L7 INFORMATICS

L7|ESP Enterprise Science Platform™

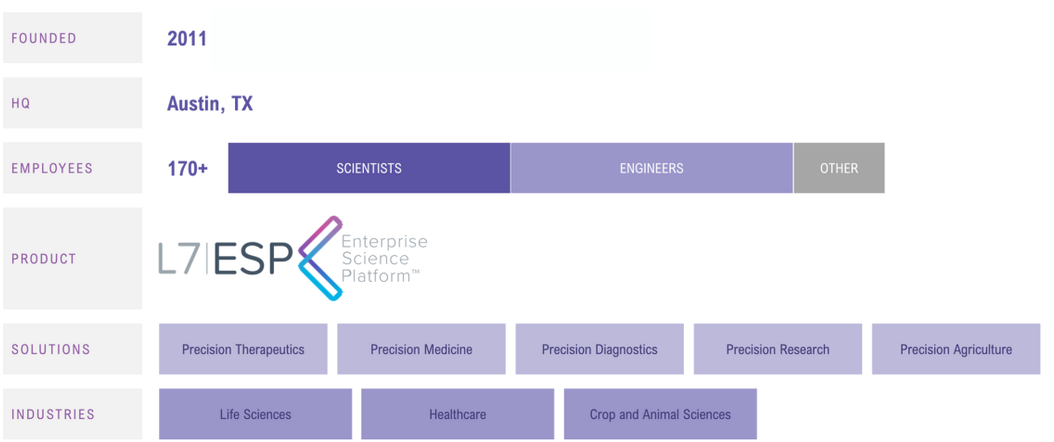
EBOOK

L7 | PRECISION RESEARCH

automate and improve research life-cycle processes by digitalizing experiment-to-insight

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

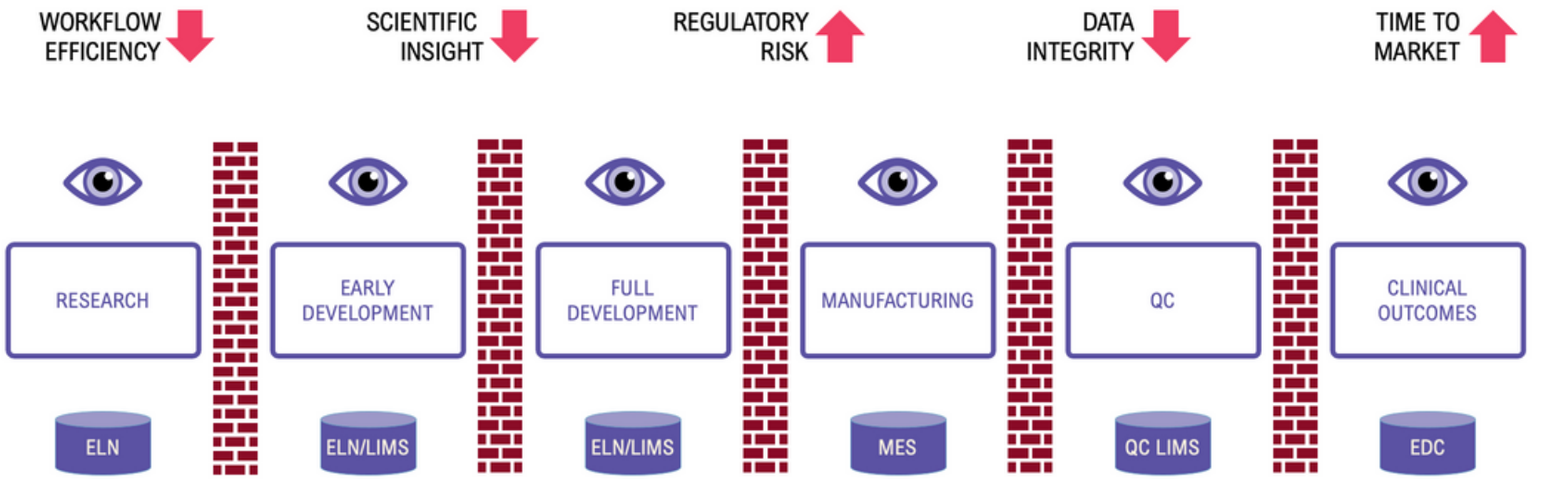
Honored that L7 Informatics made the list again with another impressive 3-year growth of 1,543%.

Deloitte Technology 'FAST 500' 2023

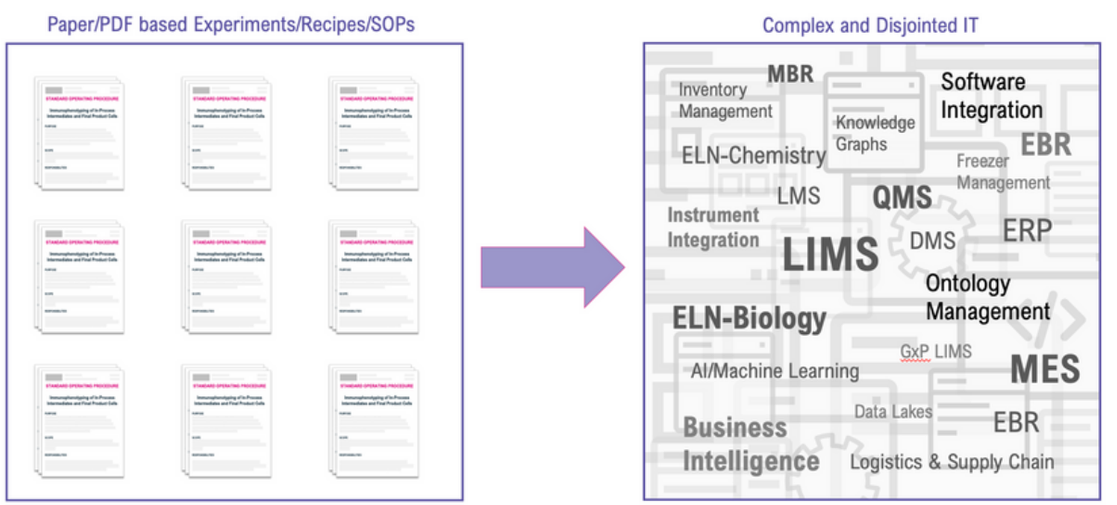
For a third consecutive year, we made the list again, and celebrate a significant 3-year revenue growth of 2047%.

The Problem

Legacy data silos and processes hinder velocity, efficiency, and science, increasing the risk for business and patients.

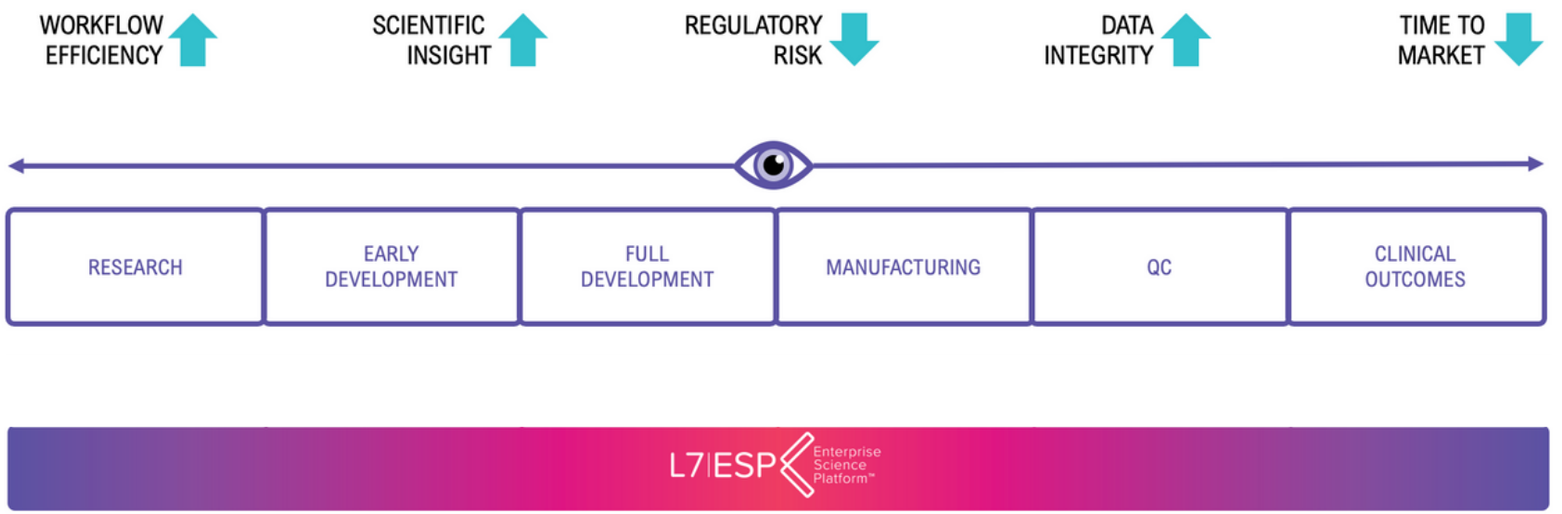


Paper-based “Standard Operating Procedures” implemented across siloed IT systems make digitalization and validation of systems difficult and reduce the velocity of the business and create data integrity problems

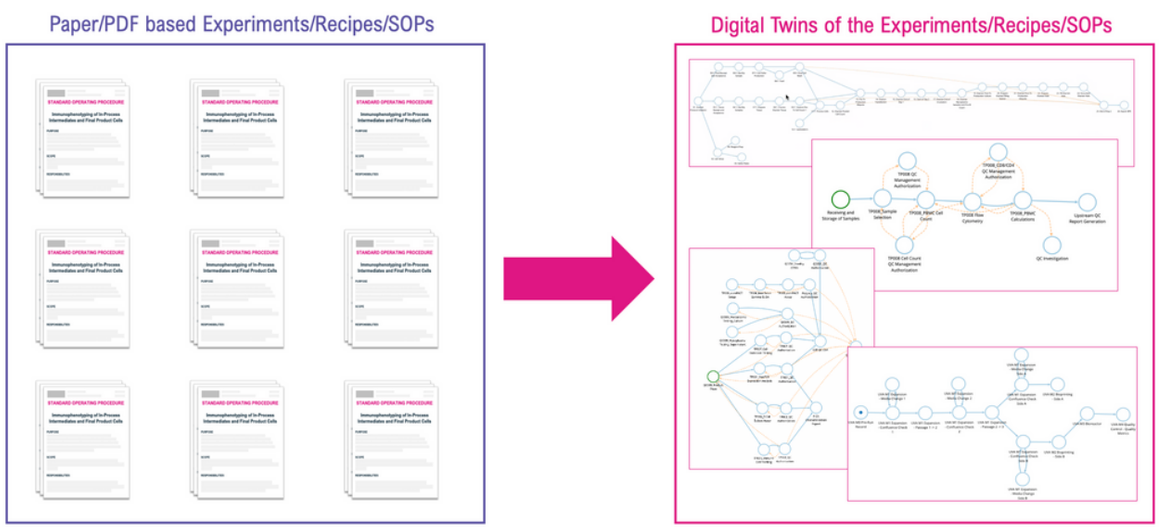


The Solution

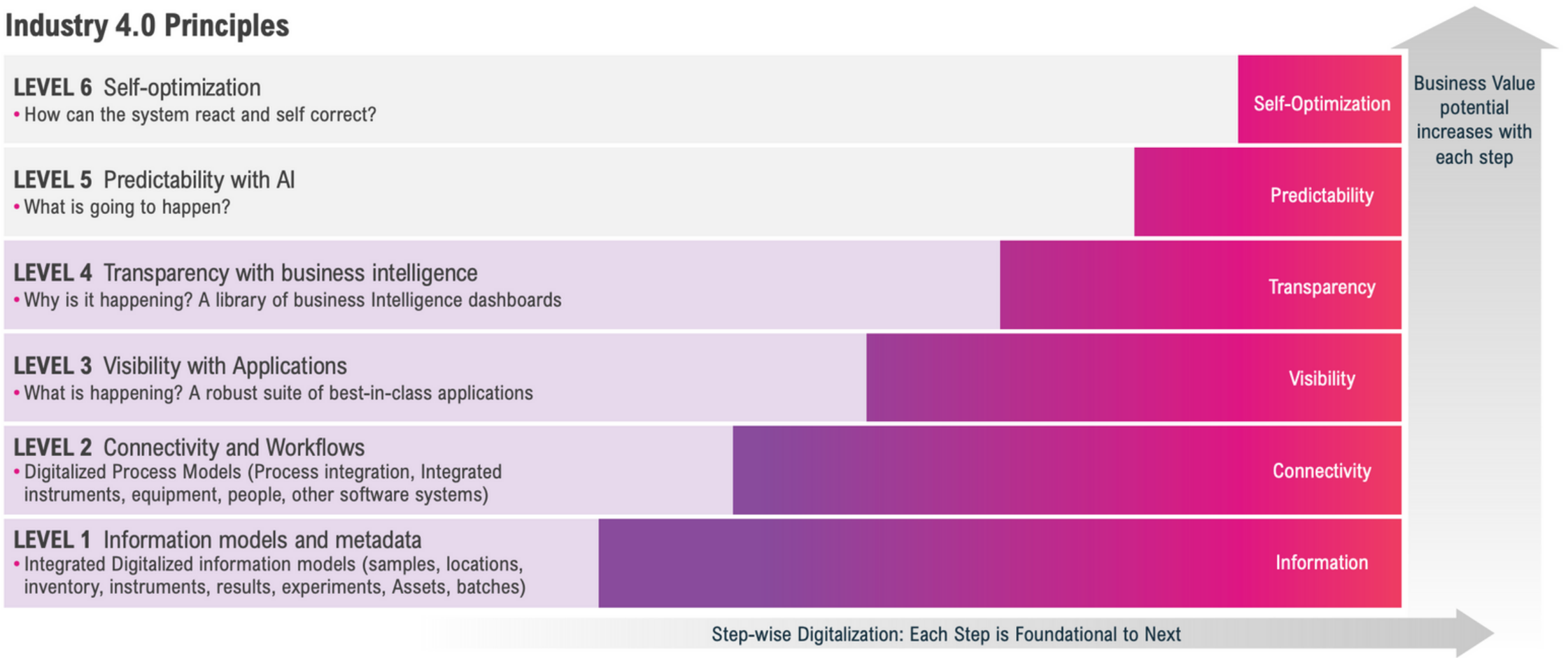
L7|ESP accelerates Precision Research requirements for integrated data + intelligence, improving efficiency, velocity, and science.



L7|ESP creates digitalized twins of Experiments, Recipes and SOPs, making the validation of systems easier, increasing the velocity of the business, and reducing data integrity problems.



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

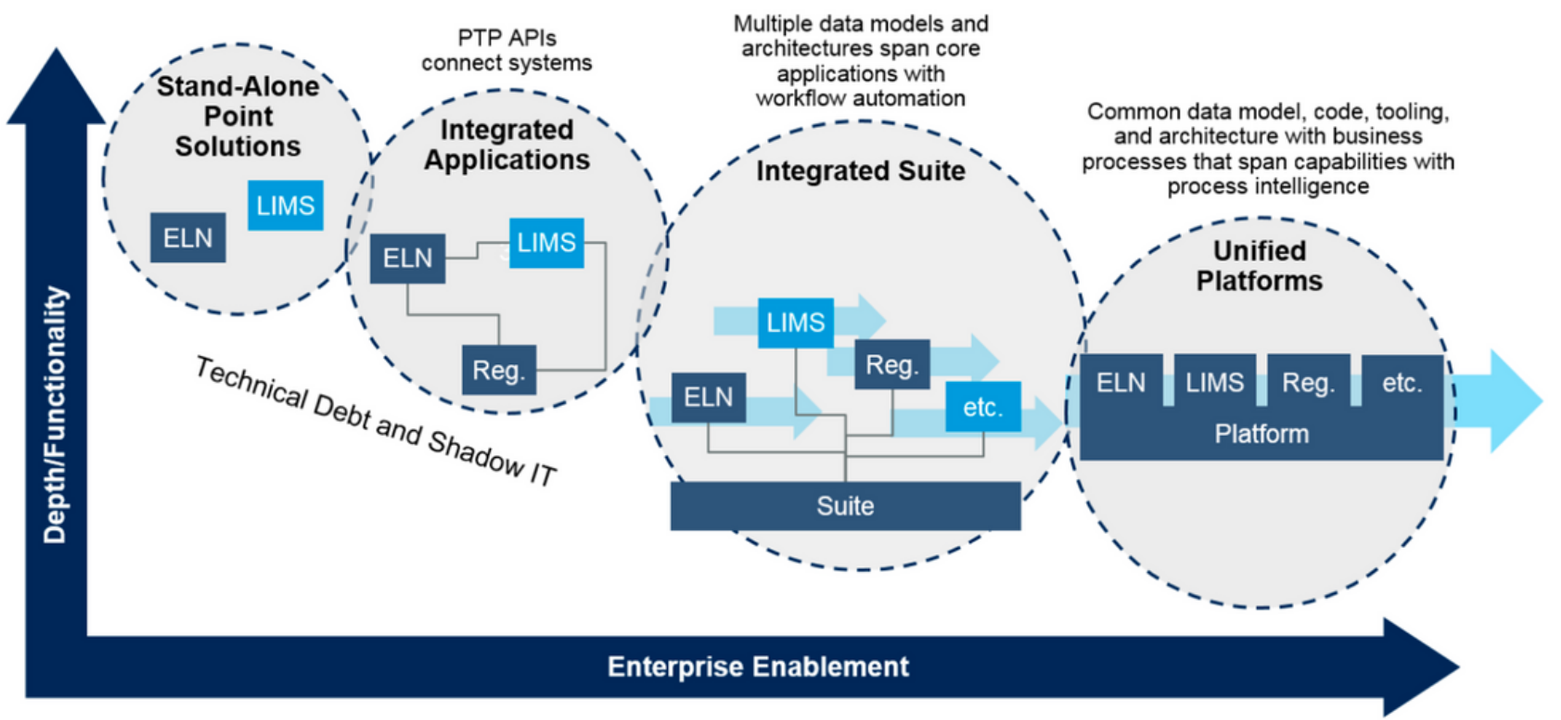


L7|ESP - A Unified Platform for Life Sciences

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

ID: 336151

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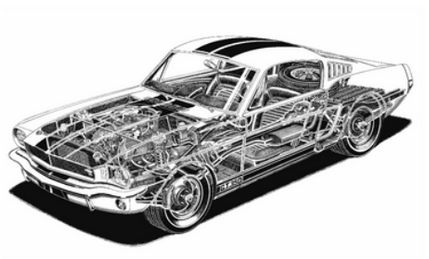
Composable Platforms Built of ‘Primitives’

COMPOSITE MODELS vs PRIMITIVE MODELS

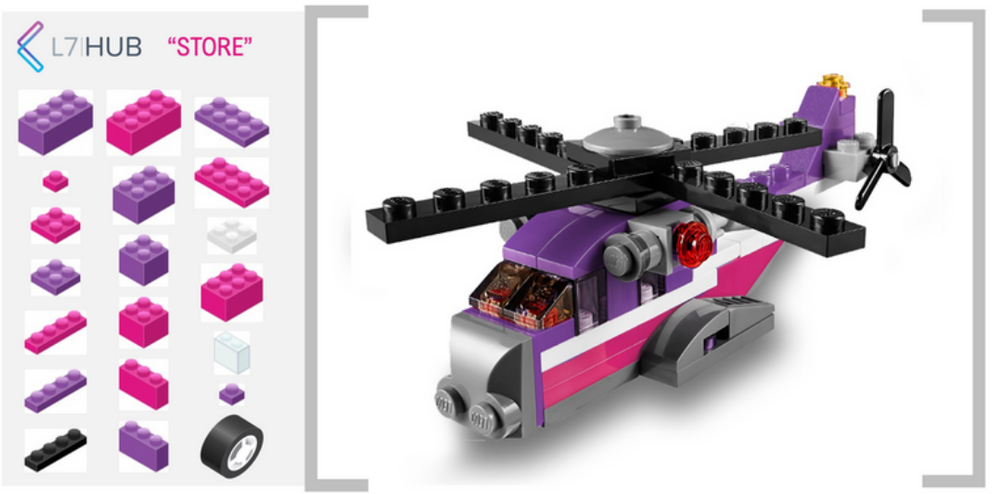
Composite models are fixed functionality and difficult to modify



Primitive models provide quick assembly, modification, and reusability

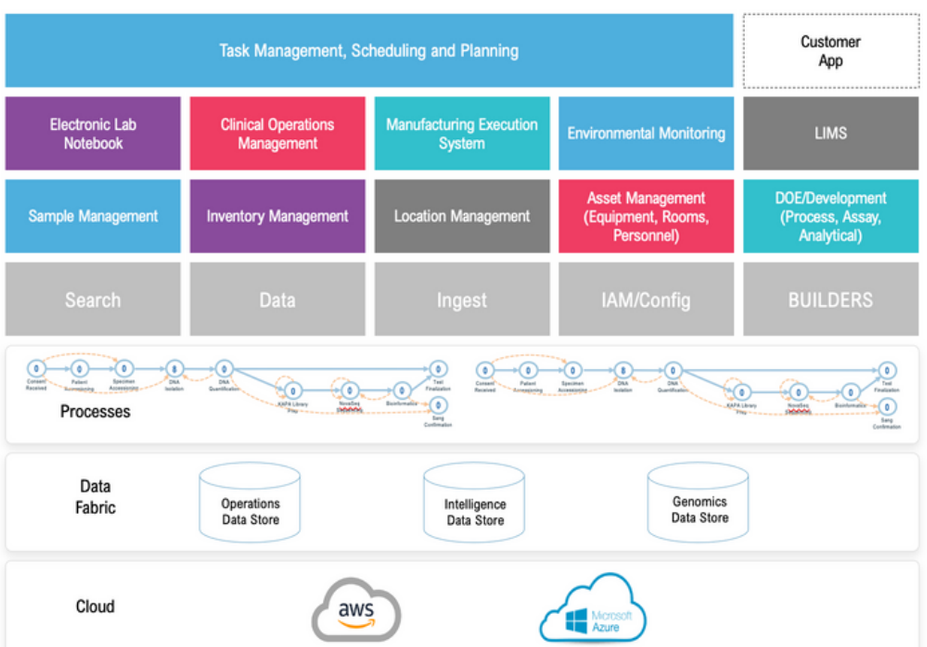
Enterprise Architecture using the Zachman Framework

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

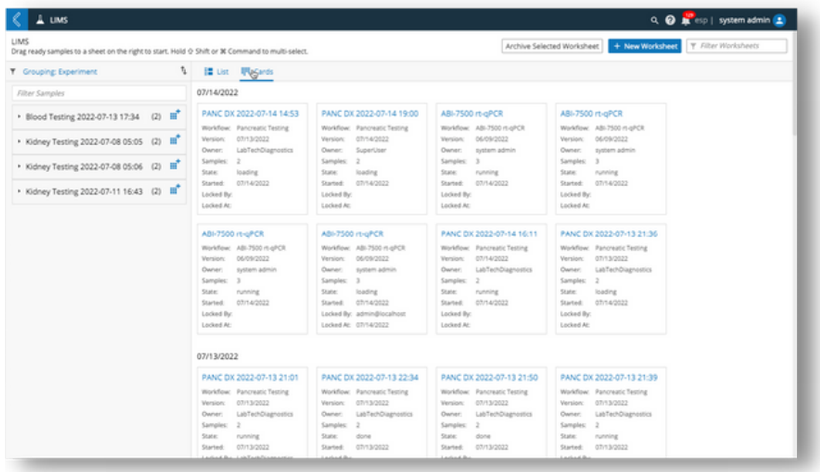
Standard Apps

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

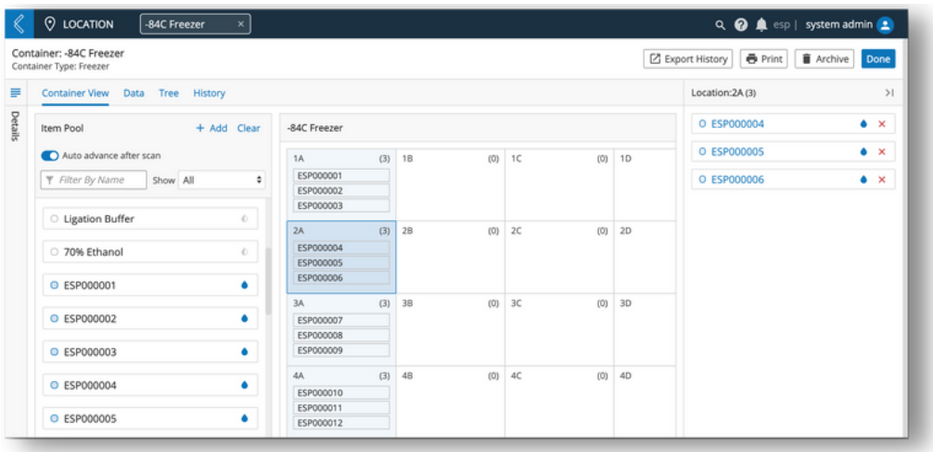
Configuration Apps

- Applets
- Master (Builders)
- IAM

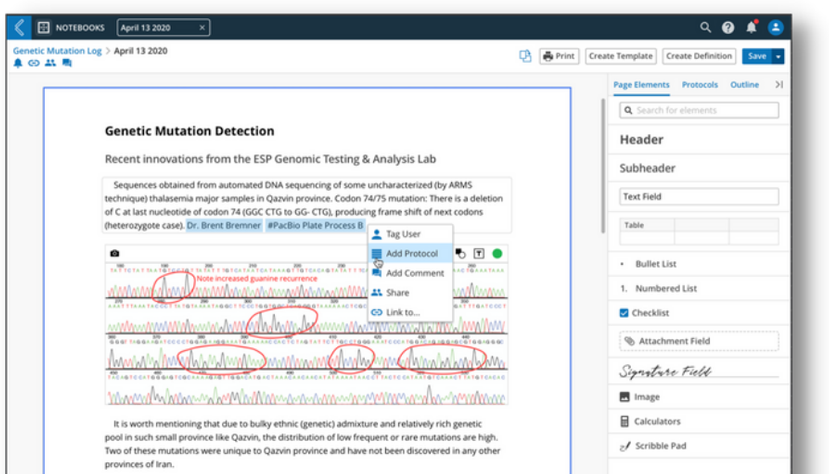
L7 Business Apps - Every Application Needed for the Scientific Enterprise



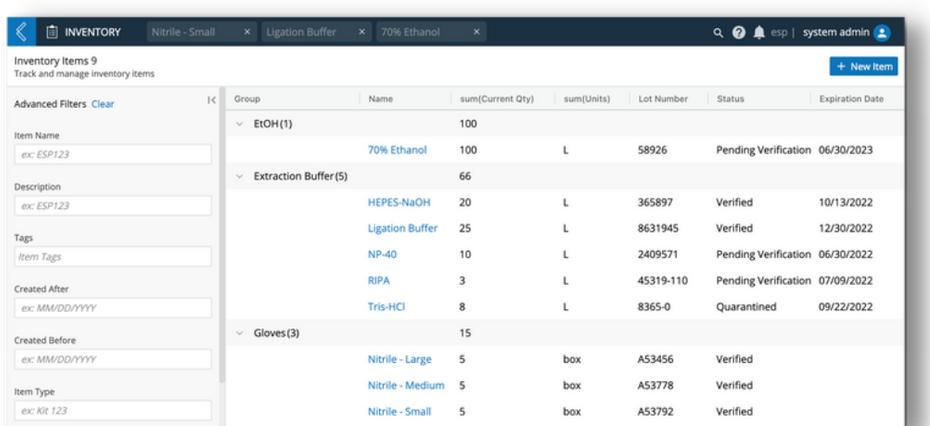
Integrated LIMS + LES



Location

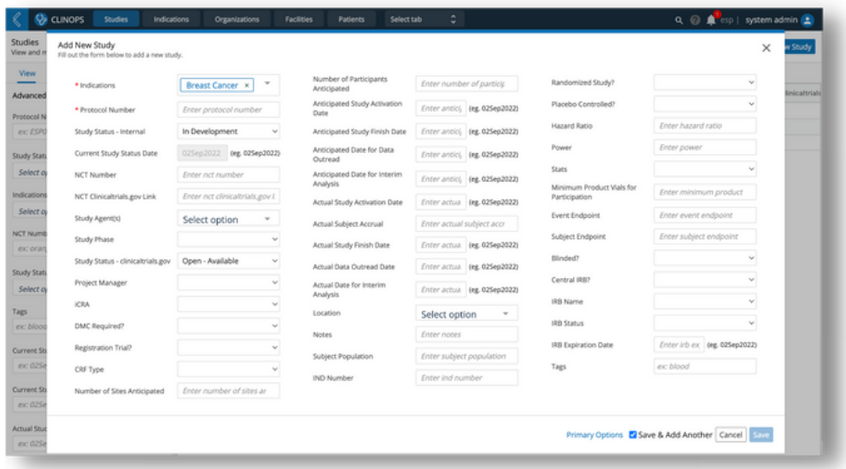


Electronic Lab Notebook

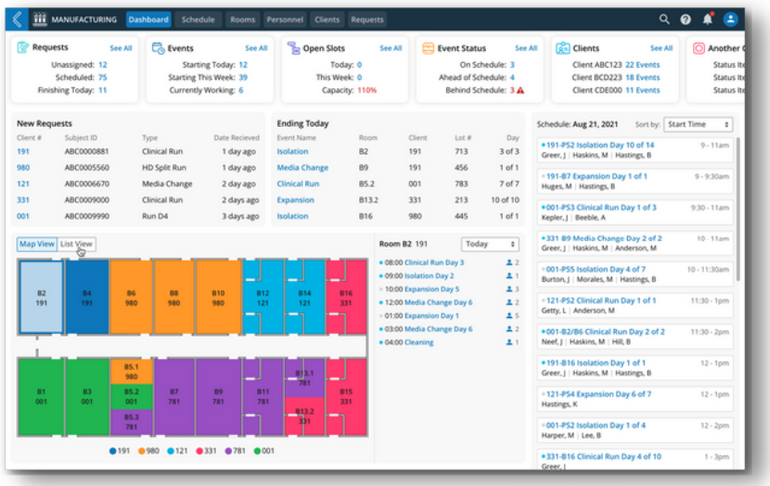


Inventory

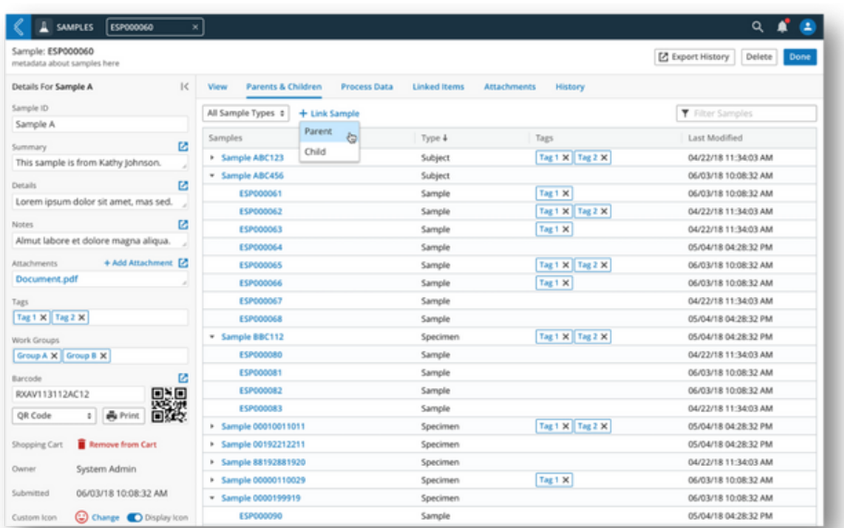
L7 Business Apps (continued)



Clinical Operations



Scheduling



Sample Management

L7|ESP Connectors

L7|ESP Enterprise Science Platform™

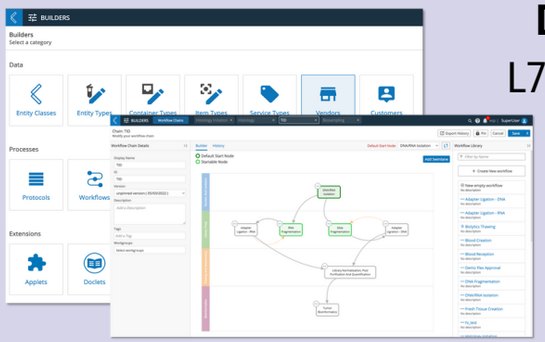
Agilent	Bioanalyzer 2100
	Tapestation 2200,4200
	Microplate Labeler
Akoya Bioscience	Vector Polaris
APC	UPS/SMX3000RMHV2U
Applied Technology	7900 HT
Beckman Coulter	Ampure
	BioMek i7
Bio-Rad	Gel Doc XR + Imager
Biolog	Plate Renderer
Biomerieux	BACT/Alert 3D
BioStore	III Cryo -190C
Biotek	Synergy LX (fluorimeter)
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

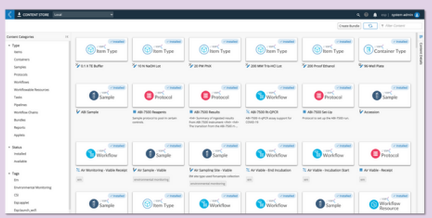
Design > Publish > Execute > Monitor + Mine > Optimize



Design:
L7|MASTER

PUBLISH

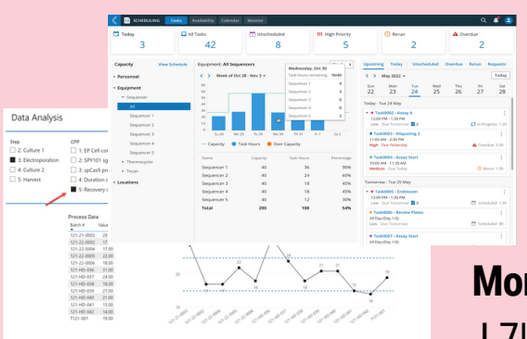
Store Digital Content:
L7|HUB



EXECUTE

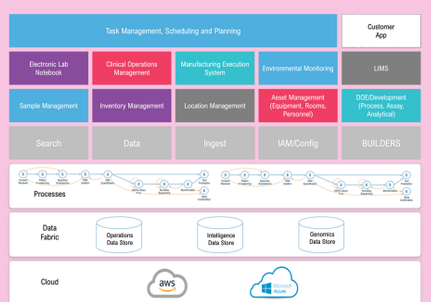
OPTIMIZE + REDESIGN PROCESSES & OPERATIONS

MONITOR + MINE



Monitor and Mine:
L7|INTELLIGENCE

Execute Process:
L7|ESP + APPS



L7 Informatics Customers

CASE STUDIES

Creating an Efficient and Transparent Lab Process

to expedite the formalization of internal R&D standard operating procedures (SOPs)

SITUATION

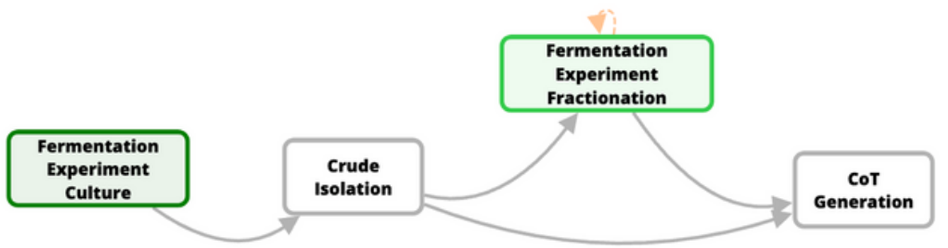
Think Bioscience needed to modernize, adapt, and improve their internal excel spreadsheet-based processes to accommodate their need to manage all entities and data in one single source of truth.
To scale and standardize their PoC processes they required all data collected follows a rigorously established SOP and is made available within a centralized database.

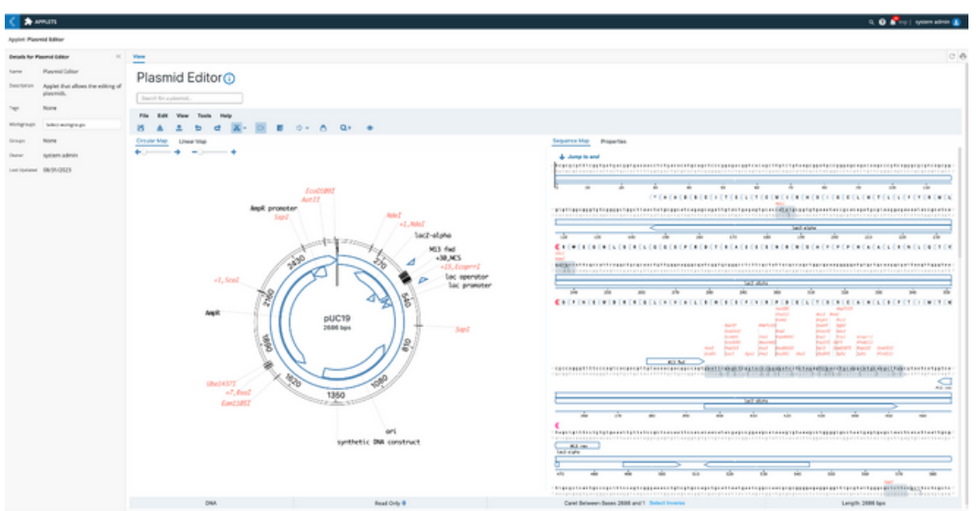
SOLUTION

L7|ESP brings organization, efficiency, and transparency to Think Bioscience's R&D SOP implementation process, facilitating disparate data collection, tracking, and storing.

- Streamlines library screening and data generation
- Integrates the plasmid editor, plasmid libraries with associated metadata, and efficient data mining and retrieval
- Enables scalability, transparency, and connectivity between team members involved in rewriting SOPs to formalize internal processes.

WORKFLOW CHAINS





The Unified Platform L7|ESP™, with its Workflow Orchestration system, was identified as the perfect solution to bring organization, efficiency, and scalability to Think Bioscience's process while formalizing their internal SOP process.

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 provide 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.

L7 INFORMATICS

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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.