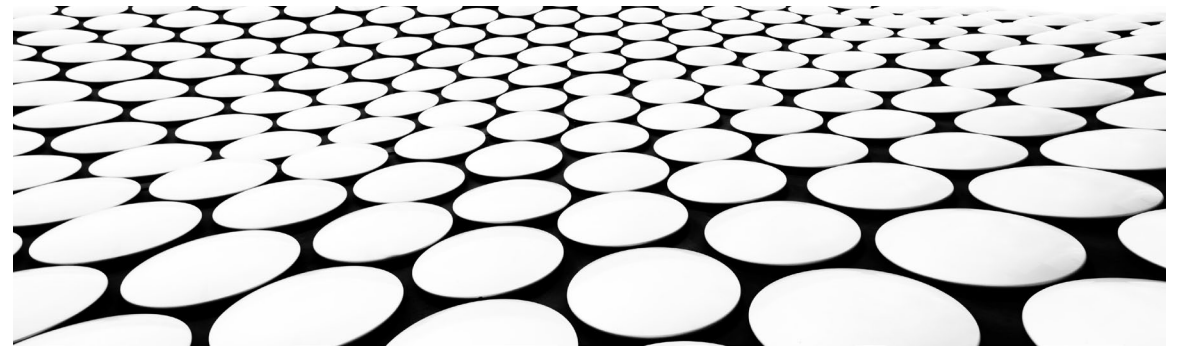


STANDARDS AND TECHNOLOGY – OFFSET SUPPLY CHAIN DISRUPTION

People and Standards



THE DRIVE FOR CONSISTENCY.....

The Food - Beverage and similar industries are facing headwinds requiring an accelerated shift in capital equipment execution.

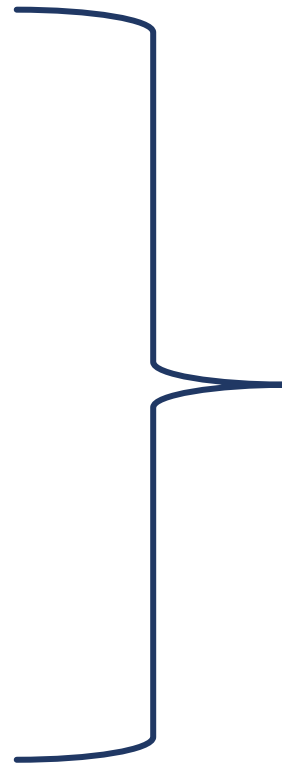
The Food and Beverage Industry entities are a mix of conservative companies (food manufacturers and equipment suppliers). Entering the market are progressive start-ups. The goal for all entities is profit through the sale of goods and services to consumers and customers.

The disruption impacting the Food ECO-System in 2020 forced all to re-evaluate methodologies and practices to adapt fast. The strong had the capacity to sustain, and marginal companies struggled to keep pace. Some OEMs are wondering how to transform and maintain profits.

WHEN MARKET PRESSURE AND DISRUPTION HAPPENS.....

Traditional Model of Capital Equipment Investment Project Execution

- Market Needs (short term), long term?
- Host Food Manufactures – CPG, Co-Manufactures
- Strategy and Business Planning
- Feasibility – Prior to Execution
- Internal Vetting and Alignment
- Soliciting Partners – OEM's
- Feasibility
- Vetting
- Agreement of OEM's - Procurement
- Project Planning and Execution
- Engineering and Design Reviews
- FAT
- SAT
- Commercial Launch - Operations



Activities Performed in Series and / or Parallel



THE NON DISRUPTIVE TRADITIONAL MODEL.....

This paper focuses on the Execution Phases

- Design Reviews
- FAT & SAT

The traditional model has the following inherent functions and attributes, some positive and negative. The brief purpose is to highlight areas for improvement, negating future disruptions.

- ❑ Design Reviews – remote (digital) and onsite (quality and depth)
- ❑ FAT (Factory Acceptance Test), SAT (Site Acceptance Test)
- ❑ (%) Percentage of industry failed FAT and SAT, average seen 40-50%
- ❑ Failed cost is exponential on the front end and into a startup (SAT)
- ❑ Failure includes 1st and 2nd attempts.....3rd+ at times
- ❑ Travel cost & time to the project - physically onsite at the supplier
- ❑ Preparedness and unpreparedness of the supplier and food manufacture
- ❑ Paper & electronic documentation used to measure and record events impacting success or failure (excel, word, access, and other tools)
- ❑ People training for the FAT (internal and external)

TRADITIONAL NON-DISRUPTIVE TIMELINES

The so called good old days.....

Project - Capital Equipment Results

The impact of Design Reviews, FAT / SAT - Likelihood of hitting targets

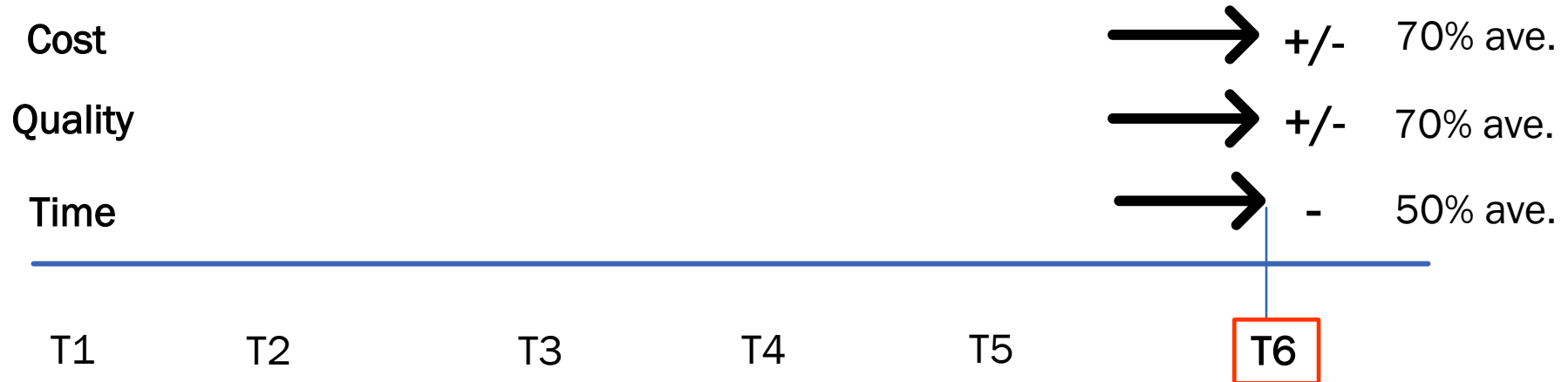


Illustration purposes only: T = 1 quarter
+/- Indicates target hit or missed
Ave = Industry estimate average

CONUNDRUM AND DEAL BREAKER – TRADITIONAL MODEL

Technology & Barriers to Entry

In the hunt being developed and implemented at a pace that the Food Industry absorb.

The use of AR – Augmented Reality tools

- Access to digital and production lines or the asset in question
- Company IT & firewall protocol policies (internal operations and manufacturing data protection)
- Limited access depending on the organization for firefighting, service support
- Believing it had to be done through physical presence (design reviews and FAT - SAT)

DISRUPTION ACCELERATES CHANGE – HYBRID OR NEW MODEL

The Impact of 2020 and the Industry Reply

Food manufactures were now seeking solutions, collaborating with OEM's and 3rd party providers. Hence, a pivot and mad rush to find solutions overcoming physical project execution barriers. This, while hoping to maintain capital asset delivery plans.

Additionally, hyper compression now drives reduced timelines: while keeping a competitive advantage. Also, faster revenue requirements and market share growth. Finally, an eye on operations that fuel internal innovation and renovation.

Enter the acceptance and use of AR – Augmented Reality tools and digital.

DISRUPTION ACCELERATES CHANGE – TRANSITION TO THE HYBRID OR NEW MODEL

Standards, People, & Technology

Standards and procedures are essential as front-end enablers. They drive the 'Traditional Model of Capital Investment' and the 'Hybrid New Model.' Additionally, people and technology play a significant role in the new normal post-2020.

How will this change with the headwinds mentioned above and the food manufacturers' desires impacting the OEM's and 3rd party suppliers?

An evaluation is required in 4 core areas:

STANDARDS, PEOPLE, & TECHNOLOGY – HYBRID MODEL

4 Core Areas Impacting – Design Reviews, FAT's / SAT's:

Standards - Routines - AR Tools and Digital		
Key Focus Areas	Internal	External
Assets – OEM's		X
People – Food Mfg.	X	X
Technology	X	X
3 rd Party Providers	X	X

STANDARDS, PEOPLE, & TECHNOLOGY – HYBRID MODEL

4 Core Areas Impacting – Design Reviews, FAT's /SAT's:

Technology

Technology is an enabler; the focus is AR (augmented reality tools), glasses, and imagery to place all parties in the same real-time space as being onsite. Digital is utilized as a validation tool when conducting the FAT / SAT.

- It should always be on your R&D radar
- Allows FAT / SAT to occur despite physical disruptions
- Implement as a supplement to traditional paper and electronic documentation systems when conducting a FAT / SAT

STANDARDS, PEOPLE, & TECHNOLOGY – HYBRID MODEL

AR & Digital Now, So What.....

Missing when implementing AR and Digital tools to supplement and lead Design Reviews, FAT's and SAT's are standards and routines that manage the variables across the following areas:

Documentation – Scope & Standards		
Key Focus Areas	Baseline	Variability from Mean
Product & Material	X	X
People	X	X
Equipment	X	X
Modes of Operation	X	X

Variability = Deviation from the baseline, control

STANDARDS, PEOPLE, & TECHNOLOGY – HYBRID MODEL

AR & Digital Quality.....

The adage applies here as in the Traditional Model of Capital Equipment Investment: garbage in garbage out. Even with real-time execution allowing design reviews, FAT & SAT, required is tribal knowledge, skills, and collaboration on the variables. Document the variables in the standards before conducting tests.

Documentation – Scope & Standards		
AR - Benefit	Digital Benefit – Realtime	Standards
Product & Material	Validates variability	Good standards & results
People	No bearing	Good standards & results
Equipment	Validates stoppages & devices	Good standards & results
Modes of Operation	Validate the modes	Sometime subjective

STANDARDS, PEOPLE, & TECHNOLOGY – HYBRID MODEL

Digital what should be tracked.....

Utilize the available outputs from power transmission devices, sensors, and other electro-mechanical devices. Digital will validate what the eyes see; the ears hear, removing human ambiguity.

Ask your supplier to enable the information out to the HMI or some surrogate device. Track the machine behavior during the FAT / SAT. Typical feedback as examples only:

- Speeds, Motors, Hertz, Amps, Spikes
- Temperatures
- Verification of the Modes of Operation
- Pressure
- Time
- Track and trend against the variables of the total system

HYBRID – NEW MODEL TIMELINES

The new normal, AR, Digital and Standards.....

People leading with full vetting of Standards and Procedures in the Design Reviews, FAT, and SAT documentation. Utilize AR tools to execute and Digital tools to validate Project Capital Equipment Results

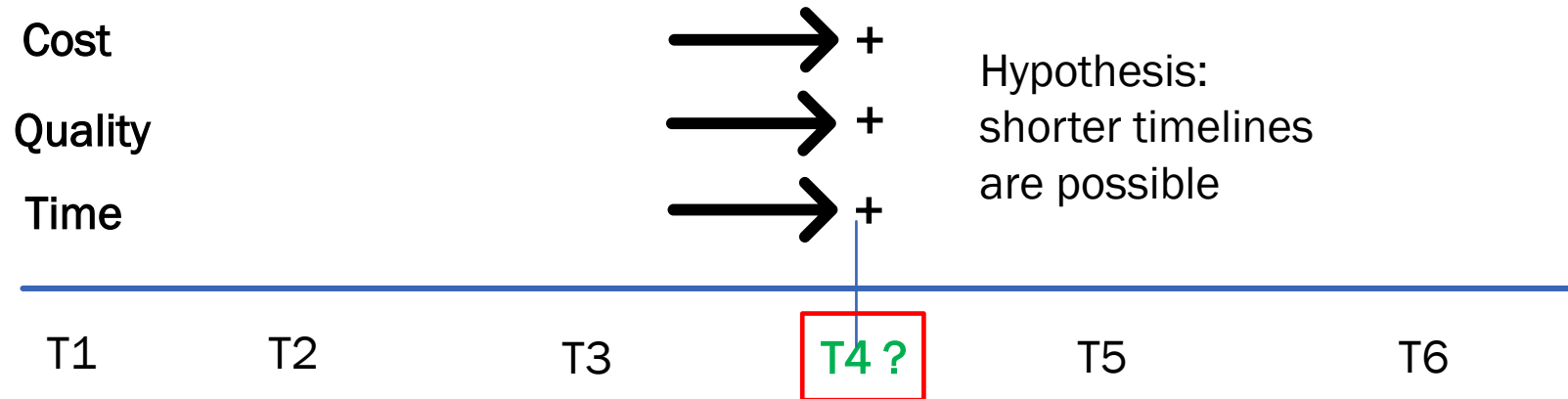


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SUMMARY POINTS

- ✓ The new normal, shorter timelines and space for innovation and renovation of brands have opened the door for technology to pull forward.
- ✓ Leverage technology with people and operations best practices to ensure sustained results leading to growth, revenue, and profit.

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