



## Realizing the Value of the Digital Twin—Fact versus Fiction

The concept of developing a “Digital Twin” for any organization brings great promise in terms of customer experience, product development, and operational and service efficiency. However, in reality what is actually feasible in today’s environment? We will look at this from the lens of: “What is needed to be able to take the “Digital Twin” concept from paper to reality? What concepts and capabilities are needed to get from Concept” to “Reality? How difficult and/or feasible are they to achieve?

So, what is a “Digital Twin” anyways? A way to visualize this is to imagine a replica of your organization in a digital format. One that mimics the processes and operations that your company partakes in every day. Include in this the interactions and relationships you have with suppliers and how you interact with your customers. This if done correctly can create an environment that allows you to experiment on how things could be and then refine and test the concepts prior to actually putting them into practice. It provides great promise, however an immense amount of work to achieve. IS your organization ready to take the next step: yes or no?

Let’s break the concept of the Digital Twin down into four (4) main areas;

**Product Development**—From Innovation through Product Validation into Production

**Operational Transactions**— From Internal Processes and Interactions with Suppliers

**Manufacturing and Operations**—From Production Capabilities to Extended Supply Chain

**Customer Experience**—From Sale to Delivery to Service

**Product Development** is an area that has gone through a great transformation in the context of a Digital Twin. The product concept is typically shared through digital definition and content. Companies utilize both 2-dimensional (Drawings) and 3-Dimensional (Models) to describe and define the product. The 3D Models can be used to digitally validate the product through static and dynamic simulation, as well as, being used in conjunction with rapid prototyping technology to create physical artifacts. The capabilities of Augmented and Virtual Reality are used to create a design environment that enables people to live the product experience before the product is actually ever created. These 3D assets can be used to create marketing and sales material and experiences. This area of the Digital Twin is quite real and in full motion. Keep in mind, some companies utilize partnerships that have limited 3D capability and thus the rule of “lowest common denominator” rings true and limits the benefits.

**Operational transactions** in terms of day-to-day activities such as —forecasting, ordering, receiving, financials, etc. have been performed digitally in most companies for quite a long time. The challenge that still exists in this area of the Digital Twin is the ability to limit the use of either “Copy and Email” or “Copy Data and store a local copy” which makes the realization of the Digital Twin difficult. Too often we see good practices and technology and their potential benefits minimized due to this. This area of the Digital Twin is what I reference as “It Depends” when it comes to Fact or Fiction. If companies utilize the digital assets internally and extend this practice to their suppliers then the answer is Fact. If they allow the practices mentioned above then the capability of the Digital Twin is minimized to Fiction at best.

**Manufacturing and Operations** is one of great promises for most companies. The digital capability to understand, refine and test before actually putting manufacturing, distribution and extending this into your supply chain in practice is the area of greatest return. The concept of minimizing manufacturing footprint and times, shortening distribution networks and improving shipping efficiencies are the areas of greatest cost in most companies. However, the challenge to get all the needed assets digitally in this area is the most costly, difficult, time consuming. You will need to have plant, processes and resources (Robots and people) digitally defined before creating the needed digital environment. This area of the Digital Twin is one of great focus for most organizations and the need to go from Fiction to Fact is probably the greatest potential return. Activity in these have started but a lot of internal knowledge and digital development definition is needed for this to become a reality.

**Customer Experience** in terms of sales development, delivery and service are the areas in which the Digital Twin and the digital experience utilize commodity technology the most. The use of smart phones, tablets and apps, is common ground to engage today’s customers. The concept of selling digitally on the web and using common customer technology devices to interact makes it one of the most viable areas to achieve. These customer experiences all utilize the digital assets of the product and service that is created upstream to provide context and experience to the customer. This area of the Digital Twin is one that is very real and one of the most viable—thus Fact.

The concept of Digital Twins and their use have come a long way from Fiction and are now being realized more as Fact within business. The journey can be difficult and is one that needs to be personalized for each organization. The benefits are worth the journey! Give us a call and we can help you get there!

**Next Month: a roadmap for Putting Connected Operations in Motion**