



Food Safety & Quality - Your Trusted Partner in **Augmented Diagnostics**

“Augmented Diagnostics”, a kiterjesztett diagnosztika: Egy új korszak az élelmiszerbiztonság és - minőség területén

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THE FOOD INDUSTRY IS AT A TURNING POINT



MACRO-ECONOMIC & SOCIAL

- Supply-chain **disruption**
- **Inflation** & cost pressure
- Geo-political uncertainties



NEW CONSUMER DEMANDS

- Plant based alternatives
- **Health & well-being**
- Transparency



FOOD SAFETY & QUALITY

- Non quality **costs** rising
- Unprecedented **recalls**
- Food safety **digitalization**
- **Brand Image**



SUSTAINABILITY

- **CO₂** footprint **reduction**
- Water resources responsible management

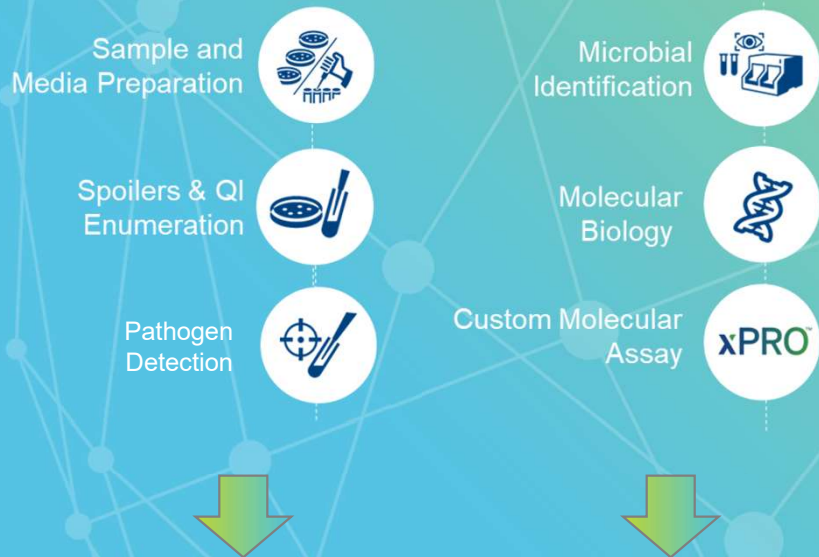


IT'S TIME TO CHALLENGE THE STATUS QUO

bioMérieux expertise, disruptive science & technologies
enable our customers to
anticipate emerging risks
and take full control of their operations.

AUGMENTED DIAGNOSTICS APPROACH

CUTTING-EDGE MICROBIAL TESTING TECHNOLOGIES



NOVEL & INSIGHTFUL DATA ANALYTICS & GENOMIC EXPERTISE



GO BEYOND TESTS RESULTS

AUGMENTED DIAGNOSTICS

here's how it works



Raw materials



In process products



Finished products



Environment

PEOPLE & PROCESS UPSKILLING

Expert Services

Consulting

Data analysis

Education
(e-Learning,
"Poultry School")

TESTING TECHNOLOGIES

Microbiology

Molecular biology

Custom assay

xPRO™

Quality Indicators / Pathogens / Spoilers
preparation / detection / enumeration / identification



ROOT CAUSE ANALYSIS

WGS

Pathogen & spoiler mapping



Strain typing

GENE-UP® Typer



Metagenomics

Microbiome discovery



ENVIRONMENTAL MONITORING

Automated scheduling / monitoring /
mitigation plan /
continuous improvement

ENVIROMAP®



E-learning & consulting



EM Data models



Augmented-DX Portal



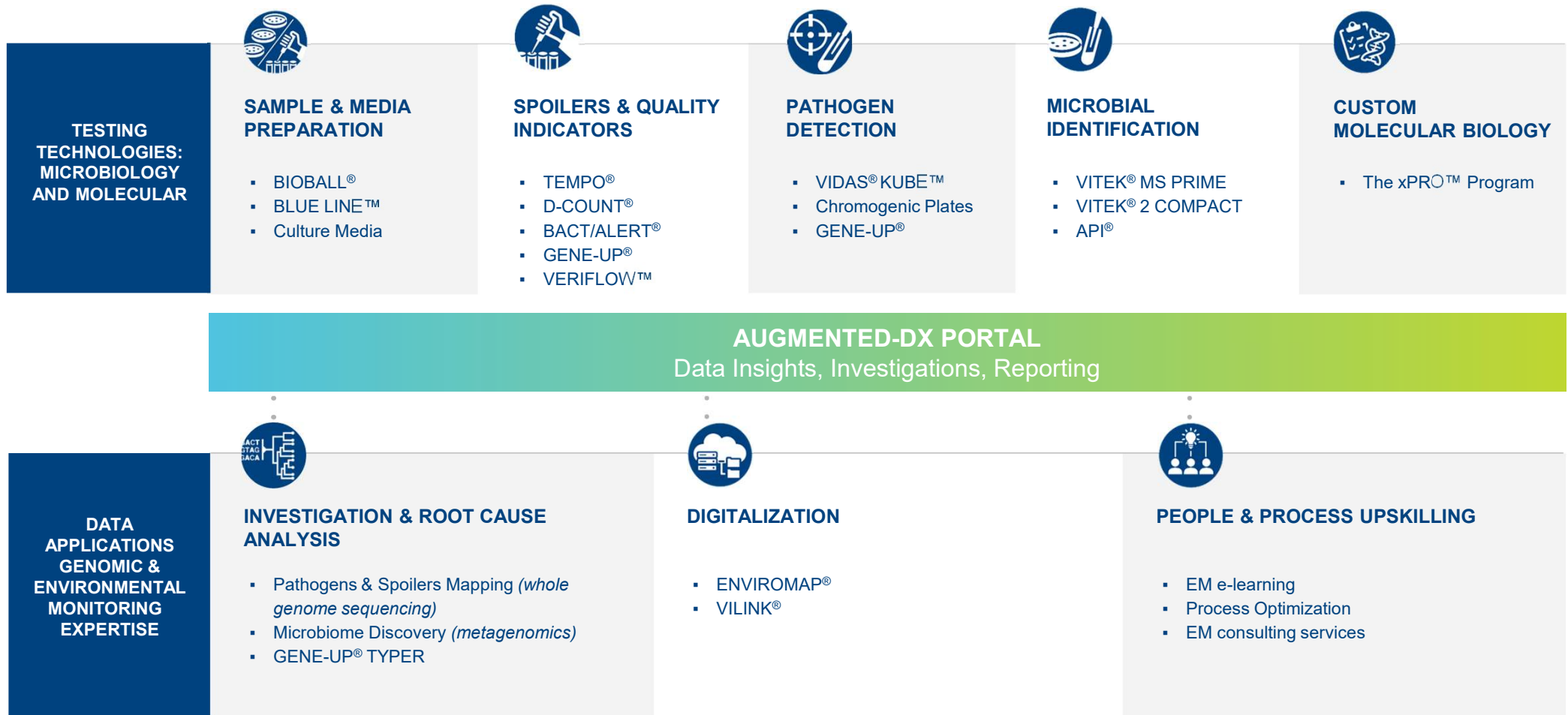
Visualization
Detailed reports



Experts analysis
& support

THE AUGMENTED DIAGNOSTICS APPROACH:

from TEST RESULTS to ACTIONABLE INSIGHTS



TYPING
NOW YOU KNOW



GENE-UP TYPER – NOW YOU KNOW WHAT IT IS



CONTROL PLAN

- ✓ 15 samples tested
- ✓ 2 positives *Listeria monocytogenes*
 - ✓ 1 in centrifuge
 - ✓ 1 in finished product

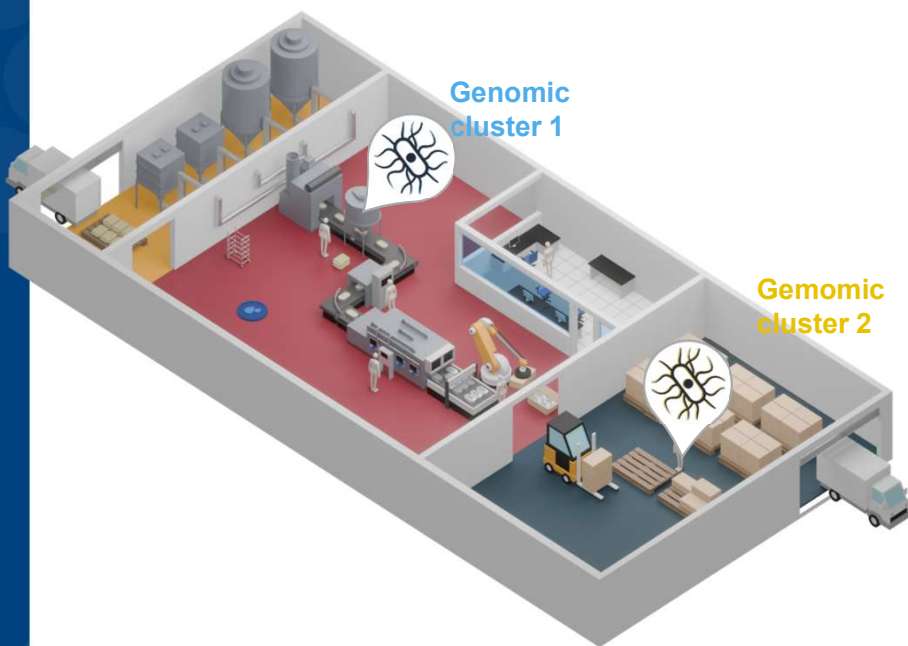


WITHOUT TYPING

Supposed source of contamination of Finished Products = Centrifuge

- ✓ Stop production linked to centrifuge
- ✓ Full cleaning of centrifuge
- ✓ Reinforced control plan in the zone

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Typing results:

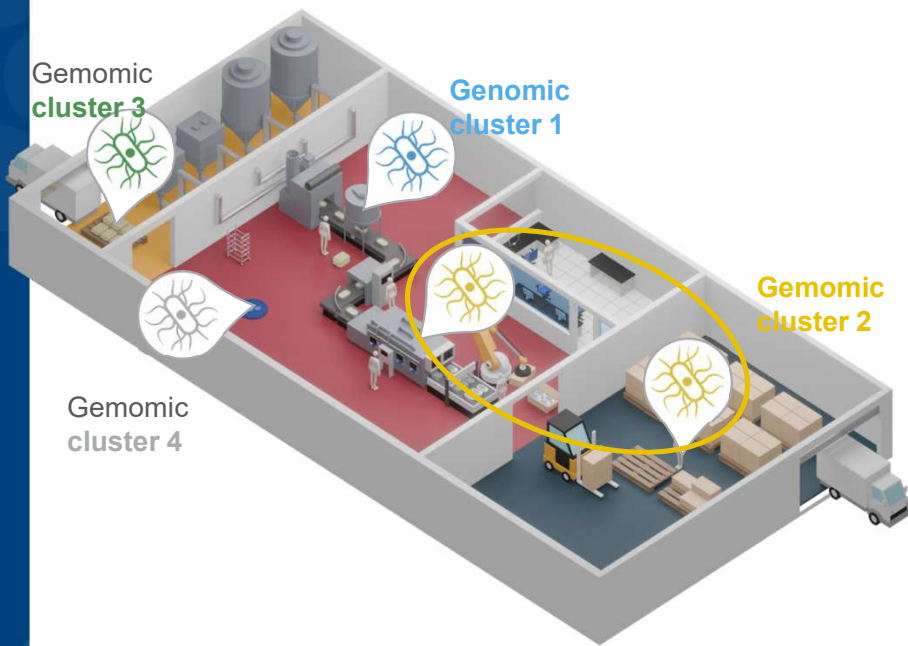
- ✓ Positive in centrifuge : **Genomic cluster 1**
- ✓ Positive in Finished Products : **Genomic cluster 2**

→ Centrifuge is not the source

Full cleaning

Investigation with reinforced sampling to find source

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WITH GENE-UP TYPER & A LIBRARY OF STRAINS

Typing results:

- ✓ Differentiation from historical strain : **Genomic cluster 3 & 4**
- ✓ Positive in centrifuge : **Genomic cluster 1**
- ✓ Positive in Finished Products : **Genomic cluster 2**
- ✓ Positive in washing tunnel : **Genomic cluster 2**

→ Investigation and confirmation of source for targeted action

Cleaning of the washing tunnel & aeration system



Clustering in a timely manner



Targeted actions



Comparison of isolates / visualization of historic data

RAW MEAT PRODUCER

ROOT CAUSE ANALYSIS OF *Listeria monocytogenes*



Challenge

A raw meat producer faced **contamination issues** and sought to enhance **their quality control**. They needed a faster, more reliable method to type strains and track contaminations **from livestock to production** for improved traceability.



Answer

Implementing the GENE-UP® TYPER allows them for **faster root cause analysis** of contaminating strains and their history, **such as identifying the farm or site of origin**.



GENE-UP® TYPER is a powerful tool **for fast, reliable decision-making** and **rapid product release**. By correlating strain typing across sites and past contaminations, the producer can **trace contamination origins**, leading to improved logistics management. With results **in just one hour from colony**, they shorten holding times, enhance reactivity, and expedite delivery to clients.



1h

Obtain high resolution information in only one hour from colony.



DIGITIZE YOUR ENVIRONMENTAL MONITORING PROGRAM

Maximize Your Efforts. Capitalize On Your Data.



KeyM
Free Application
for mobile
phones

PIONEERING DIAGNOSTICS



Take Your Environmental Monitoring Program to the Next Level

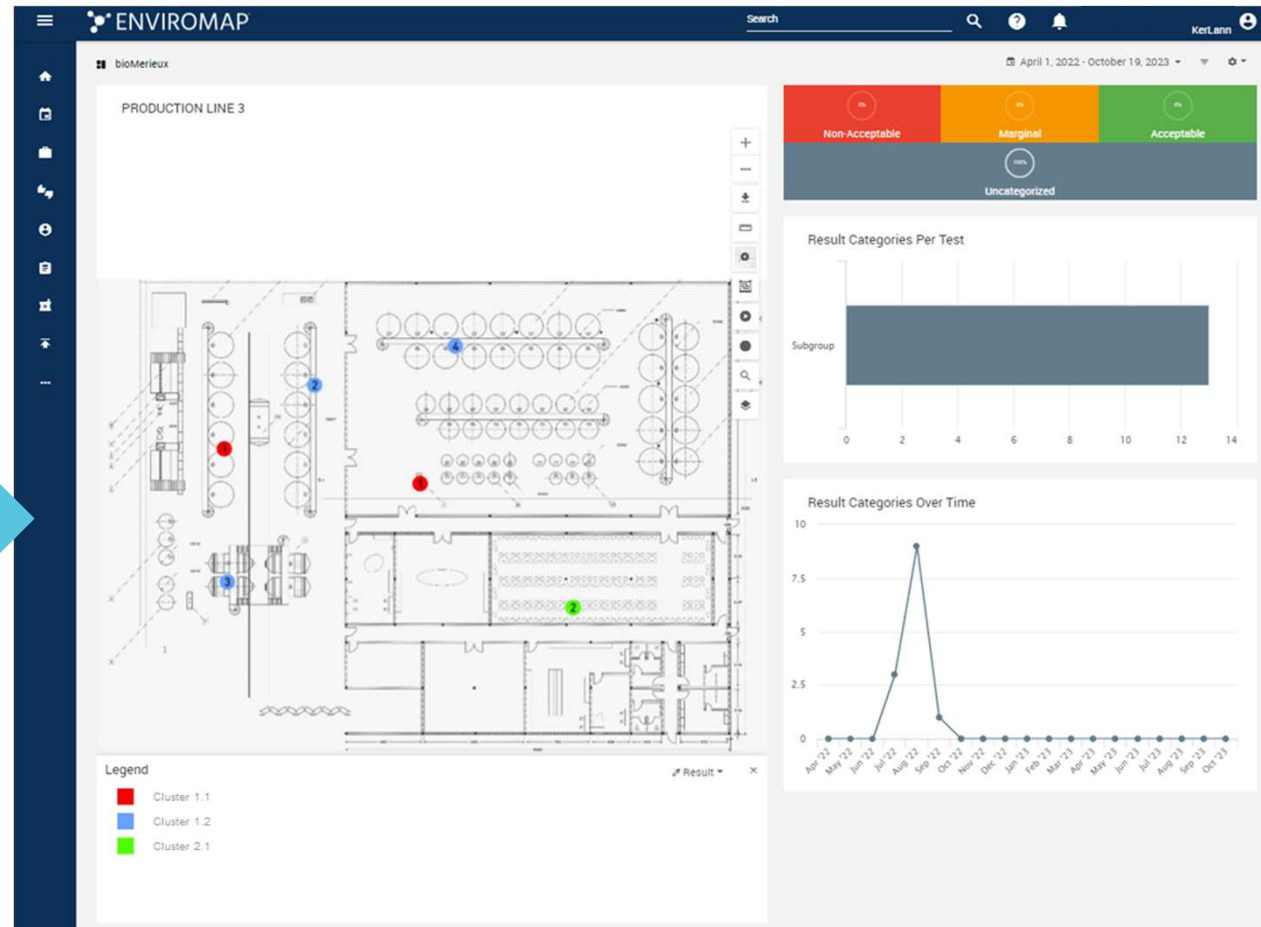
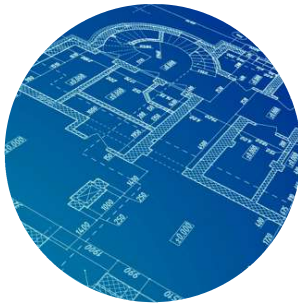
GENE-UP TYPER WITH ENVIROMAP

COMBINE YOUR GENOMIC DATA WITH ENVIROMAP :

AUGMENTED EM Monitoring



X



→ Streamline your investigations with actionable insights

BIOMÉRIEUX

GLOBAL POULTRY PRODUCER

ENVIRONMENTAL MONITORING PLAN IMPROVEMENT



Challenge

One of the largest poultry producers swabs samples daily to make sure the machinery, environment and facility are not testing hot for *Listeria*. However, **the sampling process requires hours to understand where they should be sampling** and to ensure rotation of sample locations.



Answer

Implementing an environmental monitoring solution **facilitates scheduling, managing, and mitigating out-of-limit results**, generating necessary reports.



We enabled the company to **visualize the data quickly**. If a piece of equipment tests positive for *Listeria*, they can now **act immediately**. The interactive map and color options make it **easier to choose the priority areas** and uncover patterns that had previously gone unnoticed.

"The biggest improvement is the reduction in our recall risk for Listeria".
Corporate Food Safety Manager

Your Trusted Partner in **AUGMENTED DIAGNOSTICS**



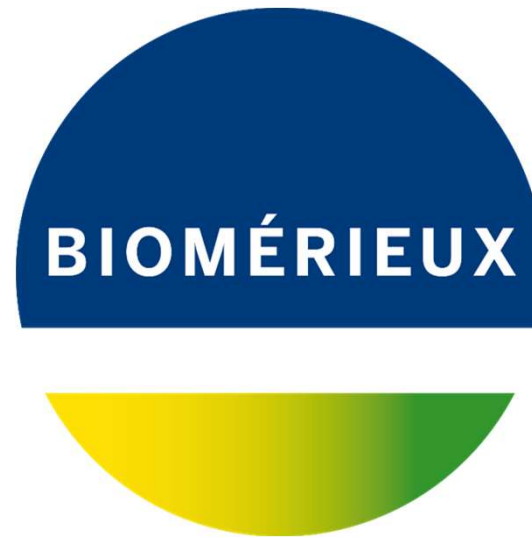
**Smarter and more
dynamic risk
assessment**



**Moving from test
results to
actionable insights**



**Safer products of the
higher quality for
consumers**



PIONEERING DIAGNOSTICS