Systems Thinking

Eunoia – beautiful thinking

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Systems Thinking is where we treat world things (objects, products, situations, organizations etc.) as systems to learn more about them. By treating things as systems, make us think differently about them providing insight and understanding that could not be gained any other way. Humans are naturally object oriented because we live in a world of objects and artifacts. In consequence, we categorize and organize things according to what they are rather that what they do. In contrast, Systems Thinking is a world of purpose, context, interconnectivity and behaviour. It asks the question "what is to be done?" rather than "how is it is done". Most people are therefore not natural systems thinkers and we have to work hard to use it, but the benefits can be outstanding. History is littered with those rare, but odd, people who are natural systems thinkers have revolutionised the world.

There are many definitions of Systems Thinking but a useful one is:

> *Applying the concept of a system to a situation in order to gain insight and understanding*

As a definition it abstract and overly general, but it is precisely these qualities that make Systems Thinking universal. On one level Systems Thinking is a mindset – a state of mind - on another it can be an organized repeatable and powerful approach that all people can learn to apply. To assist our Systems Thinking there are a number of concepts and principles that provide a framework. There are also tools that can help in exploiting these concepts and principles. These concepts and principles are codified as a set of properties and characteristics of a system. The consideration and examination of these systemic properties and characteristics in the context of the situation provides the insight that leads to a greater understanding.

The beauty of Systems Thinking is that it can be applied to anything, anywhere and at any time, effectively allowing you to compare chalk with cheese. This means a systems thinker can take the learning in one domain and transfer it to another domain. It allows for the comparison of different systems to gain insight and understanding of generic issues and behaviour. Some systems are simple, some systems are very complex yet they may display similar behavior and by understanding the simple system and what drives, its behaviour can be transferred to the more complex situation.

Systems Thinking is not the preserve of engineers or scientists, anybody can apply and use it. It is a tremendously powerful and universal framework that can be used in many situations:

- To gain understanding of a complex situation
  - *For example, biologists use Systems Thinking to help understand a complex bio-system*
- To gain sufficient understanding to make predictions of future system behaviour

- *For example, economists (and perhaps politicians should) use Systems Thinking to understand the dynamics of the world's economies in order to predict behaviour when aspects are changed*
- To solve a problem
  - *Scientists, Engineers and Managers use Systems Thinking to solve problems leading to approaches such as Lean and Six Sigma*
- To create a new system
  - *Engineers, System Designers or Architects use Systems Thinking to design better systems – in this context it is called Systems Engineering*

Being able to apply Systems Thinking requires an understanding of the systemic properties and characteristics of a system. These aspects can be taught together with a set of tools that will allow anybody to apply Systems Thinking in their world. It is a skill, however, that does improve with practise. It also provides a common framework for understanding amongst the disparate disciplines found in an organization. It provides people with common tools and language to explore common issues or opportunities, to share experiences and thereby transfer best practice from one element of an organization to another, and ultimately to capture and record that knowledge is a consistent fashion.