AMS
ADVANCED MANAGEMENT SOLUTIONS

تحديات

كيف نستخدم تقنيات ذكاء الاعمال لدعم اتخاذ القرارات في جودة وسلامة الغذاء

CHALLENGES

HOW DO BUSINESSES MAKE EFFICIENT FOOD SAFETY QUALITY WITH BUSINESS INTELLIGENCE?

ALAA HADY
MANAGING PARTNER
ADVANCED MANAGEMENT SOLUTIONS
www.amsol.ca










ثورة

01 الثورة الصناعية الأولي

02 الثورة الصناعية الثانية

03 الثورة الصناعية الثالثة

04 ثورة المعلومات

المحاور

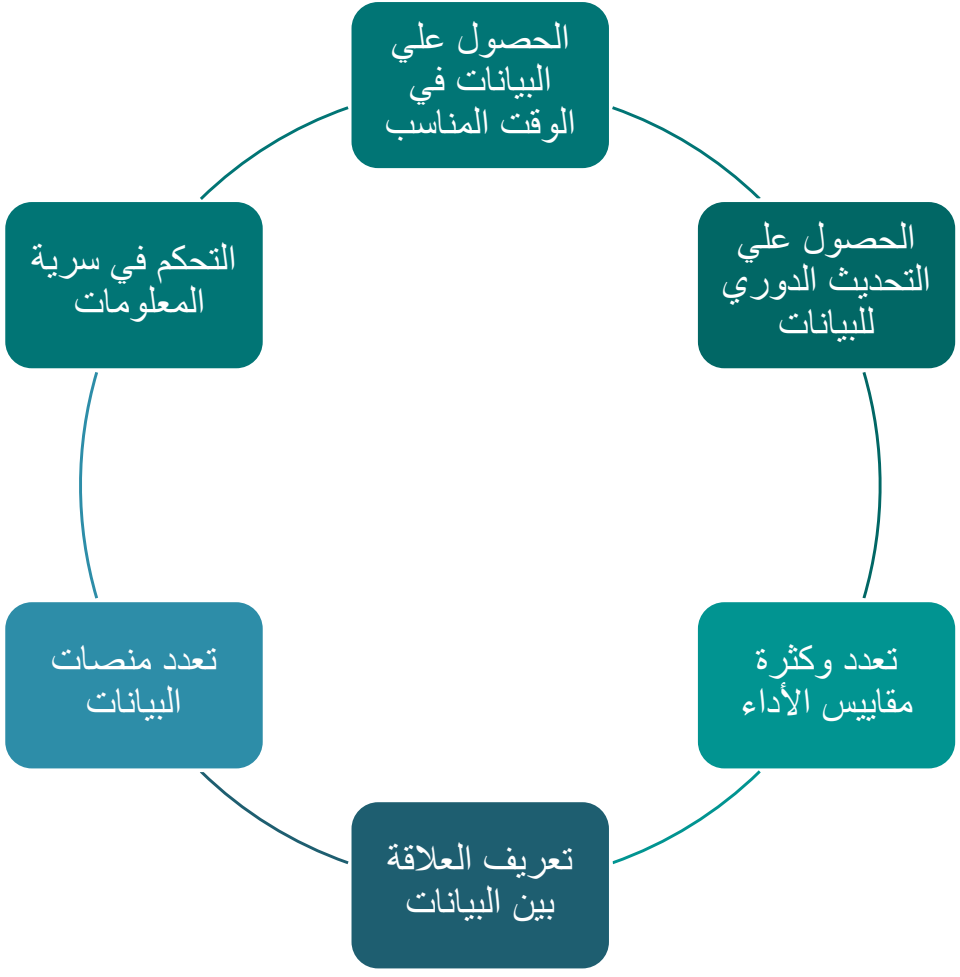
- ما هي الصعوبات التي تواجهها في جمع مؤشرات جودة وسلامة الغذاء؟

- هل توجد جميع بيانات الجودة في نظام واحد ام عدة أنظمة؟

- كيف نستعمل تقنيات الذكاء الصناعي في تحسين اداء الجودة؟

- كيف نستخدم ادوات ذكاء الاعمال في معرفة أسباب ضعف الجودة؟

تحديات تحليل وتنقية وعرض البيانات

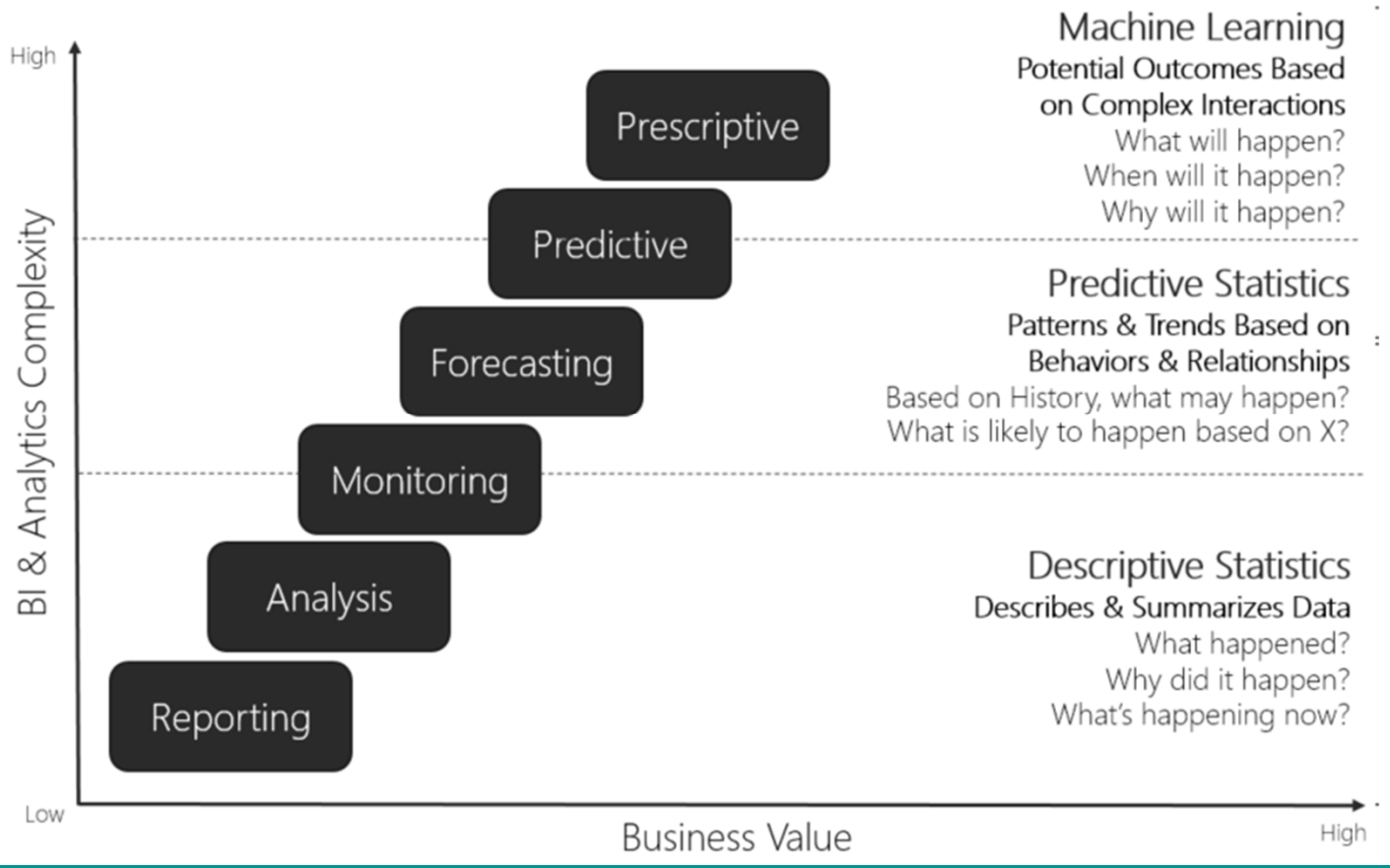


التحليل الذكي للأعمال Business Intelligence

تحليل الماضي وتحسين المستقبل

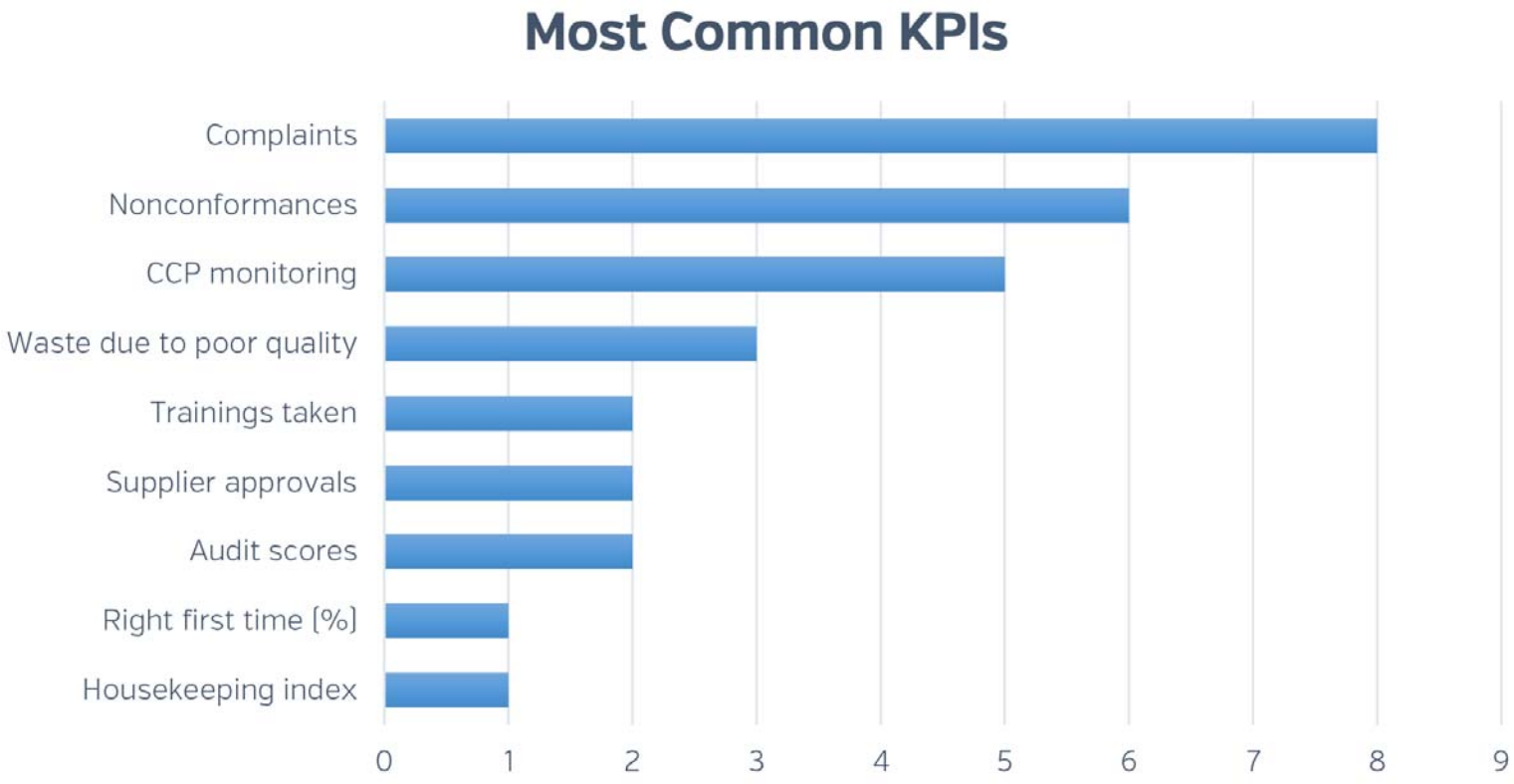
وضع أطر لإدارة الأداء لتحديد المؤشرات الرئيسية وتتبّعها وتوفير التحليل الذكي للأعمال.

Maturity Model



Food safety KPIs

Most important food safety KPIs



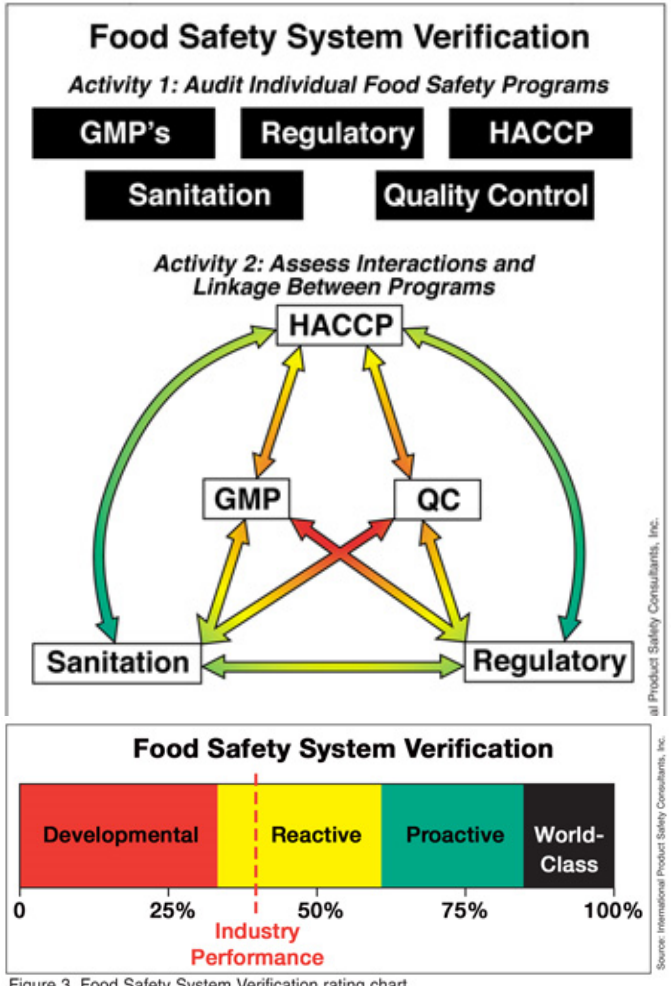


Figure 3. Food Safety System Verification rating chart.

Food safety system verification

Comprehensive food safety system

Manufacturing Supply Chain				
Comprehensive Food Safety System				
GMPs	**Sanitation**	**Regulatory Compliance**	**Quality Control**	**HACCP**
KPIs Training Documentation Specifications Process Controls Equipment Manufacturing Procedures Components Handling Traceability Lot Coding Storage Facilities Buildings and Grounds Maintenance Procedures Welfare Facilities Pest Control Chemical Control Vendor Programs Co-packer Programs Recordkeeping Auditing	**KPIs** Training Documented Procedures Cleaning Schedules Monitoring Actions on Deviations Chemical Control Cleaning Equipment Water Supply Sewers Process Waste Refuse Handling Recordkeeping Auditing	**KPIs** Training Documentation Plant Registration Process Filing Process Authority Inspection Readiness Recall Procedures Recordkeeping Auditing	**KPIs** Training Control of Documents Specifications Testing Methods Documented Procedures Calibration of Devices Inspection and Testing Process Controls Actions on Deviations Recordkeeping Auditing	**KPIs** Training Documentation Product Descriptions Flow Charts Hazard Analysis Critical Control Points Critical Limits Monitoring Actions on Deviations Responsible Personnel Verification Recordkeeping Auditing

Figure 2. Key performance indicators for rating elements of a food safety system.

Food safety culture

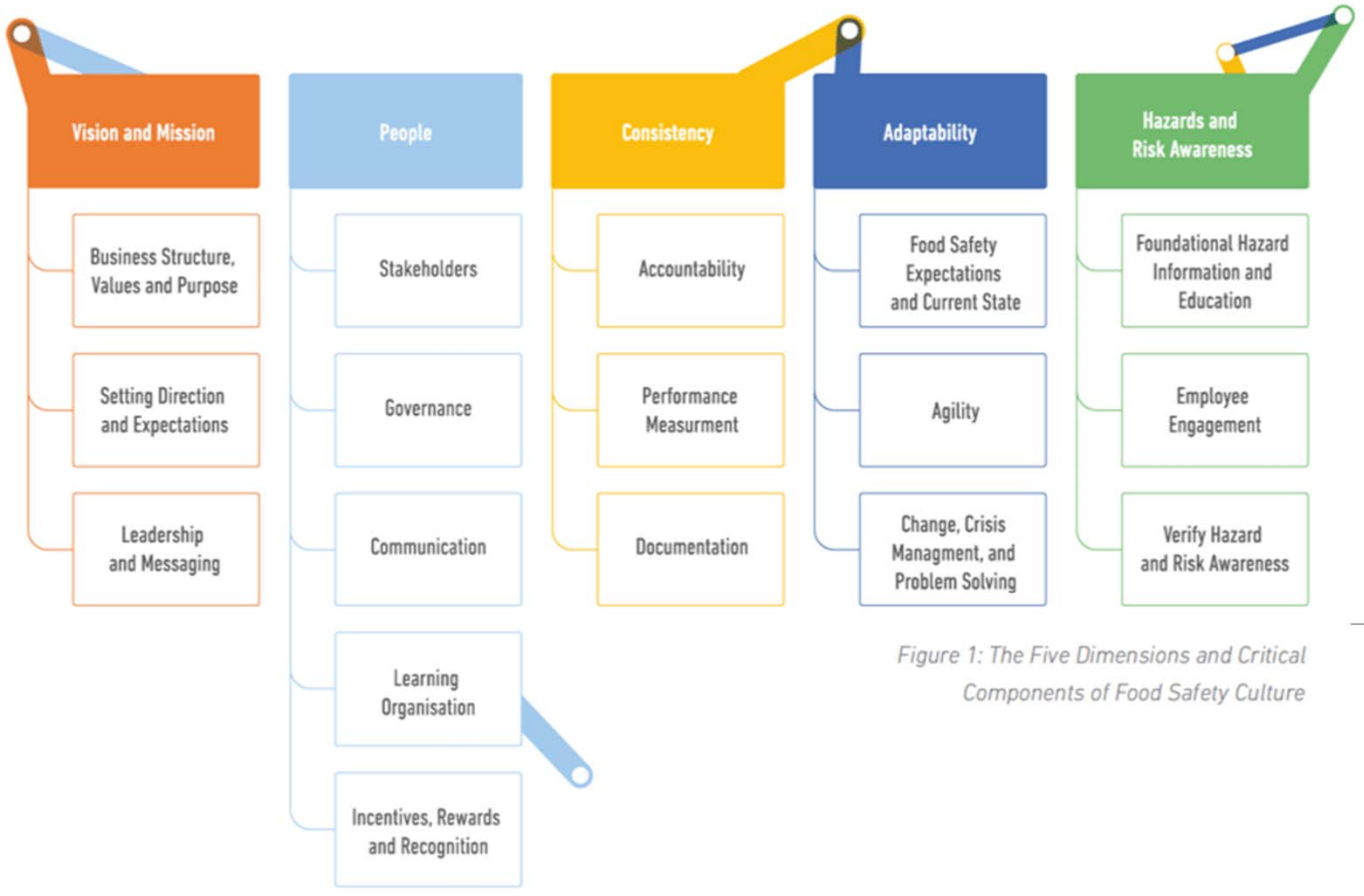


Figure 1: The Five Dimensions and Critical Components of Food Safety Culture

Food safety culture

Example of some metrics identified for the five dimensions

Dimension	Mission and Vision	People	Consistency	Adaptability	Hazards and Risk Awareness
Examples of Metrics	• Number of certificates (Food Safety) • Internal communication effectiveness	• Food Safety continuous training plan • Food Safety related activities performance evaluation	• % of Nonconformities from the same suppliers • % of the analysis plan done	• Events of market withdrawals • Response to verification plan failures	• % of Nonconformities resulting from behaviors that put Food Safety at risk • Information and understanding about hazards and risks identified in the organization.

Measuring Food Safety Culture

Vision and Mission	People	Consistency	Adaptability	Hazards and Risk Awareness
M1: Existence of objectives and a defined policy, both at the level of purpose and intention, at food safety management system planning level, risk assessment level, or company strategic level. **Mean:** 4.57	**M4:** Percent of employees involved in the production/handling of foods with high understanding of your commitment to food safety. **Mean:** 4.32	**M7:** Compliance of workers' food safety responsibilities. **Mean:** 4.33	**M2:** Percent of corrective actions implemented timely and effectively. **Mean:** 4.27	**M4:** Compliance with procedures related to CCP deviations. **Mean:** 4.37
M9: Top management commitment to continuous improvement. **Mean:** 4.50	**M5:** Percent of employees involved in the production / handling of foods with high understanding of the implications of nonconformities. **Mean:** 4.27	**M6:** Consistency between proposed strategies and actual actions. **Mean:** 4.22	**M4:** Effectiveness of customer complaint handling procedure. **Mean:** 4.26	**M3:** Percent of nonconformities resulting from behaviors that put food safety at risk. **Mean:** 4.22
M4: Percent of production supervisors with knowledge of HACCP methodology (besides legal obligations). **Mean:** 4.29	**M9:** Investment/existence of a continuous training program in food safety. **Mean:** 4.27	**M12:** Existence of documents with clear description of tasks/responsibilities. **Mean:** 4.22	**M8:** Customer satisfaction (response rate and customer satisfaction index). **Mean:** 4.17	**M1:** Percent of employees complying with food safety training plan. **Mean:** 4.22

Table 1. Metrics rated higher by food safety professionals (mean values based on 1 to 5 scale).
Analysis of 180 responses assessing the organizational culture of food safety; 51.1% of answers obtained were from those at companies with 250 or more workers. Around 71.7% of participants stated that the company where they work/have worked operated at the national and international levels, and 86.1% were at companies/organizations with the most diverse types of certifications in food safety.

How to Develop a Food Safety Culture

Senior management

- Leadership – starting from the top
- Demonstrating visible commitment
- Effective communication of company philosophy and policy
- Ensuring there is accountability from the top of the organization to the bottom
- Developing employee confidence and mutual trust
- Developing reward schemes including ‘Employee of the Month’ award
- Ensuring all employees are accountable, engaged and understand the value of integrity and proactivity
- Developing an action plan for the development and continuing improvement of food safety culture

How to Develop a Food Safety Culture

Communication processes for promoting food safety include:

- Team briefings
- Staff reviews
- Daily Management meetings
- Feedback mechanisms
- Newsletters
- Notice boards

How to Develop a Food Safety Culture

Senior management should monitor and measure through reports and trend analysis the degree of development of the food safety culture by analyzing information including KPIs from:

- Hygiene & Housekeeping Audits
- Internal Audits
- External Audits
- Non-conforming products
- Environmental monitoring
- Review of implementation plan and numbers trained
- Employee reviews
- Staff surveys on values and culture
- Customer Complaints
- Staff Turnover
- Staff Exit Interviews

How to Develop a Food Safety Culture

All employees should undergo individual food safety culture development which can include:

- Food Safety Policy
- Food Safety Objectives
- Food Safety Management System Overview
- Job Descriptions
- Job Training
- Employee Briefing
- Individual Objectives
- CCP Controls – Training Procedures & Record Completion
- PRP Controls – Training Procedures & Record Completion
- Employee Review

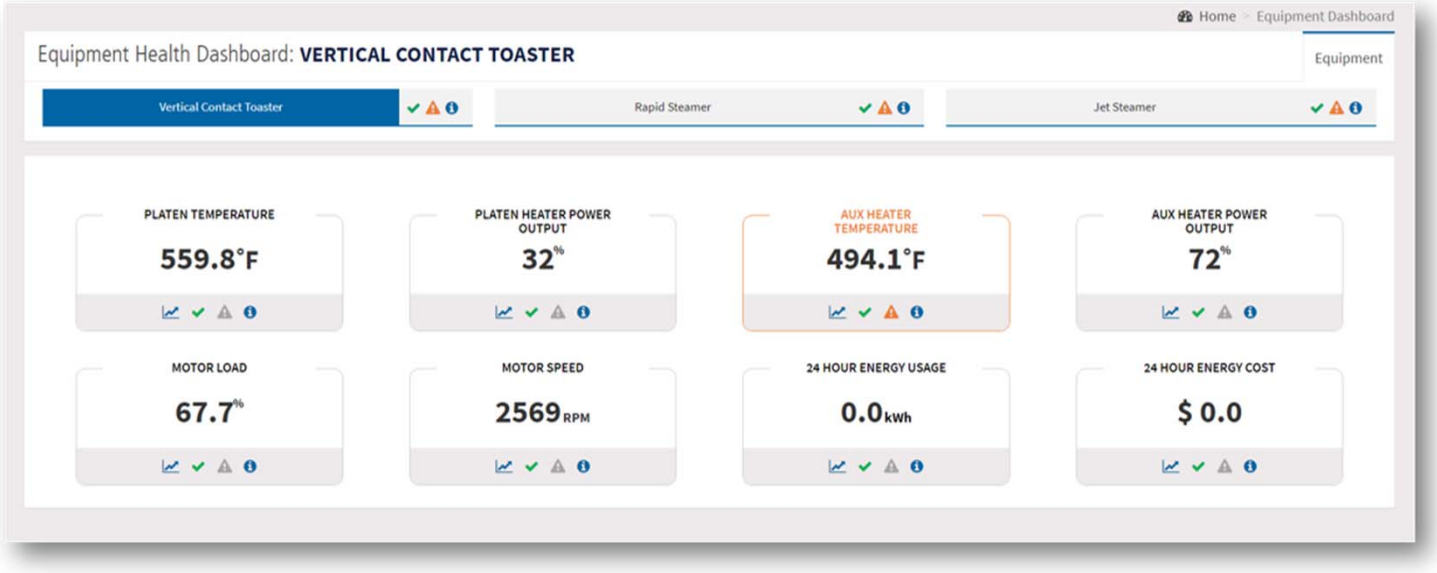
Food safety charts

Food Safety Dashboard

Online HACCP Logs

Performance Reports

Incidents Hub



Online HACCP Logs

ANALYTICS & ACTIONS

- Identify out of range temperatures
- View food temperatures
- Log corrective actions
- Standardize processes across store locations
- Manage workflow & alert settings
- Generate compliance & food safety reports

Online HACCP Logs

COMPLIANCE REPORTING

- address internal and external compliance inquiries accurately, organized and in real time.

Run Report | Print | Email | Export

Show 25 entries Search: Enter keyword to search

Date	Time Recorded	Event	Store	Product Name	Min Range ° F	Max Range ° F	Recorded Temp ° F	Corrective Action
5/31/2018	07:46 AM	#1 - Opening Carryover Temperature Survey - New		Beans & Rice (Carryover) Walk-in	34.00	41.00	34.88	
5/31/2018	07:47 AM	#1 - Opening Carryover Temperature Survey - New		Bean Mix (Carryover) Walk-in	34.00	41.00	34.88	
5/31/2018	10:23 AM	#1 - Opening Carryover Temperature Survey - New		Chili (Carryover) Walk-in	34.00	41.00	38.12	
5/31/2018	10:42 AM	#2 - 10:30 AM Temp Log Survey - New		Cheese (Cold) Walk-in	34.00	41.00	37.04	
5/31/2018	10:43 AM	#2 - 10:30 AM Temp Log Survey - New		Cheese (Cold) Steam Table	34.00	41.00	39.38	
5/31/2018	10:44 AM	#2 - 10:30 AM Temp Log Survey - New		Chicken (Cold) Burrito Bar	34.00	41.00	35.6	

ID	Indicators	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV
1	# Incidents	11	10	11	12	8	10	12	11	8	12	11
2	# Critical Incidents	2	1	2	1	2	1	1	2	2	1	2
3	# Incidents > 3 Days of Absence	3	1	3	2	1	2	3	3	2	2	1
4	$ Incidents Cost	838,00	535,00	857,00	902,00	916,00	913,00	960,00	747,00	938,00	521,00	696,00

Severity

ID	Indicators	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV
5	Low	5	4	5	4	1	4	4	5	3	4	5
	Medium	2	1	2	4	2	1	4	2	2	4	2
	High	2	2	2	3	1	2	3	2	1	3	2
	Critical	2	1	2	1	2	1	1	2	2	1	2
	Total	**11**	**10**	**11**	**12**	**8**	**10**	**12**	**11**	**8**	**12**	**11**


ADNIA
3. Dashboard
1. Settings
2. KPI Data
3. Dashboard
Help & Support
Incidents
124
Critical Incidents
19
19
Days Since
Last Incident
Incidents > 3 Days of Absence
25
$ Incidents Cost
9 823 $
Severity
Low
Medium
High
Critical
0
10
20
30
40
50
60
Type of Incident
Injury
Illness
Psychological
Harassment
Other
47
43
15
12
7
0
10
20
30
40
50
Injury Consequence
Lost Time
Medical Only
First Aid
No treatment
Lost Days
16
15
14
13
0
10
20
30
40

Some examples of the Dashboard:

Supplier Compliance Status

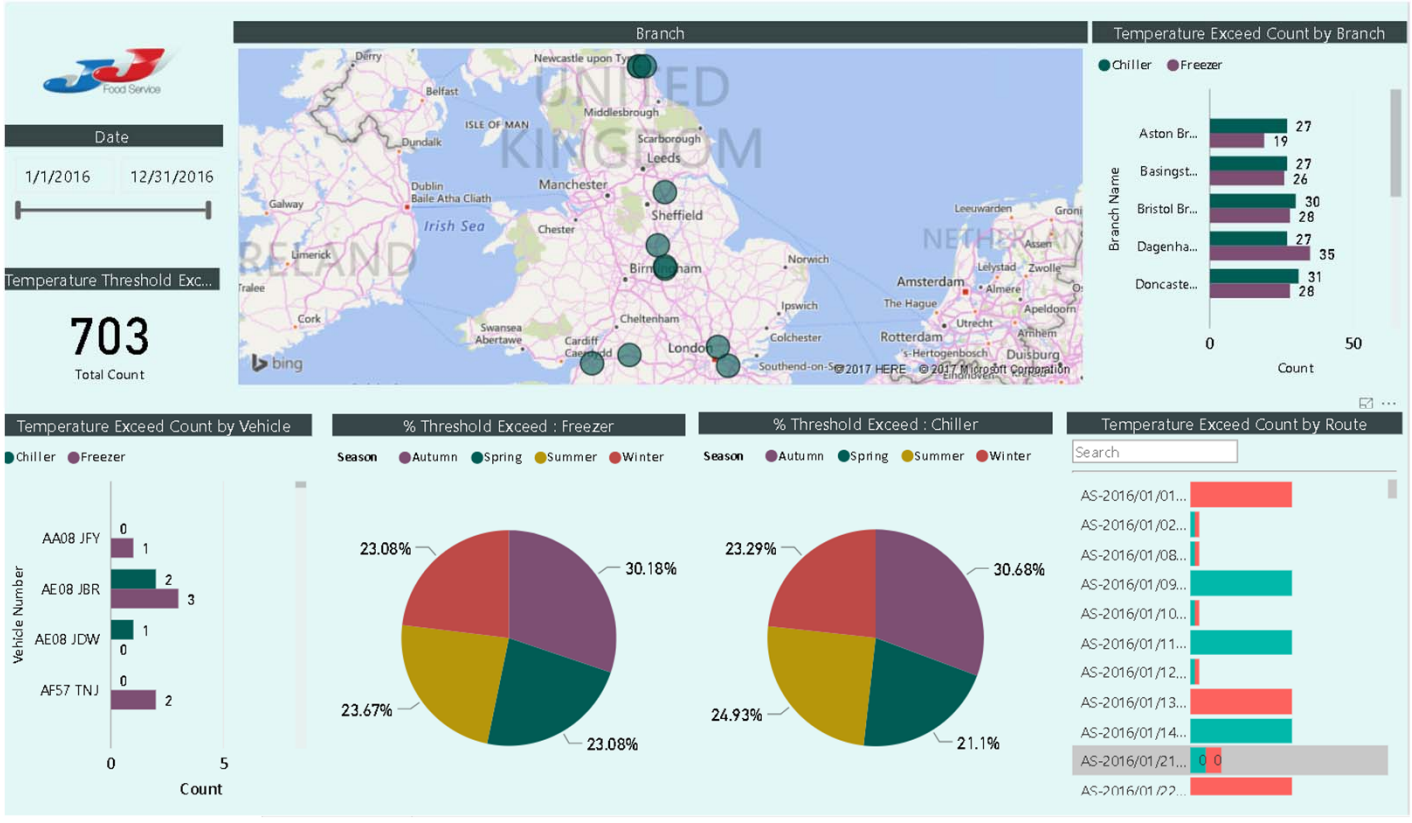
Corrective Action Trends

Document Control Status

Supply Chain Food Safety Incidents

Supplier Questionnaire Analysis

Transforming Food supply chain operations

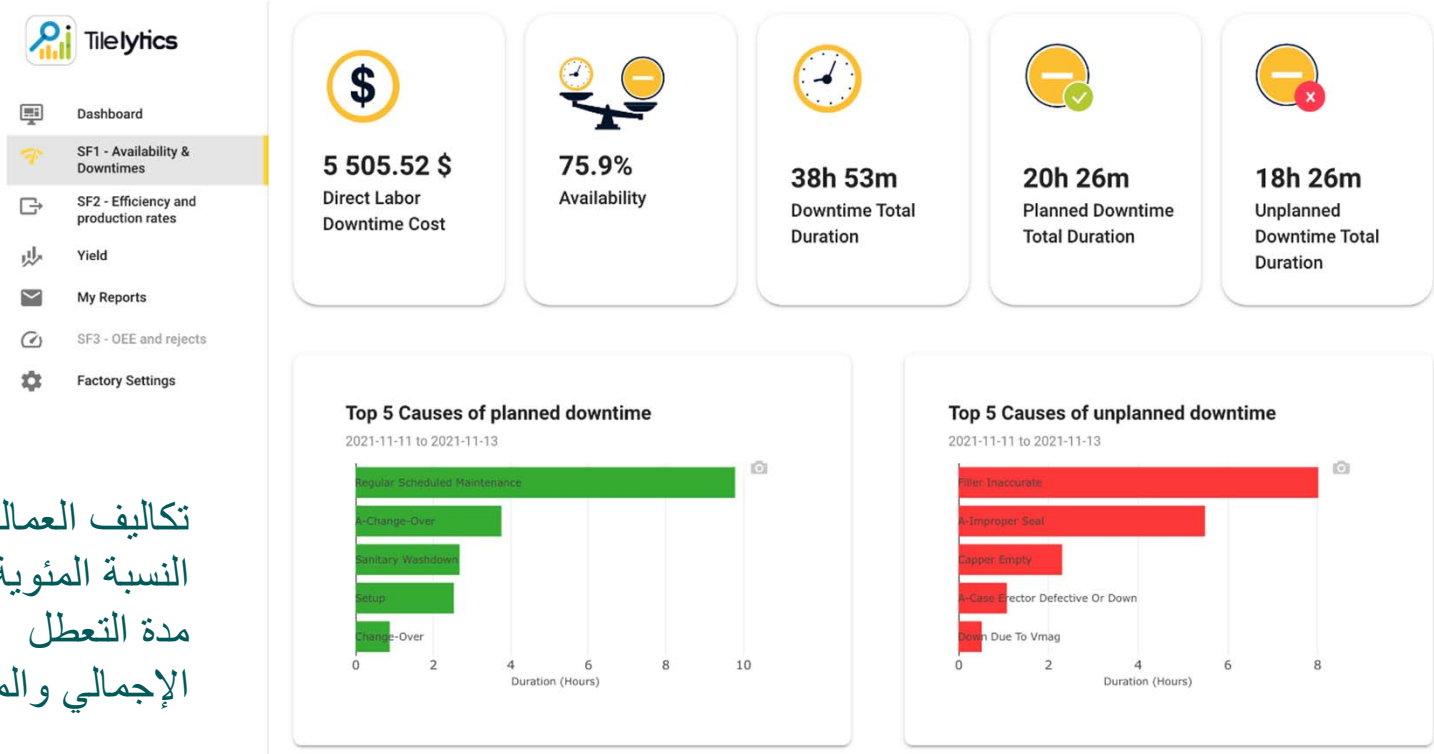


المراقبة الرقمية مصانع إنتاج الغذاء

فوائد لوحة التحكم التفاعلية

- متابعة مؤشرات الأداء الرئيسية لمصنع إنتاج الغذاء.
- سهولة إعداد التنبيهات.
- تحسين الوصول إلى المعلومات.

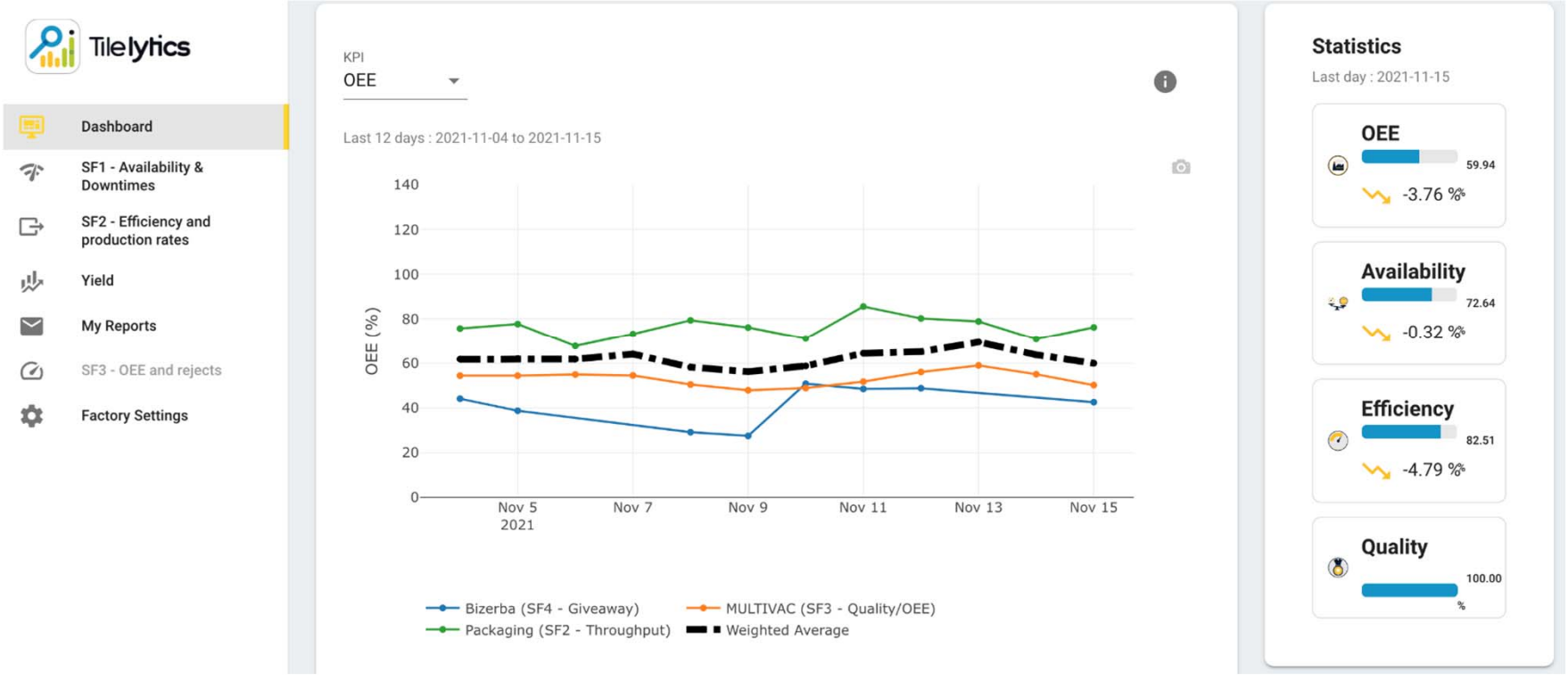
Availability and Downtime Dashboard



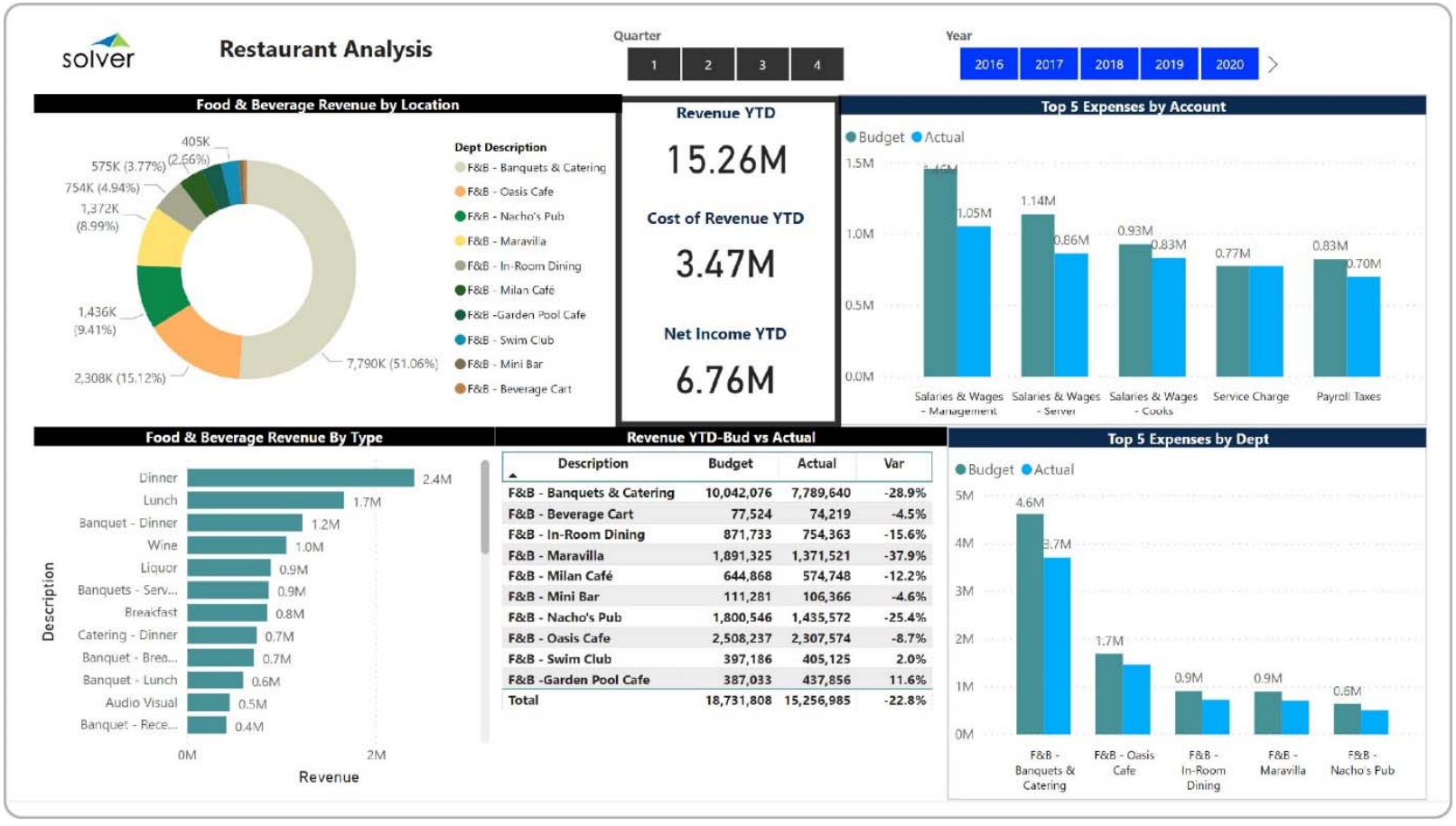
تكاليف العمالة أثناء التوقف
النسبة المئوية لإنتاجية الماكينات
مدة التعطل
الإجمالي والمخطط وغير المخطط له

OEE Dashboard

overall equipment effectiveness

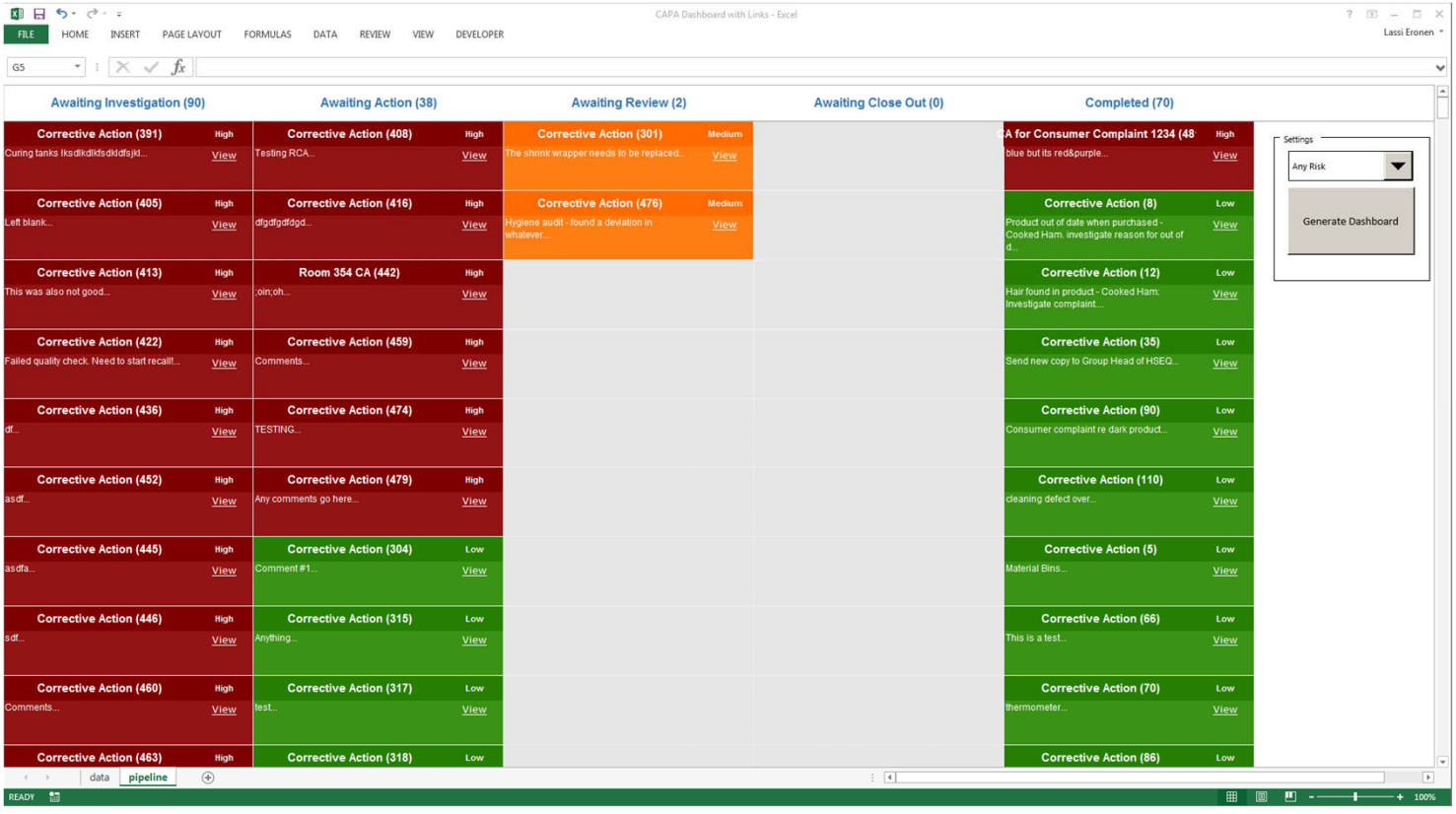


Restaurant Dashboard for Hospitality Companies

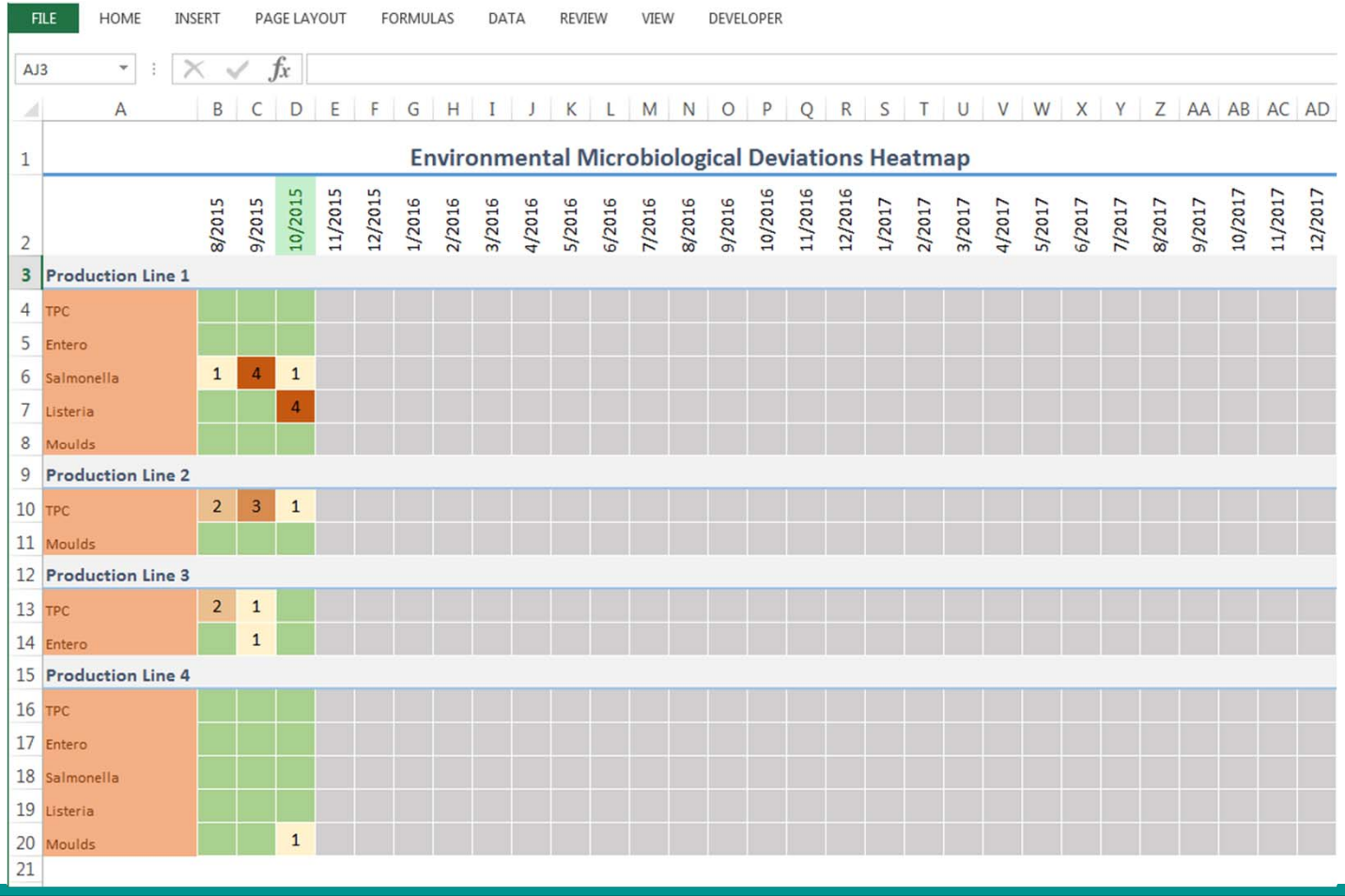


Developing advanced food safety reports and dashboards

Corrective Actions



Monitoring deviations heat-map



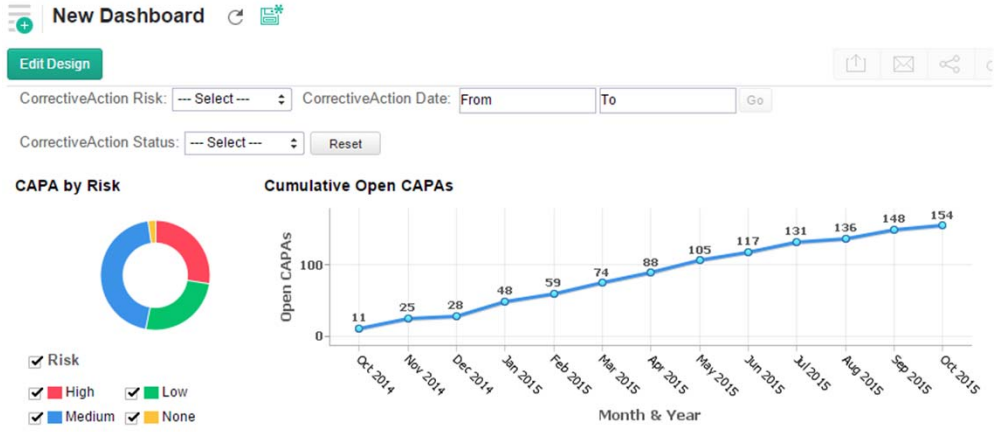
FILE HOME INSERT PAGE LAYOUT FORMULAS DATA REVIEW VIEW DEVELOPER

AJ3

Environmental Microbiological Deviations Heatmap

	8/2015	9/2015	10/2015	11/2015	12/2015	1/2016	2/2016	3/2016	4/2016	5/2016	6/2016	7/2016	8/2016	9/2016	10/2016	11/2016	12/2016	1/2017	2/2017	3/2017	4/2017	5/2017	6/2017	7/2017	8/2017	9/2017	10/2017	11/2017	12/2017
Production Line 1																													
TPC																													
Entero																													
Salmonella	1	4	1																										
Listeria			4																										
Moulds																													
Production Line 2																													
TPC	2	3	1																										
Moulds																													
Production Line 3																													
TPC	2	1																											
Entero		1																											
Production Line 4																													
TPC																													
Entero																													
Salmonella																													
Listeria																													
Moulds			1																										

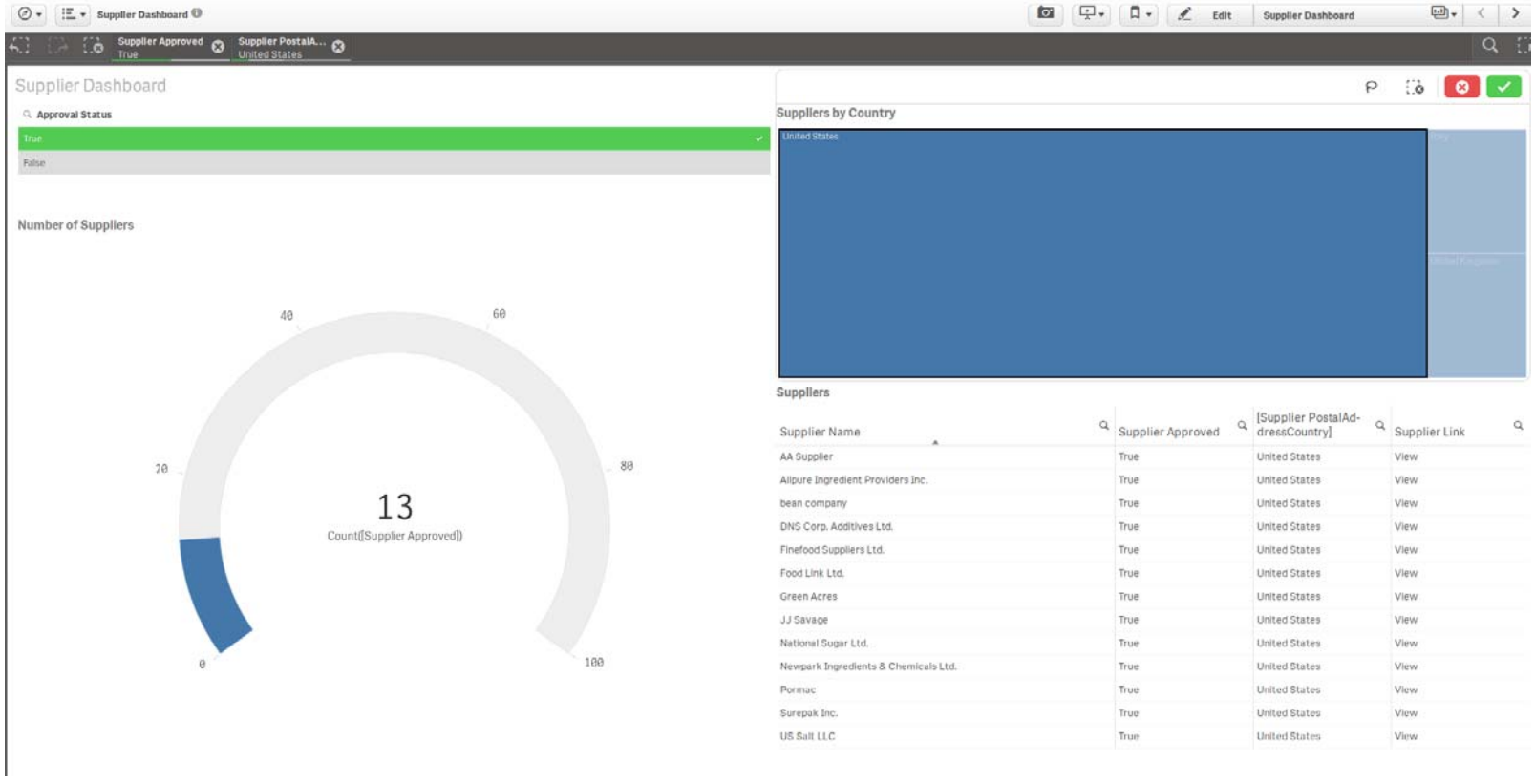
Corrective Action Preventive Action (CAPA) by Risk

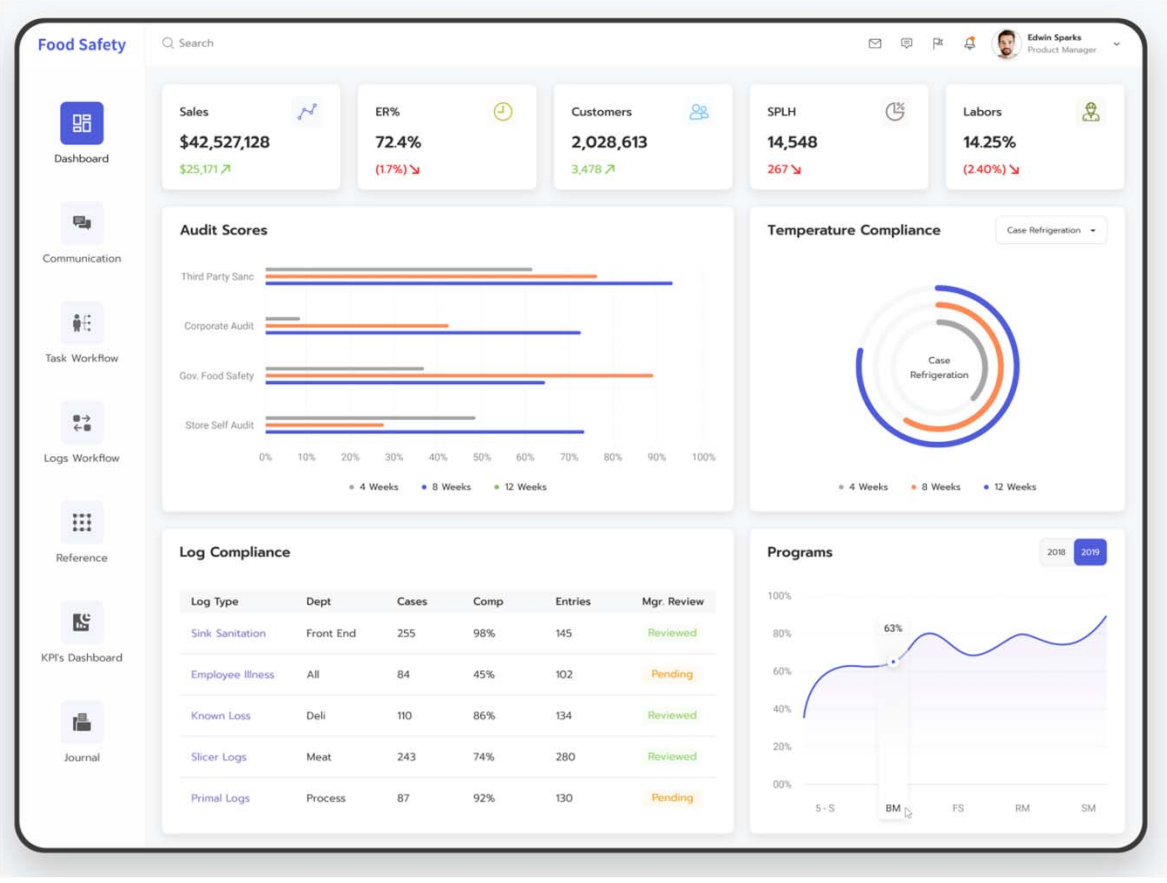


CAPA by Risk & Status

	Year of CorrectiveAction Date	CorrectiveAction Risk	CorrectiveAction Status	CorrectiveAction Status Count
1	2010	High	Completed	1
2		Low	Completed	1
3		Medium	Completed	2
4	2011	High	Completed	3
5		Low	Completed	2
6		Medium	Completed	8
7	2012	High	Completed	3
8		Low	Completed	3
9	2013	High	Completed	7
10		Low	Completed	8
11		Medium	Completed	11
12		None	Completed	1
13	2014	High	Awaiting Investigation	2
14			Awaiting Review	1
15			Completed	5
16		Low	Awaiting Action Details	4

supplier dashboard





Food Safety Dashboard

The FDA's new food safety dashboard for tracking FSMA progress

Food Safety Terms

Allergen is any normally harmless substance inside the food that causes an allergic reaction for people. In different countries, there are different allergens defined—for example, 14 in the UK, 8 in the US. More than 2 million people in the UK experience food allergies each year, and the number is rising every year.

Allergy notice poster is an informative poster for your kitchen team to display. Your kitchen team will see at a glance all major allergens and the risks these allergens involve.

Bacteria are single-celled microorganisms like Salmonella, Campylobacter, and Escherichia coli. Those are among the most common foodborne pathogens that affect millions of people by causing most of the foodborne illnesses in the world.

Biological hazards are microorganisms such as bacteria, molds, and viruses. Pathogenic microorganisms can cause a threat to human health because they cause most foodborne illnesses.

Celiac is a reaction to a protein fraction called gluten. It's found in wheat and wheat-related cereals such as rye, oats, and barley. As gluten is widely used in processed food, allergic people are in trouble trying to avoid it.

Cleaning checklist is an important part of your **HACCP plan**. It is a list of all the surfaces and activities that need to be cleaned and is divided by the frequency. The cleaning checklist helps you and your team to stay organized on your cleaning tasks.

Cleaning schedule occurs when bacteria spread between food, equipment, and work areas. For example, bacteria can spread from raw ingredients to the finished product when equipment and utensils are not segregated appropriately. Preventing cross-contamination is a key factor in preventing foodborne illness.

Consumer advisory is a written statement for your customers about the food safety-related risks when eating raw or undercooked food. The customer advisory statement protects customers who are especially vulnerable to foodborne diseases, for example, the elderly, pregnant women, toddlers, and people with compromised immune systems.

Cooking temperature chart helps your team to remember all necessary temperatures when cooking. A core temperature inside the food is crucially important to prevent foodborne illnesses and to protect your company.

Critical Control points (CCPs) are steps in your food business process where you need to prevent or reduce food safety hazards to an acceptable level. Critical control points exist at every stage of the process, starting from ordering ingredients, ending up with serving the products.

Decision tree is a part of your HACCP plan, a sequence of questions that help to determine whether a particular production process step is a Critical Control Points (CCP) or not. It helps to prevent or eliminate a food safety hazard or reduce it to an acceptable level.

Delivery control means monitoring your incoming goods to prevent food safety hazards. The monitor should always include the temperature, labeling, packaging, product characteristics, and condition of the delivery vehicle. Always record your monitoring.

E-learning is an online training course that delivers all essential information on food safety, hygiene, and HACCP. Very common in innovative countries, like the US.

Flow chart, also called a HACCP flow diagram, is a pictorial representation of all your production processes. It represents all the steps your raw materials go through before becoming a finished product in your menu.

Food allergen poster helps your team to easily remember all significant allergens that cause 90% of all food allergies. It's important to display food allergen posters in your workplace - so your kitchen team will see at a glance all major allergens and the risks these allergens involve.

Food fraud is when a food manufacturer intentionally deceives its customers about the quality or the contents of the food. It can be altering, misrepresenting, mislabeling, substituting, or tampering. Food fraud is usually motivated by profit.

Foodborne illness, also known as food poisoning, is any illness resulting from consuming food contaminated with bacteria, viruses, parasites, or chemical substances. Shortly, a foodborne illness is a disease that is transmitted to people by food.

Food recall is when a food producer removes the product voluntarily off the market to protect the customers from harmful products. Food products are recalled because there is reason to believe the products may be mislabelled, contaminated, faulted, or misbranded.

Business Intelligence أشهر برامج التحليل الذكي للأعمال

SAP Business Intelligence

Oracle BI

Microsoft Power BI

MicroStrategy

Datapine

SAS Business Intelligence

Yellowfin BI

QlikSense

Zoho Analytics

Sisense

Looker

Clear Analytics

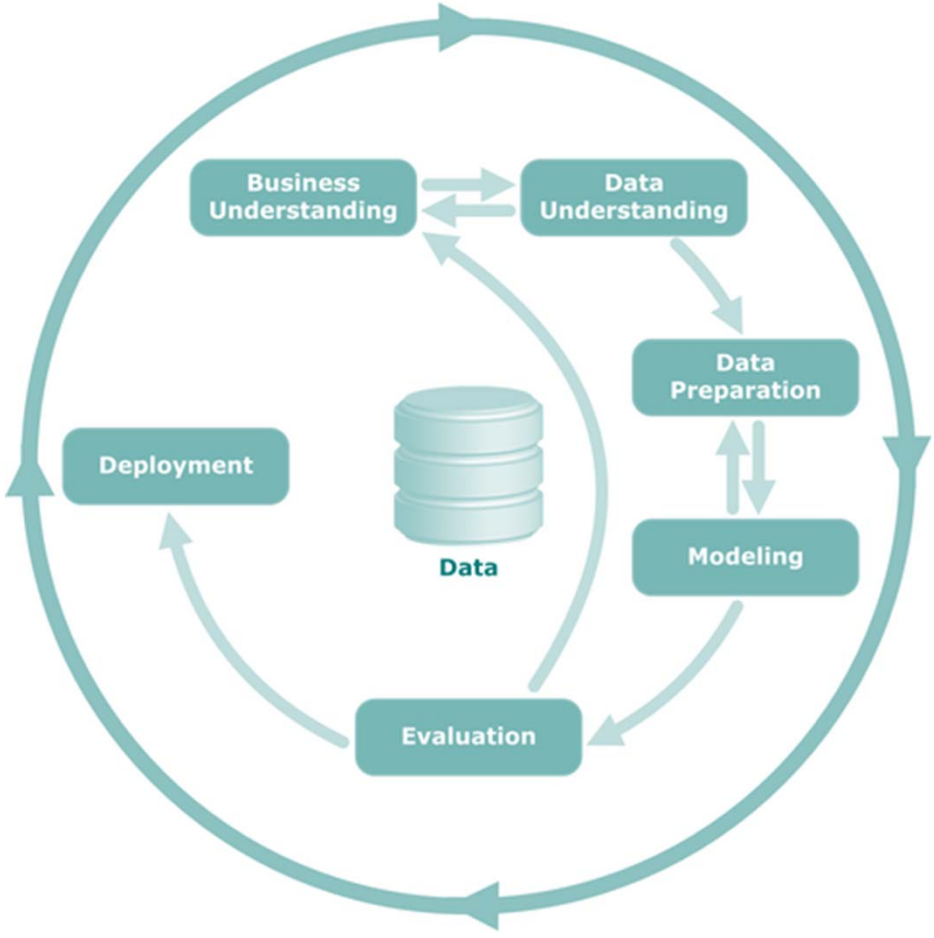
Tableau

Domo

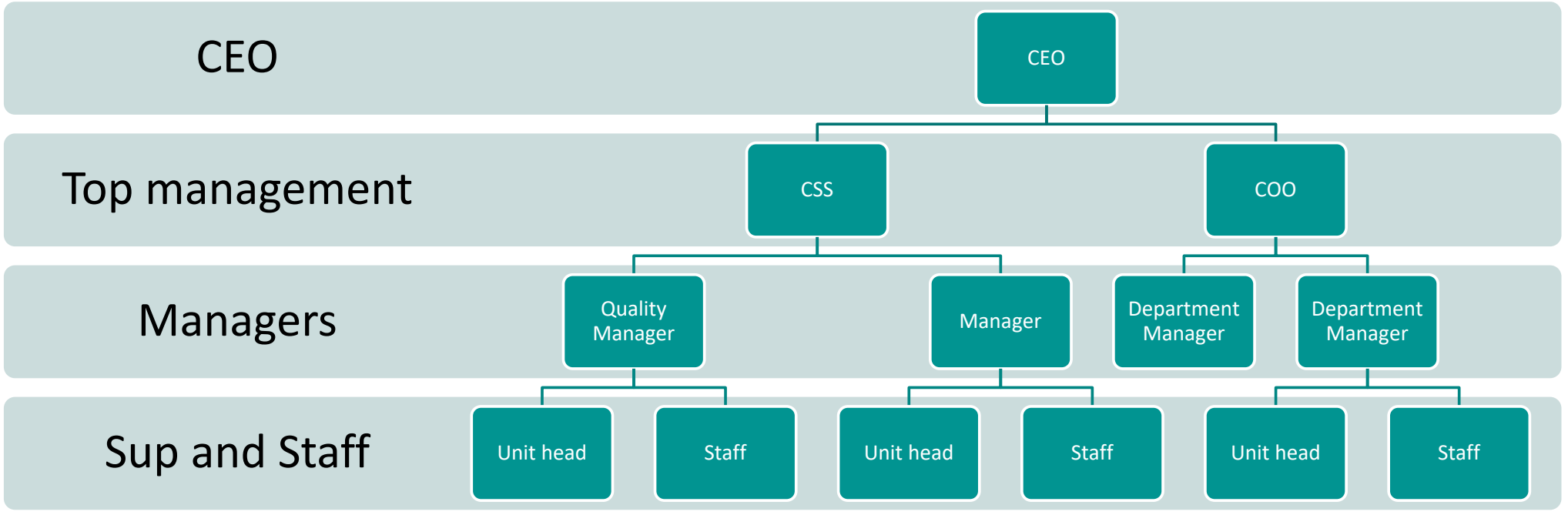
IBM Cognos Analytics


AMS
ADVANCED MANAGEMENT SOLUTIONS
تجربة عملية

How to start


Business Understanding
Data Understanding
Data Preparation
Modeling
Evaluation
Deployment
Data

Deployment


CEO
Top management
Managers
Sup and Staff
CEO
CSS
COO
Quality Manager
Manager
Department Manager
Department Manager
Unit head
Staff
Unit head
Staff
Unit head
Staff

RACI Example

Actions for the Focus Area	Roles and Responsibilities						
	Rita	Bob	Sue	Tom	Dick	Harry	Sally
Strategic Plan	R+A	I	C/I	I	I	I	I
Leadership Development	R+A	C	C/I	I	I	I	I
External Masterclasses	R+A	I	C/I	C/I	I	I	I
Commissioning external consultants	R+A	C	I	C/I	I	I	I
Strategic Measurement	R+A	I	-	I	I	I	I
Professional Development	R+A	C	-	I	I	I	I/C
Change Agent Programme	R+A	I	C/I	I	I	I	I

بعض مزايا Power BI في سلامة الغذاء

يظهر البيانات الرئيسية بوضوح

يشير إلى الاتجاهات والأنماط داخل البيانات

يزيد من فهم البيانات المعقدة

يجعل البيانات أكثر سهولة للوصول إلى صانعي القرار الرئيسيين

يدعم كبار المديرين التنفيذيين لاتخاذ القرارات بسرعة

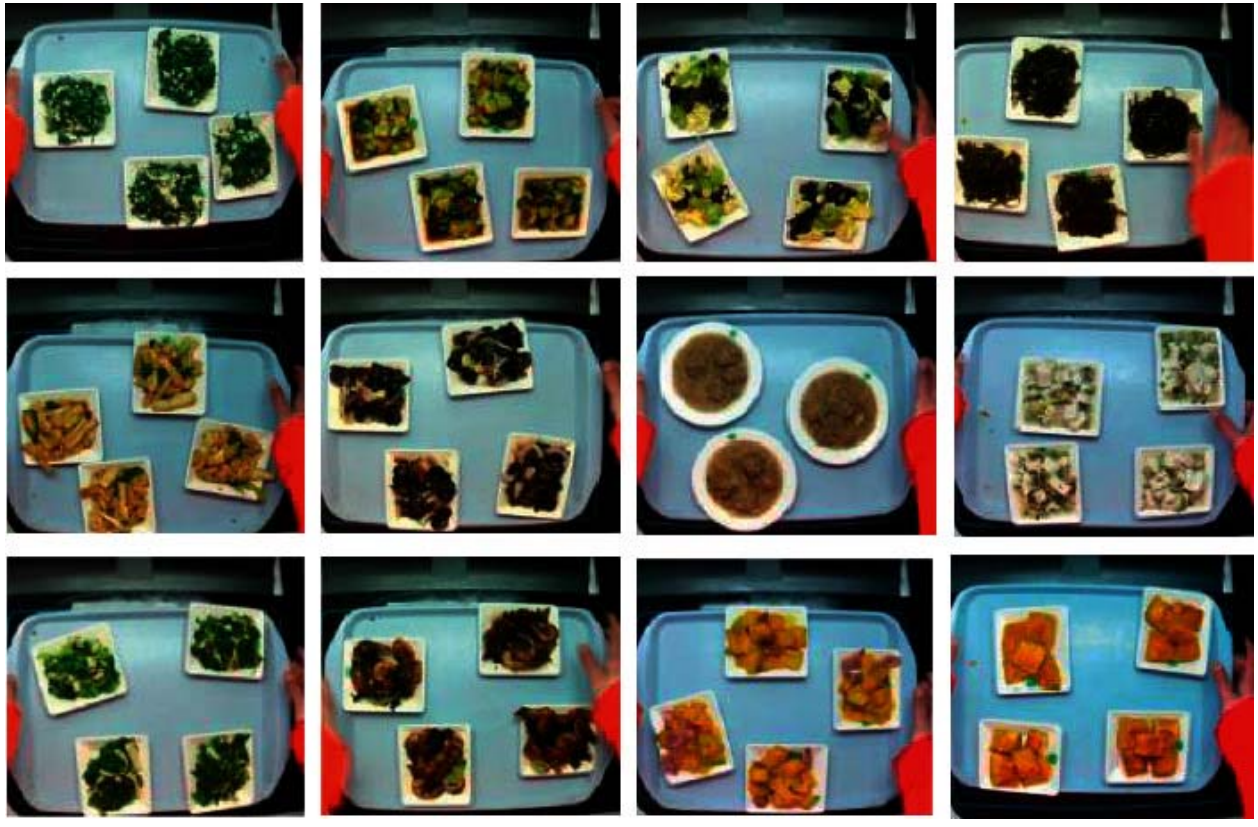
تمكن من إدارة البيانات بسهولة لاستخدامها عبر الإدارات المتنوعة

تطبيق تعلم الآلة في صناعة الأغذية

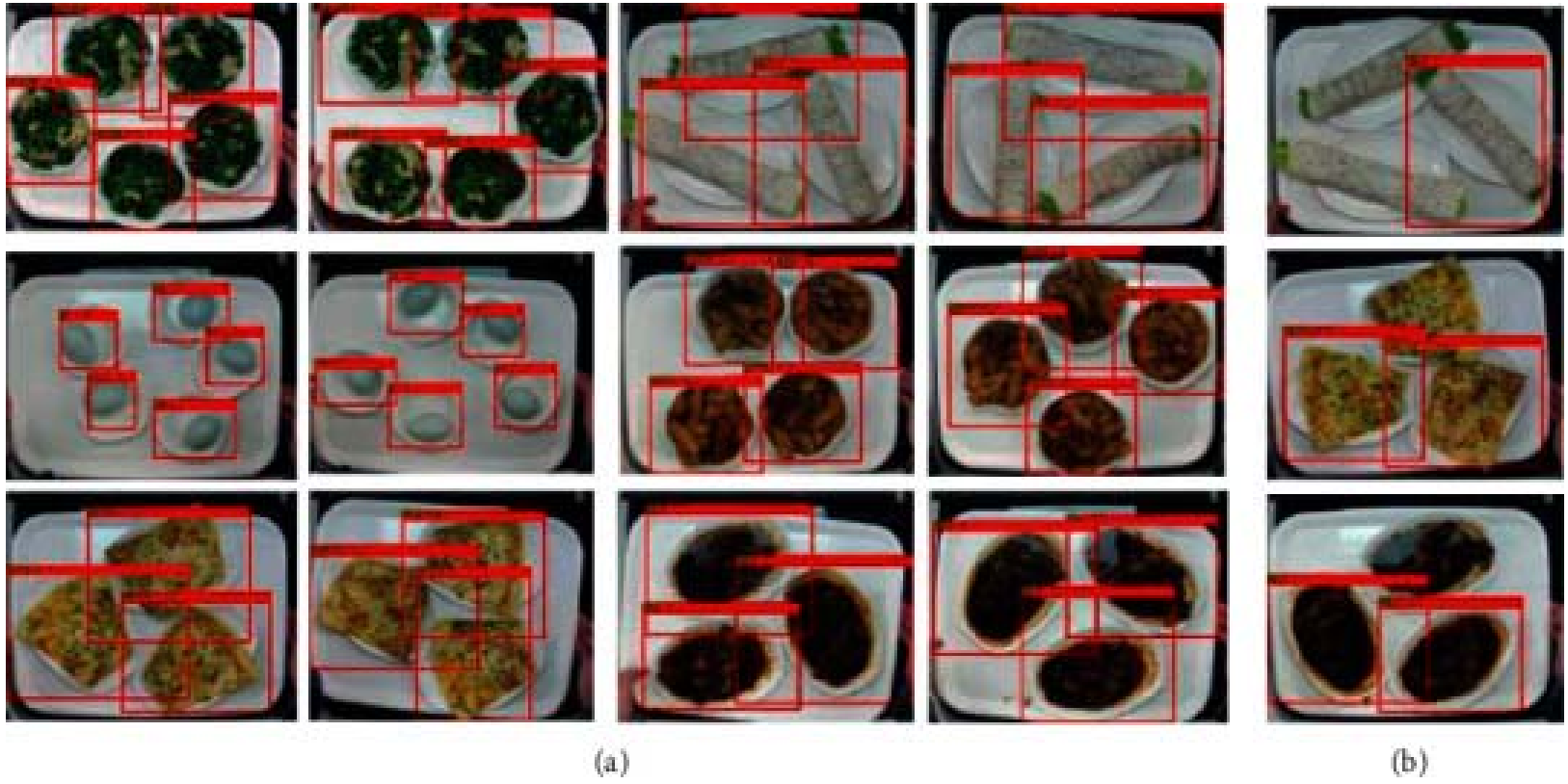
تطبيق تعلم الآلة في صناعة الأغذية

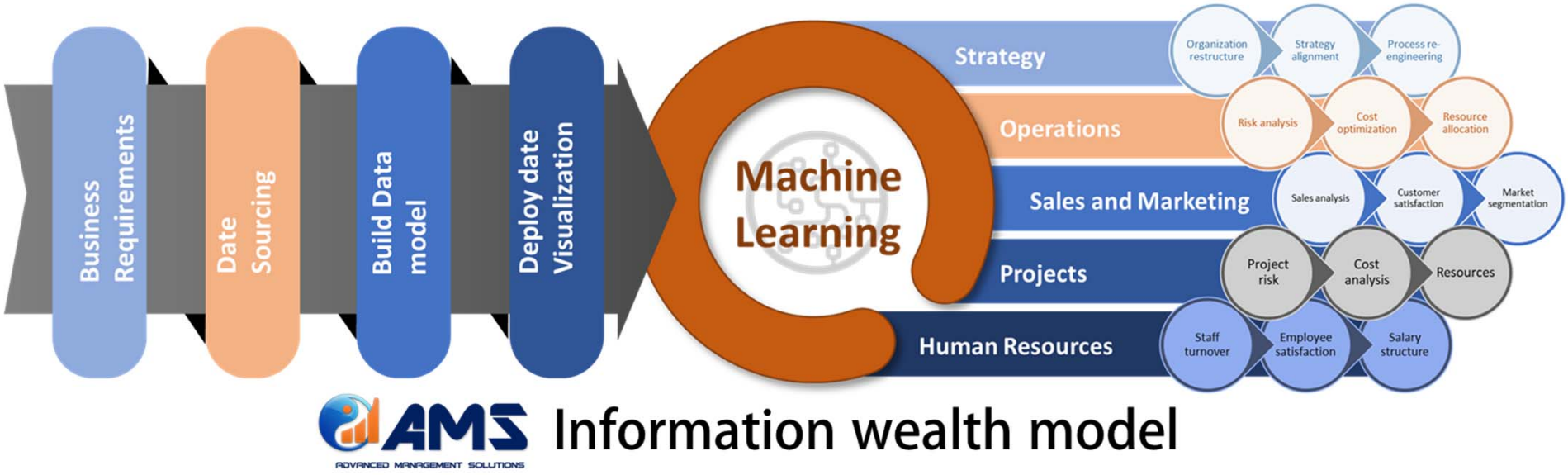
1. تحسين سلسلة التوريد
   - يمكن أن تساعد حلول التعلم الآلي الشركات في تقدير الطلب على منتجاتها لتحسين إستراتيجية التسعير والنقل والمخزون. هذا يضمن المزيد من الشفافية ويقلل من الهدر.
2. فرز الأغذية وتعبئتها
   - يمكن لحلول التعلم الآلي اليوم أتمتة العملية الصارمة لفرز الأطعمة وتعبئتها ، مما يساعد الشركات على توفير التكاليف الهائلة على العمالة البشرية وتسريع عملية الإنتاج.
3. صيانة النظافة
   - كانت أنظمة التنظيف التقليدية دائمًا غير فعالة عندما يتعلق الأمر بالحفاظ على النظافة. من ناحية أخرى ، تستفيد التقنيات القائمة على الذكاء الاصطناعي اليوم من الاستشعار بالموجات فوق الصوتية لتزويد خوارزميات التعلم الآلي بالبيانات التي يمكن استخدامها لتحديد الحطام وجزيئات الطعام في المعدات.
4. تطوير المنتج
   - يمكن لشركات تجهيز الأغذية استخدام تقنية التعلم الآلي لتحليل وتحديد سلوك العملاء واحتياجاتهم. يمكن بعد ذلك استخدام البيانات الناتجة لتصنيع منتجات مخصصة تلبي تلك الاحتياجات وتساعد الشركة على زيادة مبيعاتها.
   - يكفي القول ، إن الذكاء الاصطناعي والتعلم الآلي في صناعة الأغذية لهما دور مهم يلعبانه في المستقبل القريب. على هذا النحو ، من المهم للغاية بالنسبة لشركات تصنيع وتوزيع المواد الغذائية أن تتكيف بسرعة مع هذه التقنيات للاستمتاع بعمل مستقر ومربح.

طريقة الكشف عن سلامة الأغذية على أساس التعلم العميق



طريقة الكشف عن سلامة الأغذية على أساس التعلم العميق





Information wealth model

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علاء عبد الهادي استشاري في شركه الحلول المتقدمة للإدارة بكندا

عمل م. علاء في استشارات تطوير الاستراتيجيات واعاده الهيكلة وتطوير الموارد البشرية وحلول المعلومات وتحليل البيانات في عدد من شركات البترول والهيئات الحكومية والشركات الخاصة والشركات الهندسية بالإضافة الي الجمعيات غير الهادفة للربح كما وعمل في عدد من الشركات الاستشارية العالمية

قام المهندس علاء بتقيم الشركات في جائزه دبي للموارد البشرية

حصل م. علاء على ماجستير في اداره الاعمال من جامعه ماسترخت في هولندا و شهاده متخصص في الموارد البشرية من جامعه مينيسوتا وشهاده متخصص في تحليل البيانات من جامعه دوق وكان المهندس علاء عضو مجلس اداره في جمعيه العربية لإدارة الموارد البشرية لمده ثمان سنوات بالإضافة الى عضويته في العديد من الجمعيات المتخصصة

ALAA ABDULHADY

Managing Partner Advanced Management Solutions

PROFESSIONAL EXPERIENCE

Developed short and long-term strategy, initiatives and key performance indicators for organization structure for petrochemical construction company resulting in new strategy

Assessed and coached leaders on organization in manufacturing, construction and publishing industries

Developed organization structure for Makkah high commission authority

More than 30 years in managing, developing and implementing application at various industries include Financial, Military, Oil and Gas, Human Resources, Government and Engineering.

Certification

Certified IBM Artificial intelligence engineer

Certified IBM Artificial intelligence professional engineer

Certified Strategic Planning and Performance Management Expert (SPPME) from Performance Institute at Arlington, VA

EDUCATION

Advanced Business Analytics Specialization from *University of Colorado Boulder*

Human Resources management from *Carlson School of Management at University of Minnesota*

Data Analysis and Presentation Skills: the PwC Approach from *PWC*

Business Metrics for Data-Driven Companies from *Duke university*

Masters of Business Administration with Distinction – Strategy Management from *Maastricht School of Management, Maastricht, Netherlands*

Engineering Bachelor's Degree from *Alexandria University, Faculty of Engineering, Alexandria, Egypt*