

iMarine Integrated Captures Information System (ICIS)

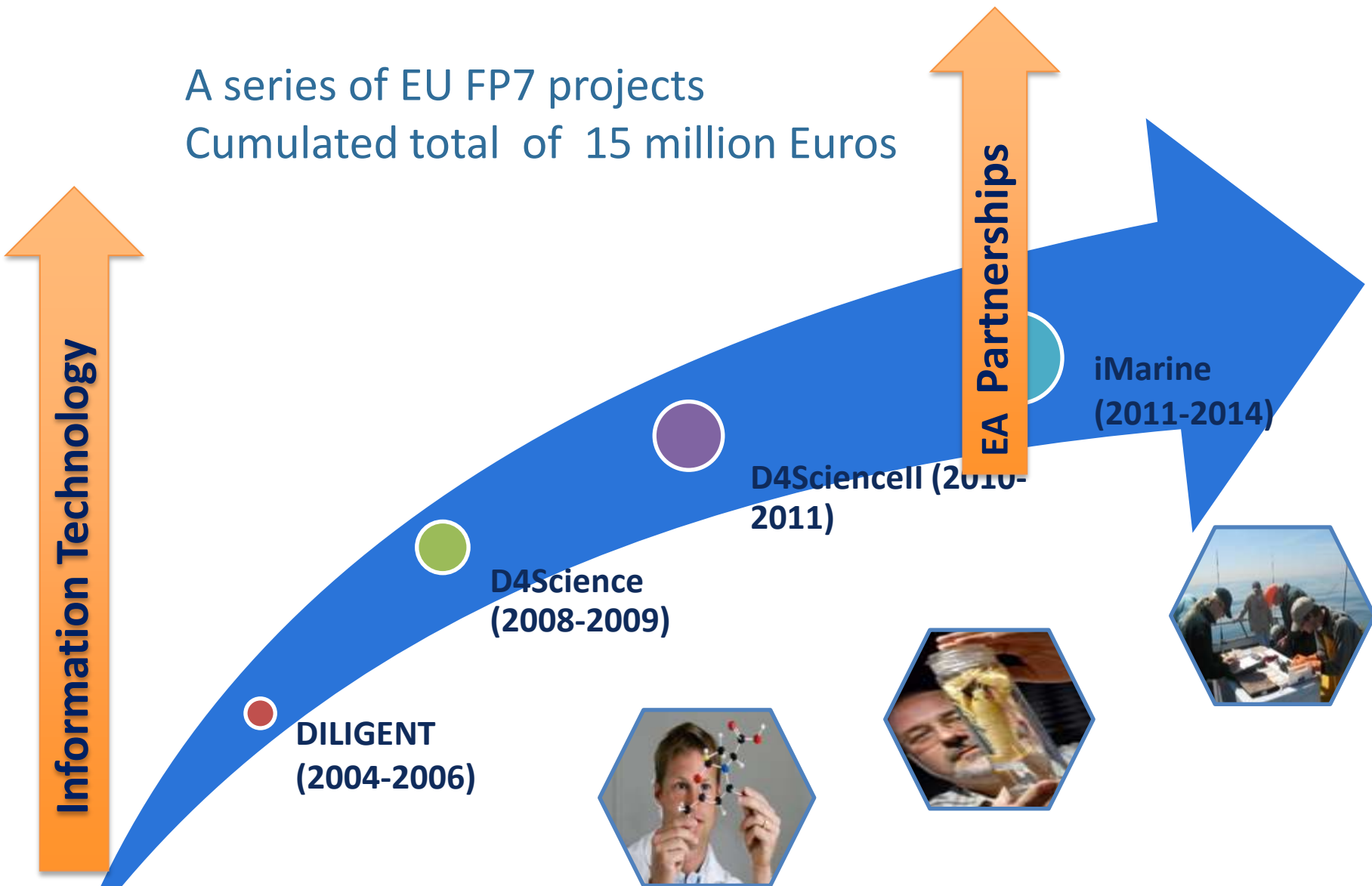
Marc Taconet/ Anton Ellenbroek / Yann Laurent
FAO Fisheries Department

A decorative blue wave graphic located at the bottom left corner of the slide.

Presentation outline

- iMarine project
- ICIS VRE
 - Quick presentation
 - Tuna Atlas use case
- ICIS: a time series integration solution
- iMArine: a pool of tools for time series processing
- Contribution to the iMarine infrastructure

A series of EU FP7 projects
Cumulated total of 15 million Euros





- ERCIM

Finance /admin



- CNR
- NKUA
- CERN
- E-IIS
- FORTH
- TERRA2

Technology



Fisheries

- FAO
- NEAFC
- Eurostat
- DG MARE
- MEDDE

Bio-diversity

- IRD
- ICES
- IOC/OBIS
- FIN
- CRIA
- SP2000
- VLIZ

Environrnt

- GENESI

User communities



- Trust-IT

Communication



What are infrastructure Resources

Software



Hardware

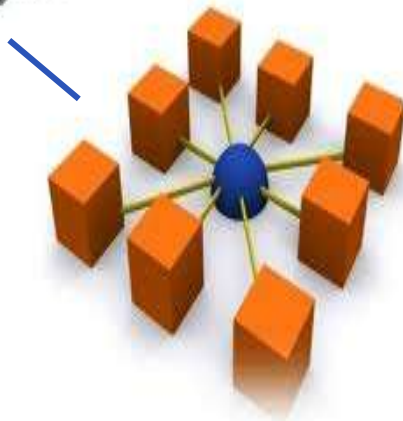
(computing & storage resources)



Data



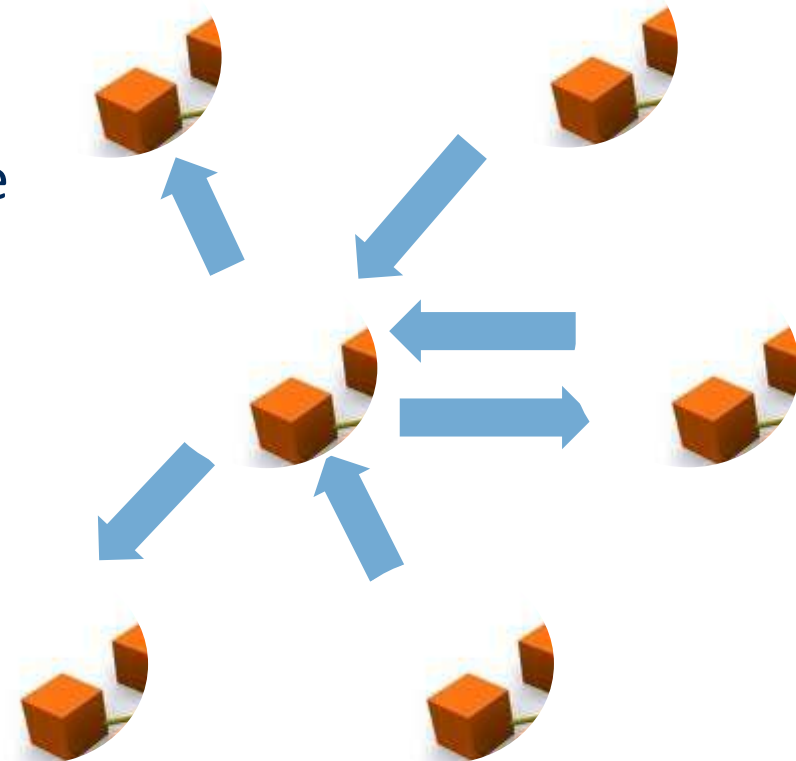
Governing procedures
and policies





Implement the concept of distributed e-Infrastructure

- **Based on interoperability**
 - Each e-Infrastructure can outsource required resources to other e-Infrastructures
 - The same e-infrastructure can play both provider and consumer roles



Data infrastructure Services

Virtual Research Environments (VREs)



VRE

VRE

VRE

iMarine
Data Infrastructure

think of a series of
work space:

- where access to resources is configured
- user access is controlled
- collaborative work is enabled

Select from different Applications

- 15 Virtual Research Environments (Data Mining, Data Curation and Analysis, Niche Modeling, ...)

iMarine Gateway Data e-Infrastructure gateway

Home

d4science.research-
infrastructures.eu



FARM

<p>AquaMaps</p> <p> enter</p>	<p>FCPPS</p> <p> enter</p>	<p>ICIS</p> <p> enter</p>	<p>VTI</p> <p> enter</p>
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gCube Applications

gCubeApps

<p>DocumentsWorkflow</p> <p> enter</p>	<p>Ecological Modelling</p> <p> enter</p>
<p>TimeSeries</p> <p> enter</p>	<p>Vessel Activities Analyzer</p> <p> enter</p>

ICIS VRE within iMarine project

- What is ICIS ?
 - ICIS goals
 - Provide a collaborative scientific virtual environment for time series harmonization;
 - Provide tools for **statistical** data management and processing;
 - Facilitate data exchange;

ICIS VRE within iMarine project

- Tuna Atlas use case for ICIS VR
 - FAO compiled on a yearly basis the global tuna nominal catches and the tuna and billfishes catches (tuna Atlas)
 - Data from different sources are compiled, loaded in a database and published on-line:
 - <http://www.fao.org/fishery/statistics/tuna-catches/query/en>
 - <http://www.fao.org/figis/geoserver/tunaatlas/>
 - Process is highly manual, data sources are heterogeneous: **how the use of ICIS-VRE can improve the whole process?**

A collaborative scientific virtual environment for time series harmonization

- Time series harmonization process in ICIS
 - CSV files secured upload
 - Validate reference data against standard available in ICIS (link to the ISSCFG code list loaded in ICIS) – convert one standard to another
 - Harmonize time series structure – make them available for publication (or other processes)

A collaborative scientific virtual environment for time series harmonization

- The tuna Atlas use case tested in ICIS
 - Data sources are not standardized: denormalized data (several columns for species) from IOTC (link to the excel file), IATTC, AFMA Vs Normalized data
 - Reference data can vary: Unique ID per square (IOTC) Vs Long/lat definition for CCSBT
 - Need to provide a unified files with all data from all data source with same reference data
 - ➔ Need to harmonize data files structure / standard used

A collaborative scientific virtual environment for time series harmonization

- ICIS-VRE: an opportunity for FIRMS-CWP partners
 - provide secured backup solutions for data
 - provide tools (upload, merge, harmonize, aggregate) to produce consistent and reliable time series following standard from various data sources
 - a tool for institutions with no advanced capacities for infrastructure development (*iMarine provides infrastructure with maintenance, improvements, regular releases etc...*)

A pool of resources for more advanced data managers

- A pool of tools:
 - SDMX format / registry to facilitate data exchange
 - An opportunity to access a rich library of integrated tools
 - Time series presented as Graphs, Maps
 - Code lists manager to share reference data and mapping
 - Standard Mapping capacities
 - R statistical capacities for advanced data analysis and processing
- An opportunity to access other data sources
 - Environmental
 - Biodiversity

A pool of resources for more advanced data managers

- Example of tuna atlas use case benefiting from iMarine infrastructure:
 - Code lists manager to capture all reference data (including from RFMO): metadata validation is easier as all code lists and their mapping are described
 - SDMX web protocol will facilitate and accelerate Tuna Atlas data processing (harmonized and well described structure)

What any partner can enjoy is the sum of all partners' contributions

- Contribution to the development of the infrastructure
 - Institutions can share their databases, tools and processes (like R processing), express their needs and ask for more tools (For instance, FAO openSDMX has been included in the iMarine infrastructure)
 - Ultimately, an institution can become an iMarine partner and be part of the development of the tool

What any partner can enjoy is the sum of all partners' contributions

- Illustration with the tuna Atlas
 - Documentation of Tuna Atlas use case as iMarine use case
 - Identify and document strengths and possible improvements
 - Road map to ICIS evolution to fully meet Tuna Atlas requirements

Conclusion

- **Benefits and opportunities**
 - Virtual research environments readily available for RFBs to collaborate on scientific data
 - An invitation to adopt standard web-protocols and best practices which facilitate data flows and access to shared tools
 - An invitation to add your tools as part of the iMarine infrastructure; the library of available tools can be made available in the VREs set-up for a given group of users