BUILDING RESILIENT FOOD FACTORIES
FOR PUBLIC FEEDING PROGRAMS

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PUBLIC FEEDING PROGRAMS-
FEW FACTS

Public feeding programs are the major source of nutrition to a large part of the population across the world

Especially in low- and medium-income countries (LMIC) access to free meals also serves as a form of financial aid

COVID-19 IMPACT-
ON FOOD SECURITY & NUTRITION

Income loss, social protection disruptions and school closures have all negatively impacted food security and nutrition
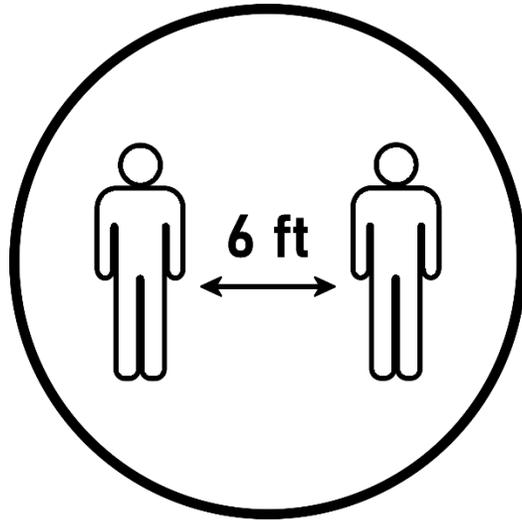
As per *World Food Programme,* during peak of school closures in April 2020 more than 369 million children were missing out on meals

In countries like India where child undernutrition is already on the rise last several years, the pandemic is making it worse
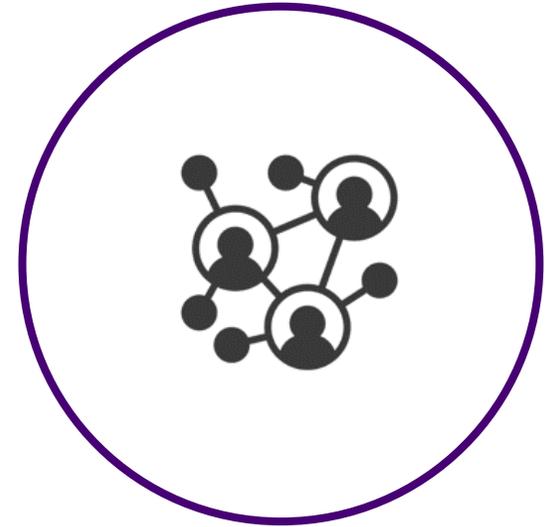
REVOKING PUBLIC FEEDING PROGRAMS
KEY CHALLENGE IS WORKERS' SAFETY
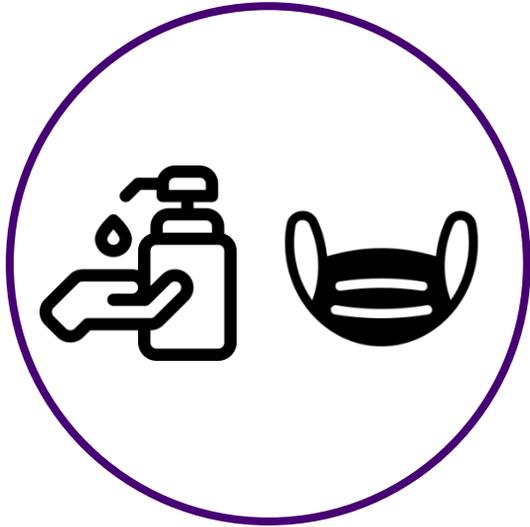
Safety Attire & Sanitization

Social Distancing

Contact Tracing

KEY COMPLIANCE MONITORING ACTIVITIES

HYGIENE & SAFETY COMPLIANCE IN FOOD FACTORIES
CORE REQUIREMENTS

An integrated solution that takes care of compliance requirements of people spaces and processes in a holistic manner

A solution that allows indoor tracking and tracing of workers without infringing on their privacy

A solution that offers a command center view which allows executives to monitor the compliance insights and take corrective actions
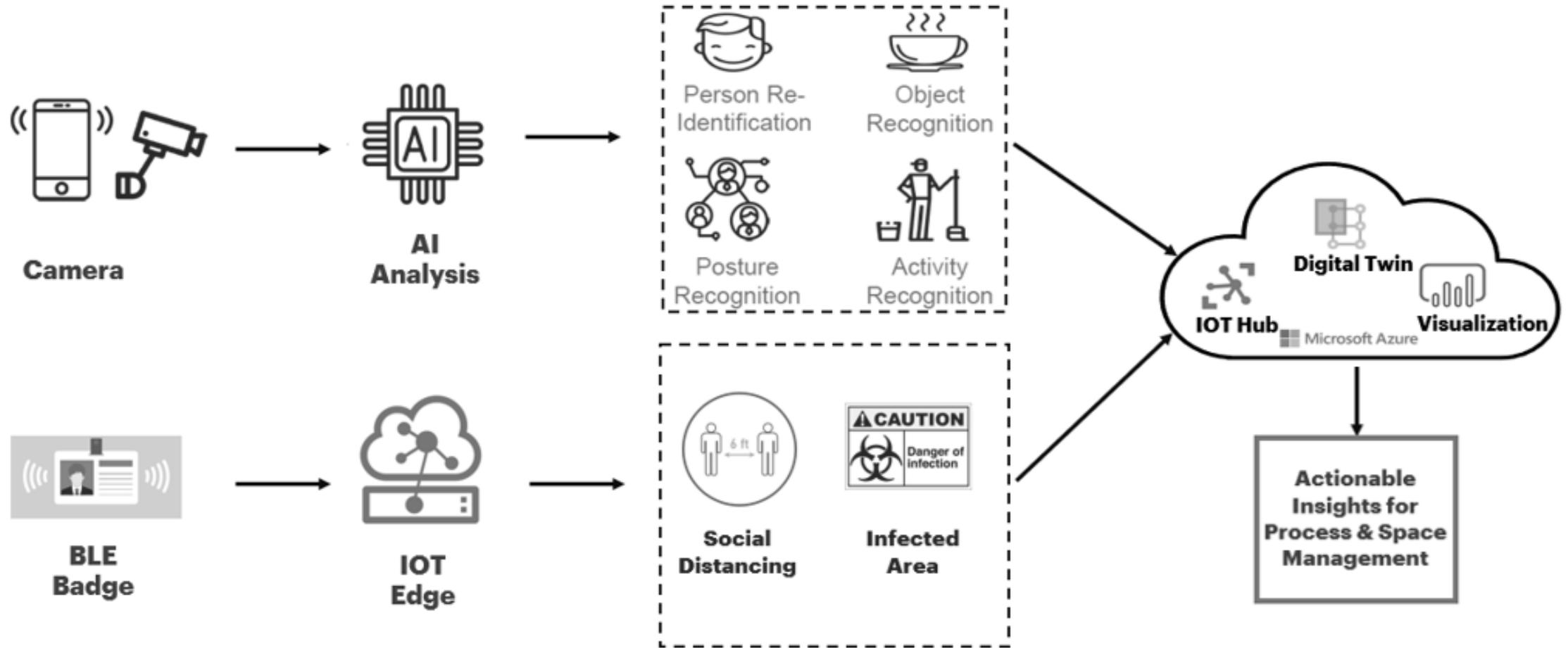
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KEY TECHNICAL CONSTRAINTS–
WHILE BUILDING RESILIENCY INTO FOOD FACTORIES

Constrained resources for deploying new digital technologies
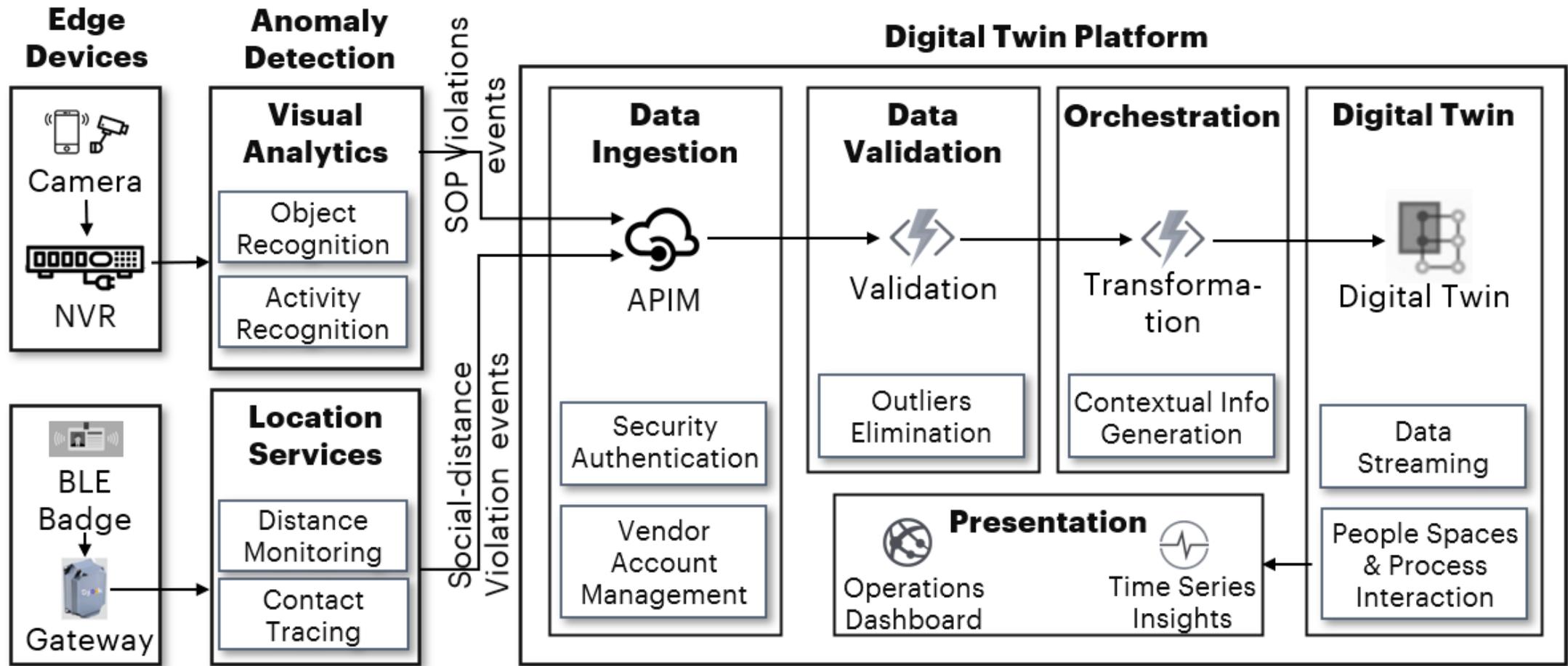
Operational diversity – small and large format food factories
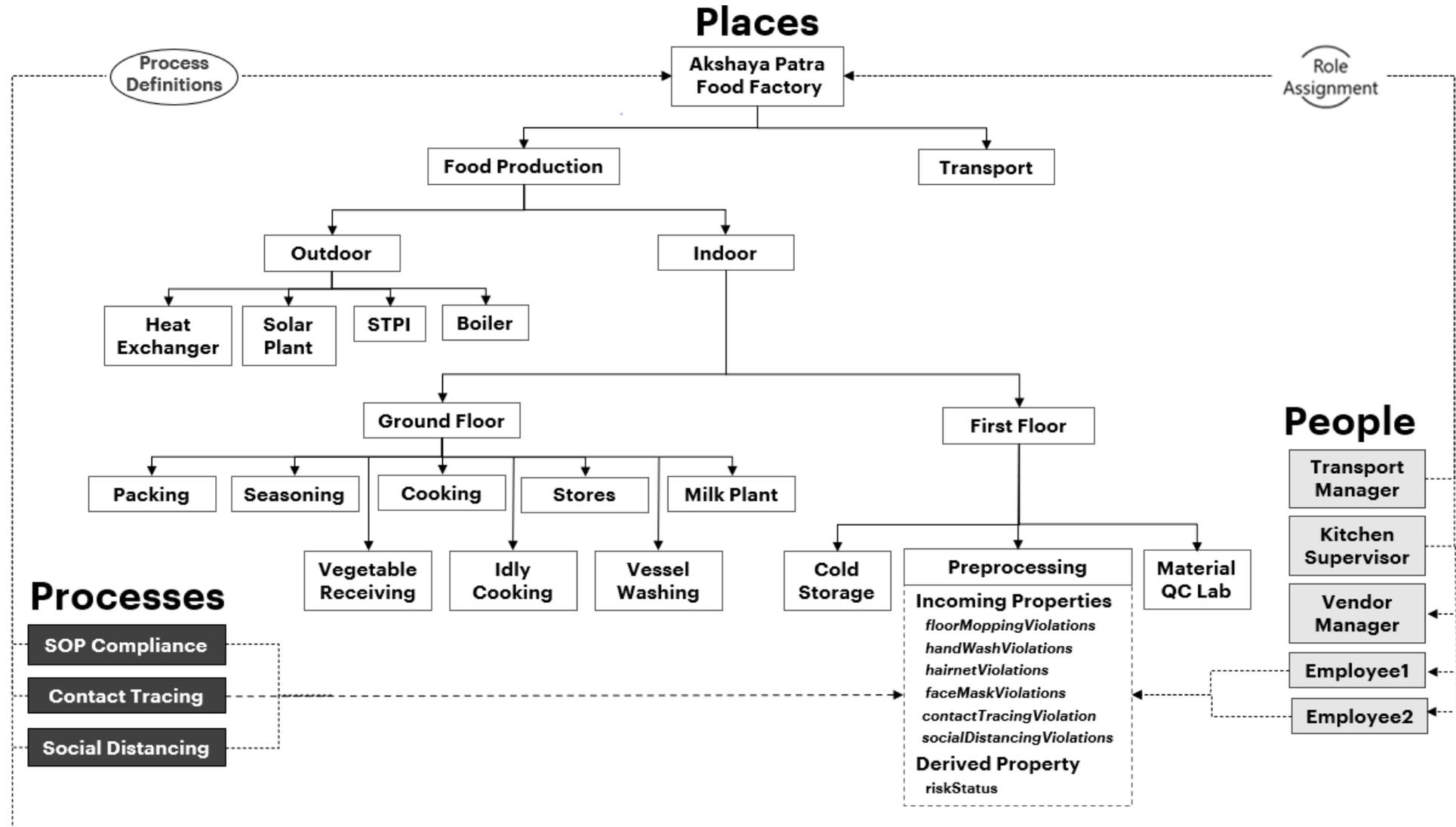
Preserving individual privacy rights

REFERENCE FRAMEWORK
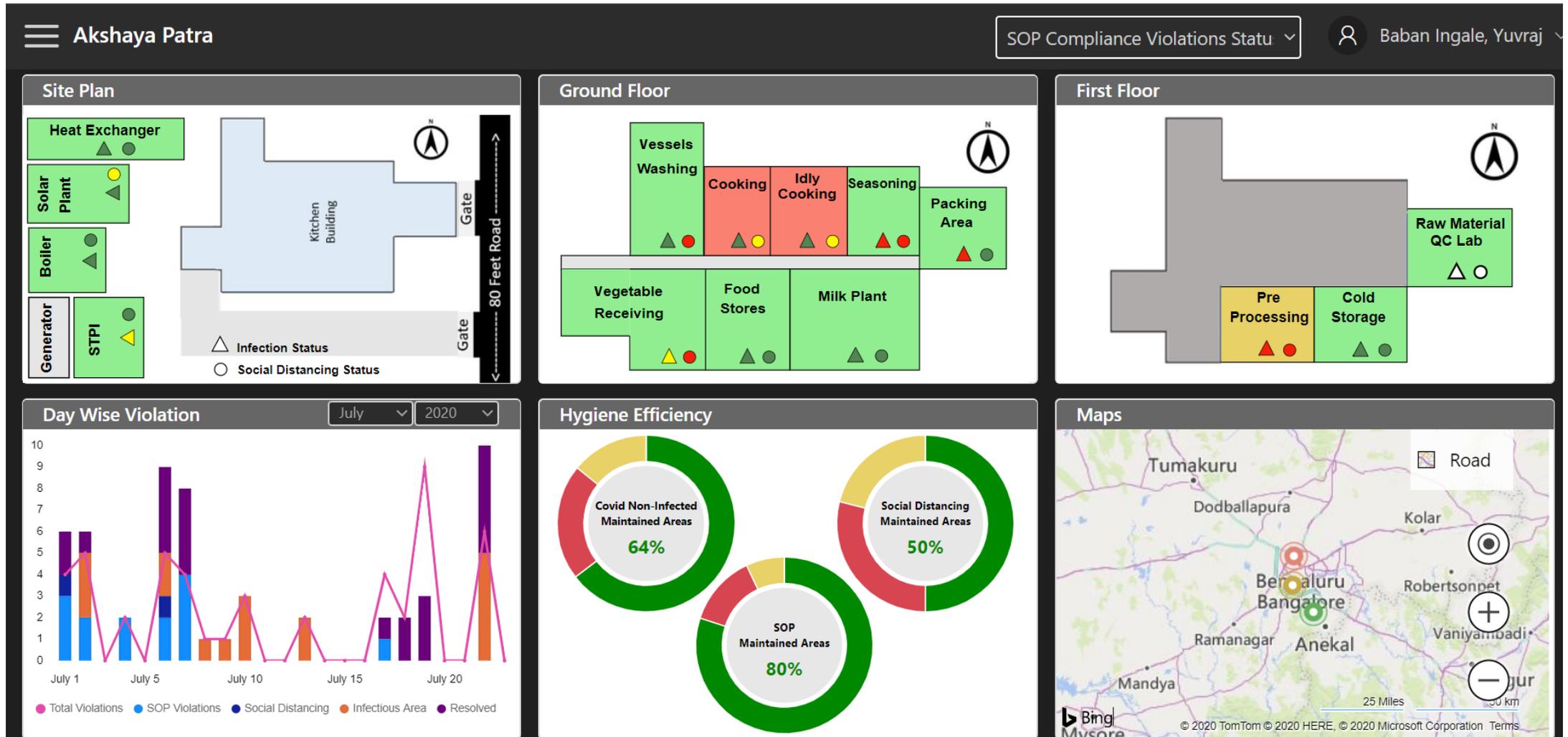## HIGH LEVEL SOLUTION

REFERENCE FRAMEWORK
DETAILED ARCHITECTURE

INTEGRATED MODEL BETWEEN PEOPLE SPACES & PROCESSES
DIGITAL TWIN

COMMAND CENTER VIEW
DASHBOARD

COMMAND CENTER VIEW
DIGITAL-TWIN GRAPH VIEWER
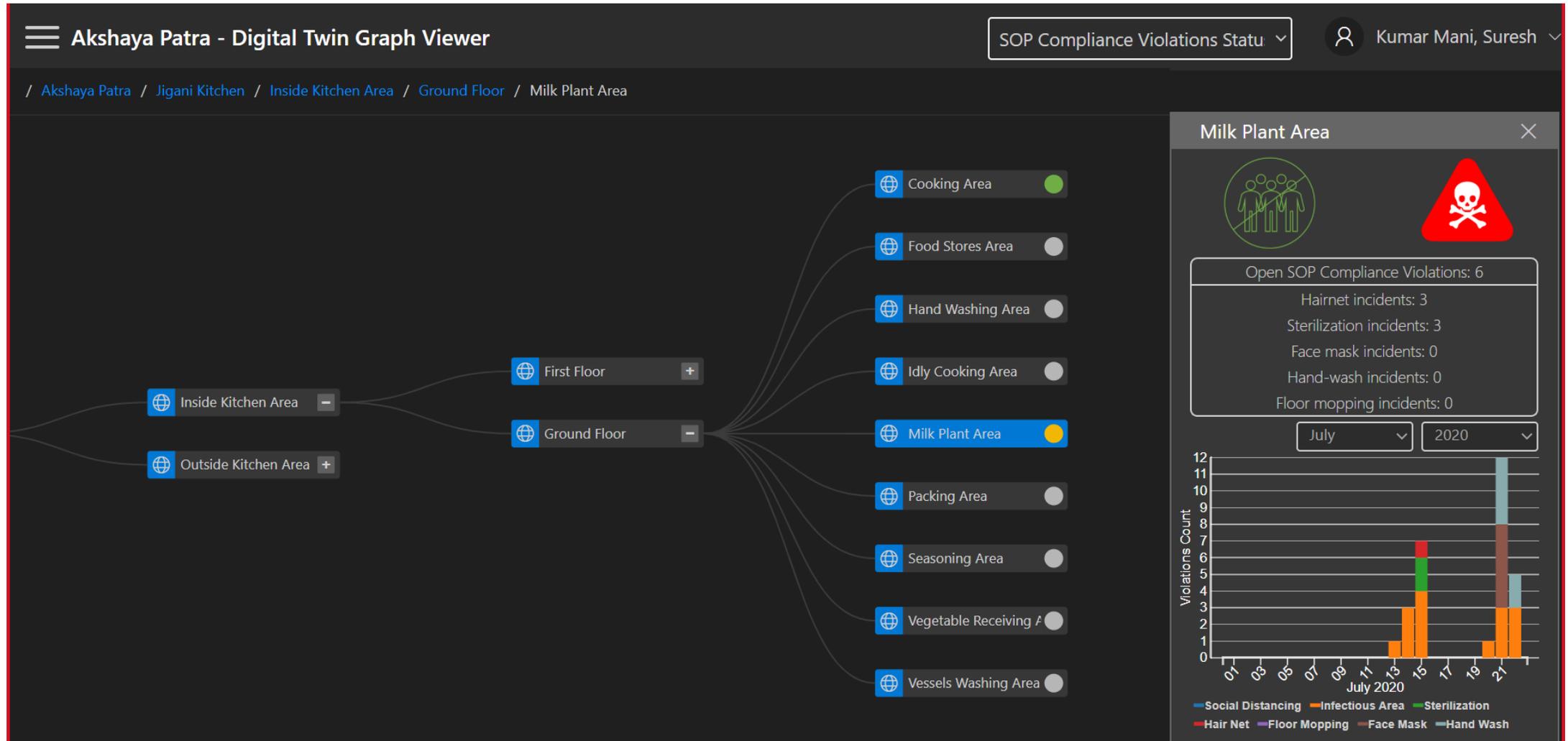
PILOT

**AKSHAYA PATRA
FOOD FACTORY, JIGANI**

**40,000 MEALS/DAY
CAPACITY**

PILOT EXECUTION

MOPPING IN PRE-PROCESSING AREA
MOPPING — 98.2%
28/07/2020 04:45:10

PRE-PROCESSING AREA – FACE MASK DETECTION
mask
CAM 20

Hand Wash Violation Detection

COOKING AREA - HAIR NET DETECTION
Hairnet
CP IP Cam
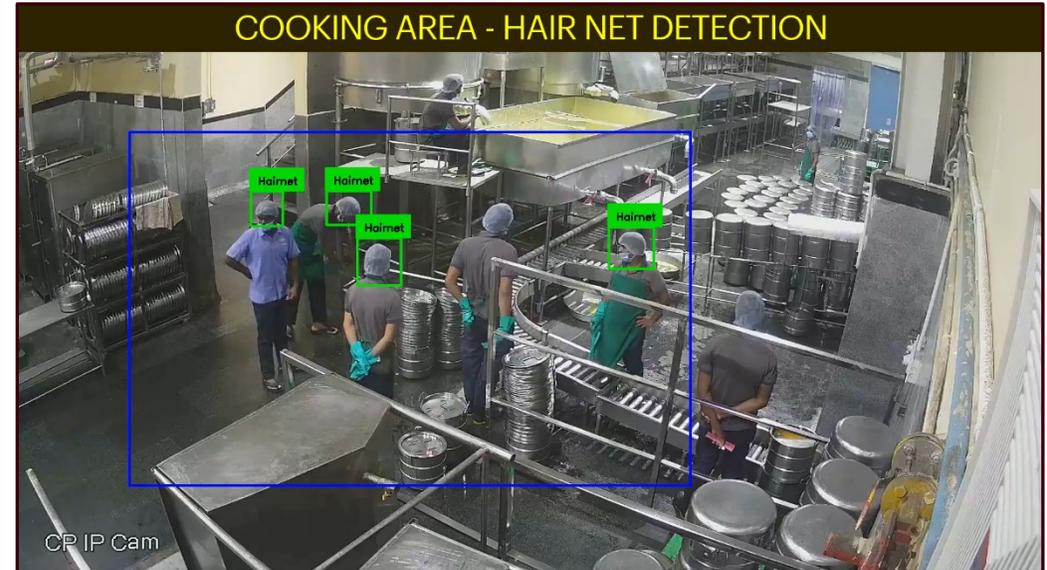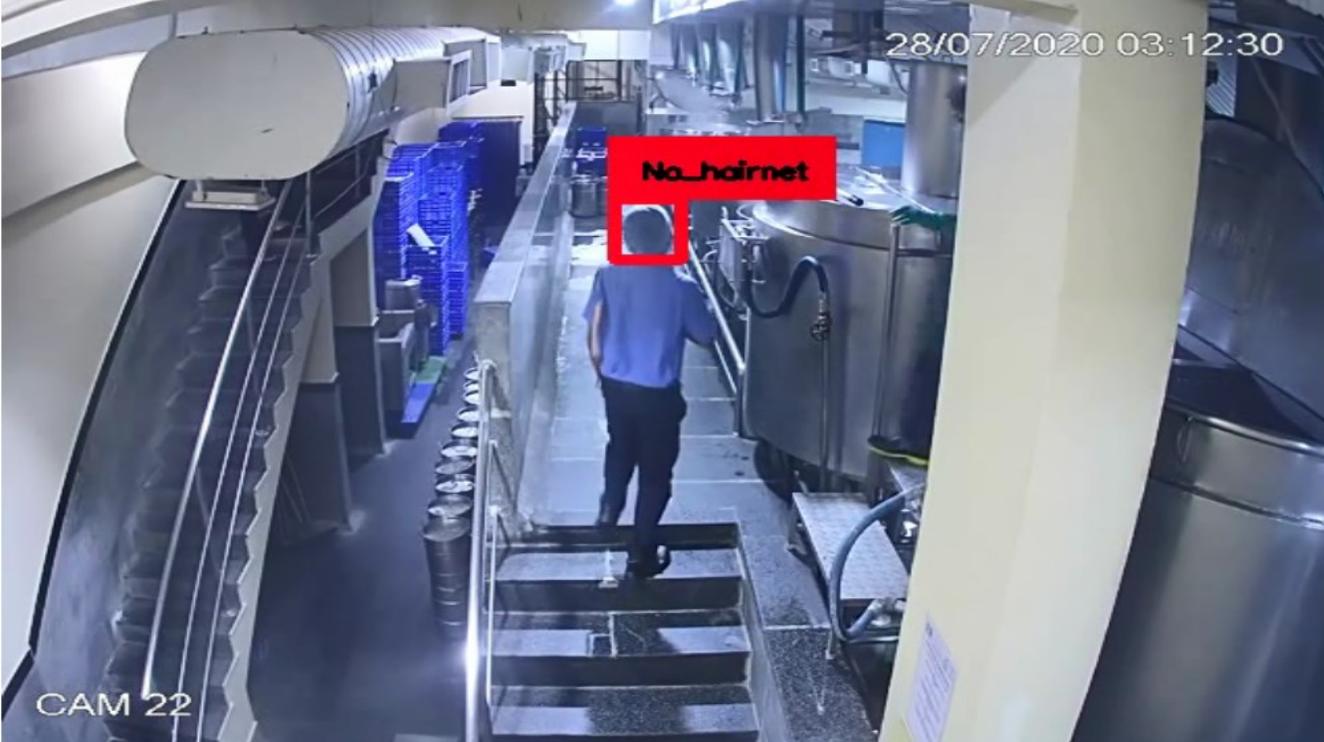
After Retraining

Before Retraining

The base-models had to be meticulously retrained to suit the kitchen's environment.

HIGH SOP COMPLIANCE VIOLATION DETECTION CAPABILITY WITH >98 % ACCURACY

85%
Reduction in epidemiological risk among employees

80%
Cost reduction in SOP Compliance Monitoring Staff

< 5 Min
for Identifying SOP Violations

with **> 98%** Accuracy

SOP Compliance Violations					
Areas	Hairnet	Face Mask	Mopping	Handwash	Total
Cooking	23	8	0	0	31
Seasoning	17	14	0	0	31
PreProcessing	19	23	7	0	49
Handwash	0	0	0	17	17
True Positive	59	45	3	17	124
True Negative	42	42	3	22	109
False Positive	0	0	1	0	1
False Negative	0	3	0	0	3
Sensitivity (%)	100.0	93.8	100.0	100.0	97.6
Specificity (%)	100.0	100.0	75.0	100.0	99.1
Accuracy (%)	100.0	96.7	85.7	100.0	98.3

Tracking and Tracing Compliance Violations			
Areas	Social-Distancing	AreaInfection	Total
Cooking	15	3	18
Seasoning	7	0	7
Handwash	0	0	0
PreProcessing	7	2	9
True Positive	29	6	35
True Negative	18	5	23
False Positive	1	1	2
False Negative	0	0	0
Sensitivity (%)	100.0	100.0	100.0
Specificity (%)	94.7	83.3	92.0
Accuracy (%)	97.9	91.7	96.7

Thank you!