Group 12- Virtual Sept 6, 2024
Information Treasure Hunt

After thorough research looking into the effects of information overload on decision-making, an article written by Harriette Bettis-Outland stood out amongst the rest. In this article, *Decision-making's impact on organizational learning and information overload*, Harriette discusses the effects information overload has on decision-making as well as how decision-making approaches impact organization learning.

Information overload cannot simply be described in one term, instead it consists of three components. Harriette describes these components as the following: Equivocality, referring to the existence of multiple valid interpretations of information. Quantity which measures the volume and availability of information, and variety, which measures the different sources of information (Bettis-Outland, 2012). With these components of information overload in mind, it is believed that during the start of an information overload episode, the recipient of information will experience a decline in their ability to decipher the information being delivered to them. They will end up becoming confused by the newly obtained information or just ignore it all together.

Harriette's research shows that there are ways to avoid information overload in decision-making. She suggests that using *incremental* decision-making can help place limitations on the number of possible decisions new information may bring. By using incremental decision making, one can break down their decisions into smaller steps, taking one step at a time. This will allow recipients of information to analyze fewer amounts of information as well, breaking down the information they receive into smaller segments that are easier to review.

According to Sbaffi, there is no consensus on the definition of Information Overload but, there is an agreement on the cause. Information Overload occurs when "information received becomes a burden rather than a help for users. In the workplace this condition can lead to poor decision making, lack of engagement and loss of productivity.

Information formation overload is not a new concept, mentions of it can be found in books as old as the bible. However, it has heightened in potency in our hyper-history world. Current technology makes it very tempting to keep as much information as you can readily accessible, and in some jobs, it is becoming mandatory.

The main impact discussed in Sbaffi's article is the extra time it takes to sift through endless libraries of information. Multiple of the people surveyed said that forgetting information and subsequently not being able to find that information contributed to them letting their colleagues down and missing important deadlines. The same issue could easily be noted in multiple other disciplines that have expansive documentation and recurring updates to processes.

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Numerous studies have shown that information overload negatively impacts the decision-making process, resulting in a decrease in decision quality. The study, Information overload for (bounded) rational agents by Emmanuel M. Pothos et al., shines light on the underlying mechanisms that drive this effect.

The authors examine how bounded agents that attempt to apply rational Bayesian methods of reasoning behave under information overload. In theory, Bayesian inference should lead to rational and consistent conclusions by updating beliefs based on evidence. If two well-meaning individuals perform full Bayesian inference and are willing to share information, they must eventually converge, according to classical convergence theorems.

However, in practice, the sheer volume of information that modern individuals are exposed to creates cognitive challenges. For simpler problems, it would be easier to create a Boolean algebra of all questions that surround them. However, when there are hundreds of questions relevant to resolving the problem, often across several categories, individuals do not have the time or resources, mental or otherwise, to create a full Boolean algebra for all the questions.

This forces individuals to simplify their reasoning by using strategies like Bayesian networks or dividing their knowledge into partitions, which helps manage complexity but also leads to dysfunctional disagreement—situations where two well-meaning individuals, despite their rationality, cannot converge on a conclusion. Individuals trying to use Bayesian networks as a simplifying tactic are unlikely to develop similar causal structures for their representations, as these would depend on their experience, education, background, etc., which means that the classical convergence theorems no longer hold, and they could now find themselves in dysfunctional disagreement. Individuals trying to divide their knowledge into partitions may try to be rational in specific partitions but have no time or resources to do so in others, which will also lead to broken Boolean algebra on the problem, also making it possible for dysfunctional disagreement.

Moreover, the above discussion also implies that more information or nuanced perspectives may surprisingly exacerbate disagreement by further encouraging truncated probability distributions of incompatible representations as simplifying tactics. As it becomes harder to ensure information diversity, the decision-making effectiveness is also hindered.

References:

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