

Third Party Access Update

Presentation and Discussion with IESO's Stakeholder Advisory Committee

April 27th, 2018

Discussion Questions

- This presentation will provide an update on the progress to date on the Third Party Access project and look for SAC input to inform next steps, specifically related to costing and valuation for third party access to the de-identified electricity consumption data in the MDM/R
- Questions for SAC to consider include:
 - What other considerations should the IESO include in its further analysis and model development?
 - What other opportunities and/or risks do the SAC members see with the proposed monetization concept for the data in the MDM/R?
 - What other intended or unintended consequences should the IESO further consider in the model development?

BACKGROUND AND KEY PROJECT UPDATES

Background

- Following the 2016 OEB Orders (EB-2015-0297 and EB-2016-0284), the SME's licence was amended with the following requirements:
 1. To start collecting into the MDM/R, as of Jan 1st, 2017 additional smart meter information from LDCs, specifically Postal Code, Distributor Rate Class (DRC), Commodity Rate Class (CRC) and Occupant Change Date, in a manner that is compliant with privacy requirements – *this requirement is now fully met.*
 2. To prepare an Implementation Plan with respect to Third Party Access to this enhanced MDM/R data. The SME submitted that in following the Third Party Access Roadmap recommendations (developed in 2017), the implementation specifics will be defined in 2018, including a costing & valuation model to help determine *how will this be paid for.*

The Third Party Access Roadmap

- To enable the Third Party Access project outcomes, while protecting the privacy of Ontario residents, the IESO developed in 2017 a **roadmap** in consultation with Privacy Analytics and the Office of the Information and Privacy Commissioner (“IPC”)
 - The Roadmap outlines 15 critical path steps required over a span of 18+ months to bring the overall project to successful completion (Appendix 1)
- The roadmap includes considerations and controls for **privacy, ethics and fairness**, and emphasizes **engagement** with industry and public
- The approach is legally and statistically defensible, consultative, and **aligned to good public outcomes** achieved through third-party access
- Several key steps of the Roadmap have been implemented with the SME now focusing on the completion of the Data Strategy Advisory Council (“DSAC”) Pilots and the development of a monetization model that will be submitted to the OEB for approval in 2018.

The DSAC Pilots

- The SME undertook a number of data pilots submitted by /observers of the DSAC to better understand the specific de-identification strategies, legal requirements, processes to be followed and the utility of data to the recipients:

Organization	Test Case Objective
OEB	To better understand small commercial energy use patterns and to make more informed pricing decisions
City of Guelph	To identify priority areas for energy efficiency (EE) / distributed generation (DG) programs via energy mapping; support GHG targets with an emissions inventory
Oxford County	To create an accurate electricity baseline for improving EE, and aiding in the transition to renewable energy
Enbridge Gas	To establish load profiles to help predict the GHG impact of the power system and support emission reduction
IESO (outside SME)	To improve short and long-term demand forecasting through better system modelling

The DSAC Pilots (cont'd)

- A detailed privacy analysis was completed for each test case to develop specific rules of de-identification for the data extracts, in accordance with the IPC's De-Identification Guidelines for Structured Data.
- The methodology used assessed the Context Risk (for each requestor) and the Data Risk (data requested in each specific test case).
- The findings of the risk assessment resulted in specific recommendations for data extraction to ensure that the risk of de-identification remains under a minimum acceptable threshold.
 - For example, data may require higher level aggregation (5, 4 or 3 digit postal code), elimination of outliers which could be re-identified through inferences, or mitigation of data uniformity where re-identification is possible due to similarities between dwellings within a certain geography.
- A signed Data Use Agreement is necessary in order for the data extract to be shared with the requestor.
- Each data extract is securely transmitted and accompanied by a detailed Specifications document that provides definitions and details on the output file, to facilitate the analysis.

The DSAC Pilots (cont'd)

- Other Key Learnings:
 - The initial registration /intake processes and tools will be streamlined over time and increased automation incorporated, as feasible
 - Every test case required a specific approach to the risk of de-identification analysis and intense engagement with the requestors in defining the optimum data outputs (i.e. to ensure that privacy requirements are met, while the data utility is maximized)
 - Different forms of legal agreements may be developed to reflect the specific risk conditions of the data requests and/or requestors
 - Need to establish specific data use protocols between IESO and government organizations, and between IESO's different groups (SME, Planning, Conservation)
 - Need to develop standardized products and aggregated public facing reports, to facilitate adoption and awareness of data offerings
 - Need to build greater market awareness, including general education on de-identification risks and mitigation techniques

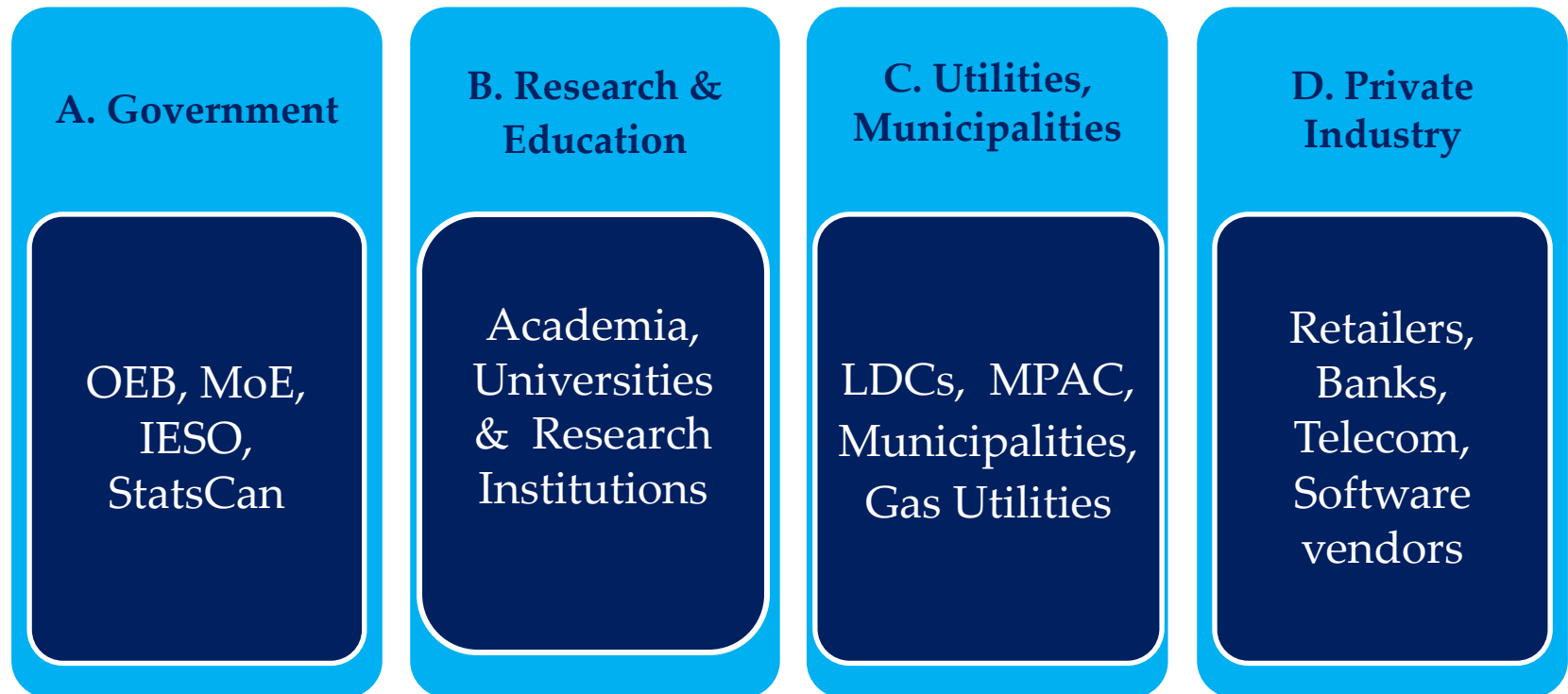
Next Steps

- The SME will continue to capitalize on this positive momentum and work on developing a catalog of products at various levels of complexity, and for various audiences. This will also help with better understanding of scope and scale of the MDM/R data opportunity
- Of key interest will be the aggregated reports that can be publicly posted on the IESO website, to build awareness and understanding through user- friendly visualizations of the data in the MDM/R
- Additional pilots may continue to be explored in 2018 to maintain interest and to further build learnings – these pilots will be subject to the same rigorous privacy treatment as the previous DSAC pilots.

DISCUSSION AREA: MDM/R DATA COSTING & VALUATION

Potential Third Party Clients for MDM/R Data

- The identified interested groups that can have a potential use of the data are stated below:



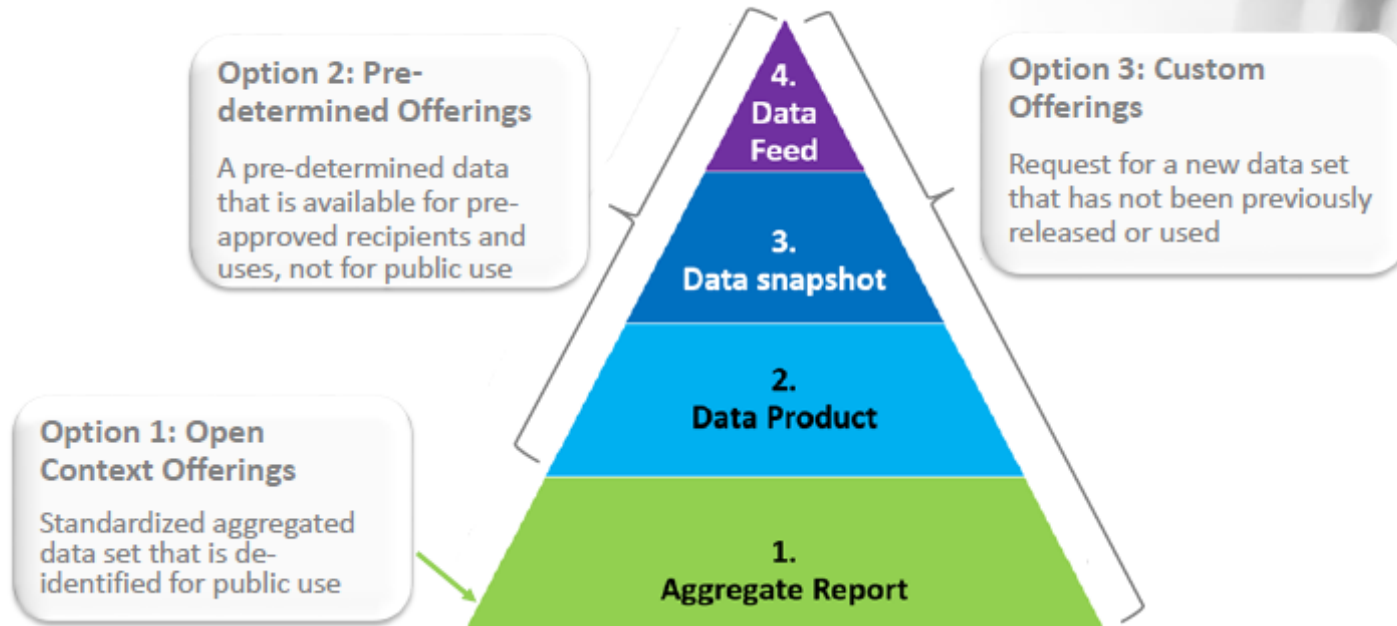
- Each group has their own statute, unique data needs, and different perspectives on the value of this data for their constituents.

Potential MDM/R Data Products

We determined four potential types of data offerings:

1. Aggregated Reports - de-identified for unrestricted or public use
2. Data Product - a pre-determined report / analytics product, not for public use
3. Data Snapshot - a snapshot of the data from the MDM/R
4. Data Feed - a continual feed of raw de-identified data in the MDM/R

For these offerings, the risk assessment and de-identification options include:



Source: Privacy Analytics report to the IESO

Research and Engagement Approach

- The IESO has retained a third party firm to:
 - Assist in researching and developing a costing and valuation model for third party use to de-identified MDM/R data
 - Study a number of organizations to establish perceptions and practices around the value & use of data
 - Develop a dynamic tool to allow for costing and scenarios analysis
- Preliminary discussions were held by the SME at the last DSAC meetings in January and April, with the IESO's Board of Directors and with the Information and Privacy Commissioner.
- Further to the SAC discussions and additional consultations with experts, there will be broader province wide consultations planned in the second part of the year, prior to a submission for model approval to the OEB.

General Research Observations

- Privacy and security of data remain primary concerns
- Uses are fairly limited to customers' ability to see their own data, and certain operational uses for utilities (such as outage management applications)
- Data science is not a discipline that is broadly spread across the sector, nor are players seeing the "data as an asset" within their own organizations
- In comparison with other more evolved sectors, the energy sector is relatively in an infancy stage on the use of its own data for the benefit of their customers, or other third parties
- Public sector are interested in the data to inform policy decisions, rate changes and upgrading in-house analytical capabilities
- Private sector is interested in an agile model for data access, easy access, fair pricing and various data presentment options

General Research Observations (cont'd)

- All public organizations follow at least a cost recovery model to cover costs associated with specific product offerings
- Some organizations have planned surplus targets which are directed back into the organization as a re-spending budget (StatsCanada) or as an adjustment to their operating budgets (offset to the municipal levy charged by MPAC).
- Third party data providers use either an annual subscription, price per transaction or request or a level of effort using flat FTE rates to determine their pricing structures.
- A combination of level of effort and a fixed fee charged as an annual subscription or registration fee is a common approach to price determination
- Discounts are also available to customers based on either the volume of requests or the type of customer classification (often with research institutions and government agencies qualifying for discounts) – details in Appendix 2

Key Considerations on Data Monetization

Source of Funding	Revenue Model	Products and Services	Pricing Structures
<ul style="list-style-type: none">• SME's current charge is comparable to MPAC's municipal levy.• Depending on how SME intends to monetize the data, the funding model with the OEB may need to evolve.	<ul style="list-style-type: none">• SME can consider developing a cost recovery model with an annual budgeted surplus target.• This surplus can form a profit generating vehicle contingent on SME (or a new subsidiary) branching off a separate entity (with OEB approval); or• The surplus could represent an offset to the regulated revenue requirement.	<ul style="list-style-type: none">• 3rd party data providers have a broad range of products and service offerings.• Some basic information can be provided free of cost or at minimal cost.• Additionally, SME can develop specific services to cater to specific needs of potential customers including government and government agencies as well as commercial organizations looking to monetize data.	<ul style="list-style-type: none">• SME to consider Level of Effort in pricing for data requests and analysis.• Volume and bulk discounts can also be considered when setting pricing.• 3rd party data providers also provide discounts to customers belonging to certain categories like governments and research institutions.• These discounts and customer types are cross subsidized from revenue generated through other customers.

Source: MNP Report to the IESO

Leading Principles

Given the sensitivities involved with the monetization of de-identified electricity consumption data in the MDM/R, the IESO's development efforts will be guided by these leading principles, developed in a consultative approach with key project contributors (DSAC, IPC, IESO Leadership, Industry Experts):

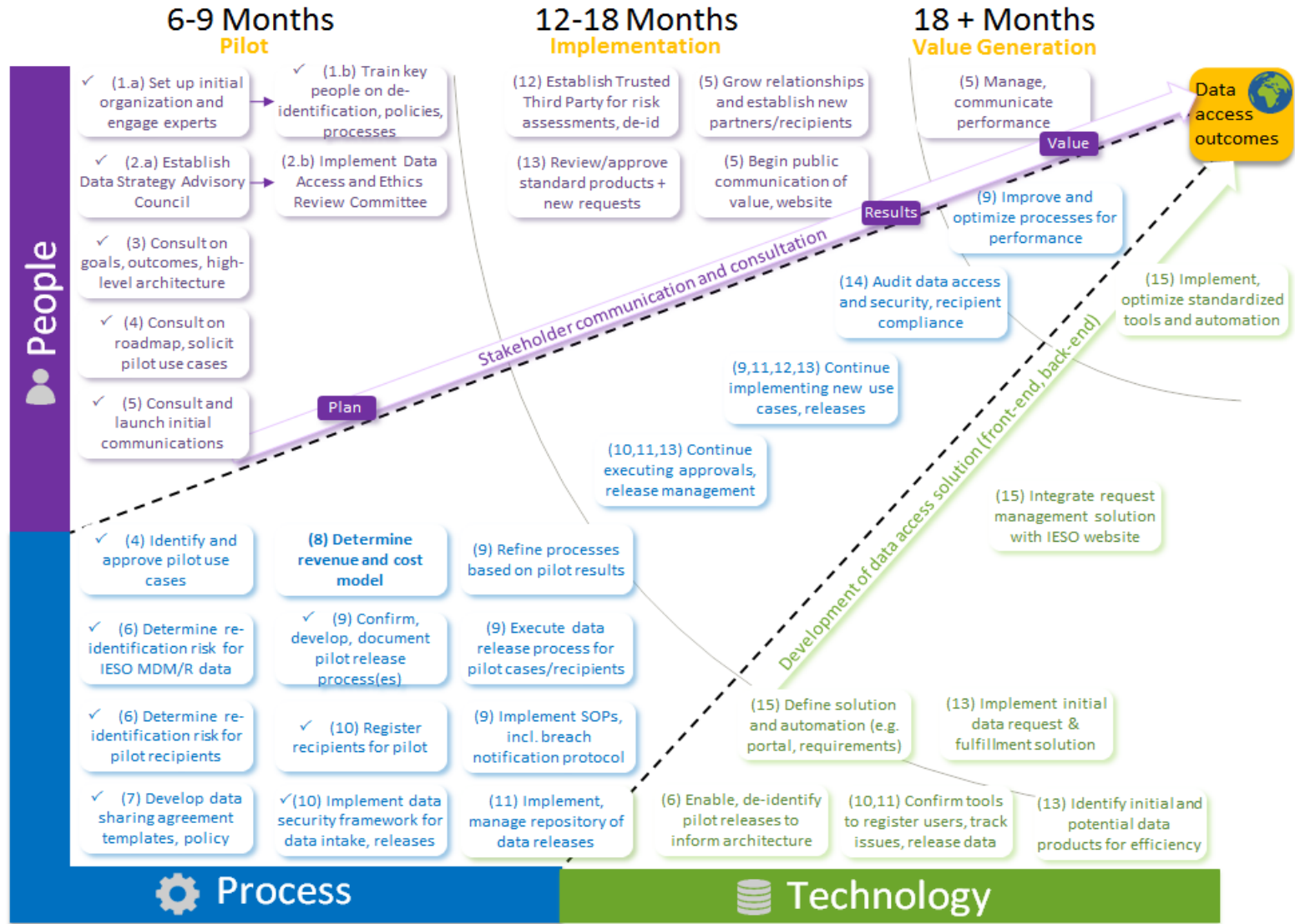
- **Privacy, security and ethical uses** of the information in the MDM/R are paramount, while maximizing the utility of the data for requestors
- **Value creation** is critical for both ratepayers (to maximize opportunities for offsetting additional SME costs, beyond just simple cost recovery*) and the data beneficiaries (to ensure requestors get the maximum value out of the data products through high quality outputs and streamlined processes)
- Striking the right balance between **public-good and private-good** data applications (what will be commercially available vs. publicly available)

** Please refer to Appendix 3 for details of costs*

Next Steps

1. Further discussions with the Information and Privacy Commissioner, Ontario Energy Board, Data Strategy Advisory Council, Stakeholder Advisory Committee and broader stakeholders on a recommended costing model and phased approach implementation
2. Submit for approval to the OEB in 2018
3. “Open for Business” upon OEB approval and phased-in implementation

Appendix 1 – Third Party Access Roadmap



Source: Privacy Analytics Report to the IESO

Appendix 2 – Market Research Summary on other Relevant and Comparable Third Party Data Providers

Organization Name	Revenue Model	Source of Funding	Pricing Structure & Discounts	Service Offering	Sample Product Pricing	Pricing	Additional Details
Municipal Property Assessment Corporation (MPAC)	Cost Recovery + Surplus Targets	<ul style="list-style-type: none"> Municipalities of Ontario Revenues through selling data 	<ul style="list-style-type: none"> Per Request Annual Subscription Bundle pricing for tax agents 	<ul style="list-style-type: none"> Multiple Dataset Products Custom Requests 	Electronic Property Profile Reports	\$4,000	<ul style="list-style-type: none"> Standard and custom datasets available as per request. Bundle pricing available for tax agents. Availability of multi-year, quarterly and monthly pricing based on request.
					Assessment Roll Products 2016-2020	\$58,000	
					Propertyline (software) license	\$6,000	
					Residential Custom Analysis	\$7,500	
					Lineage Analysis	\$8,500	
					Sales Database for Tax Consultants	\$25,000	
Cancer Care Ontario (CCO)	Cost Recovery	<ul style="list-style-type: none"> Ontario Ministry of Health and Long-Term Care Public Health Ontario Canadian Partnership Against Cancer 	<ul style="list-style-type: none"> Per Request Level of Effort 	Aggregate Report	Administrative Fee	\$2,100	<ul style="list-style-type: none"> Number of hours (level of effort) depends on complexity of data request (number of databases to be linked, number of data elements, size of the cohort etc.).
					Regular Hourly	\$75	
					Additional, Pathology Hourly	\$37	
Teranet	For Profit	Client Funded	<ul style="list-style-type: none"> Subscription & Per Request Bulk Discounts for all clients 	Web-Services	Getting Stated Package	\$595	<ul style="list-style-type: none"> Pricing available for transactions (property searches, writ searches etc.) and Software pricing (subscription based).
					Additional Users	\$345	
StatsCan	Cost Recovery	Government Funded	<ul style="list-style-type: none"> Per Request Level of Effort No discounts 	Custom Requests	Standard Fee Per Hour	\$78	<ul style="list-style-type: none"> Standard hourly fee per request compatible with StatCan's mandate.
Canadian Institute for Health Information (CIHI)	Cost Recovery	<ul style="list-style-type: none"> Provincial/territorial Government Funding Federal Funding 	<ul style="list-style-type: none"> Annual Subscription Level of Effort Public Sector Discounts 	Web Services	Annual Fee (First Analyst)	\$7,355	<ul style="list-style-type: none"> Annual fee per analyst for each organization with 25% discount for additional analyst annual fee. Certain provincial and territorial ministries of health under agreements with CIHI are provided 1 analyst user free of charge.
					Annual Fee (Additional Analyst)	\$5,795	

Source: MNP Report to the IESO

Appendix 3 - Data Costing Components

- A summary of some of the cost categories associated with data requests are shown below:

Cost Categories
Registration & Enrolment
Data Request Evaluation, Confirmation & Fulfilment
Legal
Privacy Analysis
Quality Assurance
Data Request Processing, Verification, Packaging and Delivery
Post Delivery, Evaluation and Feedback, Audit