

## **High Dimensional Network Analysis**

Jeff Reminga and Kathleen M. Carley

Increasingly social phenomena needs to be studied from a high dimensional network perspective. Indeed, most social media requires this. High dimensional means that there are multiple types of nodes and multiple types of links. Most network analysis uses a single type of nodes - e.g. people. In some cases, there are multiple types of links between these nodes. When there are two types of nodes, such as people and their ideas, a typical approach is to "fold" the network and convert it to a single type of node where the link represents sharing e.g. how many ideas do the two people share. For social media, and make other types of media, simultaneously analyzing multiple dimensions at once can provide greater insights and can increase predictive power. This session introduces the nature of high dimensional network analytics. Then available techniques in the ORA-PRO tool are shown. Data examples are drawn from COVID-19 and Trident Juncture 18.