



MyOcean

Central Information System or myOcean in depth

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MyOcean

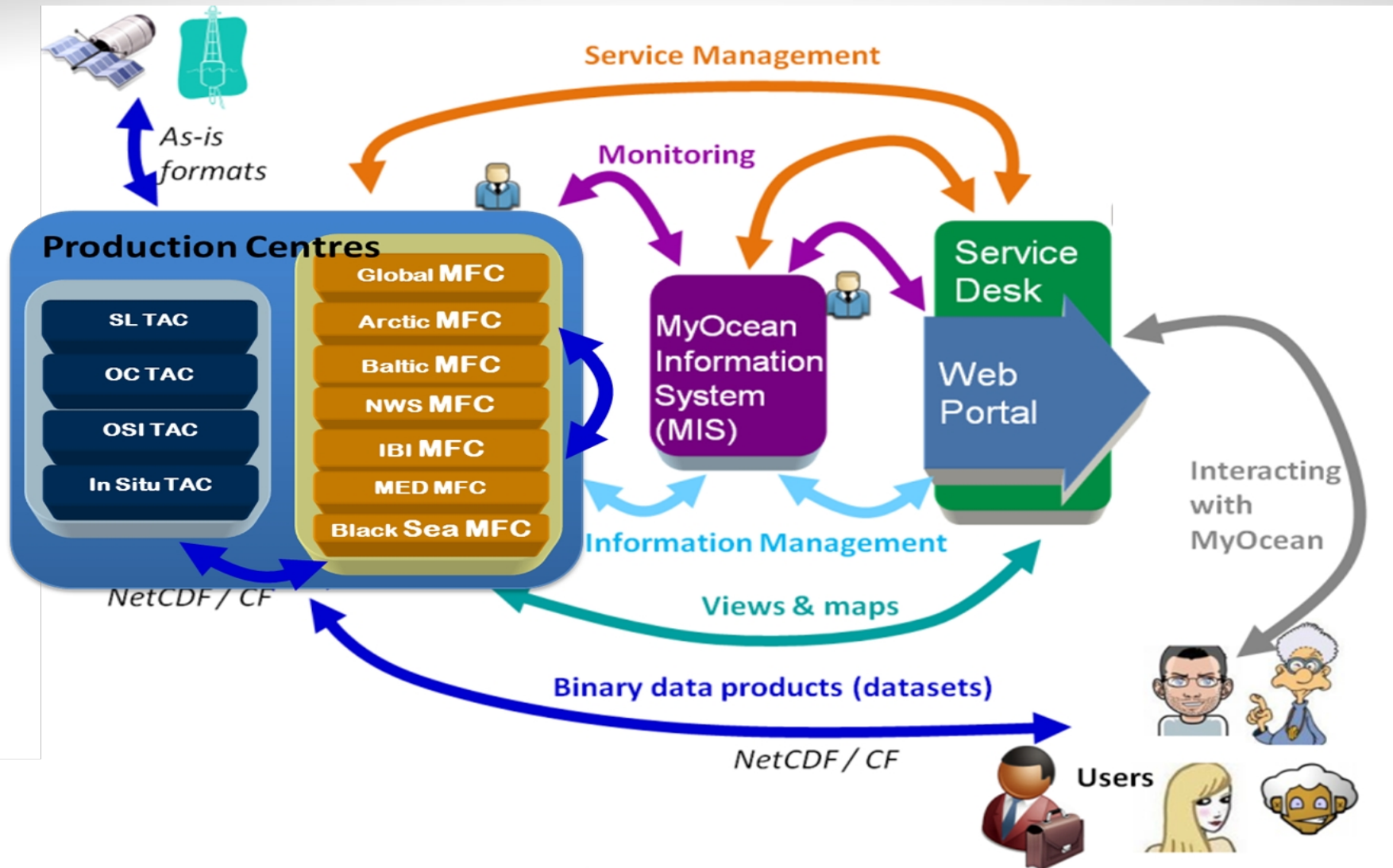
MyOcean is setting up a European system of systems for **ocean monitoring and forecasting**.

MyOcean provides ocean **physics and bio-geo-chemical** parameters.

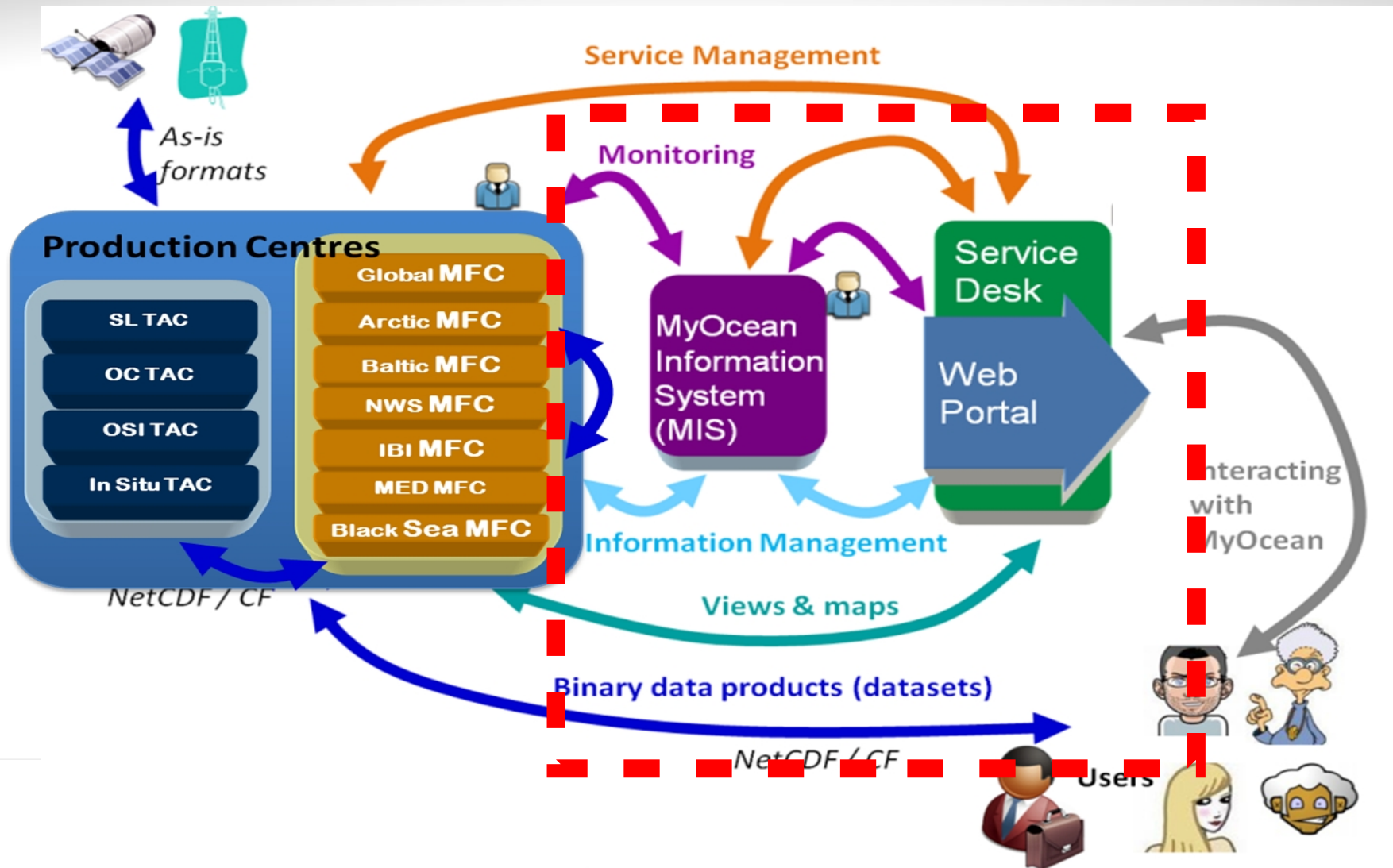
MyOcean is the candidate for being the **Marine Core Service** within Copernicus (former GMES).



Organization



Organization



Requirements...

Requirements are, functional:

- **On the service**: geographical coverage, observed properties, temporal resolution and delivery latency
- **Accessibility of the service**: discover, view, download datasets, provide support and alerts

And non functional :

- **Volumetry, robustness**
- **Interoperability** of the service (e.g. INSPIRE).

MyOcean project is all **requirements** fulfilled by **interfaces** provided by **actors** or implemented by **components**.

... Actors and Components

Main **actors** are :

- Product and service managers (local or general)
- Service desk (local or general)

Components are:

- Web portal
- User support and monitoring
- Product and services database and monitoring
- Dissemination Units
- Production Units

And **interfaces** between them...

Dissemination Units

Inputs interface: netcdf local files

Requirements:

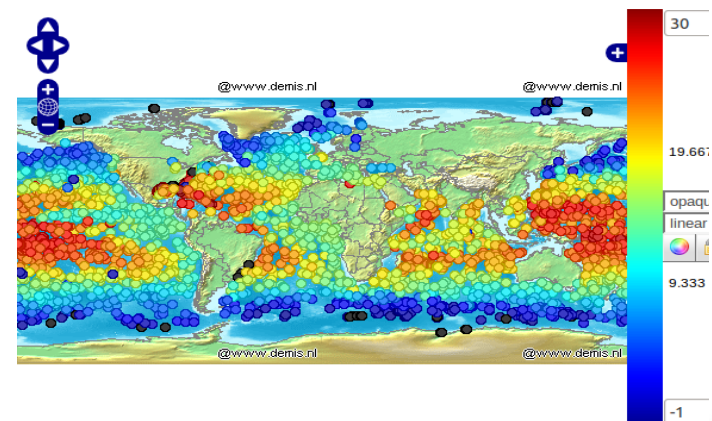
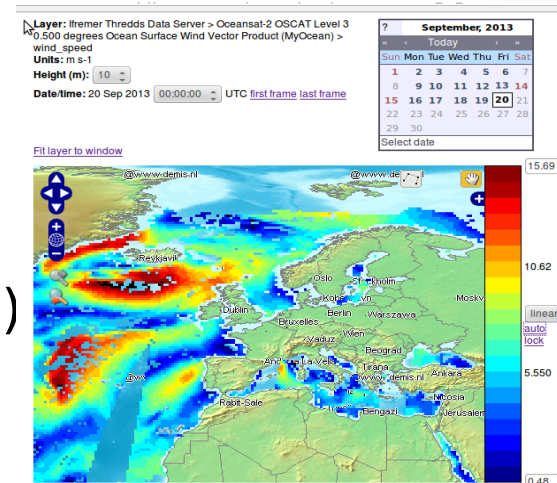
- View, download subsetting (x,y,z,t, obs. properties), programmatic interface, authentication
- Big volume, robustness, INSPIRE (OGC/WMS)

Implementations (DU-gateways):

- THREDDS Data Server + MOTU for grids
- Oceanotron for in-situ
- VSFTPD

Interesting features:

- 20-25 connected data centres
- Open-source software deployed
- Central authentication and user profiles (CAS+LDAP)
- NcWMS module re-used in both TDS and Oceanotron



Input interfaces:

- Product managers
- DU-gateways

Requirements:

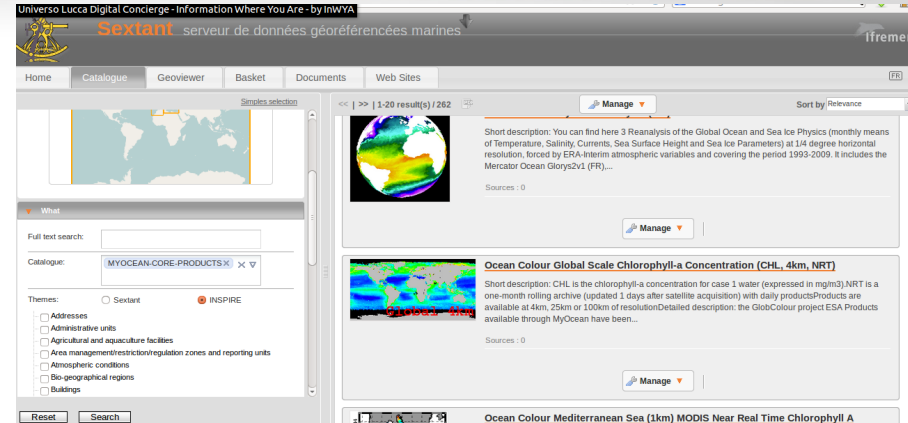
- Discovery function for external users (catalogue)
- Configuration input for monitoring and web portal front-end (view, download)
- Support for service desk (e.g. product dependancies)
- INSPIRE (OGC/CSW + ISO19139)

Implementation:

- Geonetwork (sextant, shared also with seadatanet and emodnet).

Interesting features or plans:

- Products dependencies management
- Dataset harvesting (from THREDDS Data Server)
- Digital Object Identifier registration
- Vocabularies





Production and System monitoring

Input interfaces:

- Product and services database, OGC/CSW (DU-gateways URLs, dataset update schedule)
- DU-gateways (FTP, MOTU, OGC/WMS)

Requirements:

- Monitor central and distributed systems availability
- Monitor production timeliness
- Provide real time dashboard and 3-monthly reports

Implementation:

- NAGIOS + dedicated plugins
- Automated configuration

Interesting features:

- 2 redundant nodes

Host Status Details For All Host Groups

Limit Results: 100

Host	Status	Last Check	Duration	Status Information
MYOCEAN-ALL	UP	03-15-2013 17:07:37	10d 1h 51m 15s-	HTTP OK: HTTP/1.1 200 OK - 733 bytes in 0.001 second response time
MYOCEAN-ALL-ATOLL.CLS.FR	UP	03-15-2013 17:07:27	10d 1h 50m 7s	HTTP OK: HTTP/1.1 200 OK - 2051 bytes in 0.053 second response time
MYOCEAN-ALL-ATOLL.MERCATOR-OCEAN.FR	UP	03-15-2013 17:07:47	10d 1h 50m 5s	HTTP OK: HTTP/1.1 200 OK - 2051 bytes in 0.053 second response time
MYOCEAN-ALL-DATA.NCOF.CO.UK	UP	03-15-2013 17:08:27	7d 7h 52m 15s	HTTP WARNING: HTTP/1.1 403 Forbidden - 485 bytes in 0.077 second response time
MYOCEAN-ALL-EFTP.IFREMER.FR	UP	03-15-2013 17:08:07	10d 1h 50m 1s	FTP OK - 0.017 second response time on port 21 [220 batz FTP server (Version wu-2.6.2-Sun) ready]
MYOCEAN-ALL-FE4.SIC.RM.CNR.IT	UP	03-15-2013 17:08:17	10d 1h 51m 15s-	HTTP OK: HTTP/1.1 200 OK - 9090 bytes in 0.139 second response time
MYOCEAN-ALL-FTP.AVISO.OCEANOBS.COM	UP	03-15-2013 17:10:17	2d 8h 3m 55s	FTP OK - 0.234 second response time on port 21 [220 CLS FTP]
MYOCEAN-ALL-FTP.CLS.FR	UP	03-15-2013 17:08:37	10d 1h 32m 56s	FTP OK - 0.076 second response time on port 21 [220-The loc]
MYOCEAN-ALL-FTP.IFREMER.FR	UP	03-15-2013 17:08:37	10d 1h 30m 40s	FTP OK - 0.002 second response time on port 21 [220 Welcome to FTP service.]
MYOCEAN-ALL-FTP.MYOCEAN.MET.NO	UP	03-15-2013 17:09:57	9d 1h 0m 45s	FTP OK - 0.115 second response time on port 21 [220 ProFTPD 1.3.4a Server (MyOcean FTP Server at the Norwegian Meteorological Institute) [157.249.32.29]]
MYOCEAN-ALL-FTP.MYOCEAN.ORG.UA	DOWN	03-15-2013 17:07:47	10d 1h 38m 55s	CRITICAL - Socket timeout after 10 seconds
MYOCEAN-ALL-FTP.MYOCEAN.SLTAC.CLS.FR	UP	03-15-2013 17:10:17	0d 8h 12m 25s	FTP OK - 0.067 second response time on port 21 [220 Welcome]
MYOCEAN-ALL-GNODAP.BO.INGV.IT	UP	03-15-2013 17:08:37	1d 13h 19m 5s	HTTP WARNING: HTTP/1.1 403 Forbidden - 395 bytes in 0.079 second response time
MYOCEAN-ALL-GDS.IFAR.M.CNR.IT	UP	03-15-2013 17:09:27	10d 1h 24m 56s	FTP OK - 0.088 second response time on port 21 [220 (vsFTPd 2.0.1)]

Input interfaces:

- User registration
- DU-gateways logs
- Service desk management

Requirements:

- Every user is authenticated, transaction monitoring (for statistical and user support purpose).
- high quality user description and support (Service level agreements)

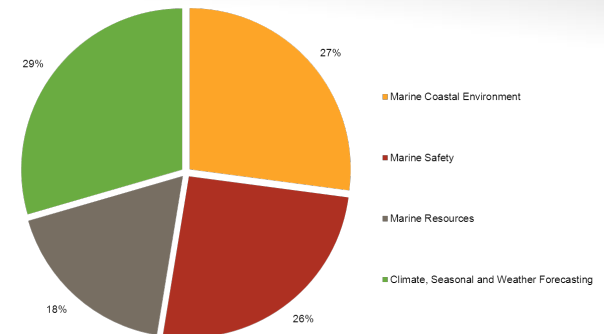
Implementation:

- Dedicated web forms for registration
- CAS + LDAP + PAM
- Customer Relationship Management (sugarCRM)

Interesting plans:

- Common login with Seadatanet/Emodnet

Area of benefit



Input interfaces:

- Editorial (including news, alerts)
- Product and service database (OGC/CSW)
- DU-gateways

Requirements:

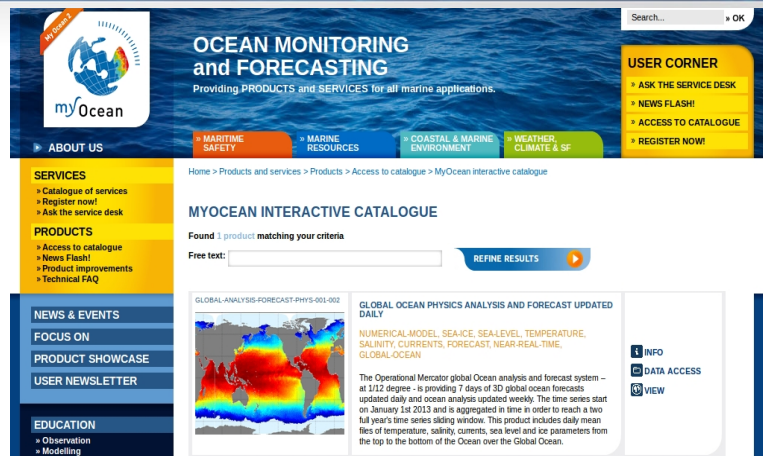
- Single entry point for discovery/view/download
- Navigability, good-looking

Implementations:

- Autumn & Joomla CMS
- Dedicated developments for discovery, view, download

Interesting on-going developments (for V4):

- Faceted search (SOLR)
- User's session, through out discovery/view/download functions: portfolio of selected products is managed.



Production of files at distributed at Production Unit level

Central information system operations are mostly automated, except for:

- Availability and timeliness monitoring reports
- Transaction monitoring reports

Service desk is where most manned operation is required:

- Incidents or planned outage are reported and advertised.
- User's requests are processed (escalation)

Service transition

1 major upgrade every year plus regular minor updates and changes (especially on products), both very seriously supervised

2 staggered update cycles:

- Distributed components: production and dissemination unit (e.g. DU-gateway upgrades)
- Central components

As much as possible configuration information collected once, re-used many times, from distributed to central components:

- Streamlined architecture
- Product manager's inputs collected in product and service database are validated with a workflow before new product is plugged in operational system.
- Dataset harvesting (from local DU-gateway configuration)

Conclusion (IT point of view)

It works pretty well !

Level of **accessibility** of datasets for discovery, view and download is good and homogeneous (especially on gridded data, on-going effort on in-situ).

Architecture is streamlined (good for sustainable and cost effective maintenance)

Lessons learned:

- Initial developments are quick compared to actual deployment and use (due to strong project governance)
- In addition, as in every distributed systems, actual implementation takes a while: configurability of distributed components is a key thing.

Information System must ease internal operations, as well as fulfill users requirements