

ENTROPY AND PROJECT MANAGEMENT

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Project management is a well-architected, deliberate approach with well-defined moves and routines to accomplish the set objectives (at least, that is the predominant view of how project management is conceptualized). The idea is to simplify things, make work visible to people assigned to the project, and provide a sense of direction to get the job done efficiently. In hindsight, as such, project management is expected to promote order and certainty (as much as is practically feasible).

This could mean that the basic role of project management is to reduce disorder or uncertainty within the system, in this case, a project organization. Or, in other words, reducing entropy within the project organization. From a socioeconomic systems perspective, entropy is defined as the degree of disorder or chaotic state of a system (Markyna & Dyachkov, 2014).

Given the above, we can redefine project management as a soft skills-based approach that aims to reduce uncertainties and maintain order with an expectation to help reduce the entropy of the system (in this case, a project organization) and keep the free energy or exergy of the system available as much as possible. The availability of free energy is critical for the performance of useful work in a project-based or non-project-based context. Reducing uncertainties and disorder (as much as possible) is important for enhancing work efficiency, as it will help people use free energy to perform work rather than deal with the disorder.

In a similar vein, we can define the entropy of a project system as the degree of uncertainty or disorder present within the project organization that has the potential to impair the project organization's efficiency and output.

The above discussion points to the value that project management knowledge is expected to bring to a project when it is used for the management of projects. However, the good news seems to just end there.

It is no secret that projects fail (often miserably) and face all sorts of problems. This is despite the fact that extensive guidelines and knowledge about how to manage projects efficiently and successfully are available. Even if we don't look at the plethora of statistics available on project failure rates on the internet, we can find many real-life examples all around us that illustrate the failures and problems that projects face.

The situation raises many questions. Do the projects fail or face problems because people don't have the right skills, knowledge and capabilities? Do the projects fail because the environment in which they are being executed is not conducive to a successful outcome? Do the projects fail because guidelines and standards are not compatible with the way projects are executed across different environments and cultural variations? But the most important of all: do the projects fail because project management as a holistic approach is unable to reduce or control the entropy of the system?

While it is safe to say that multiple factors and actors play a role in the success or failure of a project, it is worth examining project management as a domain (taking a holistic view) to see how much it has been able to reduce the entropy of a project system. Or, conversely, what is causing it to not be able to lessen or eliminate the potential entropy of the system? In hindsight, such an introspection is vital for the evolution of project management as a discipline and building knowledge in a way that potentially enhances project success rates.

In relation to the questions listed above, finding answers requires significant effort, and this article does not aim to achieve that. However, the goal here is to highlight the importance of investigating the utility and role of project management in reducing entropy, as well as to highlight some of the areas that aid in achieving such goals. So, what could be some of the areas that could help reduce entropy through the use of project management? While there is no fixed answer, paying attention to the following areas could help.

- **People**

One way to help reduce entropy is to provide people with skills and training. If people are well versed in the work that they need to perform and have the right capabilities, it is likely that they will be able to carry out that work efficiently both in certain and uncertain times. It will help reduce disorder caused by people themselves and hence reduce the potential for entropy within the project system.

- **Time management**

While a lot of planning is done to accomplish project work, it is often the case that projects face time delays and schedule overrun issues. The occurrence of such issues often results in disorder within the system and entropy sets in. Therefore, planning time management and carefully following through are critical to reducing entropy.

Project management provides a number of tools and processes to manage time. They can be used to manage time more effectively. However, either people don't follow the plans, or they lack skills in time management, which

then results in project delays. Therefore, an introspection on the cause could help in finding the source of the problem, which could help in reducing potential entropy.

- **Process management**

Process management is another area that could help reduce entropy. Processes that are too strict or too lax may be counterproductive. People may find it difficult to follow too stringent processes and may become disoriented if they follow too loose processes. Either of the two could result in uncertainty and disorder. Therefore, to help reduce entropy, project organizations need to take a balanced approach to process governance so that they help maintain order rather than generating disorder within the project system.

Conclusion

Given the structured nature of project-based work, it is expected that the use of project management will help maintain order within the system. However, the alarming rate at which projects fail and face all sorts of problems raises the question of whether project management is able to build order within the project system.

Answering the question requires a thorough investigation. But, in hindsight, it seems that a lot more needs to be done to help project management build order. In this regard, we have looked at three potential areas of attention with the expectation that focusing on these areas will help maintain order and reduce entropy within the project system. Needless to mention, the discussion in this article on the role of project management in entropy is of a preliminary nature and is only meant to spur some thought.

I wish you all a very happy Christmas and a fabulous 2023.

References

Markyna, I., & Dyachkov, D. (2014). Entropy model management of the organization. *World Applied Sciences Journal*, 30(30), 159-164.

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