**WEEK-1**

**EXPRIMENT-1**

**1.digital transformation through convergence of IT & OT.**

**What is digital transformation?**

Digital transformation is the integration of digital technology into all areas of a business, fundamentally changing how you operate and deliver value to customers. It's also a cultural change that requires organizations to continually challenge the status quo, experiment, and get comfortable with failure.

**What is digital technology?**

The definition of digital technology refers to digital devices, systems, and resources that help create, store, and manage data. An important aspect of digital technology is information technology (IT) which refers to the use of computers to process data and information. Most businesses use digital technology nowadays to manage operations and processes and to enhance the customer journey.

**What is information technology(IT)?**

Information technology (IT) is the use of any computers, storage, networking and other physical devices, infrastructure and processes to create, process, store, secure and exchange all forms of electronic data. Typically, IT is used in the context of business operations, as opposed to technology used for personal or entertainment purposes. The commercial use of IT encompasses both computer technology and telecommunications.

**What is Operational Technology (OT)?**

Operational technology (OT) is hardware and software that detects or causes a change, through the direct monitoring and/or control of industrial equipment, assets, processes and events.

**What is IT/OT convergence?**

IT/OT (information technology/operational technology) convergence is the integration of data from systems that handle information about manufacturing (such as production plans and raw material shipments) with data from systems that directly monitor and control manufacturing (such as records of oil refinery temperatures and pressure).

**2. Digital transformation success story?**

**1. IKEA**

Let’s start with a big hitter. The famous Swedish home and furniture giant showed that transformation isn’t limited to the financial sector and the automotive industry. When one thinks of digital initiatives, furniture isn’t necessarily the first thing that comes to mind.

First, IKEA purchased the online service TaskRabbit to help customers who don’t like assembling their own furniture — a foray into software. Next, they dipped into the smart home sector by developing its own products, and changing their payment processing. By June 2021, it was reported that they had seen a 300% increase in ecommerce sales as a direct result of their transformation efforts.

**2. Budweiser**

The King of Beers became the Kings of Digital Transformation when they decided to implement AI to revolutionise their processes. A BinBev, the owner of Budweiser, Stella Artois, and Corona, established the ‘Beer Garage’ — a Silicon Valley-based innovation centre, where it researches, develops, and tests technology-driven solutions.

They use it to dive deep into the brewing process to predict end-product outcomes. As of now, machines can’t taste test — so humans still have a role to play in Budwesiser’s R&D.

**3. San Francisco 49ers**

Digital transformation success stories don’t immediately make you think of sports. But digital has changed the game, literally. In European football, they say that attackers win you games but defenders win you championships. Perhaps in American sport they’ve added data and digital initiatives to that recipe.

They’ve leveraged the power of analytics with a venue management platform to help them deliver customer experience that goes above and beyond.

**4. Coca-Cola**

Arguably the most iconic brand in the world, the drinks giant implemented a transformation strategy that aimed to address the numerous changes in shopper behavior as the world has gone digital. Their goal was to update the Coke brand “for a generation that doesn’t see a line between the online world and the offline, reality and augmented reality.”

Their roadmap covered experiential, operational, cultural, and business. As a result they have been able to speed time to market for new products from three months to two or less. This results in an improved customer experience and increased sales.

**5. Under Armor**

Their high-profile commercial relationship with English football giants Liverpool FC and other sports teams globally means Under Armor have high brand visibility worldwide. This informed their decision to attempt to become more than a sports clothing company when they introduced ‘connected fitness’ — a platform to track, analyse, and share personal health data to their customers’ phones.

Providing data to Under Armor, it enables them to immediately identify fitness and health trends. For example they were able to recognise a walking trend that started in Australia, and the app facilitated the deployment of localised marketing communications way before their competitors knew what was happening.

As with all transformations, Under Armor’s was made possible by a change in thought towards a software-driven mindset. They recognised the power of digital innovation and ensured they had the tech talent to drive it through.

**3.How technology has infect to digital transformation**

Digital transformation refers to integrating digital technology into all facets of a business, which profoundly impacts how those firms function and provide value to their clients. It involves employing digital technologies to significantly alter how a company functions and provides value to its consumers. It is a journey that requires a change in organizational culture, business models, and processes.

**4. case study digital transformation through it/ot convergence.**

IT/OT convergence challenges

Generally speaking, IT teams tend to solve problems with enterprise-wide approaches. They gravitate to one-size-fits-most solutions because the size of the systems they manage are usually on a large (if not global) scale. As a result, many IT teams leverage broad implementation strategies designed to work for the majority—sometimes all—users at an organization.

For example, Microsoft Office 365 licenses are often purchased en masse to give all users access to the same tools. Even though different employees may use different programs within the Office suite (e.g. data scientists use Excel but managers use PowerPoint more), purchasing the entire suite for every employee is easier to manage from an IT perspective.

At the same time, though, IT teams take on in-house custom projects to meet hyper-specific needs where there often isn’t an enterprise fit. For example, they run reports from different systems, develop custom apps, or build other tools like connectors and custom integrations. They are tasked with balancing the best enterprise solutions with the expectation of custom creation on-demand. They face many competing priorities, oftentimes making it difficult to dedicate time to hyper-personalization.

While IT teams tend to solve problems from a global approach, OT teams are more focused on a localized problem-solving approach. Sitting on the operations team, they have an ear to ground on what the shop floor needs to operate at optimal efficiency. And, given that every plant operates just a little bit differently, OT tends to handle problems with more regionalized, problem-solving approaches.

OT teams are more likely to select solutions that best fit the needs of specific sites. These solutions can range from specialized equipment for different facilities or unique programs/tools for specific job roles. It’s looking at areas where technology can augment the shop floor, whether that includes sensors for digitizing records or automating manual tasks (e.g. logging events in a digital form instead of on paper). Since OT teams and facilities are often highly specialized in operations, they are accustomed to solving problems in ways that best meet their given set of challenges.

This can lead to frustration for IT teams trying to globalize systems and processes. To over-generalize, IT teams are looking for long-term data and infrastructure choices that are sustainable across multi-site manufacturers to ensure safety, compliance, and service at scale.

OT, on the other hand, is close to the shop floor and understands how a new tool or piece of equipment can make its employees and processes more efficient. They may not want to learn a new corporate IT tool or wait for their equipment to be ruled as a company-wide choice. These two viewpoints can lead to frustration from each party.

How to facilitate IT/OT convergence

Despite the fact that IT and OT teams inherently work in very different ways, they do have common ground. Digital transformation leaders need to find—and encourage—common goals in order to form a cohesive front for Industry 4.0 initiatives.

* **How OT teams can advance digital transformation**
* As any operations team member will tell you, every day can feel like a series of small fires. It can be difficult to work towards big-picture goals when each day brings new and unexpected challenges.
* Do your best to focus on one thing to improve. Yes, there are a lot of fires, but you can’t put them all out at once. Instead, rally your efforts around a singular objective and work to move that needle.
* Value creation will drive your OT transformation strategy. It just takes one small win to encourage your team, get additional support from management, and continue moving forward with other transformation efforts. With the right initial project—and the right team working on the challenge—you can start building momentum and gain buy-in from other employees.
* Additionally, OT teams sometimes show resistance when working with IT teams. OT often feels that IT is just trying to bring them “one more thing” and finance new tech tools. The constant rotation of new technologies, new procedures, and changing protocols can leave many OT teams feeling jaded toward IT efforts.
* It’s important that OT teams are able to participate in key decisions and feedback loops to IT. IT teams can be the missing link that helps OT obtain the resources, technologies, and tools that OT teams need to get where they need to be. Still, it’s important that OT teams feel like their needs are being addressed to help build trust between the two teams.
* Lastly, remember that very few other departments fully understand the behemoth that is operations. Other teams—including IT—aren’t going to be able to help if they don’t understand the complexity of production problems. For this reason, it’s the responsibility of OT leaders to start bringing valuable outside contributors, such as IT into the day-to-day operations world. Be open to sharing your challenges and be patient in helping others understand your world.
* **How IT teams can advance digital transformation**
* IT teams play a unique role in manufacturing. Even though they aren’t on the shop floor producing products, they need to understand how the entire business operates in order to do their jobs effectively.
* Unfortunately, the reality is that there is often a knowledge-sharing gap between IT and OT teams. Very few IT teams “speak” the language of operations teams, and OT teams don’t always have the time to sit down and explain how everything works. To be clear, it’s not anyone’s fault: everyone is busy and everyone has their own set of challenges. Learning the nuances of another team often isn’t a priority. Remember, IT has to align company-wide with different departments—marketing, HR, finance, and others—and each one has its own vocabulary and challenges.
* In addition to this knowledge-sharing gap, OT teams may imply that they can handle things themselves without IT. This cultural barrier can make it harder for IT to find an “in” with OT, further dampening progress toward Industry 4.0 efforts. Sometimes, the plant that is most willing to collaborate will get state-of-the-art equipment, run pilots, and be the guinea pig for new IT initiatives. IT teams know that they have the skill set to help OT make significant strides forward. Having a set of mutual respect can benefit each group.
* IT teams can take the lead in bridging this gap and should stay open-minded to OT suggestions. If possible, send your people to start working with Operations. Remember: you don’t need to be at the top of the management team in order to start making connections with people in OT. It takes people at all levels of the organization to make meaningful connections and change.
* Start by asking OT teams what skill sets or tools they need to make progress on their biggest challenge. If necessary, look to other internal teams to help you fill these skill gaps if you can’t address them yourself. Offering your knowledge and resources freely to OT can help earn their trust, enabling you to better understand and solve future problems in a collaborative way.