

A Cost Model for Area Oriented Approach

Session C Communication, Legal and Economical Aspects

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Why a cost Model ?

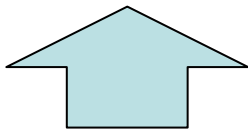
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Facts

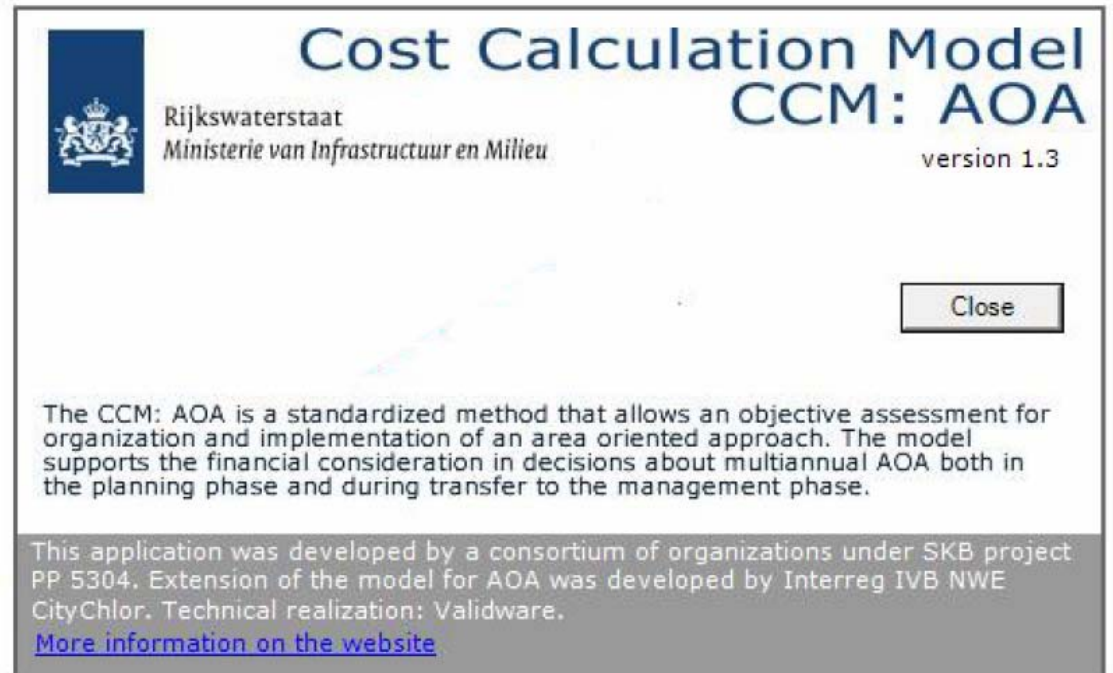
Cost Model

- PC model
- English / Dutch (multilingual output)
- Free download (<http://www.citychlor.eu>)
- Generic and flexible cost calculation model for of long term remediation projects
- Import / export of calculations and standardized costs
- Analyses and optimization



Generic structure of AOA cost items

- Customize for individual sites
- Short / extended version



Cost Calculation Model
CCM: AOA
version 1.3

Rijkswaterstaat
Ministerie van Infrastructuur en Milieu

Close

The CCM: AOA is a standardized method that allows an objective assessment for organization and implementation of an area oriented approach. The model supports the financial consideration in decisions about multiannual AOA both in the planning phase and during transfer to the management phase.

This application was developed by a consortium of organizations under SKB project PP 5304. Extension of the model for AOA was developed by Interreg IVB NWE CityChlor. Technical realization: Validware.
[More information on the website](#)

Facts

Cost Calculation Model: Area Oriented Approach, version 2.0

File management Indicators Calculating NPV Reporting Sensitivity analysis App.language Info

Cost structure

- Cost elements of Area Oriented Approach_long
 - Configuration general
 - Configuration financial
 - Configuration phasing
 - Establish Area Oriented Approach
 - Local policy
 - Coordination by local authorities
 - Administrative coordination
 - Area Oriented Approach-plan
 - Conceptual Site Model
 - Conceptual Site Model
 - Inventory of sites
 - Inventory of sites
 - Development of Area Oriented Approach-plan
 - Development of Area Oriented Approach-plan
 - Monitoring system
 - system layout design
 - system layout design
 - implementation
 - implementation
 - monitoring plan
 - monitoring plan
 - Scope inventory and assessment
 - Scope inventory and assessment
 - Free rider procedure
 - Free rider procedure
 - Financing
 - Financing

Cost list

Cost element	Period / phase	Cost per occurrence	Frequency	Concur
Administrative coordinatic	2013 to ?	€ 50,000.00	once	0.00%
TOTAL COORDINATION				

Cost group

Project estimations file: D:\Jee-EF\Dropbox\citychlor\renabo\File example CCM AOA.r

Cost group name: [redacted]

Remarks: this is an exa

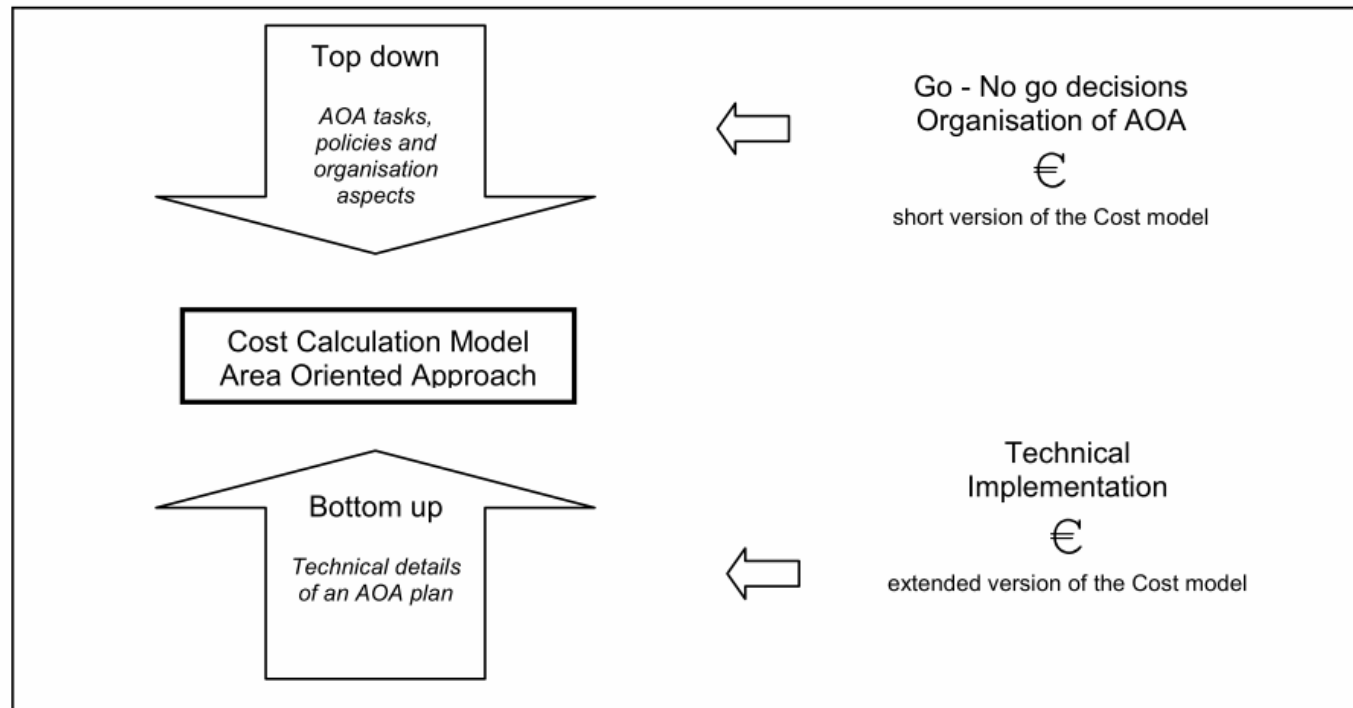
Summary

Name and path: Cost elements of Area Oriented Approach\long > Establish Area Oriented A

Number of ascending costgroup levels: 3

Scope of the model

1. Tool for feasibility analyses and development of an AOA
2. Tool for the businesscase and financial negotiation (cost contribution) stakeholders
3. Facilitate and improve cost calculations (e.g. NPV-calculation and repeating activities)
4. Tool for implementation phase (financial planning scheme)



Scope of the model

- Example analyses:
 - NPV factor
 - Frequency factor

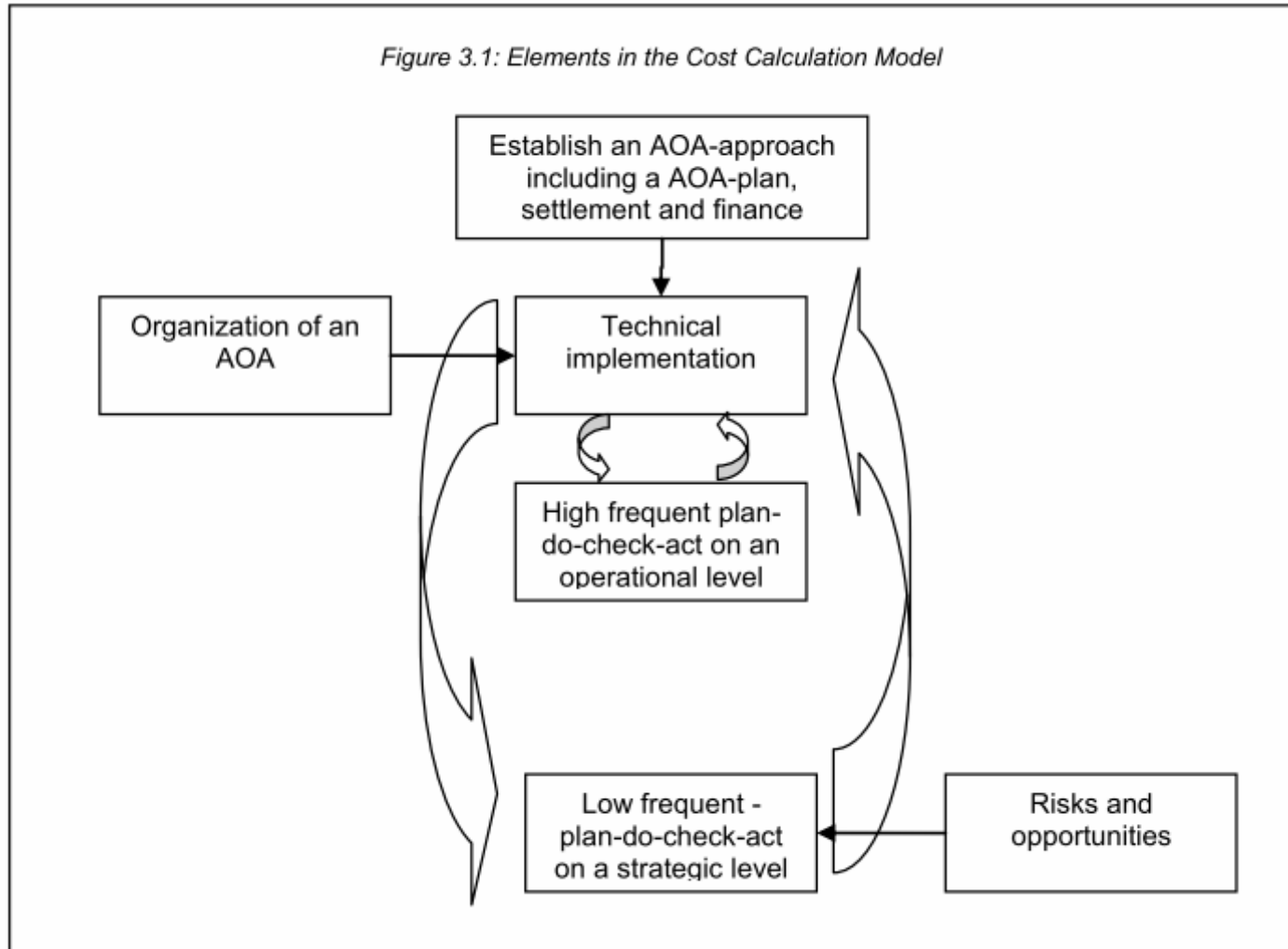
Sensitivity analysis									
Cost element	Period / phase	NPV (€)	NPV (%)	Scenario	NPV (€)	NPV (%)	NPV increase (€)	NPV increase (%)	
monitoring system	Phase 2	€ 71,298.69	- %	<i>Int: -1.0 %pnt</i>	€ 85,479.59	- %	€ 14,181	19.9	
monitoring system	Phase 2	€ 71,298.69	- %	<i>Infl: +1.0 %pnt</i>	€ 82,517.14	- %	€ 11,218	15.7	
monitoring system	Phase 1	€ 11,437.01	- %	<i>Int: -1.0 %pnt</i>	€ 12,808.65	- %	€ 1,372	12.0	
monitoring system	Phase 1	€ 11,437.01	- %	<i>Infl: +1.0 %pnt</i>	€ 12,528.54	- %	€ 1,092	9.5	
monitoring system	Phase 1	€ 11,437.01	- %	<i>Freq: * 1.2</i>	€ 11,437.01	- %	€ 0	0.0	
TOTAL MONITORING SYS'		No/invalid in	- %	<i>Infl: +1.0 %pnt</i>	No/invalid in	- %	€ 0	Infinity	
monitoring system	Phase 2	€ 71,298.69	- %	<i>Freq: * 1.2</i>	€ 71,298.69	- %	€ 0	0.0	
cost element based on Gr	1 to ?	No/invalid in	- %	<i>Freq: * 1.2</i>	No/invalid in	- %	€ 0	Infinity	
TOTAL MONITORING SYS'		No/invalid in	- %	<i>Freq: * 1.2</i>	No/invalid in	- %	€ 0	Infinity	
Σ New aggregation cost		€ 0.00	- %	<i>Freq: * 1.2</i>	€ 0.00	- %	€ 0	Infinity	
Risc Windfall		€ 40,000.00	- %	<i>Freq: * 1.2</i>	€ 40,000.00	- %	€ 0	0.0	
cost element based on Gr	1 to ?	No/invalid in	- %	<i>Int: -1.0 %pnt</i>	No/invalid in	- %	€ 0	Infinity	
Risc Windfall		€ 40,000.00	- %	<i>Int: -1.0 %pnt</i>	€ 40,000.00	- %	€ 0	0.0	

Working method

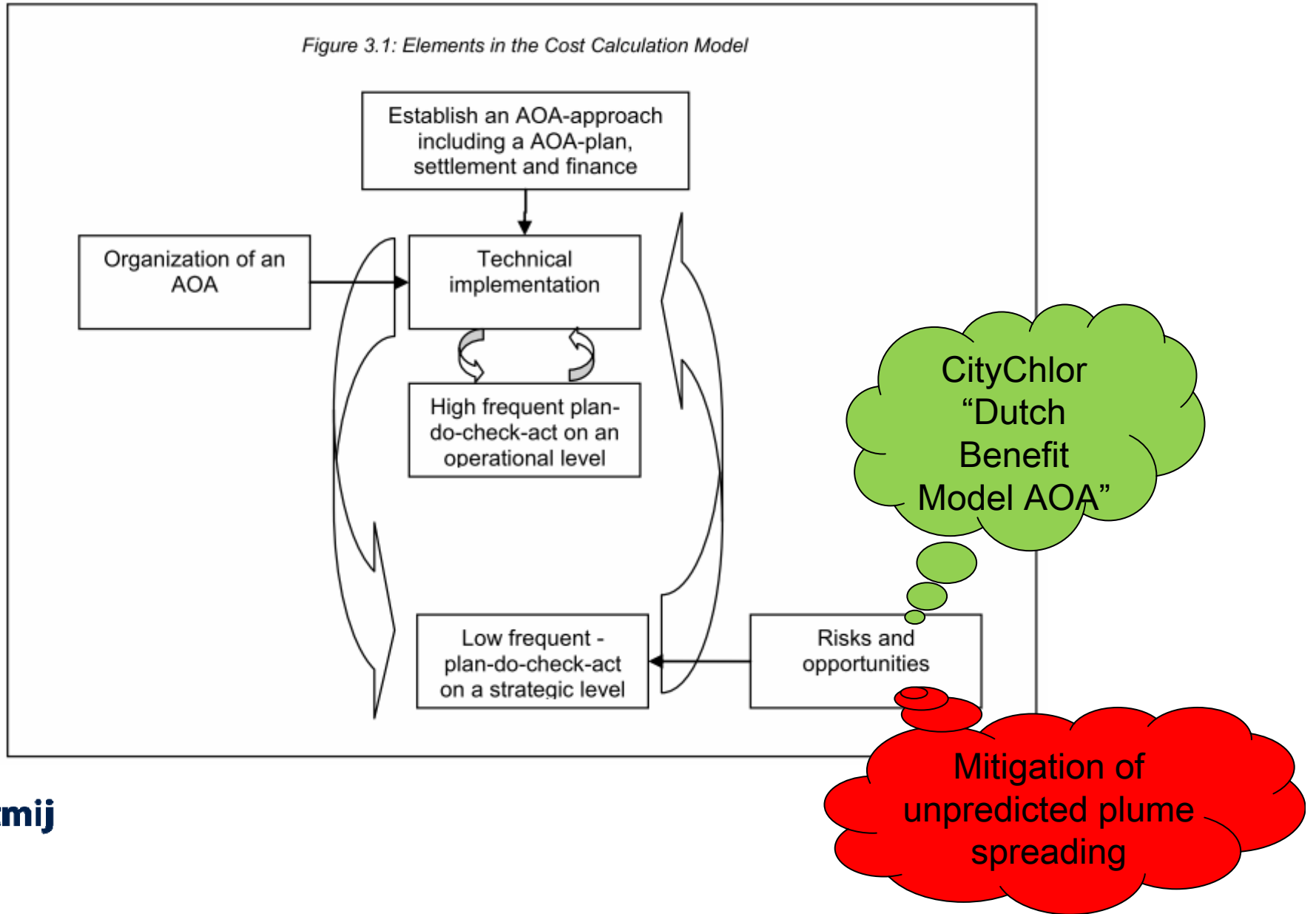
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- Analyses existing cost estimates of 6 AOA frontrunners / interviews
- Blueprint model
- Demonstration and Workshop
- Input from CityChlor partners on Final blueprint
- Internet hosting of the model and manual

Cost structure



Cost structure



Cost structure

AOA-management - Technical aspects

Evaluate and fine-tune Conceptual Site Model

implementation groundwater monitoring

sampling / groundwater measurements

testing / chemical analyses

reporting

project management and environmental support

monitoring system

Data management

Conceptual Site Model

Natural attenuation (NA)

Urban development plans and functional groundwater use

Risk of spreading

Geohydrological model

maintenance

model use

Information management

Technical aspects of Area Oriented Approach

Monitoring Points of Compliance (PoC's) e.g. by sampling/chemical analyses groundwater testing wells and evaluate possible fine-tuning of the Conceptual Site Model

Sampling, testing, analyses

sampling / groundwater measurements

testing / chemical analyses

reporting

Managing the project including quality of environmental aspects

Maintenance, repair, replacement of monitoring system

Data acquisition, check, database maintenance, data services to other parties

Understanding the soil system and its relevance for the Area Oriented Approach

Knowledge of NA-processes (degradation of pollutants) including dynamics of the degradation the bio/geo-chemical reactions and conditions

Monitoring the influences of urban development measures on the sub-soil including the effects on the Conceptual Site Model. E.g. use of groundwater for ATES, groundwater withdrawal in construction pits and sub surface civil engineering constructions

Monitoring and evaluation of groundwater pollutants

Monitoring and evaluation groundwater flow (direction, speed etc.)

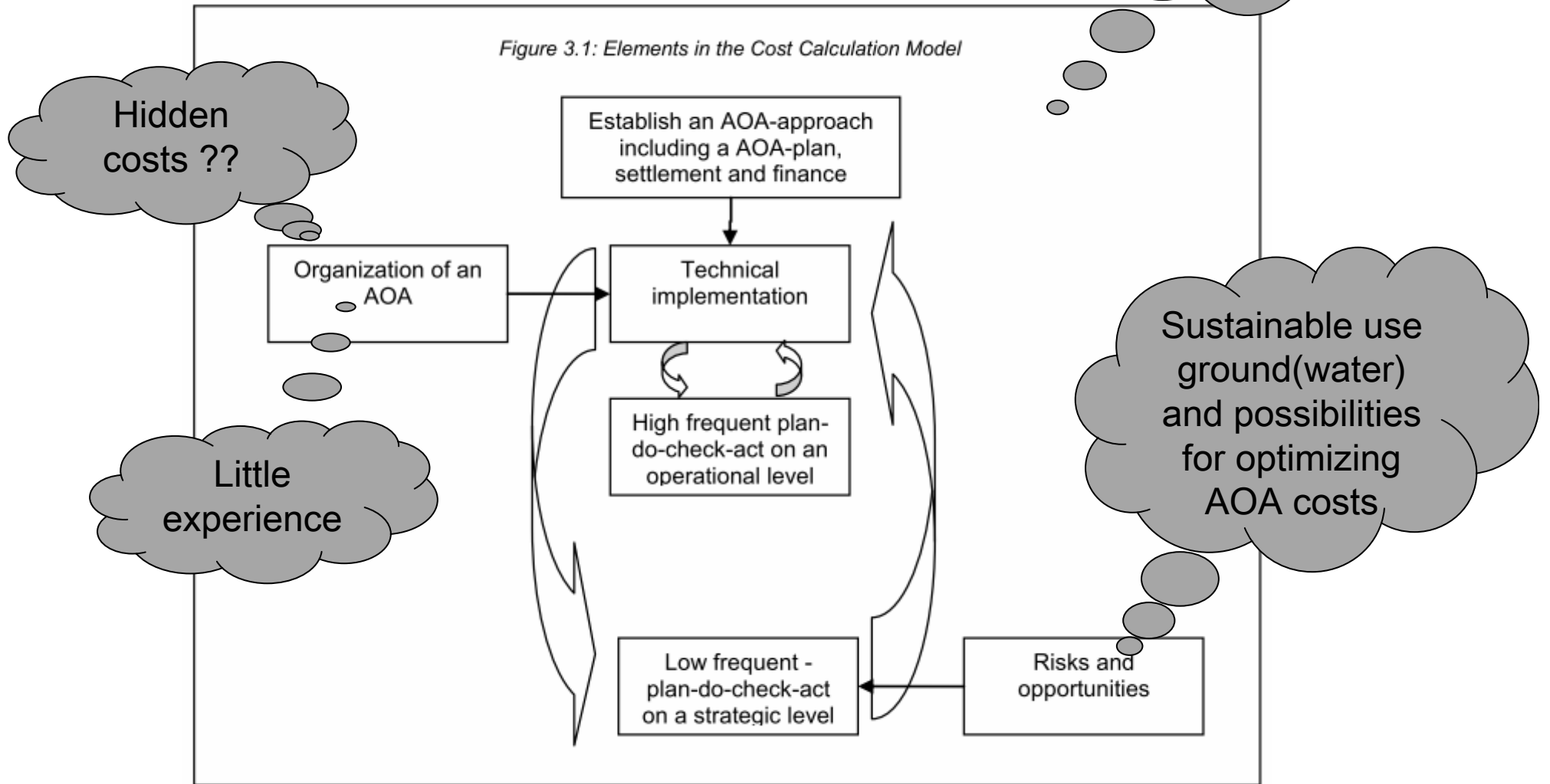
Recalibration of the model, bases on new data.

Costs made by the organization responsible for the implementation of the Area Oriented Approach to make the model available for use by third parties. Note. Fees can be charged for the settlement of these costs.

Management of information related to the Conceptual Site Model and procurement to third parties

example

Discussion



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