Radar

Very High Frequency

Radar system

The voyage information system (IVS)

This system takes care of the follow-up and administrative processing of vessels' voyage data within the River Scheldt Region. These can be vessels navigating from or to a port or passing through the area (strategic information). Via the IPS the following tasks are supported:

- the management of voyages in the River Scheldt Region;
- keeping a record of current and historical voyage data on vessels that are/have been present in the River Scheldt Region;
- keeping diverse logs, e.g. ship logs;
- gathering and presenting hydrological and meteorological data;
- data collection and information provision in relation to incidents.

CENTRAL BROKER SYSTEM (CBS)

The Central Broker System (CBS) is a hub model that exchanges information in an intelligent way. Thanks to this system all actors of the nautical chain involved can communicate with each other via data exchange. According to the European Directives, all information and communication between the different parties must take place as efficiently as possible. This is achieved by means of a chain system in which a voyage is regarded as a single indivisible process, with the CBS as the central pivot. The provided data are distributed and processed in the different systems, namely the port information systems, the Pilot Information System and the Information Processing System.

CENTRAL BROKER SYSTEEM (CBS)

RIVER INFORMATION SERVICES

Port information systems

Antwerp / APICS
Antwerp Port Information and Control System

Ghent / ENIGMA
Electronic Network for Information In the Ghent Maritime Area

Ostend / ENSOR
Electronic Network System for the Ostend Region

Vlissingen Terneuzen / PortXcs
Port Information System for the Zeeland ports

Zeebrugge / ZEDIS
Zeebrugge Electronic Data Interchange Services

IVS90
Information System for Inland Navigation of the Netherlands

Different inland navigation bodies use the CBS to follow up inland navigation.

Flaris
Common system for the Flemish waterway managers

RIVER INFORMATION SERVICES

This concept has been developed in order to comply with the European requirement. The aim is to increase the safety, effectiveness and environmental friendliness of inland navigation.
The follow-up of inland navigation in Europe takes place together with the collection of information via different systems. In order to take the burden off the waterway user as much as possible, work is being done to establish a system based on once-only electronic registration. The bargee will be able to use the same standard message, which will be valid everywhere. Via an automatic translation of the main content of the messages from all languages of the participating countries, it will be possible to make all information needed to plan the voyage available. Bargees can find this information on www.vts-scheldt.net.
For the introduction of RIS in the River Scheldt Region the existing SRN applications, which spread the information via the RIS Broker, are used.

Automatic Identification System (AIS)

AIS is a transponder system that combines the accuracy of the Global Positioning System (GPS) with vessels' unique identification numbers. AIS on board of ships provides three types of data:
statistical data: vessel identity;
1. dynamic data: position, speed, course;
2. voyage data: destination, draught.
The SRN has a network of base stations which receive these data and process them for both their own and external applications. The network consists of eleven redundant base stations and a redundant server in Vlissingen and in Zandvliet. The system is integrated into the radar system, which uses e.g. the received position, speed and course in the tracking system. The information is not only entered into the radar system, but also passed to the website www.vts-scheldt.net and to third parties, such as the MRCC and the port authorities.

Business Intelligence (BI)

Business Intelligence is a system which collects data from diverse source systems of the Scheldt Radar Network (IPS-SRN (with a link to the CBS), AIS, etc.) for performing analyses, reporting and data mining of shipping traffic aimed at e.g. strategic and tactical decision-making.

Western Scheldt Planner WESP

WESP is an application which offers the Common Nautical Authority the possibility to better plan shipping traffic in the River Scheldt Region in relation to the tides. WESP calculates navigation routes based on the characteristics of the vessel and all available data, such as draught data and tides. Thanks to WESP the common nautical authority has various possibilities to let a marginal (very large/deep draught) ship follow a route without risks. To do so, WESP takes into account a lot of data (e.g. hydrological-meteorological information, vessel characteristics).

www.vts-scheldt.net

The aim of this site is to inform diverse target groups connected to shipping fast and effectively. Nautical, technical, legal and operational information is available, e.g. Notices to Skippers, inland Electronic Chart Display ECDIS and electronic ship reports.
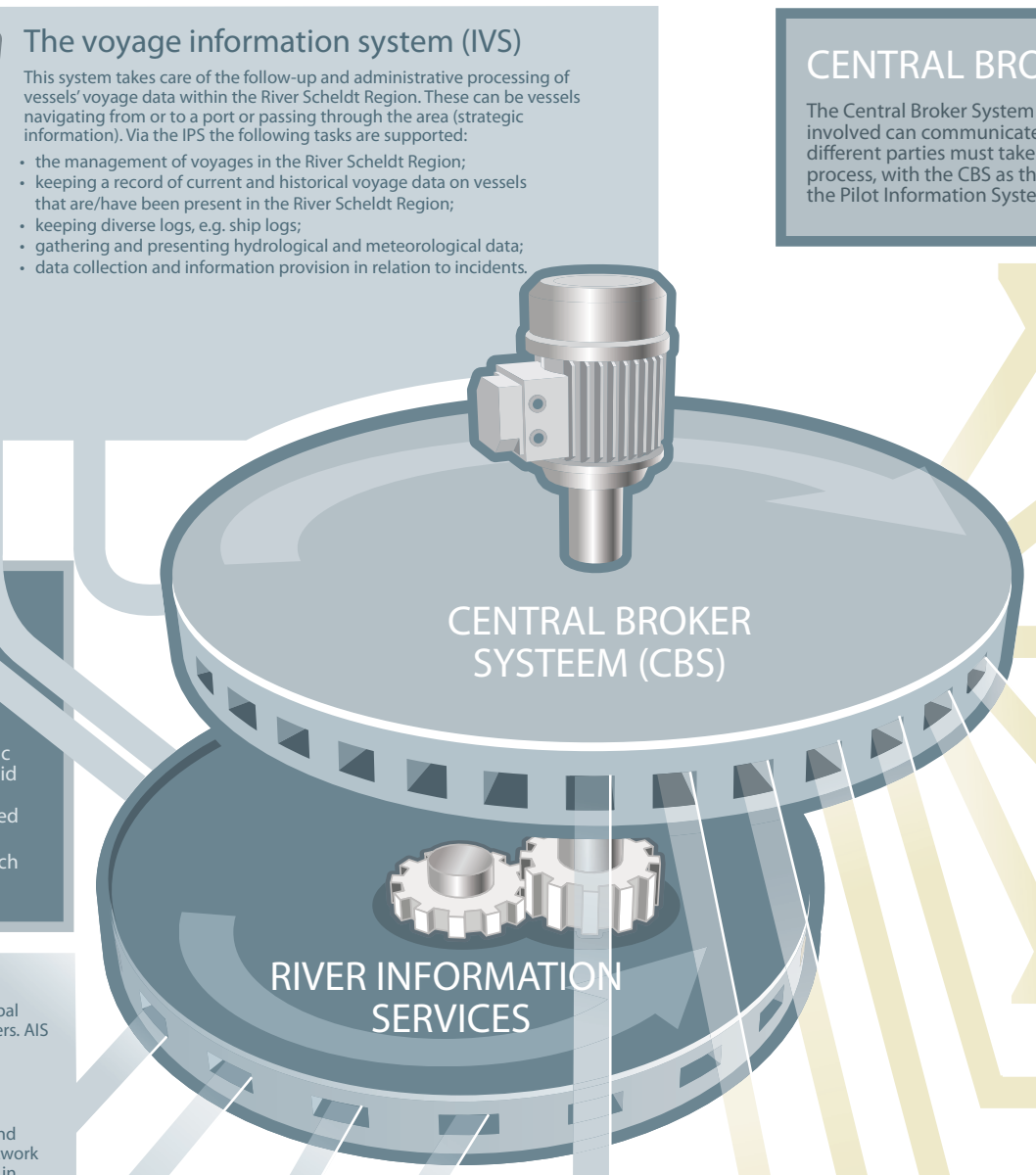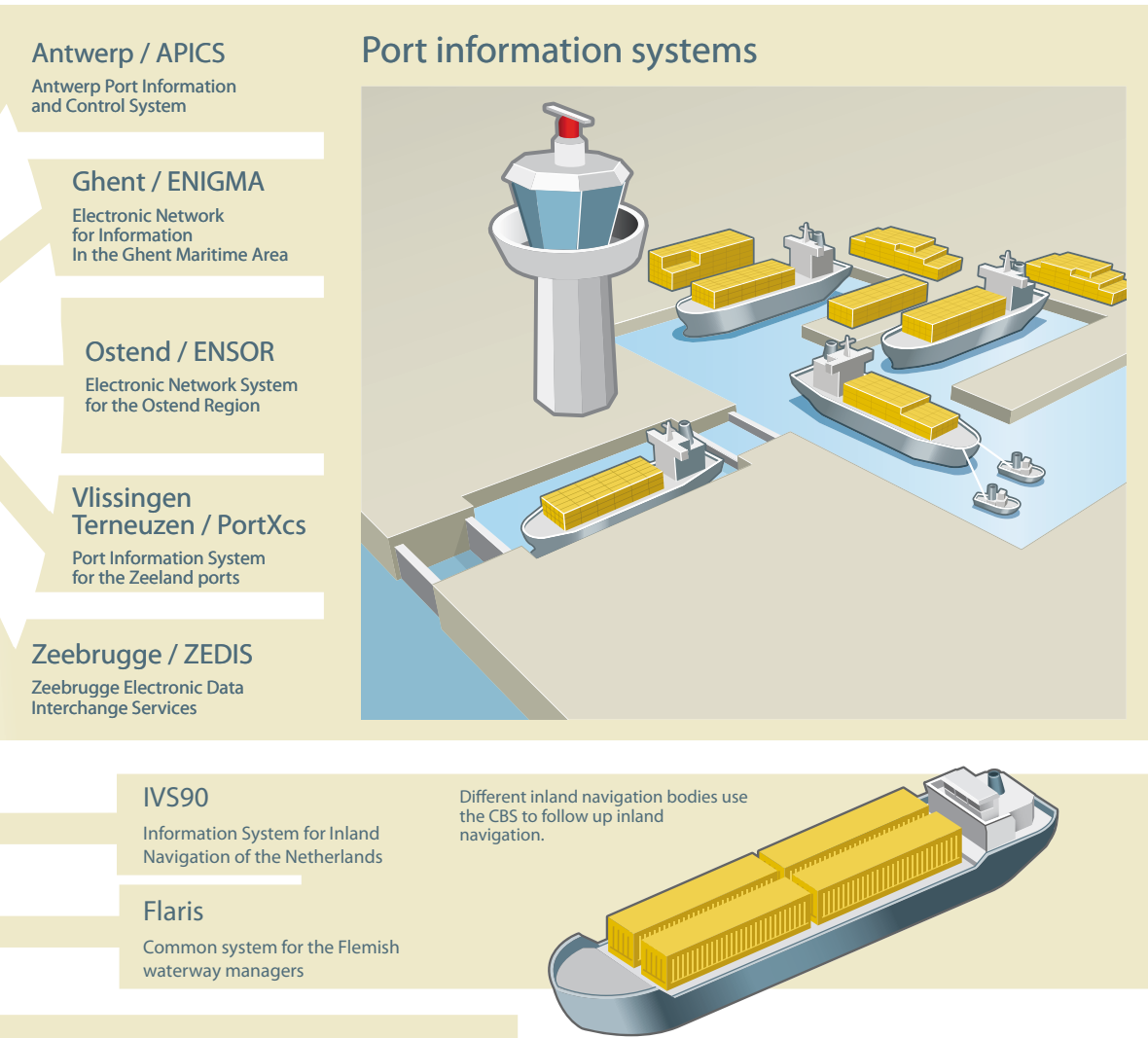
www
INFO

Hymedis

Hymedis is a distribution system for hydrological and meteorological data based in Vlissingen.
From two monitoring networks (Flemish Banks and Landelijk Meetnet Water) up-to-the-minute information is continuously transmitted to this system. It concerns information from some 70 locations on the Flemish and Zeeland coasts, the Western Scheldt, the Eastern Scheldt and the Upper Scheldt. This information is processed and offered via the Internet and landline communication to pilots, service vessels and traffic control centres which operate in the area.
www.hymedis.net

SafeSeaNet

In the framework of the Monitoring Directive, agencies/captains of sea vessels > 300 GT are under the obligation to make a number of notifications via the port captain's office in question via the port information system. This information is transmitted by each port information system via the CBS to the Maritime Rescue and Coordination Centre (MRCC), from where it is sent to the European SafeSeaNet system.

The aim is to increase the safety and efficiency of maritime traffic and enable effective reaction to incidents or dangerous situations on waterways.

Pilot Information System

This system takes care of the complete follow-up of the pilotage process starting from the pilot order, including the planning and use of pilots via automatic turns, the follow-up of the vessel, the invoicing of pilotage fees and costs, the calculation of pilotage bonuses, personnel management, the follow-up of logistics resources and statistical information for the management.

PILOT
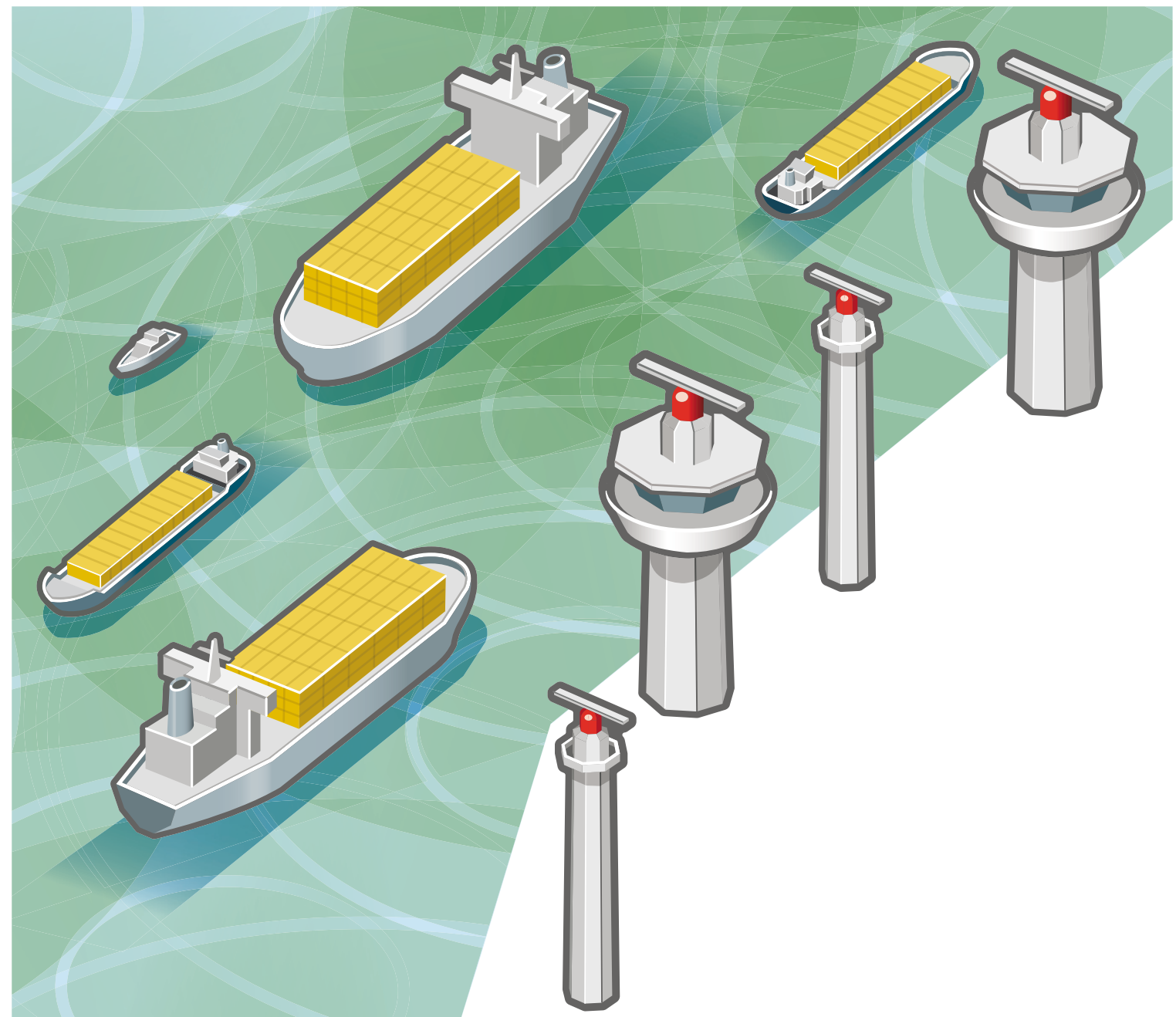
INFOGRAPHIC
How does the Scheldt Radar Network work?

The Scheldt Radar Network contributes to smooth and safe shipping traffic in the Scheldt area and makes use of various technical systems and software applications.

Rijkswaterstaat
Ministerie van Verkeer en Waterstaat

Gemeenschappelijk Nautisch Beheer
Scheldegebied

agentschap
Maritieme Dienstverlening en Kust

Common Nautical Management is a treaty-based cooperation between the Government of Flanders and the Government of the Netherlands and is in charge of guaranteeing smooth and safe shipping traffic in the River Scheldt Region.

Graphic design: to the point 0032.51 61 30 72

Design, operation and maintenance

The technical management of all radar, Very High Frequency and ICT systems of the SRN comprises:

- the design, operation and maintenance of systems and networks to maintain high availability;
- guaranteeing optimal functionality and quality management of the SRN in tune with users' needs and taking into account the national legislation and international regulations and directives;
- planning, coordinating and carrying out migration projects with respect to the components in order to keep SRN at the same technological level;
- adapting and expanding the SRN following new policy initiatives and/or changes in functional and operational requirements.

The Management and Operating Team has its office at the Scheldt Coordination Centre (SCC) in Vlissingen.
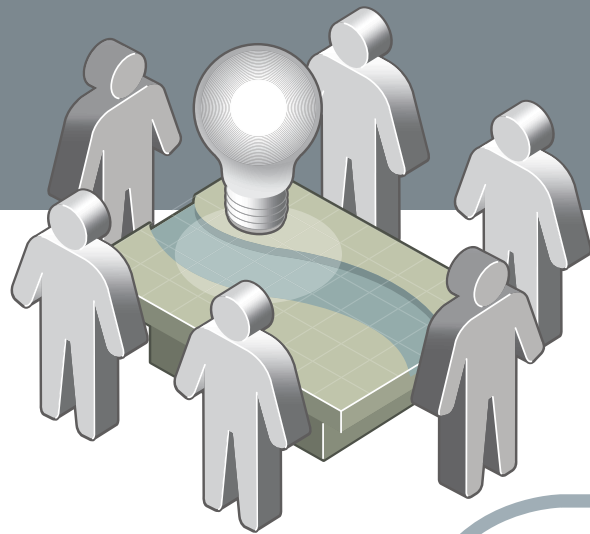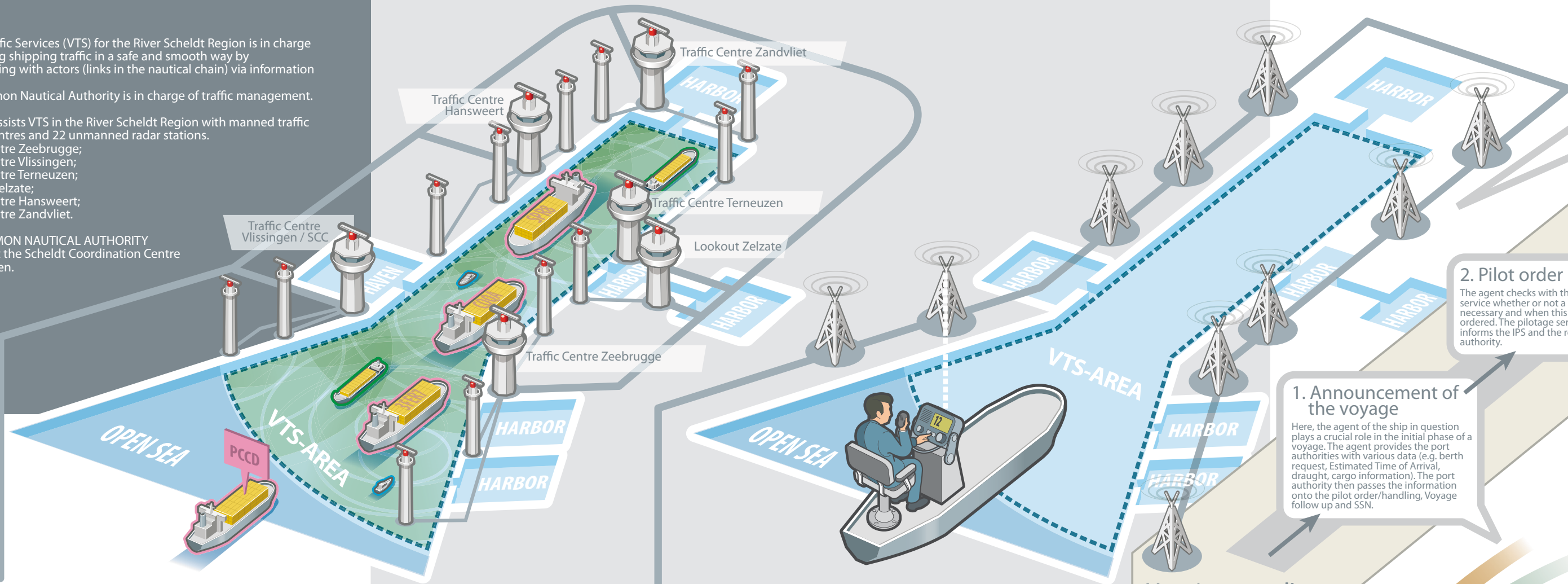
Users

Vessel Traffic Services (VTS) for the River Scheldt Region is in charge of handling shipping traffic in a safe and smooth way by collaborating with actors (links in the nautical chain) via information exchange.
The Common Nautical Authority is in charge of traffic management.

The SRN assists VTS in the River Scheldt Region with manned traffic control centres and 22 unmanned radar stations.
Traffic Centre Zeebrugge;
Traffic Centre Vlissingen;
Traffic Centre Terneuzen;
Lookout Zelzate;
Traffic Centre Hansweert;
Traffic Centre Zandvliet.

The COMMON NAUTICAL AUTHORITY is based at the Scheldt Coordination Centre in Vlissingen.

Traffic Centre Zandvliet
Traffic Centre Hansweert
Traffic Centre Vlissingen / SCC
Traffic Centre Terneuzen
Traffic Centre Zeebrugge
Lookout Zelzate

OPEN SEA
VTS-AREA
HARBOR
PCCD

OPEN SEA
VTS-AREA
HARBOR

3. Voyage follow-up

A The ship registers at the traffic control centre and provides contact data via VHF (ETA pilotage/passage point). The traffic service then informs the pilotage service and the respective port authority.

B The port authority passes lock and berth information on to the IPS.

C The pilot order/handling provides the IPS and the respective port authority with the pilotage info (planned pilotage time, pilot on board, pilot change).

D The IPS notifies the pilot order/handling /the respective port authority of the voyage follow-up (passage times/passage points and possibly anchor info).

2. Pilot order

The agent checks with the pilotage service whether or not a pilot is necessary and when this pilot should be ordered. The pilotage service then informs the IPS and the respective port authority.

1. Announcement of the voyage

Here, the agent of the ship in question plays a crucial role in the initial phase of a voyage. The agent provides the port authorities with various data (e.g. berth request, Estimated Time of Arrival, draught, cargo information). The port authority then passes the information onto the pilot order/handling, Voyage follow up and SSN.

HARBOR
HARBOR
HARBOR

How is a vessel's voyage monitored? (Basic scenario)

Three entities/authorities deal with vessels whose destination/origin is a port in the River Scheldt Region: the port authorities, the pilotage service and the traffic service.

The handling of a voyage can be divided up as follows:

1. Announcement of the voyage;
2. Pilot order/handling;
3. Voyage follow-up;

INTERMODAAL
ANTWERP
VLISSINGEN
INTERMODAAL
TERNEUZEN
GHENT
INTERMODAAL
ZEEBRUGGE
OSTEND

Radar system

IN						
NAAM SCHIP	CALL SIGN	LOA	DPG	EN	EX	ETA
AUTOKAI	CQQA	140	72	WN	VS	1200
CMS SOLA	3FER7	364	144	WN	AX	1600
NORDREAL	PCCD	180	112	WN	ZB	2000

UIT						
NAAM SCHIP	CALL SIGN	LOA	DPG	EN	EX	ETA
MASK AVA	SPR8	355	140	DD	AW	1800

- showing digitalised rough radar images;
- visualisation of the radar image;
- central traffic overview;
- automatic targeting;
- incident registration and replay;
- control and monitoring system.

The radar (transmitter-receiver) detects objects (vessels) on the water. The transmitter transmits electromagnetic waves via the antenna. After that, the receiver registers whether some of the transmitted waves are reflected by an object on the water. This reflected signal is visualised on a radar screen.

The vessel and voyage data from the Information Processing System (IPS) are linked to this radar video, generating a complete image of the traffic in the Scheldt area. This is the Tactical Traffic Image (TTI).

Each traffic control centre clusters a number of unmanned radar stations which together cover the operational area of that traffic control centre.

These traffic control centres, including the radar stations, are interconnected via the Wide Area Network (WAN).

Very High Frequency

Maritime communication between traffic controllers and waterway users takes place via a Very High Frequency transmitter. The radio equipment is able to transmit and receive in the VHF band. This system is composed of clusters of communication equipment including touch-screen control panels, voice switches and transmission and reception equipment. The system components at the different locations are interconnected via the WAN of the SRN. The VHF transmitter-receivers have been distributed in such a way that the entire operational area is covered by radio technology.

To support traffic control activities the SRN uses its own Radio Direction Finder (RDF) system. The three base stations are located in Nieuwpoort, Zeebrugge and Haamstede. The direction information is integrated into the radar system.
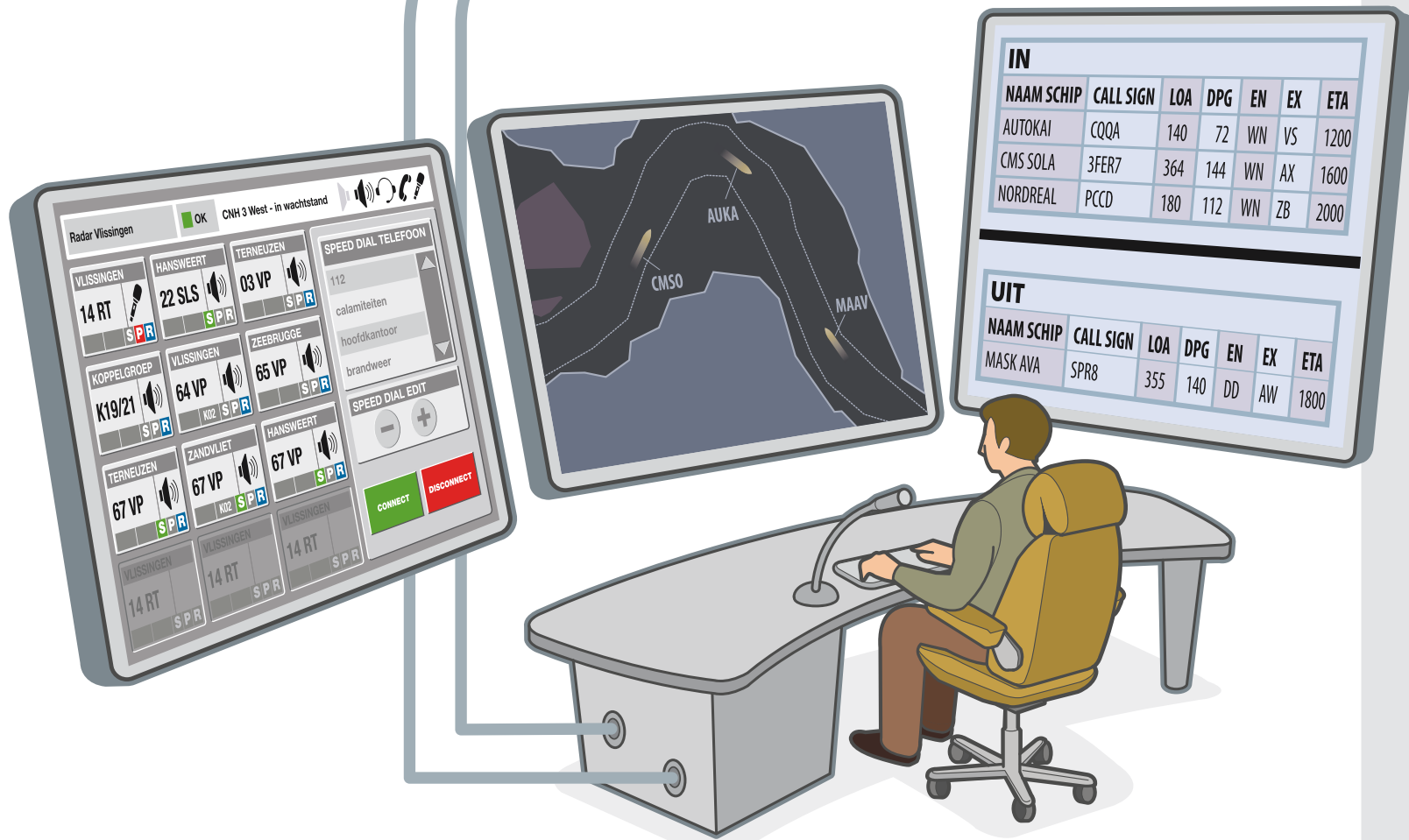
This overview provides a schematic presentation of VTS in the River Scheldt Region. Some things have been significantly simplified. More details on technical aspects, (international) regulations and daily management can be found on www.vts-scheldt.net