Data: A Foundation of Food Safety Culture

Today You'll Learn About:

- Background
- Managing Complexity
- Challenges in communicating food safety data
- Empowering the team
- Using Results to modify risk assessments: & Democratization of Data

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Joe Heinzelmann

Sr. Director, Food Safety
Digital Solutions, Neogen

Introduction / Profile

Highlights and Contributions

Mr. Joseph Heinzelmann is the Senior Director of Food Safety Digital Solutions and oversees the Global Development activities for the organization for software and software as a service in food safety. Mr. Heinzelmann earned his MBA at Northwood University, and a Bachelor of Science degree at Albion College.

Mr. Heinzelmann has various certifications in food safety, including but not limited to PCQI, HACCP, and quantitative microbial risk assessments.

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Agenda

01 Background

02 Managing Complexity

03 Challenges in communicating food safety data

04 Empowering the team

05 Using Results to modify risk assessments: & Democratization of Data

06 Q&A

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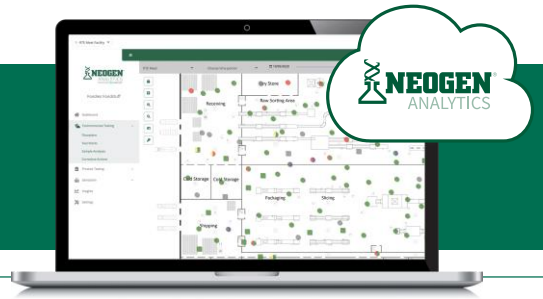
Neogen Solutions

Comprehensive portfolio designed to address risk and ensure compliance.

Environmental Hygiene Monitoring

Environmental and Product Testing

Advanced Genomics and Bacterial Characterization



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Our Integrated Portfolio Solution

Rapid Indicator Solutions

Pathogen Detection

Sample Collection

Hygiene Monitoring

Microbial Detection

Allergen Testing

Natural Toxin Testing

MLS UHT/ESL Testing

Culture Media

Genomics

Nutritional Analysis

Data Analysis

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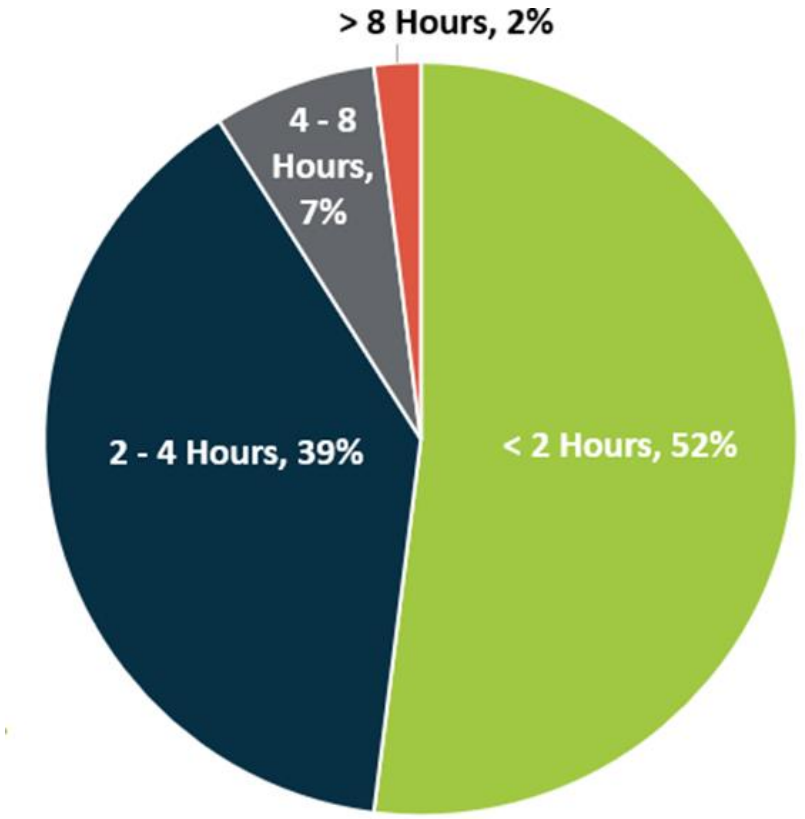
The role of digitalization in food safety culture:

Almost half of respondents said they spend 2 or more hours EACH DAY collecting, cleaning, and analyzing data for regular reporting to senior leadership.



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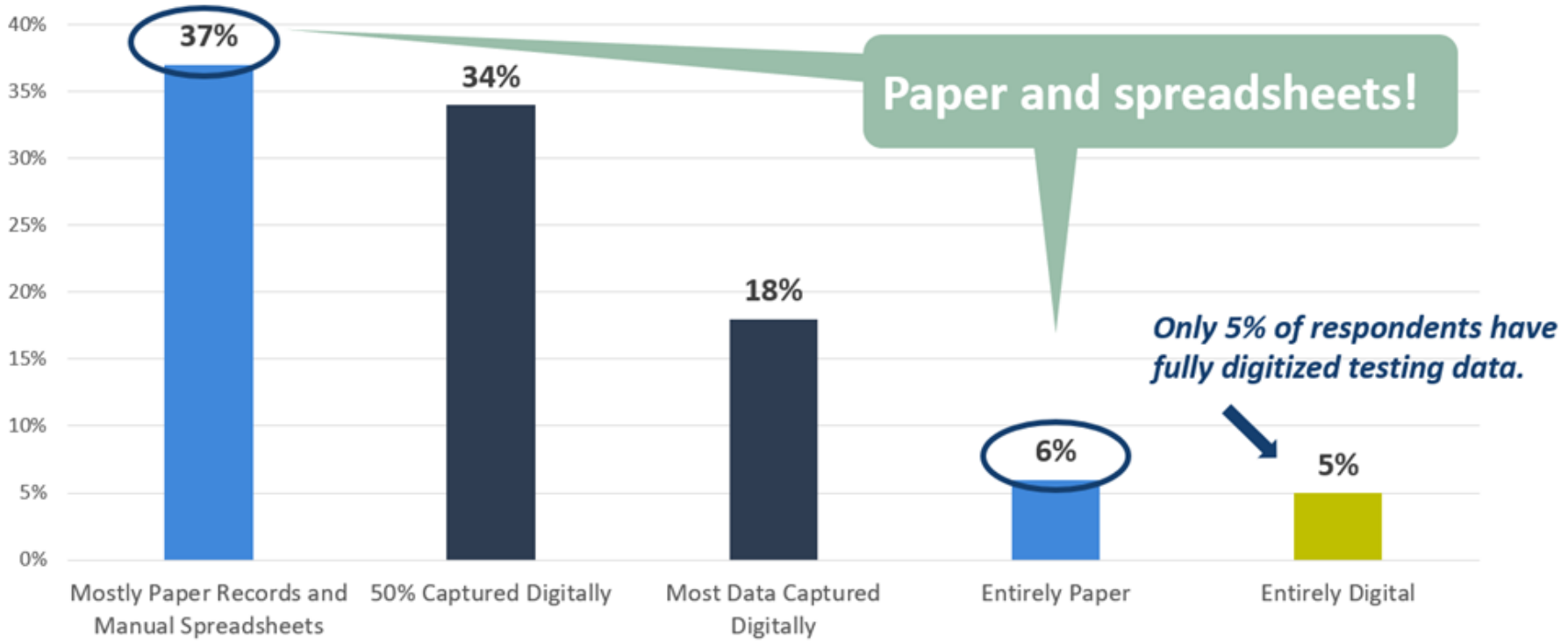
How much of your food safety testing data is digitized?

Neogen survey of United States food producers:



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02

Managing Complexity

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What seems simple… is not.

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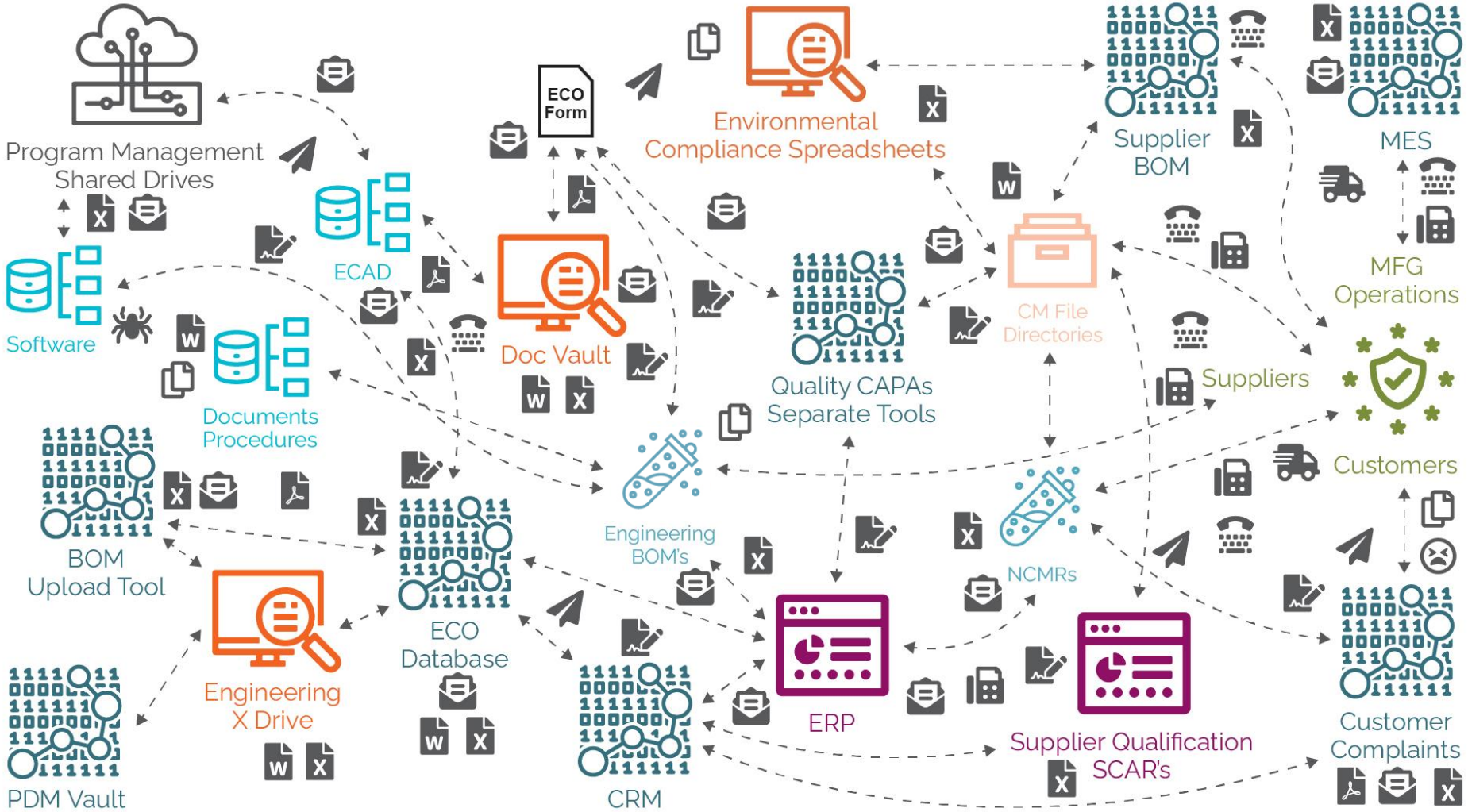
What seems simple… is not.



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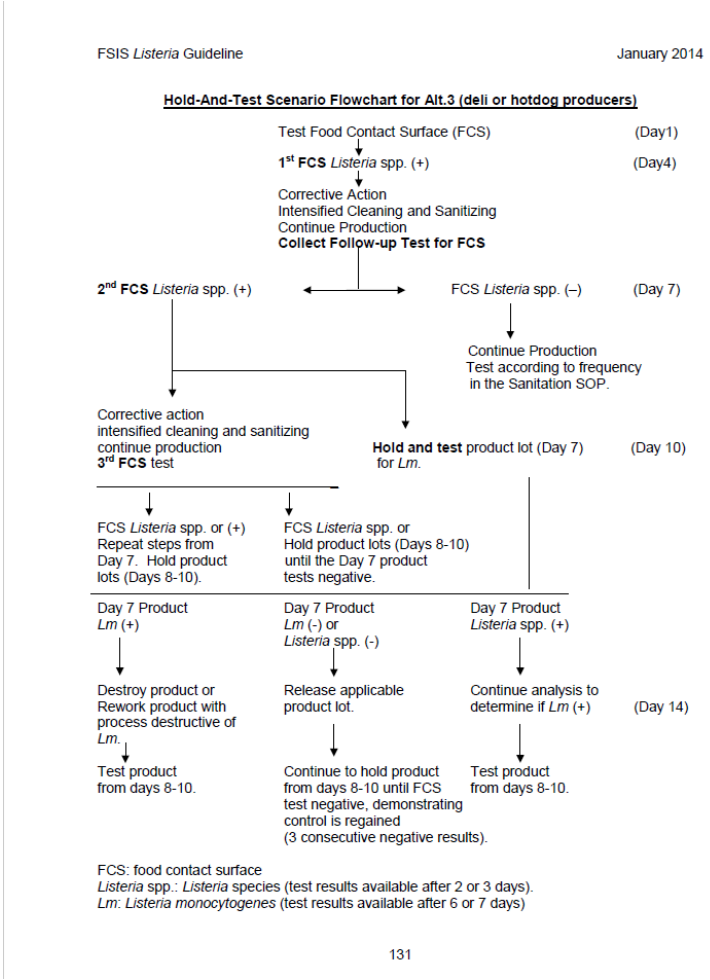
FDA and USDA Guidance for Listeria and EMP



FSIS *Listeria* Guideline January 2014

Hold-And-Test Scenario Flowchart for Alt.3 (deli or hotdog producers)

Test Food Contact Surface (FCS) (Day1)

1st FCS *Listeria* spp. (+) (Day4)

Corrective Action
Intensified Cleaning and Sanitizing
Continue Production
Collect Follow-up Test for FCS

2nd FCS *Listeria* spp. (+)

FCS *Listeria* spp. (–) (Day 7)

Continue Production
Test according to frequency
in the Sanitation SOP.

Corrective action
intensified cleaning and sanitizing
continue production
3rd FCS test

Hold and test product lot (Day 7) for *Lm*. (Day 10)

FCS *Listeria* spp. or (+)
Repeat steps from
Day 7. Hold product
lots (Days 8-10).

FCS *Listeria* spp. or
Hold product lots (Days 8-10)
until the Day 7 product
tests negative.

Day 7 Product
Lm (+)

Day 7 Product
Lm (-) or
Listeria spp. (-)

Day 7 Product
Listeria spp. (+)

Destroy product or
Rework product with
process destructive of
Lm.

Release applicable
product lot.

Continue analysis to
determine if *Lm* (+) (Day 14)

Test product
from days 8-10.

Continue to hold product
from days 8-10 until FCS
test negative, demonstrating
control is regained
(3 consecutive negative results).

Test product
from days 8-10.

FCS: food contact surface
Listeria spp.: *Listeria* species (test results available after 2 or 3 days).
Lm: *Listeria monocytogenes* (test results available after 6 or 7 days)

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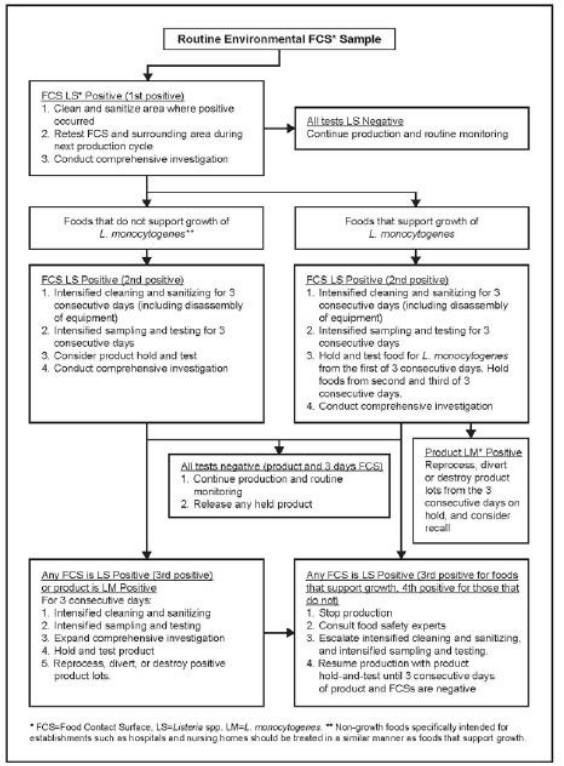
https://www.fsis.usda.gov/guidelines/2014-0001

Contains Nonbinding Recommendations

Figure 2.--Example of FCS* testing and follow-up activities.



https://www.fda.gov/regulatory-information/search-fda-guidance-documents/draft-guidance-industry-control-listeria-monocytogenes-ready-eat-foods

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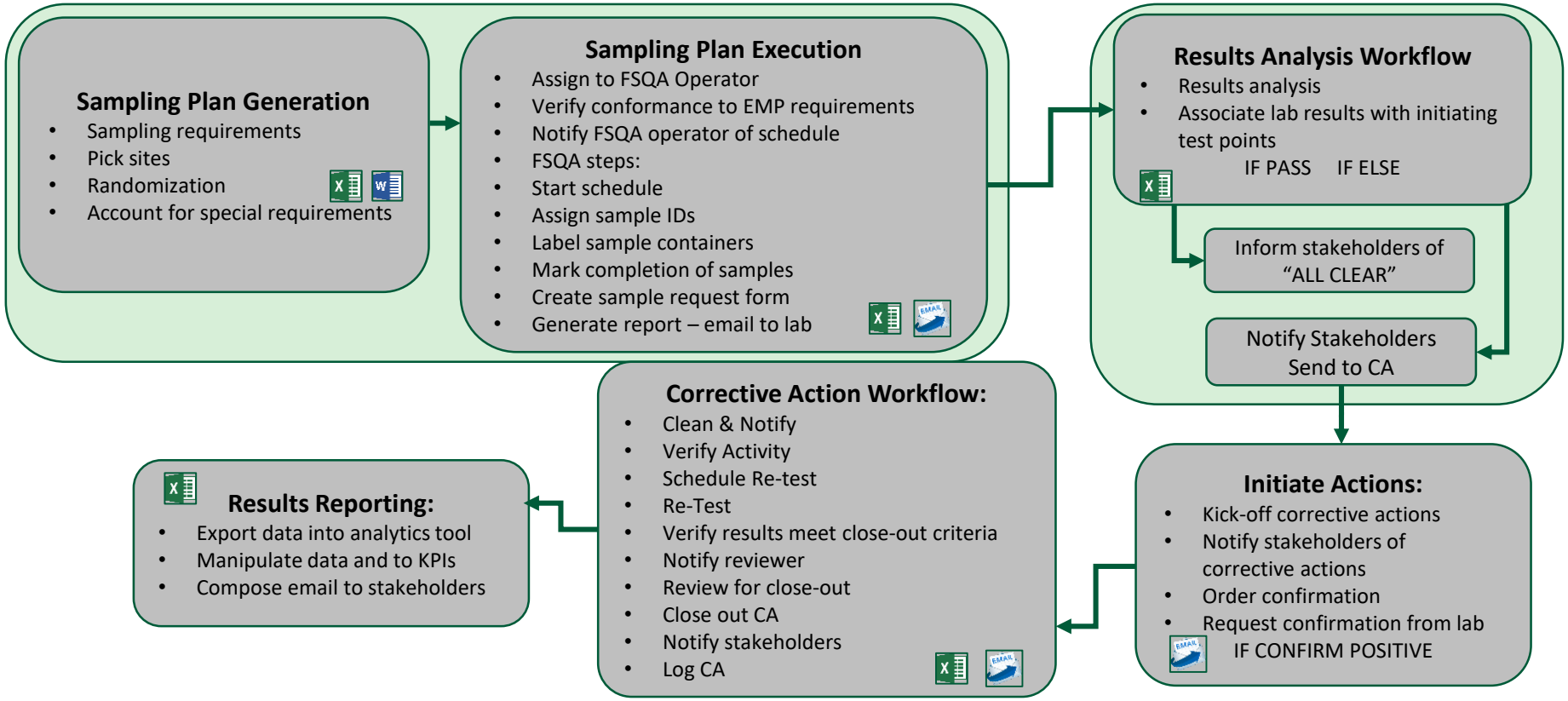
Environmental monitoring in RTE

Manual process consists of 36 steps – inherently creates risk.



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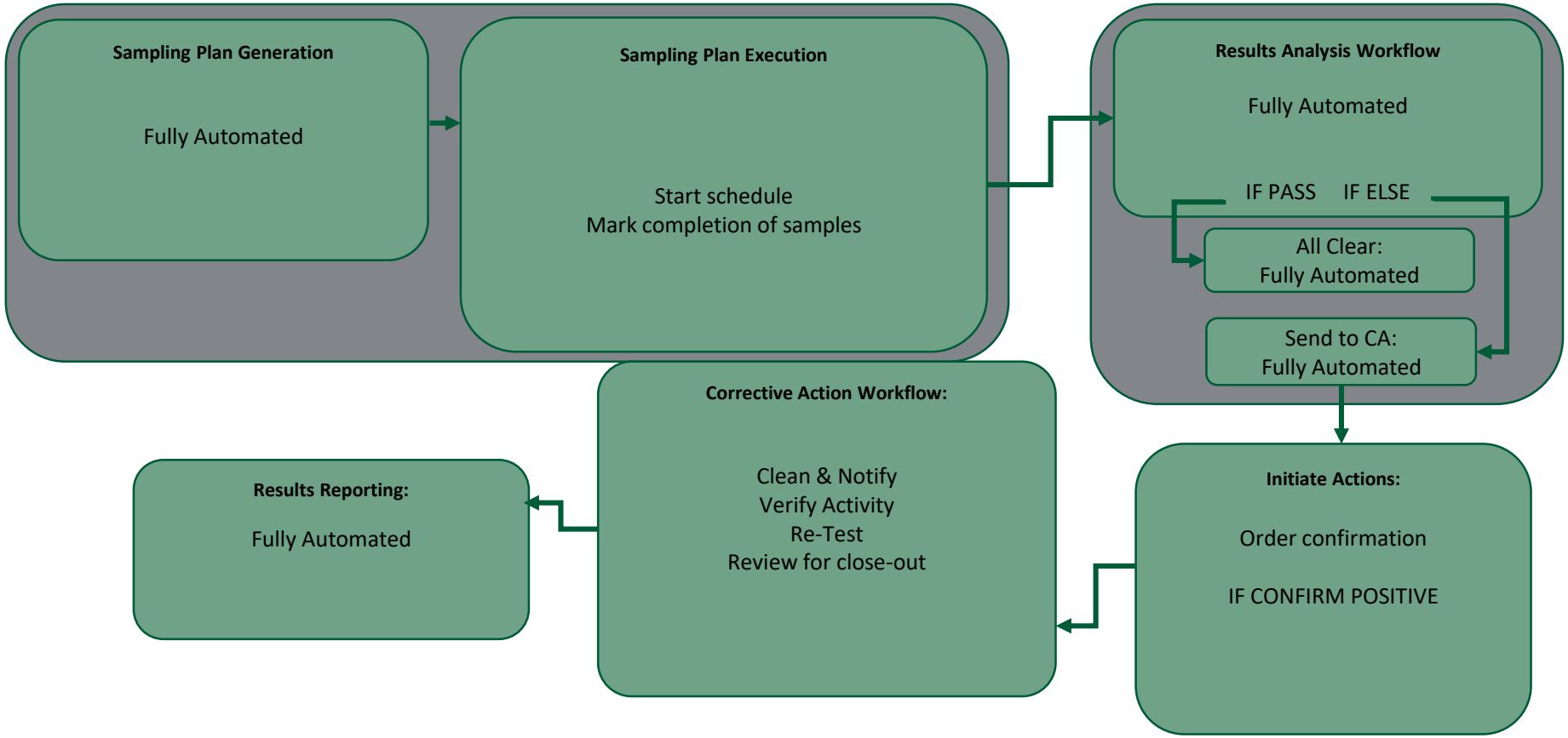
Environmental monitoring in RTE, workflow automation

Automation of food safety workflow significantly reduces risk/human error.



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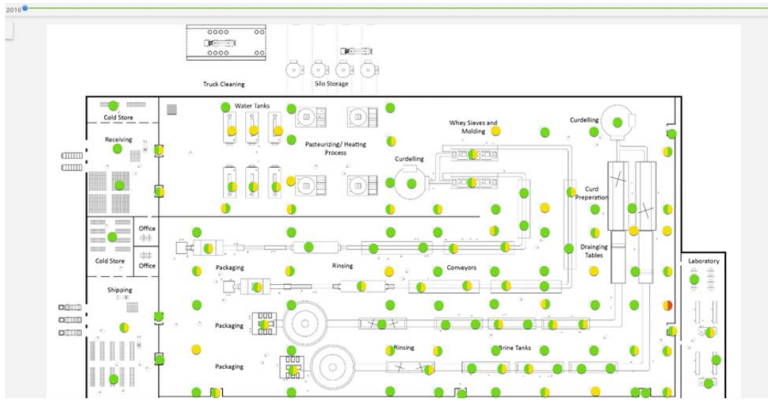
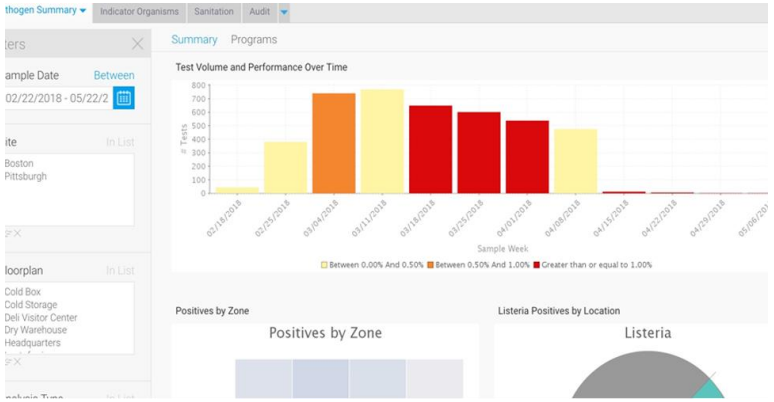
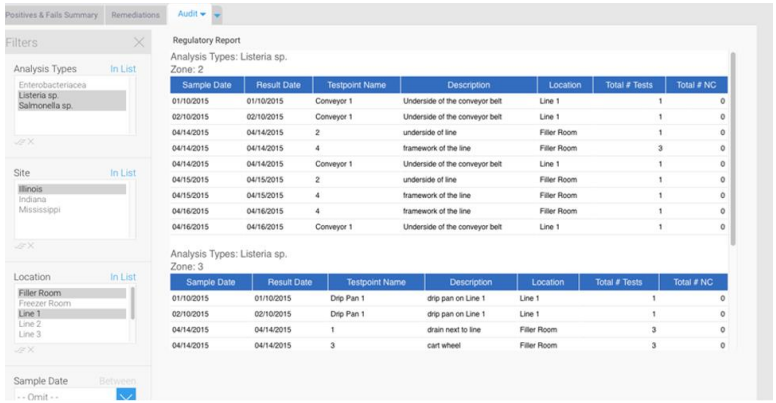
Our Digitalization Focus

Our Software and Services Support Three Core Functions:







See

Automate the collection and visibility into food safety programs.

Understand

Determine the root causes and recurrence of opportunities for improvement.

Act

Pinpoint actions to minimize risk, improve uptime, and gain efficiencies.

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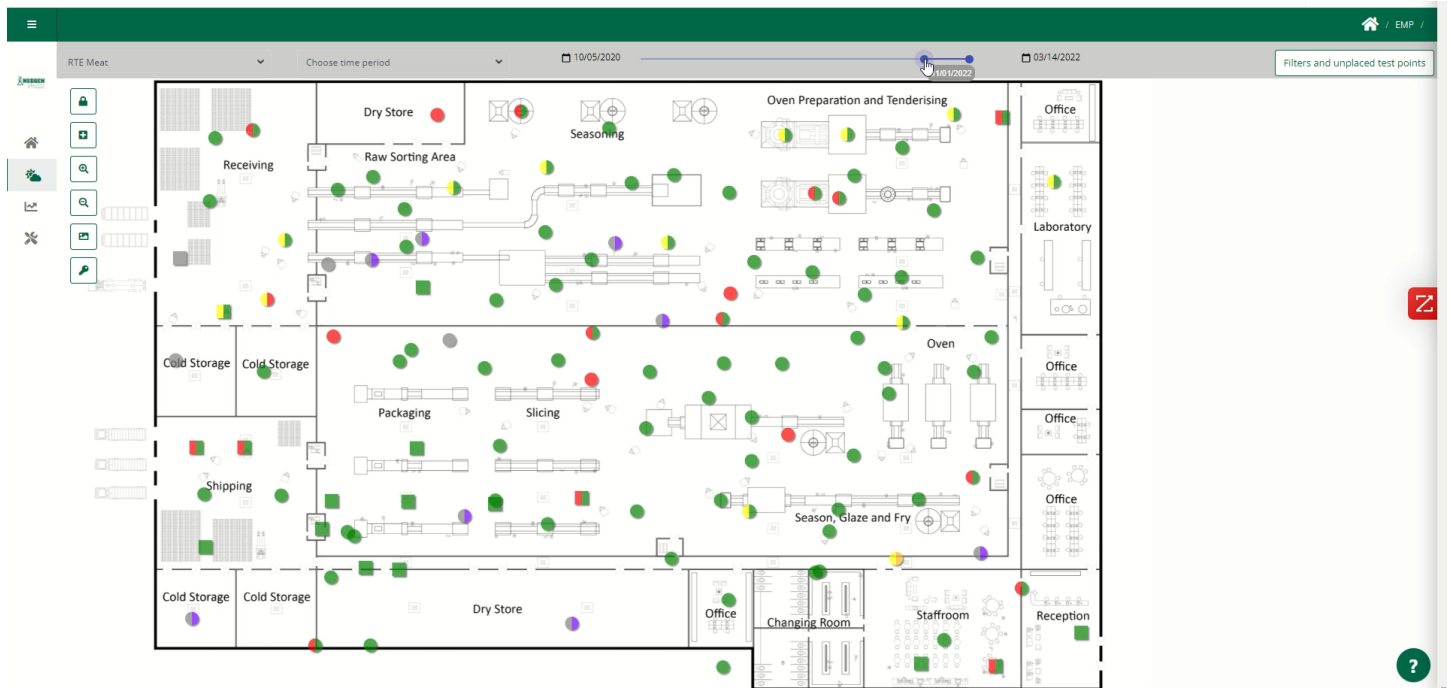
Breaking down silos

- FSQA generates too much data
- Disparate systems create technical debt
- Harmonization creates efficiencies and requires some time investment
- The standardization is needed for both data and communication



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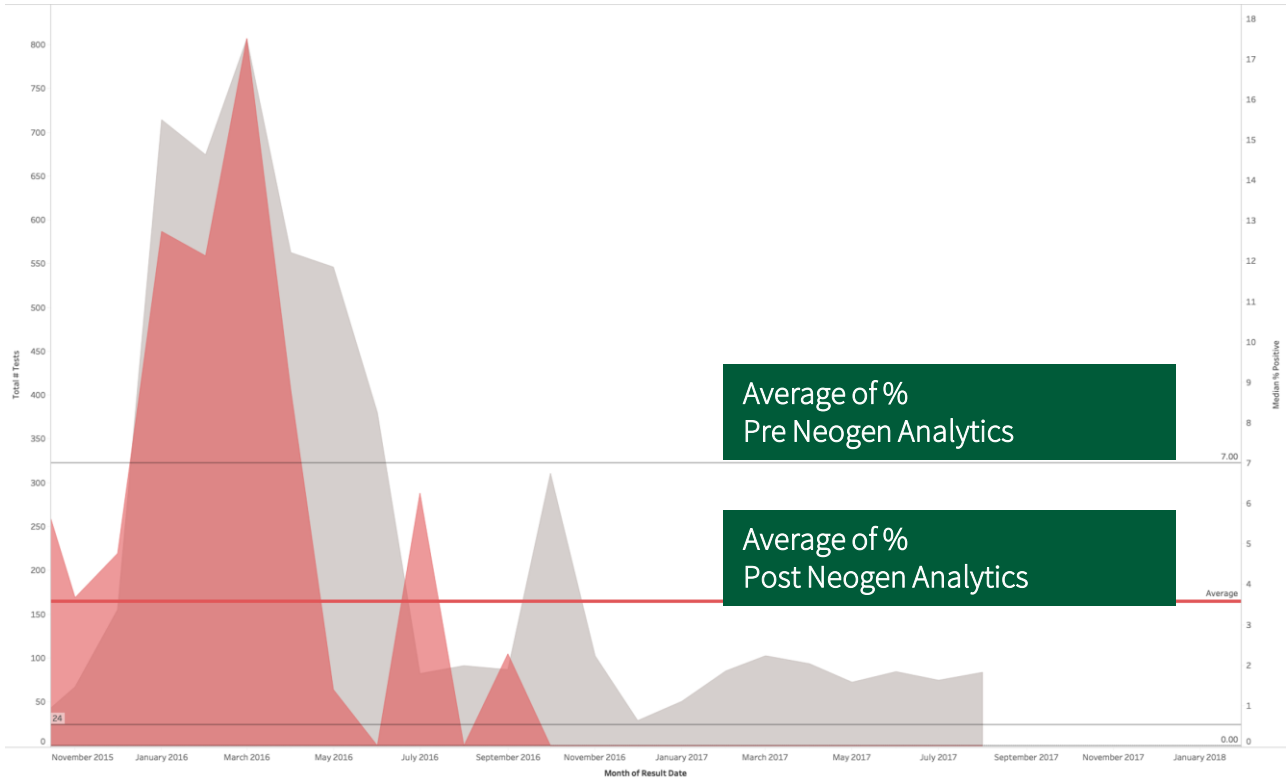
A Major Transformation in FSQA

- There are lots of solution providers for digital solutions, focusing on unique deliverables
- Turnover, competitive labor markets, time to onboarding, resource requirements are creating pressure
- The products are getting better and easier to use



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Creating standards and processes

- By creating an easy to follow standard; organization can focus on the output and less on managing the process
- Standardization happens within organization

1

Pathogen Rate of Failures by Type

E. Coli | Listeria sp. | Salmonella sp.

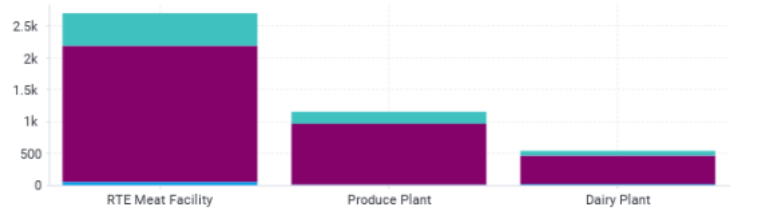
Site	# Tests	# Nonconformances	% Nonconformance
Produce Plant	9	2	22.22%
Dairy Plant	16	1	6.25%
RTE Meat Facility	51	0	0.00%

Indicator Rate of Failures by Type

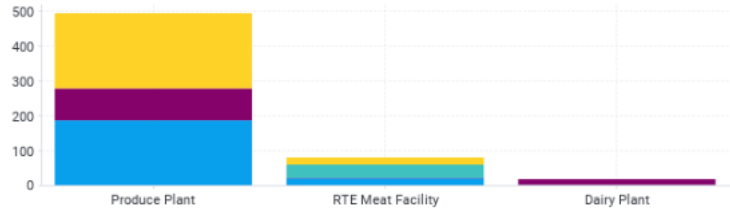
APC | Coliform | Enterobacteriacea | Yeast & Mold

Site	# Tests	# Nonconformances	% Nonconformance
Dairy Plant	1	1	100.00%
Produce Plant	187	31	16.58%
RTE Meat Facility	20	3	15.00%

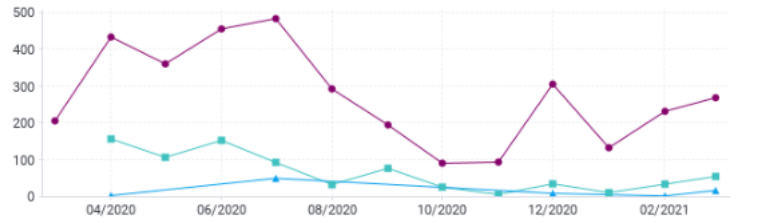
Pathogen Test Volume



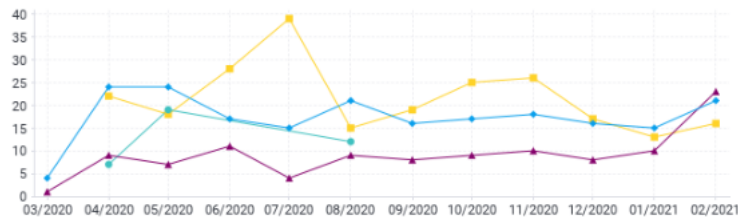
Indicator Test Volume



Monthly Pathogen Test Volume



Monthly Indicator Test Volume



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Challenges in communicating food safety data

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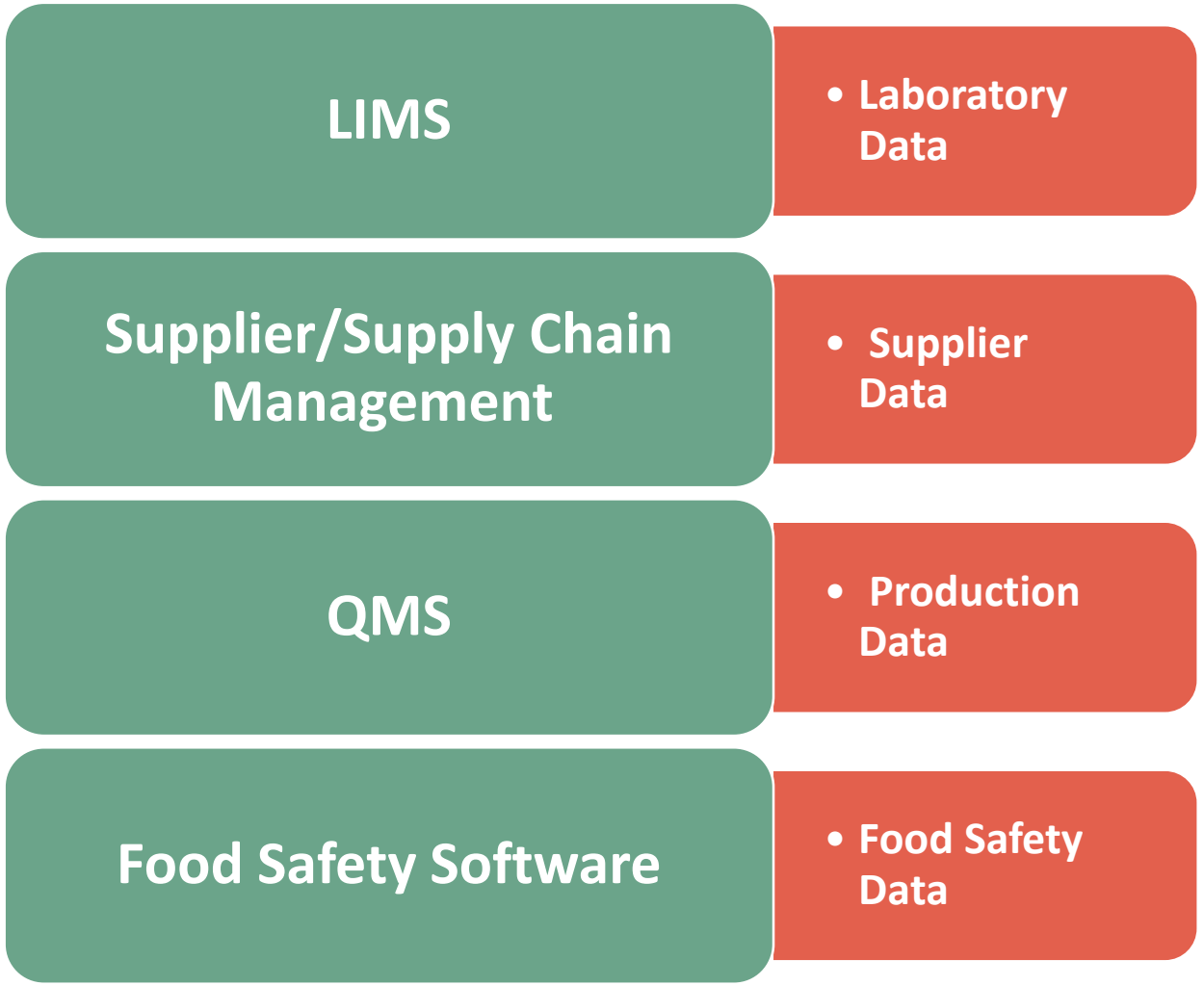
Defining Your Digital Road Map

Smarter tools and approaches for prevention and outbreak response



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Questions to be asked for digitalization

What are the sources of our data?

What is our current tech stack?

What level of stakeholder engagement is required?

What is the time to implement?

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One gap in food safety

Aggregation of the data, in a simple, repeatable, and scalable capacity

- Digital diagnostic results trigger immediate alerts and CAPAs – lowering customer risk
- Collection of data at the point of collection, in real time
- No delay in initiating time-sensitive mediation activities

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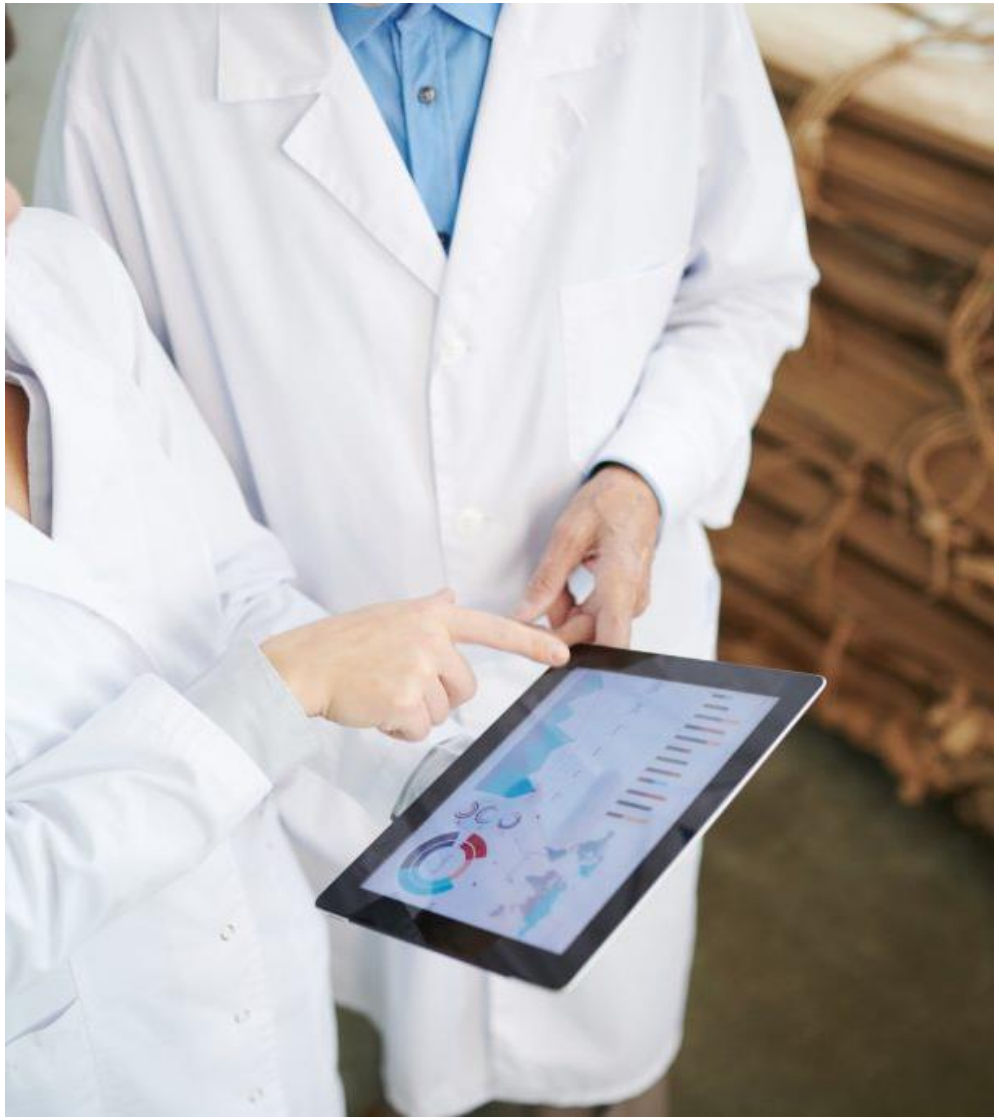
Always-on Audit Prep

- Demonstrate compliance to regulations with access to data that is always current, accessible and formatted to support audits, inspections and certifications.
- Get away from manual and error-prone paper and spreadsheet data collection.
- Demonstrate to auditors the completeness of your test program record-keeping and policy adherence.



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Empowering the team

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Getting Started – Per Module

Paige Tonra | Paige Tonra | Katie Schettenhelm

Implementation → Onboarding → Customer Success

Onboarding Prep	Kick off	Check in/Review	Go Live	Transition to support
• Create Company & Sites in Neogen Analytics • Create Company Admin(s)	• Kickoff meeting with project lead(s) • Confirm Onboarding Process & Timeline • Goal Alignment • Checklist Review • Deploy Training	• Checklist Review If Required • Configuration Completion/Review • Go-live Prep Review • Post Training Q&A Session(s)	• Dedicated POC for Project Leads • Support Alerted for Go-Live Readiness	• Review Support Process & Tools • Support Team Member Intro • Establish Meeting Cadence
OB checklist ~ 0-3 Hours	Meeting 1h Training ~ 3-5 h	Training ~3-5h Set up ~5h	Meeting 1h	Meeting 1h

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User Roles & Permissions

Area	Action	Site Admin	Site Manager	Scheduler	Operator	Sanitation Manager	Enhanced Viewer	Viewer
Floorplan	View Floorplan	✓	✓	✓	✓	✓	✓	✓
	Edit Floorplan	✓	✓	X	X	X	✓	X
Test Points	Add Test Results	✓	✓	✓	✓	X	X	X
	Confirm Test Results	✓	✓	✓	X	X	X	X
	Delete Test Results	✓	✓	✓	X	X	X	X
	Add Log Record	✓	✓	✓	✓	✓	X	X
	Edit Test Points	✓	✓	✓	X	X	X	X
	Deactivate Test Points	✓	✓	X	X	X	X	X
Sample Analysis	View Open Sample Analyses	✓	✓	✓	✓	X	✓	✓
	View Archived Sample Analyses	✓	✓	✓	✓	X	✓	✓
	Create/Edit/Delete Sample Analyses	✓	✓	✓	X	X	X	X
	Collect Samples	✓	✓	✓	✓	X	X	X
	Label Samples	✓	✓	✓	✓	X	X	X
	Edit QA Notes	✓	✓	✓	✓	X	X	X
	Enter Initial Results	✓	✓	✓	✓	X	X	X
	Generate COA	✓	✓	✓	X	X	X	X
Corrective Actions	View Corrective Actions	✓	✓	✓	✓	✓	✓	✓
	Complete Corrective Action Activities	✓	✓	✓	✓	✓	✓	X
	Verify Corrective Actions	✓	✓	X	X	X	X	X
Settings	Edit Site Settings	✓	X	X	X	X	X	X
	Edit All Settings	X	X	X	X	X	X	X

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Onboarding Timeline Flexibility

Weekly Timeline

WEEK #	Monday	Tuesday	Wednesday	Thursday	Friday
1	Kickoff	Training (Asynchronous)			
2			Configuration Review		
3				Training Review / Q&A	
4	Go-Live				Intro to Support

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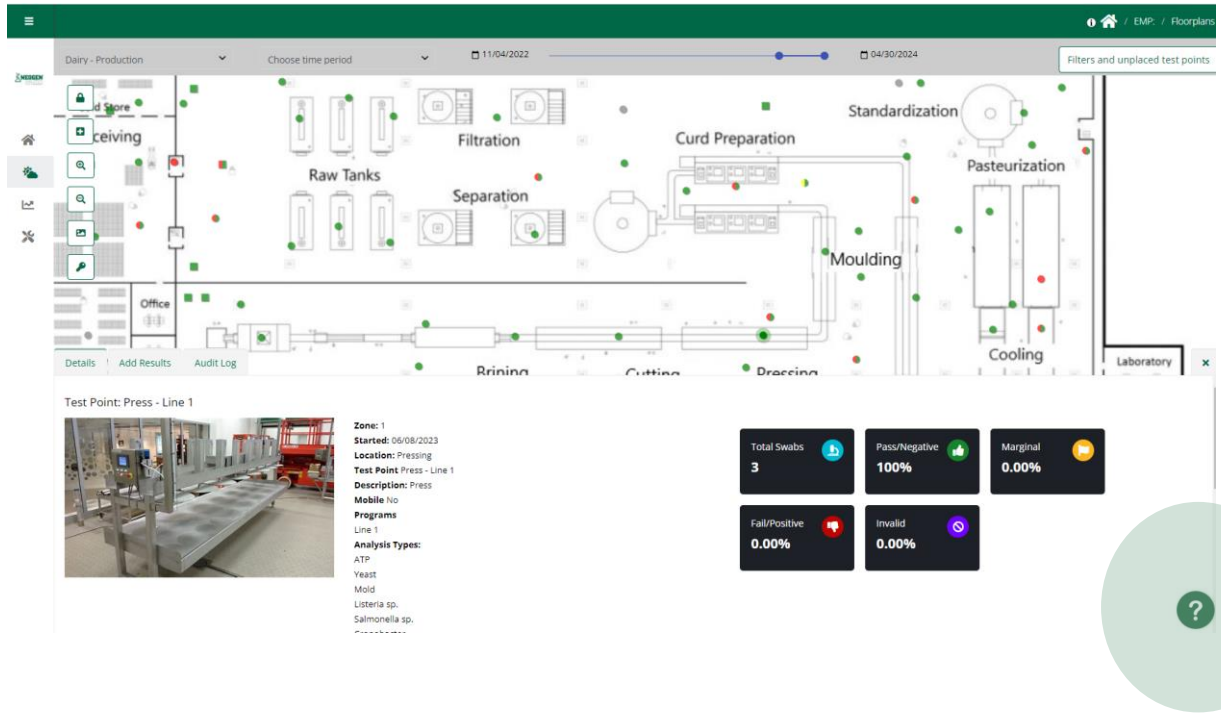
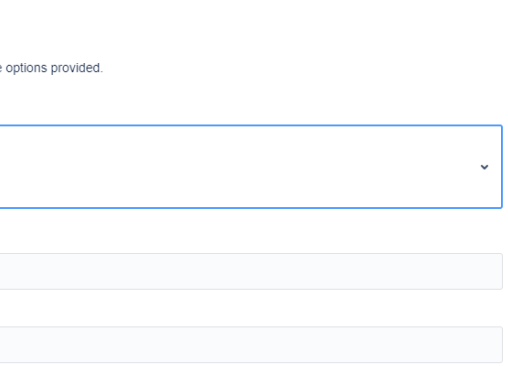
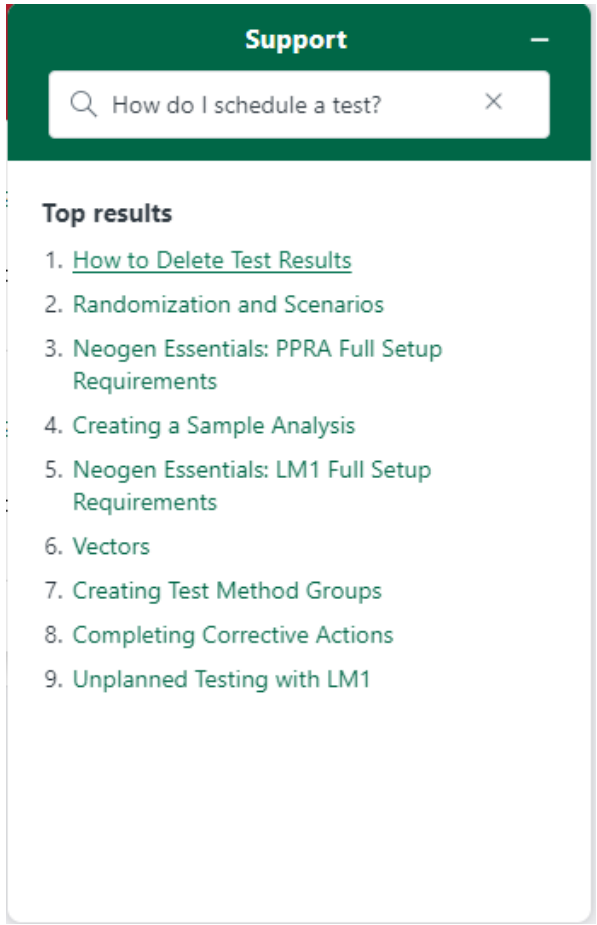
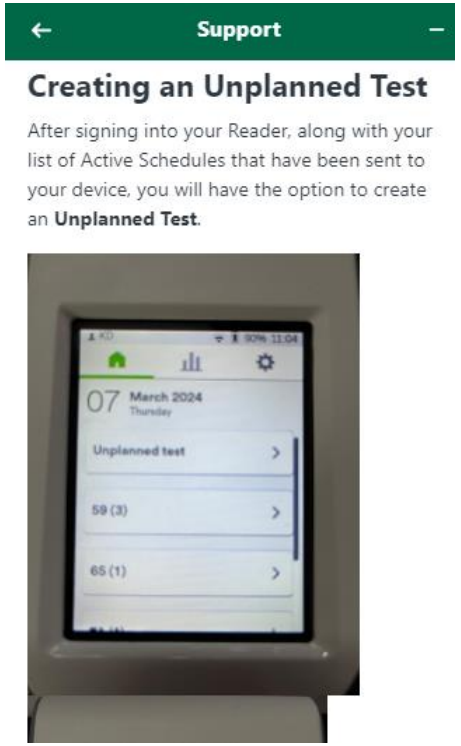
On Demand Support

- Food safety tools need to be easy to use
- Support needs to be available in real time









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04

Using Results to Modify Risk Assessments: & Democratization of Data

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Democratization of Data

Three Key Areas of Return After Deployment

Automation of Previously Manual Tasks

Enhanced Program Visibility

Consistently Following Program Requirements

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When to change risk assessments?

- Are there recurring problems to rethink risk?
- How is that defined and executed in their organization?

Top Test Points with Corrective Actions

1 - 100 / 150

Site	Floorplan	Location	Testpoint Name	Testpoint Description	Zone	# Corrective Actions
1_Holy Cow Dairy	Dairy - Production	Curd Preparation	90 Degree Conveyor - Line 2	Conveyor	1	9
1_Holy Cow Dairy	Dairy - Production Mezzanine	Mezzanine	Mezzanine Floor	Mezzanine Floor	4	7
1_Holy Cow Dairy	Dairy - Production	Brining	Brine Tank - Line 2	Brine Tank	1	5
1_Holy Cow Dairy	Dairy - Production	Brining	Brine Tank - Line 1	Brine Tank	1	5

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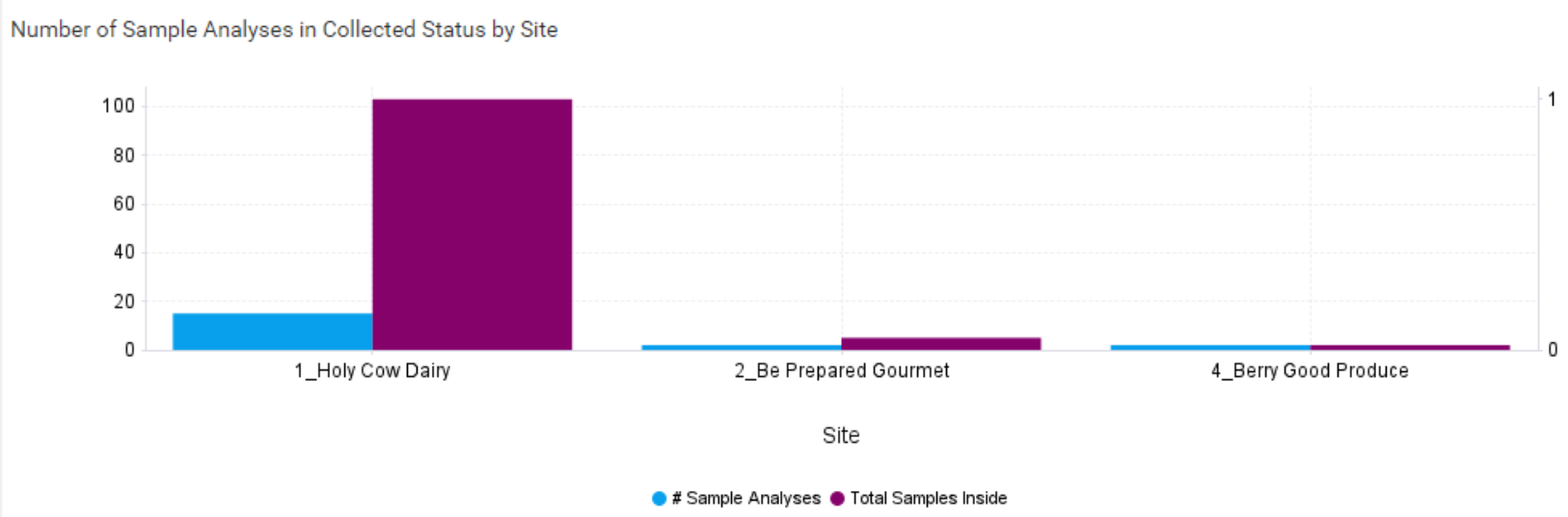
Democratization of Data

Leading indicators, activity indicators, and alignment of standardization.



Sample Analyses in Collected Status Report

1_Holy Cow Dairy | 2_Be Prepared Gourmet | 4_Berry Good Produce

Sample Analysis ID	Sample Analysis Link	Schedule Date	Collection Date	# Days From Scheduled to Collected	# Days From Collection Date to Now	Total Samples Inside	Lab Integrated	Last Audit Trail Date	Last Audit Trail Description	Test Method	La
1096	link	02/22/2024	02/21/2024	-1	69	1	No	02/21/2024	All samples collected	Listeria	
1094	link	03/04/2024	03/08/2024	4	53	4	No	03/08/2024	All samples collected	EB	
1094	link	03/04/2024	03/08/2024	4	53	4	No	03/08/2024	All samples collected	APC	

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Thank you for listening

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