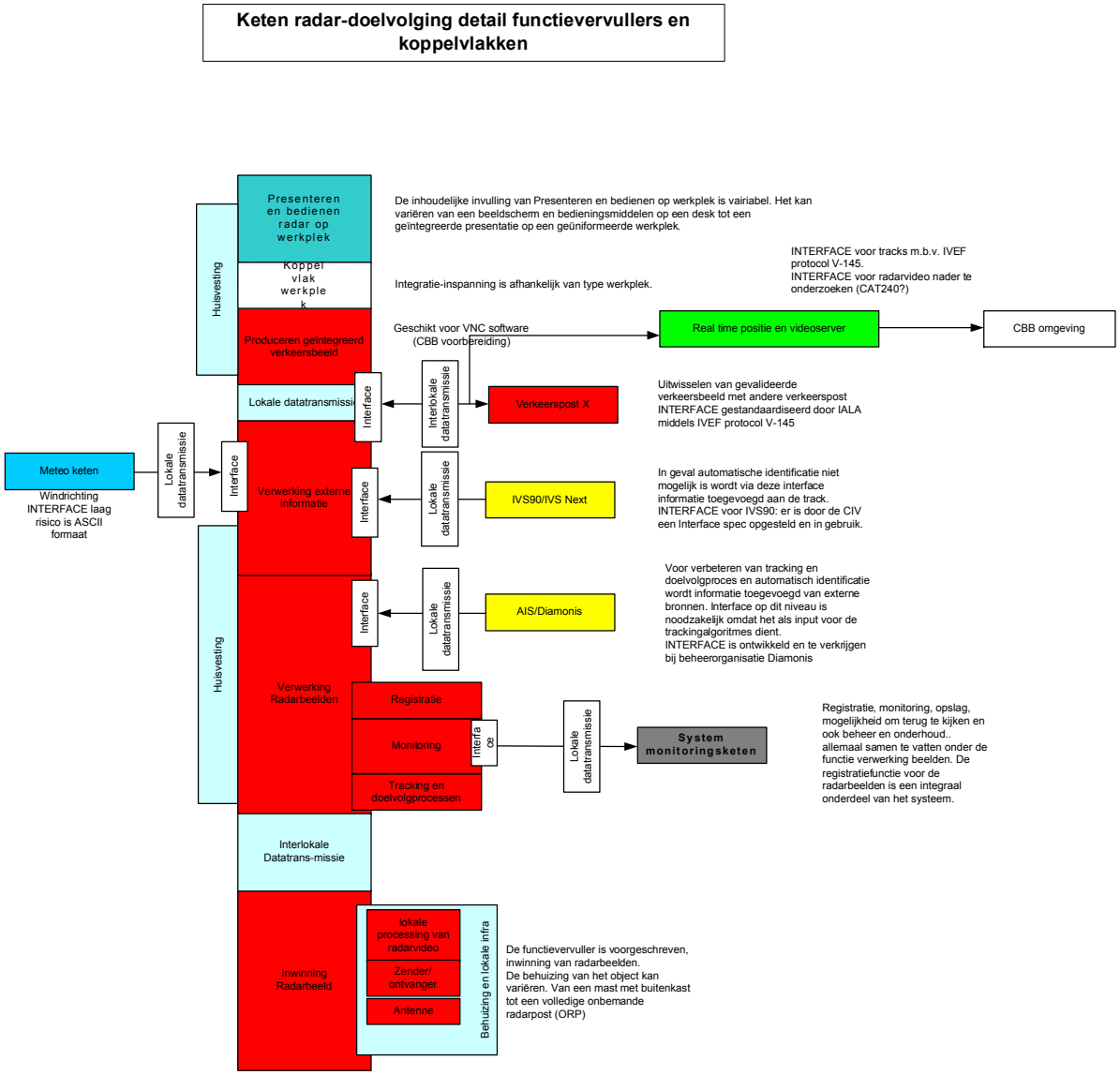
APPENDIX 6.2 Application components

Radar will be coupled with IVS90 and its successors. At least four coupling options must be realized (in order to be able to respond to expected developments in the field of CBB):

- Retrieve voyage-cargo data from IVS90
- Retrieve voyage-cargo data from IVS Next service RLA
- Send out trigger to services in order to have the service perform an action using the enclosed vessel-ID (such as displaying vessel details in a window elsewhere on the "glass").
- Receiving a trigger from services in order to perform an action using the enclosed vessel-ID (such as highlighting a radar target).

Radar will be coupled with AIS via RAF.

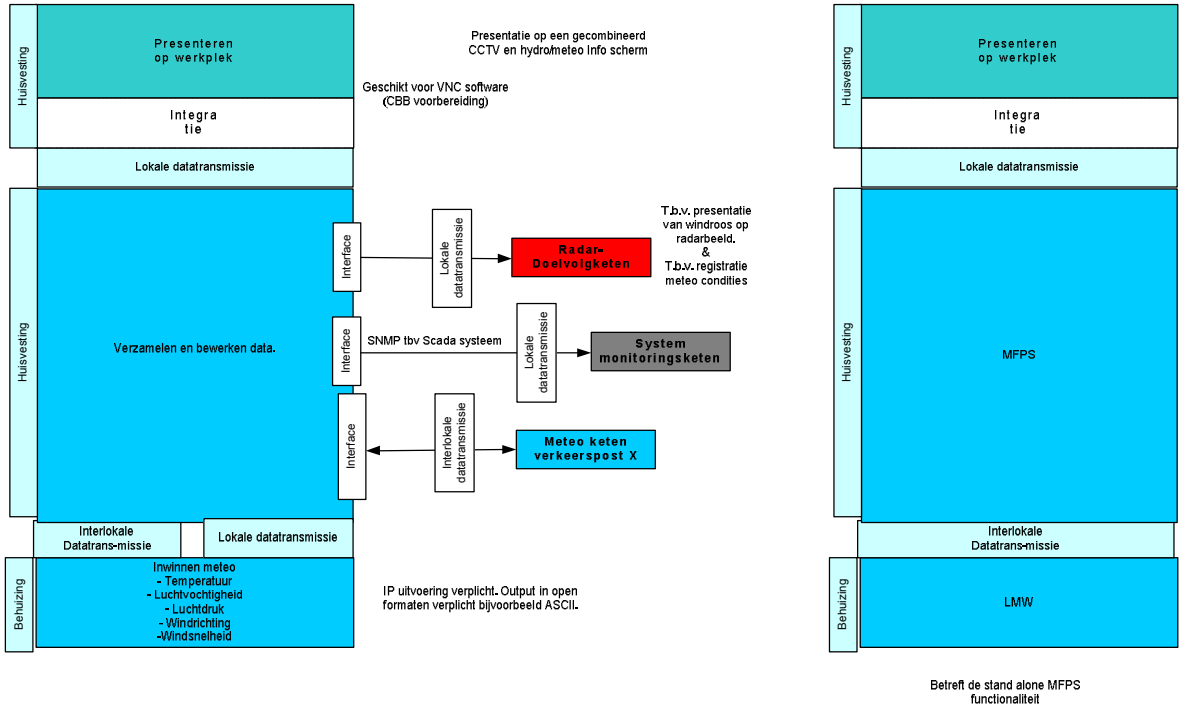
Data-exchange interfaces and components object tracking chain



Data-exchange interfaces and components meteo chain

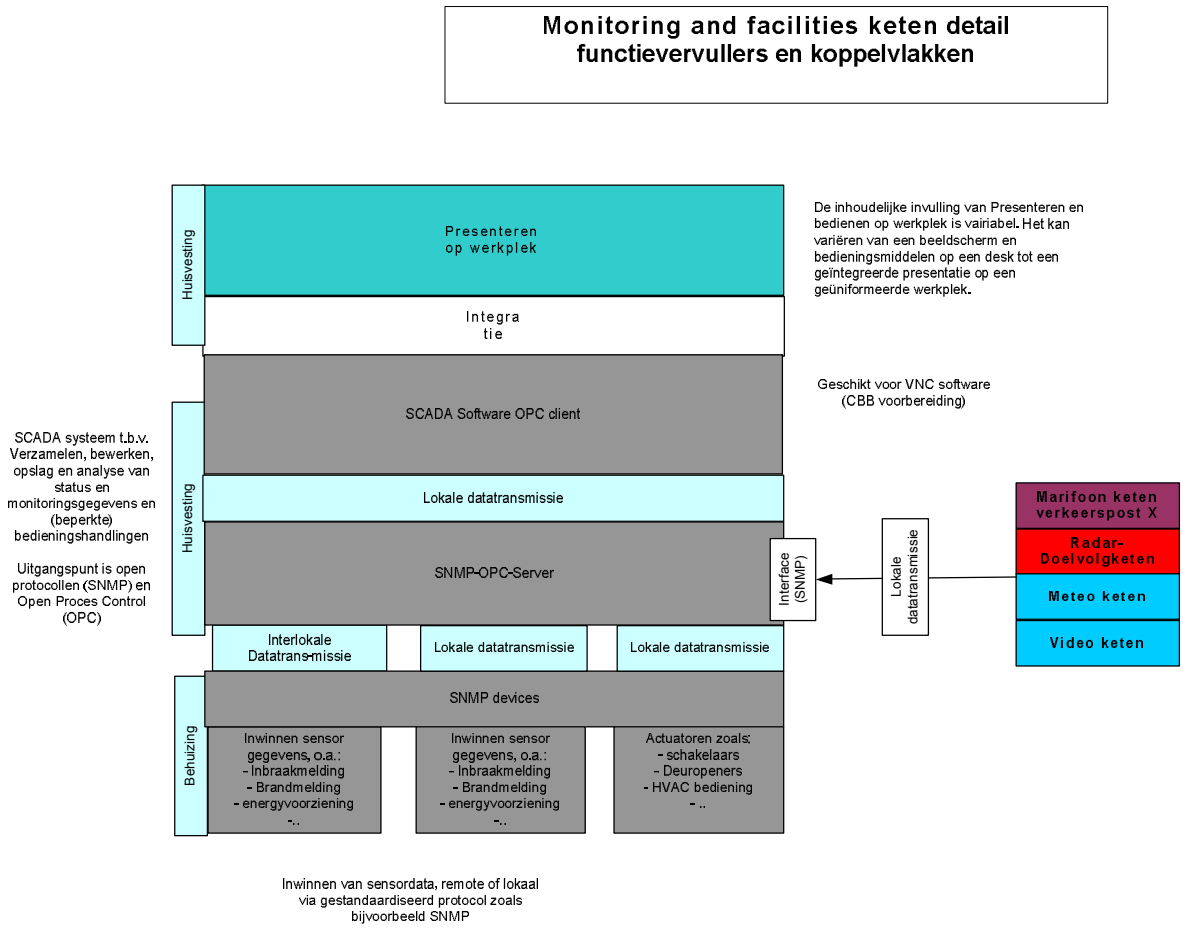
	Keten radar-doelvolging detail functievervullers en koppelvlakken	Chain radar object tracking detail function performers and data-exchange interfaces
	Huisvesting	Housing
	Presenteren en bedienen radar op Werkplek	Presenting and controlling radar at Workstation
	De inhoudelijke invulling van Presenteren en bedienen op werkplek is variabel. Het kan variëren van een beeldscherm en bedieningsmiddelen op een desk tot een geïntegreerde presentatie op een geüniformeerde werkplek.	The substantive elaboration of Presenting and controlling at Workstation is variable. This may range from a monitor and control tools on a desk to an integrated presentation on a uniformed workstation.
	Koppelvlak werkplek	Data-exchange interface workstation
	Integratie-inspanning is afhankelijk van type werkplek.	Integration effort is dependent on type of workstation.
	INTERFACE voor tracks m.b.v. IVEF protocol V-145. INTERFACE voor radarvideo nader te onderzoeken (CAT240?)	INTERFACE for tracks using IVEF protocol V-145. INTERFACE for radar video to be investigated (CAT240?)

	Produceren geïntegreerd verkeersbeeld	Producing integrated traffic image
	Geschikt voor VNC software (CBB voorbereiding)	Suitable for VNC software (CBB preparation)
	Real time positie en videoserver	Real time position and video server
	CBB omgeving	CBB environment
	Lokale datatransmissie	Local data transmission
	Interface	Interface
	Interlokale datatransmissie	Interlocal data transmission
	Verkeerspost X	Traffic station X
	Uitwisselen van gevalideerde verkeersbeeld met andere verkeerspost INTERFACE gestandaardiseerd door IALA middels IVEF protocol V-145	Exchanging validated traffic image with other traffic station INTERFACE standardized by IALA using IVEF protocol V-145
	Meteoketen	Meteo chain
	Windrichting INTERFACE laagrisico is ASCII formaat	Wind direction INTERFACE low risk is ASCII format
	Lokale datatransmissie	Local data transmission
	Interface	Interface
	Verwerking externe informatie	Processing external information
	IVS90/IVS Next	IVS90/IVS Next
	In geval automatische identificatie niet mogelijk is wordt via deze interface informatie toegevoegd aan de track. INTERFACE voor IVS90: er is door de CIV een Interface spec opgesteld en in gebruik	If automatic identification is not possible, information is added to the track via this interface. INTERFACE for IVS90: CIV has drawn up and uses an Interface spec
	Verwerking Radarbeelden	Processing Radar images
	AIS/Diamonis	AIS/Diamonis
	Voor verbeteren van tracking en doelvolgproces en automatisch identificatie wordt informatie toegevoegd van externe bronnen. Interface op dit niveau is noodzakelijk omdat het als input voor de trackingalgoritmes dient. INTERFACE is ontwikkeld en te verkrijgen bij beheerorganisatie Diamonis	To improve tracking and object tracking process and automatic identification, information from external sources is added. Interface at this level is necessary because it serves as input for the tracking algorithms. INTERFACE is developed and available at management organisation Diamonis
	Registratie	Registration
	Monitoring	Monitoring
	Tracking en doelvolgprocessen	Tracking and object tracking processes
	System monitoringsketen	System monitoring chain
	Registratie, monitoring, opslag, mogelijkheid om terug te kijken en ook beheer en onderhoud, allemaal samen te vatten onder defunctie verwerking beelden. De registratiefunctie voor de radarbeelden is een integraal onderdeel van het systeem	Registration, monitoring, storage, possibility to look back and also management and maintenance can be summarized under the function processing images. The registration function for the radar images is an integral part of the system
	Interlokale Datatransmissie	Interlocal data transmission
	Inwinning Radarbeeld	Collection Radar image
	Behuizing en lokale infra	Casing and local infra
	Lokale processing van radarvideo	Local processing of radar video
	Zender/ontvanger	Transmitter/receiver
	Antenne	Antenna
	De functievervuller is voorgeschreven, inwinning van radarbeelden. De behuizing van het object kan variëren. Van een mast met buitenkast tot een volledige onbemanderadarpost (ORP)	The function performer is prescribed, collection of radar images. The casing of the object can vary. from a mast with external case to a complete unmanned radar station (ORP)



Data-exchange interfaces and components system monitoring chain

	Huisvesting	Housing
	Presenteren op werkplek	Presenting op workstation
	Integratie	Integration
	Presentatie op een gecombineerd CCTV en hydro/meteo info scherm	Presenting on a combined CCTV and hydro/meteo info monitor
	Geschikt voor VNC software (CBB voorbereiding)	Suitable for VNC software (CBB preparation)
	Lokale datatransmissie	Local data transmission
	Verzamelen en bewerken data	Collecting and processing data
	Lokale datatransmissie	Local data transmission
	Radar-Doelvolgketen	Radar-Object tracking chain
	T.b.v. presentatie van windroos op radarbeeld & T.b.v. registratie meteo condities	for presentation of compass card on radar image & for registration meteo conditions
	SNMP tbv Scada systeem	SNMP for Scada system
	System monitoringketen	System monitoring chain
	Interlokale datatransmissie	Interlocal data transmission
	Meteo keten Verkeerspost X	Meteo chain Traffic station X
	Behuizing	Casing
	Inwinnen meteo - Temperatuur - Luchtvochtigheid - Luchtdruk - Windrichting - Windsnelheid	Collecting meteo - Temperature - Atmospheric humidity - Atmospheric pressure - Wind direction - Wind speed
	IP uitvoering verplicht. Output in open formaten verplicht bijvoorbeeld ASCII	IP performance obligatory. Output in open formats obligatory, for example ASCII

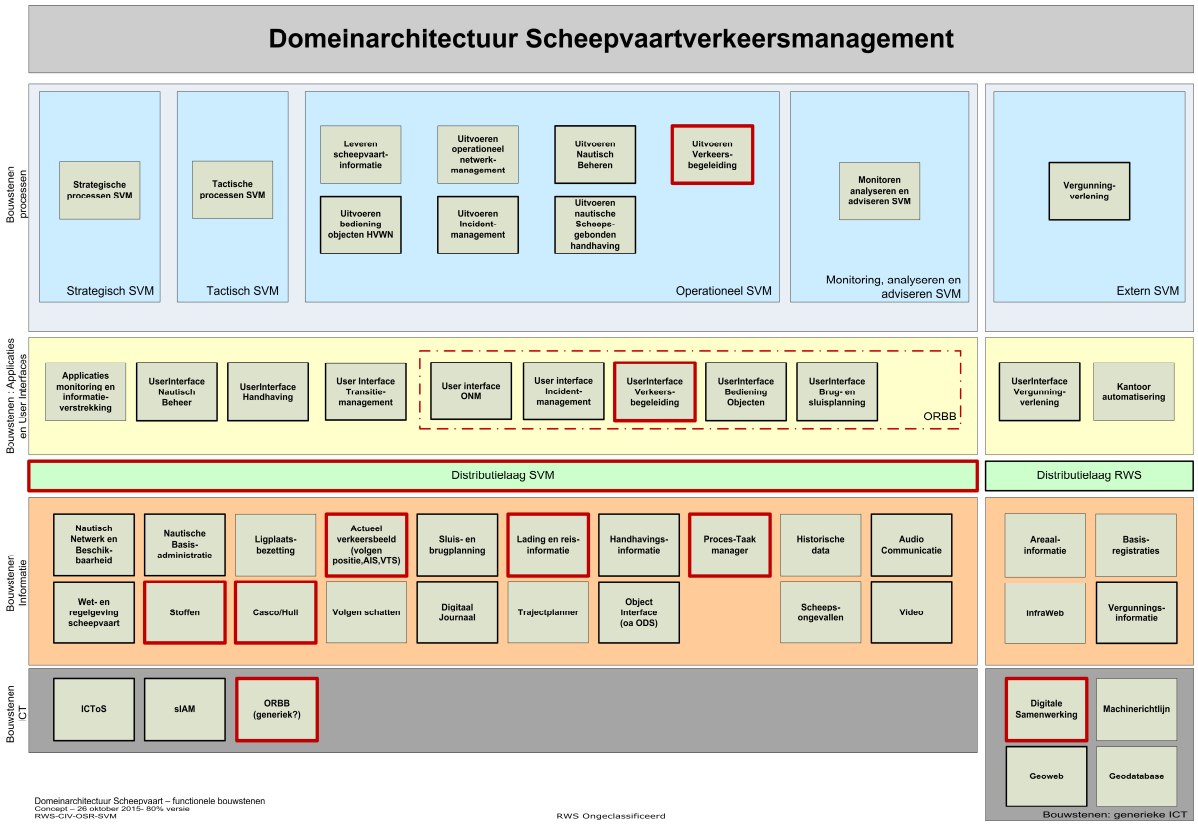


	Monitoring and facilities keten detail functievervullers en koppelvlakken	**Monitoring and facilities chain detail function performers and data-exchange interfaces**
	Huisvesting	Housing
	Presenteren op werkplek	Presenting op workstation
	Integratie	Integration
	De inhoudelijke invulling van Presenteren en bedienen op werkplek is variabel. Het kan variëren van een beeldscherm en bedieningsmiddelen op een desk tot een geïntegreerde presentatie op een geüniformeerde werkplek	The substantive elaboration of Presenting and controlling at Workstation is variable. This may range from a monitor and control tools on a desk to an integrated presentation on a uniformed workstation.
	SCADA systeem t.b.v. Verzamelen, bewerken, opslag en analyse van status en monitoringsgegevens en (beperkte) bedieningshandelingen	SCADA system for Collecting, processing, storage and analysis of status and monitoring data and (limited) control actions
	Uitgangspunt is open protocollen (SNMP) en Open Proces Control (OPC)	Starting point is open protocols (SNMP) and Open Process Control (OPC)
	Huisvesting	Housing
	SCADA Software OPC client	SCADA Software OPC client
	Geschikt voor VNC software (CBB voorbereiding)	Suitable for VNC software (CBB preparation)
	Lokale datatransmissie	Local data transmission
	SNMP-OPC Server	SNMP-OPC Server
	Interface (SNMP)	Interface (SNMP)
	Lokale datatransmissie	Local data transmission
	Marifoonketen verkeerspost X	Marine telephone chain traffic station X
	Radar-Doelvolgketen	Radar-Object tracking chain
	Meteoketen	Meteo chain

	Videoketen	Video chain
	Behuizing	Casing
	SNMP devices	SNMP devices
	Inwinnen sensor gegevens, o.a.: - Inbraakmelding - Brandmelding - Energyvoorziening - …	Collecting sensor data, such as: - Burglary alarm - Fire alarm - Energy supply - …
	Actuatoren zoals: - schakelaars - Deuropeners - HVAC bediening - …	Actuators such as: - switches - Door openers - HVAC control - …
	Inwinnen van sensordata, remote of lokaal via gestandaardiseerd protocol zoals bijvoorbeeld SNMP	Collecting sensor data, remote or local through standardized protocol such as SNMP

APPENDIX 6.3 Service provision model, processes, organization and people

The Domain architecture Vessel traffic management gives insight in the possible future situation.



	Domeinarchitectuur Scheepvaartverkeersmanagement	Domain architecture Vessel traffic management
	Bouwstenen processen	Building blocks processes
	Strategische processen SVM	Strategic processes SVM
	Strategisch SVM	Strategic SVM
	Tactische processen SVM	Tactical processes SVM
	Tactisch SVM	Tactical SVM
	Leveren scheepvaartinformatie	Providing vessel traffic information
	Uitvoering bediening objecten HVWN	Performing control objects HVWN
	Uitvoeren operationeel netwerkmanagement	Performing operational network management
	Uitvoeren Incidentmanagement	Performing Incident management
	Uitvoeren Nautisch Beheren	Performing Nautical Managing
	Uitvoeren nautische Scheepsgebonden handhaving	Performing nautical vessel-related enforcement
	Uitvoeren Verkeersbegeleiding	Performing traffic services
	Operationeel SVM	Operational SVM
	Monitoren, analyseren en adviseren SVM	Monitoring, analysing and advising SVM
	Monitoring, analyseren en adviseren SVM	Monitoring, analysing and advising SVM
	Vergunningverlening	Permit granting
	Extern SVM	External SVM
	Bouwstenen: Applicaties en User Interfaces	Building blocks: Applications and User Interfaces
	Applicaties monitoring en informatieverstrekking	Applications monitoring and information provision
	Userinterface Nautisch Beheer	User interface Nautical Management

	Userinterface Handhaving	User interface Enforcement
	Userinterface Transitiemanagement	User interface Transition management
	Userinterface ONM	User interface ONM
	Userinterface Incidentmanagement	User interface Incident management
	Userinterface Verkeersbegeleiding	User interface traffic services
	Userinterface Bediening Objecten	User interface control objects
	Userinterface Brug- en sluisplanning	User interface bridge- and lock planning
	ORBB	ORBB
	Userinterface Vergunningverlening	User interface Permit granting
	Kantoor automatisering	Office automation
	Distributielaag SVM	Distribution layer SVM
	Distributielaag RWS	Distribution layer RWS
	Bouwstenen Informatie	Building blocks information
	Nautisch Netwerk en Beschikbaarheid	Nautical Network and Availability
	Wet- en regelgeving scheepvaart	Laws and regulations vessel traffic
	Nautische Basisadministratie	Nautical Basic administration
	Stoffen	**Substances**
	Ligplaatsbezetting	Mooring place occupancy
	Casco/Hull	Hull
	Actueel verkeersbeeld (volgen positie, AIS, VTS)	Actual traffic image (tracking position, AIS, VTS)
	Volgen schatten	Tracking estimates
	Sluis- en brugplanning	Lock- and bridge planning
	Digitaal Journaal	Digital Journal
	Lading- en reisinformatie	Cargo and voyage information
	Trajectplanner	Route planner
	Handhavingsinformatie	Enforcement information
	Object interface (o.a. ODS)	Object interface (such as ODS)
	Proces-/Taakmanager	Process/Task manager
	Historische data	Historical data
	Scheepsongevallen	Vessel accidents
	Audio Communicatie	Audio Communication
	Video	Video
	Areaal informatie	Area information
	InfraWeb	InfraWeb
	Basisregistratie	Basic registration
	Vergunningsinformatie	Permit information
	Bouwstenen ICT	Building blocks ICT
	ICToS	ICToS
	sIAM	sIAM
	ORBB (generiek?)	ORBB (generic?)
	Digitale Samenwerking	Digital Collaboration
	Geoweb	Geoweb
	Machinerichtlijn	Machine guideline
	Geodatabase	Geodatabase
	Bouwstenen: generieke ICT	Building blocks: generic ICT
	Domeinarchitectuur Scheepvaart – functionele bouwstenen	Domain architecture vessel traffic – functional Building blocks
	Concept – 26 oktober 2015	Draft – 26 October 2015
	RWS-CIV-OSR-SVM	RWS-CIV-OSR-SVM
	RWS Ongeclassificeerd	RWS Not classified

The building blocks of the domain architecture which might be affected by the LUV project are shown above in red boxes.

1. Business building blocks
    a. Traffic services provision
2. User interfaces
    a. User Interface Traffic Services; Integration with ORBB
3. Distribution Layer
    a. Distribution Layer
4. Information
    a. Current traffic image
    b. Cargo voyage information

   c. Casco/Hull
   d. Substances
   e. Process Task Manager
5. ICT
   a. ORBB
6. Domain exceeding
   a. Digital collaboration

Re 1a. Business building block "traffic services provision"
The process of providing traffic services will change. SVM wants to move from regional traffic services to corridor-oriented traffic services. This is described in the vision SVM 2025. Meanwhile some projects have been started to make this possible.

Another wish is to increase the flexibility and reduce the dependence on the various parts of the chain. Flexibility is achieved by replacing the regional traffic centre by a national one, from which all corridors can be supervised. This will result in less dependency on the system, but also less dependency on the supervisor, who can more easily be deployed in another corridor. This requires, however, that the regional differences between the centres disappear in the future. In short, the centres will have to be set up uniformly, it not making any difference which traffic services provider is responsible for which corridor. This entails requirements on the systems and on the traffic services providers.

The actual change in the business requirement is the location from where the traffic services are provided.

Re 2a. User Interface Traffic Services; integration with ORBB.
The current user interface of the VTS system is fully supplied by the supplier of the VTS system. This makes integration with the other systems for traffic services not well possible. At the request of Rijkswaterstaat, the supplier has made adaptations by displaying additional information, such as data of the vessel, the voyage and the cargo.

In the future, we do want to have this flexibility. To obtain it, it is required that the data collected by the radar system is made available via a service for other applications at RWS. This is required at two levels:
1. The 'raw' data from the radar system (format Asterix)
2. The integrated data from the radar system

To optimize the performance of the radar system, the supplier uses a method which adjusts the radar settings on the basis of the integrated data. This control information is so supplier-specific that it is not asked here to standardize it. In the future, however, this should become possible using a protocol like OPC-UA.

Re 3a. Distribution Layer
The radar stations are in the field. Per VTS sector, there are 1 or more radars. The data of this radar is sent via a local network to the local processing unit in the VTS area. After processing, the data goes to the national centre for further processing and distribution. From this national centre, the data is distributed to the workstations traffic services (and any other workstations). Control signals for the individual radars follow the reverse route.

In this communication line, there is a transition from outside RWS to inside RWS. This means that the building block digital collaboration (third-party access) is also important.

Re 4a. Current traffic image
The module 'current traffic image' is the place from where data on the current position of all vessels is distributed. The VTS is therefore a major supplier of this information. All applications of RWS, so including those of the traffic services provider, make use of this building block. The building block is capable of generating lists and maps for the user interfaces.

Re 4b. Cargo voyage information, Re 4c. Hull/Hull data, Re 4d. Substances and Re 4e. Process Task Manager

One of the functions required of the VTS system is the capability to display data on the vessel, both cargo and voyage data and hull data. The building block process task manager will compile the data on the basis of the data from the building blocks cargo-voyage and hull.

That data is contained in a standard view, which is maintained in the process task manager.

Re 5a. ORBB
The idea behind it is to create a standardized workstation for control and traffic services.

Re 6a. Digital collaboration
To route the information flows, the building block digital collaboration will have to make possible that, from the protected environment of RWS data, data from the non-trusted outside world can be used.

Appendix 6.4 Digital registration and submission of tenders RWS CIV

All tender procedures of the purchase domain Information Provision will most probably be based on digital registration and submission of tenders from 16 April 2016. Submission will only be possible digitally through TenderNed.

Valid with digital signature
Digital registration or submission of tenders is valid only with a digital signature. It will no longer be possible to provide a signed paper document with the registration or submission of tenders. A digital copy of a handwritten document (pdf) is sufficient only if accompanied by a digital signature.

Reduced administrative burden
Since the introduction of Public Procurement Act 2012, a contracting authority can organize an entirely digital tender procedure. This has great advantages for the tenderers. The administrative burden is significantly reduced. Rijkswaterstaat has gained ample experience in the GWW sector (groundwork, road and hydraulic engineering) since 2013, offering prospective contractors the possibility to submit tenders digitally. Registration and submission of tenders through TenderNed requires a digital signature. In the early days, companies did not yet have a digital signature. They therefore had to provide paper documents with a hand-written signature in addition to the digital submission of their tender.

Requirements on the signature
Digital registration and submission of tenders requires a digital signature. The digital signature must be of security level 4. This means that the signature must be secured on the basis of the so-called PKIo certificate, in which PKI is for Public Key Infrastructure. The PKIo certificate makes it possible to place a legally valid electronic signature under documents. The electronic signature with the appropriate certificate is legally equated with the hand-written signature.

See for more information about purchasing a PKIo certificate the website PKIoverheid. You can purchase a PKIo certificate from a Certificate Service Provider (CSP). You will also have to purchase signing software and middleware.

FAQ

Why a digital signature of security level IV?
In case of analogue submission, signing is done by hand. An electronic signature with the appropriate certificate (security level IV) is legally equated with a hand-written signature.

Appendix 6.5. UAV-GC Design & Construct

Under Design & Construct contracts (D&C), the contractor is responsible for the design of infrastructure and the execution of its construction.
Rijkswaterstaat draws up a functionally specified request. The contractor is given room for innovations in design and execution. These two phases must also be aligned as well as possible.

Use of D&C contracts
D&C contracts are primarily intended for projects in the construction sector and major variable maintenance projects.

- Example construction sector
  The wegvak A4 Delft-Schiedam (road section A4). This is a complex design and execution contract for a new road section of approx. 7 kilometres. It includes a tunnel, lower-level construction work and installations.
- Example of variable maintenance work
  The herstel van damwanden langs het Amsterdam-Rijnkanaal (repair of sheetpile walls along the Amsterdam-Rijn channel).

Standard purchase documents
Rijkswaterstaat uses standard purchase documents, including tender and contract documents, for D&C contracts. This is not only efficient for Rijkswaterstaat, but also for market parties. They develop a better understanding of the standard contracts of Rijkswaterstaat and can thus better respond to them.

Model documents
The standard D&C-contract is based on the UAV-GC 2005. The tender file includes several important model documents:

Selectiedocument niet-openbare procedure

Inschrijvings- & beoordelingsdocument niet-openbare procedure (Tenders submission & assessment document non-public procedure)
Basisovereenkomst
Vraagspecificatie Eisen (Tender specification requirements)
Vraagspecificatie Proces (Tender specification process)
Annexen bij de Vraagspecificatie (Annexes to the tender specification)

Expectations
Under a D&C contract, it is the responsibility of the contractor to determine what work he must carry out to perform the contract. Rijkswaterstaat deems certain work so important that it sets requirements on it in the contract document Tender Specification Process.
Rijkswaterstaat will exercise restraint in this respect. We expect that the contractor:

- manages the project as an expert project manager
- applies quality assurance in accordance with its NEN-EN-ISO 9001 certificate
- commits itself to close and constructive collaboration by signing the Richtlijn Samenwerking Rijkswaterstaat – markt bij integrale projecten (Guideline Collaboration Rijkswaterstaat - market in integrated projects)

Appendix 6.6 System-oriented contract management

Rijkswaterstaat has been working on the basis of system-oriented contract management since 2003. Rijkswaterstaat wishes to leave appropriate responsibilities with the contractors. They monitor the quality of the product supplied by means of their quality management system. It must also be demonstrated that the requirements of Rijkswaterstaat are met. Rijkswaterstaat subsequently applies system-oriented contract management (SCB) to test this.
This system (systematiek (PDF, 241,12 KB)) is now applied in all contract forms involving purchase with quality assurance.

Quality central
The contractor manages the quality of the products supplied. Rijkswaterstaat conducts risk-based tests, for which it engages certified (lead-) auditors, who may be assisted by specialists in the subject matter tested.

Points for attention
Rijkswaterstaat uses the Kader SCB in the application. Rijkswaterstaat also makes an explicit link with justified paying.

Complaints
Rijkswaterstaat makes an explicit link with justified paying and pays increased attention to the Complaints Protocol Certifying Institutions. To increase attention for the possibility to file a complaint with a certifying institution, Rijkswaterstaat draws up a protocol describing the action to be taken if a contractor constantly fails in its quality management.

If Rijkswaterstaat files a complaint because the quality of a certified contractor is below standard, the operation of the quality system is put under pressure. This increases the value of the corresponding (ISO 9001) certificate and improves the collaboration without need for litigation.