LEARNING SYSTEMS
and the
MANAGEMENT
of CHANGE

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SYNOPSIS

If a company is to flourish in a changing world, its rate of learning must exceed the rate of change in its environment. As rates of change are themselves subject to acceleration, and as that acceleration accelerates in turn, so pockets and patterns of turbulence can emerge. The response required of a company able to survive and flourish in these conditions is a little like surf-riding in a rough sea.

The origin and background to the paper are dealt with in a brief introduction. Then comes an outline of the basic concepts of an open system, operating in a context which may be subject to a wide range of changing conditions. On this foundation is built a multi-level model of an accelerated learning company, whose response rate is able to stay one step ahead of environmental change. Some of the practical elements of design are then illustrated from case material drawn from consultative engagement in the turbulent fields of financial services, international software marketing, consultancy training and the voluntary sector.

Learning systems and learning people need each other for optimum performance. The two constitute the 'Learning Company'[1]. Accelerated learning systems require the capacity for accelerated learning at every level of the task force. The section on the dimensions of integration, therefore, applies some of the best insights from the field of human potential development to management training and consultancy formation. A brief conclusion reflects on some of the critical issues facing the development, significance and deployment of accelerated learning systems in tomorrow's world.

"The ability to learn faster than your competitors may be the only sustainable competitive advantage"

[Arie De Geus, Head of Planning for Royal Dutch/Shell, quoted in The Fifth Discipline by Peter M. Senge, Century Business,1992, p.4]

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INTRODUCTION

This paper has grown out of a reaction to Gareth Morgan's treatment of 'The Organisation as Brain'[2], in which he made the distinction between the process of learning (the single loop system) and the process of learning to learn (double loop). I found myself wanting to dialogue with Morgan's text in two quite fundamental ways. Firstly I found the model of 'brain' he was using was so simplistic that it imposed a reductionist naiveté upon the whole discussion. To be sure the human brain enables an extraordinary range of tasks to be completed. It can monitor the performance of those tasks and change the way that they are carried out (single-loop learning). It can also review the way it is reviewing the tasks and learn to learn from the way it learns (double-loop learning). But that is only the beginning of the levels of complexity of which the human cortex is capable. Double loop learning is indeed a function of the human brain, but the human brain's functions are not limited to double-loop learning - they go far beyond that.

My second sense of disappointment with Morgan's exposition stemmed from my own experience of 15 years of consultancy-research into the dynamics of institutional change under conditions of high stress, low resource and rapid transition. One particular organisation with which I was working could not possibly be described within the confines of a double loop learning system. Indeed there were elements in it which I have now come to recognise as a level 6 accelerated learning system. You can imagine my feelings when I came toward the end of Morgan's treatment of the theme and found words like: 'it would be an exaggeration to suggest that the ... image accurately describes many organisations at the present time ... Discussion in much of this chapter has looked to the future ...'. In a strange sort of way I felt frustrated, almost betrayed. I had come to the book with high expectations, looking for some insights which would take me further. What I found sounded like a voice from the past. On further reflection I began to realise that the particular organisation with which I was working was exceptionally creative and flexible. Dedicated to the optimum delivery of human relations training across a wide population base, it was not even limited by the pace of technological innovation in the computer industry which had provided Gareth Morgan with his most advanced examples. Today we would recognise it as an early example of a 'Fourth Wave' institution, leading the way beyond the Third Wave[3] information revolution into the human resources and human potential development era of tomorrow's world.

So I began to work on the mathematical background to complex learning systems - to create visual models to communicate the principles involved, and to collect case material firmly grounded in a programme of consultancy-research both with organisations in transition and with leaders, managers and members who were discovering a capacity for accelerated learning and personal integration. Six years later I welcome the opportunity to bring together the various strands of material for presentation. By its very nature, the work is incomplete, it is in a process of flux and its rate of change is accelerating. It is offered as itself part of the feedback process of a complex learning system in the hope that it may catalyse learning as we explore the development of accelerated learning systems and the management of turbulence.

I THE MULTI-LEVEL LEARNING SYSTEM

Let us take as our starting point the concept of an enterprise as an open system.
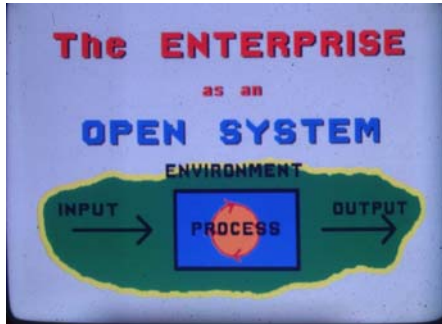

However simple or complex the enterprise may be, it exists within some specific environment, it has a boundary designating the difference between inside and outside - that which belongs to the enterprise and that which is part of the environment. Within that boundary, processes are carried out which transform inputs into outputs. Raw materials, energy, labour, other products and ideas are imported across the boundary, subjected to some kind of value-adding transformation, and exported into the market place, while hopefully the difference between money received for the exports and money given out for the imports enables the enterprise and its various stake-holders to survive and prosper.

The environment, source of imports and market place for exports, is itself populated with a myriad other such enterprises, more or less complex, more or less competitive. All are caught up in the struggle for survival, seeking their special niche within the organisational ecology. There may well be competition for raw materials and for human resources. Technology in current use varies in its rate of transformation, and the socio-political and economic context is subject to changing conditions, instability and turbulence.

If we now introduce the idea of the level of learning system, then we may characterise this basic model as Level 0. It is non-adaptive, there are no feedback loops, its performance does not change over time, however the environment shifts. It is based on the assumption that the environment is unchanging, the technology is unchanging, the market in unchanging and there is an eternal need for precisely what it is doing. It lives with the myth of the stable state.
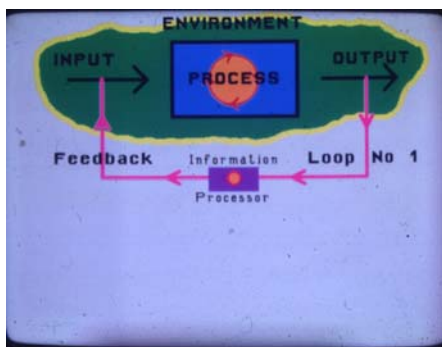

Now we can introduce the first learning loop - Here information is gathered at the interface between output and environment. The information signal is passed to some kind of information processor which in turn generates an information signal which is added to the input in such a way that the enterprise itself undergoes change. The process it uses, the way it imports materials, transforms them and exports them, is subject to modifying control. Single-loop learning may be as simple as a thermostat, measuring the temperature of an environment, passing the information to a wax cylinder which expands or contracts, so feeding the signal to a valve which regulates water flow and ultimately temperature of a radiator. On the other hand single-loop learning may be extremely complex and multi-variable, modifying the enterprise in a host of interacting ways. This Level 1 learning system is adaptive - it learns from its performance and modifies its performance accordingly. The learning system is, however, unchanging. Once installed the thermostat does not modify the way it measures temperature. It assumes an unchanging learning environment. What has to be monitored is stable, the methods of measurement do not alter, the processing of the information follows a set pattern and the changes in the performance of the enterprise generated by given inputs to the learning loop do not change over time. The overall system is now a single loop, adaptive learning system. The sub-system of the learning loop itself however is a Level 0, non-adaptive learning system.
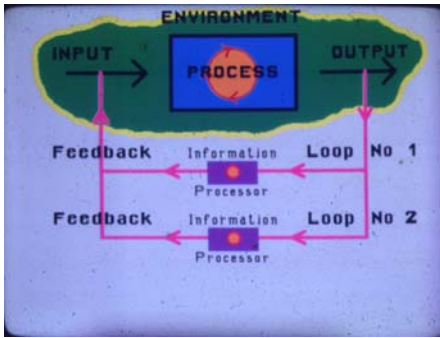
It is possible to introduce a second feedback loop which operates on the first learning loop. Now information is taken both from the environment - the output side of the enterprise - and also from the first learning loop itself. This stream of information is then fed through a second information processor which examines the learning characteristics of the single loop enterprise, generates a transforming input signal, which returns to the system, and operates on the first learning loop. It transforms the way the information is gathered, processed, and applied. Here then we have a double feedback loop, which enables the system to learn from the way it learns and modify its learning process. It is a reflexive system which can learn to learn better. As a result the overall enterprise is much more flexible, much more adaptable to environmental, competitive, technological and socio-political, change. It will prosper while others falter, it will survive when others fail. The basic enterprise is now a Level 2 learning system. Its first feedback loop is a Level 1 - adaptive learning system. Its second feedback loop is a non-adaptive, static procedure, living with the assumptions that there is no change in the learning needs of the Level 1 system on which it operates.
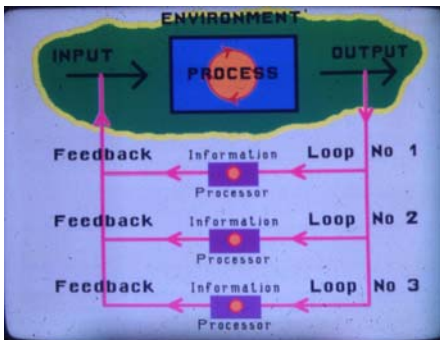
Now let us introduce a third feedback loop, and here we move beyond the ideas of Gareth Morgan and begin to correspond more and more closely to the image of the organisation as brain. The third feedback loop operates on the Level 2 learning system, in the same way that the second feedback loop operated on the Level 1 system. Information is gathered about the way the system is learning to learn. That information is processed and returned to the system in a form that is able to transform the reflexive learning processes in place. This in turn propels the basic learning system into a process of acceleration and lifts the enterprise into a new level of learning system, in which it not only learns to learn, but improves the way it learns to learn as time passes.

This is the first stage in an accelerated learning system. In similar manner, a fourth feedback loop - and its appropriate information processor - can be brought to bear upon the Level 3 system, transforming it into a 'meta-learning' or fourth generation learning system, much as the different generations of computers and their associated software programs, each built on the preceding generation of technology were used to create the next generation.


So the fifth generation learning system adds another level of feedback loop, which operates on the Level system, propelling it into what I have described as 'hyper-learning'.

Theoretically the procedure has no limits and is subject to an infinite regression.

Each new level of feedback transforms the learning process of the previous generation of learning system and increases the order of responsiveness of the basic enterprise within its environment.
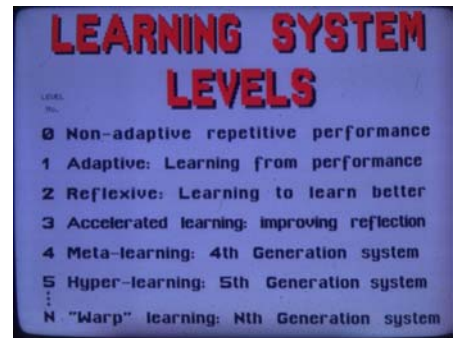
As 'warp' learning is approached in the 'nth-level' system, so the enterprise is accelerated to 'boldly learn where no company has learned before'. I often think that some of the conflict between Admiral Kirk and the Galactic Control Centre stemmed from the fact that the US Starship Enterprise was being operated at a higher level of learning system than the command centre which sought to control it. It is not an uncommon problem!

II THE EVOLUTIONARY LEARNING SYSTEM

So far we have developed a way of categorising learning systems according to the order of learning loop involved. Each level of feedback process operates to improve the level immediately below it. It is possible to examine any enterprise or subsystem of an enterprise and determine the level of learning system in operation. Next we examine the ability of an enterprise to evolve from one level of learning system to the next. Moving from a Level 0 to a Level 1, or a Level 1 to a Level 2. The dynamics driving the evolution of system level will be modified by the processes of resistance to change, both within the enterprise and its environment, and by the time-lag, or delay, caused by the inertia of the learning curve of the particular enterprise. If everything is going well, there may be very little need to move up level. Level shifts only occur when a certain critical point of motivation is reached, at which point there is some perceived advantage to be gained by the transition. However, as familiarity with the performance of different levels of learning system increases in society, it becomes clearer that in the long term, with all other conditions held equal, a learning system of Level 'N' will out-perform an equivalent system operating at Level 'N-1'. That fact alone provides sufficient leverage to drive the evolutionary process of level shift.

The evolutionary processes themselves are subject to a similar set of orders of acceleration. Consultancy research focused on the evolution of learning systems is constantly seeking ways to accelerate the rate of change of system level to enable the enterprise to move as rapidly and effectively as possible to the highest appropriate level of learning system. What we see here is the emergence of institutions with higher and higher levels of intelligence, driven by the search for excellence, the demands of survival and pressure to maximise return on investment within an increasingly competitive and ruthless organisational ecology. This process, too, is subject to an unlimited regression, in which new levels of evolutionary process accelerate the pace of level change. The presence of these 'fast-track' and evolutionary accelerating learning systems within the environment drives the environmental conditions themselves toward turbulence and instability, so creating a feedback loop that accelerates the whole process of social change across all boundaries. The damping, or control-mechanisms stem from the incapacity of the human operators to tolerate the pace of transformation. At this point the dynamics of integration and the capacity for accelerated learning in the staff of the enterprise become the most critical factors in its performance.

III SYSTEM PERFORMANCE & ACCELERATING CHANGE

Up to this point attention has been focused on the internal world of the enterprise as a more-or-less complex and evolving learning system, although occasional reference has been made to environmental change. Now attention is moved to the context itself and the effects of different patterns of environmental change on the performance of the various levels of learning system. In order to illustrate this section I want to introduce a grid on which we can trace the performance characteristics of different levels of learning system, in the context of environments with different orders of environmental change.
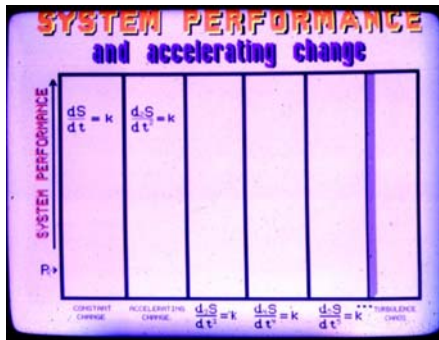
Up the left hand, or vertical axis, we can plot system performance measured against a given set of criteria. The entry point, P_o, represents the initial performance of the given system.

The horizontal axis is divided into a series of sectors, each representing a different order of change in the environment. Outside the boundary of the grid to the left hand side is the zone of the totally stable state, a mythical environment in which no change occurs. Here, non-adaptive systems can exist unchanged however long the time span. I have left this zone outside the grid because it is simply of no interest to us in our study of learning systems.

The first sector inside the grid is that of constant environmental change. If the environment can be described by a set of variables 'S', then in this sector the rate of change of 'S' is constant - or in calculus terms dS/dt - k.

In the second sector the rate of change itself is subject to change. The change is accelerating. Perhaps we can illustrate the concepts with reference to a car. Outside the grid the car is stationary, there is no change in its position. In the first sector it is going at a constant speed, say 10 miles per hour. In the second sector it is accelerating at a constant rate. Its speed is increasing by 2 miles per hour, every 10 minutes. If it starts at 10 mph, then at the end of the first 10 minutes it is going 12 miles an hour; at the end of 30 minutes it is doing 16 mph; at the end of the first hour it is doing 22 mph, and so on.

In the third sector the rate of acceleration is also changing. So in the first 10 minutes it may still have accelerated by 2 mph, whereas in the next 10 minutes it will have accelerated by 4 mph, in the next 10 minutes by 6 mph, in the next 10 minutes by 8 mph and so on. There is a constant rate of change in the rate of acceleration of the vehicle.

In the next sector there is a constant rate of acceleration in the rate of acceleration of the vehicle, represented in calculus by dS4/dt4 - k. The grid could stretch out through any number of such sectors until the limits of smooth transition in the environmental variables are reached. At this point the whole system moves into turbulence of an increasing intensity which can only be modelled with the help of chaos theory.

Here, although repetitive patterns of behaviour may be established in statistical sequences of fractal modelling, the ability to predict the exact behaviour of the system at any given point breaks down.

Now let us begin to examine the performance of different levels of learning system under the different conditions of environmental change.

Level 0 - the non- adaptive system - survives in a steady state in an unchanging environment. Subject to a context of constant change, however slow, the non-adaptive system attenuates, fails to thrive and eventually dies out as a species.

The **single loop** feedback - Level 1 learning system - adapts to conditions of constant change, and survives in a stable condition. However as environmental change begins to accelerate, the single-looped learning system fails to adapt fast enough and eventually succumbs. **Double-loop** learning systems are able to grow at a constant rate under conditions of constant change. They survive as change accelerates, since the reflexive capacity of the second loop enables their basic learning system to adapt more effectively than the single loop system. However if the rate of acceleration of environmental change itself begins to increase, double loop learning systems cannot keep pace, and eventually join the increasing line of casualties.
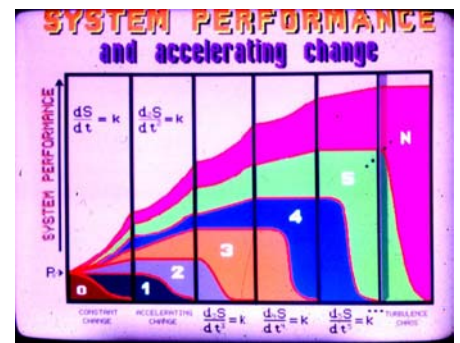
Triple-loop learning systems have the capacity to sustain exponential growth even under conditions of constant change. They can grow linearly while environmental change accelerates. They survive even when that rate of acceleration is increasing linearly but when the rate of acceleration itself is subject to acceleration, triple loop learning systems cannot keep pace. The **quadruple loop** learning system outperforms all the lower levels but goes to the wall when environmental change reaches order 5. **Level 5** learning systems survive under these conditions, but are vulnerable to higher orders of environmental transition.

In general terms, a learning system of level 'n' will prosper under conditions of environmental change of order 'n-1' or less, will survive under environmental change of order 'n' but will collapse when environmental change moves to order 'n+1' or above In other words **if a company is to flourish in a changing world, its rate of learning must exceed the rate of change in its environment**.

The value of this kind of modelling lies in its ability to aid the diagnosis of particular patterns of company failure or to help with the prediction of the kinds of intervention and system transformation that may be most appropriate in a given context. The weakness of this kind of modelling lies in the fact that reality is never quite that simple. When concentrating on the orders or levels of learning system, it is also important to bear in mind the extent, effectiveness and competence of the learning system in place at any given level. For instance, incompetent learning systems, unable to apply effectively the kind of systems thinking described in Peter Senge's 'The Fifth Discipline'[5] would not necessarily improve their performance simply by adding another order of learning loop. Then again, only the smallest and simplest of organisations or enterprises would be uniform in their level of learning system in place. Typically different aspects of the same enterprise may be at different stages in the evolution of learning system, which in turn may underlie some of the internal stresses and strains of the enterprise in question. The environment of any enterprise is also a massively complex system, governed by many variables whose rates of change may range from the almost constant to the near turbulent. In real situations, therefore, it is important to match those parts of an enterprise most affected by critical parameters within its environment to the rates of change of those parameters, without necessarily demanding that the total enterprise operates at that level.

IV LEARNING SYSTEMS FOR TOMORROW'S WORLD

Most current work on learning systems is reactive. It is an attempt to solve the problems and accomplish the tasks presented by management in the present. At the beginning of this section, therefore, I want to raise the possibility, indeed the necessity, of moving to a proactive stance in this field. There is a considerable lead time between the development of a new form of learning system at the consultancy-research level and its application and deployment. It is therefore imperative that we are working today on solving the problems likely to be faced by the companies of tomorrow. The research agenda must be future driven. Here we are in some difficulty, because the higher the order of accelerating change in the system, the harder it is to predict, with any sense of confidence, the kind of conditions which will be met in the future. But in that paradox lies a clue. What we do know is that the further we look into the future the higher the degree of uncertainty and unpredictability we will encounter.

We are already meeting episodes of turbulence and unpredictability within the financial sector. More and more sophisticated computer programs integrate the management of liquid assets on a 24-hour basis in the search for minimal-risk/ maximum-security/ minimal-loss/ maximum-profit within the money markets. The dynamics of this system are increasingly divorced from their ground within the means of production and trade. As a result, currency exchange rates and interest rates can become subject to volatile movement in the battle between international liquidity management and speculating exploitation. This is a trend which is likely to increase, so undermining long term capacities for financial planning and prediction. Modelling has to incorporate and make allowances for quite high levels of uncertainty in this area. Then again, the pace of technological innovation is accelerating and the lead time from innovation to implementation and market is shrinking the whole time. The global population is set to double over the next 30 to 40 years, raising the potential for socio-political turbulence and disruption. If we take all this into account and then add the impact of the expanding human organism upon its fragile supporting eco-system, the levels of unpredictability become almost unpredictable! It is therefore of some importance that resources are invested in the present, in the development and testing of learning systems best adapted for the needs of the future.

In certain fields these conditions are quite familiar. For instance within meteorology weather forecasters have now come to terms with the inherently unpredictable nature of the weather. In the long term it is the domain of chaos theory, of statistical probabilities and aggregate trends. Precise, local, long-term forecasting is by nature of the system an impossibility. So meteorology is evolving towards ever more comprehensive global monitoring, backed by continuously improving computer modelling. It is served by information networks with very low response times, and the capacity to generate early warning signals geared to very fast implementation agencies that can take appropriate action within the predictable time-span of any given phenomena at a given location. Enterprises which are dependent upon weather systems, like agriculture, or the water authorities, work with reasonably long term statistical aggregations of expected rainfall or sunlight, with reservoirs and storage capacity built into the system, able to tolerate the predictable levels of fluctuation. So here we enter the planning domain of chaos theory, fractal systems, 'strange attractors' and statistical probabilities as the long term planning tools of corporate management.

Other characteristics of advanced learning systems are less abstruse. Concepts are coming into good currency like 'dynamic neural networks', 'holographic systems', 'distributed intelligence', 'capacity for real time response', 'massively parallel processing' ... the jargon proliferates! There is a world of difference between the unremitting boredom of repetitive tasks on a well-established assembly line and the instant responsiveness and integrated team-work required for white-water rafting.

V ON THE GROUND

However related to reality a theory may be, it tends to remain inoperative unless firmly rooted and grounded in concrete, practical situations, with real people struggling with real problems making real and sometimes very costly mistakes in their attempt to survive, learn and grow. In this section, therefore, I invite you to come with me to visit six very different situations, which have represented for me the leading edge of the development of learning systems.

i) SOFTWARE SALES

First let me introduce the European marketing division of an American software company. It specialised in products which enabled the integration and networking of mainframe computers from a wide range of manufacturing platforms and operating systems, together with their associated networks and substations, PCs and minicomputers. Their customers tended to be very large national and multi-national corporations and the software licensing agreements often ran into many thousands of pounds.

The European operation was initiated by introducing 2 people, and a cell phone! One was a sales director, the other a technical wizard. They were committed to a philosophy of matrix management. The market niche was wide open, but customers' needs were very diverse and rapidly changing, requiring flexible and tailor-made solutions in every situation. The product itself was evolving continuously, driven by the highly creative research and development division based in the USA. Initially turnover increased rapidly, new personnel were hired, the Unit outgrew its first office and moved into new premises. Then, with 10 people on board, the growth rate faltered, turnover flattened out, stress mounted and internal conflict reached almost unbearable proportions. The European Director recognised that his job was on the line unless he could break through the problem and asked me to work with him to try and find out where they had gone wrong and to find the best way out of the mess.

A set of structured, tape-recorded and transcribed interviews was carried out with every member of the organisation, with insights summarised and fed back to the system. Quite apart from its content, the very act of that intervention changed the culture of the organisation. It was a group of very skilled, highly motivated individuals, who now for the first time began to focus on their interaction as a team. Staff found they could speak their minds with safety and that management were beginning to take note of the issues and problems identified and do something about them. The organisation was beginning to learn to learn. The consultation process introduced the second loop.

One of the first things that surfaced was the understanding of 'matrix management' stemming from the American director. He took this to mean that every member of the organisation had the same skills, responsibilities as every other member (except for the PA and the book-keeper). Everyone was expected to know everything and be involved in all customer relations. There was no clear differentiation or sub-grouping. Effectively, he was trying to work with a single dimension matrix, a row, a group of peers. We therefore up the rudiments of Matrix theory, feeding it back into the organisation in written form, in visual presentation and personal dialogue.

Figure 3 — MATRIX DIMENSIONS
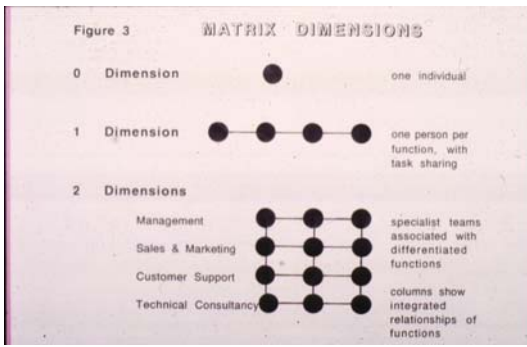
We identified the matrix of dimension 0 - one individual does everything; the 1 dimensional matrix - one person per function with distributed tasks and a fully distributed information base. The 2 dimensional matrix - with micro teams associated with each function, and the inter-team integration relating the functions to each other.
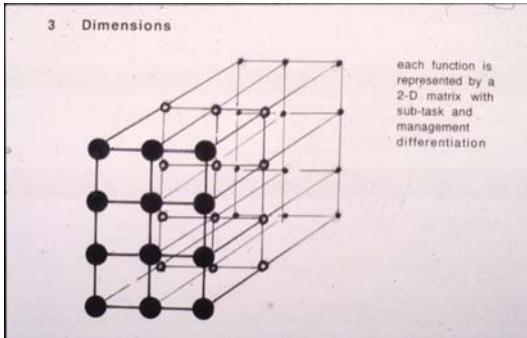

Then we moved to a 3-dimensional matrix - with each function itself now performed by a 2-D matrix team with internal responsibility for customer routing, management, and sub-function performance. Instead of having to relate to an amorphous group, a customer now had a clear reference person who managed their particular portfolio and called in other known specialists to help as need arose.

Figure 2 — NATIONAL FUNCTIONS
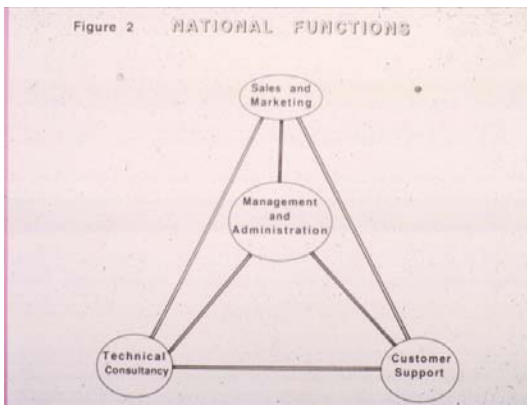
Two major levels of the organisation were noted - one operating intra-nationally, the other co-ordinating the international efforts, building the intra-national operations and integrating them across Europe. At national level 4 main functions were identified: sales and marketing, technical consultancy and problem solving, and customer support, held together by the management and administration.
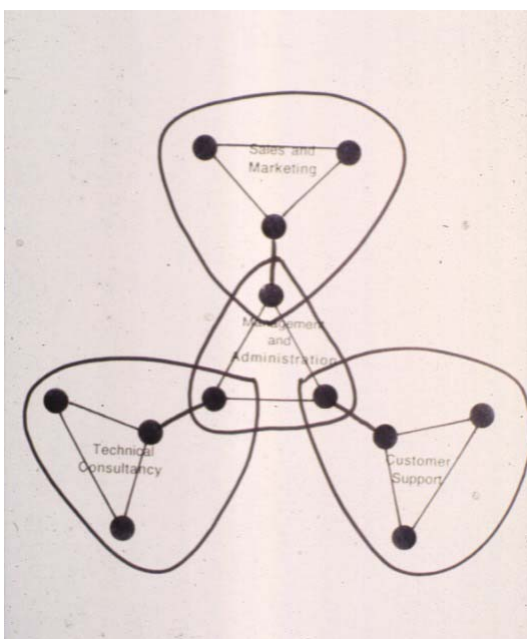
The principles of parallel processing and fractal design were introduced very simply, using a replicated triad structure and a snowflake pattern. Strengths and responsibilities of existing personnel were focused around particular functions and sub-team identity fostered.
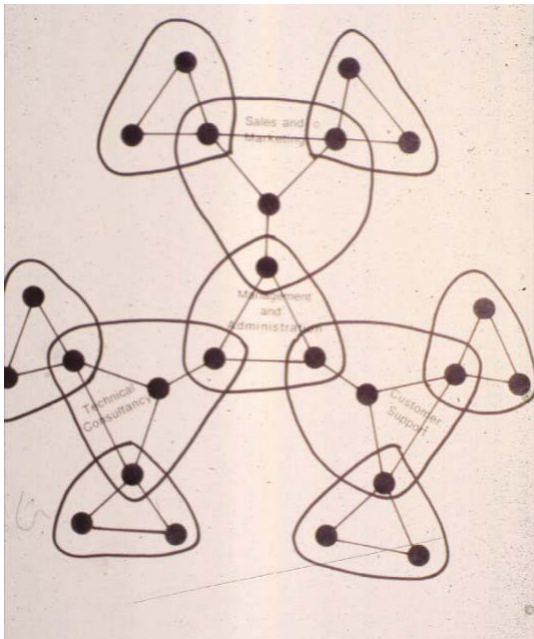
As staff numbers increased, turnover recovered and the customer field began to expand again, so the snow-flake design could evolve to a 3-dimensional matrix, with a potential for more than doubling the current staff complement, in a design whose architecture was open and upgradeable.

We began to encourage the Unit to apply to its own structures and performance the same rigour of software design that it applied to its product. The image of a continuously upgradeable information-handling and problem-solving system, which was user-friendly and enabled the integration and dynamic networking of all internal elements was a symbol carrier for an advanced learning system, which fitted the technology and the culture of the personnel.

Then we met problems. The American sales director had difficulty thinking in more than one dimension and was compulsively unable to delegate. The Australian technical consultant was an intuitive, multi-dimensional systems problem-solver, who found his management capacities blocked by his over-worked partner. The American right-handed extrovert was in cultural conflict with the Australian left-handed introvert who reminded him of his younger brother with whom he had never got on. The dumping of family scripts, Antipodean antipathy, contrasts in managerial competence and unawareness of the conflict between left brain and right brain functions, were fertile ground for open warfare. They shared the same PA through whom they interfaced the rest of the staff, and that person was caught in an extraordinary high-stressed node and reached breaking point. The interpersonal conflict was fanned by the inter-functional conflict between the resources of the sales team and the task of the specialist technical consultants, who were required to accompany the sales team to the customer base and then implement the software installation across the demanding multi-main-frame platforms, problem-solving as they went. Sales tried to maximise their interviews; technical support tended to see every fresh sales pitch as a threat.

The learning system now moved into a different phase. It had begun to identify the core problems and develop some structures for working on them. Problems could be seen in the context of the requirements of the task system rather than simply worked at as personal conflictedness with the loudest voice making the decision and imposing it on the rest of the disgruntled crew.

I built a working relationship with the sales consultant, so that we had a bipartite approach to the problems of delegation. I had to change my consultancy style in order to problem solve, so bringing in a Level 3 loop to the learning system. As trust built between myself and the Managing Director, he began to be able to take critical feedback in the supportive atmosphere of one-to-one mentoring off-site. With this support he developed the capacity to learn as a manager, rather than just perform as a salesman. We worked on the withdrawal of the family projection from his left-handed colleague, and then started to work on left hand and right hand integration, bringing up his capacity for visualisation and right-brained systems modelling. This initiative also opened up his understanding of why he had cut off the essentially right-brained left-hander from any meaningful dialogue within the management team.

In summary then, we can see the development of parallel processing, information integration, differentiation, the development of multi-loop learning systems and the beginnings of personal integration and transformation within the management team. New staff members were recruited directly into the sub-teams of the snowflake, found their place quickly and came 'on-stream' with much less wasted time

and investment. On the job training was continuous and a new platform of integrated software was introduced to the workstations throughout the office allowing the cumulation of problem-solving case material as well as comprehensive monitoring and maintenance of all customer progress. The task became the integration of individual development, team development, evolution of appropriate technology and the fine tuning of task performance.

At this point, however, the American company came under take-over threat and the European group moved into suspended animation and paralysis accompanied by paranoid infighting in the attempt to make sure that each individual got a job in the new structure. Turbulence had set in. I continued working with individuals and small groups, but now focused on the maintenance of momentum and the modelling of different possible scenarios through the discontinuity of the take-over phase, eventually we put together a flexible, strategic document which formed the foundation for the negotiations between the European section and the parent body in dialogue with the new management. The period of transitional instability was bridged. All key staff were taken on by the new company and the forward planning enabled a much smoother integration than would otherwise have happened. The complex process of integrating the two companies has been made more difficult by another company merger, increasing market share and product range. Forging corporate culture and optimising working procedures whilst subject to this level of transition has placed intense pressure on already over-stretched executives. It is now a year since the merger was completed and I am in the process of exploring how to re-engage and establish a new contract with the new management. The learning systems approach already embedded within the small node internalised by the larger company appears to be acting as a lever to introduce the concepts in the new context. Meanwhile of course the mainframe computer industry is in turbulence, the pace of software development is escalating, customer budgets are being slashed, and the new introduction of open systems operating platforms may completely transform the shape of the product range in the not too distant future. There is white water ahead!

ii) PARENTING SKILLS

Now I want to take you into a totally different ethos and introduce you to what was at one time the fastest growing charitable organisation in the United Kingdom. Its purpose was to increase the level of parenting skills throughout the population. In the early stages it had generous support from a charitable trust which enabled the running of a highly competent central office and the training of an exponentially growing task force of facilitators and educators, running short courses for groups of parents up and down the country. It was in the business, therefore, of grass roots human relations training, driven by intense commitment to ideals shared by the founding group and their early affiliates. Without clearly understanding what they were doing, the organisation was trying to introduce a second loop learning system into the parent/child relationships at grass roots throughout the community. The skills taught and practised in the workshops enabled parents to learn to improve their parenting as they went along. The programme facilitators had their own training programme, enabling them to reflect on and improve the way they were carrying out their task. This was the third level feedback loop. The trainers conducting this programme also had their own personal development trainer-training and supervision resources, so constituting a level 4 system. I worked with the training director as a consultant on systems problem-solving and personal integration, while also working on my own consultative style and skills in a reflexive consultancy-research mode, so introducing elements of levels 5 and 6 to the learning system.

One of the unforeseen dynamics of this particular organisation was that the facilitators picked up an immense amount of anxiety and dependency from the mums and dads in the local groups, facing all kinds of difficult situations in their families and homes. The facilitators then called into the centre seeking emotional support and help with the problem-solving. As numbers of facilitators rose, so this load of pastoral dependency imploded around the directorate and completely blocked any further development.
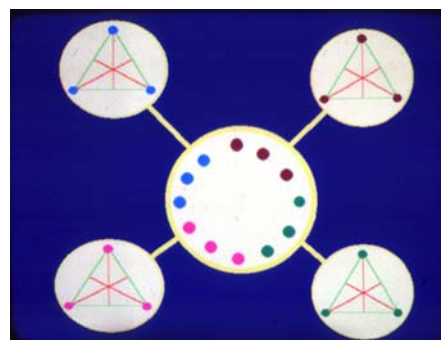
In terms of transactional analysis, the organisation had collapsed into an echelon of child-to-parent expectations, with inadequate resources to meet the needs at each level. The inevitable counter-dependency and negative attitudes toward the centre escalated sharply out of control. At director level these pressures required a prolonged programme of personal development, integration and awareness raising as well as intensive team-building to enable the executive dyad to continue to function creatively under high stress and rapidly changing conditions. The example of the two directors as fast-track accelerating learners set an ethos without which the organisation could not have sustained its learning profile.

Gradually the immature periphery-centre dependency structures were replaced by much more mature inter-dependent support and development groups in the local areas for the facilitators. It was a long and painful restructuring, during which some of the early recruits who saw their role in terms of isolated individualism, tended to drop out.

Pressures on the central office staff were immense. They had limited central resources with which to manage the demands of an exponentially growing organisation. Although some basic tasks were repetitive the pace of development was such that the office was having to respond to a continually changing situation. The emotional needs and demands made by the thousands of parents and hundreds of facilitators deployed in the field became overwhelming, pushing the interpersonal relationships within the office to breaking point. Personal development and stress management counselling was provided for two of the key members of staff and the whole team set aside half a day a month for work on the process side of the operation as distinct from its task management. Out of this came the innovative structure for personal support and development, which is illustrated.

Each member of staff was encouraged to find two other people in the staff group and to use up to one hour of paid time in any given week in a process of reflexive listening, support, and problem-solving.

Any issues that could then be dealt with individually were handled at that level. Things which needed wider help could possibly be handled by the supportive triad. If they concerned the team as a whole, or the organisation in its wider development, the issues could be brought back to the next process session or referred to the staff management group for appropriate action. At the end of a month each triad surfaced its agenda and reported in to the process group. The triads then dissolved and new ones were formed for the next month. Within 2 or 3 months of this innovation, the whole culture of the office staff had changed from drained conflict to resourceful collaborative problem-solving The model of supportive triads with rotating membership was replicated throughout the organisation as a sub-structure to the support and development groups. The staff group had the services of a process consultant at its meetings for the first year and a half, by which time the role and skills of group facilitator had been internalised and staff members took it in turn to act as process consultant to the group. Leaving processes were handled with care, conflict could be surfaced more openly and resolved, and new staff members joined with ease, supported initially by their two base triad members. They described the organisation's office as 'one of the most friendly, welcoming, resourceful and supportive environments' they had ever worked in. Contrary to some people's expectations, this structure greatly enhanced the task performance of the office staff and their ability to sustain a proactive, resourceful problem-solving open boundary to the rest of the organisation.

Before leaving this particular example it is worth noting that one of the most difficult pieces of learning that it had to face was that its programme of parent education had only transient effects in changing the skills and behaviour of parents. As this insight was taken on board, the whole direction of the organisation shifted from the delivery of education to the building of community and the establishment of proliferating self-help cells for parents in local neighbourhoods. The structural innovation and re-skilling of the whole task force required to implement this innovation, slowed down the growth of the organisation to such an extent that the funding trust eventually withdrew two-thirds of its resources in a dysfunctional attempt to motivate the apparently inert system into a spurt of new growth. As I write, the organisation is slowly recovering from an extremely painful period of turbulence through which more independent financially viable structures are evolving, committed to the proliferation of local cellular networks. It is my opinion that an organisation with a lower level learning system would simply not have survived.

iii) SOCIAL CHANGE IN SOUTH AFRICA

Round the back of Table Mountain in the Eastern hinterland of Cape Town lies one of the only integrated parishes in the whole of the Province of South Africa. There are 5 centres of worship, and its catchment area reaches from the homes of millionaires guarded by rotweillers, burglar alarms and barbed wire, out through the middle class and working class white zones, the military camps, the police demarcation lines, and the belt of housing for so-called 'Coloured' communities. Its ministry reaches out into the harsh reality of the seething squatter camps, government black housing schemes and the marginal hiding places of the dispossessed. As a church it has independent status. Founded by Act of Parliament as the Chaplaincy church for Wellington's garrison in the Cape, it would have taken another Act of Parliament to impose apartheid on its ministry. The church was able to stand out against the regime even under the State of Emergency. The community it served, however, was absolutely ravaged by the ruthless application of the Group Areas Act. Under the State of Emergency the church was the only institution able to sustain organised opposition, providing some sense of cover and support for leaders of banned political organisations and movements towards social reconciliation. It sustained a wide-reaching programme of humanitarian aid. Telephones were bugged, the rector was bull-whipped and on several occasions came near to losing his life. If necessity was the mother of invention, then here was necessity that mothered the invention of proliferating cellular dynamic networks which offer a model of a learning system, struggling for life, growing against all the odds and learning to out-pace the change in an unstable and turbulent environment.
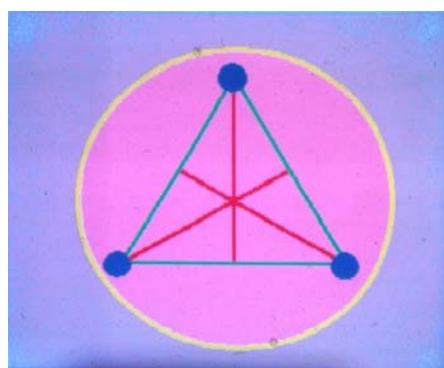
The goal was to bring people together from different sectors and racial groupings of the shattered community, enabling them to discover their mutual humanity, to reach out their hands and touch across chasms of hatred and histories of trauma. Not only did relationships have to be sufficiently secure to enable people to discharge pain and build new communities, they had to be able to expand extremely rapidly without visible leadership under conditions where anyone seen to be operating in this kind of field with any leadership potential was being weeded out and detained.
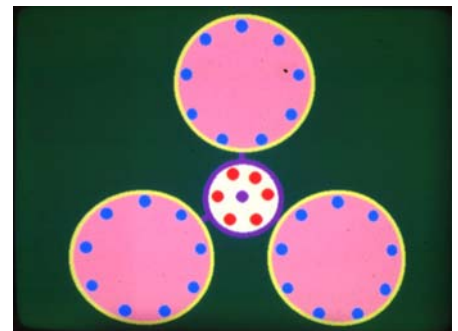
The structure which emerged worked something like this: basic support and development could be offered in the safety and security of an intimate triad, three or four of which combined to form a neighbourhood cell.

The triads had the support of other cell members in working through problems. Triad membership could rotate to deepen the spectrum of relatedness within the group.
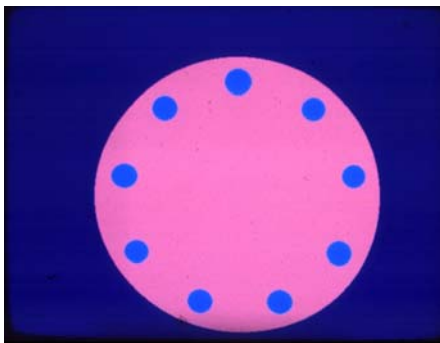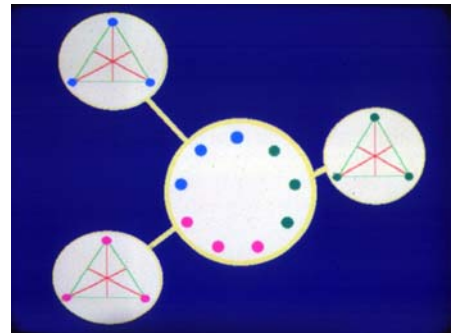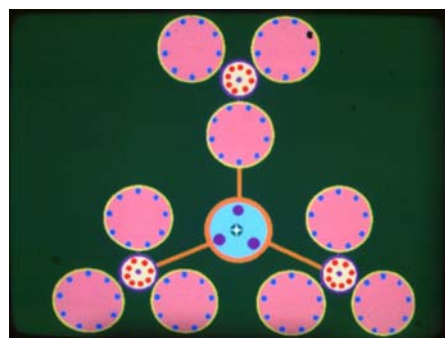

The cell itself developed its own group life, with basic and simple skills of facilitation being encouraged among the group members.

Three or four such cells would cluster together, a couple of members of each meeting up with a local pastor or lay leader for briefing, training, problem-solving, sharing and support.

In turn three or four such clusters with a membership of perhaps 80 - 100 people from a wider neighbourhood could be loosely integrated, information exchanged, resources pooled and communal problems addressed. The three or four trainers involved would also meet with a staff member for support, training and development and to handle the co-ordination and management issues of the embryonic learning system.
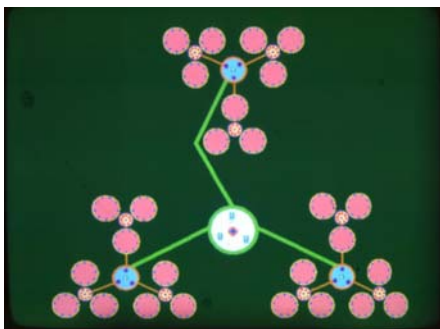
One further level of integration brought three or four such federations together into a regional network, with direct commitment and involvement of some 200 or 300 members, but reaching out through families and neighbourhoods to focus the energy of several thousands of people. Specific project groups and task forces could be drawn from this kind of membership. With the continuous leader-training programme and evolution of facilitating skills throughout the system, if one group of leaders was taken out, others could take their place.

The skills involved in this kind of community building were not those normally associated with church leadership, they were not easy to take on board, but gradually the competence in the system increased. The stresses and strains being handled by the network were massive and occasionally sectors of it collapsed, key leaders moved on and groups imploded, while new competence emerged. How far it will continue to grow and develop, I do not know. It may be that the churches in the long term do not have the resources or the value system to host it, but it does offer one alternative to disintegration, chaos, fear and isolation in the unstable and potentially turbulent conditions of the post-apartheid era.

iv) STRATEGIC CONFERENCE DESIGN

Although the first three cases have been taken from vastly different fields, they have all been organisations operating with a comparatively long time span. The next example is of a temporary learning system, designed to maximise the participation, the learning rate and the creativity of a strategic planning conference. The process may be one of brain-storming, agenda-raising, priority selection, vision generation, consensus building, the creative generation of alternative planning scenarios, options review and action planning. Information management in this kind of event is complex and may range from the simplest flip charts and wall displays, backed by continuously distributed and updated summaries, through a multi-workstation computer network, to multi-accessed advanced systems modelling and computer-generated simulation for scenario testing[7].

However sophisticated the tools used, it is ultimately the quality and competence of the tool users, in other words the effectiveness of the human learning system, that determines the outcome.

This multi-level, base 3 learning conference design aims to sustain maximum creativity and participation for every member in a structure which also enables massively parallel processing on all the problem-solving points, together with processes for integration, feedback, critique, review and consensus building around the optimum strategic scenario. The design seeks to ensure that the intelligence rating of the overall strategic planning unit significantly exceeds the intelligence rating of its individual members and that the outcome is owned and driven by the total staff, rather than imposed on a resistant membership by central management.
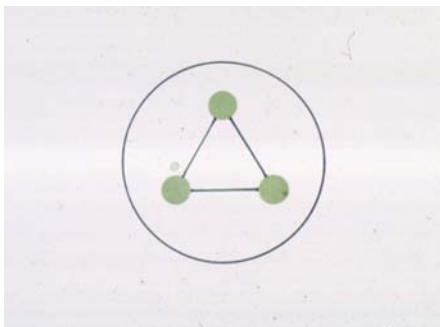

The design is fractal, in the sense that basic working triad. Brainstorming and ideating may be done alone and shared back into the triad, so the process moves in and out of individuation, sharing, synthesis and triadic process. The task here is to use the total creativity of every member and pool it, creating an envelope of ideation, out of which the triad then begins its work of synthesis and assessment.

When that process is complete each triad is invited to find two other triads, and build a working nine.
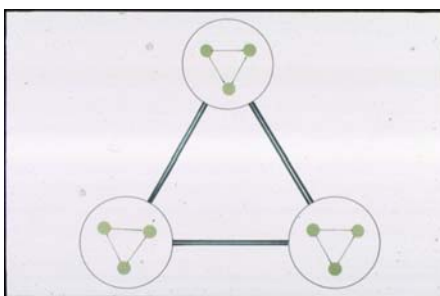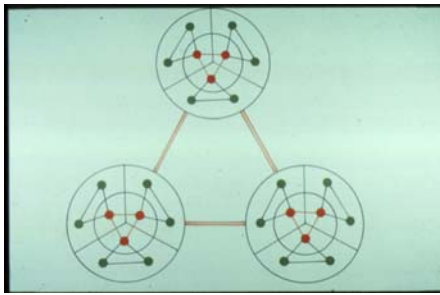

The most able spokesperson or representative from each of the triads goes to the centre, supported by their partners in the outer ring. The centre group pools the brainstorming work from the triads, develops an ideational envelope and then works on it to synthesise,
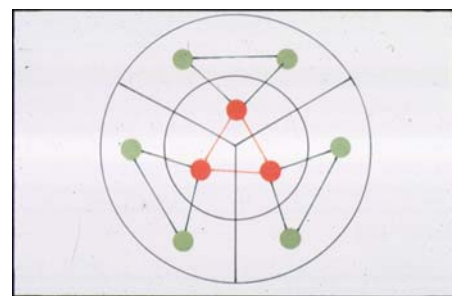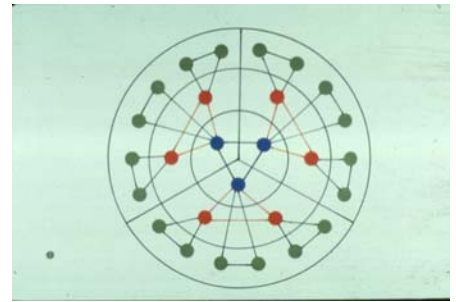

prioritise and prepare for the next level of interaction. It may be that during this process the nine splits out into its working threes, who themselves may work as individuals again, so that energy flows in and out through the different levels. Even while the nine is meeting in its double ring format, discussion moves in and out between the inner ring and the outer ring, so that the matrix is held as a totally interactive processor.

When this stage is complete, each nine is encouraged to seek two other such groupings and to arrange themselves as a working 27 (Level 3).

Again the most effective representative or spokesperson from each of the working 9s goes to the centre, supported by their partners from the core group of the previous level and surrounded by the other members. The process is similarly interactive and may involve moving in and out through lower levels of the matrix before consensus and synthesis is reached.
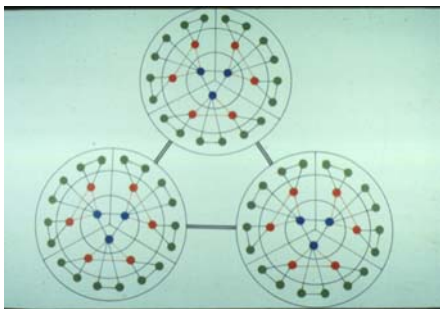

At this point the 27s are invited to find two other such working units and develop a working arena for the 81 members involved.
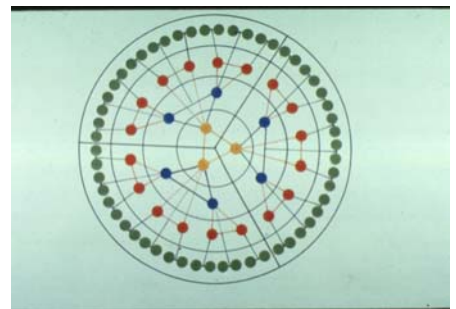
Again process may move in and out between different structure levels and information and creative participation continues between inner and outer rings of the structure. During different parts of the process, individuals with higher levels of competence in the particular issues under discussion may well move up into the representative and spokesperson roles, so sustaining the highest possible levels of competence in the dialogue. Core members of the higher level structures will be drawn from the most able synthesisers, with the sharpest and fastest grasp of the issues involved and the most open abilities for creative negotiation. Listening skills are crucial at all levels.
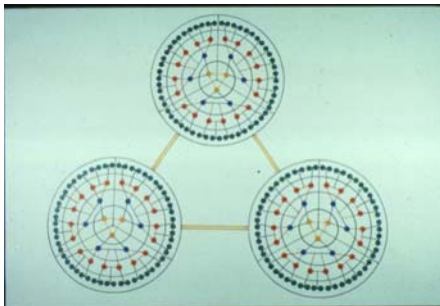
If the numbers of people in the planning conference require it, a similar process can be extrapolated upwards so for instance the three groups of 81 may converge, regroup and form a multi-layered level 5 synthesiser with room for up to about 250 people.
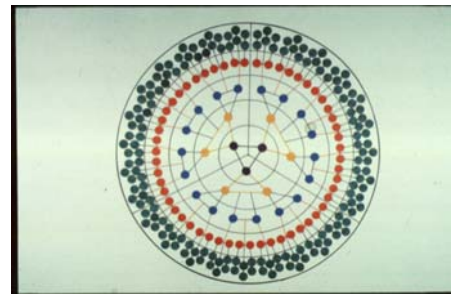
As this structure is run over time, with the different levels meeting in sequence, so the information base becomes distributed, the capacity for high quality parallel processing is engaged and the problem-solving intelligence of the overall organism escalates. For that to happen, however, the conference does need the services of competent process consultants or catalysts who can orchestrate the architecture and evolve the processing software for this multi-humanoid chip.

The strategic conference design envisages work of a two or three day residential nature but maybe extended over time and handled in house as a structure for long-term organisational development and strategic monitoring. The management style appropriate for this kind of learning system is one that is open, consultative, collaborative, able to handle integration and differentiation of structures, tasks and information fields with ease, and above all exemplifies and models competence in learning. The personal learning processes of the highest management need to be at least equivalent to, if not one level in advance of, the level of learning system in the company as a whole.

v) FINANCIAL SERVICES

My next case study is taken from a city branch of one of our best known financial service institutions. The lot of the insurance salesman is not a happy one, even when the role is renamed 'financial services consultant' and the product range vastly increased to cover pensions, investment, raising of new capital and so on. Typically the salesperson works with no basic salary and a 'commission only' income, with penalty clauses that mean if at any time in the future a client withdraws a particular contract, the commission is taken back from the salesperson's pay. It is possible for an over-zealous seller to conclude so many high pressure deals that clients later withdraw to such an extent that the income for the month is less than zero! It is a high stress, high insecurity, high turnover task. Often a sales team, controlled by a group manager, may consist of 18 to 30 salespersons, working comparatively in isolation.

The branch which I now wish to introduce had 3 such teams. It had been the flagship of the company, with the highest turnover per person in the country. Over the last few years, it had dropped well down the league tables and its performance was decidedly lack-lustre. At this point, a young branch manager was appointed, very intelligent, an extremely successful salesman in his own right, but with not very much experience of management behind him. He had the goal of turning this particular branch round and taking it right back up to the number one slot.

Over the space of about a year, a new working structure was evolved. Instead of the rather large groups of isolates, micro-teams of 2 and 3 people were brought together with a sales manager, also working as a salesperson on commission like the rest of the team, but with co-ordinating and training responsibilities built into the role. He worked individually with the team members, he worked with them in pairs, and he worked with them as a complete team. Team members were encouraged to work collaboratively in pairs, to understudy, to role play, to give creative feedback and support, to celebrate together when a good deal was made, to sit down and diagnose where things went wrong. It was a 'buddy' system, even a 'double-buddy' system, and some teams even shared commission in order to stabilise their income, finding that they earned more collaboratively than they could in isolation. New sales personnel came into this tightly supportive training and induction team, and their first month's earnings were double that of the new sales person taken in to the usual team structure. Staff turnover dropped and the culture of the whole office began to change. As the financial markets got more turbulent and business much more difficult to place, the branch went on achieving its targets, while other branches slipped back. The financial turnover per person increased and the branch moved back in the national league tables to within the top three or four in the country.
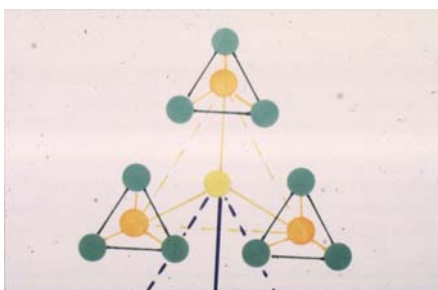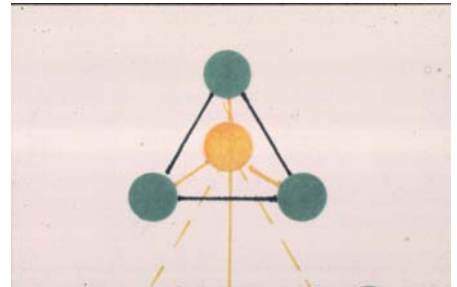
Two or three of the basic teams were brought together under the responsibility of a group manager. He worked with each of the sales managers individually, he worked with them in pairs, and he worked with them as a total team, enabling them to review their work with their basic teams, to celebrate with each other where positive results were coming in, to diagnose where they could do better and to support each other in their implementation.

Group managers and their set of micro-teams were in turn brought together under the control of a senior group manager, who serviced his team of three group managers in a similar way. That structure replaced the old team of 20 or so sales persons working with the senior group manager. Initially staff in the branch were very sceptical. Some of the people had been in the same job for 20 years, felt they knew exactly how to work it, and knew perfectly well that these new-fangled structures would very soon pass away and be seen for the useless innovations that they were. There was obviously some conflict between the older established group managers and the new branch manager.
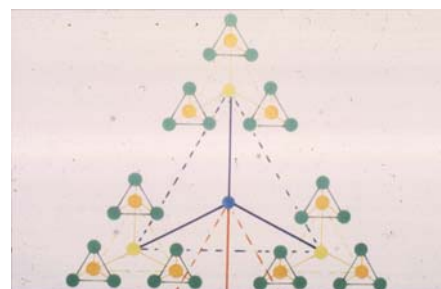
There were three major groups within the branch itself). Two senior managers worked with traditionally structured teams, while the branch manager himself took responsibility for the recruiting and structuring of a new group. He did not try to conflict with his older, senior group managers, but allowed the innovative structures to be seen to be working. Interest was aroused as the heightened levels of performance were achieved. A critical point came when one group of salespeople, working with their new group manager, began to out-perform one of the large teams of 26 salespeople. From there on the other two senior group managers came on board and began to ask how they could restructure their teams in a similar way. The managing director of the whole firm rang up the branch manager and asked him how it was that he was managing to meet his targets.
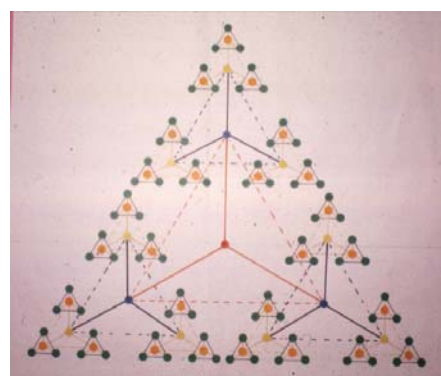
Told in that way, the story seems quite benign, but there was some very painful learning involved for the branch manager. His leadership style was dysfunctional. An autocrat who expected subordinates to take orders, he demanded that those above him in line management consulted him and treated him as a peer. Once sufficient trust had been established in the consultation process, he was able to be confronted about this contradiction and recognised that other people in the branch wished to be treated in the same way that he wished to be treated. That insight began the revolution. The branch manager's office was completely redesigned: he came out from behind his huge table of status, which was pushed to one side. More informal seating was brought in. Group managers met at a round table meeting, with two way feedback encouraged. A keen hockey player, the branch manager had previously captained quite high level teams but had not seen the experience as relevant to his business field. Now he began seeing himself as a catalyst, as a coach, as a team builder, working with individuals to optimise performance, building them together in collaborative groups, building consensus around branch goals.

Stress in this part of the industry is immensely high, the insecurity gets to people. Basic stress management techniques had to be built in to the manager's lifestyle. At every point, performance was monitored, success rewarded and the constraints in the system identified and interventions designed to minimise their power.

The branch had to cope with a volatile market, turbulent interest rates, the onset of recession, a turndown in new contracts being placed, and intense competition with other firms for a shrinking pool of customers. On top of that, higher levels of management in the firm decided to refurbish the offices, and the whole building was gutted, while the financial targets of the staff were actually increased. The branch manager was not consulted, nor were his pleas for mercy heeded! In fact the team pulled together and achieved their targets. Then, again without consultation, another branch was moved out of its own building and into the same space, but under different management. Even through this onslaught, the branch manager was able to keep morale in the team going and to continue to achieve targets. However in the last couple of months, rigid new autocratic modes of management have been introduced within the whole firm, the

degrees of freedom and autonomy of the branch managers have been drastically reduced, and traditional structures apparently re-imposed. The branch manager has just resigned.

We should not underestimate the difficulties and conflict experienced at the boundaries of a high level learning system which emerges at a low level in an organisation. The high-performance/low-learning management structures above such a unit often perceive it as a disruptive threat and try to take it out. If the firm as a whole is to benefit from the experience, further initiative will have to have the sanction of the managing director as well as the entrepreneurial initiative of his branch managers. One without the other leads to a stalemate.

<center>* * * * * * * * *</center>

If we pause for a moment to examine the structures of the last two examples, we find that in the strategic conference design, although there are multiple levels of reporting and synthesis, there is not an accountable hierarchy. In the financial services sector, line management, accountability, responsibility and authority were involved in the management of the task. The pyramid structure of the financial services branch reflected this reality, while maintaining the fractal, parallel processing, micro team structure of the learning system at each level and opening up the vertical channels of communication throughout the system.

One of the commonalities that emerges in all of these examples, is the need for the development and integration of people with critical management responsibility. Skills of human relations, team building, stress management, organic structure design and evolution, the preparedness to lay aside defendedness as a means of control, to take risks with new ideas, to support creativity and to model fast-track learning were all important. Sometimes resistance to taking on such skills was rooted deep in the personality structures of the managers concerned and quite profound levels of personal transformation had to be engaged, more often seen in human potential development workshops, or even in the therapeutic encounters focused around the task of personal integration.

One of the critical factors was the ability to deal with information in a systemic way and to recognise the levels of differentiation and integration involved within the system.

The concepts can be modelled on a Johari window.
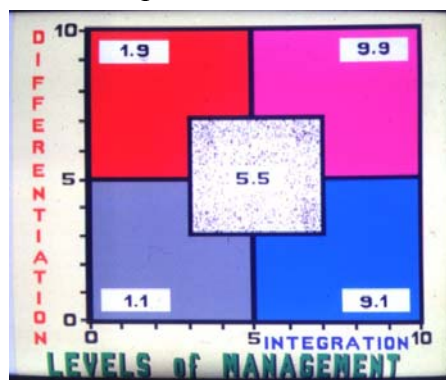
Up the left hand side we plot the degree of differentiation with which a manager can operate - the ability to sort out one level of detail from another and stay at the appropriate level. Along the horizontal axis we plot the degree of integration that the manager can handle - quality of over-view, time-span, helicopter-perspective, the ability to see the whole, the shape of the wood as distinct from the distribution of the trees. Differentiation and integration can refer to levels of learning system, elements of design within the company structure, as well as to the more commonly understood fields of information management.
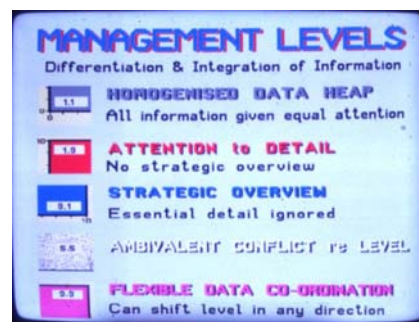
The five basic positions of a Johari window can now be described: Near the origin there is neither differentiation nor integration of any form of data - all information is treated with equal attention and equal significance. Management functions here are at an all-time low.

<center>20</center>

In the top left corner (at the 1.9 position), there is a great capacity to pay attention to detail, down to the most infinitesimal level but virtually no ability to synthesise it and make sense of what is going on - there is no strategic overview.

In the opposite corner (9.1. position), is the highest possible point of strategic overview, the ability to see the larger picture, but a complete inadequacy to grasp the underlying levels of detail which generate the topology. Since the management of learning systems often requires distributed interventions at the micro level of an organisation, a manager in this position may see what is happening but be unable to understand why or intervene in such a way as to make a difference in terms of long term development.

The ambivalent conflict of the middle ground (5.5) is characterised by uncertainty as to the level of detail or overview required for the management task and an oscillation from one perspective to the other. The need to know everything that is going on frustrates the capacity to see how it all fits together. On the other hand, any movement towards an attempt to gain a better perspective is frustrated by feelings of getting out of touch with where the action really is.

Holding the high ground in the top right hand corner (9.9) is the integrated position with the ability to handle differentiated data to any appropriate level of detail with an equal and complementary ability to integrate data up to the highest level of aggregation.

Perhaps a good illustration can be taken from the world of cartography. Maps come in all kinds of scales, from the detailed site plan to the world view. However, each sheet of paper represents the data at one particular level, or scale. Compare that to some of the more recent computer map programmes in which the user is able to zoom in and out to any required degree of detail or integration, moving scale according to the particular tasks required. The outline may start at a continental level but be able to focus in through state, through city, through neighbourhood, to road, to particular building plan and back out again. It is a capacity to zoom up and down through the system, holding all levels of differentiation and integration in store, that marks out the flexible learner from the rigid performer.

The management of advanced learning systems changes the criteria for management selection. Not only do we seek people capable of high levels of performance, sustained under stress, but also flexible integrated people able to sustain a fast-track learning profile even when threatened. Task management has to be complemented with process management skills. Economics, technology and production tasks have to be married to high competence in the field of human relations and systems design. For a manager to operate with this kind of skill mix in the workplace requires also an equivalent level of intrapersonal integration, or personal mastery as Peter Senge describes it[8]. Only learning persons can lead learning systems. Inner integration and outer integration are mutually interdependent.

What is true for managers is this field is even more true for the consultants and trainers who work with them. In order to effect significant change in an organisation, a consultant must be able to operate at least one level beyond the learning system level of the client. It is against this background that the form and provision of management training and consultancy formation becomes critical and my final example is drawn from this field.

vi) EXPERIENTIAL LEARNING

The Meridian Matrix[9] has been evolved over the last 7 years to provide managers, trainers, consultants and people working in the field of human potential development and integration with a context for advanced experiential learning. It provides opportunities for participants to work at both the intra-personal levels of integration and at the inter-personal, group, inter-group and systemic levels of human relations training. The Matrix itself is designed as a learning systems simulator which provides an experiential micro-world in which the different elements of design, processes and levels of a learning system can be explored. The design has been made possible by a comparatively recent breakthrough in the field of psychodynamics which enables us to integrate the inner world of the individual unconscious with the outer world of social behaviour[10]. Participants commonly find the Matrix provides them not only with insight and understanding, but also with the opportunity for profound personal integration and transformation, leading to significant development and change in inter-personal relationships and in the area of human resource management development and systems integration. Consultants and facilitators working in the Matrix at any level seek to provide a role model as systemic learners and the Matrix offers opportunities for advanced consultancy formation, training and development for those working nationally and internationally at the frontiers of the profession.


I want to highlight some of the elements of design that are particularly relevant to our concern with learning systems. Support for personal transformation is provided in the co-consultative triads. Here, as trust builds and listening skills improve, members are able to share and work at the deepest levels of their personal agenda, each with the facilitating support of two peers.
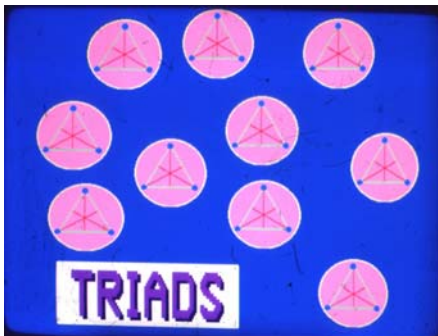

Just as the basic building blocks of any organisation are the individual members, so the first organisational level is in the set of triads. Initially each group tends to be caught up in its own world and unaware of the others. Slowly differences between triads become clearer and each element becomes aware of its place within the inter-group of the workshop.

One person from each of the triads forms a small group. Here participants have a chance to work on the dynamics of a small group, on what is happening to them as individuals within that process and to become increasingly aware of some of the unconscious forces in play. Each small group has the services of a facilitating consultant. Three small groups are formed - again attention initially tends to be confined within the boundaries of the group process, but slowly awareness rises and each group begins to see itself as holding part of the dynamics of the whole. Each member of a small group represents a different triad, so the small group is not simply an inter-personal small group, but also an inter-triadic inter-group, allowing the exploration of more complex dynamics of projection and representation.
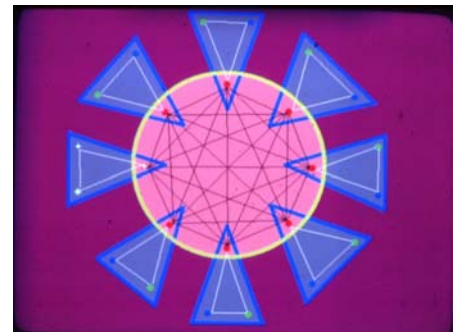
Similarly each member of a triad belongs to a different small group, so that as the process proceeds, triads become not simply the interpersonal meeting of 3 individuals, but also the representative engagement of the members of 3 different small groups. This two-way inter-group process provides an extremely powerful and resourceful context for experiential learning.
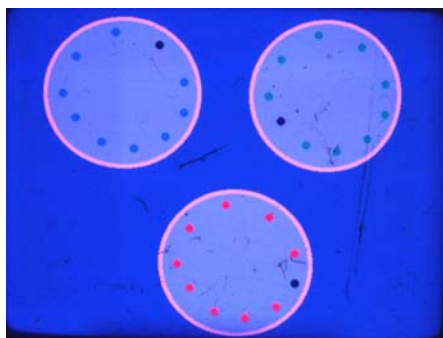

During the course of the two or three day workshop members move in and out of small group and triadic events, setting up a matrix of interlocking feedback loops which ensures that all the learning of each event is passed into the next configuration. The breakthrough of insight in one triad is shared through the small groups to each other triad. Conversely, resistance being encountered in one small group may be worked on in parallel through all the triads and then insight from the total workshop brought to bear on the dynamics. The result is a process of accelerated learning which is also fed into the dynamics of the large group in which the total

membership of the workshop convenes. This structure has the services of 3 facilitating consultants, who also work as a reflexive learning team at the consultancy training level.
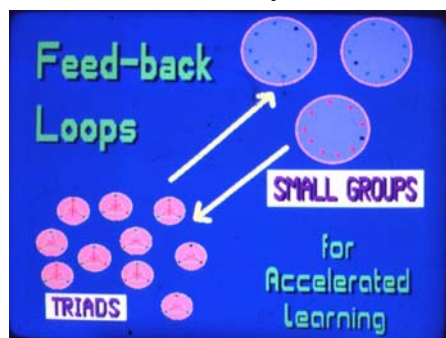

Within the large group membership not only has the opportunity to work on the dynamics of a large group and the interaction between the individual members of it. They can also reflect on what is happening to them in the depths of their own intrapersonal experience, while gradually becoming aware of the effects of the inter-group and matrix process underlying the large group event. In this sense the workshop simulates in the fastest possible time, with the smallest number of people, a very complex learning company.
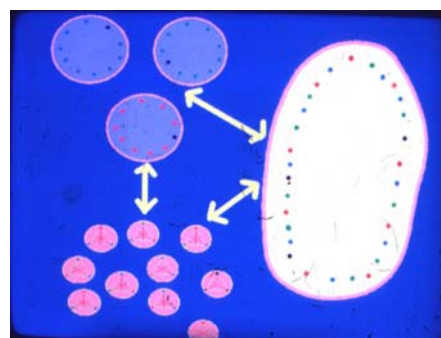
The effective study of small group dynamics requires that not more than about 10 members take part in each small group, so setting an upper limit of around 30 participants for a workshop of this kind. If more members are involved, then other parallel sectors can be brought into play, each served by its triad of facilitating consultants. A second stage in the workshop programme inter-relates the three sectors in a new level to the Matrix. One person from each sector meets with one person from each other sector, forming new peer triads. One person from each of the small groups in the 3 different sectors forms a small group in the new level, so generating inter-sector, inter-small-group small groups.
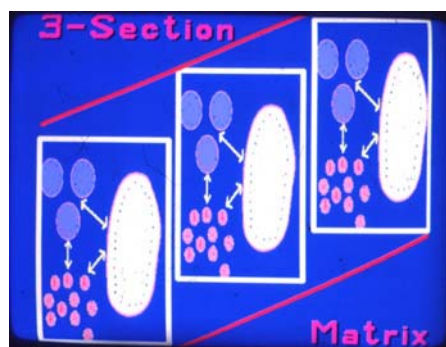
The result is a complex integration of the learning of the matrix as a whole, which is then reflected in the dynamics of the very large group bringing the total membership together as a reflexive learning community.
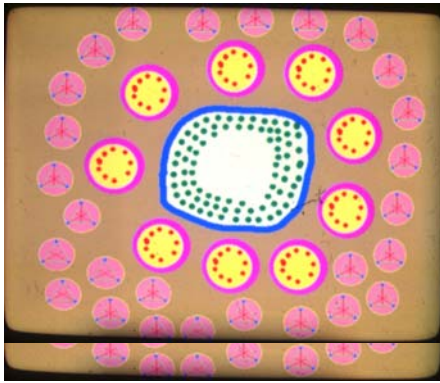
The management of transition from independent sectors to inter-sector integration is itself a major learning frontier and the set of nine consultants works as an intensive consultancy training small group, serving the process needs of the whole event.

This kind of design can be used as a one-off training event for people from a variety of institutions and roles or it can be used and tailored to the specific requirements of training courses, organisations, and institutions requiring intensive human relations training, personal development resources, and hands-on experience of some of the dynamics of a complex learning system.

It is also possible to sustain membership of this kind of learning community over time, with members meeting in supportive triads and small group events in between periodic matrix-style workshops. At a national and international level this structure is beginning to be utilised to accelerate the learning of those consultants working at the limits of competence with large systems in transition, often under conditions of rapid change and near turbulence, in which the highest possible levels of intra-personal integration and systems process consultancy are demanded.

VI THE DYNAMICS OF INTEGRATION

Accelerated learning systems and accelerated learning people are mutually interdependent. Low level learning systems effectively block the creativity of fast-track learning personnel. On the other hand, rigidly defensive staff at any level can effectively immobilise a learning system, however competent its design. Any treatment of complex learning systems would therefore be inadequate without at least an introduction to the characteristics of the fast-track learning person. The psychodynamics involved have their roots in pre and perinatal psychology, primal integration and human potential development. The outcome is illustrated by a series of Johari windows, each building on the one before it and creating a cumulative picture of the wedding of learning person and learning system to create the learning company of tomorrow's world.

i) HEMISPHERES IN HARMONY
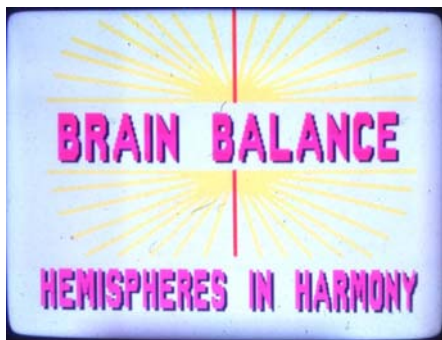
A manager who is only able to use the functions of the dominant hemisphere of the brain is at a grave disadvantage as a learning systems leader. If the dominant functions are those of the so-called left brain - verbal, analytic, linear, logical - then there is considerable difficulty in seeing the system as a whole, envisaging its different design features, living with the complexity of the multi-dimensional reality, or modelling its complex change over time. Conversely, the person only able to use the so-called right brain functions - intuitive, visual, holistic and symbolic - is greatly hampered by the lack of analytic rigour required to validate the intuitive decision making process.

I have described the functions as 'so-called left brain' and 'so-called right brain' since in a certain percentage of the population the functions are distributed across the hemispheres of the brain, and for left-handed people in particular the functions of the two sides of the brain may in fact be reversed. With that caveat in mind, we may illustrate the field with our first Johari window:
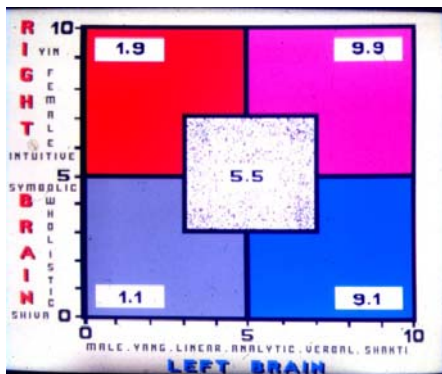
Up the vertical axis, 'right-brained' functions are engaged with increasing ability from 0 at the origin, to complete enactment at the top of the grid. Along the horizontal axis the 'left brain' functions increase from 0 at the origin to a maximum on the right hand of the grid. Characteristics

of people operating with various combinations of right brain/left brain function are summarised in the headings for the 5 typical positions. A person aspiring to work in an accelerated learning system will seek to establish the integrated capacity for both sides of the brain to be operating in tandem.

Sadly, common stereotypes arrogate left-brain activity to the male and right-brain activity to the female, then set up a battle of the sexes to establish dominance of left brain behaviours within the company. This elides from effective participation not only half of the people involved, but half of each person involved. Where the hemispheres are in harmony, so the whole intellectual capacity of each person, male and female, is brought on stream.

ii) BODY/MIND

If the first dimension of integration concerns the mind, the second adds the body. However brilliant and integrated the intellectual capacity, if the body goes sick or gets over-stressed, the mind cannot function effectively. Optimising learning potential, therefore, involves paying attention to somatic integration as well as psychic health.
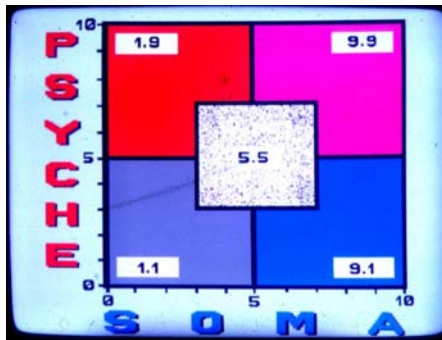

In this next Johari the twin parameters of left and right brain are integrated into the single variable up the left hand side of the grid, and body-related competence is modelled along the horizontal axis. Again the different zones of the Johari window indicate the different degrees of integration within this


dimension. The person seeking to optimise their performance within a learning system will pay close attention to their diet and lifestyle, their fitness and stress management programmes and will recognise the need for relaxation, exercise and time out if peak performance is to be sustained.

iii) EMOTIONS

Human wholeness demands more than just the integration of intellectual and physical ability. Emotional balance and integration is also crucial. Defensive behaviour stemming from repressed emotional hurt is inevitably projected into and acted out within the learning company. It inhibits feedback, disrupts information flows and suppresses the learning capacity at both individual and systemic levels. The emotional iceberg is as destructive as the uncontrolled eruption of emotional energy. So to the two dimensions of body and mind we need to add the third representing feelings.
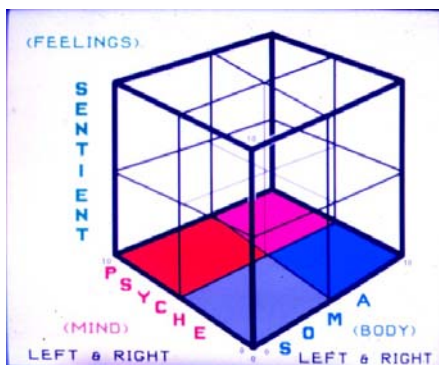

The fast track learner will seek a three-dimensional form of personal integration, which is physical, intellectual and emotional.
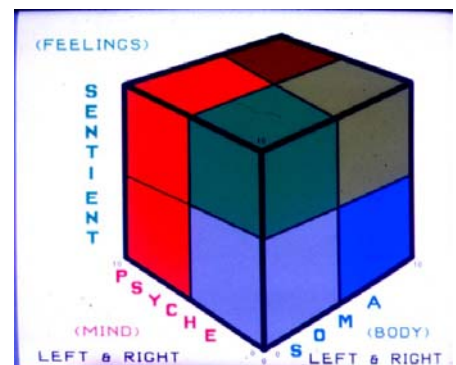
iv) INDIVIDUAL AND SOCIAL

Up to this point we have concentrated on the dynamics of integration at the intra-personal, or individual, level. However, if someone is to work effectively in a complex learning system, they will need to complement their individual integration with high levels of awareness of inter-personal and social processes. These may be subjective, in so far as the individual is relating to others, or objective where the individual concerned is observing relationships between others which do not directly affect the observer.
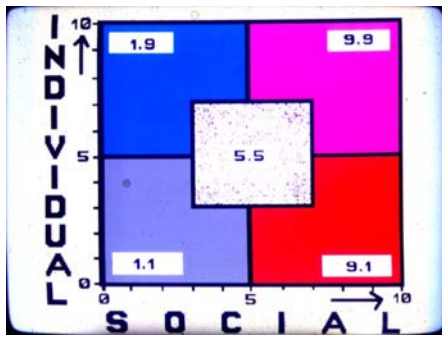
The next Johari window therefore models the degree of awareness or consciousness of processes at both individual and social levels. The self-aware person may be blissfully ignorant about what is going on around them and act in a way that disrupts the learning company. On the other hand, th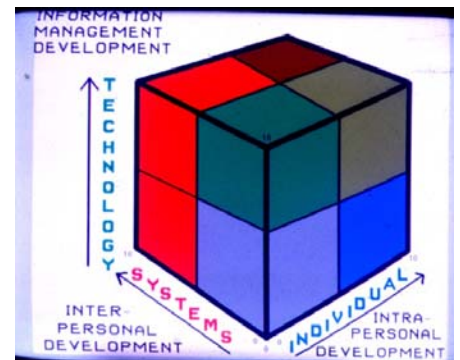e person who is quite skilled at reading the system around them, but quite unaware of their own dysfunctional process, can also rupture learning capacity. The integrated position balances high levels of awareness in both parameters.

v) TECHNOLOGY AND THE LEARNING SYSTEM

In the industrial era, technology was an extension of brawn. In the information age it is also an extension of mind. The integration of the social system and the technology it uses for the management of information is therefore yet another critical parameter in the performance of the learning company. So to the individual and systemic fields we now have to add another dimension to represent the tool base in use.
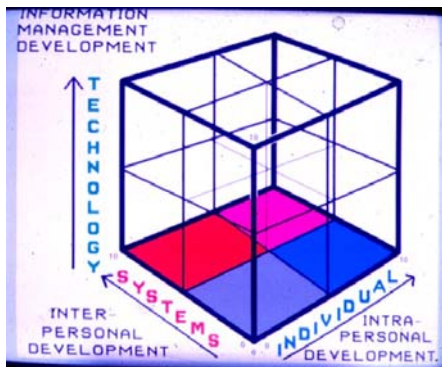

Interestingly, it is the demands placed upon us by the accelerating power of information management technology that are demanding and making possible the development of complex learning systems which in turn require high levels of individual development and integration. There is, however, often a divorce between the social and technical aspects of the enterprise. Those concerned professionally with human potential development and the integration of social systems dynamics do not often possess high levels of skill and ability in the technological field. Similarly many a 'computer buff' is tragically illiterate when it comes to the field of interpersonal relationships, systems integration and human development. The fast track learning system requires integration across this whole field with a continuous discipline evolving the most appropriate technological solution to the task of the learning system, as well as looking forward sufficiently to the requirements of the future to enable it to internalise new technology and become familiar with its operation in advance of the crisis point which demands its use. Failure in this parameter will severely stunt the performance of the learning system and may even render it inoperative in those conditions of rapid change which require the management of high volumes of information for effective decision making.

vi) INSIDE AND OUTSIDE

In the traditional, competitive, capitalist, free-market economy, management of an enterprise only has responsibility for the optimising of the performance of its own company. In the turbulent conditions of tomorrow's world a much more inter-dependent and collaborative stance is required, as is already being seen in the development of multiple and networked alliances within the computer and software industries[11]. The well-being of the part depends upon the well being of the whole. The enterprise can no longer treat itself as an island and hope to survive in splendid isolation. Ultimately, survival depends upon the capacity of management to transcend the limitations of the boundary of the enterprise and engage with responsibility both inside and outside the designated company domain. As global society comes to terms with the impingement of the human presence on an unstable and fragile eco-sphere, so environmental concerns come to exercise an increasingly dominant influence on the performance of all sub-systems. The learning system for tomorrow's world must therefore take account not only of its inner structures but also of its outer context.
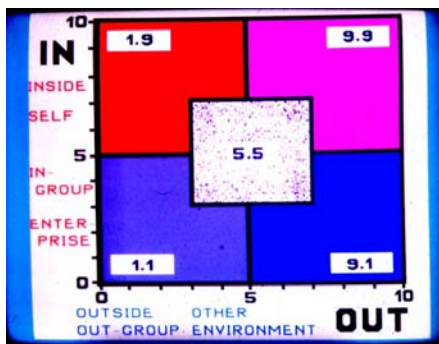
The Johari window illustrates the different degrees of dynamic integration in this field. Here lies perhaps one of the most difficult areas of integration faced in the development of the high level learning system.
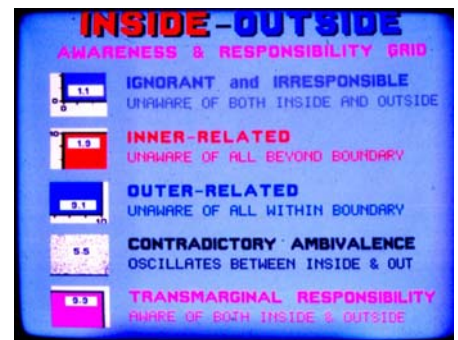

Politicians, managers and leaders across the world are promoted and selected for their ability to champion the needs of the sub-system over against its threatening environment. It is now clear that the optimising of the sub-system at the expense of the whole is a short-term and dysfunctional strategy. Just as the integration of brain activity requires the multitudes of interconnections between every neural cell, so the evolution of globally effective learning systems requires the myriad dimensions of inter-connectedness of the world-wide matrix of learning sub-systems, each seeking to optimise both inside and outside in the service of the whole.

vii) THE DIMENSION OF TIME

It is an old adage that any learning system which ignores its history is doomed to repeat it. It is less familiar, but equally true, that any learning system that ignores its future will be caught unawares. So to all the other dimensions of integration must be added the dimension of time.

The final Johari window plots awareness of 'time to come' up the vertical axis and awareness of 'time past' along the horizontal. The person or system living hand to mouth in the here and now is dislocated from the process of evolution, however much the reaction serves to sedate anxiety about the future or guilt from the past. The future-oriented system may be proactive but its inability to learn from the past condemns it to repeat its mistakes. On the other hand, the traditional system repeating past patterns walks backwards into a future which may well demand a different response, for which it is utterly unprepared.
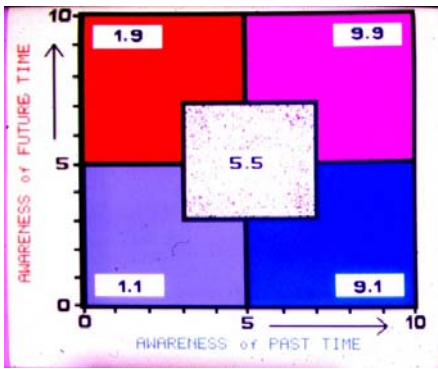
The effective learning system lives in the fullness of time, knows its place in history and the implications of its actions for the future. Its stake-holders are represented not simply by the noisy voices of the present but by the silent needs of the as-yet unborn.
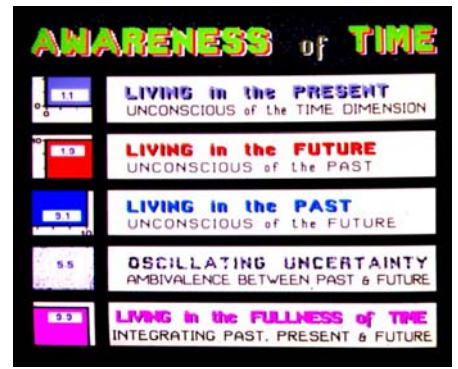
CONCLUSION

We began with the statement that 'if a company is to flourish in a changing world its rate of learning must exceed the rate of change in its environment'. We end with the insight that if humanity is to survive in a changing world, its rate of learning must exceed the pace of environmental transformation. The speed of evolution of high level learning systems, able to manage complexity and ride turbulence, characterised by the dynamics of multi-dimensional integration and connected in a complex web of inter-dependent neural networks, may offer some realistic alternative of hope in a world permeated by the rumours of doom.

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6.   See, for instance, CK Modeller Version 4, available from Creativity Software Ltd., Pitlochry.

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