



Dave Snowden

September 23, 2016 13 Comments Categories: Reflections

Freedom through constraints



Over the last couple of weeks I've been thinking a lot about constraints in the context of complexity in general and cynefin more specifically. I've long used a constraint based definition to understand the differences between order, complexity and chaos. I got the original idea from Alicia Juarrero and subsequently developed it into Cynefin itself. That included the idea of enabling constraints as a key aspect of complex system. Alicia recent took part in a premium member webinar on the subject that was helpful, building on a keynote she gave in New York last year. One of the key aspects of this is the idea of context free constraints, universal rules or principles and context specific ones which cannot be universalised. In general context free constraints tend to

only work (ironically) within the context of order at a system level. However there are limits imposed by natural science that are near universal in nature as far as they pertain to those systems.

Now I have used a part of "Freedom" an outdoor sculpture by Zenos Frudakis, located at 1600 Vine Street in Philadelphia to illustrate this post. Too often when people talk about constraints they assume they limit freedom and while this can be the case, *it ain't necessarily so* to use an immortal line from *Porgy and Bess*. The internal skeleton of human provides a coherent structure, but also allows variety. The gene proves a constraint, but not a determinant of organic life and so on. Without constraints there is no evolution, true randomness is purely and simply chaos, nothing more, nothing less. There are also links here to Goldratt's *Theory of Constraints* but it is far from an exact match and the translation is something I want to work on in a future post.

For the last few years I have **made a distinction** between enabling and governing constraints in distinguishing the complex from the complicated domain within Cynefin. That has value, but it wasn't really enough and I know I needed to do more. In parallel as I developed **the dynamics within Cynefin**, I started to withdraw from the use of the tetrahedron models that Cynthia introduced to the framework in our joint article *New Dynamics of Strategy*. She has now moved those onto her confluence framework where they sit more comfortably. One of the reasons I wasn't happy with them is that they implied a hierarchy either present or absent. Cynthia was never happy with that, I always explicitly made it clear they weren't; but the representation lent itself to that approach. Even without that it wasn't a good enough model to both understand the system underlying the

domain and the nature of the organisational form which would be authentic to the system. The final piece of the jigsaw was my discussion with Glenda Eoyang in which I was unhappy with her use of the word *container*. The mapping her work, my work along with Stacy and others is something I hope to post on soon.

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So over multiple doodling on planes and, most recently in the various waiting rooms of the Great Western

Hospital in Swindon, I started to create a taxonomy of constraints and containers that will become a part of Cynefin over the next few months. At its most basic I am introducing the idea that in any system there are **containing constraints** and **coupling constraints**, developing an earlier metaphor of exoskeletons and endoskeletons. The first defines the boundaries around something, the second defines the interactions between entities that form a part of the system.

So what follows is an initial taxonomy of the nature of both containers and coupling types. For a period they were different with some overlap, but then I realised they were the same. I'll list them below but in subsequent posts I will work on different combinations of them in terms of different levels of uncertainty and manageability. I'm also starting to play with a set of symbols but I really need a graphic designer to work on these! Obviously one type of *container* may contain different types of *coupling*. That is for a future post.

Rigid



Here the coupling is rigid, rather like bolts and the boundaries are full on, they cannot be passed other than by their breaking which may well be catastrophic to the system as a whole. A system in which both coupling and containers were rigid would be at the extreme end of order, teetering (in the case of a human system) on the edge of

catastrophic failure within Cynefin. Something that is rigid can also easily become brittle and break catastrophically. While appearing to be highly ordered these can easily become the least resilient.

Elastic



Here there is some give and take. The boundaries of the container can stretch and change form, accommodating flux without breaking. They provide less stability than a rigid boundary, but they have higher resilience, that is until they snap. The same principles apply to coupling, more flexibility, more resilience but at the extreme they may

still result in catastrophic failure.

Dark



Now I don't mean this in the sense of the dark arts, but in the sense of dark matter.

Something whose presence we impute by its effect but which we cannot see or directly manage. These are some of the more interesting aspects of a human complex system in that they seem to have a disproportionate impact on the system as a whole. Often they

are understood within a community but cannot be articulated. They are simply *the way we do things around here*. This can include taboo and habits along with other social aspects.

Loose



In some ways they are similar to elastic, except that they are not elastic. Two entities connected by a steel cable with a lot of slack, but once the slack is taken up in full there is no elasticity. For the containing boundaries that means flexibility of shape but not of overall contained area. Stress the system and both the containers and the coupling with

snap to its limits, so again resilience is limited.

Mutating



This is important as it is probably the most resilient but the least manageable. Under conditions of stress any natural system increases its mutation rates to increase its adaptability. Here a rigid system may become elastic, then loose then rigid again and so on. In the mutation phase the nature of the mutation can be more easily managed and

directed – if you are aware it is happening in the first place that is.

Permeable



For the container somethings can get through, others cannot and similarly for the coupling the link is either there or not there and is contextual in nature. Permeable

boundaries have the highest degree of resilience especially of the permeable range can

be extended or reduced at need. Similarly for coupling, the links may be there or they may not be, but, we know how to trigger their presence.

*PS: It will be a few days before I develop this further. I'm going to run it out at the **Cynefin Meetup in Melbourne** for those interested and there a few places left at the time of writing.*

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Michael Hill

a day ago



Catching up on your blog. Perhaps for elastic change the line to a spring or similar to the electrical symbol for an inductor. For loose, maybe change the line and circle combination to look like a bit of rope tied with loop, either a lariat or bowline knot.

^ ▾ Reply



jackvinson

a month ago



Slow to find these things, but very interested to follow up on the other posts in this thread. The Theory of Constraints community has struggled with "constraint" as well. The focus is on constraint as that which prevents attaining (more of) the goal. Traditionally they mean the physical constraints of a production system: we can't get more than 10 units out of the whole system because THAT work center can only produce 10. Knowing where that work center is provides tremendous power to the organization. They know where to focus. But in TOC there is also the idea of "policy" or "management" constraints that aren't so much the physical constraints but they also affect the ability of the system to produce more of its goal. These constraints are often on/off and may enable big leaps in performance if identified / removed. The physical constraints may also be further constrained by these kinds of policies / practices.

^ ▾ Reply



Dave Snowden → jackvinson

a month ago



I'm not really willing to let the TOC community own the word!

^ ▾ Reply



jackvinson → Dave Snowden

a month ago



Of course not. But it's useful to know how different people / communities think of the terms. I still recall my early engineering education where we talked about the mathematical constraints of physical systems. Not always were those constraints "active" but they are relevant to the analyses.

^ ▾ Reply



Dave Snowden → jackvinson

a month ago



Agreed and there is some mapping to do there

^ ▾ Reply



Michiel Boot

2 months ago



I came along this: <https://en.wikipedia.org/wiki/...>

Carse speaks about two different games. Finite games are within boundaries and have a definite beginning and ending. They are played with the goal of winning. Infinite games, on the other hand, do not have a knowable beginning or ending. They are played with the goal of continuing play ..

May be you could argue that finite games are more in the orderly domain and infinite games are more in the complex domain.

^ ▾ Reply



Michiel Boot

2 months ago



2 months ago

Could you elaborate a bit more about the origin of a constraint in action? I am just wondering if they are (always?) socially constructed in a context in the past or in the present or have another source. Thx

^ v Reply



Dave Snowden → Michiel Boot

a month ago

Future posts

^ v Reply



dawn alderson

3 months ago

Thinking about the symbols there, would different distance/space measures between the circle and line be a good demarcation solution or, a trajectory of sorts?

^ v Reply



jonhusband

4 months ago

<< The gene proves a constraint, but not a determinant of organic life and so on. Without constraints there is no evolution, true randomness is purely and simply chaos, nothing more, nothing less. >>

Reminds me of a few hours spent in a big tent with Denis Noble, in late May.

^ v Reply



Dimitar Bakardzhiev

4 months ago

I am interested in how connectivity between the agents comprising a system relates to the coupling constraints?

^ v Reply



Tulasi

4 months ago

The constraints in the form of government regulations are needed for safety of the public in any technological advancements. Looking forward to see the next phase of the article from Dave.

^ v Reply



Conor O'Brien → Tulasi

4 months ago

Values are stronger for both bonds and boundaries than regulations.

"When mores are sufficient, laws are unnecessary; when mores are insufficient, laws are unenforceable."Émile Durkheim

Values are what gives us our reputation and reputation is strongest where sharing in conversation can occur. It's possible that David's peregrinations, and ensuing conversations, are providing him with an environment that is optimised for productive conversations.

Regulations on the other hand, can be disseminated without conversations, and seemingly without the need to involve personal reputation or values.

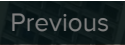
So for a regulated situation, there may be permeable boundaries of values that operates ok until the loose boundaries of the regulations tighten and come into conflict.

^ v Reply

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