

RCA Cluster Digital Map - MAP QUALITY MODEL

REQUIREMENTS

Accepted Quality  (Positional Correctness: 1 sigma)	2D Track position [m]	2D Element position[m]	Height Track Imprec. [m]	Height Elem Imprec. [m]	Probability Incomplete	Probability Outdated	Cost Increase Project/ Interval	Invest
Overall	0,14	0,14	0,1	0,1	0%	0%	40%	-
Budget "Engineering"	0,10	0,09	0,07	0,07	0%	0%	20%	-
Budget "Operation"	0,04	0,05	0,03	0,03	0%	0%	20%	-

SCENARIOS

Phase "Engineering"

Implementation (Mitigation)	2D Pos Track Imprecision [m]	2D Pos Elem Imprec. [m]	Height Track Imprec. [m]	Height Elem. Imprec. [m]	Probability Incomplete	Probability Outdated	Cost Increase Project	Invest
Import	2,83	2,83	1,00	1,00	50%	50%	50%	no
Engineer.	0,00	0,00	0,00	0,00	0%	0%	0%	no
Mount.	0,00	0,61	0,00	0,10	10%	10%	0%	no
Impr.Mount	0,00	0,02	0,00	0,03	0%	0%	10%	low
Constr	0,02	0,00	0,03	0,00	0%	0%	0%	no
Acquisition	0,07	0,08	0,07	0,06	0%	0%	30%	medium
Comp/Pub	0,00	0,00	0,00	0,00	0%	0%	0%	low

Engineering Scenarios								
Accepted contribution	0,10	0,09	0,07	0,07	0%	0%	20%	-
ES0: Import+Engineer.+Mount.+Comp/Pub	2,83	3,44	1,00	1,10	60%	60%	50%	no
ES1: Import+Engineer.+Mount.+Acquisition+Comp/P	0,07	0,08	0,07	0,06	0%	0%	55%	medium
ES2: Acquisition+Engineer.+Impr.Mount+Comp/Pub	0,09	0,10	0,09	0,09	0%	0%	40%	high
ES3: Engineer.+Constr+Impr.Mount+Comp/Pub	0,02	0,02	0,03	0,03	0%	0%	10%	low

Phase "Operation"

Implementation (Mitigation)	2D Pos Track Imprec. [m]	2D Pos Elem Imprec. [m]	Height Track Imprec. [m]	Height Elem. Imprec. [m]	Probability Incomplete	Probability Outdated	Cost Increase Interval	Invest
Standard Maintenance	0,04	0,85	0,03	0,03	10%	10%	0%	no
Standard Track + Impr. Elem. Maint.	0,04	0,04	0,03	0,03	0%	0%	20%	medium
Improved Track + Impr. Elem Maint.	0,02	0,04	0,02	0,03	0%	0%	80%	very high
Continuous Acquisition	0,06	0,07	0,05	0,05	10%	10%	80%	high

Operation Scenarios								
Accepted contribution	0,04	0,05	0,03	0,03	0%	0%	20%	-
OS0: Standard Maintenance	0,04	0,85	0,03	0,03	10%	10%	0%	no
OS1: Standard Track + Impr. Elem. Maint.	0,04	0,04	0,03	0,03	0%	0%	20%	medium
OS1: Improved Track + Impr. Elem Maint.	0,02	0,04	0,02	0,03	0%	0%	80%	very high
OS3: Continuous Acquisition	0,06	0,07	0,05	0,05	10%	10%	80%	high

EVALUATION OF SCENARIOS

Phase "Engineering"

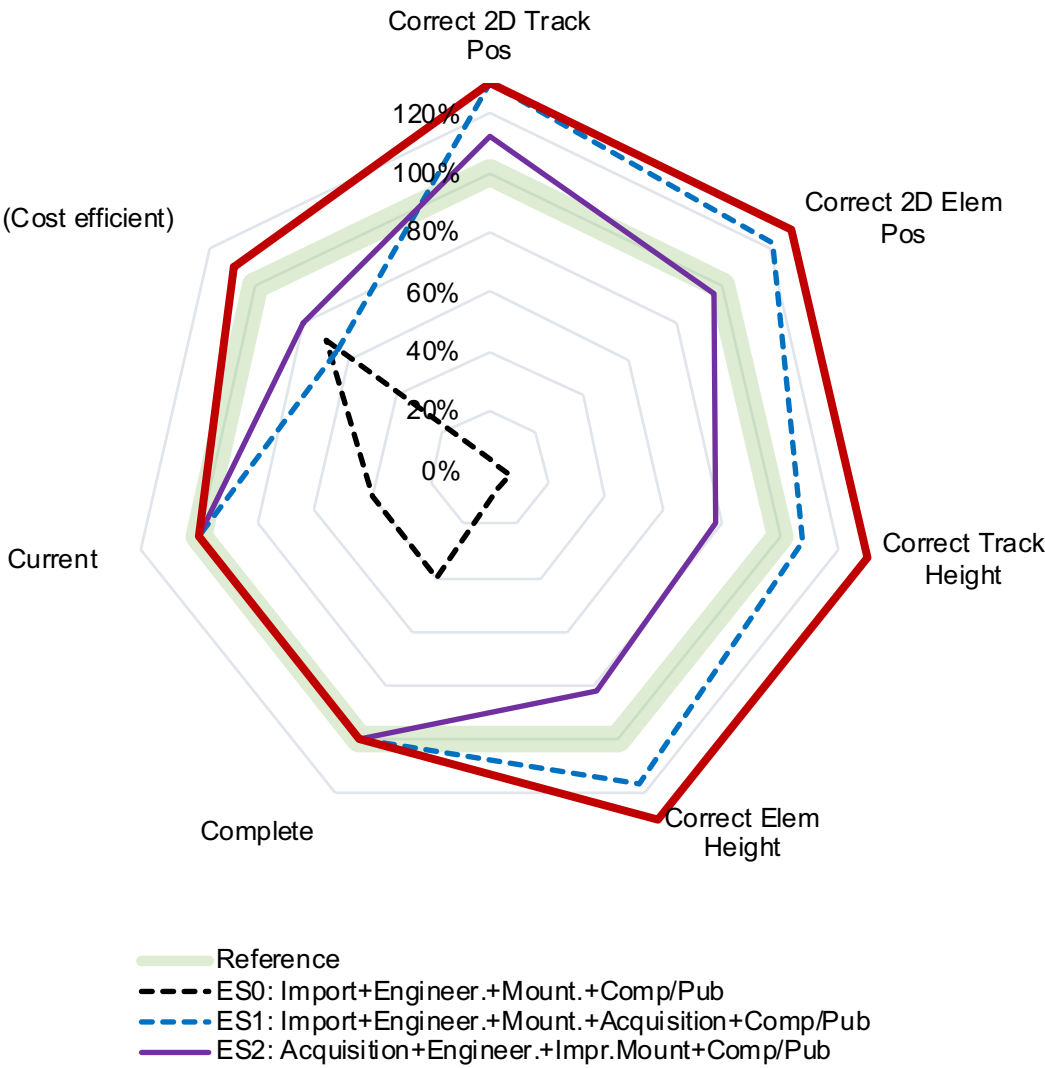
Evaluation Engineering Scenarios	Correct 2D Track Pos	Correct 2D Elem Pos	Correct Track Height	Correct Elem Height	Complete	Current	(Cost efficient)	Invest	Acceptable
Reference	100%	100%	100%	100%	100%	100%	100%	-	-
ES0: Import+Engineer.+Mount.+Comp/Pub	4%	3%	7%	6%	40%	40%	70%	no	✗
ES1: Import+Engineer.+Mount.+Acquisition+Comp/f	130%	122%	108%	117%	100%	100%	65%	medium	✓
ES2: Acquisition+Engineer.+Impr.Mount+Comp/Pub	112%	96%	78%	82%	100%	100%	80%	high	✗
ES3: Engineer.+Constr+Impr.Mount+Comp/Pub	130%	130%	130%	130%	100%	100%	110%	low	✓

Phase "Operation"

Evaluation Operation Scenarios	Correct 2D Track Pos	Correct 2D Elem Pos	Correct Track Height	Correct Elem Height	Complete	Current	(Cost efficient)	Invest	Acceptable
Reference	100%	100%	100%	100%	100%	100%	100%	-	-
OS0: Standard Maintenance	120%	5%	100%	100%	90%	90%	120%	no	✗
OS1: Standard Track + Impr. Elem. Maint.	120%	130%	100%	100%	100%	100%	100%	medium	✓
OS1: Improved Track + Impr. Elem Maint.	130%	130%	130%	100%	100%	100%	40%	very high	✓
OS3: Continuous Acquisition	71%	71%	55%	60%	90%	90%	40%	high	✗

## EVALUATION DIAGRAMS

### Engineering scenarios: fulfilment of Map Data quality criteria



### Operation scenarios: fulfilment of Map Data quality criteria

