KYRON
INNOVATIVE TECHNOLOGIES
Built in Quality

Kyron Innovative Technologies

http://kyroninnovativetechnologies.com/

KYRON
INNOVATIVE TECHNOLOGIES
Built in Quality

Kyron Innovative Technologies

Introduction:

http://kyroninnovativetechnologies.com/

Who We are

Founded in **2010**

Construction Support Company specialising in Construction Quality and Commissioning services utilising a project pull methodology

Current workforce of **67** people

Serving Pharmaceutical, Semi Conductor and Mission Critical (Data Centre)

What We Offer

"It is no longer acceptable to think of quality as merely meeting the technical and performance specifications in the contract..... that will lead to mediocrity."

A Construction quality and commissioning program that is integrated into the project life cycle.

An Operational system that delivers cost effective project "pull" based on LEAN construction tools driven by System delivery Schedule that achieve Project Milestone delivery.

The provision of quality systems for the design / procurement / construction teams to produce the project roadmap, that will be used right up to client handover. [Early engagement]

A strategy that is looking to continually improve contractor performance and supplier compliance through, data analysis, ongoing training, auditing existing processes and root cause evaluation of quality trends.

The capability of bringing a project management and control software tools that enable Lean construction as well as fully traceable progress that delivers the URS requirements of the client at the time of Handover

Support and delivery of CMMS data

The Kyron Approach to Quality and Commissioning

Kyron innovates Quality & Commissioning Assurance to deliver *Built-In-Quality*, transforming the performance of major construction delivery programmes for mission-critical operations, deploying proven systems and processes for high tech electronics, data centers and life science industries.

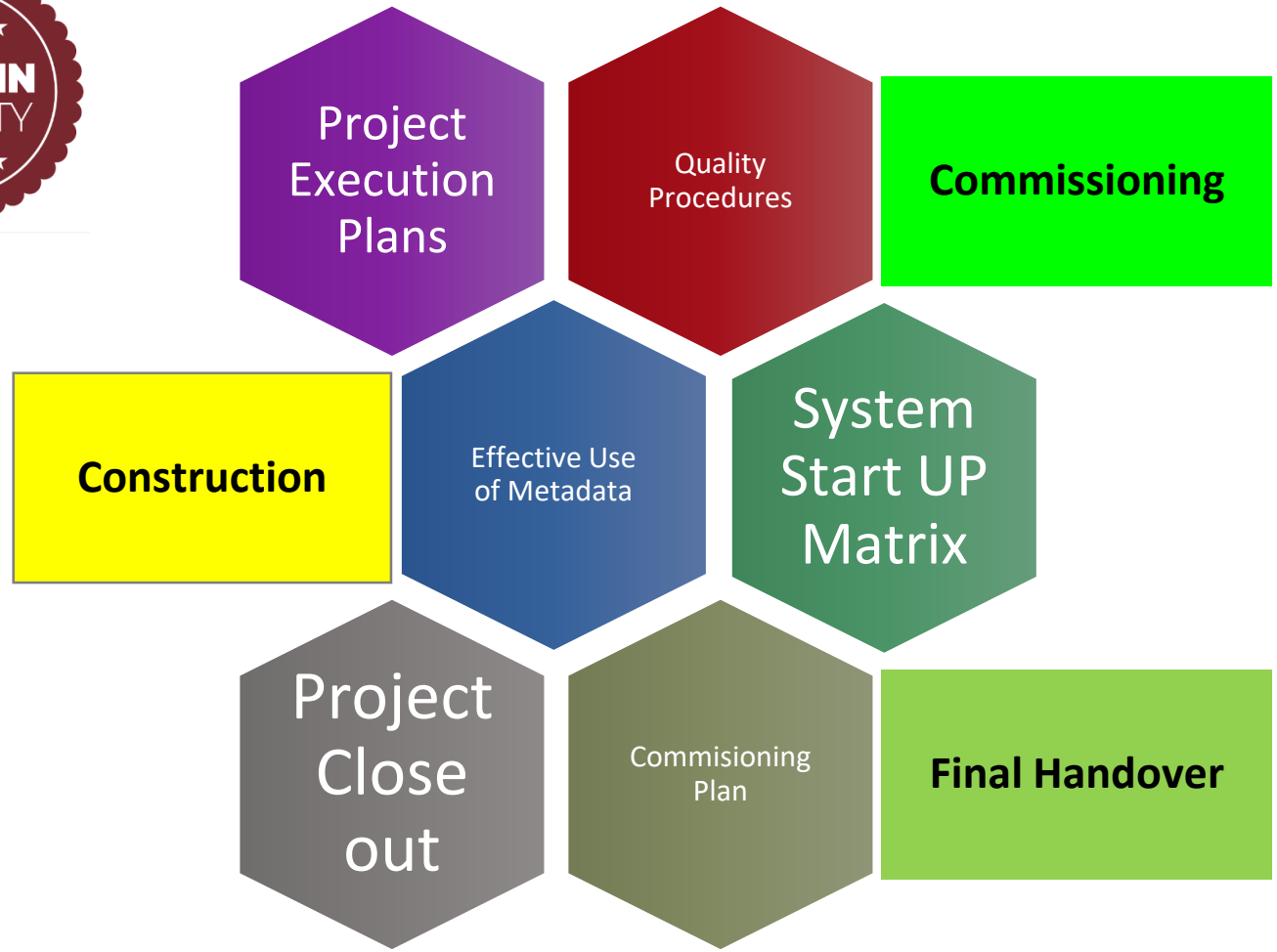
Our integrated project management approach manages risks more effectively to acheive *target zero defects* from IFC through to final handovers and operations ensuring defined quality standards are achieved and are sustainable within the agreed budget and schedule.

The processes we have developed are applied to all OSM and onsite activities. We concentrate on delivering effective leveraging and multi-use solutions.by creating a 'Digital Thread'.

Cost of Commissioning, New Construction	
Commissioning Scope of Services	Cost
Entire Building (HVAC, Controls, Electrical, Mechanical)	0.5%-1.5% of total building construction cost
HVAC and Automated Control System	1.5% (over 40,000 ft2) to 2.5% (20,000 ft2 - 40,000 ft2) of total mechanical systems cost
Electrical Systems	1.0%-1.5% of electrical system cost

KYRON INNOVATIVE TECHNOLOGIES Built in Quality

Quality and Commissioning: Not Stand Alone!



Estimates suggest that between 2%-5% of construction cost is spent on remedying defects and getting it right.
In an industry with wafer thin net profit margins of 1%-3%, improving quality and customer satisfaction should have high priority

Integrate – Quality – Turnover - Commissioning
The Digital Thread.

Develop project pull system based approach schedule .

Work with the design outputs in real time.

Work with Suppliers and Contractors on Early start on handover documentation by provision of training.

Utilise schedules and SOWs.

Get agreement on milestone content and deliverables including Milestones.

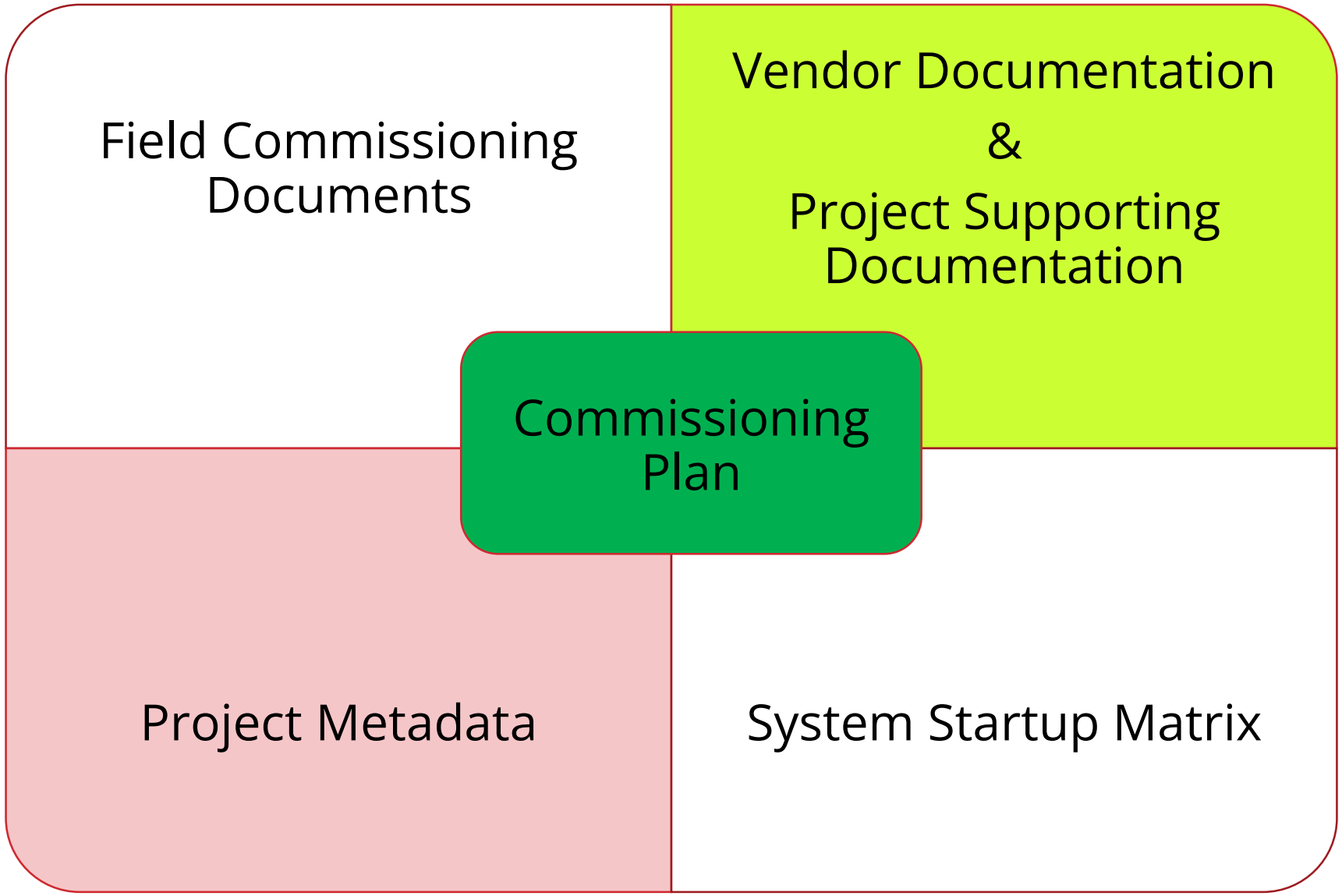
Develop required documentation suite and checklists remotely.

Remotely Assign “tags” and predecessors to all systems.

Punch lists / Right First Time / Target Zero Defects

Zero defects is a way of thinking and doing that reinforces the notion that defects are not acceptable, and that everyone should "do things right the first time." The idea here is that with a philosophy of zero defects, you can decrease commissioning times and reduce opportunities for failure.

The Key Elements to Successful Commissioning



KYRON INNOVATIVE TECHNOLOGIES Built in Quality

KYRON
INNOVATIVE TECHNOLOGIES
Built in Quality

Kyron Innovative Technologies

What are the Requirements

KYRON COMMISSIONING

Start Up Requirement	
Equipment List [MEL]	Vendor Submittals
System Information	Receipt Verification
Building / Area Information	FAT Management
Milestone Information	Red Line / As Builts
Drawings	Start up Documentation
RFIs	Project Change Control
Submittals	Punch List Procedure
Test Packs	Trade C to MC Procedure
Checklists	Handover Templates

Driving Milestone and System Approach

A milestone is a specific point within a project's life cycle used to measure the progress toward the ultimate goal.

The main stages of a project often focus on building or geographical areas. We carry out design and construction using a silo methodology. These are perfectly acceptable systems and procedures to use during these phases.

Where a project will fail, is when this broken up and unaligned approach is applied to commissioning.

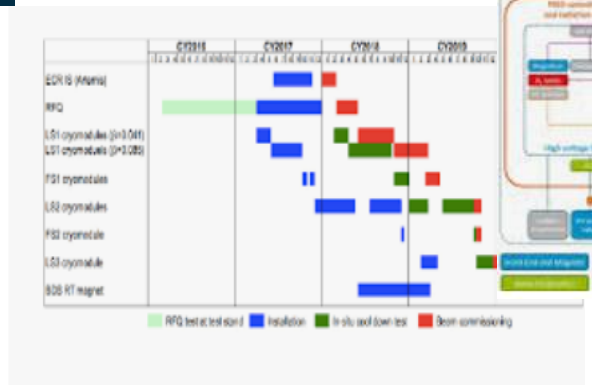
When we think about commissioning, we must work to delivery milestones. Each milestone should have a well set out definition. The content of the milestone should include for:

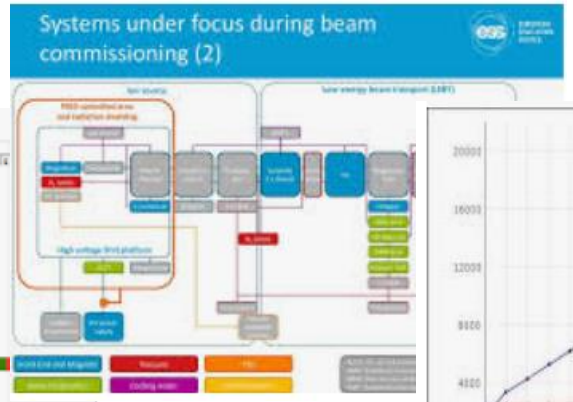
- Predecessors, systems and scope that need to completed prior to attempting to execute milestone.
- All systems that are be delivered for the milestone, clearly identifying the status that each element should be at for the milestone.
- Successors, the definition should include the systems the areas that will be enabled and benefited by delivering the milestone.

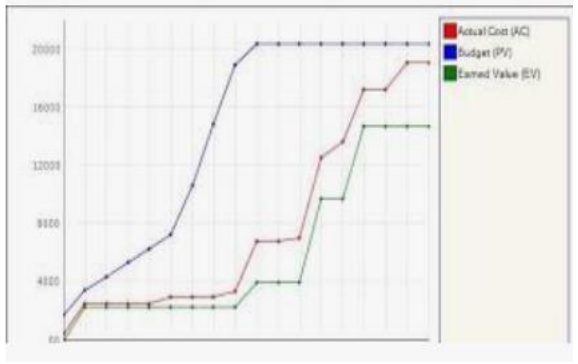
The Plan

A commissioning plan is a **document used to outline the scope and define the responsibilities of the commissioning process** as well as the activities, schedules and documentation required. It will also identify the commissioning team members during each stage of the commissioning process and define:

- Roles and Responsibilities
- Tasks and activities to be completed
- Evidentiary documentation to deliver
- Sequence of testing
- Schedule

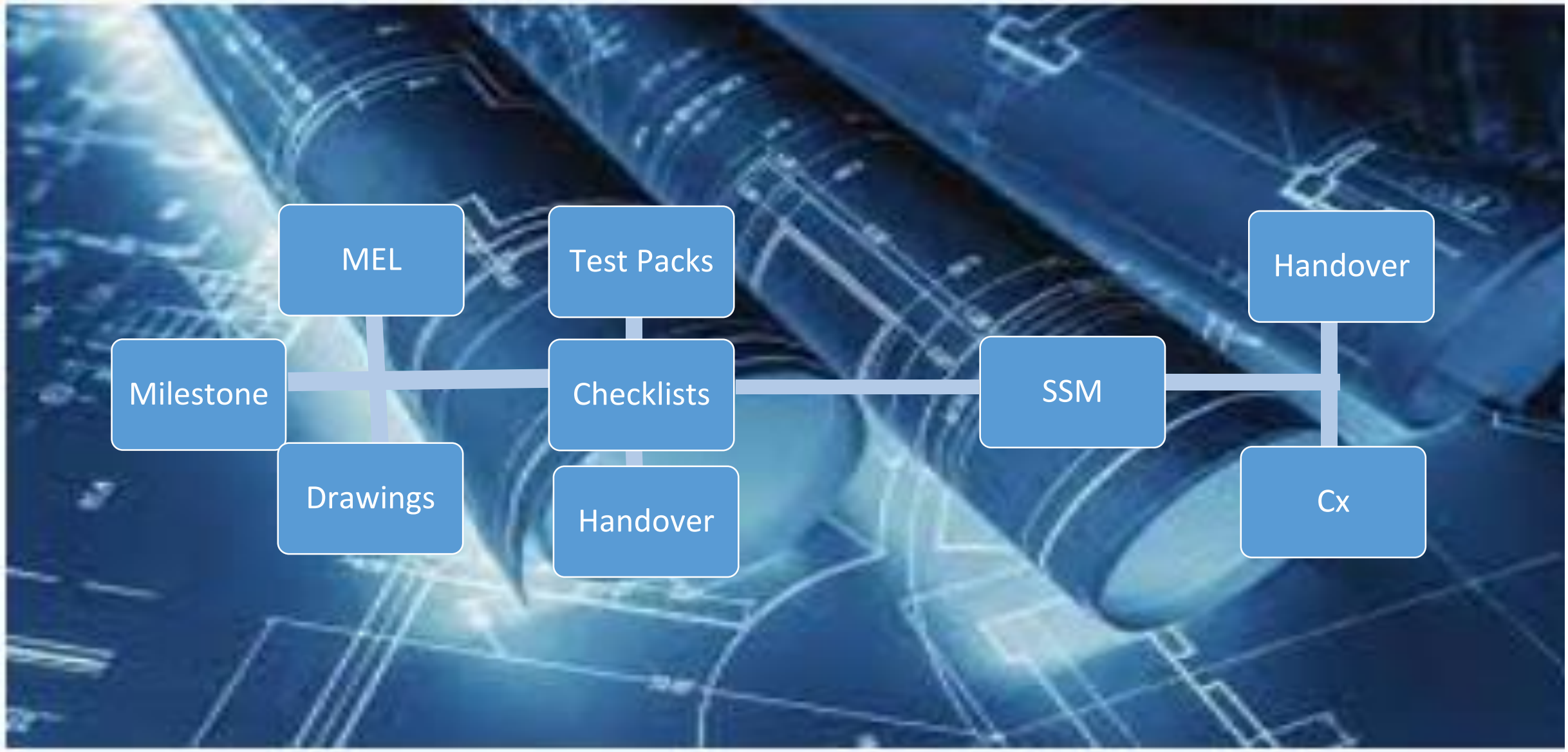






KYRON INNOVATIVE TECHNOLOGIES
Built in Quality

SIMPLIFIED SOFTWARE ROAD MAP

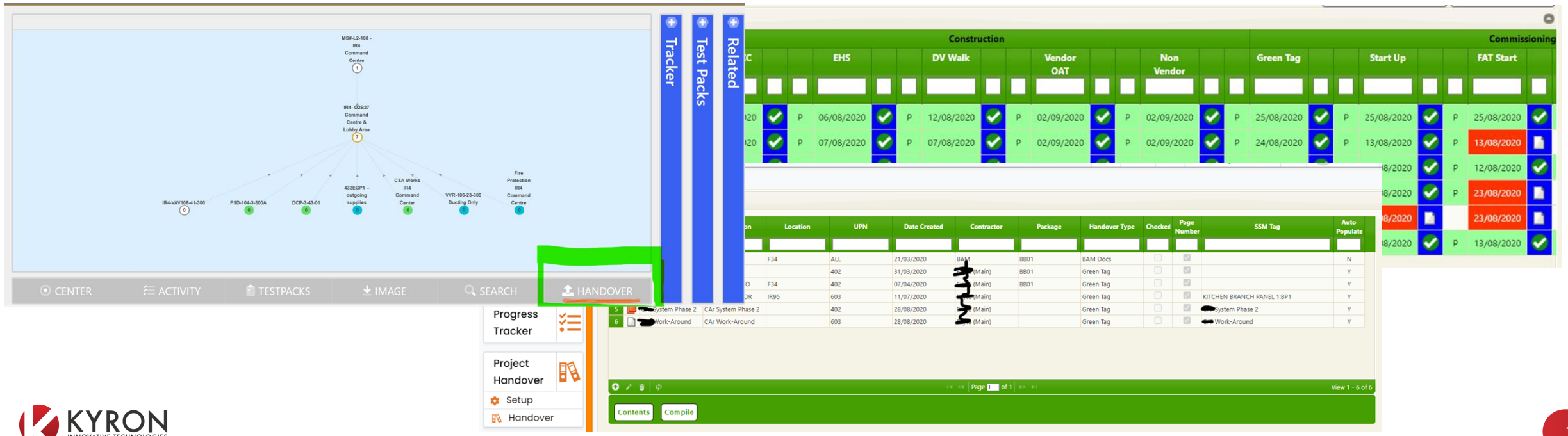


The Deliverables

Desired Deliverables	
Fully automated TTOP / CTOP / Handover	
Paperless Test Packs by System	
Weld logs [Digital– level of traceability]	
Marked Boundary drawings [Systems / Milestones]	
All checklists paperless [gates – Cx included]	
RFIs & Submittals linked to the handover	
Vendor Submittals [available as VTOPs]	
SSM – Commissioning Pull [Scheduling]	

Driving Automation of Project Documentation

- Automated features should be designed with phase gates that prevent the contractor from progressing if punches are open, RFIs or submittals are not closed, or if documentation is incomplete.
- These added features allow a large multidiscipline project to produce multiple handover documentation packs per day.
- By ensuring the handover set up is front loaded and using systems to standardize the progressive review of documentation, we can certify each step, in real time and remove lengthy costly review periods.



Design Inputs

When we think about design deliverables we often consider the **lists and diagrams that enable procurement and construction**.

A typical set of design deliverables would be:

- Process Flow Diagrams (PFD).
- Piping & Instrument Diagrams (P&ID).
- Line List.
- Equipment List.
- Process Design Calculations.
- Process & Operational Control Description.
- Process Data Sheets for Instrumentation.

As commissioning agents we have found that early engagement with design, where we have the ability influence all of the phases listed above has a positive impact on reducing RFIs, punches and delivering schedule certainty.

Vendor Inputs

A golden rule of dealing with vendors is "You get what you ask for, but this is not always what you paid for".

There should always be a number of steps to ensure Vendors understand how and when Information will be provided. A complete approach to commissioning should deal with the following:

•Clearly define what needs to be provided and how. **Include both in the Vendor contract!**

•Assign responsibility to ensure **how** data is provided when committed.

•Provide spreadsheets or forms in the contract and define **how the data is to be exchanged up front**.

•Describe how it will be exchanged. **The data must be importable** so that project systems, can easily manage the data as well as the associated documents or correspondence.

Field Documents

One of the most important outputs from developing a commissioning plan is a complete set of commissioning documents.
In practice, **the commissioning process is the integrated application of a set of procedures** to check, inspect and test every operational component of the project.

Commissioning activities are derived from all phases of the project from design, procurement, construction, and assembly until the turnover phase.

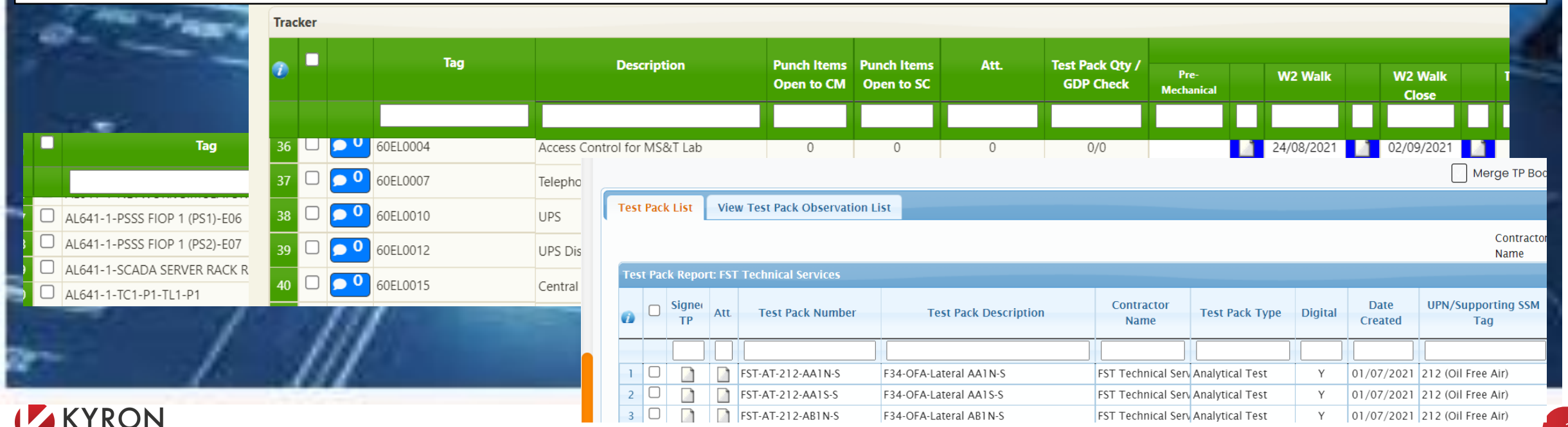
Inputs are needed from:

- Design parameters
- Vendor specifications
- Installation drawings
- Industry standards
- Owner operation requirements

Project Metadata gives better outcome

Metadata is descriptive information about a resource. It is information used to help manage, organize and resource activities so that we can get the maximum benefit with the minimum input and avoid repeating steps. This involves the proper storage of results and use of leveraging.

Metadata management as a good practice allows for adopting policies, processes, and systems to plan, perform, evaluate, and improve the use and re-use of reference data.
Proper metadata management and governance ensures the coordinated development, use and maintenance of progressive commissioning activities, whilst ensuring the sustainability of the activities we intend to execute.
This allows us maintain the 'thread'



KYRON INNOVATIVE TECHNOLOGIES
Built in Quality

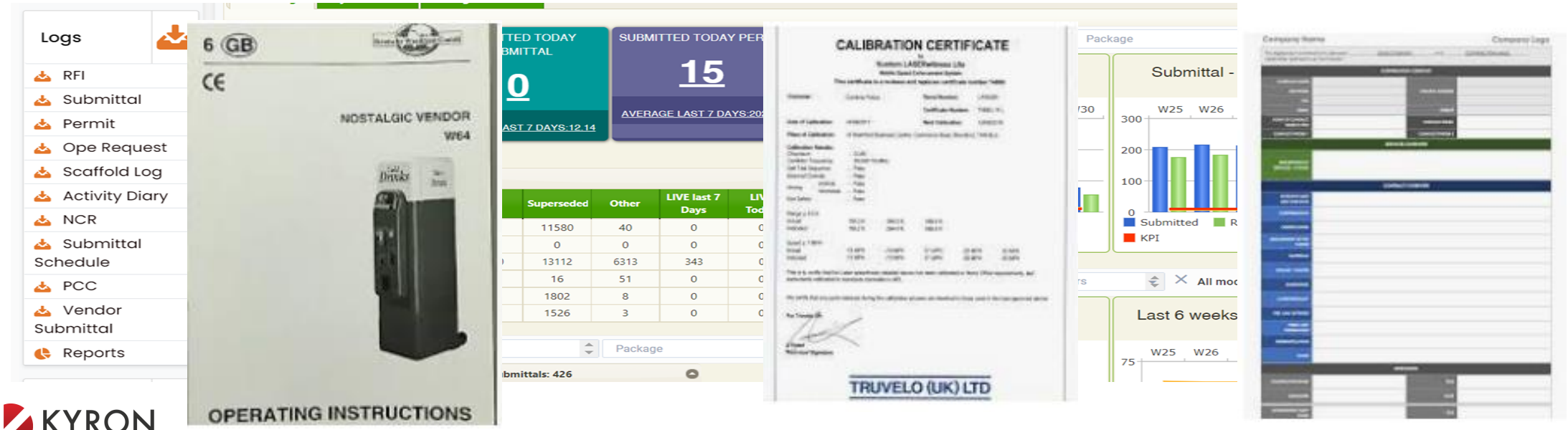
Vendor and Supporting Documentation

On a project, the technical documentation for the end-customer is, to a large extent, comprised of the documentation provided by individual suppliers. This documentation then must be reviewed, validated, and then finally integrated into the overall documentation set.

Vendor documentation is a key input into the planning for, and execution of, the commissioning phase.

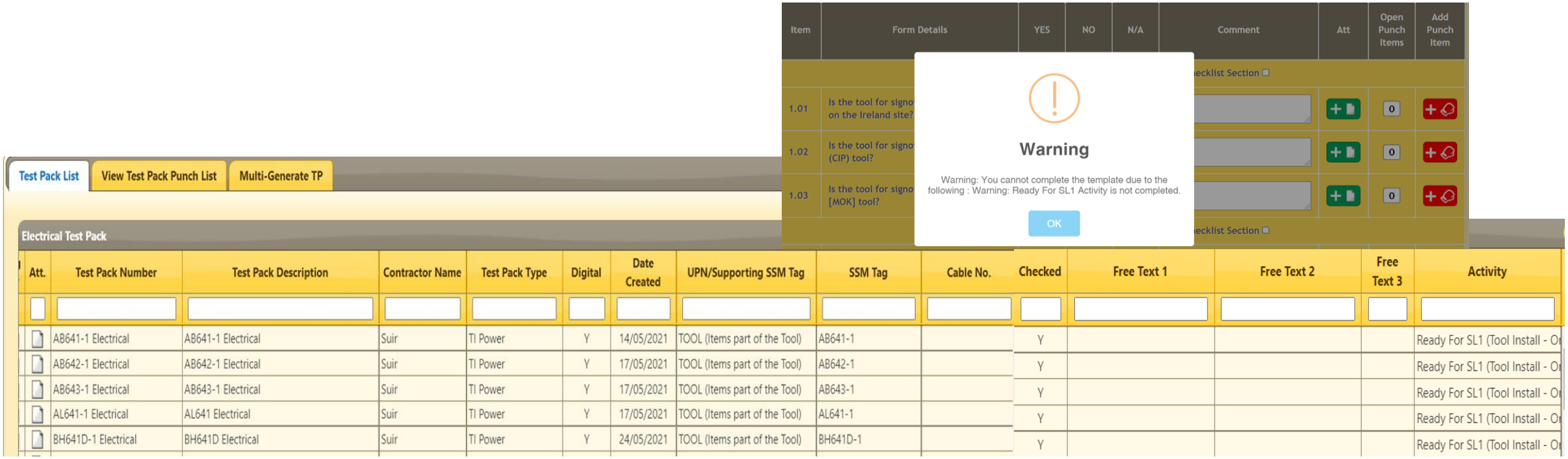
During the project, offsite and onsite activities will create controlled changes and outputs that must be available to the commissioning team during the planning and field phases, these include:

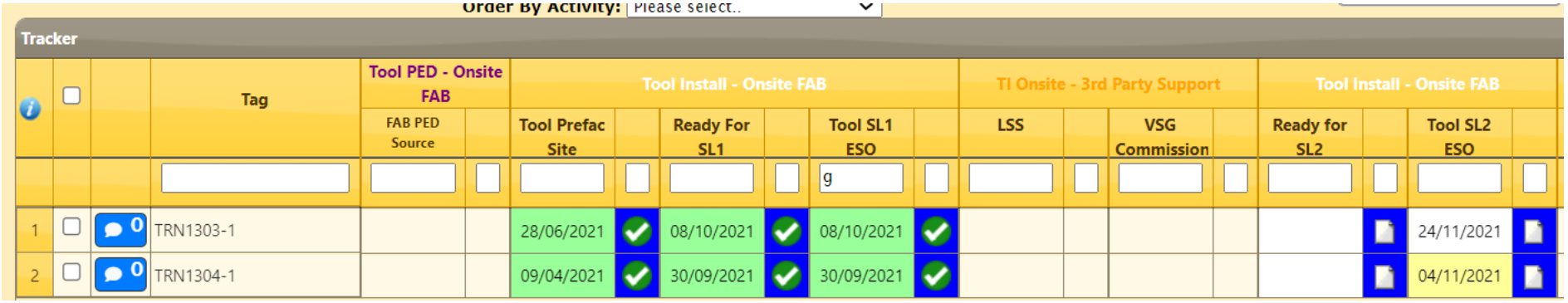
- Project Change Controls [PCC]
- Technical Submittals
- Requests for Information [RFI]



KYRON INNOVATIVE TECHNOLOGIES Built in Quality

Test Pack Linked to Activity Gate





KYRON INNOVATIVE TECHNOLOGIES Built in Quality

Pre-Determined Handovers are Automatically Generated

Project Handover / Handover

Handover

	Cer	Handover Pack Number	Description	Location	UPN	Date Created	Contractor	Package	Handover Type	Checke
					11					
11		IRBC1-CT114-03-10-Green Tag	HR Cooling Towers - CX	BCP - Boiler Chiller Plant	114	09/07/2021	Exyte (Main)	BB07	Green Tag Handover	
12		IRBC1-CT114-01-10-Green Tag	HR Cooling Towers - CX	BCP - Boiler Chiller Plant	114	09/07/2021	Exyte (Main)	BB07	Green Tag Handover	
13		IRBC1-CT114-02-10-Green Tag	HR Cooling Towers - CX	BCP - Boiler Chiller Plant	114	09/07/2021	Exyte (Main)	BB07	Green Tag Handover	
14		IRBC1-PMP114-02-00-Green Tag	HR Condenser Water Pump - CX	BCP - Boiler Chiller Plant	114	09/07/2021	Exyte (Main)		Green Tag Handover	
15		IRBC1-PMP116-2-20-Green Tag	Secondary Heating Water Pump - Trim (2178 @	BCP - Boiler Chiller Plant	116	09/07/2021	Exyte (Main)	BB07	Green Tag Handover	
16		IRBC1-PMP111-01-00-Green Tag	HR Chilled Water Pump - CX	BCP - Boiler Chiller Plant	111	09/07/2021	Exyte (Main)		Green Tag Handover	
17		IRBC1-PMP117-3-00	Heat Recovery Water Pump (3312 @ 169 Ft) - (	BCP - Boiler Chiller Plant	117	26/08/2021	Exyte (Main)	BB07	Green Tag Handover - 1 Le	
18		IRPB1A-PMP118-2-20-Green Tag	Pump #2 - SHRW/ROOFA loop	PUB - UPW/OFA/Polish Area	118	07/10/2021	Exyte (Main)	BB05	Green Tag Handover	
19		IRBC1-BLR115-7-10-Green Tag	Gas fired boiler - CX	BCP - Boiler Chiller Plant	115	30/10/2021	Exyte (Main)	BB07	Green Tag Handover	

Page 1 of 1 View 1 - 25 of 25

Contents Compile Excel Handover Files

KYRON INNOVATIVE TECHNOLOGIES Built in Quality

The Content and the Tags in the Handover are Agreed During Front Loading.

19	IRBC1-BLR115-7-10-Green Tag	Gas fired boiler - CX	BCP - Boiler Chiller Plant	115	30/10/2021	Exyte (Main)	BB07	Green Tag Handover

Page 1 of 1 View 1 - 25 of 25

Contents | Compile | Excel Handover Files

Generate PDF/Excel Reports

PDF

Sub Sections

		Section and Section Name	Sub Section	Sub Section Description	Form	Attachm Files	Cert Files
3	☐	1 Layout Drawings, P&ID's and Bound	1.03	Boundary Drawings			
4	☐	2 MEP/Laterals/Rooms	2.01	QA incremental			
5	☐	2 MEP/Laterals/Rooms	2.02	Trade C			
6	☐	2 MEP/Laterals/Rooms	2.03	EHS			
7	☐	2 MEP/Laterals/Rooms	2.04	DV Walk			
8	☐	2 MEP/Laterals/Rooms	2.05	A/E Walk			
9	☐	2 MEP/Laterals/Rooms	2.06	Energization Request			
10	☐	2 MEP/Laterals/Rooms	2.07	Vendor OAT			
11	☐	2 MEP/Laterals/Rooms	2.08	Non Vendor OAT			

Page 1 of 1 View 1 - 41 of 41

KYRON INNOVATIVE TECHNOLOGIES Built in Quality

KYRON
INNOVATIVE TECHNOLOGIES
Built in Quality

Kyron Innovative Technologies

The Value Add

KYRON
INNOVATIVE TECHNOLOGIES
Built in Quality

Kyron Innovative Technologies

System Start up Management (SSM's)

Leveraging gets results saves money

The concept of leveraging is **to take advantage of all resources that are available to achieve new or additional objectives**. That is, how do you use existing capacities within an organization to achieve new outputs and eventually outcomes.

Leveraging should be used to:

- Reduce time spent on activities directly in your control.
- Introduce documentation fully completed and verified by 3rd parties.
- Realign resources to prevent peaks and gates in the process.

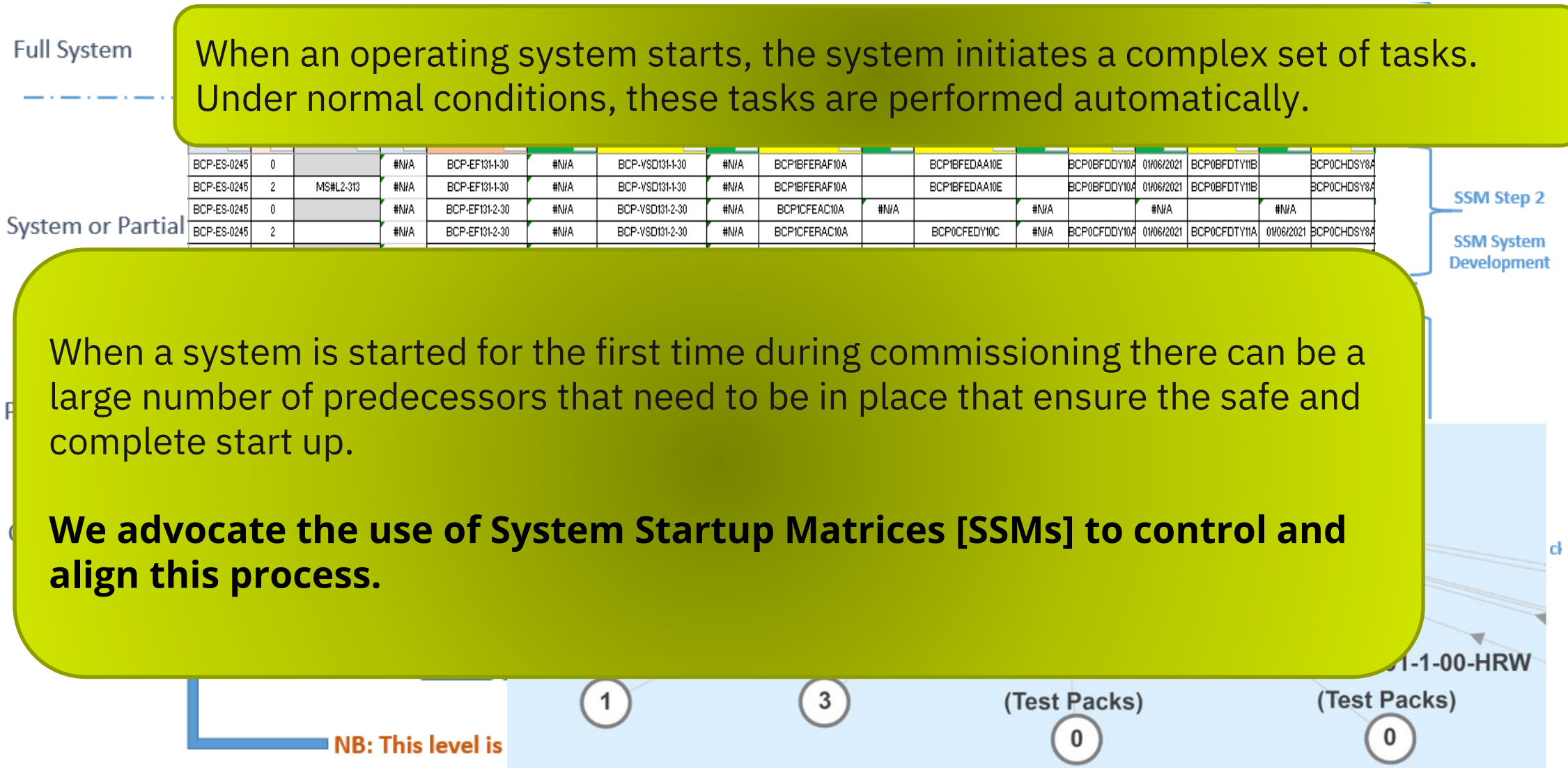
During planning for commissioning approved procedures and outputs should leveraged into the commissioning plan.

System Startup Matrix Key to a proper Turnover

When an operating system starts, the system initiates a complex set of tasks. Under normal conditions, these tasks are performed automatically.

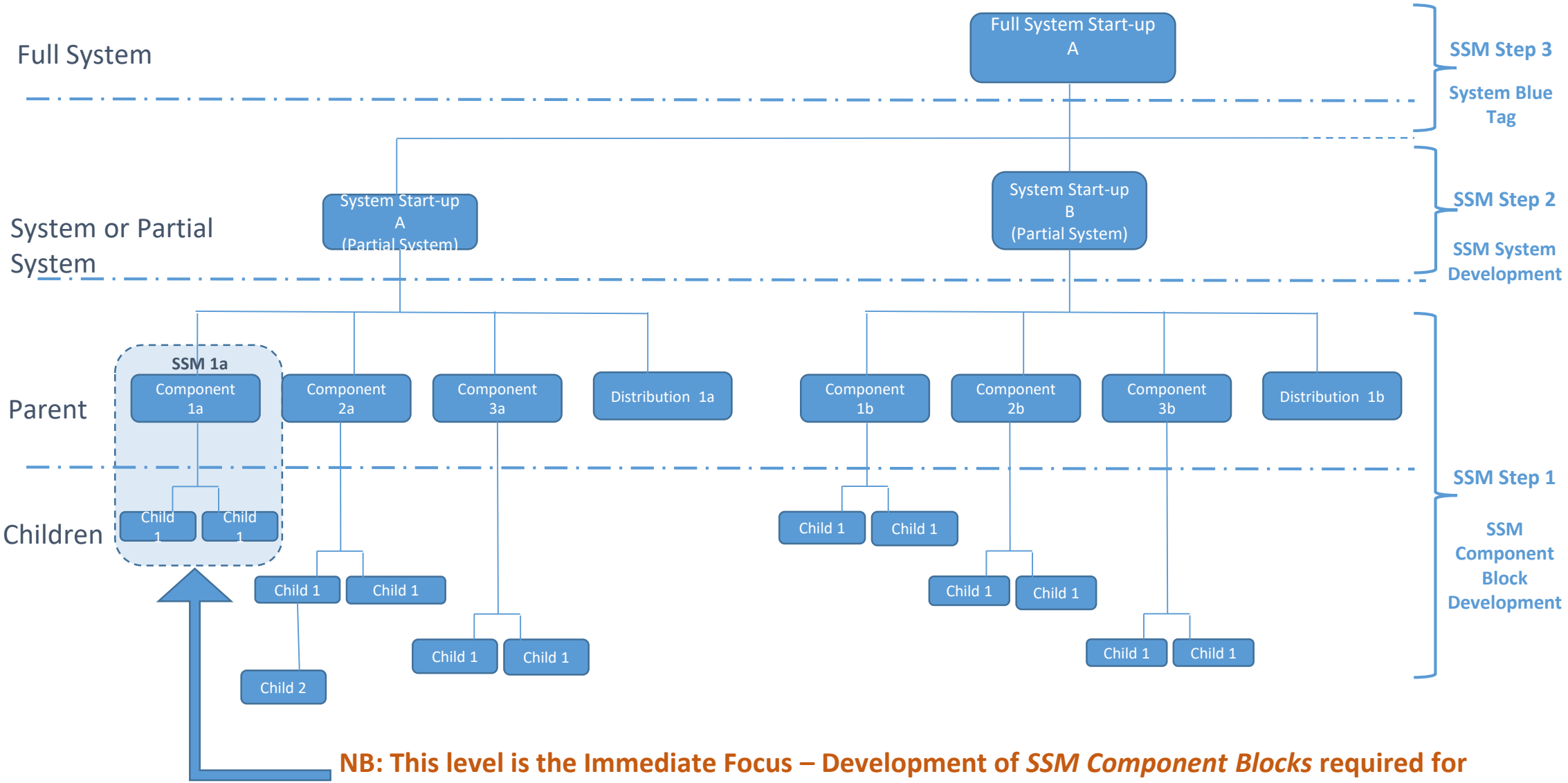
When a system is started for the first time during commissioning there can be a large number of predecessors that need to be in place that ensure the safe and complete start up.

We advocate the use of System Startup Matrices [SSMs] to control and align this process.



BCP-ES-0245	0		#N/A	BCP-EF131-1-30	#N/A	BCP-VSD131-1-30	#N/A	BCP1BFERAF10A		BCP1BFEDAA10E		BCP0BFDDY10A	01/06/2021	BCP0BFDTY11B		BCP0CHDSY8A
BCP-ES-0245	2	MS#L2-313	#N/A	BCP-EF131-1-30	#N/A	BCP-VSD131-1-30	#N/A	BCP1BFERAF10A		BCP1BFEDAA10E		BCP0BFDDY10A	01/06/2021	BCP0BFDTY11B		BCP0CHDSY8A
BCP-ES-0245	0		#N/A	BCP-EF131-2-30	#N/A	BCP-VSD131-2-30	#N/A	BCP1CFEAC10A	#N/A		#N/A		#N/A		#N/A	
BCP-ES-0245	2		#N/A	BCP-EF131-2-30	#N/A	BCP-VSD131-2-30	#N/A	BCP1CFERAC10A		BCP0CFEDY10C	#N/A	BCP0CFDDY10A	01/06/2021	BCP0CFDTY11A	01/06/2021	BCP0CHDSY8A

Developing SSM's – The agreed Approach.

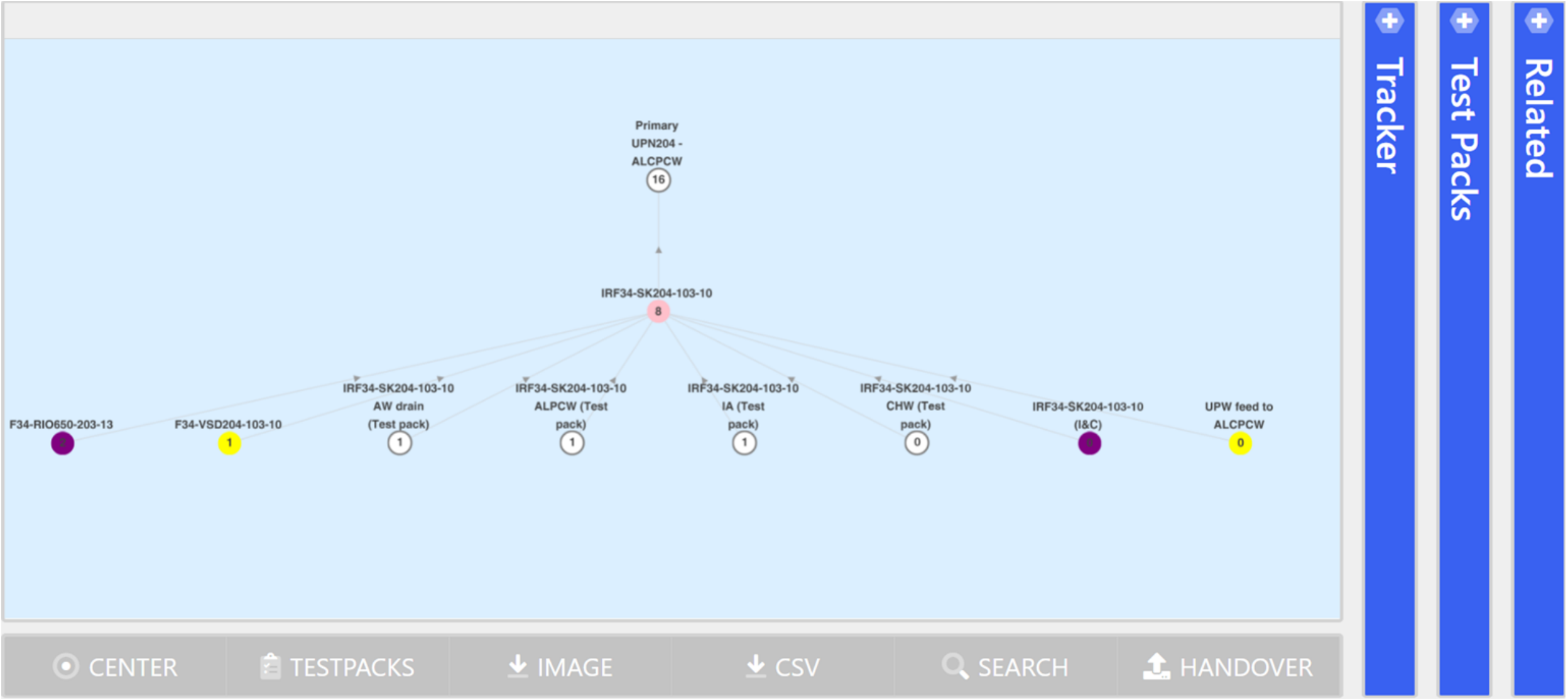


NB: This level is the Immediate Focus – Development of *SSM Component Blocks* required for System Start-up!

KYRON INNOVATIVE TECHNOLOGIES *Built in Quality*

The System Contains 16 Skids

Deliverable For 1no Skid

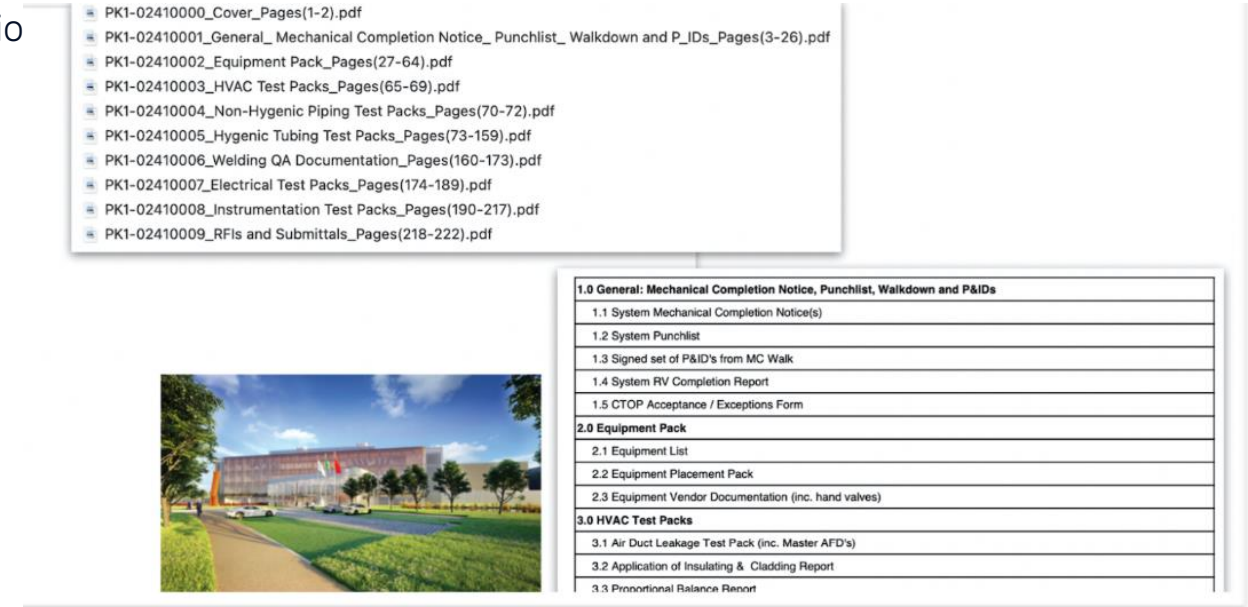


KYRON INNOVATIVE TECHNOLOGIES
Built in Quality

Engineering Turnover Packs

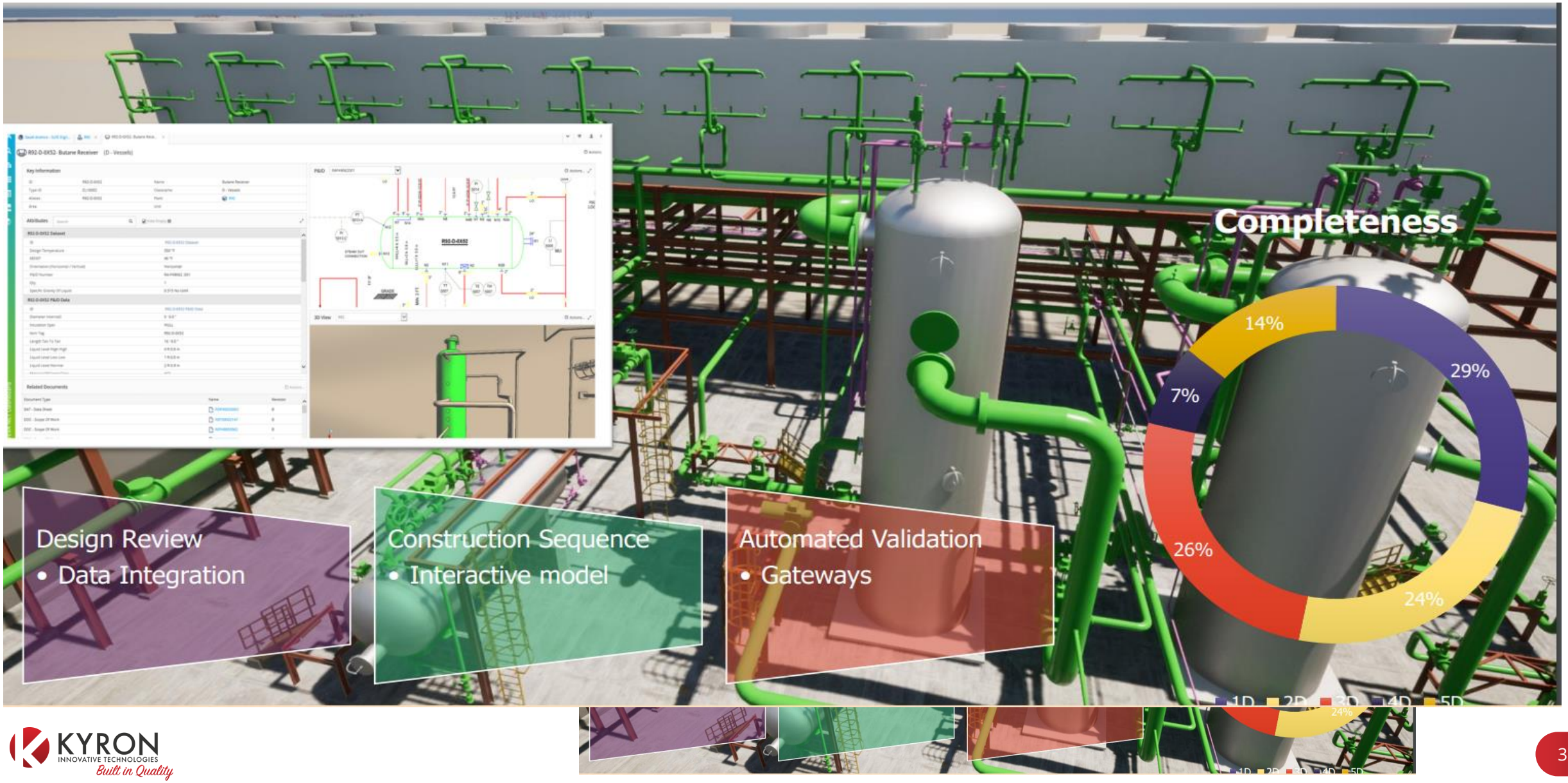
Validating and compiling documentation from multiple trade contractors is an arduous task, with hours spent on corrections and clarifications.
EIDA builds construction or engineering turnover packs by pulling in data from multiple contractors, across all relevant project disciplines, delivering full system turnover packs.

- Customizable to client documentation handover requirements
- Signed-off contractor installation and testing documentation
- Trade contractor punch items compiled
- Welder qualification, NDT reports, material certification and weld history records automatically compiled
- ETOP lockdown ensures no changes can be made post-generatio
- Full reporting instantly available for management & teams
- Auto-indexing and page numbering
- Follow-on notifications alert users of activity completions



KYRON INNOVATIVE TECHNOLOGIES
Built in Quality

Is the future Digital Twin ?



KYRON INNOVATIVE TECHNOLOGIES
Built in Quality

Conclusion

Digitalisation is playing a significant role in reimagining construction. As a result, the sector is seeing a significant acceleration in technology adoption, allowing it to leapfrog to more efficient production processes, business models, and value chains. However there needs to be processes developed and good Engineering and control practices to underpin
These qualities so that we can ‘Build in Quality’.

Professionals working in the built environment have a special duty to ensure that increasing digitalisation positively contributes to everything they do, ultimately enriching and enabling the communities they serve.

Thank you for your time and continue on your Journey to Build in Quality.