

Strategies for complex supply networks

It will come as no great surprise that supply networks are complex and some significantly more than others. A recent research project highlighted sectors such as construction; oil & gas and utilities (including offshore wind power) in particular, can add or reduce complexity in their supply networks, depending on how the emergence of supply network is “controlled”.

Interestingly the academic community have referenced them as supply networks and in the recent research the authors have tried to define more accurately the vast array of “moving parts” that create this complexity and multiplicity of dimensions to be considered. Recognising that the “moving parts” (dimensions) are exactly that and are never exactly the same between two projects and will be by the very nature dynamic and unique.

Therefore, developing and implementing a (procurement & supply) strategy that recognises the complexity, dynamic dimensions and uniqueness of each and every project while still trying to seek value and optimal performance calls for a clarity of how to recognise and accurately define complex supply networks. In this context the research recognises some of the following key dimensions;

- Number of suppliers
- Interactions and inter-relationships
- Variations in levels of interaction between suppliers and the procuring body
- The greater the number of variations an organisation must handle, the greater the complexity (operational load)
- Multiple controlling parties or people
- Complexity than originates from aspects such as;
 - Physical size of components
 - Locations (not everything is erected on terra firma), supplier lead times, downstream service and decommissioning needs,
- Unpredictable events and occurrences
- Speed of change in technology
- Emerging needs are not covered by standards or regulations
- The diverse character and capabilities of client organisations
 - Additionally, conflicting objectives or goals from political to operational stakeholders
- Product lifecycle
- Perennial issue of discontinuous demand into the supply base
- Organisational behaviours;
 - Trust, interventions, delegations, biases, exploitation, cultures, balance of power, control, etc.
- Even if the companies selected are constant the people from those organisations may not be and will create different inter-relationships consequently
- Many procurement processes are dominated by price as the determining evaluation/selection criteria and subsequent frameworks inter company
- Scale and size of project is variable and often discontinuous

Some of the examples used in this article are true to the original research paper¹. However, many have been generalised because they are common across complex capital projects irrespective of sector or geography.

In addition to the above a recognition that certain client driven sectors such as offshore wind, defence or healthcare will focus more on the political or regulatory influences. I was intrigued by a quote from the literature that stated simply;

“We propose that many supply networks emerge rather than result from purposeful design by a singular entity. Imposing too much control detracts from innovation and flexibility; conversely, allowing too much emergence can undermine managerial predictability and work routines. Therefore, when managing supply networks, managers must appropriately balance how much to control and how much to let emerge”.

Again, another dynamic aspect to consider when determining a strategy.

The original research ¹ is drawn from observations and case studies in the offshore wind power sector and therefore recognises that additional complexity of an industry/sector that has not fully matured. Further, in its conclusion it calls out the fact that different project phases and individual projects are challenged by the aspiration of modularity from sectors such as automotive manufacturing under different contexts, albeit an aspiration will need further research to fully understand the advantages and limitations of such an aspiration. Finally, the research singles out the additional consideration of complexity that is introduced by political objectives and goals over operational and/or investor objectives and goals. Perhaps politicians and industry leaders ought to reflect on the true impacts of their interventions, recognizing what is good and what is bad supply network complexities?

David L. Loseby MCIQB (Chartered CM), FAPM, FCMI, FCIPS Chartered, FRSA

¹ Johnsen, T. E., Mikkelsen, O. M., Wong, C. Y., Strategies for complex supply networks: findings from the offshore wind power industry. Supply Chain Management: An international journal, 25TH June 2019. Emerald Publishing Limited (ISSN 1359-85460)