

ANNEX B

Detailed Consistency Tables mapping Functions and Data Flows of the DSS System Architectures onto Process and Data Flows of the Physical Systems

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1 MAPPING TABLES FOR THE BERLIN DSS

1.1 Function – Process Mapping Table

F	Function / Sub-functions	P	Processes
1	Traffic-data Input from the T(D)MC (hourly)	2	Application Server
1.1	Selection and testing		
1.2	Preparation for the EM-database	1	Input provision through Data Server
1.3	Transfer into the EM-database	2.1	Import Traffic data
2	Model – parameter input from other sources	2	Application Server
2.1	Acquisition of meteorological data (wind directions, wind speed), continual (hourly)	2.2	Import Meteo Data
2.2	Acquisition of population data, built environment data (position of building, height, etc.), cyclical (yearly)	DF31	Import static data
2.3	Acquisition of measurement data (air, noise, background) continual / cyclical	2.3	Import Measurement data
3	Modelling of air pollution	2.4	Pollution Modelling Air
3.1	Modelling of traffic emissions	2.4.1	Modelling of traffic emissions
3.2	Integration of single and area sources	2.4.2	Integration of single and area sources
3.3	Calculation of background pollution	2.4.2	Calculation of background pollution
3.4	Modelling of pollution concentration (dispersion)	2.4.4	Modelling of pollution concentration (dispersion)
3.5	Comparison of modelling results and measurement data	2.4.5	Comparison of modelling results and measurement data
3.6	Forecasts (short / intermediary)	2.4.6	Forecasts (short / intermediary)
4	Modelling of noise level	2.5	Pollution Modelling Noise
4.1	Modelling of noise emissions of traffic	2.5.1	Modelling of noise emissions of traffic
4.2	Modelling of noise level	2.5.2	Modelling of noise level
4.3	Estimation of number of people affected	2.5.3	Estimation of number of people affected
4.4	Estimation of number of apartments affected	2.5.4	Estimation of number of apartments affected
4.5	Comparison of modelling results and measurement data	2.5.5	Comparison of modelling results and measurement data
4.6	Forecasts (short / intermediary)	2.5.6	Forecasts (short / intermediary)
5	Preparation of the results for the user		
5.1	Presentation of the results (maps, statistics, tables, charts)	P3	Mapping Server

F	Function / Sub-functions	P	Processes
5.2	Preparation of data for the user groups (interfaces)	P4	Web Server
		P5	Operator Client
		P6	Internet Client

1.2 Inter-Function / Inter-Process Data Flow Mapping Table

Inter-function Data Flows		Inter-process Data Flows
Context diagram: Interfaces to existing systems		
Static & infrequently updated data and parameters	DF31	Input - Population and population development data, emission related parameters and statistics, air quality models parameters, topography, land-use, road network data
Traffic measurements and forecasts	DF1	Traffic demand management centre provides information on near real time traffic flow, speed, etc. (Observed values for traffic on about 160 selected points of the road network of the City of Berlin and assignment of traffic load on the main street network)
	DF2.1, DF 27.1	Output - traffic dynamic data transferred to data server
Meteorological measurements and forecasts	DF2	Meteorological data (observations and forecast) from the meteo server at the university or at the Deutscher Wetterdienst
	DF2.2, DF 27.2	Output - Meteorological data transferred to data server
Air and noise quality measurement and statistics	DF3	Air and noise quality observed data
	DF2.3, DF 27.3	Output - Air and noise quality data transferred to data server
	DF29, DF30	all data is stored resp. retrieved via the data server to / from the EM database
Top Level Functional Diagram		
<i>Air</i>		
Measured, Modelled and predicted traffic data	DF26.1	Traffic data from T(D)MC
A. Q. & Meteo Measurements & Forecast	DF26.2	Meteorological forecast and measurements
	DF26.31	Air quality and noise observed data
	DF26.32	Observed air quality data for a specific period
Infrequently Updated Data, Fleet & Network	DF26.41	Emissions related parameters and statistics (vehicle emissions factors, fuel characteristics, fleet related parameters...)
	DF26.42	Static and infrequently updated data (land-use, population data, annual diffuse emissions)
	DF26.43	Street characteristics and built environment of streets
Modelled Emissions & Dispersion	DF4.4, DF27.4	Modelled emission traffic related and background emissions Transfer of emission data to data server and database
	DF4.4, DF27.4	Modelled emission traffic related and background dispersion Transfer of dispersion data to data server and database

Inter-function Data Flows		Inter-process Data Flows
Validation & Evaluation Output	DF27.4	Scores and levels of performance
<i>Noise</i>		
Measured, Modelled and predicted traffic data	DF26.1	Traffic data from T(D)MC
Infrequently Updated Data, Network Topography, Built up environment	DF26.41	Emissions related parameters and statistics (vehicle emissions factors, fuel characteristics, fleet related parameters...)
	DF26.42	Static and infrequently updated data (land-use, population data, annual diffuse emissions)
	DF26.43	Street characteristics and built environment of streets
Modelled Noise	DF5.5	Modelled traffic related noise
	DF27.5	Transfer of noise data to data server and database
Validation and Evaluation Output	DF27.5	Scores and levels of performance
<i>Information Flow</i>		
Interface to information flow	DF21, DF22	Modelling results are transferred to the Mapping server where data is processed into maps
	DF23, DF24	Maps are transferred as bitmaps to the application server from where they are displayed to the operator and the users
	DF10	Data input to Web Server where data is processed for the clients
	DF 11, DF12	Transfer of statistics and maps to the client
	DF13, DF14, DF15, DF 16	Users at administration can retrieve additional information, (additional statistics etc.) and can request investigations via an open interface. Requests are transferred via the web server to the application server where requests are handled.
<i>Operator Interface</i>		
Results	DF5	Results o the environmental modelling are transferred into tables, statistics, charts, maps, etc.
	DF6	Results o the environmental modelling are presented to the operator
Specification of actions (scenarios)	DF8	The operator gets access to the application server (operator interface)
	DF7	Operator can control the system and start investigations (scenarios)
Traffic Modelling provided by T(D)MC (outside the HEAVEN DSS)		
Traffic measurement	DF1	Measurement of traffic from approx. 160 detectors on the main road network in Berlin
Traffic modelling	DF1	Evaluation of traffic parameters

Inter-function Data Flows		Inter-process Data Flows	
Traffic forecast	DF1	Are made available for four different time intervals	
Traffic Assignment	DF1	Hourly assignment of traffic to the street network	
Traffic profiles statistics	DF1	Hourly update of O/D matrices	
Functional Diagram: Functional air quality modelling			
<i>Traffic related emission modelling</i>			
traffic loads on links	DF1	transferred from TDMC as dynamic input to the model	
fleet characteristics	DF31	transferred as static data to the data server/database (yearly update)	
Emission parameters	DF31	transferred as static data to the data server / database (yearly update)	
modelled traffic related emissions	inside model	hourly update traffic related emissions	
<i>Dispersion Modelling</i>			
Meteo measurements	DF2	hourly input from the meteo services in Berlin	
Morphology characteristics	DF31	transferred as static data to the data server / database (yearly update)	
Modelled Background pollution	inside model	hourly update of background pollution	
Modelled pollutant concentration	inside	hourly update of pollutant concentration to be validated	
<i>Validation</i>			
Measurements	DF3	hourly reference measurements	
Validated Measurements	inside model		
Air quality modelled output	inside model	hourly update of pollutant concentration to be validated	
Validated Modelled outputs	DF5, DF21, DF9	hourly update of pollutant concentration	
<i>Background emission modelling</i>			
emission databases	DF31	transferred as static data to the data server / database (yearly update)	
emission parameters	DF31	transferred as static data to the data server / database (yearly update)	
<i>Background concentration updating</i>			
air quality measurements	DF3	Hourly air quality measurement	
meteo measurement and forecast	DF2	Hourly meteo data and forecast	
current background estimate	inside model		
Imported pollution	DF3	Hourly air quality measurement from specific measurement points	

Inter-function Data Flows		Inter-process Data Flows	
update background estimate	inside model		
Functional Diagram: Noise Modelling			
<i>Traffic related noise emission modelling</i>			
fleet composition	DF31	transferred as static data to the data server / database (yearly update)	
gradient & road surface	DF31	transferred as static data to the data server / database (yearly update)	
Measured & modelled traffic data	DF1	transferred from TDMC as dynamic input to the environmental models	
noise emission factors	DF31	transferred as static data to the data server / database (yearly update)	
<i>Attenuation modelling</i>			
modelled traffic noise emission	inside model	hourly update of pollutant concentration to be validated	
topography	DF31	transferred as static data to the data server / database (yearly update)	
modelled noise levels	inside model	hourly update of noise to be validated	
<i>Validation</i>			
noise measurement	DF3	hourly reference measurements	
validated noise measurements	inside model		
noise modelled output	inside model	hourly update of pollutant concentration to be validated	
validated noise model output	DF5, DF21, DF9	hourly update of noise	

2 MAPPING TABLES FOR THE LEICESTER DSS

3 MAPPING TABLES FOR THE PARIS DSS

3.1 Function – Process Mapping Table

F	Function / Sub-functions	P	Processes
1.	Interfaces to sources of static & infrequently updated data	1.	Interfaces to sources of static & infrequently updated data
2.	Interfaces to traffic, meteorological, air quality data	2.	Interfaces to traffic, meteorological, air quality data
2.1	Interface to traffic control centre of City of Paris	2.1	Interface to traffic control centre of City of Paris
2.2	Interface to traffic control centre of SIER	2.2	Interface to traffic control centre of SIER
2.3	Interface to meteorological data sources (Météo France)	2.3	Interface to meteorological data sources (Météo France)
2.4	Interfaces to air quality data sources (AIRPARIF and web sites)	2.4	Interfaces to air quality data sources (AIRPARIF and web sites)
	Data Base Access	3.	Data Storage
3.	Traffic modelling	4.	Traffic modelling
3.1	Traffic status modelling	4.1	Traffic status modelling
3.2	Transportation modelling	4.2	Transportation modelling
3.3	Demand management modelling	4.3	Demand management modelling
3.4	Traffic modelled output validation	4.4	Traffic modelled output validation
3.5	Traffic impact evaluation	4.5	Traffic impact evaluation
4.	Air quality modelling	5.	Air quality modelling
4.1	Traffic related emission modelling	5.1	Traffic related emission modelling
4.2	Other sources emission modelling	5.2	Other sources emission modelling
4.3	Regional background concentration dispersion modelling & forecast	5.3	Regional background concentration dispersion modelling & forecast
4.4	Street level dispersion modelling	5.4	Street level dispersion modelling
4.5	Modelled air quality validation	5.5	Modelled air quality validation
4.6	Air quality impact evaluation	5.6	Air quality impact evaluation
5.	Scenario definition	6.	Scenario definition
6.	Interface to information flow	7.	Interface to information flow
7.	DSS operator interface	8.	DSS operator interface

3.2 Inter-Function / Inter-Process Data Flow Mapping Table

Inter-function Data Flows	Inter-process Data Flows	
Top Level Functional Diagram		
Static & infrequently updated data and parameters	DF1	Input – Population data, emission related parameters and statistics, air quality models parameters, topography, land-use, traffic static data
	DF7	Output – Population data, emission related parameters and statistics, air quality models parameters, topography, land-use, traffic static data
Traffic, Meteorological, A. Q. measurements and statistics	DF2	City of Paris TCC traffic data
	DF3	SIER TCC traffic data
	DF4	Meteorological data (observations and forecast)
	DF5	Air quality observed data
	DF6	Air quality large-scale forecast data
	DF8	Observed values for traffic on about 50 selected links of the road network of the City of Paris
	DF9	Observed values for traffic on about 50 selected links of the road network of the IdF region
	DF10	Meteorological measurements for the previous day and forecast for the next 72 hours
	DF11	Air quality measurements delivered by the air quality monitoring network
	DF12	Air quality forecast provided by large-scale models
Measured & Modelled Traffic Data	DF16	“Quasi real-time” traffic measurements over around 100 pinpoint measurements
	DF18	“Quasi real-time” modelled traffic data generated by sub-process P4.1
Network Infrequently Updated Data & Statistics	DF14	Static and infrequently updated data (traffic network, traffic assignments...)
TDMS	DF19.3	Traffic matrices corresponding to the TDMS scenarios
	DF19.5	Evaluation parameters
Validation & Evaluation Output (for Traffic Modelling)	DF19.4	Evaluation parameters for the quality of the traffic modelling
A. Q. & Meteo Measurements & Forecast	DF21.3	Meteorological forecast and measurements
	DF23.1	Air quality observed data and large-scale forecast

Inter-function Data Flows	Inter-process Data Flows	
	DF21.4	Meteorological data for the previous hours
	DF23.2	Observed air quality data for a specific period
	DF21.1	Temperature
	DF21.2	Temperature and insulation
Infrequently Updated Data, Fleet & Network	DF25.1	Emissions related parameters and statistics (vehicle emissions factors as defined by Copert methodology, fuel characteristics, fleet related parameters...)
	DF25.2.1	Static and infrequently updated data (land-use, population data, annual diffuse emissions)
	DF25.2.2	Static and infrequently updated data (stack parameters, annual point sources related emissions)
	DF25.3	Models static parameters
	DF25.4	Street characteristics and built environment of streets
Measured & Modelled Traffic Data	DF24.1	Traffic status estimation for the previous hour
Modelled Emissions & Concentrations	DF30.1.1	Hourly linear traffic related emissions
	DF30.1.2	Hourly gridded traffic related emissions
	DF30.2.1	Annual gridded emissions for diffused sources
	DF30.2.2	Annual gridded emissions for point sources
	DF30.2.3	Hourly gridded emissions for diffused and point sources
	DF30.2.4	Hourly gridded emissions for all sources
	DF31.1	Concentration fields of O3 and NO2 for the previous hours, the days D, D+1, D+2
	DF31.2	Estimated pollutants concentrations along all the traffic network links
Validation & Evaluation Output (for Air Quality Modelling)	DF31.3	Scores and levels of performance
Other sources emission modelling	DF31.4	Differences of pollutant concentrations between both simulations
Scenarios	DF40	Set of information that qualifies the scenario
Specification of Actions		
Results, Diagnostics & Specifications		

Inter-function Data Flows		Inter-process Data Flows
Traffic Monitoring and Forecast Functional Diagram		
Traffic Measurements	DF16.1.1	City of Paris TCC traffic volume and speed measurements
	DF16.1.2	SIER traffic flows and speed measurements
Modelled traffic assignment	DF14.1	Modelled traffic assignments, road network, static link lengths for City of Paris pinpoints links
Current Traffic profiles & Statistics	DF19.1.2	hourly traffic flows and speed measurements on around 100 pinpoints
	DF19.1.3	Hourly traffic status estimate on the whole reference network in terms of traffic volumes and speeds
Traffic / Transport Network data	DF14.2	Modelled traffic assignment, road network
Transportation Modelled Output Updated traffic assignment	DF19.2	Updated modelled traffic assignment
Traffic Network Data	DF14.3.1	Road network
Traffic Strategy Specifications	DF14.3.2	Parameters for traffic modelling TDMS specifications
Traffic Measurements (for validation)	DF16.2	Traffic measurements corresponding to the previous hour
Traffic Related Model Output	DF18.2	Traffic status estimate for the previous hour
Validated Model Output	DF19.4	Evaluation parameters for the quality of the traffic modelling
Medium Traffic Assignment	DF14.5	Traffic assignment for typical days
Traffic Related Model Output (for impact)	DF18.3	Traffic status estimates corresponding to the day where particular TDMS measures are in force, recorded output of traffic status modelling
Traffic performance of TDMS	DF19.5.	Evaluation parameters

Inter-function Data Flows		Inter-process Data Flows
Air Quality Modelling Functional Diagram		
Modelled traffic data	DF24.1	Traffic status estimation for the previous hour
Temperature measurements	DF21.1	Temperature
Fleet characteristics	DF25.1.1	Fleet related parameters
Emission parameters	DF25.1.2	Emissions related parameters and statistics (vehicle emissions factors as defined by Copert methodology, fuel characteristics...)
Modelled Traffic related Emissions	DF30.1.1	Hourly linear traffic related emissions
	DF30.1.2	Hourly gridded traffic related emissions
Temperature measurements	DF21.2	Temperature and insolation rate
Sources and land-use characteristics	DF25.2.1	Static and infrequently updated data (land-use, population data, annual diffuse emissions)
Other fleet characteristics		
Emission parameters	DF25.2.2	Static and infrequently updated data (stack parameters, annual point sources related emissions)
Other sources modelled emissions	DF30.2.1	Annual gridded emissions for diffuse sources
	DF30.2.3	Annual gridded emissions for point sources
	DF30.2.3	Hourly gridded emissions for diffuse and point sources
	DF30.2.4	Hourly gridded emissions for all sources
Modelled traffic related emissions	DF27.2	Forecasted gridded emissions for the day D, D+1 and D+2 and estimated emissions for the previous hours
Air quality measurements	DF23.1	Air quality observed data and large-scale forecast
Meteorological measurements and forecast	DF21.3	Meteorological forecast and measurements
Models parameters	DF25.3	Models static parameters
Imported pollution	DF23.1	Air quality observed data and large-scale forecast
Modelled and forecast regional background pollutants concentration	DF31.1	Concentration fields of O3 and NO2 for the previous hours, the days D, D+1, D+2
Modelled traffic related emissions (for the street level dispersion modelling)	DF27.3	Linear traffic related emissions for the previous hours
Models parameters		
Meteorological measurements	DF21.4	Meteorological data for the previous hours

Inter-function Data Flows		Inter-process Data Flows	
Morphology characteristics	DF25.4	Street characteristics and built environment of streets	
Measured / Modelled background	DF29.1	Background estimated concentrations of NO2 and O3 for the previous hours coming from the process P5.3	
Modelled street level pollutants concentration	DF31.2	Estimated pollutants concentrations along all the traffic network links	
Validated A.Q. measurements	DF23.2	Observed air quality for a specific period	
Air Quality Modelled output	DF29.2	Estimated pollutants concentrations for the same period	
Validated A.Q. modelled Output	DF31.3	Scores and levels of performance	
Air quality modelled output (for the A.Q. impact evaluation)	DF29.4	Air quality modelled output based on the scenario	
	DF29.3	Air quality modelled output for a “normal” situation	
A.Q. performance of TDMS	DF31.4	Differences of pollutant concentrations between both simulations	

4 MAPPING TABLES FOR THE PRAGUE DSS

4.1 Function – Process Mapping Table

F	Function / Sub-functions	P	Processes
1.	Traffic Monitoring		
1.1	Time series re-formatting for traffic loop data	1.1	SBH gateway
1.3	SBH loop data monitoring	1.1	SBH gateway
1.4	SBH data transfer and validation	1.2	DSS-SBH interface
1.5	Annual traffic load survey	2.2	Traffic survey
1.8	Road type description	2.1	Road network import
1.9	Road segment description	2.1	Road network import
1.10	Traffic scenarios building	7	Scenario management
1.11	Traffic scenarios simulation	8	Scenario simulation
2.	Long-term Traffic Load Modelling		
2.1	Annual average traffic load forecast	2.3	Off-line traffic modelling
2.2	Traffic sources description	2.3.1	O/D matrix building
2.3	Traffic demands description	2.3.1	O/D matrix building
2.4	Traffic sources and demand matrix calculation	2.3.1	O/D matrix building
3.	Environmental Monitoring		
3.3	Meteo Mast monitoring	3.4	Mast interface
3.4	Mast data transfer and validation	3.4	Mast interface
3.5	Mast data reformatting	3.4	Mast interface
3.6	Automated meteo monitoring	3.2	Meteo interface
3.7	Meteo data transfer and validation	3.2	Meteo interface
3.8	Meteo data reformatting	3.2	Meteo interface
3.9	AIM monitoring	3.1	AIM interface
3.10	AIM data transfer and validation	3.1	AIM interface
3.11	AIM data reformatting	3.1	AIM interface
3.12	Meteo forecast monitoring	3.3	ALADIN interface
3.13	Meteo forecast data transfer and validation	3.3	ALADIN interface
3.14	Meteo forecast data reformatting	3.3	ALADIN interface
4.	Dispersion and Emission Modelling		
4.2	Area sources description	4.2	REZZO import
4.3	Point sources description	4.2	REZZO import

F	Function / Sub-functions	P	Processes
4.4	Emission factor preparation	4.3	Model parameters import
4.5	Surface description	4.1	Surface data import
4.6	Air pollution dispersion modelling	5.1	Time series module
		5.2	Time series data presentation
		5.3	Dispersion modelling procedure
5.	DSS Data Interface		
5.1	Input data validation	6	Human interface
5.2	Result assessment	6	Human interface
5.3	Internet model interface	6	Human interface
5.4	Advanced report preparation	6	Human interface
5.5	Public information notice providing	6	Human interface
5.6	WWW info-page	6	Human interface

4.2 Inter-Function / Inter-Process Data Flow Mapping Table

Inter-function Data Flows	Inter-process Data Flows	
A.Q. & Meteo Measurements & Forecast	DF10.1	DF10.1 AIM data in Airviro format
	DF10.2	meteo data in Airviro format
	DF10.3	mast data in Airviro format
	DF10.4	ALADIN data in Airviro format
Infrequently Updated Data, Fleet & Network	DF14	Static environmental data in Airviro format
Modelled Emissions & Concentrations	DF17	Dispersion results data
Validation & Evaluation Output	DF2	Scenario simulation results
Measured, Modelled and Predicted Traffic Data	DF25	Measured on-line traffic data
Network, Infrequently Updated Data & Statistics	DF5.1	Source road network description data
	DF5.2	Average yearly traffic volumes
	DF26	Source demography and land-use statistics
	DF5.3	Road network description data
	DF5.4	Annual traffic volumes
	DF6	Road network data with assigned traffic volumes
TDMS	DF22	Scenario configuration
Validation & Evaluation Output	DF24	Scenario simulation results
Static and Infrequently Updated data & parameters	DF13	Static environmental data in source format
Traffic, Meteorological, Environment Measurements & Statistics	DF8.1	AIM data from monitoring network
	DF8.2	meteo data from monitoring network
	DF8.3	mast data from meteorological mast
	DF9	meteo forecast data from ALADIN model
Specification of Actions	DF20	Scenario description
Result, Diagnostics & Specifications	DF22	Scenario configuration
Scenarios	DF21	Scenario definition

5 MAPPING TABLES FOR THE ROME DSS

5.1 Function – Process Mapping Table

F	Function / Sub-functions	P	Processes
1.	Network Traffic Monitoring and Forecast	1.	Traffic modelling
1.1	Network Status Representation	1.1	Network Observation
1.1.1	UTC Interface	6	Traffic front/end
		6.1	UTOPIA gateway
		6.2	DSS-UTOPIA interface
		6.3	DSS-MSS interface
1.1.2	Data Validation	1.1	Network Observation
1.1.3	Traffic Status Modelling	1.1	Network Observation
1.1.4	Traffic Data archiving	1.1	Network Observation
1.2	O/D Matrix Estimation	1.2.1	O/D Estimation
1.3	Traffic assignment	1.2.2	Traffic assignment
2.	Emission Modelling	2.1	Emissions modelling
3.	Dispersion Modelling	2.2	Concentration modelling
4.	Air Pollution Models Tuning	2.1	Emissions modelling
		2.2	Concentration modelling
5.	Scenarios Building	3	Scenario management
		4	Scenario simulation
		7	Meteo front/end
		8	Static data import
6.	Operator Interface	5	Human machine interface
6.1	Information Representation and Management	5.1	Heaven data backup
		5.2	Alarms list management
		5.2.5	Alarms data MMI
		5.3	System logs management
		5.3.4	Events data merging
		5.4	On-line Operator Interface
		5.4.6	On-line interface data preparation
		5.4.7	Internal configuration process
		5.5	Off-line operator interface

F	Function / Sub-functions	P	Processes
		5.6	Operator interface configuration
6.1.1	Information Logon Operation		
6.1.2	Information Logoff Operation	5.3.2	Information logoff operation
6.1.3	Alarms Visualisation	5.2.1	Alarms visualisation
6.1.4	Events Visualisation	5.2.2	Event visualisation
6.1.5	System Log Visualisation	5.3.1	System log visualisation
6.1.6	Map Scaling Setting	5.6	Operator interface configuration
6.1.7	Monitored Measures Selection	5.4.1	Monitored measures selection
		5.5	Off-line operator interface
6.1.8	Estimated Measures Selection	5.4.2	Estimated measures selection
		5.5	Off-line operator interface
6.1.9	Map Search Option	5.4.3	Map search options
		5.6	Operator interface configuration
6.1.10	Colour Codes Configuration	5.6	Operator interface configuration
6.1.11	Abnormal Events Insertion	5.2.3	Abnormal events insertion
6.1.12	Map Layer Setting Options	5.6	Operator interface configuration
6.1.13	Reference Network Arcs on-line Information Visualisation	5.4.4	Reference network arcs on-line information visualisation
6.1.14	Operator Intervention Options Activation	5.4.5	Operator intervention options activation
6.1.15	Warning from Operator Intervention	5.2.4	Warning from operator intervention
6.2	Operator Intervention	5.4	On-line Operator Interface
		5.5	Off-line operator interface
6.2.1	Creation of a New Scenario	3	Scenario management
6.2.2	Scenario Updating and Refinement	3	Scenario management
6.2.3	Scenario Deletion	3	Scenario management
6.2.4	Scenario Simulation	4	Scenario simulation
6.3	Scenario Result Evaluation	5.5	Off-line operator interface
6.3.1	Representation of Results from Scenario Simulation	5.5	Off-line operator interface

5.2 Inter-Function / Inter-Process Data Flow Mapping Table

Inter-function Data Flows	Inter-process Data Flows	
A.Q. & Meteo Measurements & Forecast	DF10.1	DF10.1 AIM data in Airviro format
	DF10.2	meteo data in Airviro format
	DF10.3	mast data in Airviro format
	DF10.4	ALADIN data in Airviro format
Infrequently Updated Data, Fleet & Network	DF14	Static environmental data in Airviro format
Modelled Emissions & Concentrations	DF17	Dispersion results data
Validation & Evaluation Output	DF2	Scenario simulation results
Measured, Modelled and Predicted Traffic Data	DF25	Measured on-line traffic data
Network, Infrequently Updated Data & Statistics	DF5.1	Source road network description data
	DF5.2	Average yearly traffic volumes
	DF26	Source demography and land-use statistics
	DF5.3	Road network description data
	DF5.4	Annual traffic volumes
	DF6	Road network data with assigned traffic volumes
TDMS	DF22	Scenario configuration
Validation & Evaluation Output	DF24	Scenario simulation results
Static and Infrequently Updated data & parameters	DF13	Static environmental data in source format
Traffic, Meteorological, Environment Measurements & Statistics	DF8.1	AIM data from monitoring network
	DF8.2	meteo data from monitoring network
	DF8.3	mast data from meteorological mast
	DF9	meteo forecast data from ALADIN model
Specification of Actions	DF20	Scenario description
Result, Diagnostics & Specifications	DF22	Scenario configuration
Scenarios	DF21	Scenario definition

6 MAPPING TABLES FOR THE ROTTERDAM DSS

6.1 Function – Process Mapping Table

F	Function / Sub-functions	P	Processes
1	EIP/TEC		
1.1	interface motorway data (Monica)	3	RT traffic data
1.2	interface corridor data	3	RT traffic data
1.3	interface real-time meteo	4	RT meteo data
1.4	interface meteo forecast	5	forecast meteo data
1.5	historic traffic	101	data preparation
1.6	forecast traffic	101	data preparation
1.7	static traffic	101	data preparation
1.8	generate input files for pollution model	101	data preparation
1.9	generate files for GIS	-	
-		1	import static (network-)data
-		2	historic data
-		6	RT background concentration
2	Pollution model	111	vehicle emission
		112	meteo preprocessing
		120	concentration model
		121	result collection
3	GIS		
3.1	input data from EIP/TEC	301	map generation
3.2	input results from pollution model	-	
3.3	Heaven database	-	
3.4	output to web-site	301	map generation
		302	map distribution
3.5	interface key-users	201	user interface
3.6	interface system manager	201	user interface
4	PROMIL	150	PROMIL
5	web-site	311	homepage

6.2 Inter-Function / Inter-Process Data Flow Mapping Table

Inter-function Data Flows		Inter-process Data Flows	
static & infrequently updated data and parameters	DF1	input – static network data, parameters, etc, stored in Heaven database (DS1)	
static & infrequently updated data and parameters	DF2	input – (static) historic data for traffic, meteo and background concentration	
Traffic, Meteorological, A.Q. measurements and statistics	DF3	input – realtime traffic data from Rotterdam dS+V	
	DF4	input – realtime meteo data from KNMI	
	DF5	input – forecasted meteo from KNMI	
	DF6	input – realtime background concentration from DCMR	
Data for pollution modelling	DF100	required data for pollution modelling: network, traffic, meteo, background concentrations	
	DF101	static network & vehicle data for emission modelling	
	DF103	static network data for meteo preprocessing	
	DF103	static network data for meteo preprocessing	
	DF104	meteo data (historic / realtime / forecast / scenario)	
	DF105	static network data for concentration modelling	
	DF106	background concentration (historic / realtime / forecast / scenario)	
	DF107	static network data: receptors	
traffic emissions	DF111	traffic emissions per road segment	
meteo preprocessing	DF112	results from meteo preprocessing	
pollution concentrations	DF121	results from concentration modelling: calculated concentration per receptor	
	DF122	results from concentration modelling: loglist	
	DF123	results from concentration modelling	
data for PROMIL	DF151	data for PROMIL model: network (static), traffic (historic / realtime / forecast / scenario)	
	DF152	data for concentration modelling: selected traffic+meteo+background concentrations	
	DF153	input – data from internal database for concentration modelling	
	DF154	output – data to internal database	

Inter-function Data Flows	Inter-process Data Flows	
data to/from key-users interface	DF201	input – user selections and input for concentration modelling
	DF202	output – data (static network, traffic, meteo, background concentration)
	DF204	output – results
data to website for public	DF301	output – static network data for map generation
	DF302	output – results
	DF303	output – graphical results (maps containing concentrations)
	DF304	output – homepage