A new universal principle? Yes, It's DP2 again - with numbers.

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In 1967, Fred Emery published his discovery of the genotypical design principles that give basic organizational structures, described as genotypical as they are absolutely fundamental and as deterministic as DNA is to the individual person.

In 1995, Riane Eisler also discovered these principles but did not fully realize their criticality to the world of organizational studies or what has become known as management theory or the management sciences.

Between 1967 and 2003, we learnt a huge amount about these principles and how to effectively and efficiently apply them to produce highly productive organizations which afforded all those who worked and lived in them high levels of intrinsic motivation (Emery & Emery, 1974). This latter is itself a product of the characteristics of the second design principle called DP2 and the high quality of activities that are achieved in structures based on it. In DP2 structures, people achieve the psychological requirements for productive activity, known in the trade as the 6 criteria.

That relevant characteristic of DP2 is the location of responsibility for coordination and control with every member of the organization in their own self managing group. This fulfils the need of every human to be treated as a purposeful system.

By the middle of the 1990s, we had investigated every form of DP2 structure, ironed out the crinkles in various methodologies and conquered the major problem of the potential failures of implementation with the Search Conference by inventing the 2 stage model of active adaptation (Emery M, 1999).

In the meantime, accumulating research in neurology had led Edelman (1992) to explicitly describe the brain as a self organizing system based on self managing groups, i.e. without a supervisor. I have written Edelman's work up in Searching (1999, pp152-157) to show quite precisely the exact parallels between DP2 in the social organization and in the brain.

In 2003, I wrote *Are there universal principles governing architecture in the mechanical, biological and social realms? The evidence so far* (Emery M, 2003). It built on the work of Ingber (1998), Fuller (1975), Volk (1995) and many others, presenting the convergence of principles discovered in so many different disciplines and the genotypical design principles discovered by Fred Emery back in 1967.

Now Munn (2024), using advances in calcium imaging, has discovered a *universal principle* in brain function and yes indeed, it is a rule of DP2 functioning. Moreover, it is an amazingly precise quantitative one.

Munn recorded signals from tens of thousands of cells simultaneously. This allows researchers to watch neural, activity in real time by using fluorescent sensors that light up according to calcium levels in the cell. Previously, they could only record the activity of a few cells or of several millions, the middle ground was missing. It is precisely this middle ground which allow them to discern coordination, the more powerful of the two dimensions of organizational structure where the other one is control. His work is taking that of Edelman to a level of greater detail.

All the way through this article, Munn makes the comparison back to the human organization and so it is quite clear that there is only one principle involved, DP2 simply operates in both the neural and social structures. In describing how cells coordinate their activity, Munn says "it's a bit like being a worker in a high-performing business. Balancing individual skills with teamwork is key to success, but how do you achieve the balance?"

Simple! ***Devote no more than half (and no less than 40%) of each cell's effort to individual tasks. The rest goes to scalable teamwork.***

His claim of universality derives from the fact that in every species they tested, they found exactly the same organizational structure, from fruit flies, nematodes, zebrafish, mice and monkeys. They were chosen because they "come from different branches of the tree of life that are separated by more than billion years of evolution." This explains why the brain is "a marvel of efficiency, honed by thousands of years of evolution so it can adapt and thrive in a rapidly changing world". Munn is direct: he says his discovery offers "powerful lessons for any complex system today".

The researchers ran other tests revealing that there is a fractal coordination of neuron activity which produces unique advantages allowing the brain to operate efficiently, and adapt to change. It ensures the brain accomplishes tasks with minimal resources while staying resilient, maintaining function even when neurons misfire. The evolutionary persistence of this structure from vertebrates to invertebrates "hints that *we've uncovered a fundamental design principle".*

This resilience is something people in DP2 organizations notice all the time, it doesn't matter if one or two of your people are having a bad day, the show goes on exactly the same as others automatically collaborate to complete the group's tasks.

"The best businesses operate in the same way – when a challenge arises, individuals can react without waiting for instructions from their manager, allowing them to solve the problem while remaining supported by the organization". The brain balances individuality and teamwork as the cells collaborate to build increasingly larger networks.

Want to grow your business? Follow the basic rule – within your whole organization, ensure that it is structured such that the individuals in each self managing group can exercise their own expertise as well as cooperating to achieve the group goals. This means they must be structured on DP2 as no other structure can meet the requirement of no more than half and no less than 40% of each individual efforts to their individual tasks. Teams described as 'self managing' but having team leaders or coaches cannot achieve this as it is the team leader or coach who actually holds responsibility for coordination. The team may be expected to coordinate but the reality is that they act as individuals. Unless the group as group, holds responsibility for coordination and control, they are unable to properly or adequately coordinate. These so called self managing teams are still a con job as they were when Weisbord first proposed them as a substitute for the real thing. They are the same old DP1 modules with different names.

The import of this new discovery, this new universal principle, reinforces what every OST practitioner understands well – coordination is as central to good organizational function as control, if not more so. The reason new ideas like Agile foundered was exactly because they put all the emphasis on individual autonomy and control, and neglected coordination. Obviously without adequate and reliable coordination, you don't have an organization, just a collection of individuals doing various tasks with varying degrees of cooperation depending more on whim and inclination than organizational requirement. Fly in, fly out coaches or various other varieties of quasi manager, can never substitute for the responsibility for

coordination inherent in DP2 structures. That is why Agile, now with all its variants and derivatives, has proven a disappointment to so many of its original enthusiasts, and still fails to reliably create the 6 criteria for productive work. Until these organizations move to fully DP2 structures, they will continue failing to meet their original objectives (Emery M, 2023).

There are some corollaries to this rule at the human level such as there should be no forced rotations of tasks around the group in the same way as there should be no specialized roles without the responsibility to coordinate. In the Buurtzorg model for example, in the self managing groups, each individual practitioner is required to do administration on a roster regardless of skills, talents or inclination. This is an extremely wasteful approach to say nothing about industrial justice and general union rules about being paid for duties performed – the care teams are paid for their nursing skills and qualifications but not their administration. It has proven far better to have a couple of trained, skilled people doing administration with backs ups with required. Needless to say, they should get paid for the administrative skills they hold.

There are also large organizations at the moment where only the operational units are granted a degree of autonomy. The management levels retain their hierarchies and the individualism and individual functioning that goes with it. This is a travesty of DP2 in two ways: first, it is not a DP2 organization and conveys a message that hierarchies are still required for the higher status or more prestigious of the organization's people. Second, since hierarchies are inherently unstable, these management structures are putting the whole organization at risk as they do not contain adequate controls on the quality of decisions made about the business in general. As we have shown for years and years, there is no reason why the groups operating at the organizational level, senior management level in DP1, should not be self managing, and indeed, the organization blossoms when they are.

The universal finding in cells and their organization that individual function and group work are both required in roughly equal quantities echoes the age old wisdom which has been constantly rediscovered throughout history. It is simply that individuals only flourish when they are embedded in cohesive, supportive groups. It is a balance between autonomy and homonomy where mental health is "the capacity both for autonomous expansion and for homonomous integration" (Angyal, 1965, p254). We all need to be in harmony with units much larger than ourselves as only then can we grow and develop. This is colloquially knows it as 'no man is an island' which expresses the common knowledge that people experiencing aloneness or loneliness wither and die.

We currently have no measure of how much time self managing groups spend functioning as individuals or at group work because nobody has thought to measure them. At this level, I would expect that the ratios would vary from hour to hour or day to day as tasks and demands on the group vary. On top of this, in dangerous organizations when an emergency arise or when for example, a patient goes critical in intensive care, there will be periods when it appears there is a reversion to DP1 as the most experienced member of the group may be expected to issue instructions. As soon as the emergency is over, the group returns to its normal DP2 mode demonstrating that DP1 can temporarily exist within DP2. We can't speculate here in the absence of data so it would be useful if somebody in a DP2 organization could start systematically making those measures. I would not be at all surprised if over a reasonable period of time, the ratio of individual to group work may average out to roughly half and half, confirming once again the ubiquity of this newly discovered rule of DP2 functioning.

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