Virtual P2 Assessment

Jalal Rastegary

Office of Outreach and Recruitment

College of Engineering

New Mexico State University

rastegar@nmsu.edu

BE BOLD. Shape the Future.

Reasons for Virtual Assessment

COVID-19

Increase efficiency of assessment process.

Increase number of clients served

Virtual Assessment Steps

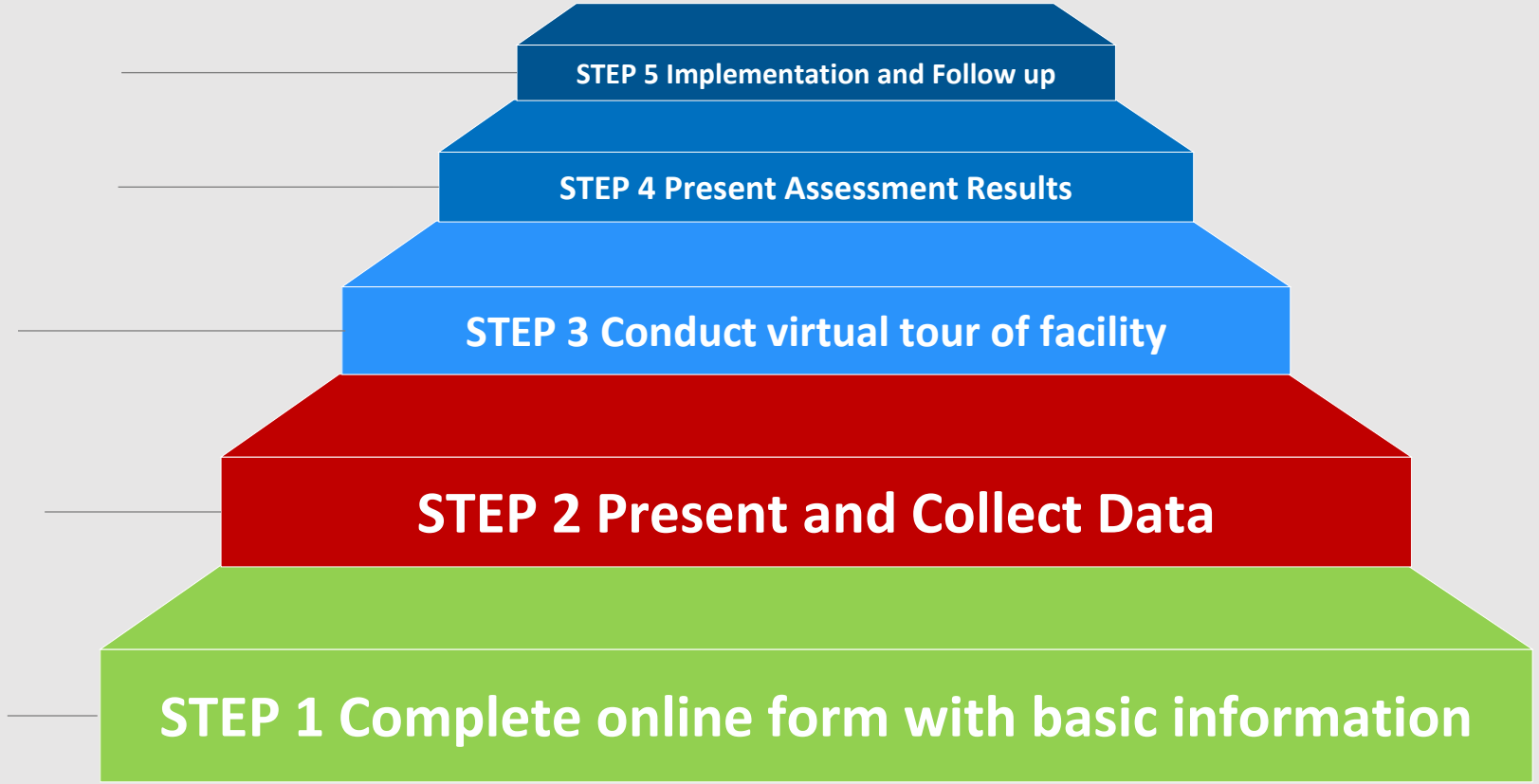
Online meeting and follow up call

Online meeting

Virtual tour

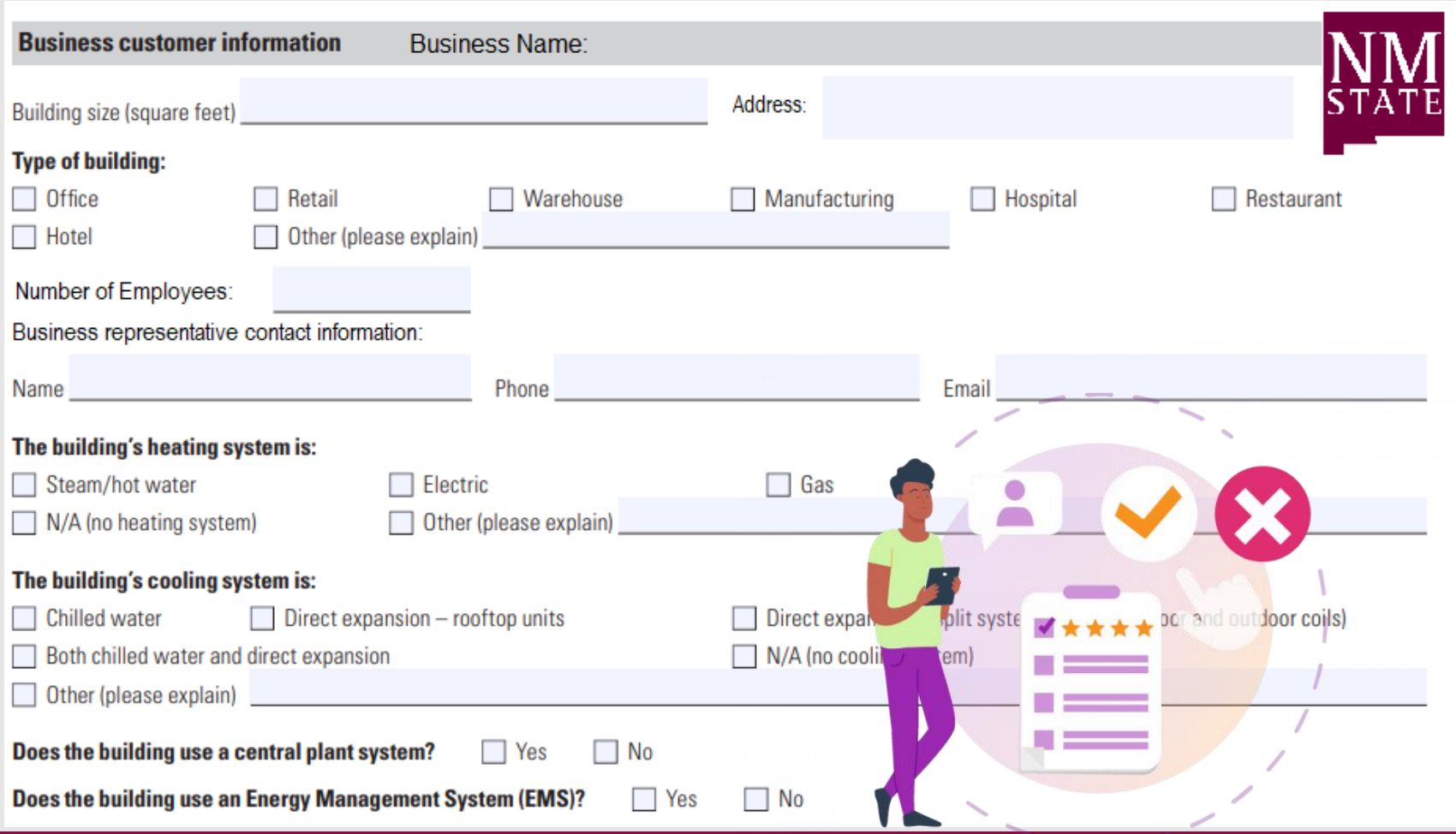
Online meeting

Customers are directed to the website (https://engrbusinessassistance.nmsu.edu/)



STEP 1 Complete Online Form With Basic Information

- Customers are directed to the website (https://engrbusinessassistance.nmsu.edu/).
- Complete basic information (name of business, address, website, square footage, number of employees, type of business, contact persons).
- Upload relevant billing information(E.g. electric, gas, water etc…).
- **Provide sector specific guidelines for virtual tour and data collection.**



Business customer information Business Name:

Building size (square feet) _____ Address:

Type of building:

☐ Office ☐ Retail ☐ Warehouse ☐ Manufacturing ☐ Hospital ☐ Restaurant

☐ Hotel ☐ Other (please explain) _____

Number of Employees:

Business representative contact information:

Name _____ Phone _____ Email _____

The building's heating system is:

☐ Steam/hot water ☐ Electric ☐ Gas

☐ N/A (no heating system) ☐ Other (please explain) _____

The building's cooling system is:

☐ Chilled water ☐ Direct expansion – rooftop units ☐ Direct expa… plit syste… …oor and outdoor coils)

☐ Both chilled water and direct expansion ☐ N/A (no cooli… …em)

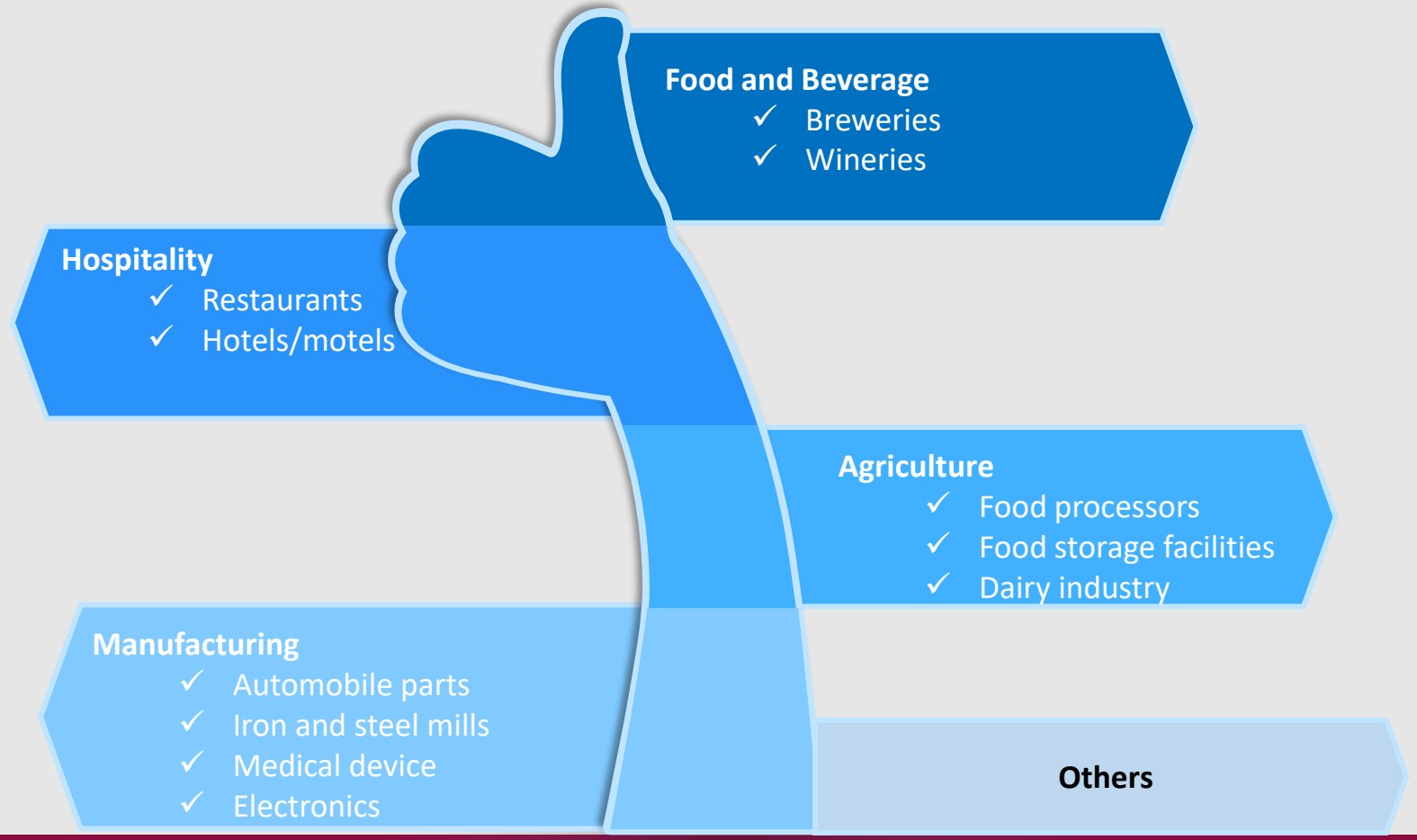
☐ Other (please explain) _____

Does the building use a central plant system? ☐ Yes ☐ No

Does the building use an Energy Management System (EMS)? ☐ Yes ☐ No

Step 1 : Complete Online Form With Basic Info

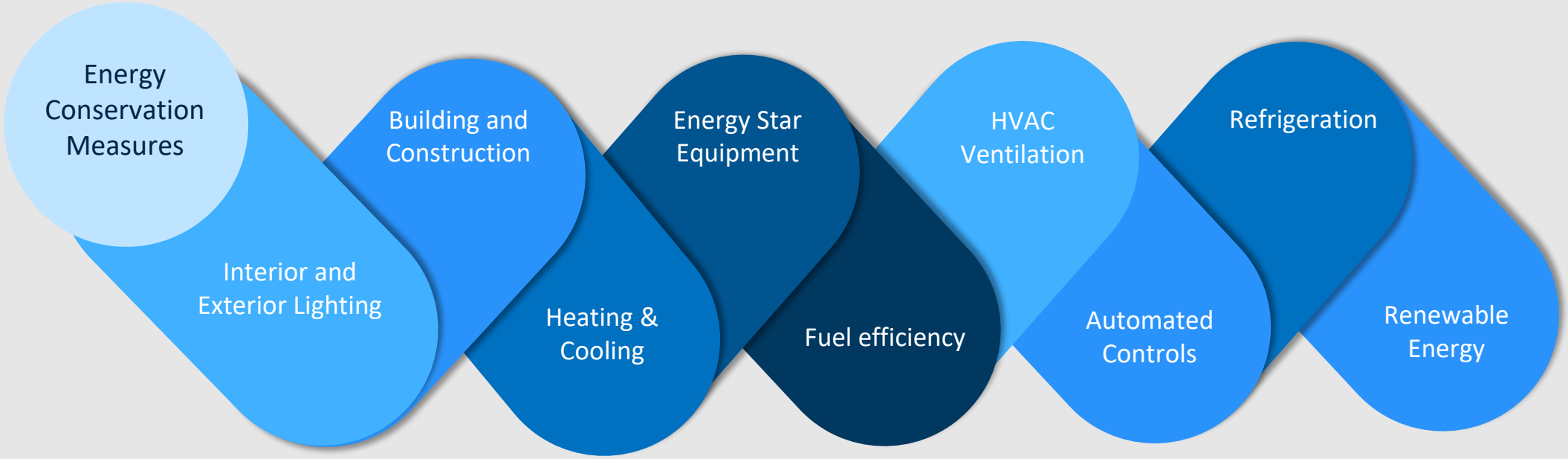
Provide sector specific guidelines for virtual tour



Step 2: Presentation and Data Collection

- Present Pollution Prevention benefits to the business sector.
- Review assessment forms and the process for collecting data.

During the meeting, relevant data is collected regarding energy consumption and pollution prevention operational processes (energy, hazardous waste, water, recycling , etc…)



Step 2: Presenting and Collecting Data via Online Meeting

Pre-Audit Form

Who Represent your company for P2 Assessment? Mr. xxx 555-555-5555

○ Yes ○ No ○ Not Sure

Bulding	Excellent	Good	Average	Fair	Poor	Not Sure
How would you rate the design and construction of this building?	○	○	○	○	○	○
How would you rate the building commissioning process for this building?	○	○	○	○	○	○
How well is the building performance meeting expectations?	○	○	○	○	○	○
How would you rate this building for ease of operation and maintenance?	○	○	○	○	○	○
How would you describe the operation and maintenance program for this building?	○	○	○	○	○	○
How have the majority of building occupants responded to the building?	○	○	○	○	○	○

Building Envelope	○ Yes	○ No	○ Not Sure
Is the building well insulated?	○ Yes	○ No	○ Not Sure
Does weather stripping around doors and windows need to be replaced?	○ Yes	○ No	○ Not Sure
Are cracks around doors, windows and foundations properly sealed?	○ Yes	○ No	○ Not Sure
Are there open doors around loading docks or other frequently accessed areas?	○ Yes	○ No	○ Not Sure

Heating and Cooling			
Are furnaces, boilers and air conditioning systems operating efficiently?	○ Yes	○ No	○ Not Sure
Is there a regular maintenance and update schedule for these systems?	○ Yes	○ No	○ Not Sure
Are filters replaced regularly?	○ Yes	○ No	○ Not Sure
Is the building properly ventilated?	○ Yes	○ No	○ Not Sure

Motors and Equipment			
Is equipment maintained so that it is operating at maximum efficiency?	○ Yes	○ No	○ Not Sure
Is equipment load compatible with manufacturer specifications?	○ Yes	○ No	○ Not Sure
Are machines shut down when not in use?	○ Yes	○ No	○ Not Sure
Are fan belts at the proper tension and in good condition?	○ Yes	○ No	○ Not Sure

Energy Behavior			
Are lights, fans, and equipment (computers, printers, etc) turned off when not in use?	○ Yes	○ No	○ Not Sure
Are building temperatures set back when not in use?	○ Yes	○ No	○ Not Sure
[illegible] lower than necessary in summer and winter?	○ Yes	○ No	○ Not Sure

Envelope Checksheet

Doors and Windows

Description	QTY	Cost	Annual Savings ($/yr/unit)	Utility Incentive (per unit)	Payback (yrs) (per unit)	Notes:
Open easily or close completely					#DIV/0!	
Automatic door closing mechanisms					#DIV/0!	
Penetrations foam, caulked, gasketed: recepticals on exterior walls, plumbing, lights, louvers, etc					#DIV/0!	
Insulation in walls between conditioned and unconditioned spaces					#DIV/0!	
Insulation: attic, floor					#DIV/0!	
Curtains, drapes, blinds					#DIV/0!	
Doors and windows gasketed, sealed, and caulked					#DIV/0!	
Self closing doors on doors to all unconditioned and exterior spaces					#DIV/0!	
Vestibule or revolving doors at major entrances					#DIV/0!	
Switch on OH door to prevent forced air heating when OH doors are open					#DIV/0!	
Broken, cracked, or poor seals on windows/doors					#DIV/0!	
Energy efficient windows					#DIV/0!	
					#DIV/0!	

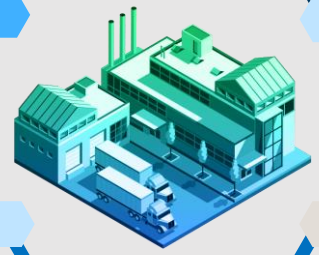
Step 3: Conduct Virtual Tour of Facility

Identify and recognize ongoing Best Practices and identify initial opportunities for improvement.

- Conduct virtual tour of facility with business representative and identify specific opportunities for process improvement and equipment efficiencies.

- Document and validate current Best Practices and identify initial opportunities for process improvement for energy savings and efficiency , P2 and waste minimization.

Step 3: Conduct Virtual Tour of Facility



01 Building Insulation
- Replace windows/insulation
- Implement window blinds

02 Heating, Ventilation, Air Conditioning
- Insulation of duct work
- Seal leaks in duct work
- Higher efficiency HVAC components

03 Freezer/ Refrigeration
- Schedule regular maintenance

04 Lighting
- Use natural lighting
- Use LEDs

05 Get Smart
- Invest in a smart plugs and sensors

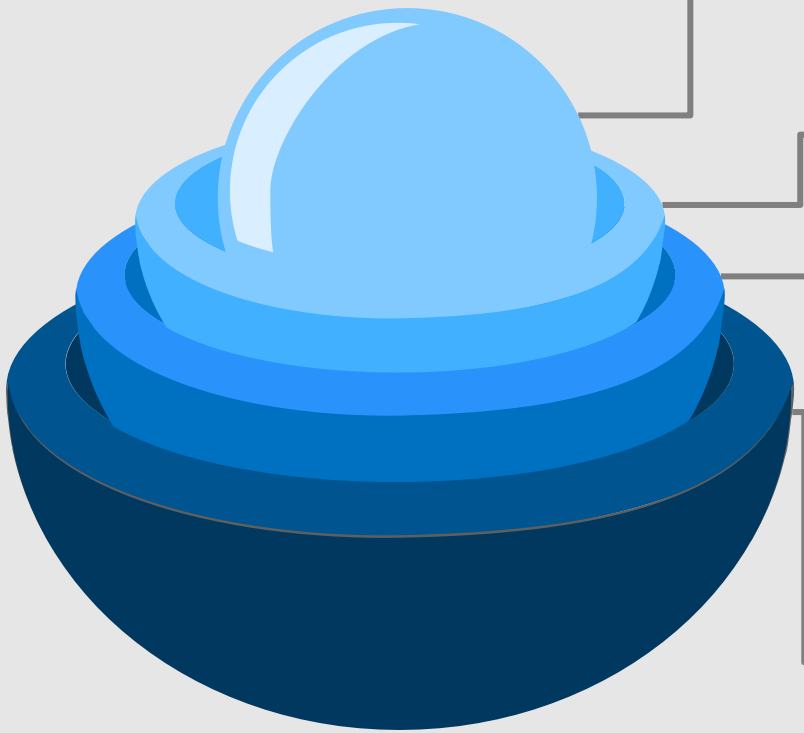
06 Boiler, Compressed Air
- Efficiency barriers
- Maintenance

07 Fuel Efficiency
- Use electric forklift
- Ways to reduce transportation distances or duration

08 Appliances
- Energy Star appliances can save up to 30% on energy bills

Step 4: Assessment Results Presentation

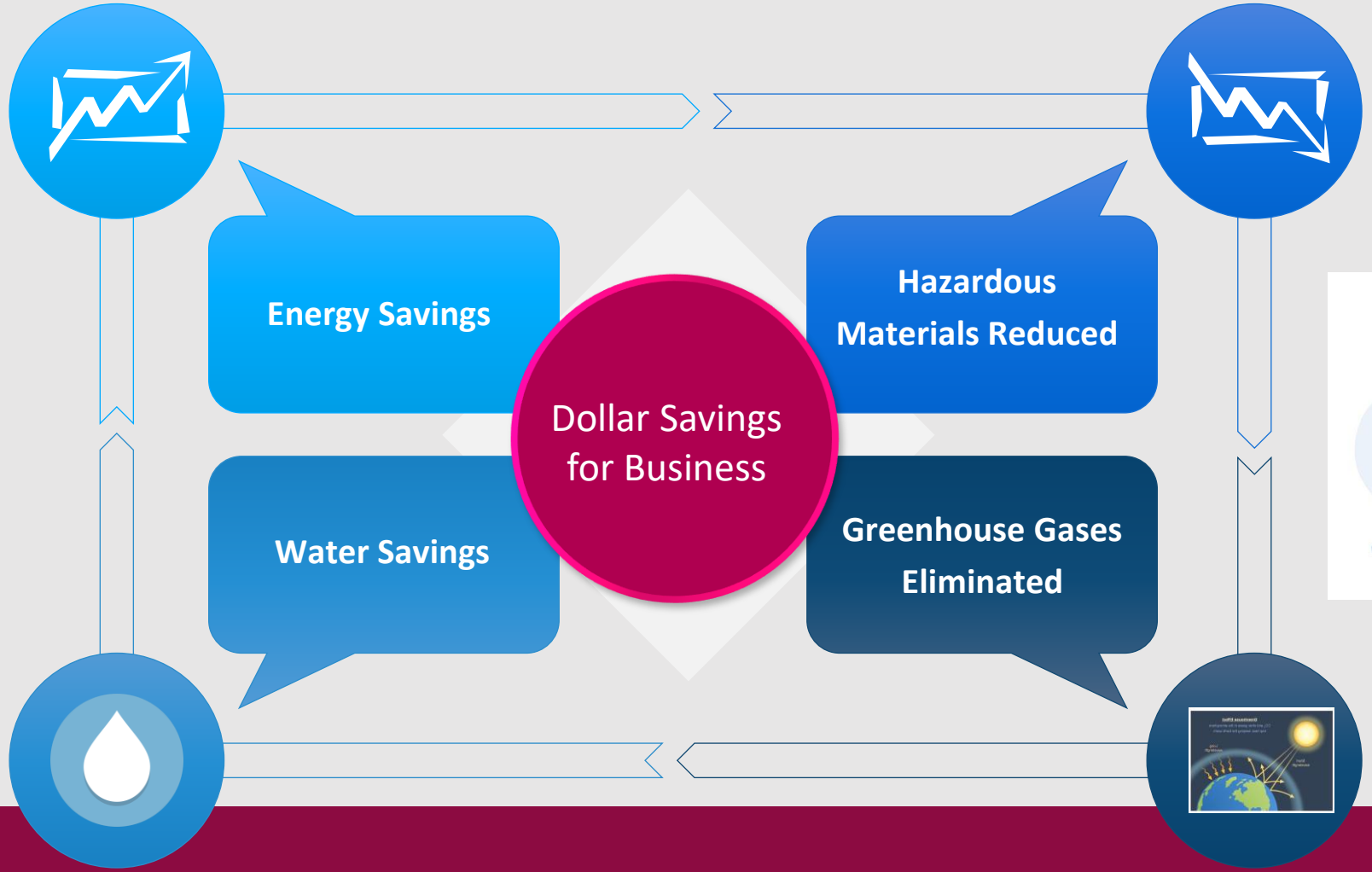
Generate report with identified recommendations for potential cost savings



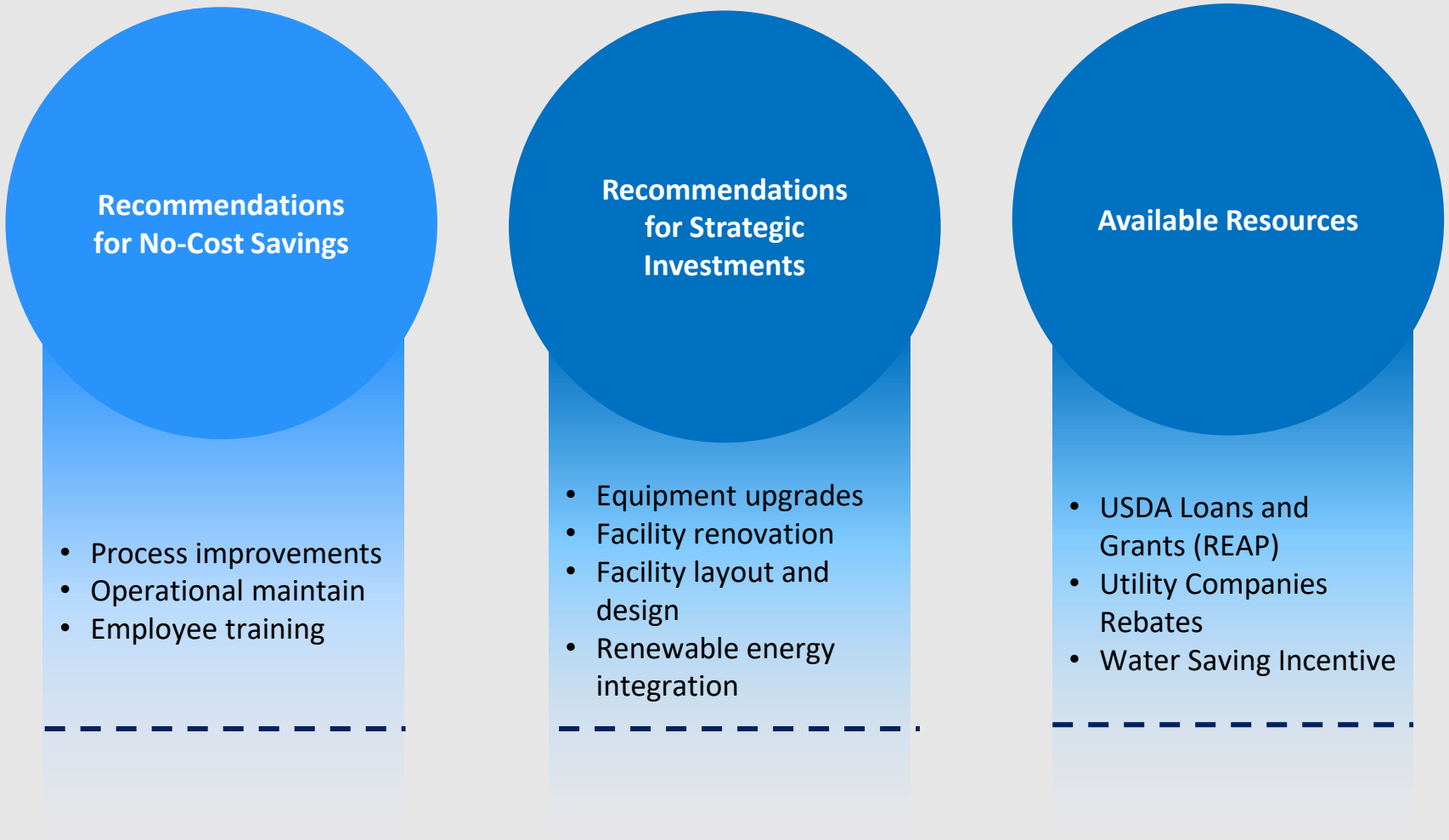
1. Collect, record and visualize data
2. Evaluate and analyze data
3. Recognition of current best practices and provide recommendations for , environmental and energy OFIs
4. Define and implement measures

Step 4: Assessment Results Presentation

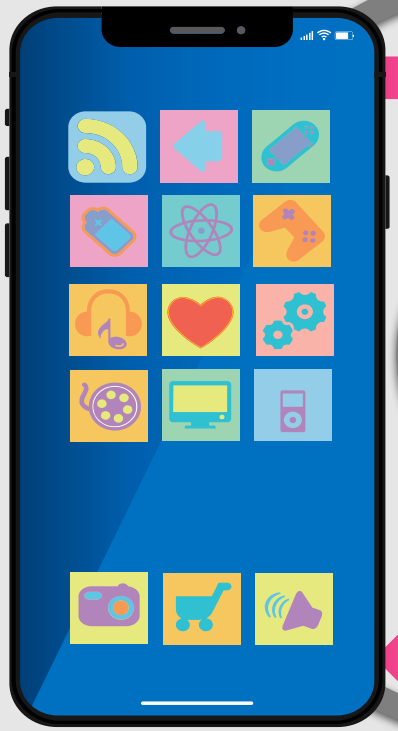
Online meeting to share the identified OFI and Positives



Step 5: Implementation Follow up and Resource Availability



Future Plans



Smart and Easy Data Collection

Virtual Tour Guide

Schedule Virtual Tour and Meetings

Visualize Assessment Results

Smart Implementation Follow up

Mobile Application

1. All data collection forms will be online
2. Automate ability to identify initial problems and solutions
3. Automate Best Practice solutions by industry sector
4. Optimize process, save time, increase number of clients served
5. Increase overall savings for clients served

End-to-End Paperless Automated Assessment