative terms there are probably strong equivalencies. A similar equivalency may hold in terms of the pace of change – which when it comes to transition-scale movement is likely to be constrained by the fundamentally generational nature of this type of transformation. In short, it takes the dying out of the old identities to fully open the field for the new ones.

industrial society, nor how to survive in a city. We learn and hone these skills in the conduct of everyday life because we have built up, often through painful trail and error, the institutions, codes, manners, culture, expectations, rewards and sanctions. Future transition-scale change will similarly be the outcome of hard won synergies and incremental radicalism over a long period of time. The old does not cede easily to the new. Nor is selecting the winners from amongst current innovations. This is why governance, meaning how decisions are made and implemented in all parts of society, is one of the critical determining factors of the scale of change.

d) Transition-scale Changes in Governance – The Capacity to Make and Implement Decisions Throughout Society

Previous transition-scale changes have all been marked by society-wide transformations in governance. For instance, new constitutions and human rights born out of political revolutions were usually accompanied by less renowned but equally crucial breakthroughs in who and how decisions were made in the realms of wealth creation and the household. To cite a few examples, power was reallocated and managed differently after: citizens gained the right to vote, workers won the right to strike, and women at long last claimed the right to open a bank account on their own authority.[6] Such society wide changes in the capacity to make and implement decisions were both cause and consequence of other fundamental economic and social shifts. Indeed, governance capacity can be considered the catalytic element for transition-scale change. The challenges: of using new tools (or old ones in new ways), of producing and/or consuming new outputs in new ways, of coping with changing social reality – all tend to contribute to as well as depend on improvements in average governance capacity.

This capacity to make and implement decisions, assuming the burden of responsibility is actually posed, has both quantitative (more/less and slower/faster) and qualitative (better/worse) dimensions. Obviously there are plenty of tradeoffs but few rules. Sometimes quick decisions lead to better outcomes, sometimes worse. The real question is how well or appropriately decisions are "processed" – or how to get to the best decision efficiently? Again there are two aspects, one is the "goodness" of the decision and the other is the cost or inputs used to get to a specific decision. The former is very hard to answer since it is basically untestable. A "what-if" kind of question, where the counter-factuals – the outcomes generated by making a different decision – are impossible to determine without a time machine to take you back so you can confront the choice over again, offer a different response and then compare the two results. As for the latter issue of efficiency, it is difficult to benchmark if the quality of the output of a decision is hard to pin down. How then to assess changes in decision-making capacity over time?

One way is to use the following rule-of-thumb: in general (there are certainly "exceptions that prove this rule"), the better the information available and the more experienced the decision maker then the stonger the likelihood that decision-making productivity or capacity will improve. With productivity defined in conventional terms as the ratio of the output to the input. Although this type of common-sense rule is probably difficult to test empirically, for the reasons mentioned above, it can serve as an approach to assessing the scale of changes in society wide decision-making capacity over time. Diagram 5 offers one way of capturing the governance possibility space suggested by the preceding rule. In Diagram 5 two determinants of the productivity of decision-making are traced along the vertical and horizontal axes: on the vertical axis is the extent to which information is transparent (understandable, useable) and accessible; on the horizontal axis is the degree to which people engage

[6] In case there is a mistaken impression that this kind of transition is now in the past it is worth noting that in Rwanda women only gained the right to open a bank account without their husband's consent in 1998 (see: http://www.law.emory.edu/WAL/WAl-studies/rwanda.htm).

in decision-making experimentation and reflect on their experiences. Movement diagonally, from bottom left to top right, involves improvement in two of the critical inputs to a decision-making process: information and skill. Thus the transition from mass-era to learning society involves a general advance in governance capacity.

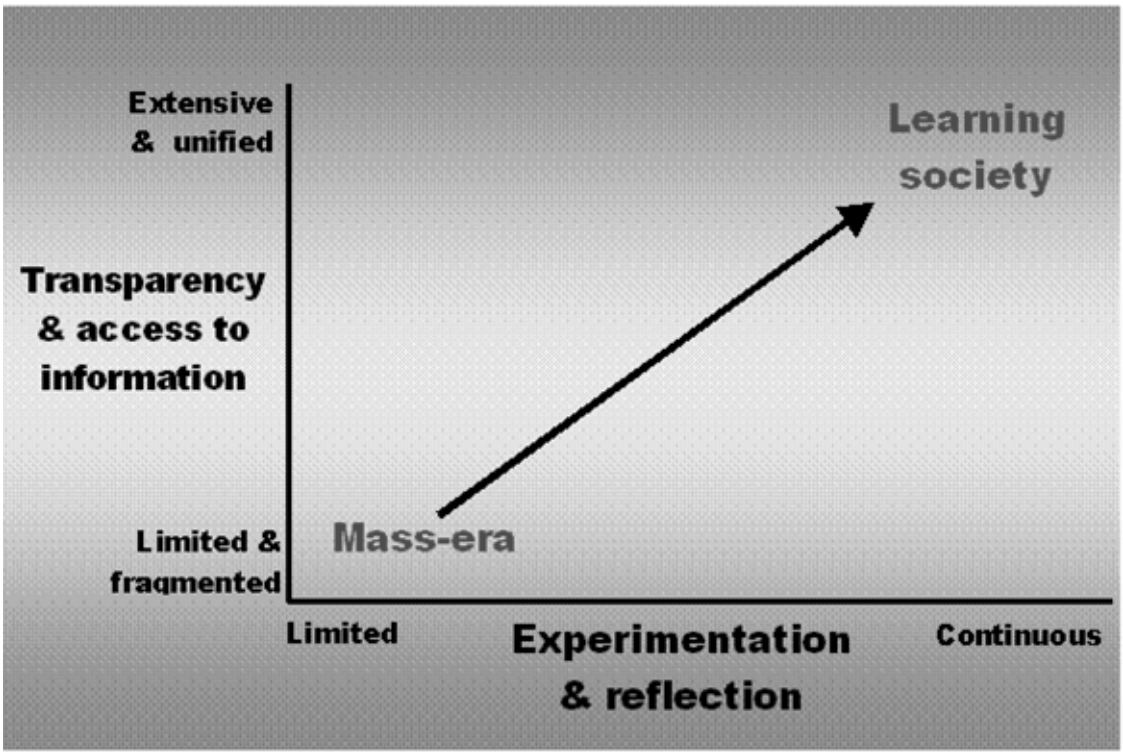

Diagram 5 Governance Possibility Space: Changes in the Capacity to Make and Implement Decisions

At this stage it is important to underscore that this does not necessarily imply that one era is better than another or that more productive decision-making guarantees happier or more desirable outcomes. For instance there is little doubt that elections and parliaments can be considered, for many reasons, a form of governance with generally superior outcomes to those of dictatorships. Yet, as we know too well, that does not mean that representative democracy guarantees the "good society".[7] Without denigrating the importance of this issue, the task of imagining transition-scale change can be addressed through a more practical test for changes in governance capacity: as the society is transformed do people and organisations have the decision-making skills and resources to make it through the day? This is, after all, the challenge of transition-scale change, which casts past governance methods, rules and institutions – like old family patriarchs and absolute monarchs – into the dustbin of history. In this sense the issue is not "improvements" in governance capacity from the point-of-view of ensuring a better outcome, but simply the congruence of the decision-making capacity that is diffused throughout a society with the necessity of recreating everyday life.[8]

[7] See Tom Bentley, *et al*., *The Moral Universe*, Demos, London.

[8] From a moral perspective this type of neutrality does not distinguish between governance of a prison yard through terror or through democratic participation. Obviously, moral judgments are required to discriminate amongst these equally workable but ethically very different outcomes.

Taking this more operational view of governance capacity puts the focus on changes in the inputs, like information and skill, that influence how well and quickly decisions are made. Getting to the transparency and access to information of the learning society, at the top of the vertical axis, will require difficult changes in, for instance, the effectiveness of the internet in serving as a source of very low cost and very high quality information. Imagine that the Internet actually becomes a comprehensive, trustworthy and easy-to-use source of exactly the information you need. This is almost as far-fetched as imagining, in the 19th century, that one day the majority of the population in OECD countries would be able to read and write. A leap of equivalent scale will need to occur so that the decision-makers of the learning society will be able to use all the meaningful information available for making choices. Institutions, rules, tools, habits and expectations will have to be transformed. Similarly, considering the horizontal axis, today's world of hierarchical authority and passive consumption is a long way from the learning society's continuous experimentation and reflection. Again, making a comparison with the past, it was not so long ago that it would have seemed ridiculous to suggest that parents would not select their children's spouse and field of work. But in OECD countries this is now the norm. However, the transformations of the past also indicate that these changes take time and are difficult. Demystifying and diffusing decision-making is a protracted, generational process because it is about reallocating power and altering practices.

e) The Contingent Nature of Transition-scale Change: Why Strategic Leadership Matters

What then could unleash changes in governance capacity adequate to its catalytic role in 21st Century Transitions? The answer is synergy. When it comes to powering the breakthroughs entailed by transition-scale change, inter-dependency is pre-eminent. This is not a requirement for harmony or the perfect meshing of gears. Rather synergy involves both concord and conflict, it is an evolutionary process. And when synergy happens, the whole ends up being greater than the sum of the parts. It is this potential for synergy that makes 21st Century Transitions simultaneously plausible and improbable. They are plausible because as Diagram 6 is meant to illustrate there could be a strong complementarity across all of the possibility space variables. For instance, when it comes to governance capacity, the road to much more transparent and accessible information combined with higher levels of experimentation and reflection could be closely tied to the evolution of the economy towards unique creation and of the social order towards much greater diversity of identity. Diagram 6 suggests a wide range of these types of interactions.

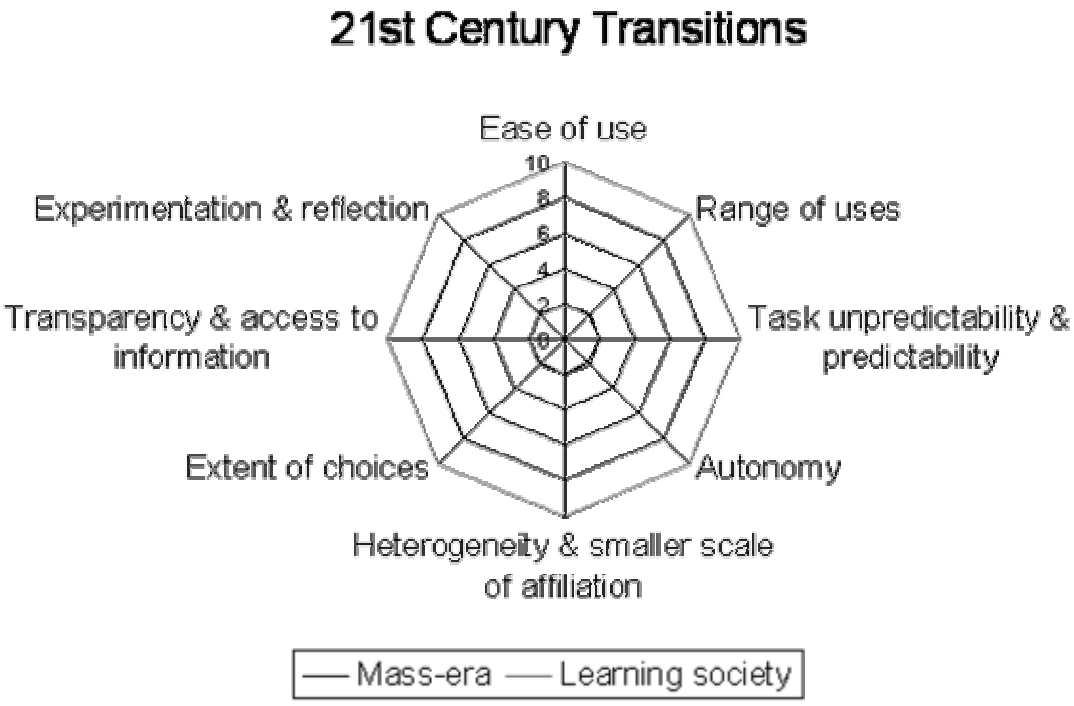

Diagram 6 Synergy Conditions for the Transition from the Mass-era to the Learning Society

At the same time, the requirement of synergy to power transition-scale change is what makes it improbable. Transformation in one area is highly contingent on similar breakthroughs in other areas. Roadblocks on the way to using MP3 killed companies like Napster and have slowed the pace of innovation. These battles clarify the position of entrenched power and business models enabling clearer choices to be made. The verdict is not in yet. But this does not alter the requirement of synergy to propel transition-scale change and underscores the critical difference futures thinking and strategic leadership could make. One of the challenges of strategic leadership is to set ambitious goals, the ones that reflect our profound aspirations for the future without worrying about exactly how to get there. FS is one way of helping to articulate such visions by exploring the dimensions of transition-scale change and assessing its plausibility in terms of the seeds of transformation that are hidden all around us.

Making Strategic Choices about the Role Schools might Play in Transition-scale Change?

Strategic leadership is about setting goals. Everyday leadership is about making the choices that turn the strategy into reality. Possibility-maps help with both tasks. First, they help to conceptualise long-term goals in a richer and more rigorously imaginative manner. Second, they facilitate the continuous reassessment of the links between short-term and long-term goals – the analysis of the relationships

that connect what is possible, probable and desirable. And third, they allow for the regular reconsideration of the strategic objectives in light of changing conditions.

Looking at schools one of the strategic issues is what relationship could they have to 21st Century Transitions (without making a judgement regarding desirability). There is no inherent reason why schools should be central to helping make 21st Century Transitions happen. Although there are probably good reasons to argue that schools could be one of the main determinants of whether or not transition-scale change happens and if it does happen that it takes desired directions. In part this is because schools are a very powerful force of continuity and, as a negative "fetter" of the past on the future, could undermine the intricate synergy needed to make transitional change happen. More positively, schools could become one of the leading forces of change by helping to encourage transition-scale synergies. The strategic questions are: which synergies might schools be able to foster and how?

One way to address these questions is to look at the functions schools have traditionally performed and assess to what extent they might help or hinder transition-scale change. First the custodial and behavioural functions, which are currently tightly linked by the classroom form of efficient schooling, might be seen as an obstacle to transition-scale change. Here the problem is not *per se* safeguarding children or inculcating specific behaviours but the deeply hierarchical and passive nature of the classroom. From this perspective, the school undermines or slows a range of key transitional changes. Looking at Diagram 6 there are three capacities that might be undermined by the classroom based school: autonomy, experimentation and reflection, and dealing with unpredictability. The problem here is rooted in the basic power relationships that apply in the classroom. Getting beyond the classroom does not necessarily mean the end of the school, but it clearly involves a profound transformation in the institution as we know it. Furthermore, the challenge remains of discovering which develop institutions and practices are more likely to build up the skills and confidence that underpin "banal creativity" and "self-generated network identity".

Second, there is the role of schools in developing specific academic knowledge. Here the challenge is to find ways of equipping each person with the capacity to learn throughout life. This might mean dispensing with the traditional academic goals that form the basis for much testing or subsuming them within the acquisition of the capacity to experiment and reflect. Reducing specific content goals in favour of capacity goals is also likely to entail major transformations in the school as we know it today – in terms of pedagogy and student/teacher/world relationships. Changes on the supply side of teaching are also likely to arise through efforts to respond to the challenge of tailoring the learning path to the attributes and aspirations of different individuals. Here again catering to the diversity of the ways in which people learn best probably entails major rethinking of the organisation of schools.

Third, today schools are expected to socialise the young in a number of ways such as citizenship values, awareness of collective needs, public conduct, ecological sustainability and more. For a wide variety of reasons this role, which mixes cognitive and behavioural objectives, appears to have become much more difficult to fulfill. Leaving aside whether or not it is an illusion that schools once performed this role more effectively, what is clear is that the old methods of assuring socialisation are no longer as effective as people would like. However, this demand does not mean that schools as currently configured are likely to be the most effective way to respond to the need for new ways of constructing social capital, particularly the heterogeneous and small-scale affiliations that transition-scale change might involve.

Lastly there is the screening or sorting function of schools which, as it works now, runs strongly counter to the transparency and ease of use requirements of transition-scale change. Credentialism, with its input rather than output based measurement of what people know as well as its control by

élites, is a very poorly adapted to real-time, highly accurate and trustworthy identification of a person's or team's capacities. In turn the lack of clear signals regarding what people can do inhibits network based collaborative creation. However, the existing credentialling systems could potentially lose considerable power if there was extensive development of new mechanisms for verification of what people know how to do regardless of how they acquired such competency. If schools did not offer credentials would they still be schools?

These are some of the questions that need to be posed if there is a desire to think about how schools could make a contribution to a strategic goal like transition-scale change. In a very preliminary way Diagram 7 attempts to map different possible roles for schools in terms of contributing to transition-scale change. In scenarios One and Two schools may not make much of a contribution to transition-scale change. By sticking to tradition and continuing to take primary responsibility for custodial, behavioural, cognitive, screening and socialisation functions schools could sustain the status quo. By way of contrast in Scenarios Three and Four there is a radical reshaping of the role of schools by reallocating most of the school's traditional functions elsewhere and focusing schools on only one role. Here contributions to transition-scale change might arise from two general factors. One is that by opening up significant space for new institutions, rules and cultures to address the functions schools abandon there will be important opportunities for innovation and breaks with past practices. Second, if schools were to specialise in either learning or evaluation, a whole range of new practices targeted at the synergies of 21st Century Transitions might be possible.

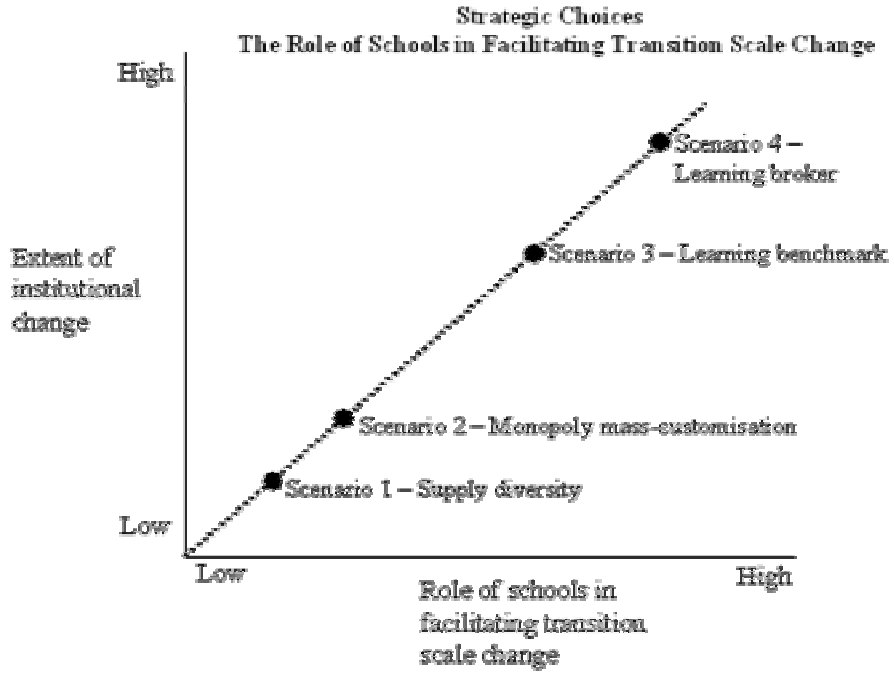

Diagram 7 – The Role of Schools in Facilitating Transition-scale Change

Diagram 7, like this entire report, is only intended to hint at how futures thinking might be useful for finding the answers to strategic questions like the one posed at the outset. Can - indeed, should - schools be as central in socio-economic terms and as quintessential as an institutional model in the 21st century as they were in the 20th?