



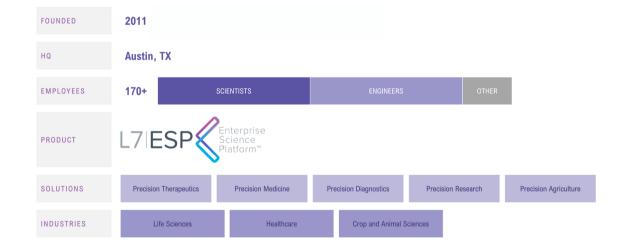
EBOOK

L7 | PRECISION DIAGNOSTICS

deliver superior service with faster turn-around by digitalizing order-to-report

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

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.

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5000[™] Technology Fast 500 2021 NORTH AMERICA Deloitte.

Deloitte Technology 'FAST 500' 2021

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

500° Technology Fast 5

Technology Fast 500 2022 NORTH AMERICA Deloitte.

Deloitte Technology 'FAST 500' 2022

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

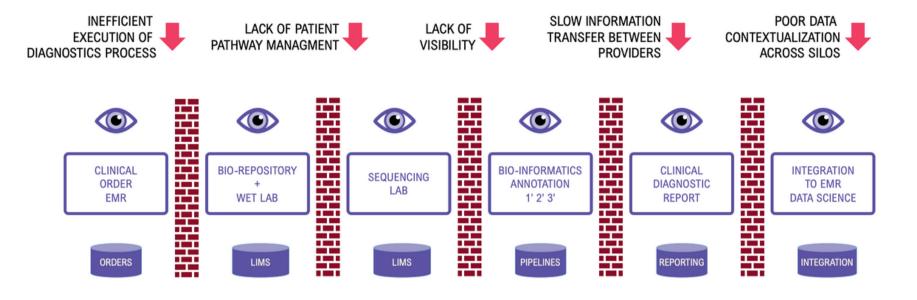
Technology Fast 500 2023 NORTH AMERICA Deloitte.

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

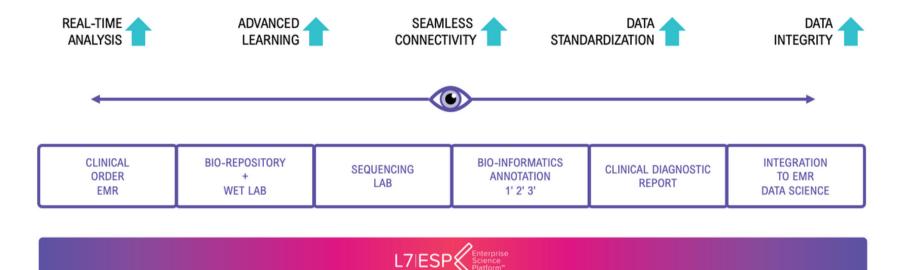
Legacy data silos and processes hinder velocity, efficiency, and science, increasing the risk for business and patients.



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 Paper/PDF based Experiments/Recipes/SOPs Complex and Disjointed IT MBR Software Inventory Integration Management Knowledge EBR Graphs **ELN-Chemistry** Freezer Management LMS QMS Instrument ERP DMS Integration LIMS Internetisting of its Process Internetistes and Final Product Calls Internet Annual State of State Processor Ontology Management **ELN-Biology** GxP LIMS MES Al/Machine Learning Data Lakes EBR **Business** Intelligence Logistics & Supply Chain

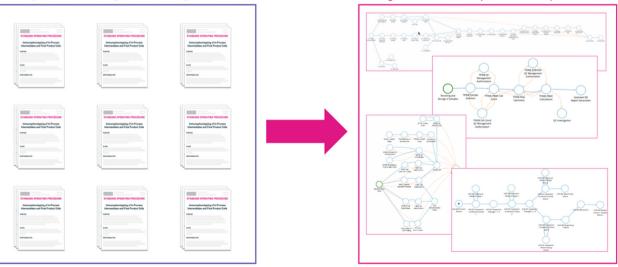
The Solution

L7|ESP accelerates Precision Diagnostics requirements for integrated data + intelligence, improving efficiency, velocity, and science, and reducing risk for business and patients



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.

Paper/PDF based Experiments/Recipes/SOPs



Digital Twins of the Experiments/Recipes/SOPs

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

Industry 4.0 Principles

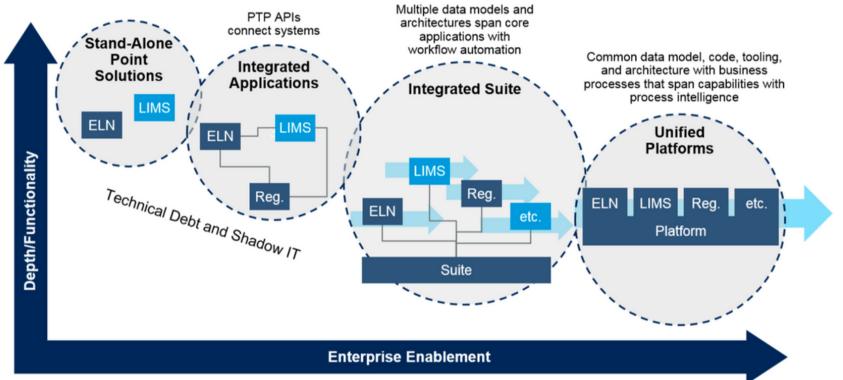
LEVEL 6 Self-optimization • How can the system react and self correct?		Self-Optimization	Business Value potential increases with
LEVEL 5 Predictability with Al • What is going to happen?		Predictability	each step
LEVEL 4 Transparency with business intelligence • Why is it happening? A library of business Intelligence dashboards		Transparency	
LEVEL 3 Visibility with Applications • What is happening? A robust suite of best-in-class applications		Visibility	
 LEVEL 2 Connectivity and Workflows Digitalized Process Models (Process integration, Integrated instruments, equipment, people, other software systems) 		Connectivity	
 LEVEL 1 Information models and metadata Integrated Digitalized information models (samples, locations, inventory, instruments, results, experiments, Assets, batches) 		Information	
	Step-wise Digitalization: Each Step i	s Foundational to Next	

L7|ESP - A Unified Platform for Life Sciences



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

© 2018 Gartner, Inc.

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





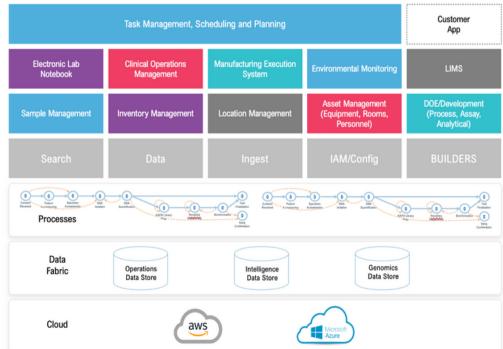




Unified Platforms

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

s				Pesp system ad
9 pready samples to a sheet on the right to start. Hold 0	Shift or X Command to multi-select.	Arch	hive Selected Worksheet + New Worksheet	▼ Filter Worksheet
Srouping: Experiment	🔚 List 🔤 🖓 🖓 and s			
ter Samples	07/14/2022			
Blood Testing 2022-07-13 17:34 (2) 📑		022-07-14 19:00 ABI-7500 rt-qPCR	A8I-7500 rt-qPCR	
Kidney Testing 2022-07-08 05:05 (2) 💵	Version: 07/13/2022 Version: 01	noreatic Testing Workflow: Adi-7500 rt-oPC 114/2022 Version: 06/09/2022 per/ber Owner: system admin	CR Workflow: A81-7500 rt-gPCR Version: 05/09/2022 Owner: system admin	
Kidney Testing 2022-07-08 05:06 (2) 📑	Samples: 2 Samples: 2	Samples: 3 ading State: running	Samples: 3 State: running	
Kidney Testing 2022-07-11 16:43 (2)	Started: 07/14/2022 Started: 07 Locked By: Locked Ac: Locked Ac	V14/2022 Started: 07/14/2022 Locked By: Locked Ac	Started: 07/14/2022 Locked By: Locked At	
	Version: 06/09/2022 Version: 01 Owner: system admin Owner: sy Samples: 3 Samples: 3 State: running State: lo Stated: 07/14/2022 Started: 07	500 rt.ghOR Workflow: Panzreatic Test 109/3022 Version: 07/142022 stem admin Owner: LabTechDiagno Samgle: 2 ading State: running 114/3022 States 0714/2022 states 0714/2022	ing Workflow: Pancreatic Testing Version: 07/13/2022	
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Integrated LIMS + LES

Mutation Log > April 13 2020	🕒 👼 Print Create Template Create Definition
	Page Elements Protocols Out
	Q. Search for elements
Genetic Mutation Detection	Header
Recent innovations from the ESP Genomic Testing & Analysis Lab	Subheader
Sequences obtained from automated DNA sequencing of some uncharacterized (by ARMS technique) thalasemia major samples in Qazvin province. Codon 74/75 mutation: There is a deletion	Text Field
of C at last nucleotide of codon 74 (GGC CTG to GG- CTG), producing frame shift of next codons	
(heterozygote case). Dr. Brent Bremner PacBio Plate Process B	Table
Add Protocol T Add Protocol	Bullet List
Add Comment	1. Numbered List
	Checklist
	S Attachment Field
Marshaling With Marshaling and Marshaling Marshaling Marshaling Marshaling Marshaling Marshaling Marshaling Mar	0. 4. 54
1	Signature Field
www.dwlaine-www.localine-ano-hane-in-conductoriandar-in-matation	Image
It is worth mentioning that due to bulky ethnic (genetic) admixture and relatively rich genetic pool in such small province like Qazvin, the distribution of low frequent or rare mutations are high.	E Calculators
Two of these mutations were unique to Qazvin province and have not been discovered in any other	ی Scribble Pad

Electronic Lab Notebook

	ainer Type: Freezer							oort History 🖨 Print 🔋 A	rchive D	one
•	Container View Data Tree History							Location:2A (3)		>
Detaile	Item Pool + Add Clear	-84C Freezer						O ESP000004	٠	×
	Auto advance after scan	1A	(3)	1B	(0)	1C (0)	1D	O ESP000005	٠	×
	Filter By Name Show All \$	Filter By Name Show All CESP000001			O ESP000006	٠	×			
	C Ligation Buffer	ESP000003								
	e cigatori bunci	2A	(3)	28 (0)	2C (0)	2D				
	ි 70% Ethanol - ර	ESP000004								
	© ESP000001	ESP000005 ESP000006								
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	 ESP000002 	ESP000007								
		ESP000008								
	© ESP000003	ESP000009								
	ESP000004	4A	(3)	48	(0)	4C (0)	4D			
		ESP000010 ESP000011								

Location

Inventory Nitr	rile - Small	× Ligation Buffer	× 70% Ethanol	×			० 🕜 🌲 esp sy	stem admin 🙁
nventory Items 9 Irack and manage inventory items								+ New Item
dvanced Filters Clear	K	Group	Name	sum(Current Qty)	sum(Units)	Lot Number	Status	Expiration Date
tem Name		 EtOH(1) 		100				
ex: ESP123			70% Ethanol	100	L	58926	Pending Verification	06/30/2023
Description		 Extraction Buffer (5) 		66				
ex: ESP123			HEPES-NaOH	20	L	365897	Verified	10/13/2022
Tags			Ligation Buffer	25	L	8631945	Verified	12/30/2022
Item Tags			NP-40	10	L	2409571	Pending Verification	06/30/2022
Created After			RIPA	3	L	45319-110	Pending Verification	07/09/2022
ex: MM/DD/YYYY			Tris-HCI	8	L	8365-0	Quarantined	09/22/2022
Created Before		 Gloves (3) 		15				
ex: MM/DD/YYYY			Nitrile - Large	5	box	A53456	Verified	
tem Type			Nitrile - Medium	5	box	A53778	Verified	
ex: Kit 123			Nitrile - Small	5	box	A53792	Verified	

Inventory

L7 Business Apps (continued)

tudies lew and m	Add New Study Fill out the form below to add a new stud	dy.						×	w Study
View dvanced	• Indications	Breast Cancer ×	Number of Participants Anticipated	Enter numb	tr of particip	Randomized Study?		v	linicaltrial
votocol N	Protocol Number	Enter protocol number	Anticipated Study Activation Date	Enter anticip	(eg. 025ep2022)	Placebo Controlled?		~	
ex: ESPO	Study Status - Internal	In Development v	Anticipated Study Finish Date	Enter anticij	(eg. 025ep2022)	Hazard Ratio	Enter hazard ratio		
udy Stats	Current Study Status Date	025ep2022 (eg. 025ep2022)	Anticipated Date for Data Outread	Enter anticij	(eg. 025ep2022)	Power	Enter power		
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dications	NCT Clinicaltrials.gov Link	Enter nct clinicaltrials.gov l.	Analysis Actual Study Activation Date		(eg. 025ep2022)	Minimum Product Vials for Participation	Enter minimum product		
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T Numb	Study Phase	×	Actual Study Finish Date		(eg. 025ep2022)	Subject Endpoint	Enter subject endpoint		
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nc 025e	CRF Type	×	IND Number	Enter subject		Tags	ex blood		
rrent Sta n: 025e	Number of Sites Anticipated	Enter number of sites ar	IND Number	Enter ind nu	mper				

Clinical Operations

Sample: ESP000060 metadata about samples here			Export History Delete Done
Details For Sample A	View Parents & Children Process	Data Linked Items Attachments History	
lample ID	All Sample Types # + Link Sample		T Filter Samples
Sample A	Parent		
Summary	Samples Child	Type 4 Tags	Last Modified
This sample is from Kathy Johnson.	Sample ABC123	Subject Tag 1 X Tag	2 X 04/22/18 11:34:03 AM
Details	Sample ABC456	Subject	06/03/18 10:08:32 AM
Lorem ipsum dolor sit amet, mas sed.	ESP000061	Sample Tag 1 X	06/03/18 10:08:32 AM
	ESP000062	Sample Tag 1 X Tag	2 X 04/22/18 11:34:03 AM
	ESP000063	Sample Tag 1 X	04/22/18 11:34:03 AM
Almut labore et dolore magna aliqua.	ESP000064	Sample	05/04/18 04:28:32 PM
Attachments + Add Attachment	ESP000065	Sample Tag 1 X Tag	2 X 06/03/18 10:08:32 AM
Document.pdf	ESP000066	Sample Tag 1 X	06/03/18 10:08:32 AM
Tags	ESP000067	Sample	04/22/18 11:34:03 AM
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Owner System Admin	Sample 00000110029	Specimen Tag 1 X	06/03/18 10:08:32 AM
ubmitted 06/03/18 10:08:32 AM	 Sample 0000199919 	Specimen	06/03/18 10:08:32 AM
Custom Icon 😧 Change 💽 Display Ico	ESP000090	Sample	05/04/18 04:28:32 PM

Sample Management

	sts See A Inassigned: 12 Scheduled: 75 hing Today: 11	Starting	See All ing Today: 12 This Week: 39 y Working: 6	This We	lay: 0	Ahead of Sch	hedule: 3	Client ABC123 22 Events Client ABC123 18 Events Client BCD223 18 Events Client CDE000 11 Events	O Another o Status Ito Status Ito Status Ito
New Requ Dient # 191 121 331 001	ests Subject ID ABC0000881 ABC0005560 ABC0006670 ABC0009000 ABC0009900	Type Clinical Run HD Split Run Media Change Clinical Run Run D4	Date Recieved 1 day ago 1 day ago 2 day ago 2 days ago 3 days ago	Ending Today Event Name Isolation Media Change Clinical Run Expansion Isolation	Room 82 89 85.2 813.2 816	Client Lot # 191 713 191 456 001 783 331 213 980 445	Day 3 of 3 1 of 1 7 of 7 10 of 10 1 of 1	Schedule: Aug 21, 2021 Sort by: St +191-952 isolation Day 10 of 14 Greer, J Haskins, M Hastings, B Hasting, B +191-872 isolation Day 1 of 1 Hages, M Hastings, B Hasting, B +01-873 Clinical Run Day 1 of 3 Kopler, J Solation, A Solation Day 1 of 3	9 - 11am 9 - 9:30am 9:30 - 11am
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81 001	83 8 001 0 8 7	5.1 60 5.2 01 781 5.3 81	89 811 781 781	-013.2 	115			191-816 Isolation Day 1 of 1 Greer, J Haskins, M Hastings, B 121-954 Expansion Day 6 of 7 Hastings, K *001-952 Isolation Day 1 of 4 Harper, M Lee, B	12 - 1pm 12 - 1pm 12 - 2pm

Scheduling

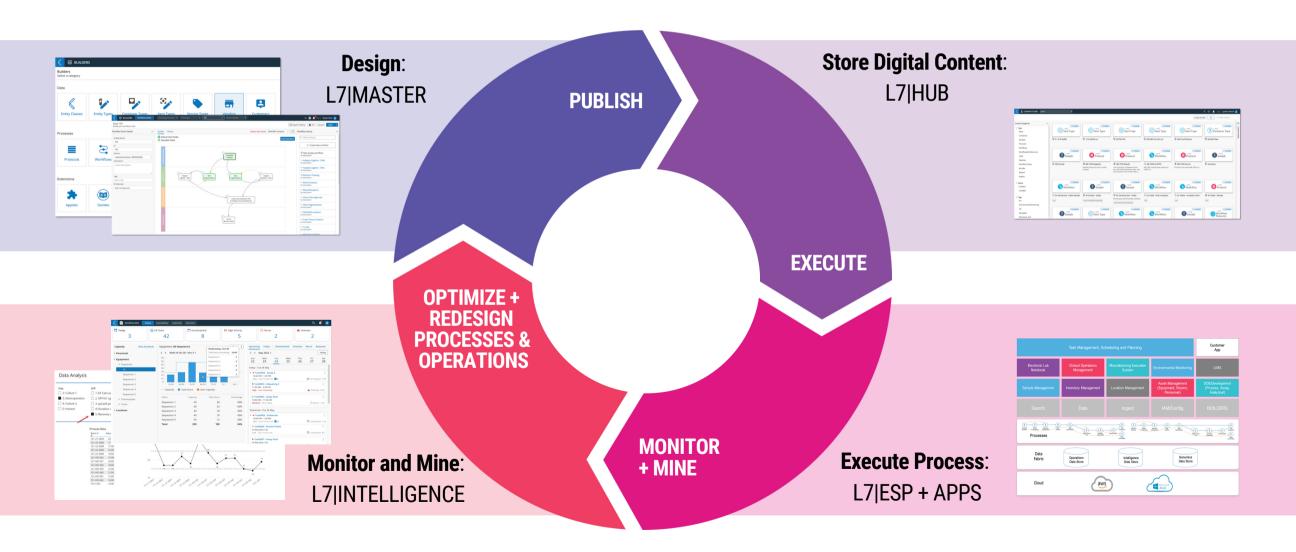
L7|ESP Connectors



	Bioanalyzer 2100		MiSeq	Scotsman	Ice Maker/AFE424A-1A
Agilent	Tapestation 2200,4200		HiSeq	Siemens	HDMI
	Microplate Labeler	Illumina	NextSeq 500, 550	Solair	5100 Particle Counter
Akoya Bioscience	Vector Polaris		NovaSeq 6000	StepOne	Plus
APC	UPS/SMX3000RMHV2U		iSeq	SynergyLx	Microplate reader
Applied Technology	7900 HT	PacBio	PacBio RSII, Sequel	TBD	Gel Imager
Beckman Coulter	Ampure	Julabo	Water Bath		Veriti Thermal Cycler
Deckman Coulter	BioMek i7	Lascar	Electronics		3500, 3500 XL
Bio-Rad	Gel Doc XR + Imager	Lonza	FlashGel		Fragment Analyzer
Biolog	Plate Renderer	Media Jet	Printer MJ 9410	Thomas Fisher Osioniifia	Genetic Analyzer
Biomerieux	BACT/Alert 3D	MilliQ	Integral Water Purification System	Thermo Fisher Scientific	Qubit - 1.0, 2.0, 3.0, 4.0
BioStore	III Cryo -190C	Molecular Devices	SpectraMax (GA3500)		QuantStudio 12k Flex
Biotek	Synergy LX (fluorimeter)	Olympus	IX83		StepOne Realtime PCR
Bulldog	BioShake XP	Oxford	Nanopore Sequence		Nanodrop spectrophotometer
Caliper	Twister II (liquid handler)	Perkin Elmer	LabChipGX	Trinean	DropSense
Cardinal Health	Timer/ C6510-7	Dromoro	Maxwell CSC	Unico	Rock-IT! Tube Mixer
Cardinal Health	Thermometer CH240056, CH2971-6, CH2212-2	Promega	Maxwell RSC	USA Scientific	Vortex Mixer
Cellomter	Vision	Protein Simple	ELLA	ViaFreeze	Duo CRY
Clean AirSystems	24" ISO 5 Combination	QIAGEN	EZ1 Advanced XL		Total Range Thermometer
Cole-Parmer	Techometer	Quant Studio	12k Flex/Dx	VWR	Traceable Stopwatch
Covaris	LE220 Ultrasonicator	RAININ	RFID reader and pipettes	VWR	Mini Centrifuge
Datamax-O'Neil	M-420 Mark II printer	Rees	EMS		Vortex Mixer
Dynmo	Label Printer 1750283	Roche	LightCycler 480	Zebra	Zebra Printer 410\420
	Cetrifuge 5424, 5430R, 5804R	SATO	Plastic Tag Printer TXPSX5		
Eppendorf	SmartBlock 1.5mL	Sage	Pippin		
	Thermomixer	Savant	DNA 120		
ESCO	Class II, BSC/AC2-4S9-NS	Oniontific Industrian	Vortex Mixer		
		Scientific Industries	Digital Vortex-Genie 2		

Digitalization Lifecycle

Design > Publish > Execute > Monitor + Mine > Optimize



L7 Informatics Customers



CASE STUDIES

RT-qPCR + NGS for COVID-19

CAP/CLIA testing of COVID-19 using NGS and RT-qPCR

SITUATION

Manual paper-based processes were slowing down the overall lab throughput – this reached a critical stage during the 2020 pandemic when the lab pivoted to COVID-19 testing.

SOLUTION

L7|ESP was selected to automate the entire COVID-19 testing process, from sample accessioning and preparation through testing, and clinical report generation.

•The process begins when L7|ESP ingests a Sample Accessioning form received from a clinical institution.

•As the samples move through the Sequencing workflow, L7|ESP is gathering data from a Biomek Liquid Handling Robot, rt-qPCR instruments, fluorimeters, Illumina Sequencers, and various bioinformatic pipelines.

•L7|ESP enables the scientists to determine presence of COVID-19 in the patient's sample, and smoothly inform any physicians of the findings. All of this data is kept inside L7|ESP in a secure and query-able fashion.

WORKFLOW 0 0 0 0 0 0 Library Prep COVID Analysis ritical Results **Bead Purification** Library Library Illumina Analysis Prep Quantification Reporting Normalization Sequencing Pool Purification & Ouantification 0 0 0 0 **COVID Extraction** Rotor-Gene rt-COVID Report PA-NEDDS COVID Sample Preparation qPCR Reporting 0 0 ABI-7500 rt-qPCR registraRNA



Hereditary Disease Diagnostics in a CAP/CLIA Clinical Setting

DNA sequencing workflows to identify and diagnose hereditary diseases in unborn babies (embryo & fetus)

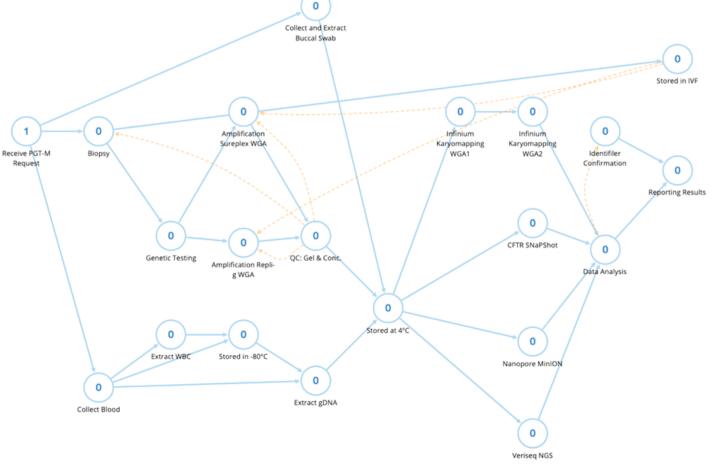
SITUATION

A paper-based process to execute and generate clinical diagnostic reports to provide actionable hereditary disease insights. No structured database for research.

SOLUTION

CreateIVF implemented the L7|ESP platform to automate the entire patient sample to clinical report process that begins with a Patient, and a dynamic (i.e. user defined on the fly) number of children samples. The children samples include Embryos or Fetuses, Blood and/or Buccal Swabs collected from extended family and/or ova/ sperm donors. DNA is extracted from these samples and are used for different diagnostic tools, such as Sureplex, Repli-g, Karyomapping, SNaPShot, Sanger, Nanopore MINion, Veriseq, Identifiler, etc. As the technicians process these samples, they record critical sample metadata that is used to better assist the patient in becoming pregnant. Finally, a CLIA compliant clinical report is generated and digitally signed.

WORKFLOW





miRNA CDx Workflow



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

SITUATION

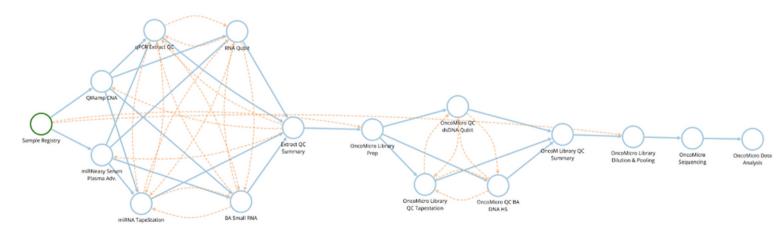
Paper-Based capture of diagnostic data, including the complete workflow from extraction to data analysis. There was no automated integration with instruments and CLC bioinformatics.

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



VALUE COMPA	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.						

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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 \rightarrow CAPABILITIES

VALUE COMPA	RISON OF THE L7 ESP UNIFIED PLATFORM VS INTEGRATED I	POINT SOLUTIONS \rightarrow 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.



About L7 Informatics

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L7INFORMATICS.com info@L7informatics.com 888.461.5227 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.

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