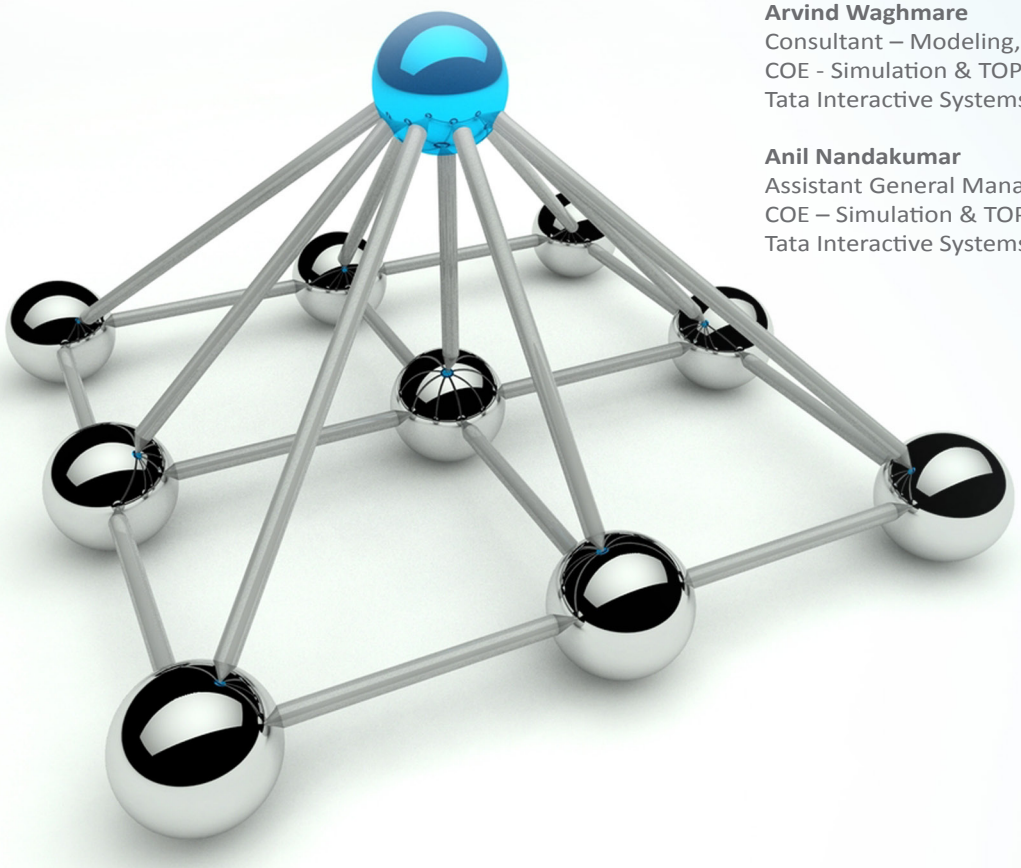
Unlocking key aspects in managing a Simulation Development Project



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Simulations are defined as a replica of a real-world system or event that stays true to its essential precepts. Just like assembling a puzzle whose pieces come in different shapes and sizes, developing simulations involves co-ordinating a variety of activities between various resources that are inherently programmed to think differently. So, what links different activities and resources together towards a common goal? Enter project management and a project manager! In this article, we will articulate key issues in managing a simulation development project from a project management perspective.

First Things First: Subject Matter Experts

Any replica of a real-world system requires intimate knowledge of the system. For example, a simulation focused on conversation on handling objections in selling a product would require know-how about the objections and their resolution. Similarly, decisions involved in managing a loan portfolio would require know-how about the mathematics involved.

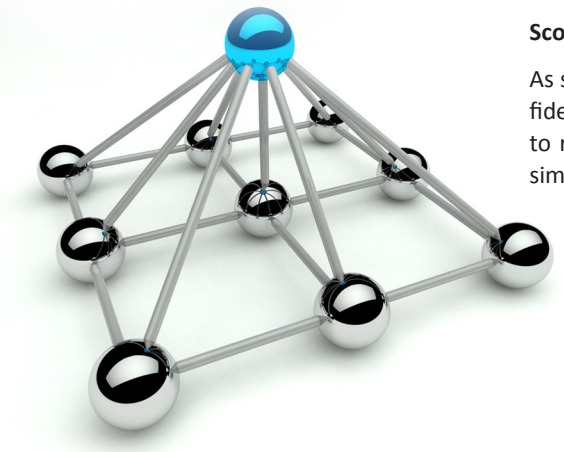
This know-how is available with a Subject Matter Expert (SME). These SME's, being experts, have great demands placed on their time and their availability is constrained. Therefore, a key task of managing a simulation development project requires managing necessary but sufficient SME interactions.

Scheduling meetings with SME's and knowing their availability in advance helps reduce uncertainty. In cases where complex simulations are being developed, organizing pre-work sessions over conference calls that are spread over a few weeks allows SME's the required breathing space to formulate a simulation's structure.

Cross-functional Collaboration

The details required for a simulation are generally gathered from the SMEs by instructional designers, modellers, communication designers, and/or programmers. These resources think very differently towards the same goal and serve a unique purpose in the project. Instructional designer works on understanding, structuring, and presenting the subject matter, modeller works on the computational aspects, communication designers are concerned about visualization and representation of information, and programmers are required to bring it all together. Different perspectives brought together by each of these functions are to be tied together. To do so, a project manager must play an active role in resolving conflicting requirements and constraints posed.

An important task to ensure great cross-functional collaboration is to guarantee team synergies by selecting the resources appropriately, allowing open debates, focusing on resolving problems, and keeping the team together under demanding circumstances.



Scope Management

As simulations replicate a real-life system or event, they are required to have reasonable fidelity to the replicated system. However, considering that a simulation may not be able to replicate every single characteristic, how can we go forward? By approximating the simulation characteristics to the system's visible behaviour!

The trick lies in abstracting essential characteristics of a system by making certain assumptions while retaining a reasonable level of fidelity to define the scope.

A key element involved in managing the scope for a simulation is to define its boundaries. For example, in a complex simulation, a project manager may define the level of depth required by classifying the simulation as requiring operational or strategic orientation. Such classification may help in determining the level of details that are needed and the details that can be assumed.

Documentation

While all the information required for a simulation is being gathered, discussions about simulation's design and its details can flow in several directions. It's like looking at an object from different views: top, bottom, left, and right. Each view presents a different perspective that forms a part of the whole. It is pertinent that everyone involved in the process, mainly the client, is aware of all the evolving perspective.

The only way to do this is by being disciplined about ongoing documentation that culminates in a functional and design specification document, which provides an integrated picture. Even after creating a design document, it may be imperative to document all discussions because the iterative nature of developing certain type of simulations can lead to a refined perspective at later stages of the project.

Process and Risks

If simulation development could be neatly classified in the above mentioned components, a simulation could be easily developed. However, that is rarely the case. Time-crunched experts, cross-functional necessities, and the complexity involved raise an important question: how do we knit it together? The answer lies in a process that allows for inherent ambiguity while being unambiguous itself, both during systems study and production.

During system study, the approximations involved in simulation require ongoing clarity. This is possible only when the process allows for iteration with an aim to clarify the characteristic under study. By iteratively clarifying the suggested approximations, a reasonable structure and context can be derived.

During production, the end product must map to the goals defined during the system study from a cross-functional perspective. Setting up reviews with representatives from all functions during design, prototype, alpha, and beta stages ensure iteration, integrated perspective, and highlights issues both at micro and macro levels.

Iteration, therefore, must be built at every step in the process. Besides aiding the development process, it also helps contain and mitigate risks that may arise.

In summary, managing simulation development is about managing collaboration between people —including the experts and project resources—who think differently, defining boundaries, documenting the evolving perspective while aiming for a final goal, and doing all this iteratively to avoid and mitigate risks.