from **humanCapital2socialEquity**

Introduction

1. Evolution of Social disorder

Evolution did not endow humans with the ability to build large organisations, Large organisations require large amounts of information to manage and cohere them, Large organisations also generate large amounts of numbers and facts that need to be digested and distilled to furnish information enabling the most rudimentary of questions to be answered 'that faced with this predicament what do we do next'?.

Unfortunate evolution has not yet endowed the brain with the ability to create this type of information from a vast repertoire of numbers and facts. Firstly the capacity of the brain is limited, Secondly humans die and their brains and models die with them and thirdly and most importantly the human brain has adapted to only process particular types of data e.g. patterns, colours, social behaviours etc.

When complex organisations first began to appear in the wake of the agricultural revolution there was a requirement for organisation's to store and process these numbers and facts. The brain could not do this. This mental limitation therefore severely constraint the size and complexity of these organisations. For thousands of years after the Agricultural revolution human organisations remained relatively small and simple, cohered through the visible relationships evident within the community. When a certain complexity threshold was crossed it would have become necessary to process larger amounts of data to maintain order which was not possible to do within brain. Thus limiting the size of the organisation.

This limitation of the brain was slowly overcome by the Sumerians sometime between 3500 BC and 3000 BC. During this time they developed a system for storing and processing information outside the brain. These Sumerians, for the first time ever in our history, were able to release their own social order from the limitations of their brains. This opened up the way for far more complex organisations to evolve. What the Sumerians had discovered was what was known as 'writing'. This provided them with the ability to store and process numbers and facts outside of the brain. The ability to store these numbers and facts also meant that the associated information did not die with the person. The knowledge and wisdom written into these numbers and facts extended beyond the lifetime of the individuals giving way for knowledge to evolve from generation to generation.

However the impact of the invention of writing on human history has left us with a problem: it gradually changed the way humans think and view the world. **Free association** and **holistic thought** that at one time were used to understand social order eventually gave way to the division of society and a simple cause and effect view of the world came into being through this new language. This world view is still with us today where we talk, we think and we write in objects and leave behind the very important invisible relationships that once cohered these objects.

The Sumerians thereby released their social order from the limitations of the human brain opening the way for the introduction of more complex organisations, cities, kingdoms, empires and in the modern era to Political Societies than span the globe and businesses that traverse Political boundaries.

2. Power of Exchange through specialisation

Consider the computer mouse that we once used or still use. It is small, it fits into the palm of our hand and its shape and size is not unlike a flintstone used by our distant ancestors. However this is where any resemblance between them ends and our limitations on understanding starts.

Our long lost ancestor understood how to make the flintstone, this knowledge would have been easily passed on from generation to generation by single individuals. What is interesting here is that this same tool was made for over 50,000 generations without any significant change, there was no progress nor innovation it would almost seem that skeletons changed more quickly than the tools they used whereas today the mouse would be obsolete after a few years.

There is also another significant and important difference between the two. The flintstone is made from a single substance where the mouse is made from different substances and more than this it is an integration of different ideas, and they have all been combined together into a mouse not as an aggregate but as an integrated whole. It was the sharing of these ideas through the process of exchange that drove this cumulative technology. It was through this practice of exchange that artefacts could be traded without needing an understanding of how they were made.

This idea of exchange or trade is simple yet counter-intuitive as David Ricardo's **theory of exchange** explains: *'it's the power of comparative advantage and not absolute advantage is the driver of exchange'*. Exchange takes place in society's combinatorial meme pool where ideas can be combined and recombined to create unique configurations as in the case of the computer mouse.

The computer mouse is thus an accumulation of ideas from within the technological meme pool. Ideas that have both evolved and have been exchanged over many decades, representing the accumulation of wisdom from many millions of people. It is thus not surprising that no individual understands how to make a computer mouse. Conversely when you cut people off from exchange, from the ability to trade and share ideas you don't just slow down technological progress, you can actually throw it into reverse and rather than advancement we get regression, ideas are lost. This is typical in a downsizing project where the value of being together of discussing, of talking, of asking lots of questions is lost by the organisations.

And what we've done in human society, through specialisation and exchange, is we've created the ability to do create things that we don't completely understand. It's not the same with language, with language we can transfer ideas that we understand with each other. But with technology we can actually do things that goes well beyond our capabilities. We can transfer technologies without understanding how they were made. All the business needs to understand is the function performed and how the component can be integrated into the whole and how it can be diagnosed and repaired if it goes wrong and the ability to replace it when it gets to the end of its working life.

3. from conversation to transaction

Today Organisations continue to drive for productivity and efficiency gains through the division of labour. We break up a complex task into a number of simple tasks. However this breakdown of the task destroyed the latent coordination that had previously been part of the complex task that gave us a better understanding of the value of the task.

It was this drive for efficiency through specialisation and automation that removed these invisible cohering forces known as conversations. These invisible relationships required to cohere these larger collectives were destroyed removing the conversation and introducing the transaction. But efficiency was considered important and through specialisation reduced the complexity of the task making it simple so that it could be carried out by lower skilled workers, but all of this resulted in a corresponding increase in coordination complexity that meant coherence suffered and the quality of decision making reduced and knowledge regressed. (**Stigmergy, IIT & VSM**).

It is therefore the purpose of this course to demonstrate how the 'business's value exchange' can be better managed through improved coordination of the business activities and its people.

Our challenge is therefore to properly manage and sustain our company's value exchanges. For BT this would be a coming together of ideas and or technologies to provide a network service. These services are extremely complex where we will need specialists to manage the individual technologies, we will need specialists to install, to maintain and repair the complicated components.

We therefore have to ensure we act in unison that our decisions are coherent and are requisite in maximising return on investment whilst providing the customer with the best possible service. To achieve this outcome for the business we need to continuously learn, to have requisite agility to adapt to a changing environment.

4. from human capital to social equity

Businesses have become very adept at managing individuals in the form of human capital - defined as the skills, knowledge and experience of individual employees within the company required to execute the 'task'. In the past, with relatively stable markets, this was adequate, but the current competitiveness in our markets have put pressures upon our margins as well as the need to respond quicker to our customers. It is therefore no longer sufficient to manage the individual assets within the business. In the knowledge economy of the 21st century businesses must manage the inter-connected assets of their business moving it away from the individual and its associated cost paradigm to the network and its required value paradigm. This new network is what we term **Social Equity** and is what connects various forms of **human capital**.

A business that creates a value exchange which needs to be accomplished by more than one person faces two problems, how to divide up the labour and how to coordinate the division. With the focus moving away from the individual, from the task, from the transaction to the problem, to the team, to the conversations.

It is how we organise this human capital which will determine our future competitiveness. This talk will give you insights in how BT has taken on this challenge by the transformative fusion of sensing, computing, cybernetics and biological **Stigmergy**.

This journey of discovery will take us on a path where will look at the following ideas:

1. The **theory of exchange** and the need for specialisation using the work of David Ricardo
2. The Science of organisation through the fractal lens of the **VSM** from the Stafford Beer.
3. The work of Humberto Maturana on **structural Coupling** will enable us to use the environmental relationship as a lever for Strategic Planning.
4. The role of strategy in operational planning.
5. The application of Biological **Stigmergy** from the Natural World that will enable us to manage the residual coordination complexity resulting from specialisation and business scaling.
6. Integrated Information Theory (**IIT**) from the Brain will enable us to engineer a group consciousness and behave holistically having access to the entire organisation's genome enabling greater innovation and decision making.
7. And lastly we will endeavour to restore **free association** and **holistic thought** through the work of Gregory Bateson and his daughter Nora to restore the damage that language and writing has done to our thinking.

In summary the objective of this presentation is to change the way in which we perceive organisation and the world around us. Where if the 'Whole' can be reduced to just its parts then the 'Whole' never really existed in the first place, but as we can see the whole needs to exist. The whole is much greater than its parts, the whole has a greater variety and a greater awareness than its parts (silos). The Whole is not an aggregation but an integration and differentiation of its parts.

Thus the Whole results from not aggregating the parts but in **integrating** those parts resulting in an increase in its potential repertoire of states i.e. the integration provides us with more potential operational configurations to select from. The resulting conversations provide this discriminatory power, the power to **differentiate** amongst a vast repertoire of potential configurations. It is these conversations that produce 'Social Equity'. It is these conversations that in turn generates the businesses plan.

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