L7 INFORMATICS

L7|ESP Enterprise Science Platform™

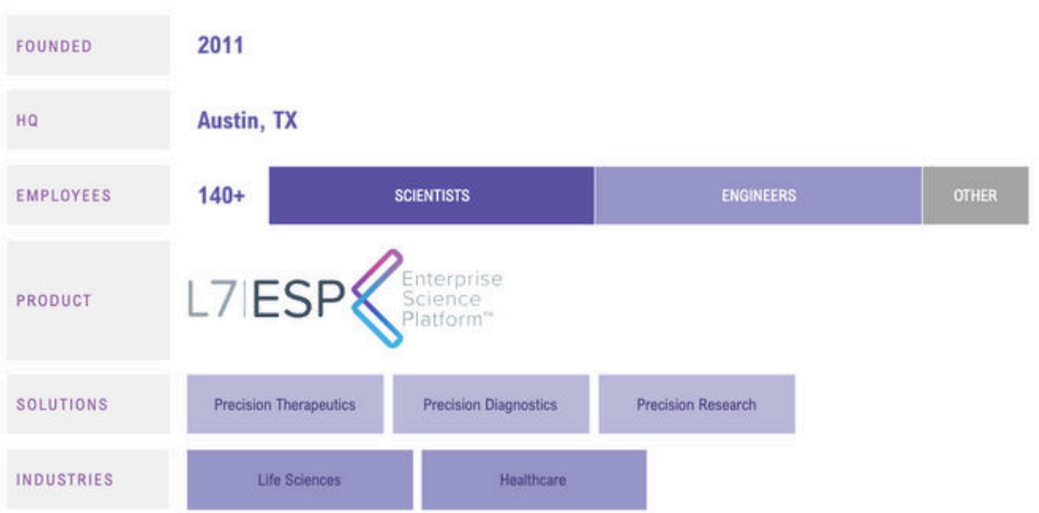
EBOOK

L7 | PRECISION THERAPEUTICS

accelerate cell & gene therapy processes with workflow automation and data compliance by digitalizing research-to-commercialization

About L7

L7 Informatics, Inc. is a leading provider of integrated scientific data and analytics solutions. The company offers a comprehensive platform that enables seamless data integration, advanced analytics, and collaborative workflows, empowering scientists and researchers to accelerate discoveries, improve operational efficiencies, and drive innovation. L7's mission is to revolutionize how scientific data is managed, analyzed, and utilized, facilitating breakthroughs in research, drug discovery, development, and manufacturing.



Gartner 'Cool Vendor' 2020

In 2020, L7 was one of only five companies recognized in the Gartner Cool Vendors in Life Sciences report that technology leaders should watch to help accelerate life science business results.

Deloitte Technology 'FAST 500' 2021

With a 3-year growth of 8,288%, L7 Informatics is ranked #26 and #1 Life Sciences Software.

Deloitte Technology 'FAST 500' 2022

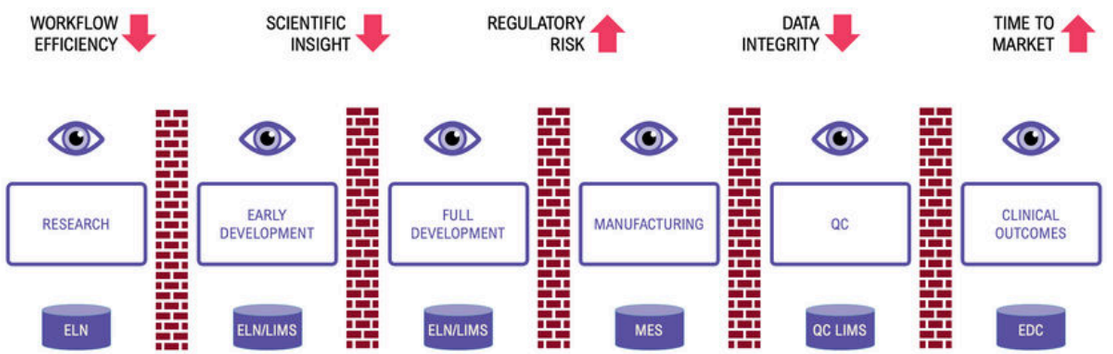
Honored that L7 Informatics made the list again with another impressive 3-year growth of 1,543%.

Deloitte Technology 'FAST 500' 2023

For a third consecutive year, we made the list again, and celebrate a significant 3-year revenue growth of 2047%.

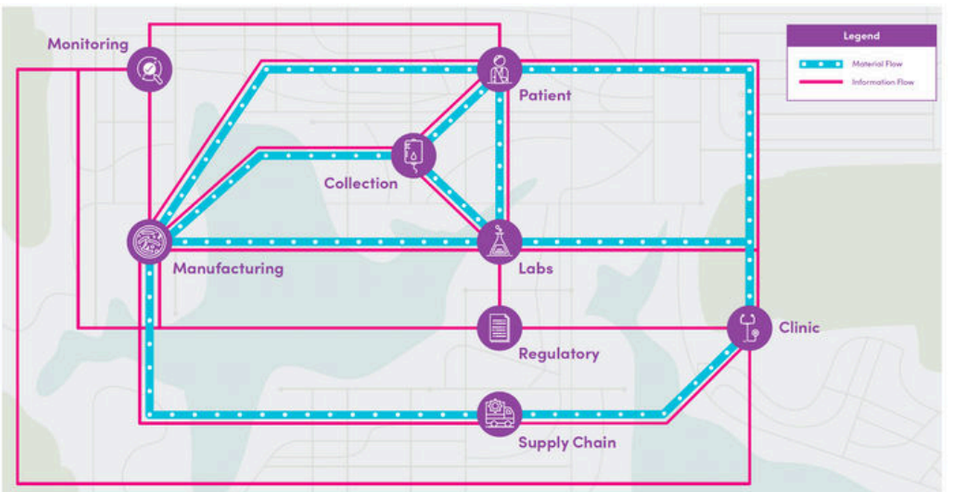
The Problem

Legacy data and processes silos hinder requirements for integrated data+intelligence



TODAY: SILOS of APPS+DATA → LOW VELOCITY, POOR DATA INTEGRITY, NO VISIBILITY, NO CONTEXT

Data and process silos persist across Bio-Tech value chains



Enterprise context of life sciences operations

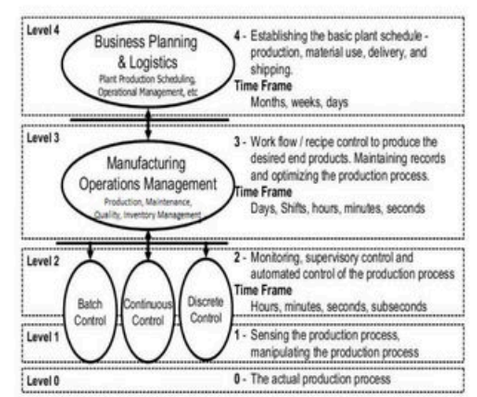
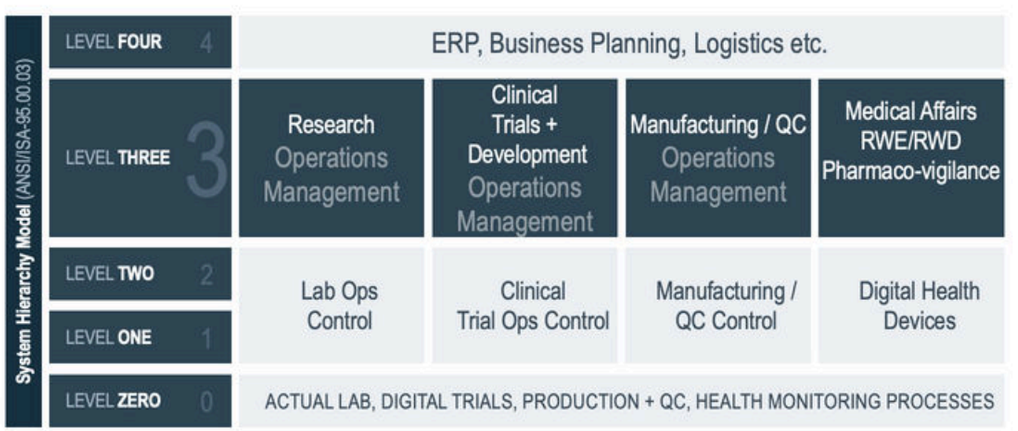
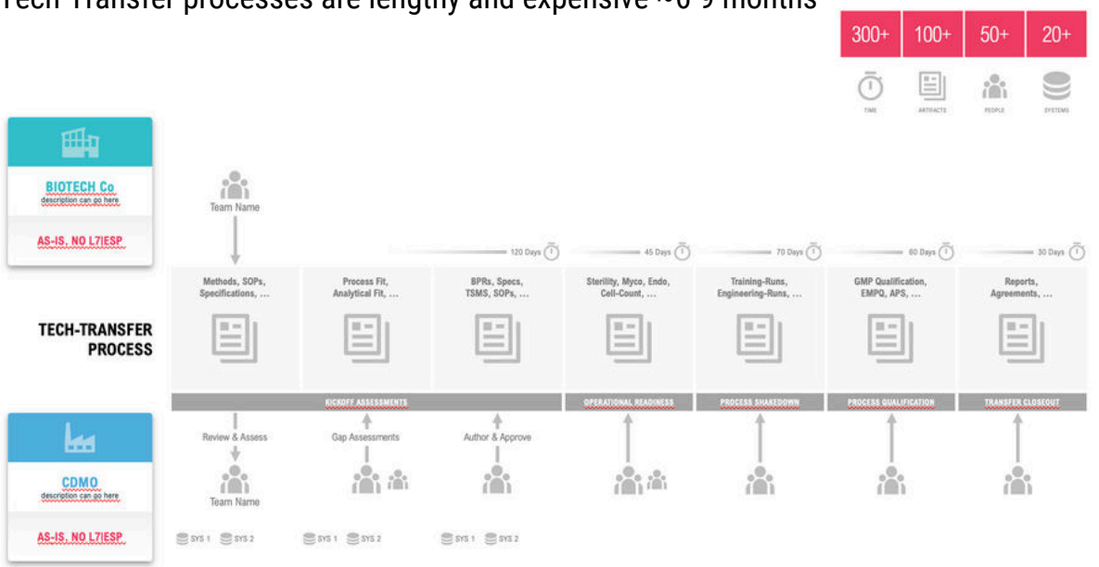


Figure 1. System hierarchy model (ANSI/ISA-95.00.03–2005, 2005, p. 20)

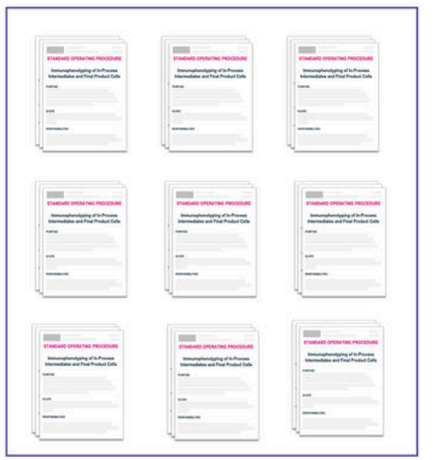


The Problem (continued)

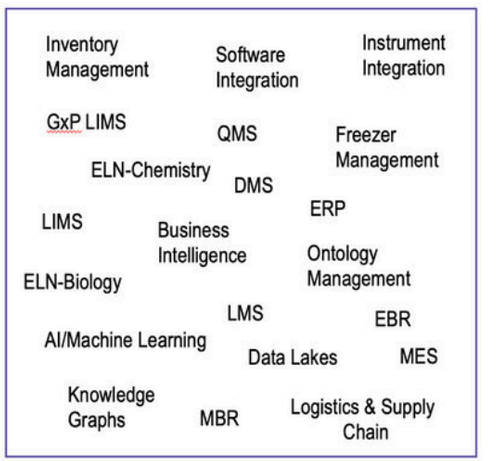
Tech-Transfer processes are lengthy and expensive ~6-9 months



Paper-based “Standard Operating Procedures” implemented across siloed IT systems

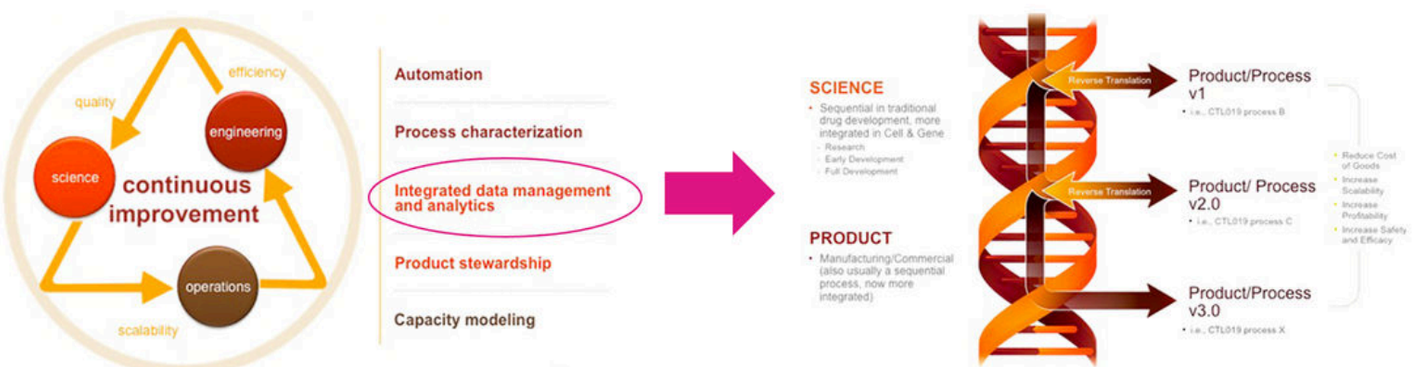


Paper/PDF based SOPs



Complex and Disjointed IT

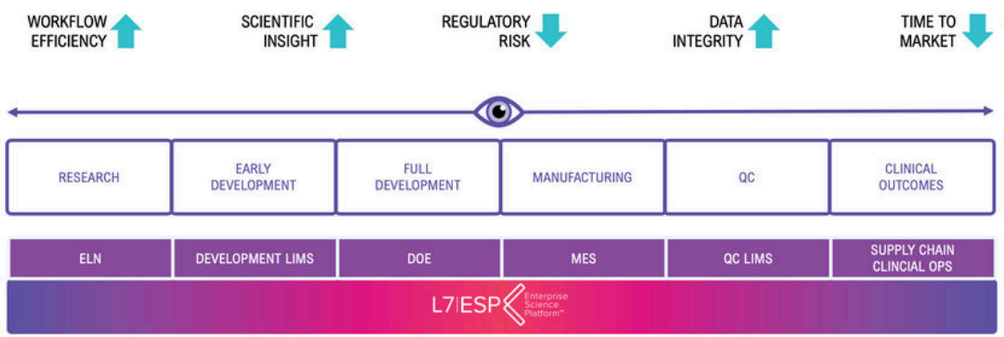
Integrated data + analytics is a key enabler for development of Cell and Gene Therapies



Source: Novartis, Cell and Gene Therapies Unit

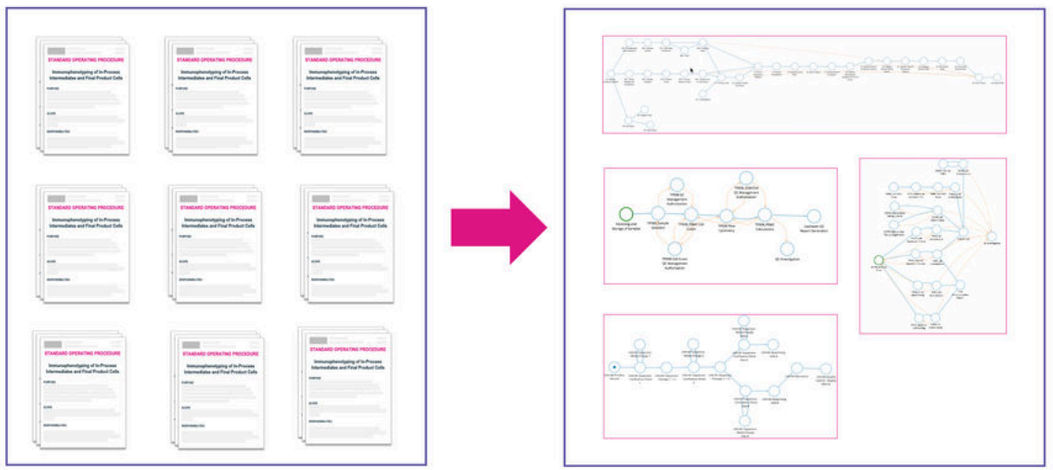
The Solution

L7|ESP accelerates Cell and Gene requirements for integrated Data+Intelligence



WITH L7|ESP: End-to-End Data, Velocity, Integrity, Visibility & Context

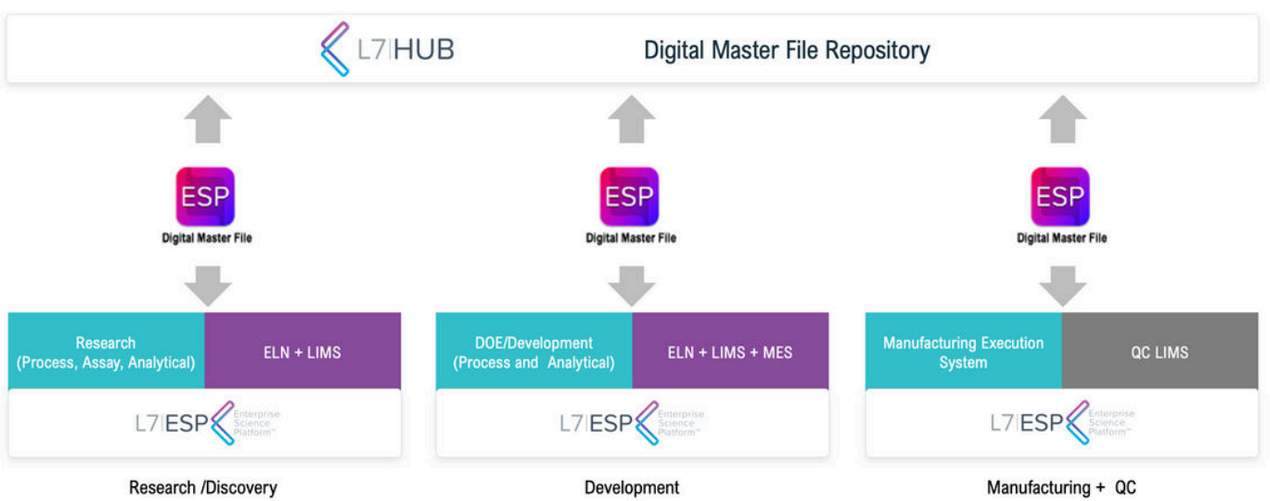
L7|ESP creates digitalized twins of the paper/PDF SOPs



Paper/PDF based SOPs

Digital Twins of the SOPs

L7|ESP supports product life cycle - Research to Development to Manufacturing/QC



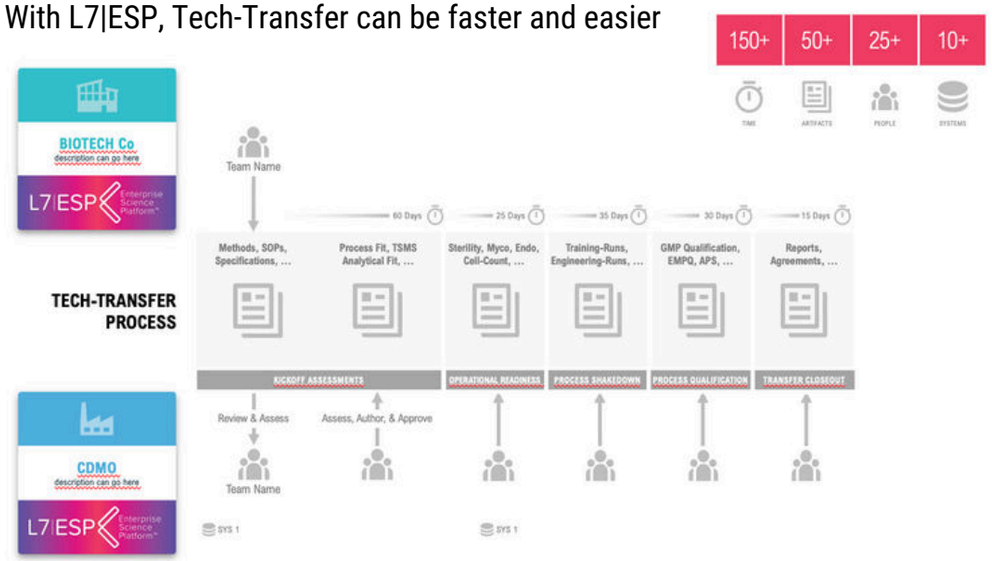
Research /Discovery

Development

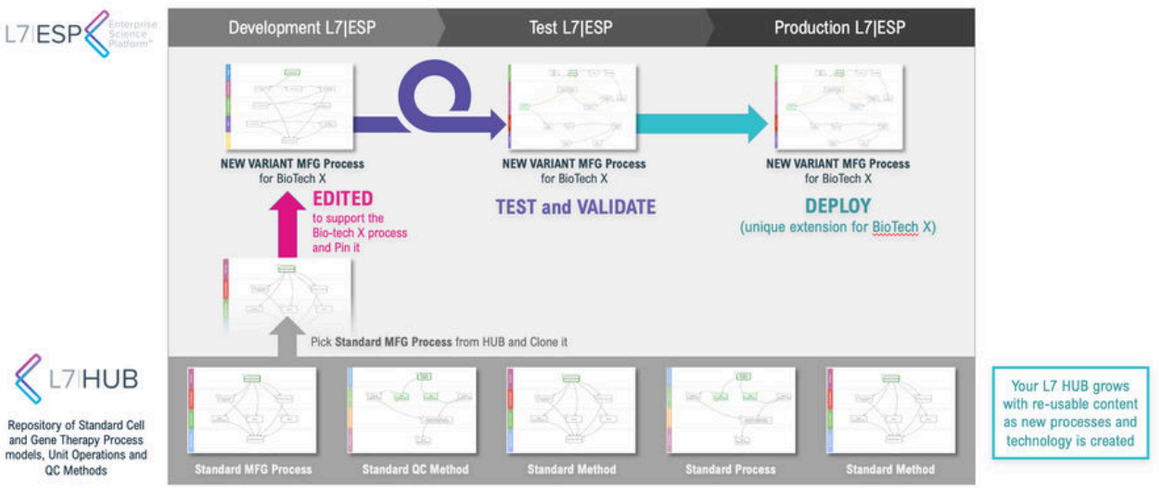
Manufacturing + QC

The Solution (continued)

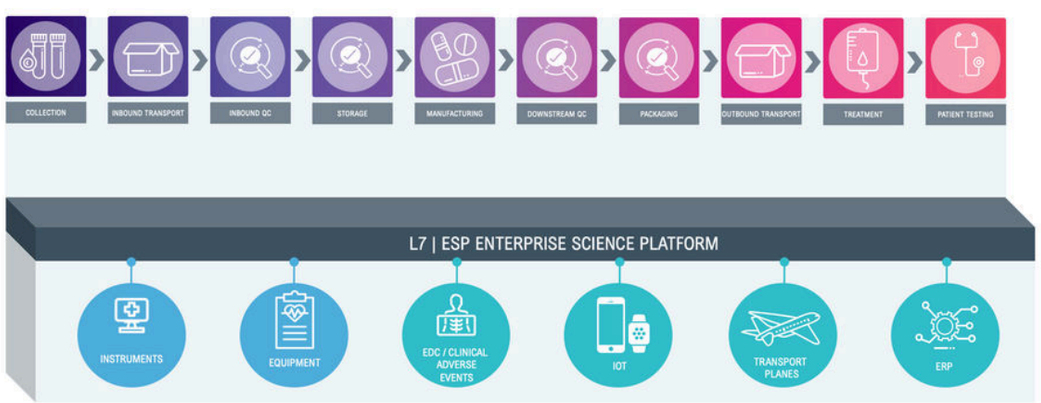
With L7|ESP, Tech-Transfer can be faster and easier



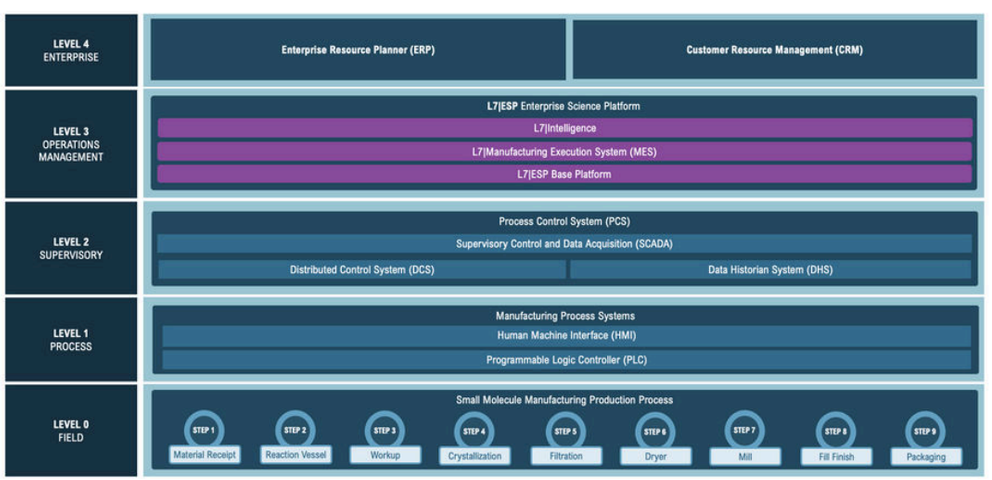
L7's "Digital-First" method for Tech-Transfer



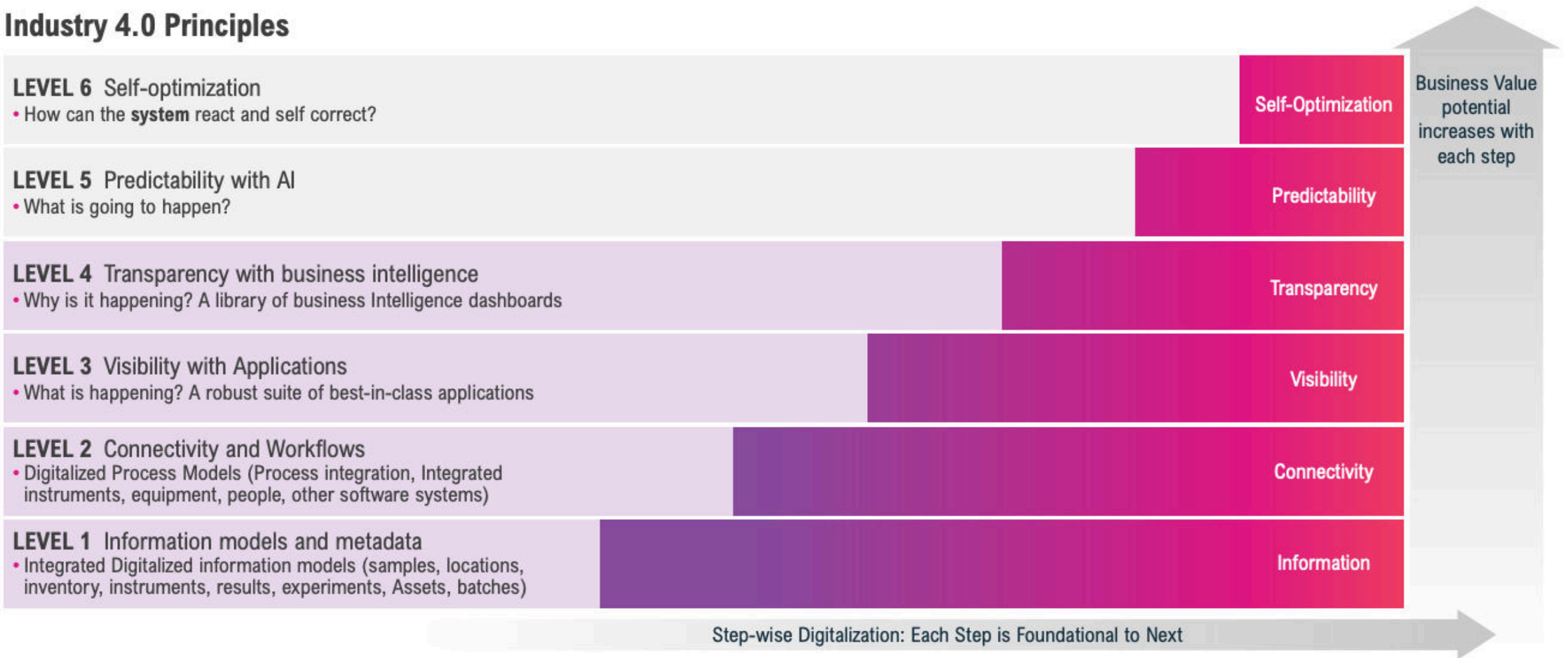
L7|ESP supports needle-to-needle process



Digital Manufacturing Technology Stack with L7|ESP



L7|ESP - A Unified Platform Built on Industry 4.0 Principles

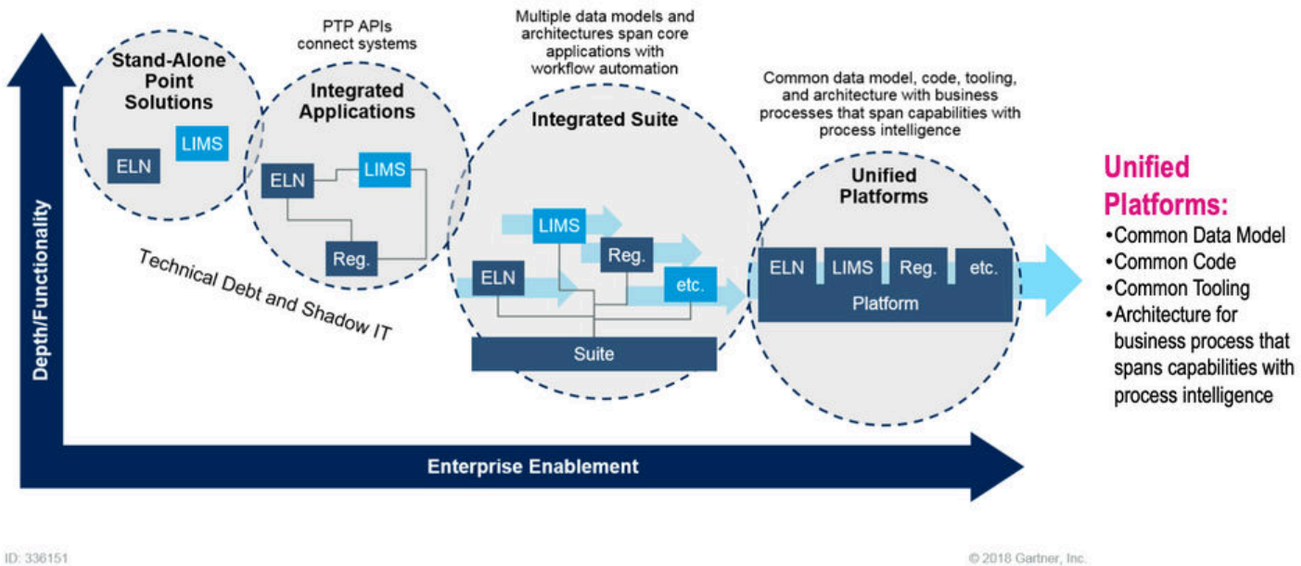


L7|ESP - A Unified Platform for Life Sciences

Gartner

Gartner

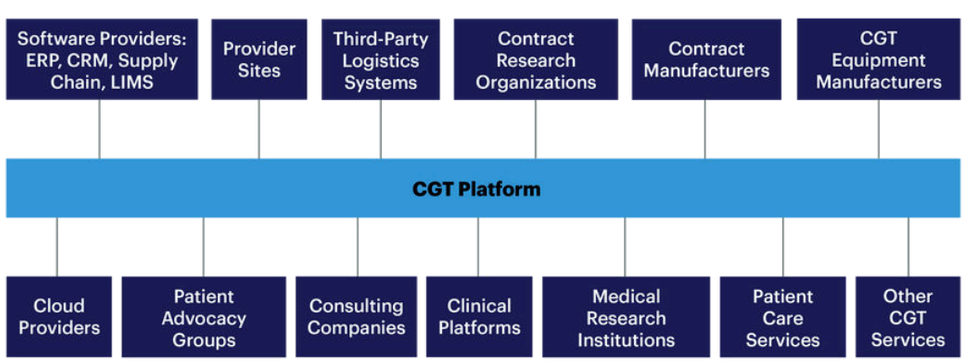
"Life Science Lab Informatics Digital Criteria"
Published 20 December 2018
- Source: © Gartner, Inc 2018



Unified Platforms:

- Common Data Model
- Common Code
- Common Tooling
- Architecture for business process that spans capabilities with process intelligence

Ecosystem of Potential Players That May Require Access to the CGT Platform



Source: Gartner
748735_C

Gartner

According to Gartner, "Success in CGT requires a holistic and outcomes-based view of the development process, but many LSO leaders aren't approaching their programs holistically. They view delivering CGT capabilities as a series of discrete projects, which puts their business goals at risk."[1]

1 Source: Life Science CIO's Strategy for Delivering Cell and Gene Therapy Capabilities Published 4 October 2021 - ID G00748735 - By Michael Shanler, Jessica Hong
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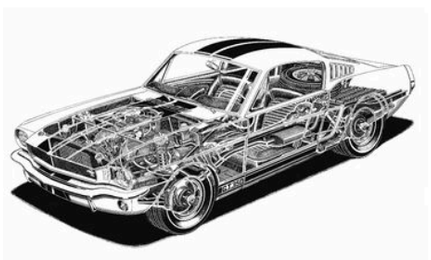
Composable Platforms Built of ‘Primitives’

COMPOSITE MODELS vs PRIMITIVE MODELS

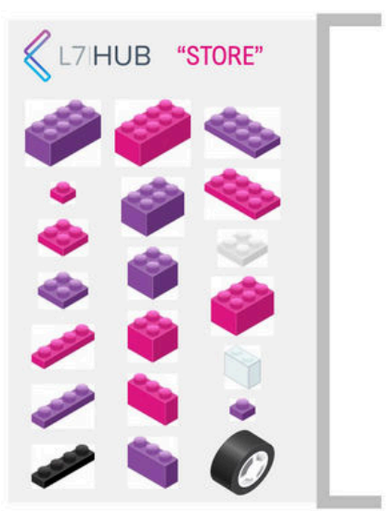
Composite models are fixed functionality and difficult to modify

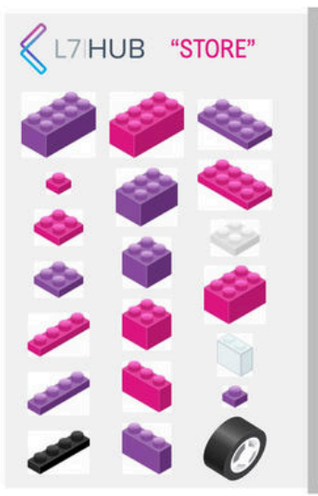


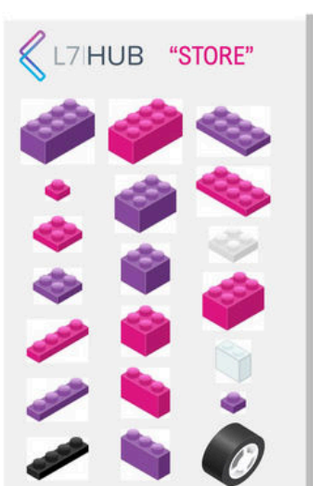
Primitive models provide quick assembly, modification, and reusability

Enterprise Architecture using the Zachman Framework

PRIMITIVE MODELS PROVIDE QUICK ASSEMBLY, MODIFICATION, CUSTOMIZATION, AND REUSABILITY

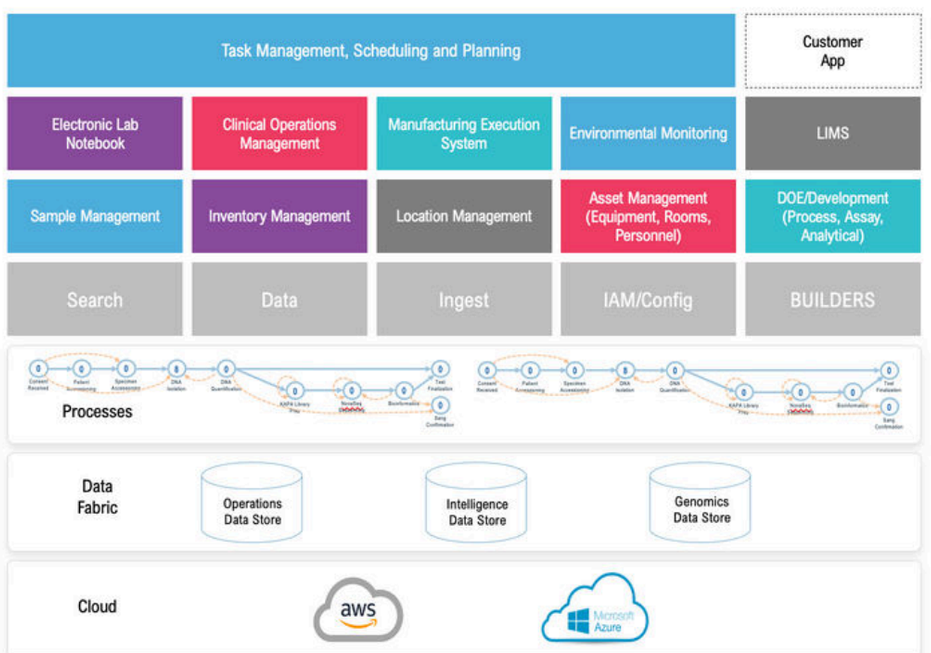






Unified Platforms

Meet all of your data and process needs with a single solution, L7's unified platform, L7|ESP, equipping your business with a comprehensive operating environment and software stack that adapts to your unique requirements while preserving data provenance and integrity.



Business Apps

- Clinical Operations
- Electronic Batch Records
- Electronic Lab Notebook
- Environmental Monitoring
- Inventory
- LIMS
- Locations
- Manufacturing Scheduling
- Stability Testing
- See roadmap

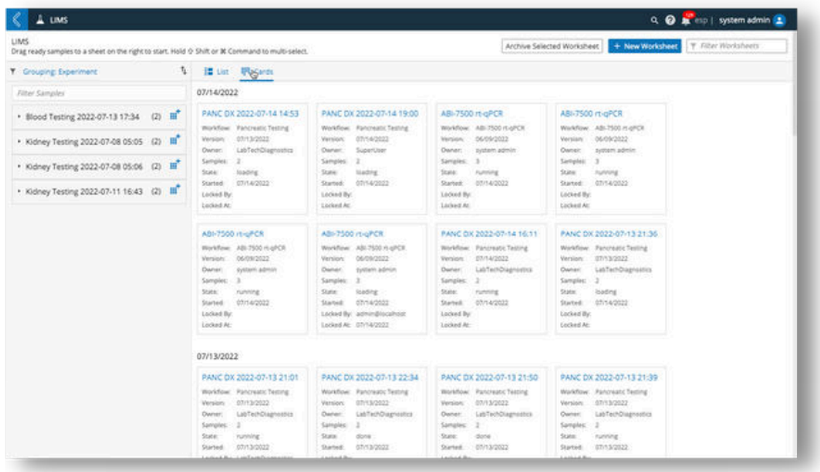
Standard Apps

- Assets
- Dashboards
- Reports
- Data
- Entities
- Ingest
- Projects
- Samples
- Search

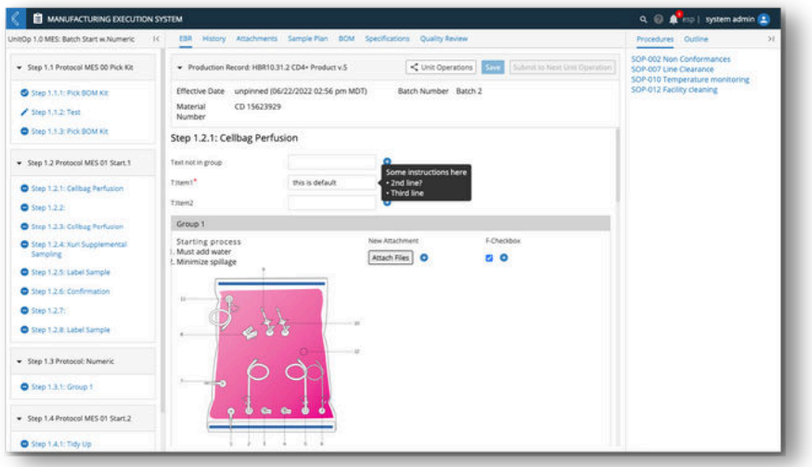
Configuration Apps

- Applets
- Master (Builders)
- IAM

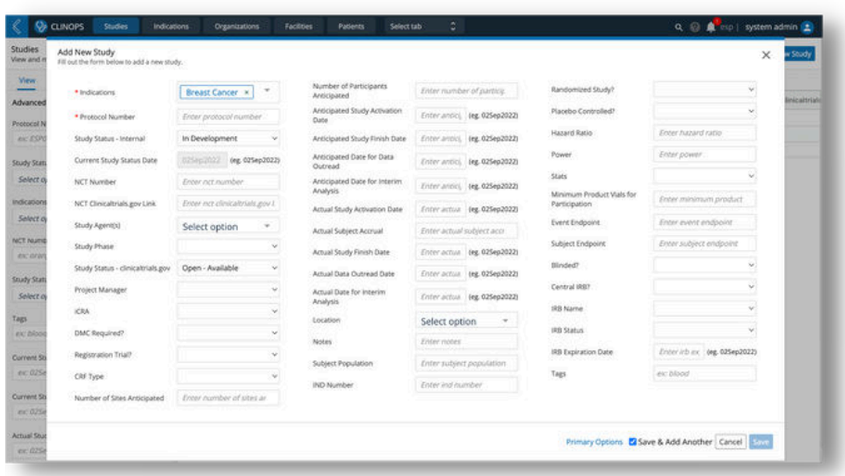
L7 Business Apps - Every Application Needed for the Scientific Enterprise



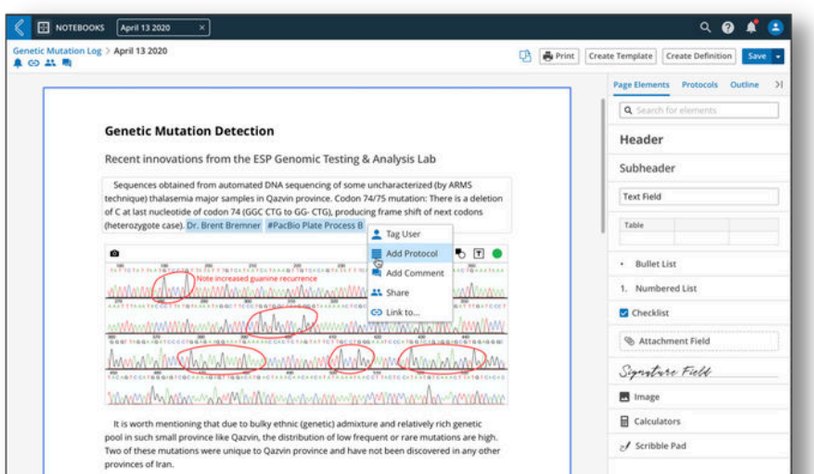
INTEGRATED LIMS + LES (GMP/GLP/GCP compliant)



Manufacturing Execution System

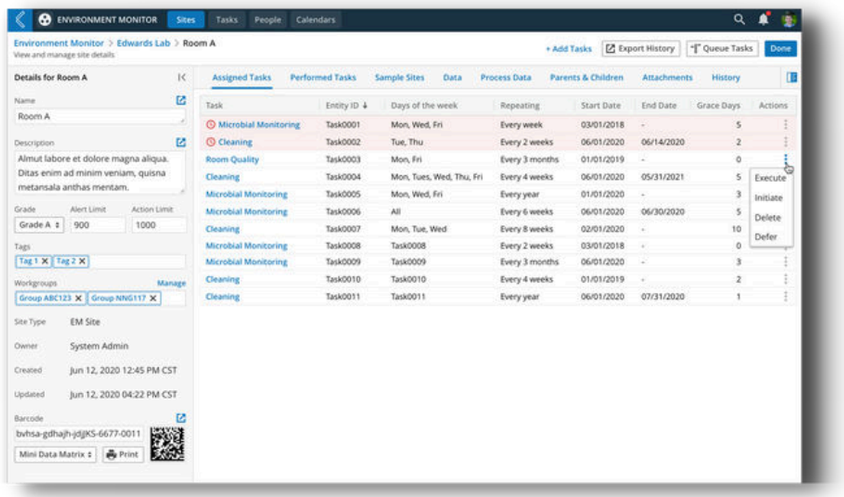


Clinical Operations

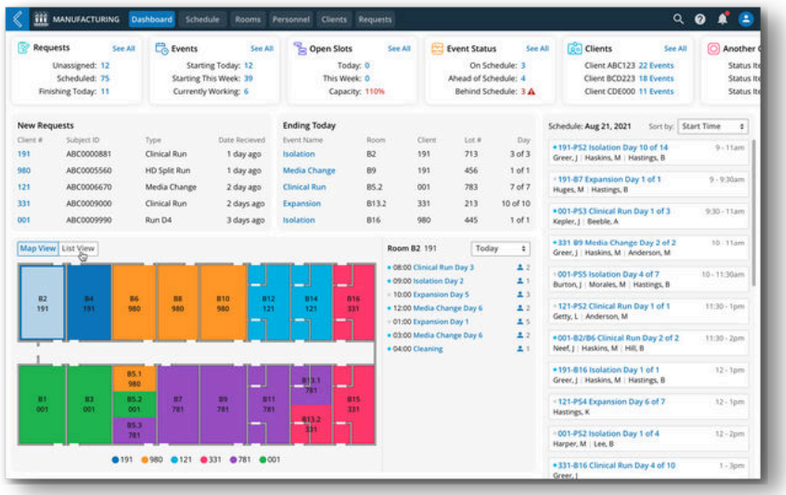


Electronic Lab Notebook

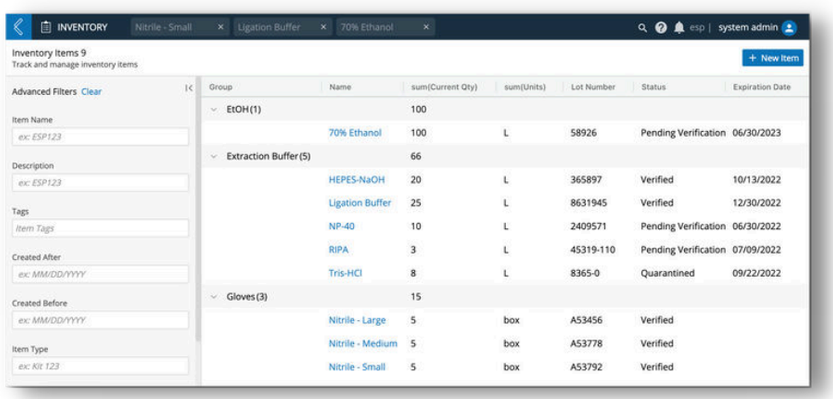
L7 Business Apps (continued)



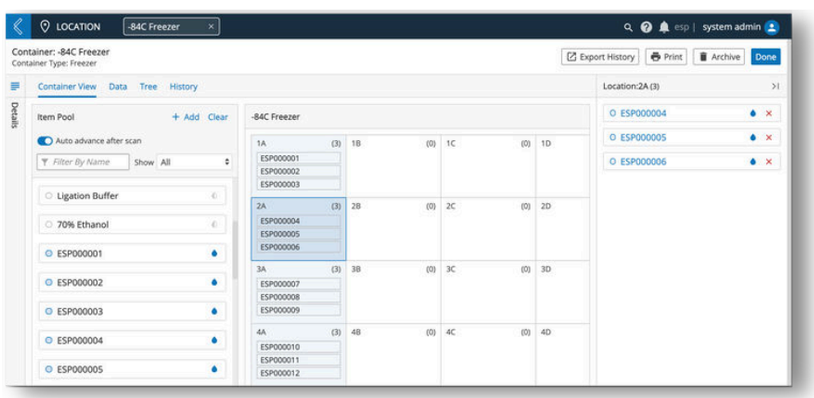
Environmental Monitoring



Scheduling



Inventory



Location

L7|ESP Connectors

L7|ESP Enterprise Science Platform™

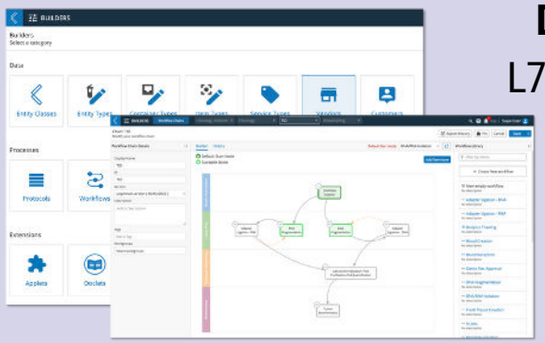
Agilent	Bioanalyzer 2100
	Tapestation 2200,4200
	Microplate Labeler
Akoya Bioscience	Vector Polaris
APC	UPS/SMX3000RMHV2U
Applied Technology	7900 HT
Beckman Coulter	Ampure
	BioMek i7
Bio-Rad	Gel Doc XR + Imager
Biolog	Plate Renderer
Biomerieux	BACT/Alert 3D
BioStore	III Cryo -190C
Biotek	Synergy LX (fluorimeter)
Bulldog	BioShake XP
Caliper	Twister II (liquid handler)
Cardinal Health	Timer/ C6510-7
	Thermometer CH240056, CH2971-6, CH2212-2
Cellomter	Vision
Clean AirSystems	24" ISO 5 Combination
Cole-Parmer	Techometer
Covaris	LE220 Ultrasonicator
Datamax-O'Neil	M-420 Mark II printer
Dynmo	Label Printer 1750283
Eppendorf	Cetrifuge 5424, 5430R, 5804R
	SmartBlock 1.5mL
	Thermomixer
ESCO	Class II, BSC/AC2-4S9-NS

Illumina	MiSeq
	HiSeq
	NextSeq 500, 550
	NovaSeq 6000
	iSeq
PacBio	PacBio RSII, Sequel
Julabo	Water Bath
Lascar	Electronics
Lonza	FlashGel
Media Jet	Printer MJ 9410
MilliQ	Integral Water Purification System
Molecular Devices	SpectraMax (GA3500)
Olympus	IX83
Oxford	Nanopore Sequence
Perkin Elmer	LabChipGX
Promega	Maxwell CSC
	Maxwell RSC
Protein Simple	ELLA
QIAGEN	EZ1 Advanced XL
Quant Studio	12k Flex/Dx
RAININ	RFID reader and pipettes
Rees	EMS
Roche	LightCycler 480
SATO	Plastic Tag Printer TXPSX5
Sage	Pippin
Savant	DNA 120
Scientific Industries	Vortex Mixer
	Digital Vortex-Genie 2

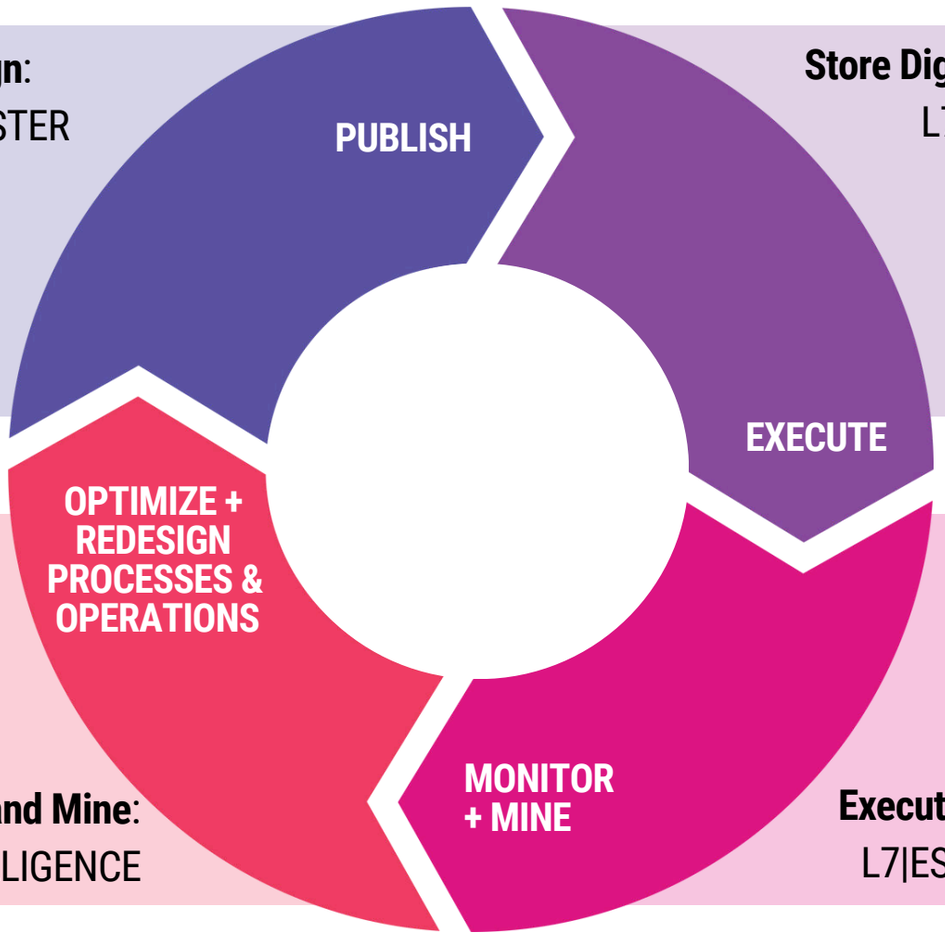
Scotsman	Ice Maker/AFE424A-1A
Siemens	HDMI
Solair	5100 Particle Counter
StepOne	Plus
SynergyLx	Microplate reader
TBD	Gel Imager
Thermo Fisher Scientific	Veriti Thermal Cycler
	3500, 3500 XL
	Fragment Analyzer
	Genetic Analyzer
	Qubit - 1.0, 2.0, 3.0, 4.0
	QuantStudio 12k Flex
	StepOne Realtime PCR
	Nanodrop spectrophotometer
Trinean	DropSense
Unico	Rock-IT! Tube Mixer
USA Scientific	Vortex Mixer
ViaFreeze	Duo CRY
VWR	Total Range Thermometer
	Traceable Stopwatch
	Mini Centrifuge
	Vortex Mixer
Zebra	Zebra Printer 410\420

Digitalization Lifecycle

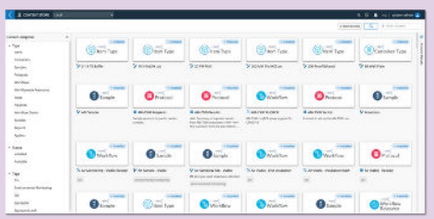
Design > Publish > Execute > Monitor + Mine > Optimize

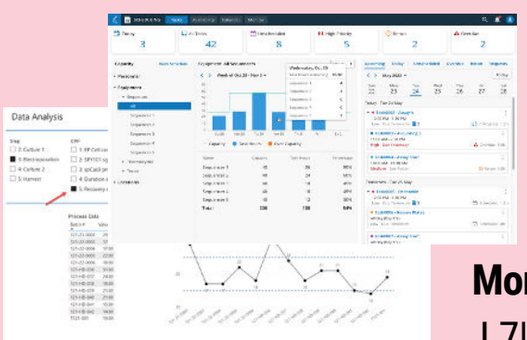


Design:
L7|MASTER



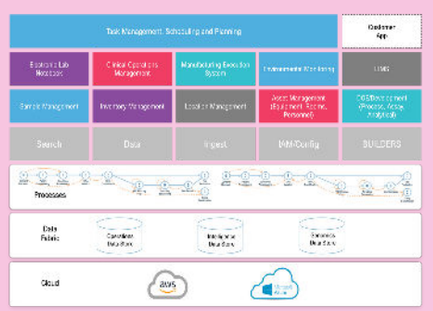
Store Digital Content:
L7|HUB





Monitor and Mine:
L7|INTELLIGENCE

Execute Process:
L7|ESP + APPS



L7 Informatics Customers

CASE STUDIES

Cell Therapy Manufacturing

Paper-to-glass approach to digitalize cell therapy manufacturing

SITUATION

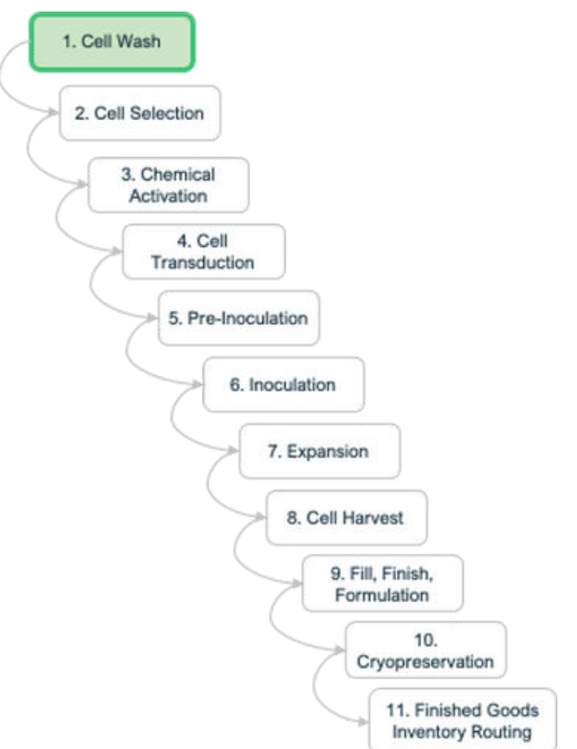
Cellipont Bioservices digitalize their cell gene therapy manufacturing processes for production of three (3) product types: autologous, allogeneic, and CAR-T products with use of L7 Informatics Enterprise Science Platform (L7|ESP). Focused on Electronic Batch Records (EBRs) with the implementation of Enterprise Science Platform (L7|ESP) and its Manufacturing Execution System (MES) business application.

SOLUTION

Utilizing L7|ESP to create building blocks for Cell Therapy manufacturing, Electronic Batch Record execution via MES, automated report generation, material receipt management, centralized labeling and printing.

WORKFLOW CHAIN

Cell Therapy Manufacturing Workflow Chain	Standalone Workflows	Reports
Cell Selection	Electroporation	Master Batch Records
Cell Activation	Irradiation	Final Batch Records
Cell Transduction		Production Batch Records
Cell Wash and Concentration	**Applets**	Bill of Materials
Cell Seeding and Expansion	Material Receipt	Bill of Equipment
Cell Feed and Media Exchange	Bartender Label Printing	Quality Review
Cell Harvest	Add Asset	Specification Report
Formulation	**Instruments**	
Fill and Finish	Cytive Sepax C-pro	Fresenius Kabi Lovo
Finished Goods Inventory and Routing	Cytiva Xuri	CliniMACS
	Chemometec NC-200	NOVA (and more)



QC of Early Phase Cell Therapy Trials

Dana-Farber Cancer Institute

A regulatory-compliant platform to digitalize all manufacturing and QC operations

SITUATION

Cell Manipulation Core Facility (CMCF) at DFCI seeks to implement quality control of their Cellular Therapy Products to Ensure Quality, and Purity using L7|ESP pre-built workflows and integrations. CMCF also wanted eliminate all paper batch records.

SOLUTION

Implementing L7|ESP a single unified "validated" platform to digitalize all operations starting with QC for early phase cell therapies. Digitalizing and Automating 31 QC Processes (Workflow Chains) with over 90 unit-lab-operations

WORKFLOW CHAINS

WORKFLOW CHAINS

FLOW CYTOMETRY PANELS

01. 6Color Lymphocyte Panel
02. ARC-T Panel
03. BCMA Panel
04. Sponsor BCMA Panel
05. CAR TEAM-E Flow Panel
06. CAR79B19 Flow Panel
07. CD34 Enumeration Panel
08. CD34 Dual Platform Panel
09. Duraclone Panel
10. EGFR CAR Flow Panel
11. EVE LYMPH Panel
12. EVE TREG Panel
13. INKT ENRICHMENT Flow Panel
14. INKT EXPANSION Flow Panel
15. INKT TETRAMER Flow Panel
16. iPSC Characterization Panel
17. iPSC Differentiation Panel
18. LITTMUS Treg Flow Panel
19. ROR1 Panel
20. Sponsor TREG Flow Panel
21. Sponsor TREG Flow Panel
22. TCRαβ Flow Panel
23. TREG Panel
24. TriPRIL Flow Panel

AUTOMATED AND MANUAL ASSAYS

01. ABO/Rh Typing
02. Appearance Test
03. Automated Cell Counts
04. BacT 14-day Sterility
05. CFU
06. CFU Gene Therapy
07. ELISA
08. Endotoxin Testing
09. Manual Gram Stain
10. Manual Sterility
11. Mycoplasma
12. Trypan Blue Viability

OTHER WORKFLOW CHAINS

01. Client Receipt
02. Product Pooling
03. Product Receipt
04. Product Issue/Disposition
05. Product Splitting
06. Sampling Process
07. Sampling Receipt
08. Subject Association

Cell manufacturing, QC, clinical trials

a robust regulatory-compliant platform to manage data for its process for manufacturing transfected immune-stimulated cells

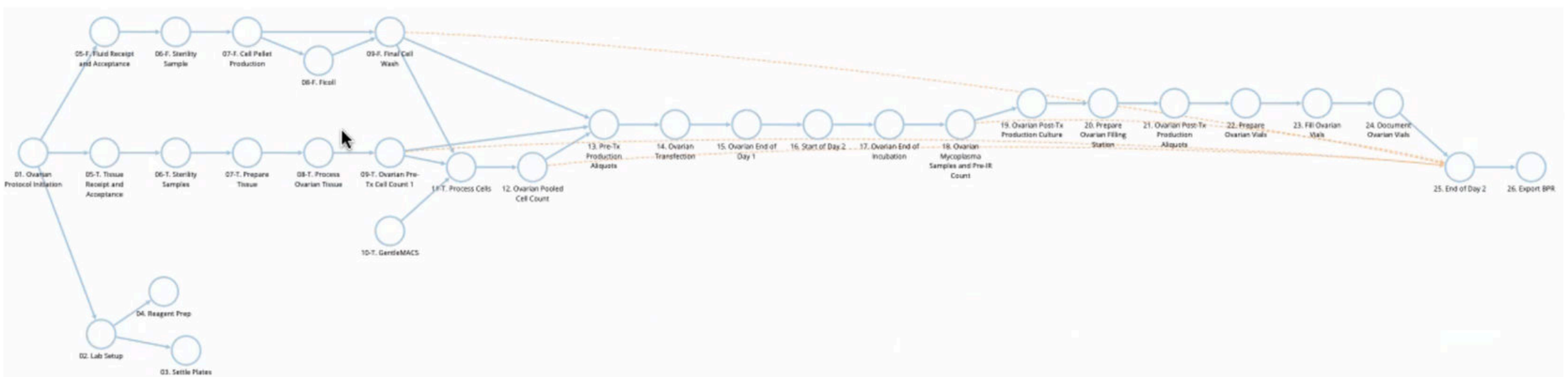
SITUATION

Gradalis is entering Phase III clinical trials for Vigil®, its fully personalized, patient-specific cancer immunotherapy and using a 300-page paper batch record.

SOLUTION

We implemented L7|ESP, a single unified “validated” platform with MES, EBR, LIMS QC, Inventory, Chain of Identity, Chain of Custody, CTMS, eTMF with integrations to instruments, Equipment, ERP and Logistics (World Courier, CryoPort, FedEx)

WORKFLOWS



miRNA CDx Workflow

IVD diagnostic testing platform for a QIAGEN developed miRNA test with Cloud-based and appliance-based global deployment

SITUATION

Paper-Based capture of diagnostic data, including the complete workflow from extraction to data analysis. There was no automated integration with instruments and CLC bioinformatics.

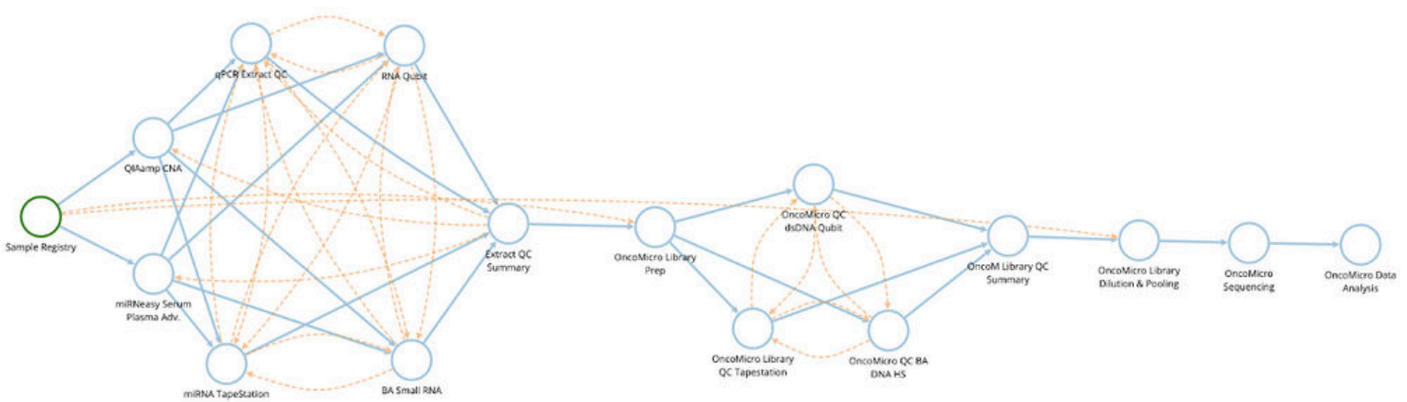
SOLUTION

QIAGEN selected L7|ESP to automate the miRNA NGS workflow (Sample to Insight) for a companion diagnostics including all the instrument and bioinformatics integrations. The miRNA CDx workflow chain begins with the reception of plasma samples in Sample Registry. Once the Nucleic Acid is extracted using the QIAamp miRNeasy Serum Plasma Advanced Kit , L7|ESP walks the user through a set of QC methods (TapeStation, BioAnalyzer, Qubit, and qPCR) to determine the quality of the extracted miRNAs. These findings are summarized in the Extract QC Summary workflow.

At Library Preparation, L7|ESP handles the sample genealogy as libraries are prepared and indexes are assigned. After performing the necessary QC steps, the libraries are diluted and pooled to prepare for NGS.

Prior to sequencing, L7|ESP generates the sample sheet to be used with the NextSeq 550 Dx. L7|ESP automatically registers the generated FastQ files for each library, as well as pull important sequencing run metrics to assess the health of the run. Once complete, the user may submit an analysis job to CLC Workbench at the click of a button. L7|ESP receives the results and displays the output of the secondary analysis back to the user.

WORKFLOW



mRNA CDMO Manufacturing QC Testing, EM, and Process Analytics

vernal BIOSCIENCES

a regulatory-compliant platform to digitalize all mRNA manufacturing and QC operations

SITUATION

Vernal Biosciences seeks to commercialize its liquid nanoparticle mRNA (LNP-mRNA) manufacturing operations through a DigitalFirst approach by implementing L7|ESP laboratory, environmental monitoring, and manufacturing digital workflows to support platform testing and manufacturing operations while eliminating paper lab and batch records, automating process, and connecting instruments for its commercial manufacturing facilities.

SOLUTION

Implementing L7|ESP a single unified "validated" platform to digitalize all operations starting with Quality Control for manufactured mRNA and LNP-mRNA gene therapy products. Digitalizing and Automating CoT/CoA reporting, Manufacturing Process Monitoring, and Environmental Monitoring tracking and trending.

QC RECORDS | AUDIT LOGS | INSTRUMENT CONNECTORS | PROCESS MANAGEMENT

Environmental Monitoring WFCs	Compendial WFs	Analytical WFs	Applets
Active Viable Air Testing	Appearance	Identity Confirmation by RT-dPCR	LIMS Request
Non-Viable Air Testing	Endotoxin	Residual DNA Template by RT-dPCR	Process Monitoring
Passive Viable Air Testing	Particulate Matter	RNA Concentration by UV Spectroscopy	Sample Receipt and Registration
Personnel Gowning Testing	pH	3' Poly(A) Length by CGE	
Viable Surface Testing	Bioburden	mRNA Integrity by CGE	
Viable Swab Testing	Osmolality	dsRNA by Immunoassay	
	Sterility	Potency by ELISA	
		Residual Host Cell Protein by ELISA RNAP	**Reports**
		5' Cap Composition by LC-MS	Certificate of Testing (CoT)
		Residual Solvents and Metals by GC	Certificate of Analysis (CoA)
		Residual Solvents and Metals by ICP	EM – Tracking and Trending

Stability Testing, Certificate of Test (CoT) and Certificate of Analysis (CoA) Reports, Environmental Monitoring (EM), Environmental Monitoring – Tracking and Trending Reports, LIMS Sample Submission, Sample Registration and Receipt, Process Monitoring, Location Tracking

pDNA Manufacturing EBRs, Material Receipt

a regulatory-compliant platform to digitalize all mRNA manufacturing and QC operations

SITUATION

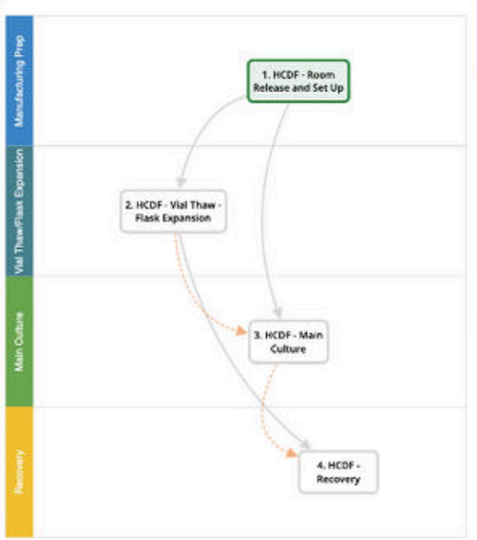
Vernal Biosciences seeks to commercialize its liquid nanoparticle mRNA (LNP-mRNA) manufacturing operations through a DigitalFirst approach by implementing L7|ESP laboratory, environmental monitoring, and manufacturing digital workflows to support platform testing and manufacturing operations while eliminating paper lab and batch records, automating process, and connecting instruments for its commercial manufacturing facilities.

SOLUTION

Implementing L7|ESP a single unified “validated” platform to digitalize all operations, focusing on initial pDNA Manufacturing Electronic Batch Records (EBRs) through L7|ESP Manufacturing Execution System (MES). Digitalizing and Automating Bill of Equipment (BoE) reporting. Digitalizing material receipt for inventory items used within EBRs.

QC RECORDS AUDIT LOGS INSTRUMENT CONNECTORS PROCESS MANAGEMENT

High Cell Density Fermentation MES WFC WFs	High Cell Density Fermentation MES WF Protocols
HCDF – Room Release and Set Up	Room Release
	HCDF – Equipment Verification
HCDF – Vial Thaw – Flask Expansion	HCDF – VT/Flask Expansion – Material Verification
	HCDF – Vial Thaw Prep
	HCDF- VT/Flask Expansion - Execution
HCDF – Main Culture	HCDF – Main Culture – Material Verification
	HCDF – Fermentation Preparation
	HCDF – SUF Inoculation and Fermentation Run
HCDF – Recovery	HCDF – Recovery – Material Verification
	HCDF – Fermentation In-Process Sampling
	HCDF - Harvest



pDNA Alkaline Lysis MES WFC WFs	pDNA Alkaline Lysis MES WF Protocols
pDNA Alkaline Lysis – Manufacturing Prep	Room Release
	pDNA Alkaline Lysis – Equipment Verification
	pDNA Alkaline Lysis – Material Verification
	Production Approval
pDNA Alkaline Lysis – Equipment Setup	pDNA Alkaline Lysis – Equipment Setup

Manufacturing Execution System (MES), Electronic Batch Records (EBRs), Bill of Equipment (BoE) Report, Bartender Label Printing, Material Receipt Applet, Equipment Management

Electronic Lab Notebook, Material Receipt Ingest

a regulatory-compliant platform to digitalize all mRNA manufacturing and QC operations

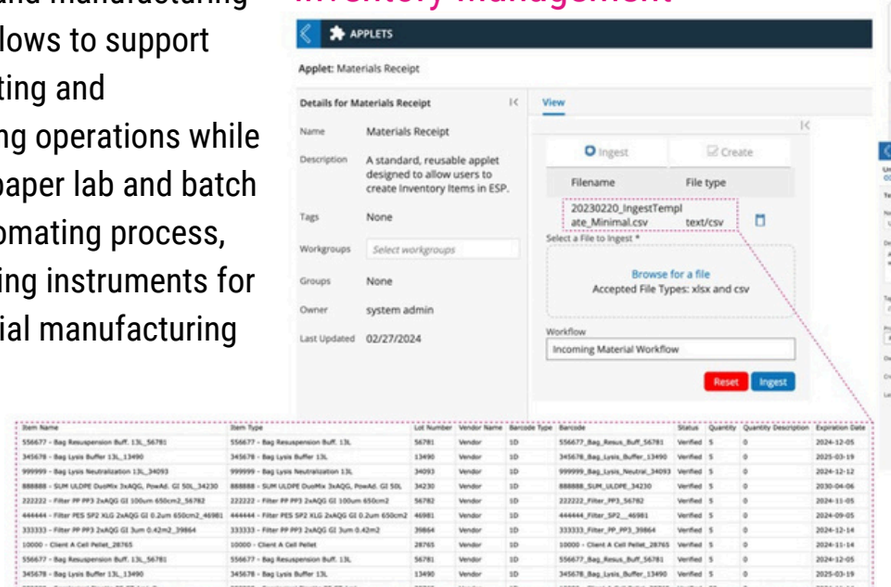
SITUATION

Vernal Biosciences seeks to commercialize its liquid nanoparticle mRNA (LNP-mRNA) manufacturing operations through a DigitalFirst approach by implementing L7|ESP laboratory, environmental monitoring, and manufacturing digital workflows to support platform testing and manufacturing operations while eliminating paper lab and batch records, automating process, and connecting instruments for its commercial manufacturing facilities.

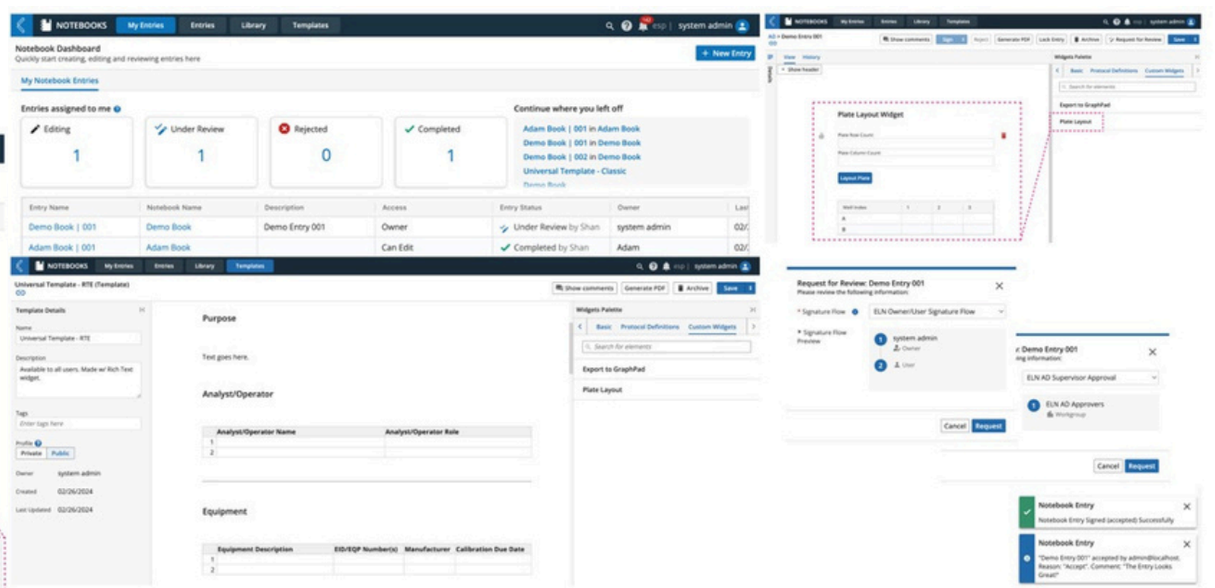
SOLUTION

Implementing L7|ESP a single unified “validated” platform to digitalize laboratory operations utilizing Electronic Lab Notebooks (ELN). Through L7|ESP Material Receipt Applet, automated the process of inventory receipt by developing a data ingest feature. Deployed a comprehensive ELN system to capture user generated notes and data while streamlining entry processes by providing templates and custom widgets. Employed the ability for the author to assign notebook entries to other users for review and signature approvals.

Inventory Management



ELN



VALUE COMPARISON OF THE L7|ESP UNIFIED PLATFORM VS INTEGRATED POINT SOLUTIONS ⟶ TCO

INVESTMENT	L7|ESP	INTEGRATED POINT SOLUTIONS
Licenses	Annual License Model: Core License + Additional Packages (Lab Operations, Research, etc...). Updates to the latest release are included.	Multiple licenses for multiple solutions (ELN, LIMS, Inventory Management, Freezer Management, Instrument Integration, Data Management, Reporting, etc...). Upgrades to the latest release may incur additional license fees.
Maintenance Fees	Maintenance is included in the annual license.	Typically 20% - 22% of the license fee for each solution.
Integration	Because L7|ESP is a unified platform and leverages a single data fabric, no integration is required to enable an end-to-end process other than, for example, an ordering portal or ERP system (as required).	Multiple point solutions require multiple integration points, leading to higher costs and preventing full contextualization of the overall data model, making it extremely difficult or even impossible to obtain meaningful insights.
IT Resources	Only a single set of common skills (Python, HTML, and JavaScript) are required to maintain and extend all aspects of research, development, and lab operations. Fewer IT resources are required to maintain such a unified platform.	Multiple solutions require multiple technical skillsets to maintain the solutions, thus requiring additional IT resources and cost.

VALUE COMPARISON OF THE L7|ESP UNIFIED PLATFORM VS INTEGRATED POINT SOLUTIONS → CAPABILITIES

INVESTMENT	L7|ESP	INTEGRATED POINT SOLUTIONS
Data Model	L7|ESP offers a flexible late binding data model tailored to customer needs with the Builders no-code configuration tool. Ontology Services like SciBite ensure adherence to ontology rules across the organization. With a single data fabric, L7|ESP can collect and execute data for any end-to-end process, leading to comprehensive insights into scientific and operational data.	Some solutions require customers to adjust their data models to fit an existing structure. This can result in changes to customer processes to accommodate inflexible data models, leading to time-consuming and costly analysis of data from multiple integrated systems. This can also result in a loss of contextualization and value of the data collected.
Process Model	L7|ESP's low code/no code configuration tool allows for easy configuration of any process using both predefined and new content without requiring the customer to change any part of their current processes.	Some solutions force customers to adapt their processes to fit a predetermined structure and may not support all protocols and workflows within an end-to-end process.
Predefined and Reusable Content	L7 Informatics continually creates reusable content to enhance implementation efficiency and speed. This content includes data entity definitions, workflow components, instrument connectors, and more, which can be shared easily between departments to improve collaboration and speed to value.	Without the use of a composable architecture and unified platform, implementations tend to be more custom and deployed in silos across different departments.
Business Analytics Enablement	L7|ESP uses a single data fabric including an intelligence data store that can be used by any business intelligence tool such as Microsoft PowerBI, Tableau, etc. to enable scientific and operational insights into all processes and data within L7|ESP. With L7|ESP's single data fabric, all data is contextualized to enable deeper and more meaningful insights.	Data sourced from multiple systems typically is exported to a data lake system for analysis. However, data stored in a data lake will lose context as the different data sources are joined, which restricts the value that can be obtained from the analysis.
Communication and Visibility	Users across all groups (Biospecimen Management, Sample Management, Lab Operations, Pathologists, Bioinformatics, etc.) all work seamlessly in the same platform. All requests, status, results, reconciliations, and more are easily available.	Communication via email, internal messaging services, etc. is required to communicate requests, status, results, issues, etc. when using multiple solutions. Visibility to critical information regarding requests, status, results, reconciliations is much more difficult when using multiple solutions.
Sample Lineage and Provenance Tracking	L7|ESP tracks each sample from storage in the BSSR to use in each lab and includes tracking via couriers and external partners, as applicable. L7|ESP automatically manages and tracks all sample parent-child relationships as well as all sample movement to provide full Chain of Identity and Chain of Custody for all samples.	Using multiple systems to enable any end-to-end process increases the difficulty to not only track but also to maintain sample lineage and provenance when sample related data must be exchanged between systems, sometimes multiple times within a single process.
End-to-End Audit Trail	L7|ESP includes a complete and immutable audit trail of each change in the database including all implemented end-to-end processes.	Multiple solutions not only requires multiple audit trail exports but also mapping and assemblage of different audit trail formats to produce a single audit trail of an end-to-end process.

VALUE COMPARISON OF THE L7|ESP UNIFIED PLATFORM VS INTEGRATED POINT SOLUTIONS ⟶ IMPLEMENTATION + MAINTENANCE

INVESTMENT	L7|ESP	INTEGRATED POINT SOLUTIONS
IT Resources	Only a single set of common skills (Python, HTML, and JavaScript) are required to maintain and extend all aspects of research, development, and lab operations. Fewer IT resources are required to maintain such a unified platform.	Multiple solutions require multiple technical skillsets to maintain the solutions, thus requiring additional IT resources and cost.
Ease of Configuration	Because most of the process and data modeling changes can be performed by anyone trained in the L7|Master low code / no code configuration tool, changes can be made much more rapidly since IT resource typically do not need to be involved.	Many point solutions required IT resources to make basic changes such as extending the data model or modifying a protocol step, thus increasing costs and delays while decreasing flexibility and speed to market.
Implementation Approach and Skillsets	Uses Low Code / No Code configuration tool for Data and Process ModelingReporting, Data Processing, and Automation leverages commonly used technical skills, including Python, HTML, and JavaScript.	Multiple solutions typically require multiple technical skillsets across all the solutions from database management to configuration to coding and more with each solution potentially requiring a different set of technical skills.
Implementation SDLC	L7 Informatics' well-defined customer content SDLC provides a single roadmap for a successful implementation of any end-to-end process in L7|ESP. Each customer implementation is fully documented.	Implementing multiple systems requires multiple implementation approaches and models increasing costs and time to value.
Verification and Validation	Each major release of L7|ESP is verified and validated. In addition, each customer implementation is verified by L7 Informatics' QA resources. Verification and validation documentation including test matrices, trace matrices, Verification Summary Report, Release Notes, and more are provided to each customer to support their own verification and validation efforts.	Verification and Validation is required for each system, leading to higher overall validation costs. Some vendors may provide verification and validation documentation while others may not.
Updates	L7 Informatics is a PaaS solution which means that L7|ESP updates are provided to each customer who can then implement those updates on their own schedule. Any required verification and validation related to L7|ESP updates or additional implementation phases need only be performed in one system.	Verification and validation will be required (as applicable) to each system update as well as each system impacted by additional implementation phases.

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About L7 Informatics

L7 Informatics, Inc. is a leading provider of integrated scientific data and analytics solutions. The company offers a comprehensive platform that enables seamless data integration, advanced analytics, and collaborative workflows, empowering scientists and researchers to accelerate discoveries, improve operational efficiencies, and drive innovation. L7's mission is to revolutionize how scientific data is managed, analyzed, and utilized, facilitating breakthroughs in research, drug discovery, development, and manufacturing. To learn more, visit www.l7informatics.com.