

The Renaissance Decision Owner

Rarely would I scrap an entire paper or publication during the final moments before submission, let alone a paper that contains memories and lessons distilled from my first two years as a father to my young son, George. But on 24 May 2019, and after completing my submission well ahead of time in preparation for an extremely busy June, I did.

Nobel-laureate and co-founder of the Santa Fe Institute, Murray Gell-Mann died peacefully at the full age of 89 years old on 24 May 2019. Gell-Mann demonstrated the power found in what could be achieved by a renaissance management team in co-founding the Santa Fe Institute.

With the passing of a Giant in the complexity sciences, I feel it is only right to consider the concept of a Renaissance Manager from a complexity theory standpoint. In doing so, I hope to convey how complexity theory underlays not just the value of a Renaissance Manager concept, but that of a Renaissance Management team and that of an alternate organisation structure offered toward the end of this essay.

It is the intention of this essay to honour the memory of Gell-Mann as he ascends to the ranks of the Fallen Giants, as Peter F. Drucker has before him.

You see, both men have played a critical role in my journey, conduct and (should I dare say) success in Management. Where Drucker helped to set the destination and navigate the journey, Gell-Mann taught me to read the waves and set the sails.

At its core, the Gell-Mann/Drucker dream team informed me that the practice of Management is simply, and complexly, a cascade of effective decision-point ownership.

Management as a cascade of decision-point ownership

Drucker guided my career for a few years before I first learnt of Gell-Mann and his colleagues at the Santa Fe Institute, and well before management activities dominated my day-to-day. The complexity sciences represented the level of intellectual and theoretical stimulation that, at the time, was lacking in my career as an 'accidental CPA'. It was quite some time however before I made the connection that the Complexity sciences could deliver greater day-to-day effectiveness as a manager.

Early in my managerial career, I determined that my primary activity was the engagement of and collaboration with resources available in the facilitation of decision-making processes. These decisions initiated cascading decision-points that ultimately fell under my own responsibility.

Decide, decide, decide. Decide upon the objectives. Decide how to organise. Decide how to best communicate and motivate. Decide how best to engage and empower. Decide on the mission. Then, when finished, make sure the cascade of decision-points that flow from the initial decisions are executed effectively.

As decision ownership is borne by the Manager, I reasoned that the better a Manager is at facilitating and owning decision processes, the more effective that Manager will be.

This was my first and embarrassingly obvious “Ah-ha!” moment.

In ‘returning to the well’, and holding a casual interest in the complexity sciences, I discovered a new perspective and depth in Drucker’s writings.

Gradually at first, then suddenly (and with a level of excitement equivalent to that of my son George watching Thomas the Tank Engine) it occurred to me that underneath my simple, linear, logic-based understanding of business, was a non-linear, dynamic and adaptive Complex System. This awareness equipped me with a range of new mental models to envisage management and decision-making.

The dynamic nature of organising information in decision making

Drucker understood that effective decision-making relied on organised information¹, and noted that information literacy (how to generate, understand and utilise) is vital for an effective executive².

No doubt for the sake of brevity, Drucker would occasionally oversimplify the nature of information. In some instances, information is referred to as a ‘resource’ or ‘commodity’, even going as far as citing the availability of ‘true information’^{3,4}.

Such statements that diminish the complex nature of information become problematic for the casual Druckerian student as the nature of ‘organising information’ is, in Gell-Mann’s words,

¹ Drucker, Peter F. 2002. *The effective executive*. New York: HarperBusiness Essentials.

² Drucker, Peter. 2005. "Be Data Literate -- Know What To Know". *Wall Street Journal*, 2005. <https://www.wsj.com/articles/SB113208395700897890>. - “*Not many executives are information-literate. They know how to get data. But most still have yet to learn how to use data*”

³ Drucker, Peter. 2005. "Be Data Literate -- Know What To Know". *Wall Street Journal*, 2005. <https://www.wsj.com/articles/SB113208395700897890>.

⁴ Drucker, Peter F. 1999. *Management challenges for the 21st century*. 27. New York: HarperBusiness.

“...context-dependent ... dependent not only on the thing being described [*subject*] but also on who or what is doing the describing [*observer*].”⁵ (comments in [*brackets*], my own).

Drucker indirectly acknowledges the subjectivity of information in *Management Challenges for the 21st Century*, where he states that the organisation of data into information is most effective as a personal exercise and notes that “No two executives, in [his] experience, organise the same information the same way”⁶. Drucker again alludes to the context-dependency of information in noting that an executive’s judgement on candidate selection is prone to “first impressions, prejudices, likes and dislikes”.

I believe Drucker understood the implied complexity of this dual context-dependency (subject and observer) as he went on to provide some methodologies to assist in the alignment, organisation and understanding of information among management⁷. These methodologies still assume, however, that management could effectively identify key events, probabilities, thresholds, or outliers in the data or information they receive.

As the act of organising information about the environment is prone to first impressions, prejudices, likes and dislikes, then the act of organising information becomes non-uniform and a key avenue in which management can deliver differentiated value.

It is here that Drucker and Gell-Mann complement each other supremely. It is also here that the value in the concept of a renaissance manager begins to become clear.

Standing on the complex shoulders of Giants

A casual interest in complexity theory quickly became much more serious as I began to reach out to researchers in the field to assimilate theory into practice. The first breakthrough I remember in my understanding was the realisation that Drucker had already provided an example of a business as a complex system in one of my favourite quotes.

If “...the purpose of business is to create a customer, the business enterprise has two – and only two – basic functions: marketing and innovation”⁸ then the purpose of a Business, as a complex system, is to survive through continual adaptation and evolution.

⁵ Brockman, John. 1995. "The Third Culture - Chapter 19". Edge.Org. <https://www.edge.org/documents/ThirdCulture/zc-Ch.19.html>.

⁶ Drucker, Peter F. 1999. *Management challenges for the 21st century*. 126. New York: HarperBusiness.

⁷ P.126-128

⁸ Drucker, Peter F. 1974. *Management: tasks, responsibilities, practices*. New York: Harper & Row.

This led me to further develop my understanding of ‘business as a complex system’. I learnt Gell-Mann in *The quark and the jaguar: adventures in the simple and the complex* (1994), that a complex system holds emergent properties and operates far from equilibrium under a constant flow of energy. The system will typically contain the flexibility to re-position, understand and directly adapt to the inflows as they occur.

From time to time, a complex system will find that its ability to re-position and adapt to the inflowing energy becomes less and less effective. The increasing pain and confusion felt by the system may result in a more fundamental adaptation of, what Gell-Mann would call, its schemata, or its theories of how its world operates. When a system's schemata become ineffective, progression towards evolution or disintegration gathers speed. The system’s ability to successfully evolve its schemata is dependent on its ability to correctly identify the right path to deal with the prevailing environment⁹.

To apply this to a business as a complex system, I substituted the language. A business system is openly exposed to a constant inflow of energy represented by potential information (i.e. available data that *could* be turned into information) but is closed in the processing of potential information (i.e. closed team of management and their available resources). The business system will usually discriminate between meaningful and non-meaningful data and accurately interpret meaningful data into information and directly adapt/respond to this information using its pre-existing decision-making protocols.

From time to time, however, the business system may not identify the entirety of relevant and available data pertaining to a decision. Where data or information has not been accurately identified or interpreted into ‘organised information’, misuse or misinterpretation of information results.

When misinformation forms the basis for decision-making (say, misinterpreting client feedback, an upcoming market thematic, or the development of substitute products by indirect competitors), the decisions made may be maladaptive and result in the deterioration and eventual disintegration of the business. If the misinformation is identified, and the reorganisation of information occurs quickly, the business may adapt its schemata and survive, say, through business model innovation.

⁹ Gell-Mann, Murray. 1994. *The quark and the jaguar: adventures in the simple and the complex*, New York: Freeman and Company.

Ideally, a business, as a complex system, is resilient enough to directly adapt to inflows under the steam of a continually valid and learning (i.e. evolving) business model. The more desperate the changes to its business model, the greater the leap of faith taken. The greater the leap of faith, the higher the likelihood that any adaptation will progress toward disintegration¹⁰.

The question of Resilience and decision Quality

The resilience of a complex system (business system or otherwise) can be most effectively explained by borrowing a chaotic system concept called a ‘phase space’.

A phase space is an area that a system can occupy. As energy is imposed on the system (in terms of data and information), the system manoeuvres to a new position in its phase space to accommodate, interpret and process. When the energy imposed on the system cannot be accommodated, the system is pushed far from equilibrium and closer to the edges of its phase space. Prolonged pushing against its phase space boundary and the system bifurcates. The outcome of the bifurcation is a system that progresses toward evolution or disintegration.

The positions available to a system inside its phase space are the result of co-evolution with its environment. The system considers what has worked in the past to accommodate the perceived energy and looks to apply the same remedy to the inflow¹¹. *The greater the range and variety in the systems perspectives and remedies, the greater the likelihood that it will continue to directly adapt and evolve to the inflows.*

And with that realisation, my breakthrough followed...

Accommodation of the energy imposed on the system can be likened to the ability of a manager to make effective decisions in light of new data or information. When data is imposed on a business system, a manager can call upon their (or their teams) range of education and experience for assessment and interpretation. When a manager cannot effectively organise the data into information, they are (sometimes unknowingly) pushed to the edge of their competency and forced to make a decision that could lead to uncertain (either evolutionary or disintegrative) outcomes.

¹⁰ As the study of complexity looks to understand underlying principles that govern complex system behaviour, much of this section follows a strand of logic. For a thorough commentary on the development of Complexity theory, please obtain a copy of “**Science, Strategy & War: The strategic theory of John Boyd**”, by Frans Osinga. An incredible book that I gift to as many people as I can.

¹¹ Prigogine, Ilya, and Isabelle Stengers. 1984. *Order out of chaos: Man's new dialogue with nature*, New York: Bantam.

Just as a carpenter should hold capability with many tools to finish the job, so too should a manager hold a range and depth of variety in education and experience to call upon in organising information for decision making.

It is here that the value in the Renaissance manager concept should become clear.

The Renaissance Manager

A manager’s ability to classify, define, specify or decide¹² the right answer to a problem they face is based on its ability to correctly understand and interpret the information surrounding a problem in the first instance. Remembering the context-dependency described by Gell-Mann, each managers ability to understand data or information is based on their education, experiences and, for better or worse, accompanying prejudices across its schemata.

To illustrate, and for the sake of simplicity, consider Figure 1 below. The blue background represents a systems phase space, with each ‘star’ representing a collection of education and experience. The distance and diverse locations of each manager's schema (or mental models as indicated by individual stars) is representative of a variety and depth of experience and education of each manager.

In Figure 1, new market information has presented itself. A manager must hold a variety in its education and experience to ensure they can reliably re-position to interpret the information. The more depth and variety held within its schemata, the fewer ‘blind spots’ and more perspectives that can be employed in understanding the new information and make a decision.

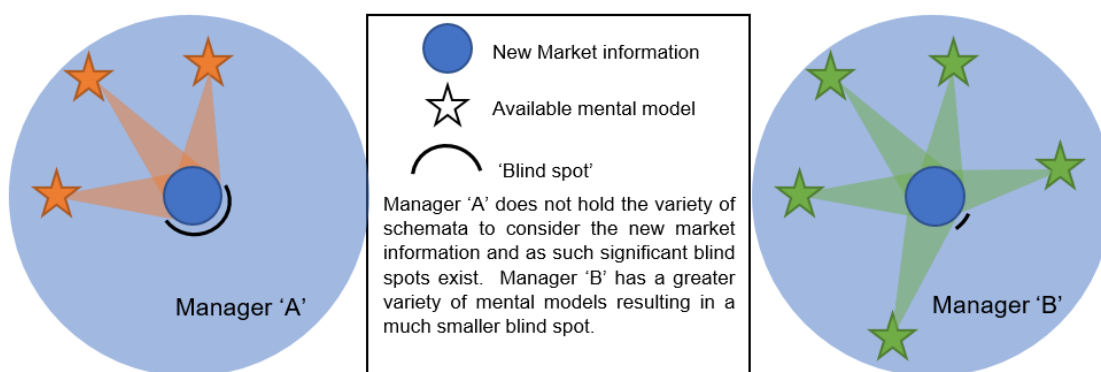


Figure 1: Benefit of variety in gaining perspective on new data or information

Of the two managers above, Manager ‘B’ is representative of a Renaissance Manager.

¹² Drucker, Peter F. 2002. The effective executive. New York: HarperBusiness Essentials.

Why?

If a renaissance man is exemplified by someone like Leonardo Da Vinci. Someone who was able to cross-pollinate capabilities and experiences stemming from across the creative arts and sciences spectrum to form the inspiration of what would become the modern-day Helicopter and Automobile (simply to name a few).

And, say that a Manager needs to engage and collaborate with the resources available to them in order to facilitate decision-making processes that culminate in the ownership of cascading decision-points in the context of a complex system.

Then, a Renaissance Manager is typified by someone who holds and/or engages a diverse range of formal and informal education and experiences across the spectrum of the arts and science, and who constantly applies, evolves and expands their mental models into a synthesised paradigm in order to facilitate better and better decision processes.

Is there a Catch? Yes, of course there is!

While Renaissance Managers sound great, individually, they are fallible. Unfortunately, even the most capable, well rounded, Renaissance manager suffer blind-spots. Specifically stemming from Gödel's assertion that a system cannot be analysed from within the system¹³. Or put using Gell-Mann's words, the *observer* cannot completely understand itself as the *subject* of its own *observation*. As a result, a Renaissance Manager cannot know the extent of their own shortcomings and cannot accurately or completely analyse themselves to remedy.

Even if a Renaissance Manager is continually (consciously or sub-consciously) evolving and expanding their schemata (i.e. learning), there is no way they can know if their schemata is an effective way to process what they are learning. Anecdotally, I believe maladaptive evolution of one Renaissance Manager's schemata can be identified when they are supported by another Renaissance Manager.

By constructing a Renaissance Management team, synergisms occur. While several Renaissance Managers can allow for a wide range in perspective, balance is key. Renaissance Management teams must find balance between obtaining optimal variety with the ability to swiftly and accurately make decisions. How then should a Renaissance team be structured?

¹³ Willard, Dan E. 2001. "Self-Verifying Axiom Systems, The Incompleteness Theorem And Related Reflection Principles". Journal Of Symbolic Logic 66 (2)

The Renaissance organisation structure

Traditional organisation structures look to depict hierarchy. Renaissance organisation structure looks to present an organisations structure in terms of capability, consequence of decision-point ownership, and collaboration.

First, and most importantly to the concept of a Renaissance team, consider **collaboration** as the areas of overlap between roles. The areas of overlap represent the common ground for which collaboration in decision making can occur. Successful collaboration requires team members to be able to communicate with one another. The common ground needs to exist in order to compare and contrast current vicissitudes of daily operations with other teams' members respective mental models.

The following graphic (figure 2) illustrates that an overlap of mental models is important for communication and collaboration.



Figure 2: Optimise variety but ensure common ground exists.

Anecdotally speaking, three aspects facilitate communication and collaboration between team members: context, technical, and experience. Context is the situation and subject of their interaction, in this case, the context is the business environment they work in. Technical and experience are the formal and informal education held by each team member, respectively.

Contextual commonality between managers is necessary to facilitate and bound communication (similar strategic and operational understanding). Commonality between team members should also exist to a lesser degree on technical and/or experience aspects. A level of commonality in experience and technical aspects allows team members to collaborate more deeply with another, than if no commonality of experience or technical aspects were present.

Second, consider that **capability** means the sophistication of a team members schemata and is represented by the size of their circle. 'C-suite' holders are expected to be highly capable, whereas the junior accountant is comparatively less capable.

Lastly, consider that the centre of the structure indicates the highest level of decision-point ownership and **consequence** – the CEO. The further from the centre of the structure, the less consequential the decisions being made are. For example, the consequences of decisions made by the Financial analyst are comparatively higher than those of the marketing associate.

With this in mind, consider the following example of a renaissance organisation structure below:

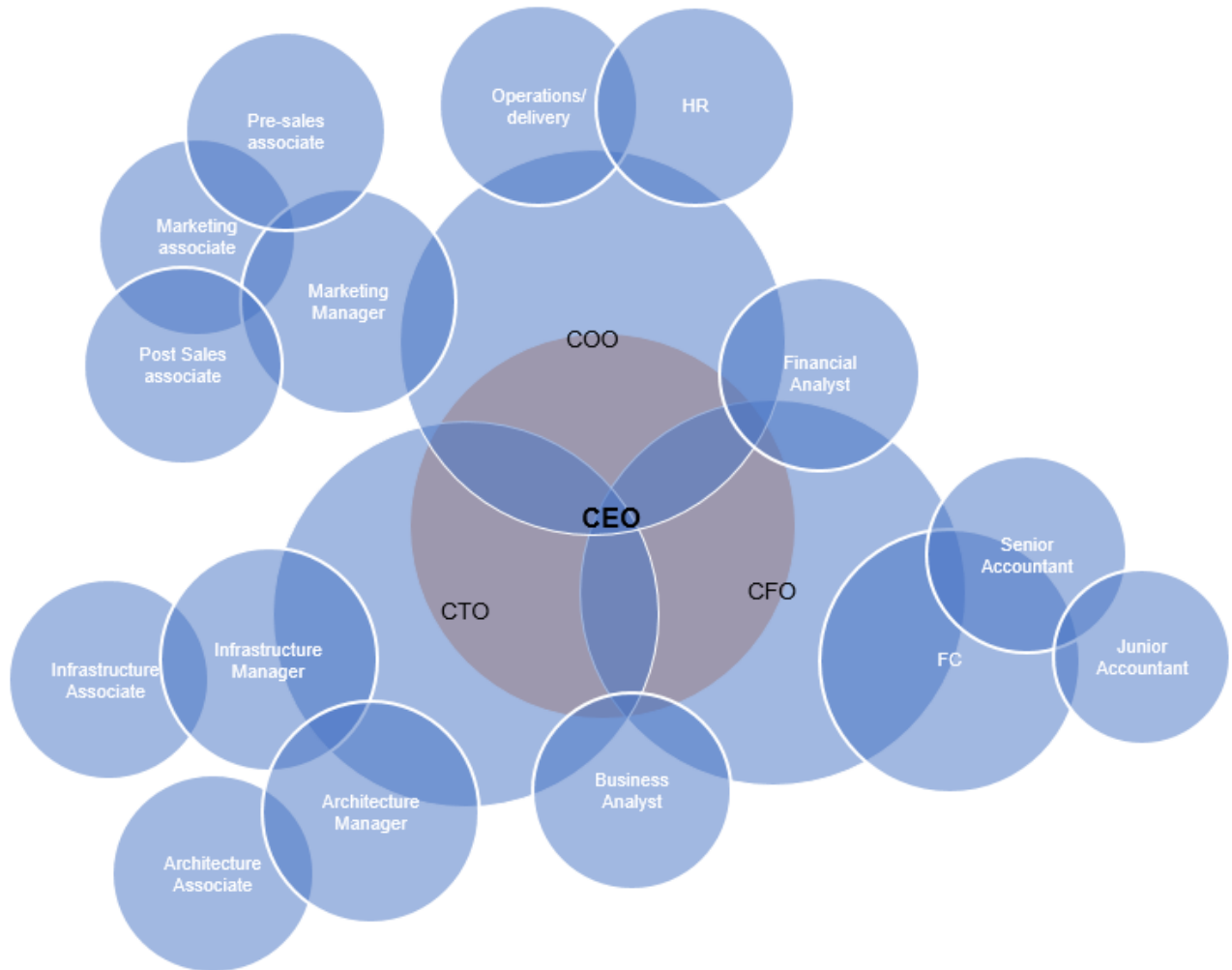


Figure 3: The Renaissance Organisation Structure.

In founding The Santa Fe Institute, Gell-Mann established a sanctuary where people from various research domains (biology, linguists, physicists, economists, historians, etc.) who share an interest in complexity science can openly collaborate in understanding the fundamental principles of complex systems¹⁴. The Santa Fe Institute is, in essence, a collective Renaissance research structure!

¹⁴ Brockman, John. 1995. "The Third Culture - Chapter 19". Edge.Org. <https://www.edge.org/documents/ThirdCulture/zc-Ch.19.html>.

As demonstrated, the concept of the 'Renaissance Manager' is an excellent concept its own right and provides further evidence to confirm the enduring legitimacy of both Gell-Mann & Drucker's work.

Whilst I was not able explain how "Cars" NASCAR racer 'Lightning McQueen' evolved his mental models in learning about counter-steer from his Dirt track racing mentor, 'Doc Hudson'¹⁵, I believe my son George will appreciate, in years to come, how two of my heroes have influenced my schema and my approach to management.

Word Count: 2,970 (incl figures, and in fairness, note 10)

¹⁵ "Dirt Racing Lesson". 2019. YouTube. <https://www.youtube.com/watch?v=U9kRAtdhLMo>. [start from 58 seconds :)]