Transition to Automated Ground-based Measurements

RA-V Workshop Day 2
Project Planning and Management

Wiel Wauben
Daniel Brewer

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World Meteorological Organization
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Introduction

- Why do we need formal Project Planning and Management (PP&M)?
- Create a temporary team for the implementation and the handover to exploitation/operations of …
- Creating the conditions for success

- This session will be largely based on the Project Management Section of The WMO Compendium of Topics the support Management Development in National Meteorological and Hydrological Services https://library.wmo.int/doc_num.php?explnum_id=5647
- You probably need to comply with your organization's or national procedures
- This presentation gives no in-depth information on PP&M and tools. Various books, tools and training are available
- Here, an extended project is described. A smaller project might be suitable for your task or organization. The general principles should still hold.

ISO
ICS › 03 › 03.100 › 03.100.40
ISO 21500:2012
Guidance on project management

https://www.iso.org/standard/50003.html

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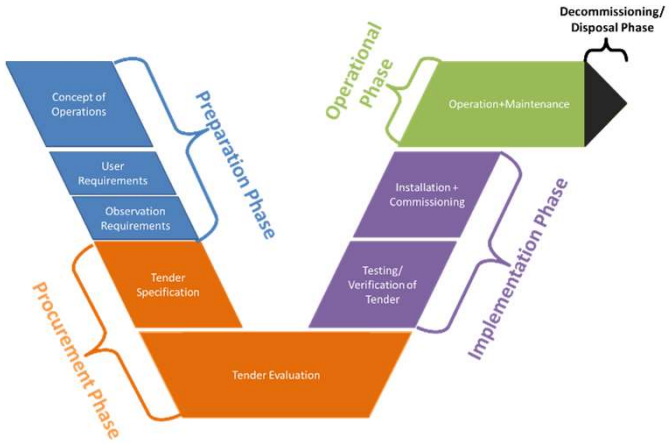
Introduction



- Strong relation with AWS Tender specification (requirements/procurement versus realization)
- For example, objectives, milestones, phases

A.3.5 Purpose of this Document

The purpose of this document is to describe conditions which are specific for the project concerning:

- Scope of delivery;
- System design;
- Project Management;
- Configuration Management;
- Work at site;
- Implementation;
- Measures and precautions to be taken to minimise risks in disrupting the operational process;
- Tasks and responsibilities for the Contractor and the Purchaser.
- Acceptance procedures

- Section A.3.13 Project Management and Quality Assurance
- Section A.3.15 Planning Constraints

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Project - preparation

- Business case or Proof of Concept to explore options both financially and technically
- Input from "Network Planning"
- **Goal:** Indicate what will be achieved and what will not
- Including "AWS Tender Specifications" and "People Change"
- **Resources:** Claims for budget and staff
- **Planning:** Staff, tasks and deliverables over time (related to manufacturer's contract)
- **Management:** Progress is monitored and reported; measures taken when necessary
- **Go:** Formal approval by all stake holders

https://community.wmo.int/activity-areas/imop/aws-tender-specifications
https://library.wmo.int/doc_num.php?explnum_id=10179
https://library.wmo.int/doc_num.php?explnum_id=10040

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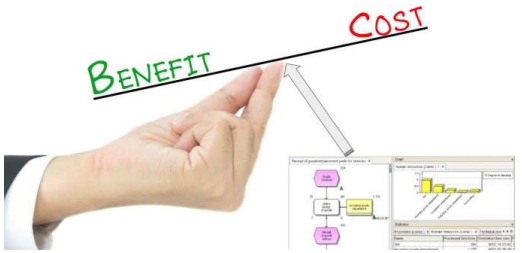
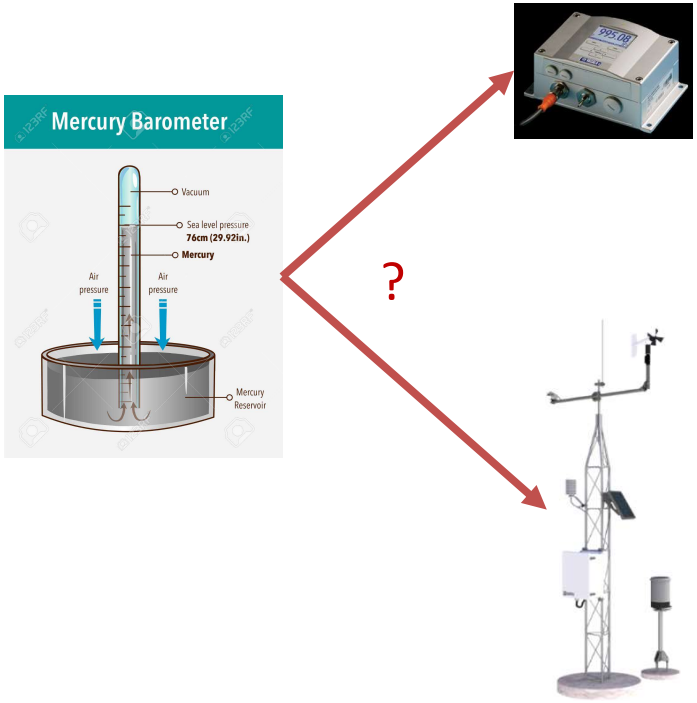
Project - preparation

Business case

- What problems do you want to solve?
  - Fix for manual Mercury instruments
- What opportunities can be achieved?
  - Automated observation network
- What solutions are feasible?
  - Renew or upgrade/extend and reuse
  - Staff expertise, facilities, requirements
- Cost/time and risks versus goal and added value
- Consider Total Cost of Ownership (running costs for period of 10-15 yrs)
- Go/No Go decision





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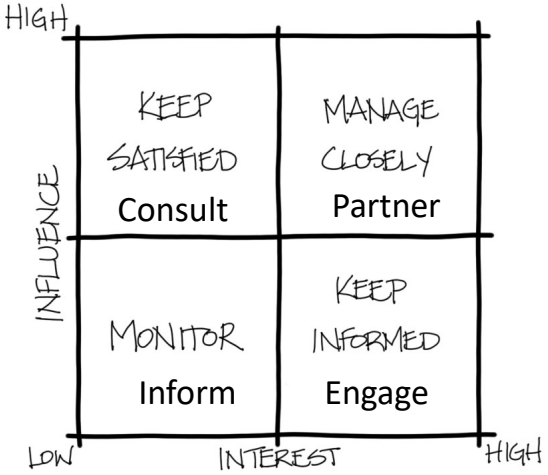
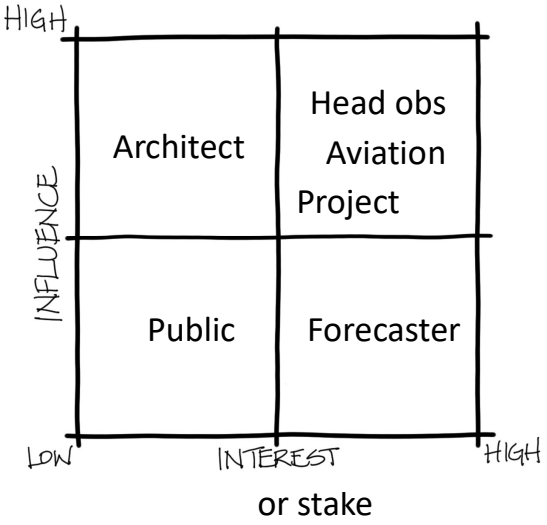
Project – (preparation)

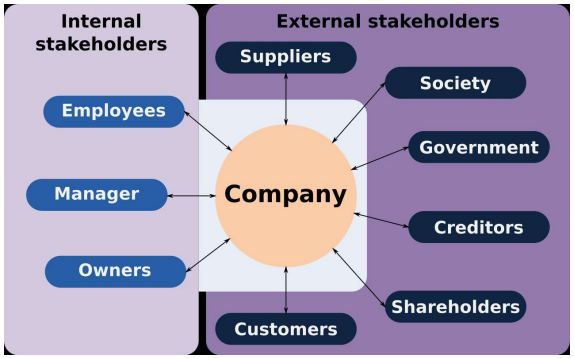
Stakeholder analysis

- Register of all stakeholders
- Clients, users, suppliers, managers
- Internal and external
- Sometimes multiple roles
- Map versus influence and interest
- Manage or involve accordingly





or stake



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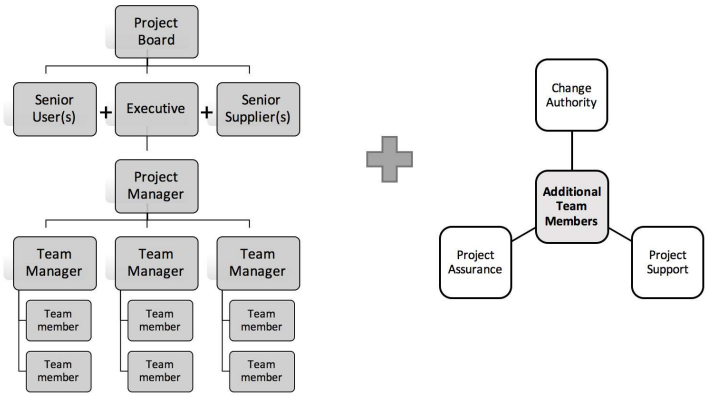
Project

- Who's who in a project (roles and responsibilities)
  - Project board or Executive, principal client, sponsor, owner
  - Steering committee, stake holders (client, users, suppliers)
  - Resource managers
  - Project leader, task leaders
  - Project team members
  - Environment, communication manager
  - Project support, change management
  - HRM for "People Change"
  - …



Authority & conditions

- Scope & deliverables
- Budget & resources
- Direction
- Issues

Realization

- Manage, monitor & report
- Review & approve
- Implement & document

Support

- Communication
- Project & IT

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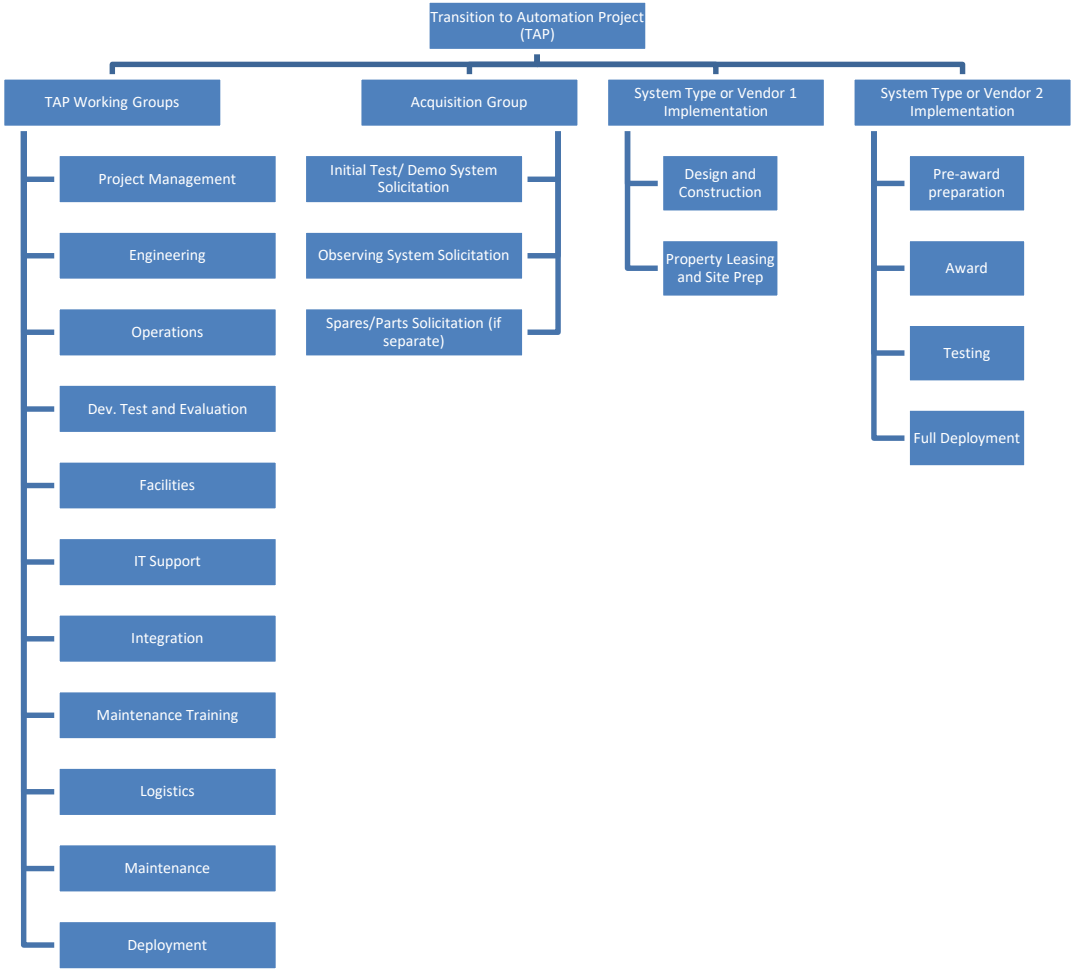
Example Project Organizational Structure



- TAP Working Groups should integrate well with current organizational structure.
- Each TAP working group would have multiple responsibilities/functions which would be further divided into tasks and then deliverables.
- Outside of TAP Working Groups, the project organizational structure would be flexible dependent on project maturity. For example, two of the high-level structures focus on critical execution phases of the project rather than specific groups

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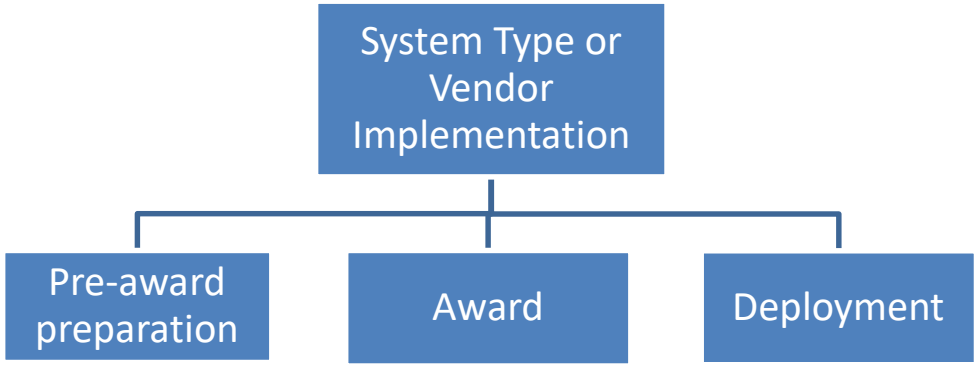
Example Project Organizational Structure – Predefined solution



- Often projects reliant on donor funding have been “predefined”.
- Focus on hardware and not operations. Therefore, no budgets for spares, maintenance, communications.
- Training often a single line item or afterthought.
- Typically, not integrated but project-based focus
  e.g., climate focus or AWOS.
- Managed by an implementing agency.

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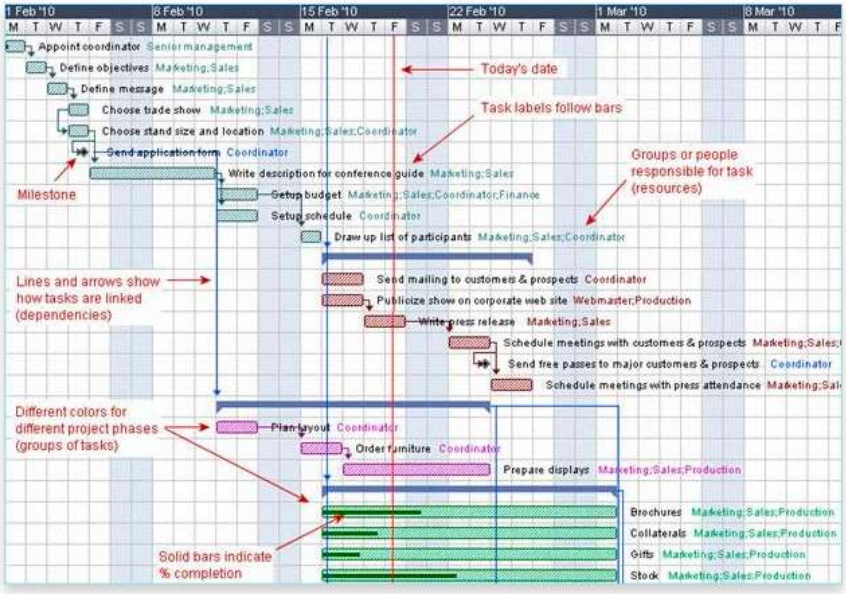
Project Planning and Management

- Project divided in work packages or sub-projects or program with multiple projects
  - For example: user requirements, procurement, pilot, implementation, training, integration, decommissioning
- Might include or link with external parties
- Details go down to specific deliverables and tasks
- For each task assign a responsible person and possibly a deputy
- Well defined requirements, deliverables, goal and scope
- Clear acceptance criteria (definition of good enough)
- Decisions by team (authorized experts) and/or management



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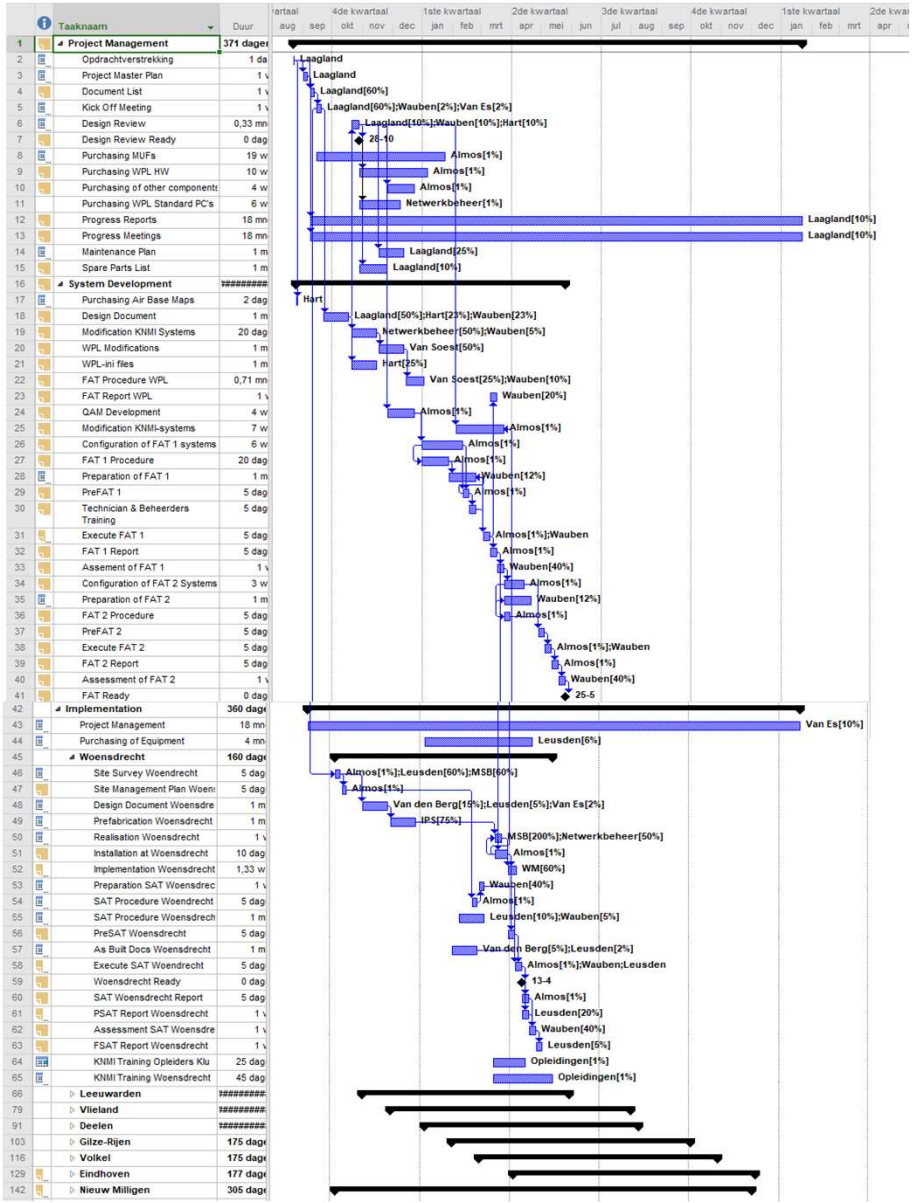
Project Planning and Management

- Planning of tasks/deliverables and costs/staff over time
- Plan – Do – Check – Act
- Project progress reports (budget, staff, progress)
- Dependencies
- Critical path(s) of a project
- Risk management, alternatives
- Issue list
  - classification issues (major-minor)
  - acceptance with exceptions (dead-line)
  - progress and thrust



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People

- Dedicated team of multi-disciplinary specialists
  - Team and task leaders change over time related to specific expertise
  - Initially more general aspects based on documents requiring architects, at a later stage more technical and the system managers/users
  - Align across sub-projects and tasks simultaneous & consecutive
- Representatives of end users, users/managers of the system, experts, IT, security …
- Team must be open to changes, not 1-to-1 replacement of old system and way of working (see "People Change")
- Team needs to have time outside the daily operations, but at the same time, the staff involved in daily operations needs to be closely involved for a smooth transition
- Preferably some members are full time involved
- Team members with crucial expertise/tasks have a deputy assigned

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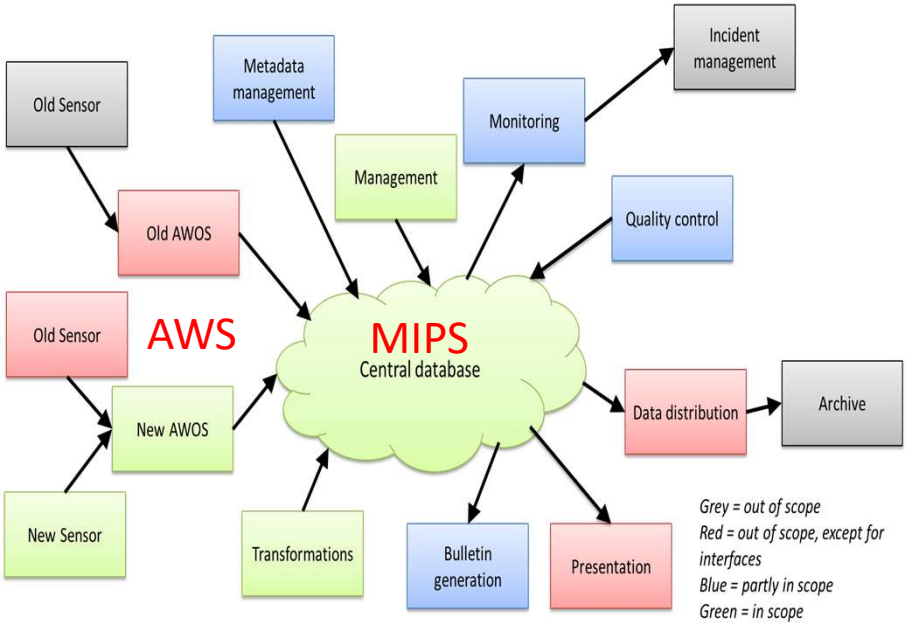
Scope

- What are the project goals and objectives
- Existing sensors, maintenance and calibration tools and facilities

- Interfaces with your infrastructure
  - Central database
  - Metadata system
  - Message generator or Message switch
  - User displays (various user types)
  - Monitoring and QC system
  - Incident and asset management

Centralized option



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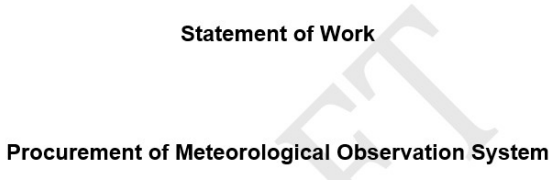
Responsibilities

- Power supply and data communication at location
- Civil works and installation at (new) location
- Selection new locations (see "Network Planning")
- Communication to (new) location
- Contact and contract with local administrator, datacom provider
- Integration of new system(s) in your infrastructure and procedures
- Coordination within your organization and with stake holders
- Decommissioning of old system(s)
- How responsibilities change in development, test and operational phase

"AWS Tender Specification"
You versus manufacturer



https://community.wmo.int/activity-areas/imop/aws-tender-specifications

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Project to operation transition

- Parallel measurements and evaluation
- Formal approval from delivered systems
- Training of staff (how will the training be delivered during the transition and how will it be delivered for new staff in 2 or 10 years?)
- Get staff involved in implementation
  (manufacturer with staff in attendance -> staff supervised by manufacturer -> staff)
- Support during transition (manufacturer on-call? internal engineers on call?)
- Integration of new system in your infrastructure and procedures
- Decommissioning of old system

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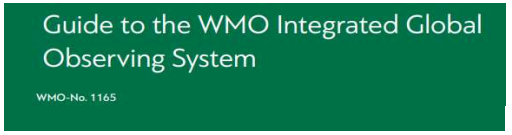

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Risks

- See "Risk Precautions"
- Risk -> probability * impact, mitigating measure
  - Staff not available when needed
  - Budget insufficient
  - Requirements incorrect, incomplete, or outdated
  - Acceptance criteria not clear
  - Creeping scope
  - Old system not entirely replaced
  - Unforeseen

SIMPLE SAFETY RISK REGISTER TEMPLATE

RISK DESCRIPTION	IMPACT DESCRIPTION	IMPACT LEVEL	PROBABILITY LEVEL	PRIORITY LEVEL	MITIGATION NOTES	OWNER
Brief summary of the risk.	What will happen if the risk is not mitigated or eliminated.	Rate 1 (LOW) to 5 (HIGH)	Rate 1 (LOW) to 5 (HIGH)	(IMPACT X PROBABILITY) Address highest first.	What can be done to lower or eliminate the impact or probability.	Who's responsible?
Leaks from roof during rain make the floor slippery	Slips and falls	3	5	15	– Order "slippery when wet" signs – Have mops on hand – Fix roof	Allen
Shortage of eye protection	Increase in injuries Production delayed Increased insurance premiums	5	1	5	– Increase supply – Low inventory warnings – Find alternative suppliers	Linda
		4	5	20		
		5	5	25		
		2	1	2		
		3	4	12		
		1	1	1		
		2	4	8		
		4	4	16		

PROBABILITY						
5	5	10	15	20	25	
4	4	8	12	16	20	
3	3	6	9	12	15	
2	2	4	6	8	10	
1	1	2	3	4	5	
	1	2	3	4	5	IMPACT

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Goals / deliverables

- Verification of requirements and design
- Acceptance of system/product (FAT, SAT, evaluation)
- Documentation, installation, maintenance and user manuals
- Training of system managers, technicians
- Spares and spare parts
- Support
- Service level agreement
- Timeline for achieving system goals (for example, new automated system performs as good as or better than old manual system within 1 year of installation)

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Thank you for your attention

Questions ?

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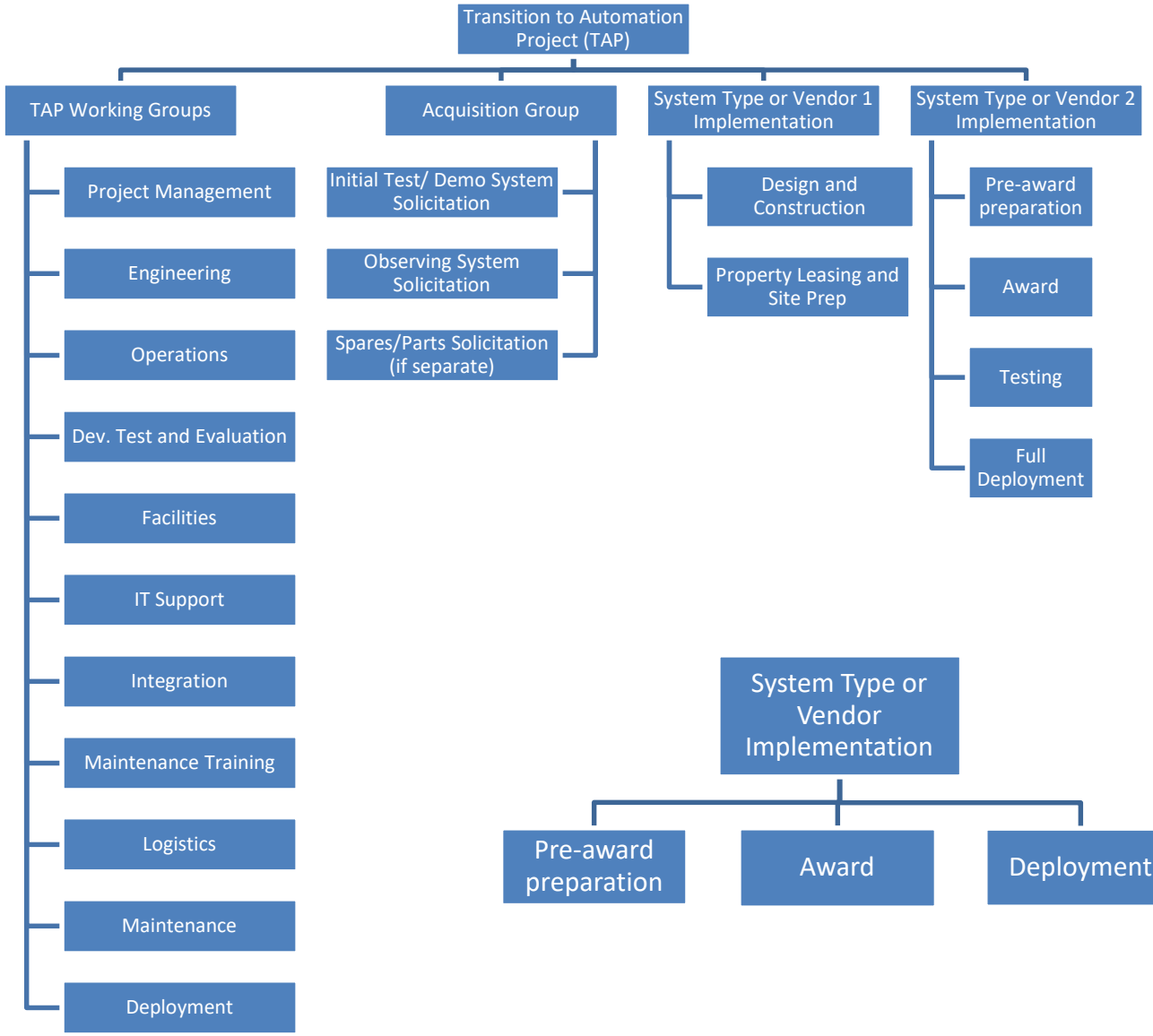
What project organization suits you?



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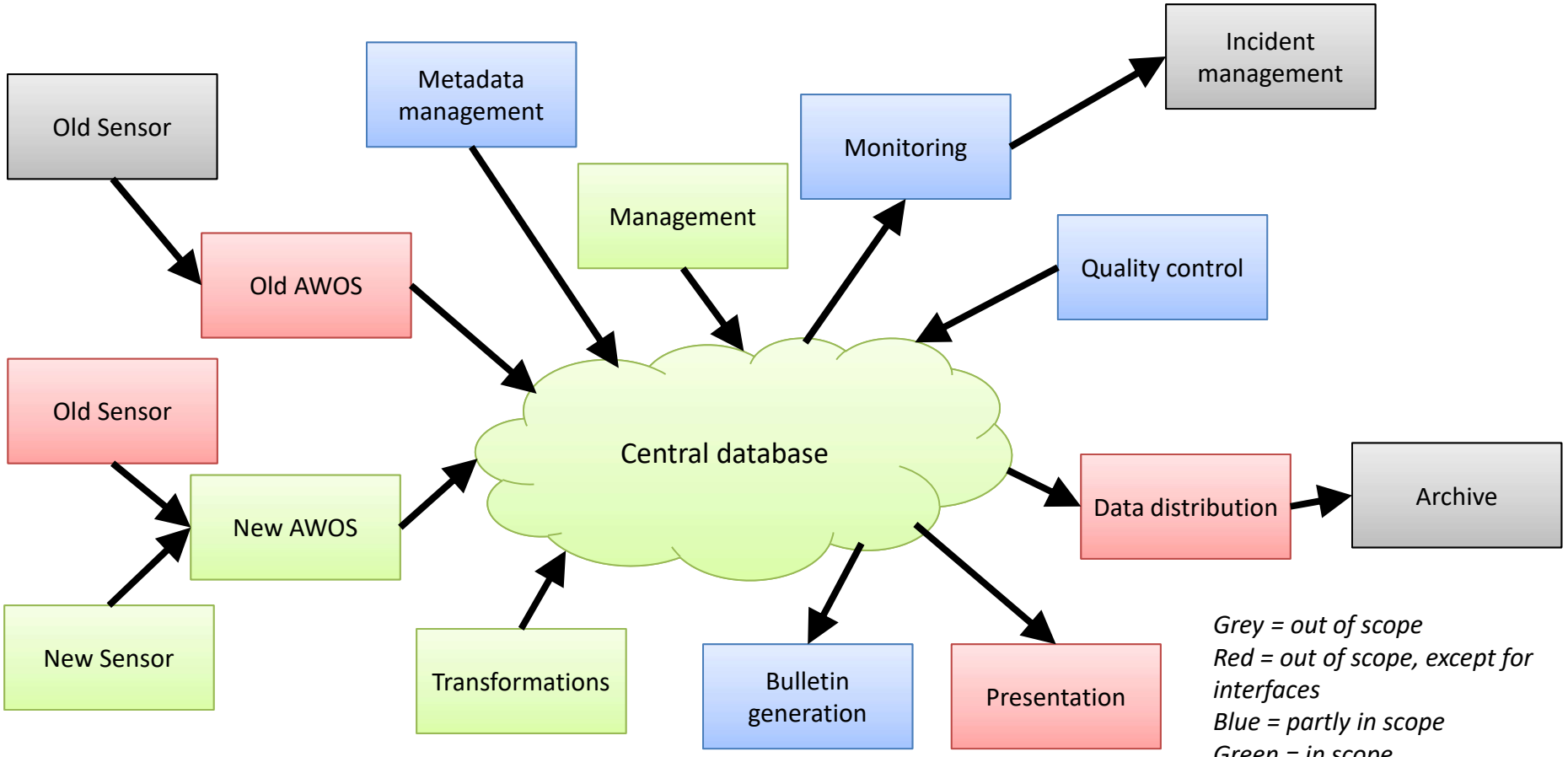
What scope are you considering?



Grey = out of scope
Red = out of scope, except for interfaces
Blue = partly in scope
Green = in scope

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