

Factory /
Facility /
Outlet / Shop

Help Risk Reduction

Being WRAP aware



Facility



shop



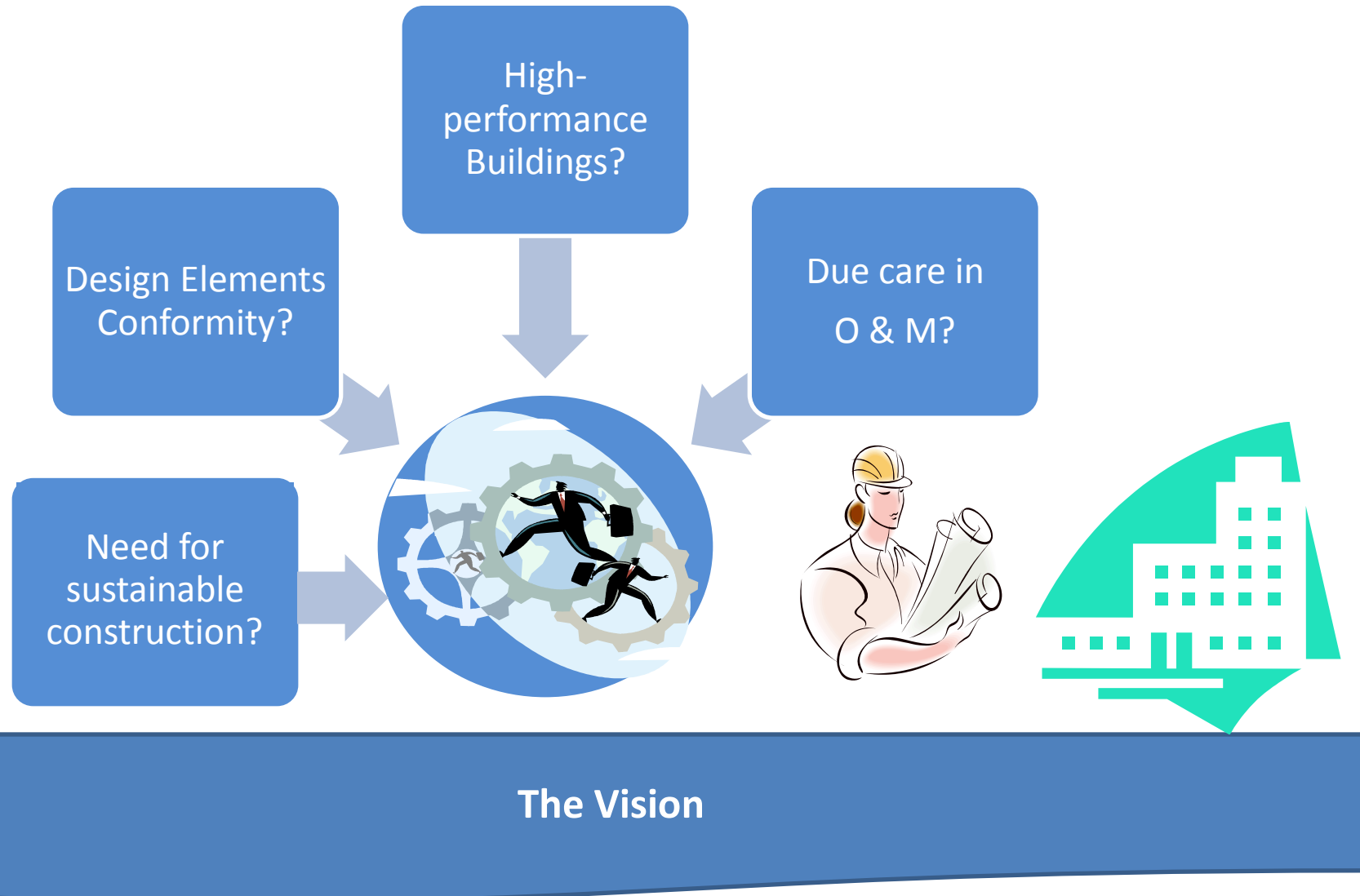
Post
Lockdown



SMART Factory and/or
Facility?

By K.S.Venkatram AOEC 2018-2020

Towards SMART & Responsive Factories



The Vision of A SMART Factory



The Vision of SMART factory

The Connected Factory in Action



INNOVATION

TAP COMMERCIAL INNOVATION

Mobilize employees and supervisors to move across the factory floor and access data wherever they are. The iPad and other like devices are making their way into industrial settings – along with an expectation that much of the commercial innovation it brings will also apply to industrial activities.

CONNECT ENGINEERS WITH MACHINES (M2M)

Apply predictive maintenance. Gain early warnings when production, machinery or network performance is about to degrade.



EFFICIENCY

LINK INFORMATION & OPERATIONAL TECHNOLOGY

Bridge the gap from data center to control room to collaborate and share best practices and common goals between manufacturing and IT.

OPTIMIZE ASSETS

Identify where your people, equipment, works in process and finished goods are in real-time. Adjust the schedule and inventory on the fly.



AGILITY

CONNECT & COLLABORATE EXTERNALLY

Extend visibility beyond your four walls. Link the extended supply chain and distribution to create dynamic workflows. Help and expertise are available in an instant.

EXPANDABLE INFRASTRUCTURE

Design and build an Industrial Ethernet infrastructure to minimize cost and effort to expand or improve processes. One infrastructure for safety, control, SCADA, Physical Security, and LAN.



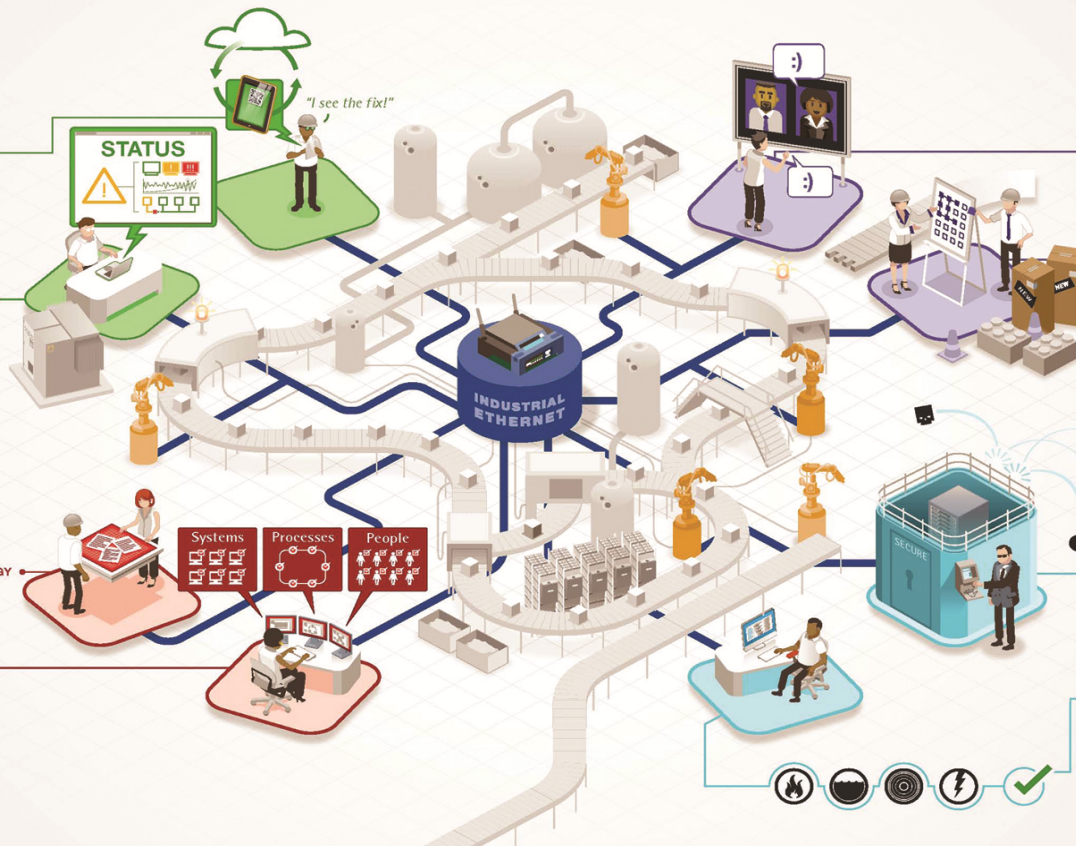
RISK

SECURE PHYSICAL & CYBER ASSETS

Traditional security devices, like keypad entry systems, call boxes and security cameras, need power from Industrial Ethernet cables, with secure networks, to protect your processes, people, and plans from cyber sabotage.

MAXIMIZE UPTIME

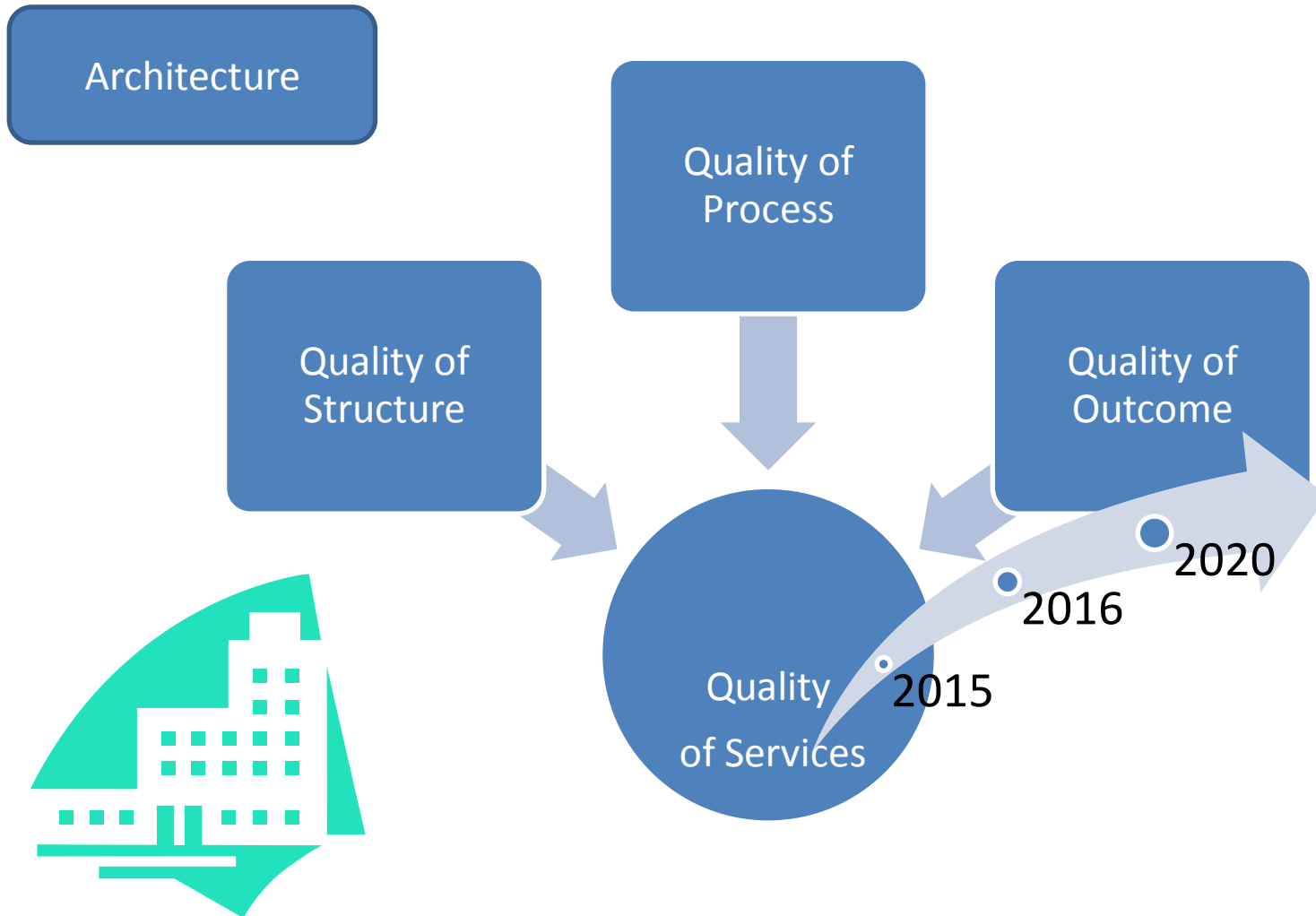
Design ruggedized industrial networking infrastructure that will endure in harsh environments with redundant communications, power and configuration backup – especially for business processes under extreme conditions.



The Vision of a SMART Factory

- **Role of architects and technologists**
- India is stepping forward in post lockdown work for sustainable development and growth. Today we have different types of SMEs, MSMEs, customized micro or small budget factories all working to fulfill different objectives.
- The architect, technologist and facility manager do need to not only better today's planning, design, construction and building management but also need to look at making them SMARTER environments.
- ***Does this mean new and added investments or complex re-engineering and paradigm shifts?***
- It does not, it needs architects & technologists to look beyond the need to build factories & facilities. It needs them to think about making factories (independent of their budget, size or nature of business) more affordable, accessible, innovative & collaborative, secure and intelligent for LifeWise networking.
- As described in the Gartner report, "Within a SMART factory or facility, there should be well-designed facility specific systems and human-machine interfaces (HMIs) that allow users to drill down from time-based performance trends to individual product lines, or even individual part levels. This would allow tracking of not only of performance but also in-depth root cause analysis of the mainstream points of automated data collection". There should also be well-planned "in-time facility management with FMCEA specific restoration & support". FMCEA stands for: Failure Mode Cause Effects Analysis.
- AOEC is developing SMART Phone Apps to help Risk Reduction and will release them shortly. AOEC is looking out for new associations or co-app development to do this.

Factory or Facility Management



Architecture for SMART sustainability

Moving ahead from the times of the **Master Builder** (who balanced art, science, [materials](#), [form](#), [style](#) and craft to achieve his or her vision of designing a building) to recent times where the architect needs to safeguard the [health, safety, and welfare](#) of the public, and also identify and describe social, aesthetic, and ethical aspects of making cities, factories, buildings, and landscapes, a SMART integrated & high-performance planning, building & integrating approach is the need of the hour.

As mentioned in the Whole Building Development Guide on <http://www.wbdg.org/>, it is important to establish a project vision and maintain momentum throughout the design, construction and commissioning process. Activities might include workshops, peer review, and post-occupancy reviews, where the whole construction team will need to focus on collaborative, integrated problem solving, to address issues such as:

[1. Accessibility](#)

[2. Aesthetics](#)

[3. Cost-effective solutions](#)

[4. SMART Factory/Facility specific functional and operational considerations](#)

[5. Preservation of cultural artifacts](#)

Architecture for SMART sustainability

[6. Productive](#) environment for IT/OT systems, machines, occupants, users

[7. Safety and security](#)

[8. Environmental sustainability.](#)

Amongst the tools used, we have the two-dimensional and three-dimensional computer-aided building design and documentation programs. This Planner (also a tool and knowledge base) focuses on SMART & sustainable construction and occupancy practices.

To understand its usefulness, we first review the mainstream project delivery Methods for a SMART Factory/Facility i.e.

1. Design-Bid-Build
2. Design-Build
3. Construction Management

Added to this is the aspect of Project Management from within the Architect's Office, aided by lists of building codes, A-Z SMART & Sustainable Factory portfolios, and standards for quality assurance.

Architecture for SMART sustainability

The list of building codes could include:

1. National Building Codes
2. National Earthquake proof Building Codes
3. National Fire Protection and Safety Codes
4. National Electric Codes
5. National Plumbing Codes
6. Energy Conservation Codes
7. Fuel Gas Codes
8. Accessibility and Occupancy guidelines to help manage disabilities
9. Workplace / Living space Codes, etc

Architecture for SMART sustainability

The reckoner provides insights and points-to-be-noted that help a team conceptualize for different areas of building design such as:

1. Architecture Programming and IT/OT Integration modeling
2. Planning for a SMART & sustainable built environment and Cost Estimation
3. Sustainable Structural Engineering, SMART Interior Design & Commissioning
4. Electrical Engineering, Lighting Design
5. Water Resource Planning and Management
6. Plumbing Engineering
7. HVAC and Refrigeration Engineering
8. Fire Protection Engineering

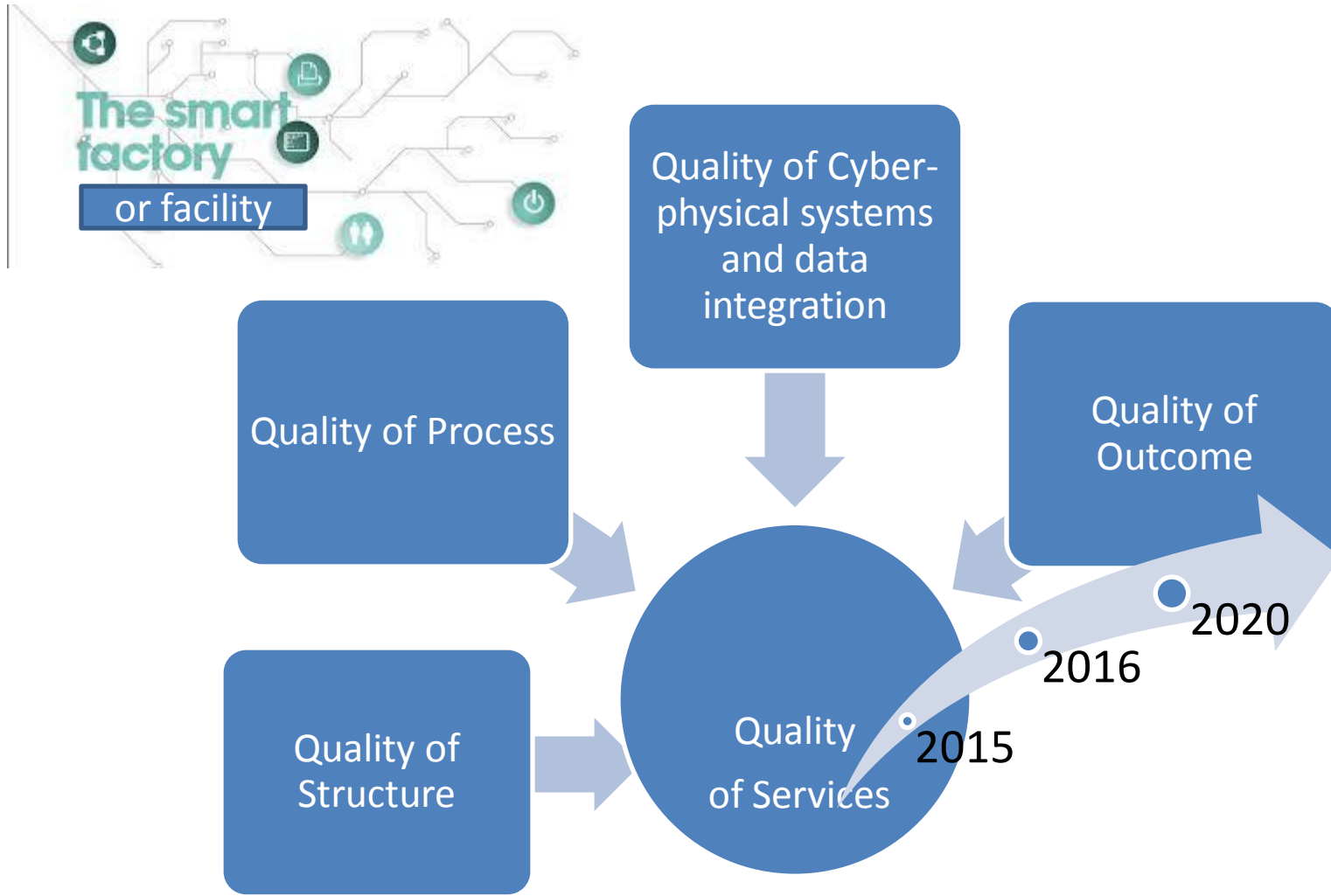
Architecture for SMART sustainability

9. Information Technologies/Operations Technology Engineering for various aspects of SMART factory/facility/building planning, construction, operations and maintenance
10. SMART & Sustainable Factory specific Commissioning or Retrofit Installation
11. Operations, Condition monitoring and Maintenance

Vital parameters for SMART & sustainable construction and occupancy includes making the factory or facility or building

- a. SMART in systems & data integration
- b. Reliable and with failsafe or backup systems
- c. Safe for the environment and Healthy
- d. Safe and secure for services being offered and for neighborhood livability
- e. Aesthetic & Comfortable and treating open space as important
- f. Fair to all occupants (termed as Equity fairness)
- g. Flexible to accommodate occupant's need for utilities, maximum control, accessibility and mobility, alternative needs etc
- h. SMART Technologically enabled or connectable or manageable
- i. Fit for purpose
- j. Fit for brand image
- k. Fit for Factory Integration Centre (FIC) grid/domain

SMART Factory or Facility Management



Gap Analysis for Facility Management and Safety

REFERENCES

Production Facility Handbook by WORLDWIDE RESPONSIBLE ACCREDITED PRODUCTION (WRAP).

About WRAP

Headquartered in Arlington, Virginia, USA (and with branch offices in Hong Kong and Bangladesh, along with a representative in India and Thailand), Worldwide Responsible Accredited Production (WRAP) is an independent, objective, non-profit team of global social compliance experts dedicated to promoting safe, lawful, humane and ethical manufacturing around the world through certification and education.

Gap Analysis for Facility Management & Safety

A. FACILITY INFORMATION

Name of facility:

Ward:

Zone:

Physical Location Address:

Correspondence Address:

Telephone:

Fax:

Year facility was established:

Number of years that facility has been operational at this location:

Number of buildings that are part of the facility:

Are there any plans to add buildings or renovate or relocate?

Please describe:

Are there any plans for post lockdown?

Please describe:

Gap Analysis for Facility Management and Safety

B. FACILITY CONTACT INFORMATION

1. Contact person:

2. Designation or title of contact person:

3. Telephone:

Fax:

4. Email address:

C. Facility Business Information

1. Name of Facility manager:

2. Type of business or nature of services:

3. Number of employees (paid, full time contract, part time contract etc):

4. Languages spoken by the management and employees at this facility:

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C. ASSESSMENT

Does the facility management team obtain current information on all relevant laws and regulations concerning each of the principles?

- a. Post lockdown GOI controls, standards and compliance Yes/No
- b. Environmental standards and compliance Yes/No
- c. Health and safety standards Yes/No
- d. Security Yes/No
- e. General labor law Yes/No
- f. Minimum ages for employment and related restrictions Yes/No
- g. Wages and hours Yes/No
- h. Employment discrimination Yes/No
- i. Freedom of association and collective bargaining Yes/No
- j. Relevant international trade law Yes/No
- k. Customs and Compliance Yes/No

Does the management promptly incorporate this information in its business practices? Yes/No/Partially

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Does the organization have policies and procedures for current information on all relevant laws and regulations on each of the relevant principles?

- a. Post lockdown GOI controls, standards and compliance Yes/No
- b. Environmental standards and compliance Yes/No
- c. Health and safety standards Yes/No
- d. Security Yes/No
- e. General labor law Yes/No
- f. Minimum ages for employment and related restrictions Yes/No
- g. Wages and hours Yes/No
- h. Employment discrimination Yes/No
- i. Freedom of association and collective bargaining Yes/No
- j. Relevant international trade law Yes/No
- k. Customs and Compliance Yes/No

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Does the facility have a qualified person responsible for informing the facility of changes to laws and regulations, or access to current publications on relevant national and local laws? Yes/No/Partially

Does the facility update its practices to incorporate revisions to existing laws and regulations in a timely manner? Yes/No/Partially

Does the facility undertake internal monitoring of its management system (internal audits) to satisfy itself that the written procedures and processes are meeting the requirements of the relevant national and local laws and principles? Yes/No/Partially

During the previous months (for health threat) or two years (for noncompliance) has the facility had any notices of health threat or noncompliance levied against it (including any legal proceedings or outstanding allegations concerning the facility's operations)? Yes/No

If Yes, please explain:

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D. KNOWLEDGE AND DEVELOPMENT

Does your facility have a program to train relevant individuals regarding the changes for any new laws or revisions to existing laws and regulations? Yes/No

Are the materials used for this purpose appropriate? Yes/No

List the exceptions to all relevant laws, rules, and regulations other than those specifically documented elsewhere:

Does your facility have a written operating policy manual that includes the following: all relevant laws and regulations pertaining to the principles, facility's policies and procedures pertaining to the principles, routine updates for revisions to existing laws and regulations? Yes/No/Partially

Gap Analysis for Facility Management and Safety

E. SUB-CONTRACTING

Does your facility sub-contract any of its engineering or production operations?

Yes/No

Does your facility sub-contract any other operations? Yes/No

How has your facility informed the sub-contractor of their obligations under the local labor law and relevant principle requirements? Yes/No/Not applicable

Does your facility keep evidence of how the sub-contractor(s) has/have been made aware of these requirements? Yes/No/Not applicable

Does your facility keep receipt of sub-contractor acknowledgement of these requirements? Yes/No/Not applicable

Does your facility regularly review its list of sub-contractors to make sure it is up to date? Yes/No/Not applicable

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F. HEALTH AND SAFETY

Does your facility comply with all relevant 2020 related health and safety laws and regulations?

Does your facility have all relevant government health, safety, and fire safety certificates/permits, insurance policies and any relevant correspondence or documents from government officials?

Does your facility undertake internal monitoring of your health and safety systems, including fire safety, to ensure you are following the written procedures and processes and meeting the requirements of all relevant laws?

Have risk assessments been carried out throughout your facility, including fire risk assessments?

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If there were any risks or deficiencies that were identified by the health, safety and fire risk assessment, were they corrected?

Does your facility conduct regular occupational health checks for hazardous job duties?

Does your facility have a formally designated qualified person with responsibility for communicating, deploying and monitoring all health, safety, and fire safety policies and practices?

Does your facility track health, safety, and fire incidents?

Does your facility have a program and materials to train relevant individuals, including all individuals responsible for the supervision of staff, on all of the relevant occupational health and safety issues?

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Does your facility have a written safety program, including written procedures to handle natural disasters, fire safety, and emergencies and industrial accidents?

Are the following safety documents maintained by your facility:

- a. 2020 specific Health and safety reports? Yes/No
- b. Heavy machinery inspection? Yes/No
- c. Maintenance reports? Yes/No
- d. Fire extinguisher records, noting date of inspection and expiration? Yes/No
- e. Emergency drill records, noting date and detailed results? Yes/No
- f. Work injury reports? Yes/No
- g. Clinic logs, noting date and reason for visit? Yes/No

Have any government agencies inspected your facility for compliance with safety and health regulations during the past two years?

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Does your facility (as relevant) address the following occupational health and safety needs required by the relevant laws and regulations for the following:

- a. Heat stress/extreme temperatures? Yes/No
- b. Paint spray/spot cleaning booths? Yes/No
- c. Welding safety? Yes/No
- d. Respirator safety? Yes/No
- e. Blood borne pathogen program? Yes/No
- f. Hearing (noise control program)? Yes/No
- g. Indoor air quality and 2020 specific social distancing? Yes/No
- h. Cotton dust ventilation? Yes/No
- i. Sanitary waste disposal? Yes/No
- j. Utilization of pesticides and insecticides? Yes/No

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G. GENERAL BUILDING REQUIREMENTS

Does a visual inspection of your entire facility premises suggest any concerns about the physical integrity of the facility? Yes/No

What is the overall general appearance of your facility: excellent, good, fair, or unacceptable?

Is the overall general appearance of the operations and maintenance department acceptable and not in a condition that can cause serious injury or harm? Yes/No

Is trash properly disposed of both inside and outside the facility? Yes/No

Are the toilets and washrooms in your facility in sanitary and serviceable condition and meeting minimum quantity required established by relevant law? Yes/No

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Are exits unlocked during times when the facility is occupied to allow free, unobstructed exit from the facility? Yes/No

Are any aisles blocked or restricting easy access to emergency exits? Yes/No

Has your facility appropriately identified areas that, for fire safety purposes, should be designated as “non-smoking”? Yes/No

Is your facility properly enforcing the “non-smoking” policy for areas so designated? Yes/No

Does your facility maintain first aid supplies as required by law or if no legal requirement exists, as recommended by a local medical provider? Yes/No

Are these first aid supplies available and accessible to all areas of the facility? Yes/No

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Is clean water and hand sanitizers provided at no cost to employees & visitors? Yes/No

Is there clean drinking water and is it easily accessible at the facility? Yes/No

Is drinking water provided at no cost to employees? Yes/No

Is your facility's crèche/child-care area operated and maintained in a safe and healthy manner? Yes/No

Is your facility's canteen/cafeteria operated and maintained in a safe and healthy manner? Yes/No

Gap Analysis for Facility Management and Safety

H. PERSONAL PROTECTION EQUIPMENT (PPE)

Does your facility conduct hazard assessments to determine if any personal protective equipment is required? Yes/No

If personal protective equipment is required, is it provided to affected employees, at no cost? Yes/No

Are the PPE appropriate and adequate for the workers' job and in good condition? Yes/No

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I. ELECTRICAL SAFETY

Is there a qualified electrician in your facility responsible for maintaining electrical safety? Yes/No

If not, what is the facility doing to ensure electrical safety?

Does a visual inspection of the wiring indicate good general condition of the cabling, tidiness, and no exposed or loose wires? Yes/No

Does a visual inspection of the electrical boxes and cabinets verify: complete enclosures with covers provided, switches and outlets maintained in good working order, and all circuit breakers/trips are in place? Yes/No

Gap Analysis for Facility Management and Safety

J. WORKER SAFETY AWARENESS

Does your facility maintain a safety committee comprised of workers and management, which holds quarterly meetings and keeps minutes of proceedings?
Yes/No

Does your facility conduct an orientation health and safety and fire training for all new employees? Yes/No

Does the training cover the following in regards to fire safety?

- a. Staff are informed of the locations of fire alarm pull and button stations - Yes/No
- b. Staff are informed of the locations of fire extinguishers in and near their work area - Yes/No
- c. Staff have specific training concerning the dangers of smoke inhalation - Yes/No
- d. Staff are informed of location of nearest exits and assembly points - Yes/No

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Is employee training conducted for first aid and safety? Yes/No

Are first aid responders/emergency safety personnel identified and properly trained?
Yes/No

Have selected employees been trained on the proper use of firefighting equipment?
Yes/No

Have all employees who have any contact with chemicals been trained on how to safely handle and dispose of the specific chemicals and eliminate fire risk? Yes/No

Are MSDS (Materials Specific Data sheets and precautionary information) available (in appropriate language(s)) for all chemicals used by the facility? Yes/No

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K. FIRE SAFETY

Does your facility have an emergency evacuation plan in the native language posted in view of the facility's workers? Yes/No

Does your facility conduct regular emergency evacuation drills (at least semi-annual)? Yes/No

Does the facility have adequate numbers and locations of unimpeded emergency exits that open outwards and lead to a safe assembly point? Yes/No

Is the installed safety equipment:

- a. visible? Yes/No
- b. appropriate in functionality and number? Yes/No
- c. properly distributed throughout the facility? Yes/No
- d. easily accessible? Yes/No
- e. properly mounted? Yes/No
- f. unblocked and free of obstruction? Yes/No

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Are the fire extinguishers appropriate for the class(es) of fires expected in the area?

Yes/No

Are the fire-fighting water hoses and connections in usable condition? Yes/No

Does your facility have appropriate measures to ensure adequate water pressure for fire-fighting water hoses and sprinkler systems? Yes/No

SPRINKLER VALVES

Are sprinkler valves in good working order? Yes/No

Are all sprinkler heads kept unobstructed from storage or other materials? Yes/No

Gap Analysis for Facility Management and Safety

FIRE ALARM BOXES

Are fire alarms clear, unobstructed, and identified? Yes/No

Does the facility have a test schedule for all fire alarm boxes? Yes/No

Are combustible scrap, debris, and waste materials stored in covered metal receptacles, and removed from the work site promptly? If not, explain how they are stored. Yes/No

EMERGENCY EVACUATION

Are lighting and alarm systems adequate and fitted with back-up systems? Yes/No

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EMERGENCY LIGHTING

Is appropriate emergency lighting in place in your facility? Yes/No

Is the emergency power system working and in good condition? Yes/No

Does the facility regularly conduct tests to ensure the system is functioning properly?
Yes/No

STAIRWAYS

Are all stairway handrails in good condition? Yes/No

Are all stair treads in good condition? Yes/No

Are all stair widths in compliance with requirements of all relevant laws? Yes/No

Are the stairways provided with artificial and emergency lighting? Yes/No

Are stairways completely clear of obstructions? Yes/No

Does the facility ensure stairways are not used for storage? Yes/No

Gap Analysis for Facility Management and Safety

L. CHEMICAL SAFETY

Does your facility have a chemical safety program? Yes/No

Where applicable, does your facility properly store hazardous/toxic materials?
Yes/No

Does your facility have the required government storage and usage permits for chemicals, if required? Yes/No

Does your facility maintain documentation for chemical labeling (including fire safety), chemical usage warnings, and proper handling instructions? Yes/No

Does your facility ensure that all solvent wastes and flammable liquids are properly stored (including being kept in closed containers when not in use) at all times and kept away from potential ignition sources? Yes/No

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Are the chemical storage areas free of ignition sources? Yes/No

Are all lamps and lights away from combustible chemicals? Yes/No

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M. BOILER & COMPRESSOR ROOMS (if applicable)

Is the location of the boiler and compressor room consistent with all relevant requirements? (If no local or national laws apply, please describe the location of the boiler and compressor room.) Yes/No

Are there housekeeping and maintenance procedures in place for the boiler and compressor rooms? Yes/No

Are there any fuel leaks? Yes/No

Are the boilers and compressors inspected and serviced periodically? Yes/No

Are the boiler licenses valid and authentic? Yes/No

Is the boiler operator certificate valid and authentic? Yes/No

Gap Analysis for Facility Management and Safety

N. FACTORY INTEGRATION CENTRE (FIC)

Does your facility have a FIC system relevant to its industry? Yes/No

Does your facility have a formally designated qualified person with responsibility for communicating, deploying, and monitoring the FIC practices elaborated upon in the FIC Planner? Yes/No

Does your facility have a program and materials used to train relevant individuals on each practice of the FIC Planner? Yes/No

Does your facility assess its ability to prevent and control downtime, risks, failure as a part of the FIC system? Yes/No

Gap Analysis for Facility Management and Safety

ENVIRONMENT MANAGEMENT

Does your facility have an environmental management system relevant to its industry? Yes/No

Does your facility have a formally designated qualified person with responsibility for communicating, deploying, and monitoring the environment practices elaborated upon in the environmental management system? Yes/No

Does your facility have a program and materials used to train relevant individuals on each practice of the environmental management system? Yes/No

Does your facility assess its ability to prevent and control harmful releases of industrial waste into the environment as a part of the environmental management system? Yes/No

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Does your facility maintain a detailed plan for handling accidental release or discharge of environmentally dangerous materials? Yes/No

Does your facility maintain records of emission events? Yes/No

Does your facility's environmental management system address where and how solid, chemical, sanitary and waste water substances are disposed? Yes/No

Does your facility's environmental management system address where and how 2020 related hazards undetermined solid, chemical, sanitary and waste water substances are disposed? Yes/No

Does the facility adequately communicate to all facility employees the relevant local and national laws and regulations as well as pertinent facility procedures concerning the environment principle? Yes/No

Gap Analysis for Facility Management and Safety

O.1 LOCKDOWN COMPLIANCE BASED ON GOI CONTROLS

Does your facility keep copies of all applicable lockdown laws and regulations? Yes/No

Does your facility's policies and procedures on lockdown compliance cover the following requirements:

- a. Compliance with all applicable GOI controls, laws and maintains practices to comply With laws regarding unauthorized transshipment of products. In the event possible unauthorized transshipment activity, appropriate host government agency will be notified? Yes/No
- b. Monitors its productions or services on a per segment and category basis? Yes/No
- c. Traces district/state of origin using records such as production, shipping, verification reports, quality control reports, and individual piecework sheets, for all inputs? Yes/No

Gap Analysis for Facility Management and Safety

O.2 CUSTOMS COMPLIANCE BASED ON GOI CONTROLS

Does your facility keep copies of all applicable customs laws and regulations? Yes/No

Does your facility's policies and procedures on customs compliance cover the following requirements:

- a. Compliance with all applicable customs laws and maintains practices to comply with customs laws regarding illegal transshipment of products. In the event possible illegal transshipment activity, appropriate host government agency will be notified? Yes/No
- b. Monitors its productions on a per style basis? Yes/No
- c. Traces country of origin using records such as production, shipping, verification reports, quality control reports, and individual piecework sheets, for all inputs? Yes/No

Gap Analysis for Facility Management and Safety

d. Verifies production on an ongoing basis on-site and at sub-contracting facilities?

Yes/No

e. Maintains a facility machine inventory and updates it annually? Yes/No

(If applicable)

a. Ensures that the proper category designation is determined for all goods destined for other markets? Yes/No

b. Does your facility maintain an organized system of production documentation? Yes/No

c. Are the following records maintained?

c1. Records of the country of origin for all goods produced in this facility? Yes/No

c2. A production profile of any subcontracting facility. This facility requests documents from the subcontracting facilities when questions regarding goods produced at those facilities arise? Yes/No

c3. Production/purchase orders (with information such as conditions of production, payment, and finished product specifications)? Yes/No

Gap Analysis for Facility Management and Safety

c4. Raw material invoices (indicating country/origin/manufacturing facility)? Yes/No

c5. Shipping/receiving documents (outgoing and incoming records of components/inputs sent to or received from another facility)? Yes/No

c6. Employee work records – accurate records of employee work hours that can be linked to the production of specific products? Yes/No

c7. Quality control records (which may include facility name and address, purchase order number, style number, date of the quality check, buyer, name, stamp or signature of inspector, comments on production)? Yes/No

c8. Export documents (including: packing list, manifest, bill of lading/airway bill from truck, ship, plane or train indicating the export date, exporting entity, destination, shipping lines, importing entity, and any charges incurred)? Yes/No

Gap Analysis for Facility Management and Safety

c9. Outward processing production (if applicable, copies of the outward processing program designated by the domestic government, copies of compliance review reports, documentation demonstrating the flow of goods from one facility to another)? Yes/No

c10. Number of units produced marked with a traceable mark? Yes/No

c11. Machine inventory records, updated at least once a year? Yes/No

c12. Documented confirmation of the correct category and country of origin for goods through verification of correct country of origin such as binding rulings from the associated country's Customs Service, confirmation with purchasing company, knowledgeable/trained staff, etc? Yes/No

Gap Analysis for Facility Management and Safety

c13. Documentation on how the qualified person with responsibility for this Principle communicates, deploys, and monitors the facility's customs compliance policies?

Yes/No

Has the facility designated a qualified person with responsibility for communicating, deploying, and monitoring customs compliance? Yes/No

Does the responsible person ensure that such origin determining documents are maintained for at least the period of record retention required by law? Yes/No

Does the responsible person stay current with possible illegal transshipment activity in the host country through communication with appropriate bodies such as the host government, trade association, contact with associated country's Customs, corporate importing office etc., and be responsible for maintaining files on any known transshippers or transshipment activities determined to be in the host country or with a country from which facility sources? Yes/No

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P. SUB-CONTRACTING PARTICULARS

Do the facility's production records include verification of sub-contractor performance? Yes/No

What records are used?

- a. Date and location of the verification Yes/No
- b. Product(s) and 2020 Health Safety verified Yes/No
- c. Purchasing company Yes/No
- d. Model or Unit number Yes/No
- e. Phase of production Yes/No
- f. Reference indicator for employee(s) performing operation Yes/No
- g. Name/stamp or signature of verifying official Yes/No

Does the responsible person ensure that all subcontracting facilities complete a production profile and keeps such profiles on file? Yes/No/Not Applicable

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Does your facility verify production at subcontracting facilities when necessary through the review of requested documentation or personal visits (recording such instances of production verification and keeping on file)? Yes/No/Not Applicable

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Q. SECURITY

Does your facility have practices to guard against the introduction of health threat related products or contraband (e.g. drugs, explosives, biohazards, and/or other contraband; any non-manifested cargo will be referred to as contraband.)? Yes/No

Has your facility designated a qualified person with responsibility for communicating, deploying, and monitoring security policies and procedures? Yes/No

PHYSICAL ACCESS CONTROLS

SCOPE: Access controls prevent unauthorized entry to facilities, maintain control of employees and visitors, and protect company assets. Access controls must include the positive 2020 related identification of all employees, visitors, and vendors at all points of entry.

Does your facility have a physical access control procedure? Yes/No

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EMPLOYEES

Does your facility have an employee identification system in place for positive identification and access control purposes? Yes/No

Does your facility ensure that employees are only given access to those areas needed for the performance of their duties? Yes/No

Does your facility control the issuance and removal of employee, visitor and vendor identification badges? Yes/No

Does your facility have documented procedures for the issual, removal and changing of access devices (e.g. keys, key cards, etc.)? Yes/No

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VISITORS

Do visitors present photo & ward identification for documentation purposes upon arrival?

All visitors should be escorted and should visibly display temporary identification?
Yes/No

VENDORS AND DELIVERY PERSONNEL (including mail)

Is vendor ID and/or photo identification required to be presented for documentation purposes upon arrival by all vendors? Yes/No

MANAGING UNAUTHORIZED ENTRY

Does your facility have documented procedures in place to identify, challenge and address unauthorized/unidentified persons? Yes/No

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Does your facility have a threat awareness program in place and is it maintained by security personnel to recognize and foster awareness of the threat posed in 2020, or by terrorists and contraband smugglers at each point in the supply chain? Yes/No

Does your facility make employees aware of the procedures the company has in place to address a security situation and how to report it? Yes/No

PERSONNEL SECURITY

Does your facility have documented procedures in place to screen prospective employees and to periodically check current employees? Yes/No

Does your facility verify application information, such as employment history and references, prior to employment? Yes/No

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Does your facility conduct background checks and investigations for prospective employees? Yes/No

Once employed, are periodic checks and reinvestigations performed based on cause, and/or the sensitivity of the employee's position? Yes/No

Does your facility have procedures in place to remove identification, facility, and system access for terminated employees? Yes/No

PROCEDURAL SECURITY

SCOPE: Security measures must be in place to ensure the integrity and security of processes relevant to the transportation, handling, and storage of materials or cargo in the supply chain.

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Are documented procedures in place to ensure that all information used in the clearing of material/merchandise/cargo is legible, complete, accurate, and protected against the exchange, loss or introduction of erroneous information? Yes/No

Does documentation control include safeguarding computer access and information? Yes/No

Are documented procedures in place to help ensure the integrity of materials or cargo? Yes/No

Is the information received from business partners reported accurately and in a timely manner? Yes/No

Is cargo that is being shipped reconciled against information on the material or cargo manifest? Yes/No

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Is all material or cargo accurately described and are the weights, labels, marks, and piece count indicated and verified? Yes/No

Does the facility verify departing material or cargo against purchase or delivery orders? Yes/No

Does the facility verify incoming material or cargo against purchase or delivery orders? Yes/No

Are drivers delivering or receiving material or cargo positively identified before material or cargo is received or released? Yes/No

Are documented procedures in place to track the timely movement of incoming and outgoing material or goods? Yes/No

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Are all shortages, overages, and other significant discrepancies or anomalies resolved and/or investigated appropriately? Yes/No

Are (if applicable) customs and/or other appropriate law enforcement agencies notified if anomalies, illegal or suspicious activities are detected - as appropriate? Yes/No

Does the facility give additional training to employees in the shipping and receiving areas, as well as those receiving and opening mail? Yes/No

Does the facility undertake additional, specific training to assist employees in maintaining materials or cargo integrity, recognizing internal conspiracies, and protecting access controls? Yes/No

Do these programs offer incentives for active employee participation? Yes/No

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SURVEILLANCE

Does CCTV surveillance cover the areas around material or cargo handling and storage facilities? Yes/No

If the facilities perimeter is the sidewalk, are security measures in place? Yes/No

Is CCTV surveillance within a material or cargo handling structure used to keep track and safeguard point of supply, district wide, inter-district, inter-state, domestic, international, high value, and hazardous material or cargo? Yes/No

Is all CCTV surveillance regularly inspected for integrity and damage? Yes/No

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FENCING

Does perimeter fencing enclose the areas around material or cargo handling and storage facilities? Yes/No

If the facilities perimeter is the sidewalk, are security measures are in place? Yes/No

Is interior fencing within a material or cargo handling structure used to segregate point of supply, district wide, inter-district, inter-state domestic, international, high value, and hazardous material or cargo? Yes/No

Is all fencing regularly inspected for integrity and damage? Yes/No

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GATES

Are the gates through which vehicles and/or personnel enter or exit manned and/or monitored? Yes/No

Are the number of gates kept to the minimum necessary for proper access and safety? Yes/No

PARKING

Are private passenger vehicles prohibited from parking in or adjacent to material or cargo handling and storage areas? Yes/No

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BUILDING STRUCTURE AND CONTROLS

Are buildings constructed of materials that resist unlawful entry? Yes/No

Is the integrity of structures maintained by periodic inspection and repair? Yes/No

Are all external and internal windows, gates, and fences secured with locking devices? Yes/No

Does management or security personnel control the issuance of all locks and keys? Yes/No

Is adequate lighting provided inside and outside the facility including in the following areas: entrances and exits, material or cargo handling and storage areas, fence lines and parking areas? Yes/No

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Are alarm systems and video surveillance cameras utilized to monitor premises and prevent unauthorized access to material or cargo handling and storage areas?

Yes/No

If alternative methods are used, are they adequate? Yes/No

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IT AND ACCOUNTABILITY

Does your facility have automated systems for individually assigned accounts that require a periodic change of password? Yes/No

Does your facility have documented IT security policies, procedures, and standards in place? Yes/No

Are they provided to employees in the form of training? Yes/No

Does your facility have a system in place to identify the abuse of IT including improper access, tampering, or the altering of business data? Yes/No

Are all system violators subject to appropriate disciplinary actions for abuse? Yes/No

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T. OTHER ZERO LEVEL CHECKLISTS

1. Does a safety committee coordinate development, implementation and monitoring of a safety plan and policies? Yes/No/Partially
2. Are safety devices installed across the facility or building and are they inspected periodically? Yes/No/Partially
3. Does the facility or building have non-smoking zones? Yes/No/Partially
4. Are facility inspection rounds to ensure safety, conducted at least twice a month for frequently used areas and at least once a year for infrequently used areas? Yes/No/Partially
5. Are inspection reports documented and are corrective and preventive measures undertaken? Yes/No/Partially

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6. Is there a safety education programme for staff? Yes/No/Partially
7. Are facilities appropriate to the scope of services of the facility or building?
Yes/No/Partially
8. Does the facility or building operate to ensure safety of people, children, aged, infirm, staff, customers and visitors? Yes/No/Partially
 - Are up-to-date drawings maintained to support details of site layout, floor plans and fire-escape routes? Yes/No/Partially
9. Are internal and external sign postings largely understood by the staff, consultants, patients, customers and visitors? Yes/No/Partially
10. Is potable water and electricity available around the clock? Yes/No/Partially

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11. Are alternate sources of electricity and potable water provided as a backup for any failure/shortage? Is there a plan for water management? Yes/No/Partially
12. Does the management committee regularly test these alternate sources? Yes/No/Partially
13. Is the provision of space in accordance with the available literature on good practices (Indian and international standards) and directed by government agencies? Yes/No/Partially
14. Are there designated individuals responsible for the maintenance of all facilities? Yes/No/Partially
15. Is there a documented operational and maintenance plan (inclusive of preventive and breakdown planning)? Yes/No/Partially
16. Are maintenance staff contactable around the clock for emergency repairs? Yes/No/Partially

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17. Are response times monitored right from reporting to inspection and thereon implementation of corrective actions? Yes/No/Partially
18. Does the management committee plan for equipment in accordance with its services and strategic plan? Yes/No/Partially
19. Are equipments selected, purchased / rented, updated or upgraded by a collaboration process? Yes/No/Partially
20. Are equipments inventoried and proper logs maintained as required? Yes/No/Partially
21. Do qualified and trained personnel operate and maintain equipment and utility systems? Yes/No/Partially
22. Is there a documented operational, house-keeping and maintenance (incidental, preventive and corrective) plan? Yes/No/Partially

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- 23. Is there a maintenance plan for water management? Yes/No/Partially
- 24. Is there a maintenance plan for electrical systems? Yes/No/Partially
- 25. Is there a maintenance plan for heating, ventilation and air-conditioning?
Yes/No/Partially
- 26. Is there a documented procedure for equipment replacement and disposal?
Yes/No/Partially
- 27. Do qualified and trained personnel operate and maintain the equipment?
Yes/No/Partially
- 28. Are the equipment periodically inspected and calibrated for their proper functioning? Yes/No/Partially

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29. Do documented procedures govern procurement, handling, storage, distribution, usage and replenishment of chemicals/corrosive liquids/explosive gases?
Yes/No/Partially
30. Are chemicals/corrosive liquids/explosive gases handled, stored, distributed and used in a safe manner? Yes/No/Partially
31. Do procedures for chemicals/corrosive liquids/explosive gases address the safety issues at all levels? Yes/No/Partially
32. Are there alternate sources for chemicals/corrosive liquids/explosive gases in case of issues or hazards? Yes/No/Partially
33. Does the management committee regularly test these alternate sources?
Yes/No/Partially
34. Is there an operational and maintenance plan for any piped gas/corrosive liquid flow, and compressed air installation? Yes/No/Partially

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- 35. Does the management committee have plans and provisions for early detection, abatement and containment of fire, and non-fire emergencies (disasters) within the facilities? Yes/No/Partially
- 36. Does the facility or building have a documented safe-exit plan in case of fire and non-fire emergencies? Yes/No/Partially
- 37. Are the staff trained for life saving roles in case of such emergencies?
Yes/No/Partially
- 38. Are mock drills held at least twice a year? Yes/No/Partially
- 39. Is there a maintenance plan for fire-management related equipment?
Yes/No/Partially
- 40. Does the management committee identify potential emergencies on a periodic basis? Yes/No/Partially

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- 41. Does the management committee have a documented disaster management plan?
Yes/No/Partially
- 42. Are provisions made for the availability of (first aid specific) medical supplies, equipment and materials during such emergencies? Yes/No/Partially
- 43. Are the staff/teams trained for disaster management roles in case of such emergencies? Yes/No/Partially
- 44. Is the disaster management plan tested at least twice a month (for the year 2020)?
Yes/No/Partially
- 45. Does the management committee have plans for handling community emergencies, epidemics and other disasters? Yes/No/Partially
- 46. Are hazardous materials identified within the facility or building? Yes/No/Partially

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47. Do documented procedures govern identification of house-keeping chemicals, other hazardous materials, discarding, handling, tagging, collection for temporary storage, and safe disposal? Yes/No/Partially

Help Risk Reduction

- This Gap Analysis helps a management committee develop a safer, secure and sustainable facility.
- The data highlights that SMART factory or facility planning, architectural design, construction, commissioning, operation and management can be accelerated via AOEC & SSHGIEC's offering called the "Factory Integration Centre".
- The Factory Integration Centre houses an interrelated framework of know-how, insights, points to be noted, assessments, forms, reports and templates that can be used to design, develop, commission, operate and maintain more SMART & Sustainable factories or facilities with more data integration. The offering contains new concepts and terminology that relate to the advancements seen in innovations for such factories.
- The implementation data from the Gap Analysis can be included into a SMART Phone App, and the results of the analysis assessed by a reporting system that generates a report based on ISO 9004.

Help Risk Reduction

- As AOEC has published details of its other Gap Analysis on its proof of concept websites, the URL(s) of specific sites are available as follows:
 - 1. www.venkataoec.wixsite.com/resourcecentre
 - For planning and implementing a Resource Centre for enterprises
 - 2. www.venkataoec.wixsite.com/gbrc
 - For planning Green building Resource Centres etc
 - 3. www.venkataoec.wixsite.com/consciousacts
 - For planning sustainable buildings, tomorrows & disaster management, planning signposts etc

Considerations for this App	Suitability (High, Medium, Low, Not rated)	Other details
Impact of the App	High to Medium, can serve as a model for management teams brain storming for this purpose	Solution for integrating sustainable thinking for the triple bottom line in the business model
Feasibility, results orientation and cost effectiveness	Medium to High	Needs Financial & Human Capital investment, Infra, Training methodologies and R & D
SMART Convergence practices, Innovativeness and Scalability	Medium to High	Seen as a solution for making the foundation unify efforts to control risks, threats and work in unison for functional safety and sustainable development
Risk mitigation for the future	High	Will help the foundation and associated segments work in unison to acknowledge a need for sustainable operations and also control 2020 related crisis levels
Process methodologies and Process group involvements	Medium to High	Needs Millennium Resource Centers, gateways and training centers to be implemented