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**Working group**

**"New operational information system"**

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**Final report**

*“LET’S MOVE TOGETHER*

*TO THE 21st CENTURY”*

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# Executive Summary

A working group (task force) has been set up by DG DEVCO to design a new operational information system that will take over the operational part of CRIS which is being phased out, in addition to addressing major functional gaps. This new ‘system’, under the working name Opsys, also strives to provide a ‘corporate’ solution for the external relations family, mainly DG NEAR and FPI.

This report provides a first delineation for the possible scope of Opsys, based on current issues and emerging needs, with a prioritization, as well as recommendations for its architecture, scenarios for its implementation and a preliminary roadmap. A user group comprising colleagues from 12 EU delegations and representatives from DEVCO, NEAR, FPI and ECHO has supported the process. The work has built on lessons learnt from PCM platform, DFID experience and additional discussions with EEAS, SG, DIGIT, ECHO, FPI, NEAR, RTD and REGIO.

With regard to current issues, the existing operational IT systems are responding insufficiently to the basic needs of the organisation in term of efficiency, ability to evolve and ability to report and communicate. At the same time the EC is witnessing a changing context in the area of external relations, and is adopting new strategies in the way to do its core business. According to their own words there is a huge expectation from users to eventually move to the 21st Century.

This is why Opsys is necessary: not only to ensure business continuity with CRIS but also to enhance our key capabilities particularly the needs for managing operational processes, external collaboration with partners like EU MS, result management, knowledge management, transparency and communication. Indeed **a digital transformation** is needed as this goes beyond a purely operational transactional system or even IT.

Business requirements have been identified at high level for country and sector context information, internal collaboration, document management, planning of operations and time management, tendering, preparing financial commitments and payments, monitoring, managing risk assessment, audits and evaluation. They are covering the wide scope of operations and are followed by an assessment of existing tools to see what kind of IT solutions can be found to cover those needs; a first work on interoperability and re-use of systems was made.

An initial prototype has been made for part of the functionality which provided relevant lessons for the next steps and created excitement among the user group. It also demonstrated that the best working development method for the new system should be based on so-called ‘agile’ principles, where business and IT are working jointly on delivering discrete benefits: "think big, start small".

Business requirements have been grouped in clusters called "work packages" in order to structure the work that can be delivered on an incremental basis, starting with the most valuable work packages first. The proposal is to start with CRIS operational business continuity as well as results management for meeting new demands.

A proposal is made for the new system architecture, aligned with on-going reflections of DEVCO/R6. The respect of architecture principles is essential to make the new system workable and future-proof.

The investment effort for the full business requirements is estimated to 50 M€ for 5 years and the proposal is to cover 80% of the needs, meaning 40 M€ for 4 years. The system could be delivered in successive releases every 9 months, with the possibility to stop at any time.

The main conclusion is that the ambition of Opsys necessarily goes much beyond what CRIS offers today in order to cover the essential needs of DEVCO. Such ambition is affordable as investment costs (10 M€/y) are at the scale of the current IT budget (15 M€/y) and are realistic given Commission and external experience for such a transformation. The level of risk is moderate as the proposal is to proceed on an incremental basis with the possibility to scale down the ambition after each stable release.

Addressing data quality issues is one of the major objectives assigned to Opsys. For that purpose a few principles mainstreamed in the design of the new system: encoding done the closest to the source, no re-encoding, user friendliness, user benefit for the encoding effort and accountability.

Final recommendations encompass the following aspects:

1. "Think big": Endorse the high level of ambition: (i) to address major issues and cover new needs progressively and in 5 years: definition of a programme entity, external collaboration with EU MS and implementing partners, results management, knowledge management, transparency and communication, greater efficiency and ability to evolve; (ii) to validate the technology scenario leading to an estimated investment costs of 40 M€ for 4 years covering 80% of the needs, (iii) to define and implement an Enterprise Architecture and (iv) to define and implement a Digital Transformation Programme going beyond IT systems;
2. "start small": (i) to proceed on an incremental basis with a set of five 9 monthly stable releases, (ii) to start with Results Management and in parallel start with building Programme management functionalities (CRIS business continuity) and (iii) to agree on a firm financial commitment for the first 2 years based on a project charter;
3. Engage with partner DGs NEAR and DIGIT at the appropriate level;
4. (i) Adapt the IT governance for DEVCO overtaking the silos' approach and (ii) explore additional synergies between on-going initiatives;
5. Set up the framework for the Digital Transformation Programme: (i) Create / appoint a responsible organizational entity, (ii) including Enterprise Architecture overseeing in close collaboration with IT Architecture situated in R6, (iii) appoint skilled staff, (iv) mobilize a temporary structure and (v) look at synergies between resources of all IT related initiatives;
6. task the temporary structure to prepare a project charter;
7. for methodology: (i) apply Agile Development, (ii) reflect on development sourcing strategy, (iii) prepare a communication plan including a call for ideas for the name of the system;

A number of actions need to be carried out without delay under the umbrella of the temporary structure in order to reach the starting point for development planned on 01/01/2016: (1) endorsement by DG NEAR, (2) setting up the new IT governance and the management for OPSYS, (3) drafting the project charter by end of June 2015, (4) looking for budget solutions for the preparatory work and for the development phase, (5) getting support from DIGIT and opinion from ISPMB, (6) work on IT solutions with DEVCO/R6 and on re-use of existing tools, (7) identify and prepare the best contract option for development, (8) further work on business requirements for the first releases.

# Glossary

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| AAP | Annual Action Plan |
| BSSC | Budget Support Steering Committee |
| (SAP) BPC | Business Planning & Consolidation – application used by DG DEVCO to cover the financial forecasting process and data |
| CRIS | Common Relex Information System, main information system used by DG DEVCO |
| COM | European Commission |
| CSO | Civil Society Organisation |
| DECIDE | Portal of the Commission decision-making process covering the planning, consultation and adoption steps and built on different applications |
| EAMR | External Assistance Management Report |
| EDF | European Development Fund |
| e-domec | is the policy for electronic archiving and document management in the Commission |
| EIB | European Investment Bank |
| Enterprise Architecture | Enterprise architecture applies architecture principles and practices to guide organisations through the business, information, process, and technology changes necessary to execute their strategies |
| HERMES | is a technological platform which harmonises the Commission's various digital document and file management applications in acommon structure |
| HQ | Headquarters |
| IcSP | Instrument contributing to Stability and Peace |
| Information system | A computer system within a company or organisation for sharing information |
| KPI | Key performance indicator |
| MIP | Multi-annual Indicative Programme |
| MIS | DG NEAR’s Management Information System |
| MoSCoW | Methodology to prioritize needs (Must, Should, Could, Would):  Must: essential needs; the organization will face serious shortcomings without  Should: important needs however non-essential; the organization can cope without  Could: useful needs, would be an asset for the organization to have them  Would: nice to have needs, with or without will not make a difference |
| ROM | Results Oriented Monitoring |

# Introduction – why is a new operational information system necessary ?

## Context and scope of the mission

The DEVCO IT Steering Committee held on 12 June 2014 took the decision for the phasing out of CRIS, based on the conclusions of a first working group in charge of DEVCO’s information systems strategy. The vision is to migrate to ABAC the financial part of CRIS to the extent possible in line with the rationalisation policy of the Commission and to set up a new operational information system covering residual CRIS functions and addressing current gaps. The mission of the working group is therefore to design the new operational information system and to make recommendations to management about (see annex 1):

1. The definition of the functions and the scope of the future operational information system (high level business requirements)
2. The definition of system architecture
3. The mapping and assessment of possible technologies and possible scenarios with roadmap elements (cost, timing, phasing).

The working group, known as “task force”, has started its work mid-September 2014. It was composed of four seconded DEVCO staff, two with a business profile and two with an IT profile. It has been supported by the consultant Gartner for quality control and solutions benchmarking. A dedicated user group has been set up; since the merger between DG ELARG and directorate F the group comprises 11 representatives from DEVCO directorates and units, 4 representatives from DG NEAR, ECHO, FPI and 12 representatives from EU Delegations worldwide (10 from DEVCO area and 2 from NEAR area); the last updated list of participants is in annex 2. A temporary staff support has been granted for few weeks early 2015 to support the drafting of business requirements. And finally the task force has included in its methodology an initial prototyping to support the reflection work.

Resources mobilised[[1]](#footnote-1): 2.8 FTE

240 k€

Name: the name of the operational information system has yet to be decided. Temporarily the system is called Opsys.

## High level issues today

DG DEVCO is facing currently a series of key challenges in its daily operational work:

* Captured data are of unreliable quality, and can be hardly aggregated; documents are stored in disconnected systems and hardly findable
* There a significant effort involved in non-value-added manual transactions. Not all tasks that could or should be automated are covered in our current Information Systems, leading to an inappropriate use of resources (tendering, planning of operations)
* Over time, the CRIS has become increasingly complex and heavy to maintain. In addition, the needs of the business have evolved and the increased pressure of budget and results means CRIS can no longer keep up with the increasing demand for changes. This is because it was never designed with adaptability in mind
* CRIS has served its purpose and the decision was made that it will be phased out. A number of essential functions of CRIS cannot be covered by ABAC (analytical breakdown, follow up of budget consumption, decision, contract and invoices processing before validation, data for reporting, derogations follow up, framework contract management)
* For the last few years DEVCO has not worked on a strategic vision for its operational information system; IT initiatives[[2]](#footnote-2) have until recently not benefited from process simplification opportunities and not always taken into account interoperability with other systems; this has led to a situation where too many exceptions had to be covered
* Development of systems have in the past followed a big bang approach with a long lead time, inadequate or changing requirements, and change of the people involved in the projects
* Business and IT are jointly responsible for the gaps in IT governance that has resulted in a silo approach to IT investment, leading to a rather scattered IT landscape with painful consequences for users (re-encoding, re-logging, different user interfaces)
* Users frequently complain about the lack of user friendliness and the absence of overall coherence between tools

As a consequence existing operational IT systems are responding insufficiently to the basic needs of the organisation in term of efficiency, ability to evolve and ability to report and communicate.

## High level new needs

At the same time DEVCO is witnessing a changing context and adopting new strategies in the way to do its core business, as reflected in its mission statement.

First the new EU dimension set up by the Lisbon Treaty has given more importance to the coordination with and to the coordination of EU Member States as for joint programming in the field; it has remodelled the external relations landscape within the EU introducing new actors to interact with; it is promoting an EU as a whole visibility abroad.

The change of patterns about development and aid effectiveness in international fora is bringing new obligations in term of transparency and coordination with partners, including with civil society. It gives an increased focus on quality, impact and visibility of programmes implemented.

The Agenda for Change has given new orientations to our development and international cooperation policy with an increased attention given to sector concentration and results management as well as the implementation of a differentiation policy ranging from fragile toward graduated countries.

The modern new IT environment (social media age) has raised expectations from all sides on what an organisation can deliver and how it should use IT systems would it be for EU constituencies, for the public worldwide, for partners or even internally for users who see more and more discrepancy between their professional and personal IT environments.

The new Commission is promoting the clustering of external relations and supporting an ambitious transparency agenda still under discussion. It encourages de facto the search of corporate solutions for the concerned DGs and service.

And finally DEVCO has engaged in an ambitious strategy as learning organisation promoting the capitalisation of knowledge and in implementing an information and communication policy related to EU actions to support development. Moreover the increasing pressure on resources (staffing, financing) is calling for a greater efficiency in organising and managing business processes.

According to this changing context new needs have emerged and in line with user group discussions the following gaps have been identified:

* Building an EU dimension, working with EU MS, working with other DGs and interacting with implementing partners and partners (external collaboration)
* Responding to transparency and communication expectations
* Supporting knowledge management and integrating social media age features
* Tracking sector information, monitoring performance and results
* Increasing internal collaboration, better managing documents, automating tasks and allowing a time management to improve our efficiency

This is why a new operational information system is necessary: not only to ensure a business continuity with CRIS by covering the residual functions non-transferable to ABAC but also to address other major issues and to cover the essential new needs of DEVCO particularly external collaboration, results management, knowledge management, transparency and communication. Indeed a digital transformation is needed. This goes beyond a purely operational transactional system or even IT, but needs to mobilize participation and support from across DEVCO.

# Business analysis: high level requirements

Preliminary remarks:

1. Opsys has a double dimension: In most cases along this report, Opsys represents a galaxy of systems covering the operational sphere. In a narrow sense when talking about a specific system (e.g. Prospect), Opsys is understood as one of the systems, the one called to replace the operational part of CRIS and beyond. As a consequence and in accordance with the mission statement of the task force the identification work covers business processes irrespective of existing IT applications supporting them; the correspondence between business needs and IT applications will be made in a next step, including recommendations to keep on using, expand or abandon some of them. A first reflection on inter-operability and re-use of systems is provided in chapter IV-5.
2. Identified needs are not casted in stone: Identified needs are based on discussions held with the user group in its HQ or EU delegation format (minutes in annex 6). They are by nature high level and have been used to determine the desired situation a new system should target based on the essential needs of users. The business requirements were used to build a business architecture which should then be supported by the proper application landscape and IT architecture. They therefore constitute starting points for further discussions once the scenario will be chosen.
3. Detailed documents: Complete high level business need documents are enclosed to the report (annex 3). Those detailed documents are heterogeneous in their format and in their scope; in particular “financial commitments” (4.4) and "reporting" (9) are depending on on-going rationalization initiatives (CRIS-ABAC, reporting).
4. Identified needs follow on from business processes: though not reflected in the summary integrated into the report the link with business processes has been explained in the detailed business requirements documents in annex
5. Prioritisation (needs assessment): prioritisation has been made at two levels: first at business requirement level a prioritization has been made (must/should/could/would)[[3]](#footnote-3)and some functionality have been set apart as out of the scope; second after the definition of work-packages a prioritization exercise was made in order to propose a phasing (chapter VI).
6. Corporate dimension: Though DG DEVCO is mentioned many times, those business requirements have the ambition to become corporate business requirements covering the needs of other partner DGs and service.

Based on those high level issues and new needs and on further discussions with the user group the task force has structured its work around the following nine components in order to identify high level business needs:

1. Introduction to business processes, operational entities and roles
2. External collaboration
3. Country and sector context information
4. Operation management
5. Planning of operations/ time management
6. Manage financial forecasting
7. Manage tenders and call for proposals
8. Manage financial commitments, interaction with ABAC
9. Manage deliverables (pre invoicing)
10. Manage key project events and follow up of activities
11. Quality and risk assessment, audit and evaluation
12. Results management
13. Document management
14. Internal collaboration
15. Capitalising and accessing knowledge
16. External/official reporting, transparency and communication
17. Non functional requirements

High level business requirements have been identified by the working group for each of the 9 components/ areas of reflection validated in December 2014.

A summary by component is provided below.

1. **Introduction to business processes, operational entities and roles: center Opsys on operational entities**, which reflect the cycle of operations; it will not be centered any more exclusively on legal and financial entities like in decision and contract modules of CRIS; it will allow managing results, communication, portfolios and dashboards, also during the upstream and downstream life of programmes:

* Operational entities are covering the main processes: programming (MIP), identification and formulation (AAP and Action, for programs, budget support and blending), implementation and evaluation (programme, contract, results, sectors).
* the proposal is to use the concept of **programme[[4]](#footnote-4) entity**, formed of a collection of decisions and contracts, or being a part of a contract; we may have a **lead-programme or a programme**; it covers most of the possible scenarios (>95%) including bilateral programmes, thematic programmes and facilities (lead program for HQ, programme at the level of a contract for an EU Delegation), budget support, IcSP, Partnership Instrument, blending, EU trust fund and cross border cooperation; the few remaining peculiar situations will be dealt with on a case by case basis;

A programme is defined by the following conditions:

1. It aims at one or more specific objectives and generates results
2. It corresponds to the responsibility of a single EC entity (one unit, one delegation..)
3. It corresponds to the responsibility of an external entity with whom the EC has concluded one agreement or contract
4. It has a specific budget, timeframe and geographical location

A programme gives rise to communication activities and contributes to knowledge.

The 2 most frequent cases are the following:

* Country programmes: The programme coincides with the Action from which it is stemming, e.g. a 71 Million EUR Sector Budget Support Programme for supporting the water policy in Burkina Faso.
* Centrally managed programmes: The programme coincides with a Contract, often concluded after a call for proposals, e.g. a 1,1 Million EUR Programme - under the Water Facility - implemented by a NGO in Burkina Faso. In such a case, the Water Facility - managed by HQ - is the "Lead Programme".

1. **External collaboration: open the system on a differentiated way to selected groups of external actors through a portal;** as a general rule any input provided by an external partner in a workflow must be validated by an internal actor (ie operational manager); the system:

* For EU MS locally, and for likeminded partners (Norway): must allow managing joint programming obligations (access to analytical work, collaborative work on a joint strategy, follow up); further, it should support EU lead sector arrangements and EU as a whole in term of visibility (on line EU blue book)
* For other COM DGs and EU financial institutions: must allow exchanging information on activities and building a comprehensive EU institutions portfolio in a given country or region
* For implementing partners (CSOs, international organisations) and also for contractors: must allow them providing inputs into the system to avoid re-encoding by an internal actor (initial encoding of contract, communication plan, progress reports and results achieved).
* For partner/beneficiary countries: should allow providing the minimum set of data to inform them about our programs in accordance with our international obligations (EDF, aid effectiveness)
* For professionals concerned by EU external cooperation and action: participate in collaboration groups, share and access to knowledge.
* As a continuation of external collaboration, the system should allow - for civil society, consultants and researchers - a limited access to selected data on a case by case basis.

1. **Country and sector context information:** the objective is to capture and make available a set of data related to the country and to the critical sectors (focal sector, governance, human rights) in order to be able to manage budget support operations, to encourage a sector approach and to share information (with EU MS locally, with HQ). In that regard the system:

* Should be able to provide a "country at a glance" fiche built on a collaborative mode between delegations and HQ,
* Must be able to provide the analytical and supporting documents needed to proceed with budget support operations follow-up and disbursements (national or sector strategies, reform agenda, stakeholders, financing decision, monitoring reports, risk evaluation, baseline/value for indicators, Delegation opinion, BSSC decisions)
* Should be able to provide a minimum information package on critical sectors for a given country or region (local strategies, analytical work, donors arrangement)

1. **Operations management**

Seven sub-areas have been identified : 4.1 Planning of operations/ time management; 4.2 Manage financial forecasting; 4.3 Manage tenders and call for proposals ; 4.4 Manage financial commitments, interaction with ABAC ; 4.5 Manage deliverables/ supporting documents ; 4.6 Manage key project events and follow up of activities ; and 4.7 Quality and risk assessment, audit and evaluation.

Operations management reflects the core business of DEVCO/NEAR/FPI particularly for identification/formulation and implementation business needs. It should be understood through three core functions: ensuring the business continuity with CRIS and other tools, by covering residual CRIS functions non transferable to ABAC, and going beyond with new functionalities improving our daily work:

1. Business continuity[[5]](#footnote-5) with CRIS: the system must:

* Support legal commitments creation, modification and closure (level 1, level 2) for their operational part; it includes the management of the analytical breakdown for level 1 and level 2 commitments, allowing the follow up of their consumption (RAL, RAC)
* Manage supporting documents either registered via ARES/ABAC if annexed to an invoice or directly registered into the system, in order to process them until the rendered service visa
* Support the follow up of derogations and deviations
* Support the management of framework contract functionalities (request for service, evaluation, awarding, specific contract, balance between consortia)
* Offer a minimal interoperability with ABAC through web-services[[6]](#footnote-6) as Opsys will need data from ABAC (budgetary commitments and elements from legal commitments, payments, recovery orders, invoices and their supporting documents encoded in ABAC) and as Opsys will have to push to ABAC a few data (data and documents processed for financial commitments and payments); interaction with ABAC is a crucial issue and **should not lead to recreate CRIS**. As first approach it is suggested[[7]](#footnote-7):
  1. No go and back between the two systems for users;
  2. operational staff should be prevented to make transactions in ABAC
  3. No re-encoding (to the extent possible)
  4. No duplication of functionalities between the two systems
  5. To minimize the flow of data to be exchanged between the two systems to what is essential
  6. To adopt a coherent approach easily understandable by users, giving them a "fil conducteur" when working on financial commitments
  7. To preserve a clear line of accountability for operational staff in legal commitment management
  8. The primary source of data is ABAC
  9. Make a distinction between the financial transaction and its process, in other words, between input of data (Opsys) and their validation (ABAC) which include also the budgetary commitment data
  10. To look for other solutions while waiting for ABAC to offer a web-service catalogue (which will allow to push easily data in both ways); eg to limit the interoperability between the two systems temporarily[[8]](#footnote-8)

1. Business continuity or interoperability with other tools according to the final decision on the use or re-use of existing tools; to the extent possible recent or new tools should be re-used at least for the short and medium term. The system should:

* Capture forecast, their risk level, allow their follow up or being inter-operable with BPC/MIS
* Support the management of call for proposals, from publication to awarding or being inter-operable with PROSPECT
* Capture annual audit plans, financial and non-financial follow up (ineligible expenditures), allow inputs from auditors via a portal, auditors assessment or being interoperable with the new audit module expected mid 2015
* managing external monitoring: portal for ROM contractors to access programme documentation and to upload their report; and for EC staff to comment on them or being inter-operable with the new ROM module expected by May 2015
* Must allow elaborating and capturing the annual evaluation plan, give access to and receive inputs from the evaluators, capture evaluation recommendations and follow up, facilitate the publication of final reports or being inter-operable with the planned new evaluation module[[9]](#footnote-9)
* Offer collaboration groups open to external stakeholders and other knowledge sharing functions or being inter-operable with Capacity4dev.
* Offer geolocalisation or being inter-operable with CRIS-GIS atlas.

1. New functionalities to improve our daily work: the system

* Must allow planning of operations and time management, with key milestones, notifications (with two levels: must and could), alerts and visualization on a metro line view; a flexibility must be offered to users for more detailed milestones; it applies for programming, action documents, tendering and contract life;
* Should allow the establishment of draft financial forecasts for commitments and payments based on planning management information (cf MIS)
* Must allow tender management at least for centralized management with automation of the chain (from publication to award including submissions and evaluations), leaving the possibility for paper submission in difficult situations; it must cover collaborative work (tender dossier, evaluation), access by third parties (bidders, contracting authority) and expert assessment
* Must allow managing deliverables beyond supporting documents (any kind of contractual communication)
* Must offer automated check-lists
* Must allow internal monitoring (capturing field visits, internal reports) and key project events (launching, commissioning, visits –pictures, media coverage-, program steering committee)
* Should allow capturing risk assessment for the EAMR report (red and yellow traffic lights) and their mitigation measures with their follow up

1. **Results management**

A top priority resulting from the Agenda for Change with DEVCO is committed to start measurement in 2015. It is a new process which cannot be built on practical experience but rather on learning by doing. It has therefore been part of the scope of the initial prototyping. It will be based on the definition of programme entity (see component 1). The system:

* Must allow capturing local indicators at MIP, action and contract level including baseline, targets and measurement, disaggregated by gender at action level;
* Must allow doing a matching exercise between local indicators and EU result framework (EU RF) indicators
* Should allow users to manage other matching indicators according to their needs (local priorities not covered by the EU RF, other DGs priorities or centrally managed programmes when not already covered by EU RF)
* Should allow implementing partners to provide inputs in term of measurement, making sure that it has become a contractual obligation
* Must make the link with the related KPI 6 on achieving programme objectives

1. **Document management**

Many documents are stored in disconnected systems leading to redundant activities and sources of error (re-encoding, re-uploading), to waste of resources (time and money[[10]](#footnote-10) spent for searching, storage requirements, bandwidth requirements), and being an obstacle to access to knowledge. Limitations of ARES deserve to be addressed (limited access, heavy search).

The objective is to implement document management obligations (e-domec rules) for registration, archiving and filing through a seamless re-use of HERMES and inclusion of document templates. HERMES is the repository of documents for the Commission behind ARES. The direct use of HERMES will be fully ARES compatible.

The system will interface with the new decision making platform "DECIDE" through web-services[[11]](#footnote-11) as well as with other tools already working with HERMES (PROSPECT, ABAC).

The system:

* Must offer a single repository for documents per business entity (e.g. contract, action..) and allow a seamless use of HERMES, interfacing in background (so to be invisible for the users)
* Must create a single registration number per document into HERMES and be directly linked to the business entity
* Must follow a CRIS like registration numbering and allow users to use old CRIS references to be able to search business entities
* Must include document templates whenever possible
* Must allow a systematic scanning and indexing of documents
* Must comply with the following standard features[[12]](#footnote-12): metadata, integration, capture, storage, distribution, security, workflow, collaboration, versioning and searching.

For the long term, the system should allow a transition from paper document to web content (key feature for a digital transformation; the best way to address documents challenges).

1. **Internal collaboration and operational workflow**

The focus has been given on internal collaboration, operational workflow being a further step. The system:

* Must support collaborative work on documents. Such requirement is based on lessons learnt from ECHO's experience with the "fiche opérationnelle" of the HOPE system. The objective is to build mutual confidence among staff in different business units as for financial/operational, field/HQ, thematic/geographical and then reduce in time the visa chain (work in parallel rather on sequential way);
* Must offer an access to who does what[[13]](#footnote-13) and who did what, keeping memory of past actions, and offering to build an expert profile for staff
* Should offer the possibility to involve Cabinet in workflows for flagged files (programming, selected action document)
* Should offer a hand over like function with coming deadlines
* Should offer a feedback function for managers to know what key actions have been performed in a given period of time (ie in case of subdelegation)

The complementarity with Capacity for Dev for collaboration should be explored.

1. **Capitalising and accessing knowledge**

The system aims to promote a change of mind-set, supporting DEVCO knowledge management strategy and bringing functionalities of the social media age. The system:

* Must support creating information:
  + Easy to understand sector tagging for operational entities; harvesting personal testimonies like pictures, hosting programme web-sites
* Must progressively enable to turn information into knowledge:
  + "recommend" function for meaningful practices (valuing users inputs)
  + Modern search tool to quickly filter through lists, capitalising on COM/DIGIT initiative to develop an EU search engine when it will be ready
  + Keep history of roles, identify colleagues in their area of expertise through their portfolio, suggest relevant files/evaluations in the design phase
  + Learning, participating in networks and groups, through Capacity4Dev.
* Should offer a high level query system to retrieve information; a system that offers greater flexibility than predefined reports.

1. **External/official reporting, transparency, communication and visibility**

The main objectives are to provide data for external/official reporting, to fulfil transparency obligations (IATI requirements) and to improve our communication outcomes. The system:

* For external and official reporting:
  + must provide, to the extent possible, the data and common indicators to be identified by the reporting rationalisation exercise;
  + coupled with a business intelligence function, it could provide direct reporting in complementarity with the Datawarehouse on a cost effectiveness basis in the framework of the reporting catalogue defined under coordination of unit R1
  + should offer a comprehensive view of EU interventions (all DGs) in a given country or region, based on common master data for the concerned DGs
* For transparency: must allow making available the documentation and data required by IATI standards, targeting a publication on a monthly basis
* For communication and visibility:
  + Should allow capturing programme communication plans, should allow their follow up by implementing partners;
  + Both Opsys core component on operations management as well as programme websites are built in such a way, that they provide direct inputs to EC Europa internet, EU delegation websites.
  + Documents to be made public as well as a standard information package on programmes (easy to understand: title, amount, stakeholders, dates, short description, results, small map, pictures) are used to build "case studies" (short standard presentations) and made available to communication pages on EC Europa internet, EU delegation websites.
  + Further communication outputs (testimonies, pictures of site visit, geographical locations, videos, publications, media coverage) are captured on Opsys/Programme websites, in order to ease the preparation of the communication pages.

1. **Non-functional requirements**

Non-functional requirements are requirements related to the working environment: user interface, performance, integration/interoperability, security, data protection, be mobile friendly:

* The user interface must be clear and user friendly, encouraging data quality (clear messages and field names, guidance, common design patterns, reduced waiting time, multi-lingual EN-FR with EN as fall back solution if no translation available, personal settings –ie favourite page, one stop shop with an easy access to all IT applications)
* The response time must be short especially in Delegations (appropriate measures for low band-with and long satellite connections); it may lead to review the way to work in order to reduce the size of exchanged data
* the unreliability of connection should not lead to a risk of losing encoded data
* The system should be designed to be change proof through an appropriate architecture that makes adaptation and extension easy therefore at a lower cost
* The system could offer offline mechanisms
* Interoperability: The system should offer a seamless re-use of other systems whenever possible (behind the scenes use supported by web-services); at least a common terminology of data should be applied; the IT governance should reflect the need to preserve IT coherence
* The system must offer the appropriate level of security through authentication (one single sign on through ECAS), authorization, integrity and confidentiality (HTTPS, encryption of critical data, case of confidential projects and personal data)
* The system should anticipate its use from mobile platforms (foreseeing a user interface suitable for mobile device, geolocation, multimedia features as taking pictures or videos and link them to the system)

1. **Out of the scope functionalities:**

A first series of functionalities have been set apart, being considered as neither essential nor being part of the operational scope; at the time of the selection of IT applications, further analytical work will be made to see what needs can be covered by the system and the out of scope functionalities may increase. It is therefore not planned for the new system to cope with:

* Decentralised mode, actions performed by contracting authorities (it is simply envisaged to provide a regular update on data to partner/beneficiary countries and interact with them on a limited number of events)
* The Commission decision making process already covered by DECIDE, IT tool just implemented by the Secretariat General
* External and official reporting implying the use of the Datawarehouse system,
* Languages: based on CRIS experience[[14]](#footnote-14) other working languages as ES or PT will not be considered in Opsys (only EN + FR, EN being the fall-back position if FR translation is not available)

# Current State Architecture

In this section the current state architecture of DEVCO is represented by three key models that describe the main business assets respectively from a business (BCM)/(BIM) and technology (IT Application Landscape) professionals’ perspective. The three models provide a platform for analysing how the current state architecture needs to change in response to strategic challenges and opportunities posed by digitalization of DEVCO’s business operations. Complimentary, these models serve to effectively on-board stakeholders of this digital transformation by providing common semantics and understanding.

## Business Capability Model (BCM)

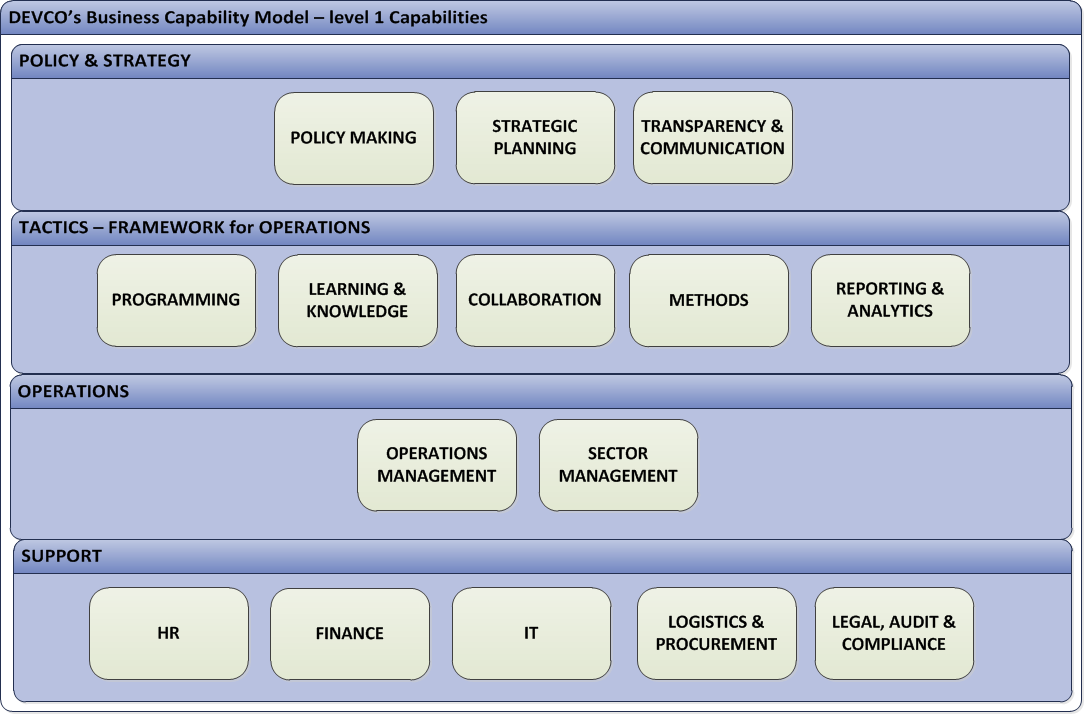
The business capability model represents the way in which DEVCO combines resources, competencies and processes for service delivery to the final beneficiaries throughout the world. 

Figure 1 - Business Capability Model, level 1 capabilities

The four tier model addresses aspects of ‘policy & strategy making’, planning and ‘transparency & communication’ to guide the second tier, ‘Framework for Operations’.

At the heart of this framework are programming activities that drive DEVCO operations. Furthermore this framework covers learning & knowledge, collaboration and methods capabilities that are effectively the memory of the organisation and support to retain best practices derived from the rich history of the directorate general in international cooperation and development operations. Reporting and analytics provides insight into operations and sector management to describe, analyse and predict business outcomes set forth in strategic and policy objectives.

Zooming in on tier three, Operations, this tier depicts DEVCO’s distinctive capabilities to provide differentiating public services for aid operations and sector management. Within operations management the elements cover the entire lifecycle from planning, financing to executing and evaluating operational activities. Whereas sector management strengthens relations with donors, partners and leverages intelligence from sector experiences unique to cooperation and development activities.

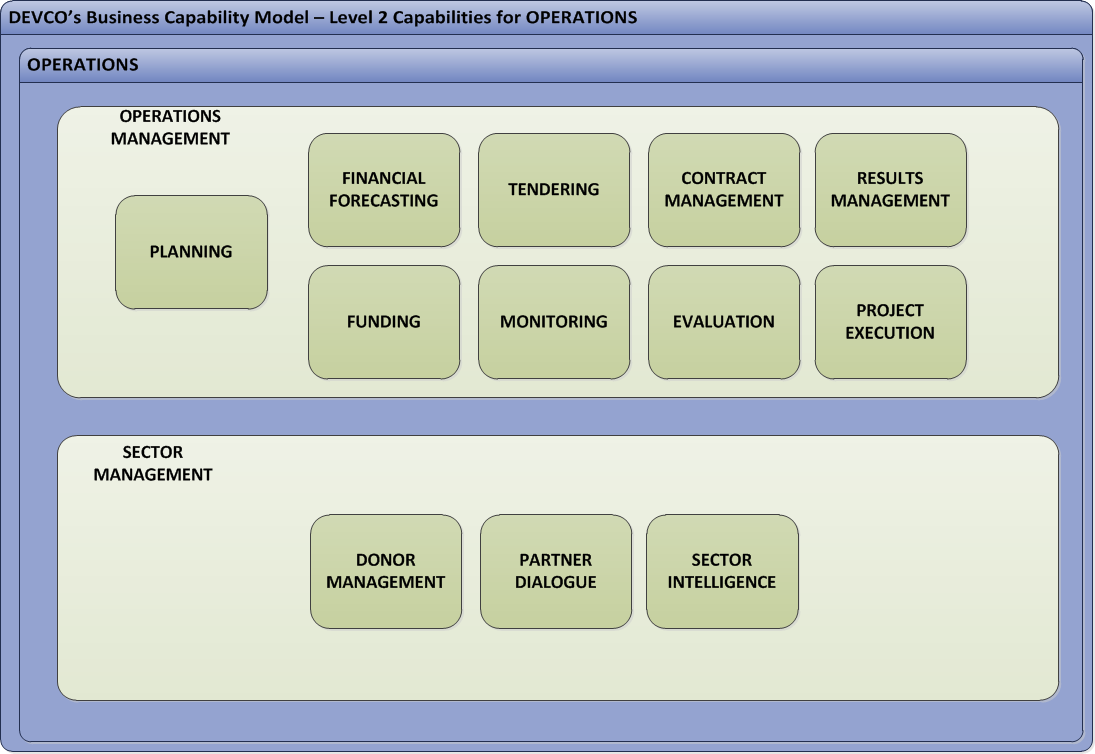


Figure 2 - Business Capability Model, Operations' level 2 capabilities

Tier four capabilities support development and cooperation activities through people, financial and technology asset management capabilities. Further, to ensure DEVCO’s professional and ethical business conduct, mission critical capabilities covering logistic, procurement, legal, audit and compliance activities are depicted.

## Business Information Model (BIM)

The business information model provides a mechanism whereby DEVCO’s stakeholders can come to grips with a particular business concept about which the organisation wishes to maintain information. The information model aims to bring clarity and structure by providing a framework for delineating information needs from the diverse viewpoints of various stakeholders. The model is primarily designed to actively assist DEVCO in understanding and improving the business[[15]](#footnote-15).



Figure 3 - Business Information Model

The model is designed along six fundamental business concepts that group information needs of the why, who, what, how, where and when of DEVCO’s business. Additionally a seventh dimension has been added to cope with information needs that span across multiple business concepts integrate information needs for classification and analysis purposes.

* The **business direction** concept records the intent (“WHY”) of DEVCO and other involved parties with regard to the manner and environments in which it wishes to carry out its business. The concept contains information about the organisation’s business goals and plans, policies, and competences.
* The **involved party** concept represents all stakeholders (“WHO”) that may have contact with DEVCO or that are of interest to the organisation and about which the organisation wishes to maintain information. This includes information about staff, including DEVCO staff itself, implementing partners and other stakeholders.
* The **service** concept describes the public services (“WHAT”) provided by DEVCO during the normal course of its business services that are, will be, or have been, available to beneficiaries as well as services provided by other involved parties that DEVCO uses as input for obtaining its business. Typically, these public services involve the use of resources. Resources include anything of value, either tangible or intangible, that is owned, managed or used by DEVCO in the course of accomplishing its business.
* The **activity** concept describes events (“HOW”) about which DEVCO wishes to keep information as a part of carrying out its mission and conducting its business. Most eminent events include the recording of the processes by which DEVCO’s operations are planned, accomplished and sectors are effected. Arrangements affirm the conditions associated with the exchange for value of services and/or resources between two or more involved parties.
* The **location** concept describes a place (“WHERE”) where DEVCO business is conducted, such as a country or state in the globe, or places that are affected by its activities such as benefitting zones or action locations.
* The **time** (“WHEN”) concept groups information about DEVCO activities and outcomes along varying planning and timeline dimensions.
* The **classification** concept organizes business information that touches on groups of previously identified business concepts and classifies instances of information to support analysis. Within DEVCO, main classification concepts supporting analysis are results and quality frameworks, the general ledger, performance indicators and evaluation criteria.

## IT systems landscape

See figure 4 below

The IT systems landscape represents graphically how the organization supports specific core business processes by IT systems. The core processes have been divided in three main zones for which some key steps have been identified. Each process zone is supported by a certain number of IT systems that can either be modules, such as the CRIS contract module, complete IT systems such as ABAC and can either be owned by DG DEVCO or not.

This representation supports the analysis by showing the IT systems’ landscape complexity, the different ongoing initiatives of phasing out of CRIS modules, the upcoming IT systems, the ones for which the use is mandatory for our processes (DECIDE and ABAC) and consequently, the main challenges DG DEVCO will face in terms of IT systems.

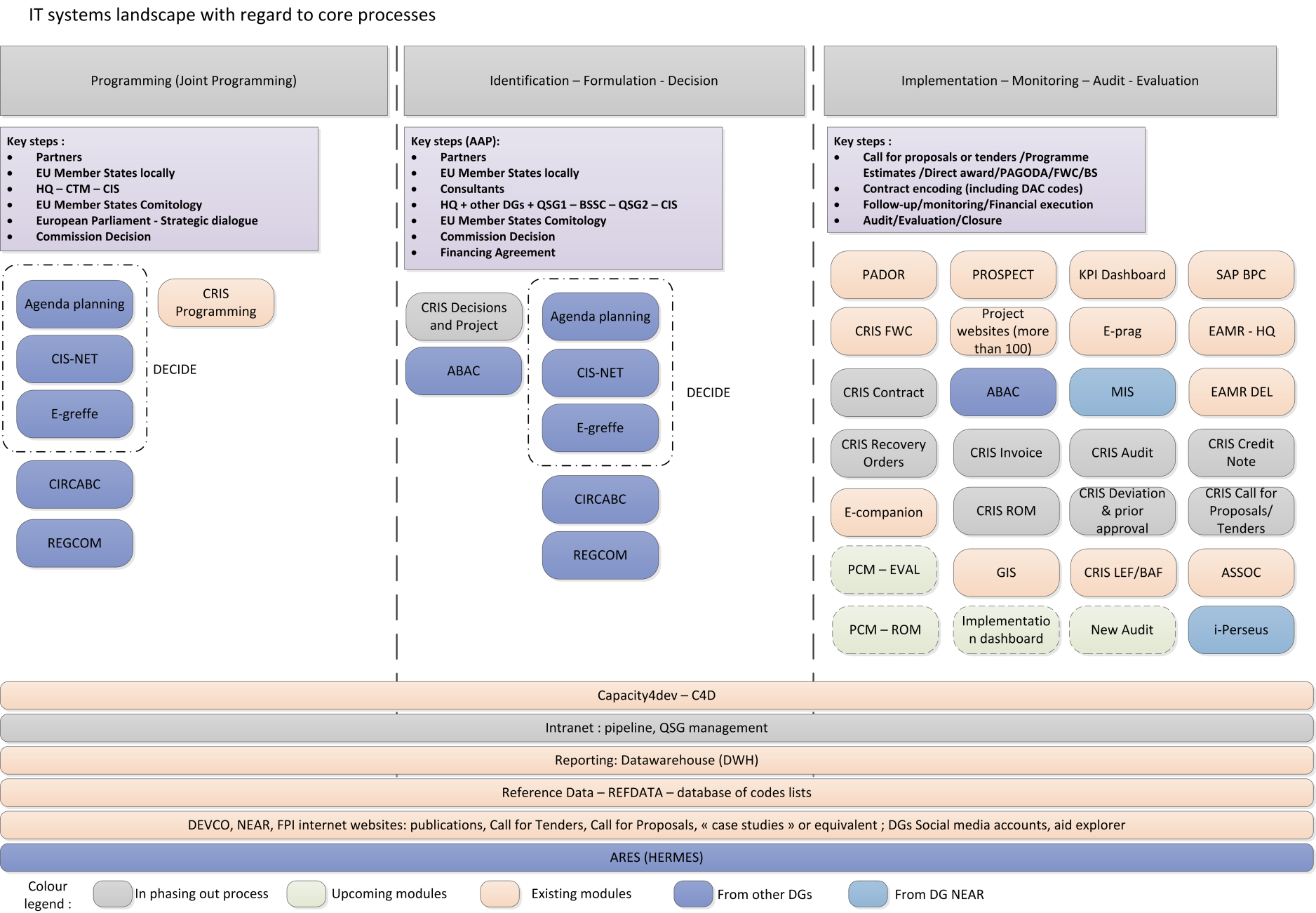


Figure 4 - IT systems landscape with regard to core processes

# Future State Architecture

## Architecture principles

The Architecture Principles are general rules and guidelines that apply to the IT Architecture, intended to be enduring, that inform and support the way in which DG DEVCO fulfils its mission:

1. Applications should conform to defined standards that promote interoperability
2. Applications are easy to use. The underlying technology is transparent to users, so they can concentrate on tasks at hand
3. Applications used across the enterprise are preferred over the development of similar or duplicative applications which are only provided to a particular unit
4. Data quality is fit for purpose and maintained at entry
5. Data is defined consistently throughout the enterprise, and the definitions are understandable and available to all users
6. Data is protected from unauthorized use and disclosure
7. Existing solutions from other DGs or Commercial-Off-The-Shelf packages are preferred, with minimal customization for the following base functionality:

* Document Management
* Reporting Platform

These principles will be applied in the selection of preferred technology scenarios. For example, principle 7 means that DG DEVCO will not program a document management solution from scratch. This may seem superfluous, as DEVCO’s purpose as an organization is not to produce software for generic functionality that is also readily available from the market, but needs to be stated as a principle nonetheless. It is the role of the Enterprise Architecture Function at DEVCO to apply and maintain these principles together with the support and advice of R6.

## High level scope of the operational information system

The scope of ‘Opsys’ can be defined by area of the Business Architecture it is targeted to support. For this purpose we can use the Business Capability Model as a tool to show which business capabilities will be supported by new applications. As the figure below shows, Opsys will cover the Operations capabilities Operations and Sector Management, which is obvious, and will also cover the capabilities that set the Framework for Operations, namely Programming, Learning & Knowledge, Collaboration, Methods and Reporting and Analytics. It will also touch on the Policy and Strategy domain, though these are expected not to require a high degree of automation and can be supported by office tools to a large degree. However, as the experience that DG NEAR shared during the Delegation Workshop, in the future when the basic operational needs are met further integration of the policy domain may become worthwhile considering. For now the assumption is that these needs are covered through reporting. It explicitly does not cover internal support processes, such as IT, HR, Procurement and Legal.



Figure 5 - Operational Information System's scope

## Context diagram: actors and link with the scope

This section describes the context diagram that defines the boundary between the new operational system and its environment. The objective of the system context diagram is to focus attention on external factors and events that should be considered in developing a complete set of systems requirements and constraints. The diagram pictures the system at the centre, with no details of its internal structure, surrounded by its main interactions with actors, either humans or other systems.

* Actors: labelled ovals; one in the centre representing the system, and around it multiple boxes for each external actor
* Interfaces: labelled lines between the entities and system and further distinguishing between system and human interfaces by full and dotted lines respectively



Figure 6 - Context diagram: actors and link with the scope

Three main roles of human actors (staff, implementing partner, stakeholders) can be distinguished. Depending on the individuals’ or organisations’ role[[16]](#footnote-16) in relation to the operational system, application screens serve as human interfaces to provide and consume specific types of information required to fulfil their activities and support DEVCO’s business. The most relevant systems interfacing with the operational system are the accrual based accounting system (ABAC) managed by DG BUDG, the document management system of the EC (HERMES) and the European Commission Authentication Service (ECAS), both managed by DG DIGIT.

## Application components

This section identifies the main application components required to support the scope of the new operational system. A distinction has been made between core business application components, delivering direct end user functionality, and supporting application components, delivering generic functionalities to complement and support other application components.

The following system context diagram depicts these internal application components for establishing a digital development platform, the main internal interfaces between the core business components and their relationships with external systems.

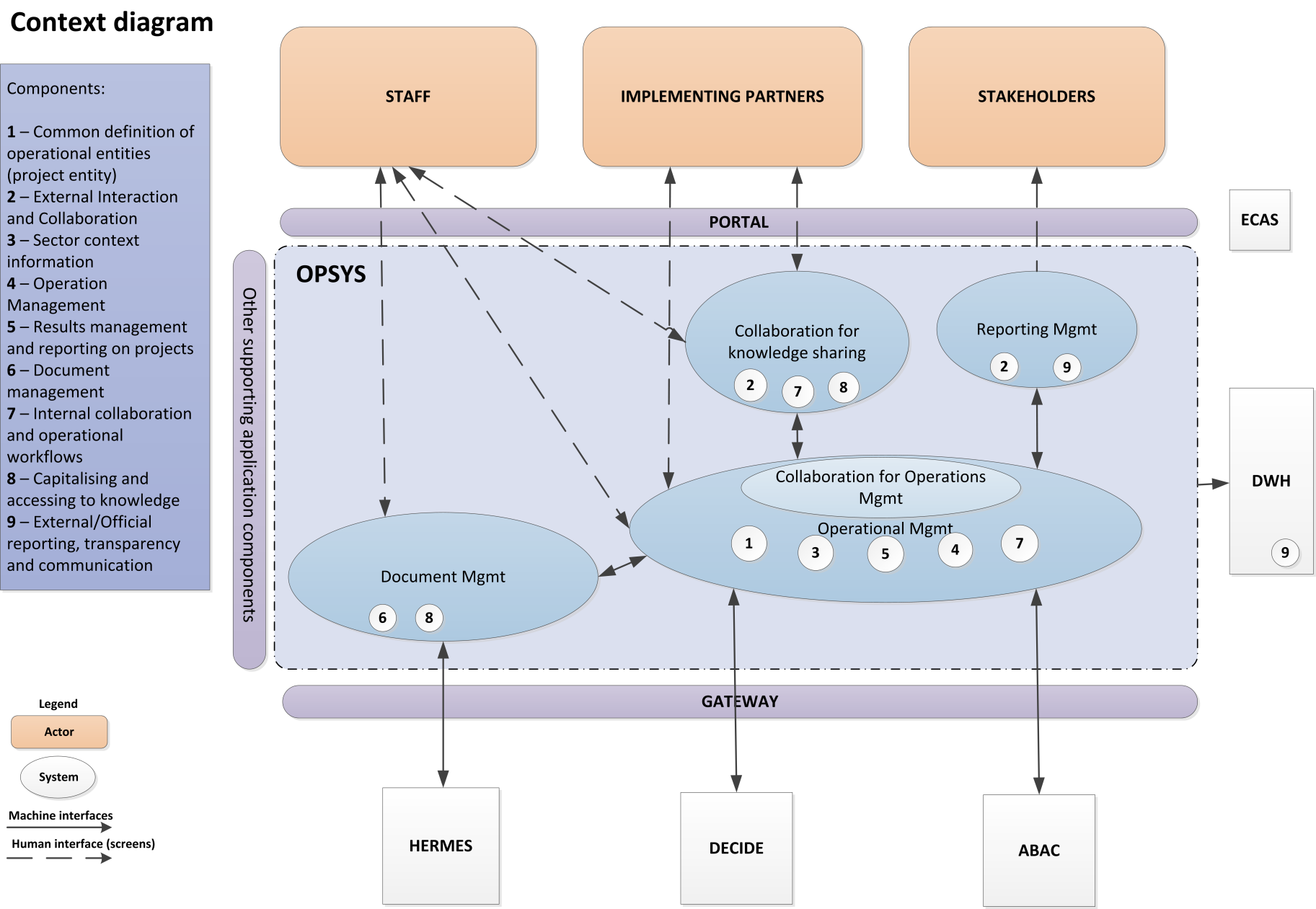


Figure 7 -Context diagram : application components

The table below elaborates on the above components in more detail.

Table 1 - Elaboration of application components

|  |  |
| --- | --- |
| **Core Business Application Components** | |
| **Operational management** | This application component embeds functionality for operational aspects of planning, programming, identifying, formulating and implementing cooperation and development programmes. |
| **Tender and Proposal Management** | This application component embeds functionality to support tender and proposal management processes in support of tactical operations. |
| **Relationship Management** | This application component embeds functionality to support relationship management. Relationship management entails promoting, administering, and balancing relationships across all interactions that DEVCO has with the parties involved in its business. |
| **Collaboration** | This application component embeds functionality to support collaboration. Collaboration involves joint, goal-directed activity that includes multiple individuals working together in shared workspaces using a variety of tools and artefacts commonly centered on documents, processes, and projects: This corresponds to the "collaboration for knowledge sharing" application component. |
| **Document Management** | This application component embeds functionality to support document management. Document management is a function in which applications or middleware perform data management tasks tailored for typical unstructured documents and is used to manage the flow of documents through their life cycles. |
| **Reporting and Analytics (replaces reporting management, and "DWH" is removed)** | This application component embeds functionality to support document reporting and analytics. Reporting and analytics has emerged as a catch-all term for a variety of different business intelligence (BI)- and application-related initiatives that enable access to and analysis of information to improve and optimize decisions and performance. |
| **Supporting Application Components** | |
| **(other supporting application component as an additional extra line below "gateway")**  **Content Management** | This supporting application component embeds functionality to support content management. Content Management is a broad term referring to applications and processes to organize, access, use and share a multitude of content types, including documents, records, images, forms and, increasingly, digital media. |
| **Integration** | This supporting application component embeds functionality to support data and application integration. Integration enables development, execution and governance of integration flows connecting any combination of processes, services, applications and data within DEVCO and across its external network of staff, partners and stakeholders. |
| **Portal** | This supporting application component embeds functionality to support portals. A portal is a high-traffic website with a wide range of content, services and links. It acts as a value-added middleman by selecting the content sources and assembling them in a simple-to-navigate and custom interface for presentation to the end user. |
| **Workflow Management** | This supporting application component embeds functionality to support workflows. Workflows provide an approach to enable automated tasks to support complex events and processes that require a combination of human tasks and electronic workflow, management collaboration, storage of images and content, decisioning, and processing of electronic files or cases. |
| **Business Rules Management** | This supporting application component embeds functionality to support business rules management. Business rules enable an enterprise to explicitly define, analyse, execute, audit and maintain a wide variety of business logic using decision trees, decision tables, pseudo natural language, programming-like code or other representation techniques. |
| **Security, Identity and Access Management** | This supporting application component embeds functionality to support security, identity and access management. Identity and access management (IAM) is the security discipline that enables DEVCO’s involved parties to access the right resources at the right times for the right reasons. IAM addresses the mission-critical need to ensure appropriate access to resources across increasingly heterogeneous technology environments, and to meet increasingly rigorous compliance requirements. |
| **Data Management** | This supporting application component embeds functionality to support data management. Data management encompasses the practices, architectural techniques and tools for achieving consistent access to and delivery of data across the spectrum of data subject areas and data structure types in the enterprise, to meet the data consumption requirements of all applications and business processes. |

## Interoperability and re-use of information systems

A significant part of the requirements expressed by DEVCO for the new information system are related to standard processes which are supported by corporate tools. DEVCO can benefit from these systems through a full reuse or by making the information systems interoperable. This is aligned with the will expressed in the EC Communication[[17]](#footnote-17) "Getting the Best from IT in the Commission" to rationalise its Information Systems and, in order to do so, harmonise its processes and procedures. This is also aligned with the initiatives launched by the Commission for an efficient "e-Administration" at the European level, like the ISA programme or the Directives and Communications on electronic procurement.

The corporate systems under consideration are:

* DIGIT's e-Procurement platform, for the management of calls for tenders and framework contracts
* DG RTD's Grant Management Suite, for grant management, including calls for proposals, experts, audits
* SG's HAN (Hermes - ARES - NomCom), for document management
* SG's D*e*cide, for EC decision-making
* DG BUDG's ABAC, for financial management

The principles and approach made in the framework of the reuse of corporate information systems can be transposed to the reuse of systems currently used at DEVCO (e.g. Prospect, Pador, SAP BPC, Audit module, ROM/Eval, Capacity4Dev), NEAR (e.g. MIS) or ECHO (e.g. HOPE).

Figure 8 below gives an overview of existing IT systems used at DEVCO and candidates for interoperability or for which further exploration is needed.

1. **Conditions for reuse and interoperability**

The integration of components or modules is a key requirement for the new information system, in order to tackle the main issues of DEVCO's current IS landscape caused by the existence of many heterogeneous non-interconnected systems. The current situation leads to inefficiencies (same work done in different systems with no added value), data quality issues due to errors in re-encoding, difficulties in building an "institutional memory" necessary for learning and knowledge management. The reuse of corporate information systems is therefore to be considered in an interoperability context.

Interoperability between information systems is obtained by the application of standards at the following three layers:

* Technology
* Semantic interoperability
* Governance

Technology is the easiest aspect to tackle. Nowadays, the service-oriented architecture (SOA), built on web services, is the de facto IT standard for interoperability. Information systems that can talk to each other are built by assembling decoupled components that interact through standard web protocols (e.g. HTTP) and message formats (e.g. XML). This architectural approach has been implemented in the Commission for a long time and some DGs have already implemented advanced communication mechanisms like an Enterprise Service Bus (e.g. DG REGIO, DG RTD).

The semantic layer consists in guaranteeing a common understanding of the information exchanged. The tools possibly used for that are: a common data dictionary (entities are named and defined in the same way), a common data model (data are structured the same way), metadata (for adding meaning and indicating structure), shared reference data (consistent categorization of data). This layer also contributes to improved data quality and makes learning of the systems easier. Achieving semantic interoperability may come through some harmonization of processes or procedures.

The governance layer consists in the decision-making and prioritization mechanisms that will make semantic interoperability possible and the use of technology efficient and effective for all parties. This is the most difficult layer to tackle in our interoperability initiatives. Governance is also key in a purely reuse approach (not involving technical interoperability) as the system to be reused will somehow have to be adapted to DEVCO's specificities, without impacting the functionalities required by the DGs already using the system. Process review, for harmonisation or simplification, is also to be considered in that layer, as stressed by the Communication "Getting the Best of IT in the Commission", which makes it a condition for an effective use of IT.

1. **HAN - Hermes/Ares/NomCom**

Status, opportunities & challenges

**The existence of a comprehensive catalogue of web services makes it possible to envisage a "seamless integration" for Hermes for the part of document management that falls under the e-Domec requirements. In this scenario, ARES will not be used; instead Opsys will reuse functionalities provided by HAN through calls to Hermes web services "behind the scenes".** The part of the document management requirements that are not provided by HAN will be built in Opsys on top of Hermes functionalities without the users noticing whether what they see is implemented in Hermes or OpSys. This model has already been implemented in Prospect where part of the document management (report creation, filing and archiving) is steered from Prospect but implemented in Hermes.

A specific filing plan has to be defined for Opsys though (and was done for Prospect or for RTD in the framework of the Grant Management Suite) and a choice has to be made regarding the kind of HAN users Opsys will use for its interactions.

For the moment, the only documents that HAN registers, files and archives are the official documents defined in the e-Domec rules (see the Companion for their applications to DEVCO). The documents that don't fall in that scope must be managed in Opsys. There seems to be possibilities to adapt Hermes to manage all documents (possibly the way the Secretariat General did it for RTD's Grant Management Suite).

Next steps

* Translate all primary requirements (result management, operational entities, knowledge management, procurement, etc.) into derived requirements related to the management of related documents (e.g. logframes, action documents, tender dossier, PRAG templates, etc.)
* Clarify with SG the possible extension of the web service catalogue, the constraints in terms of a specific filing plan, the constraints in terms of user access (system and actual users)
* Clarify with SG the possibility to use Hermes for managing all documents.

1. **e-Procurement**

Status, opportunities & challenges

The move from paper-based procurement to an electronic handling of the different phases of the procurement process is the object of a number of EC communications and directives[[18]](#footnote-18).

The e-Procurement platform is being made available to the Member States administrations under an open-source licencing model. The platform initially built for the management of IT service framework contracts (and the request of related specific contracts), has already been adapted to a large number of procedures and can be used for direct procurement. DEVCO has started using the e-Invoicing module from that suite, but in such a way that no benefit is really gained from the electronic handling of invoices (the electronic processing is somehow reconverted back to standard invoices when entering DEVCO's territory and injected in CRIS the traditional way).

Most modules from the suite are available, some of them being extended or completed. All modules will be completed by the end of 2015.

On the requirement side, an important work has been carried out by DEVCO/R5, which makes it possible to start a gap analysis between DEVCO's requirements for the support to its procurement and DIGIT's e-Procurement platform.

**The full reuse of the e-Procurement suite is a recommended approach for DEVCO, for both direct procurement and framework contracts. The e-Invoicing module should also be reused, in a genuine and fully electronic way.** There are a number of challenges though:

* The tenderer view of the platform is a rather unified user interface accessed via a "Supplier Portal", in addition to TED/e-Tendering. Tenderers also have the possibility to directly plug their own systems to the e-Procurement communication mechanism (e-Prior). On the Commission side, the picture is different. We currently have various user interfaces (The "Customer Portal", TED/e-Tendering, ABAC ASSETS, ABAC Workflow), interconnected but different. There will be a trade-off to make between the reduction of the number of user interfaces and the automation of our procurement activities. Some DG have chosen to replace some e-Procurement modules by their own operational systems connected to the rest of the e-Procurement platform (e.g. DGT).
* e-Evaluation, the module used to carry out the evaluation of tenders, is currently missing and the target set by DIGIT in terms of functional coverage is rather minimal (the registration of evaluation results).
* The right governance structure should be put in place to discuss adaptations required to the e-Procurement suite, between DEVCO (and NEAR, FPI) and DIGIT. DEVCO will be one of many clients of the suite. In that framework, DEVCO has much to gain in considering some alignment or harmonisation of the procurement procedures to make the most benefits from the e-Procurement tools.

Among the strength of the e-Procurement, its security features have to be highlighted (advanced confidentiality and integrity protection by means of digital signatures and certificates). Similar mechanisms could be applied to the management of calls for proposals. Another strength is the web service orientation of the platform that makes it possible to interconnect Opsys with the various procurement modules, which is key to reporting, knowledge management, operational planning management, etc.

Next steps

* Complete the business ownership of the procurement process at DEVCO (ideally including NEAR) in order to provide DIGIT a clear and single interface for the gap analysis, for both direct procurement and framework contracts.
* Start the gap analysis between the requirements (sent to DIGIT on the 10 March 2013) and the functionalities provided by the e-Procurement suite. DIGIT will suggest the most appropriate approach (e.g. per module, with the respective analysts or project managers).
* Define how to fill the gaps and a progressive adoption strategy (e.g. start with the two ends of the process: TED/e-Tendering and e-Invoicing).
* Position Prospect in that initiative (see below).
* Anticipate the initiatives currently setup to identify the convergence between the procurement and grant management domains.

1. **Grant Management Suite**

Status, opportunities and challenges

The Grant Management Suite (GMS) is the result of a large rationalisation and integration exercise carried out among the Directorate Generals, Executive Agencies and Joint Undertakings forming the Research Family. Its objective is the support the Horizon 2020 programme and covers the core processes defined by the Research Family: proposal, legal entity, grant, expert and audit management. The suite is built in a rather flexible way, around modern components like a workflow engine and service orientation, but still the different modules are strongly connected to other modules in the suite. Attempts to open individual modules to DG outside the research families have not been very successful. The preferred approach recommended by DG RTD/DIGIT is therefore to consider a reuse scenario based on the entire platform, rather than on individual modules.

Technically, the architectural choices made by RTD/DIGIT would make it not too difficult for DEVCO to reuse the suite or a few of its modules, or to interface them with Opsys. The challenges that DEVCO faces w.r.t. the GMS are at the governance and semantic layers:

* Governance: DEVCO would be just one of the many clients of the GMS, with a business that is more specific than the current GMS users, members of the Research Family (e.g. indirect management). A degree of alignment of processes or procedures is required from DEVCO.
* Semantic: some work has to be done to align the definitions of the entities handled in the GMS (e.g. project, contract, grant, participant, etc.)

**A reuse approach is therefore difficult to envisage in the short-run.**

Harmonisation of grant management and procurement would contribute to the attractiveness of such a suite, but this is not to be expected in the short-term.

However there is a great interest from DEVCO side to use the legal entity registration module (PDM-URF) in replacement of PADOR which has become obsolete. An alternative would be the refactoring of PADOR.

1. **The future of Prospect**

Considering the positive feedbacks received from both HQ and Delegations since the recent introduction of Prospect, **a reuse approach should be considered for Prospect in an evolutionary pattern**. It can be either as a module specialised in the handling of calls for proposals, as it is now, but interconnected with Opsys (e.g. receiving the call preparation data from the Opsys components dealing with Identification & Formulation and making the resulting data available to the module supporting contracting) or by extending Prospect to deal with calls for tenders. As explained earlier, the weakest link in the e-Procurement platform is currently the "e-Evaluation" module. Prospect could be adapted to fill that gap (plugged in to the rest of the e-Procurement platform and OpSys, and enhanced with the advanced security features implemented in the e-Procurement platform).

1. **D*e*cide**

Status, opportunities & challenges

D*e*cide being already the result of a rationalisation exercise and envisaged as a seamless integration of existing information systems, it doesn't make sense nor to reimplement it nor to consider a seamless integration of it with Opsys. The project consists in gradually integrating Agenda Planning, CIS-Net, e-Greffe and Vista. What's more, its business owner, the Secretariat General, has a focus on ease of use (simple user interfaces, "metro-line view of the process", etc.).

**Interoperability is therefore the preferred approach.** Users will directly use D*e*cide for their EC decision-making actions, but will have in Opsys information on the process (e.g. a view of planned actions, or access to related documents) or will ideally trigger from Opsys actions in D*e*cide (e.g. after comitology, not supported by D*e*cide).

The provision of web services for DGs is foreseen in a later phase of the project. DG AGRI and REGIO have already requested specific services.

Next steps

* Identification of the possible web services for the interoperability between Opsys and D*e*cide. Even if the provision of services is not to be considered yet, DEVCO should be among the "first come" and hopefully "first served" DGs.
* Setup the right governance for defining the web services and other interoperability aspects.

1. **ABAC**

Status, opportunities & challenges

Two initiatives namely the “CRIS Financial Modules Phasing Out” and the “CRIS Rationalization of Decisions and Contracts modules” have been launched within DG DEVCO.

The first one resulted in a decision to phase out the CRIS financial modules to ABAC and extend the use of it to all users. The migration should take place on the 1st January 2016[[19]](#footnote-19). Since ABAC cannot cover all business needs, transitory solutions have been found for two gaps while expecting a new IT system to support them[[20]](#footnote-20), more specifically the management of financial follow-up (the analytical breakdown) and the management of historical data (including the management of supporting documents: “attached documents”).

The objective should be to avoid the situation in which the information regarding the financial follow-up and the management of supporting documents and historical data is scattered into different IT systems. Based on this, the opportunity foreseen here is to start using the Service Oriented Architecture (SOA) put in place by unit R6 without recreating CRIS and limit the connectivity with ABAC to what is essential in terms of operational management and document management with respect to financial execution. The objective pursued is to ensure coherence for the users, meet the architectural principles set earlier[[21]](#footnote-21), enhance the management of information[[22]](#footnote-22) received through the financial execution of our projects[[23]](#footnote-23) and be prepared for the availability in ABAC of a full web service catalogue. The main challenge will be to identify which data need to be repatriated from ABAC in order to ensure coherence for the users and enhance the management of our operations.

The second initiative is still ongoing and the last Project Steering Committee agreed on extending the use of ABAC and phasing out the CRIS Contract and Decision modules[[24]](#footnote-24). However, the remaining gaps[[25]](#footnote-25) not covered by ABAC have been identified as business needs to be supported by a system[[26]](#footnote-26). The opportunity here is to meet the business needs and ensuring the integrity of data around operational entities. This could be foreseen via a light connectivity with ABAC. The necessary financial data (not accounting) around operational entities (such as decisions and contracts) should be exchanged between the local and central system. This will ensure an integrated set of data around the operational entities which is definitively an asset for the management of our operations[[27]](#footnote-27), respect the rationalization goal set by our management, ensure coherence for the users who can find the project related information in one location only and allow the system to offer new features such as the management of results or using e-documents for contracts or action documents in a near future.

Challenges with respect to the interoperability with ABAC are both technical (absence of a web service catalogue that meet the interfacing requirement for Opsys) and governance-related (DEVCO is only one of the many clients of ABAC).

Next steps

* Coordinate with the exercise lead by unit R1 and with unit R6 on the SOA aspects
* Identify which data are essential to the management of operational entities
* Set up or take part to the governance structure that would make it possible to carry out an early identification of web services provided by ABAC for Opsys.

1. **CRIS Framework Contract**

Opportunities & challenges

The preferred option would be to use the e-procurement suite (e-request module) as indicated above in chapter IV)-5)-3).

However since this module is already known by the user community (in DG DEVCO and other client DGs) and supporting around six different ongoing framework contracts, the option of refactoring the CRIS Framework Contract module, mainly via cosmetic changes deserves to be further explored (ie. : keeping the core logic unchanged, change the screens to integrate it in Opsys look and feel and use the actual standards, adapt the module IT functions to the future IT architecture currently put in place by unit R6). This would enable Opsys to deliver a set of functionalities more rapidly and potentially, at a lower cost (further analysis should confirm this hypothesis). On top of this, the CRIS phasing-out process should then be achieved earlier (cf preliminary roadmap).

Next steps

* Liaise with Business managers to seek for potential further improvements
* Coordinate with unit R6 to launch a feasibility study for the refactoring
* In parallel, launch a gap analysis with respect to e-procurement/e-request

1. **MIS (NEAR)**

Status, opportunities & challenges

MIS is currently used by DG NEAR for procurement planning and reporting, to support risk assurance, perform forecasting and handle decentralised management needs such as ex-ante visa used by Enlargement delegations only.

In 2013 the forecasting functionality of MIS was considered as a candidate for reuse in the context of the replacement of CRIS forecasting but SAP/BPC was preferred for technical reasons.

As MIS operates both at the level of pre-contracting as well contracting phase, it should be possible to reuse the business logic and the working concepts for OPSYS. Reusing the application itself will be difficult given the architecture: it was initially designed for use by a limited number of Delegations and does not offer easy possibilities for expansion at a very large scale without significant reengineering.

The challenges ahead are the need for clear business requirements on the side of OPSYS in order to perform an initial gap analysis with current MIS functionality. Timing issues could also play against reusability as the need to implement sector tagging and implementation of KPIs is considered urgent for the IPA-II financial instrument of enlargement and development is underway.

Next steps

* Proceed (NEAR) with a gap analysis based on Opsys business requirements with the objective to explore the reuse of MIS or to complete Opsys business requirements.

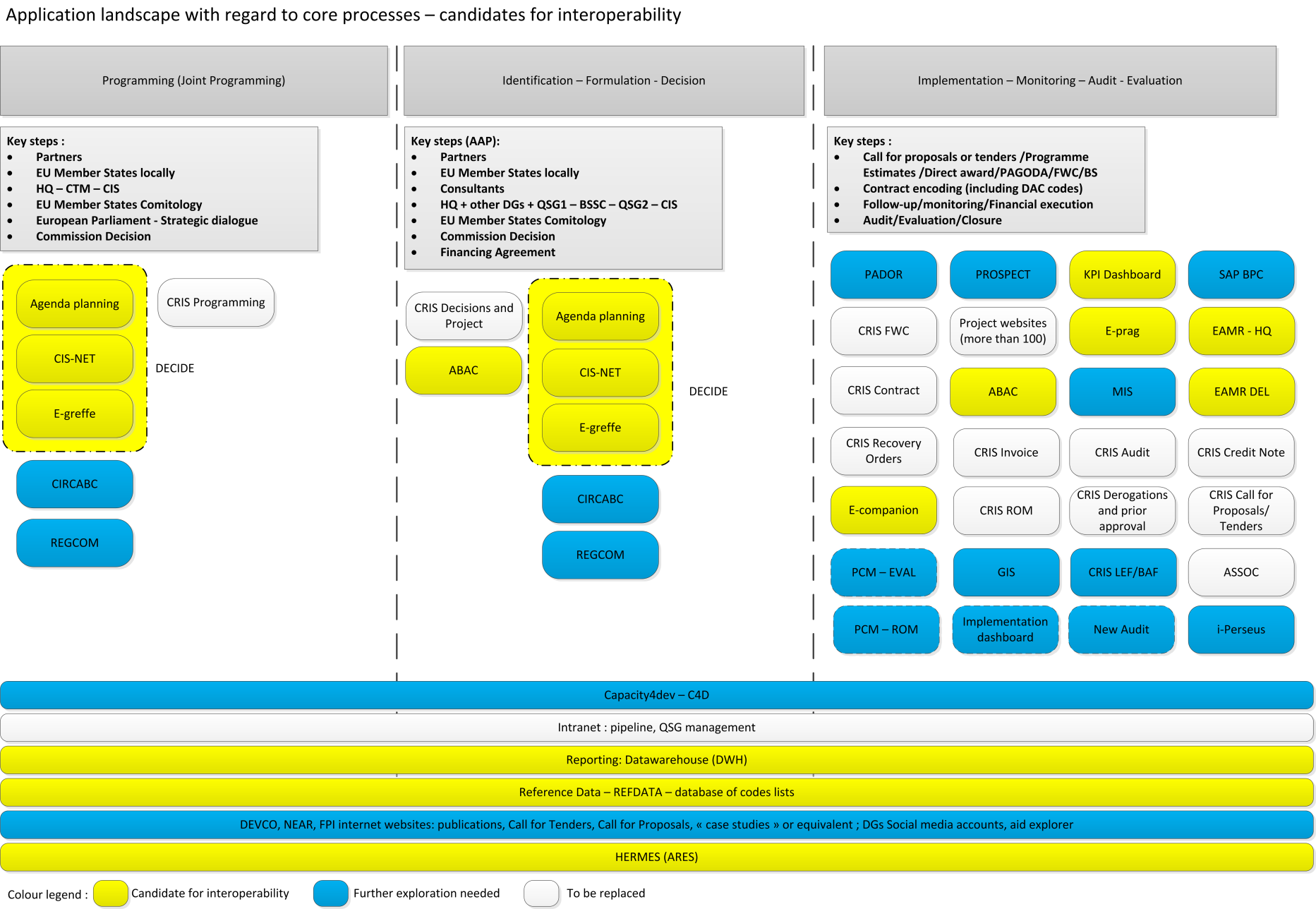


Figure 8 - Application landscape with regard to core processes: candidates for interoperability

# Technology, scenarios

## Scenarios : Options and candidates

Five different technology scenarios can be considered for fulfilling the requirements. These scenarios could in practice be combined when it comes down to choosing the individual solutions (software), but the sake of scoring they will be applied across all of the Opsys scope:

* 1. **ERP** (Enterprise Resource Planning): One system containing modules covering all functionality. These typically come in modules that are tightly coupled and come out of the box with rich functionality. The leading vendors are SAP and Oracle in this space, with an eco-system of partner software vendors which connect to their products. This scenario assumes no customization through programming (often referred to as ‘plain vanilla flavor’), as this would lead to problematic future upgrades when the vendor provides updates of the product.
  2. **COTS** (Commercial-Off-The-Shelf, Best of Breed): Commercially available software packages that can be implemented by configuration and therefore without any programming modification, and come out of the box with rich functionality. This scenario assumed no or limited customization, and different vendors for different functionality, each selected for its strengths, also referred to as ‘Best of Breed’.
  3. **DG** **Solutions**: Existing applications that have been developed within the European Commission by other DGs and that can be re-used with limited customization / adaptation. Two different approaches to this can be distinguished; either DEVCO asks the owner/developer of the application if it can make modifications and use it, or it can request the source-code and set up a copy as a separate instance under its own auspices. It can then modify/customize the software to its needs.
  4. **Building** **Blocks**: Generic components that provide generic functionality, such as for example a workflow engine. This type of software is very flexible and can be used for any type of organization, and therefore first needs to be customized / configured and integrated. This software can either be public-domain or proprietary products that are sold. Even when public-domain this does not mean they are ‘free’, as professional support is still required for development and support. DIGIT has selected a number of such building blocks as standard for the Commission under the COPA (Common Platform) initiative, such as for example Drupal for Web Content Management and Drools for the Business Rules Management System (also see <https://blogs.ec.europa.eu/eu-digital/content/next-europa-it-platform_en>)
  5. **Custom** **Build**: Software developed from scratch using modern programming languages such as Java, development and test tools and methodologies. Both CRIS as Prospect and PCM have followed this scenario, and for a long time it has been the first approach by public services, but is slowly displaced by other scenarios as the software market has matured and vendors have invested in industry-specific software solutions.

Table 2 - Scenarios: options and candidates



For each of the functional domains a high level functional sizing has been estimated. The examples given are those known at the time of study, or from Gartner’s Magic Quadrant of leading vendors for the particular functional domain. However, for Document Management, Reporting and Collaboration Management the Architecture Principles will be applied regardless of the scenario. This is why for example for Custom Build we do not use Java programming for building applications to support these functional domains. Eventual solutions may differ from the example given and will be a result of detailed requirements, market and commission reconnaissance and package selection.

## Scoring criteria

The scenarios are evaluated across five criteria:

Table 3 - Scenario scoring criteria

|  |  |  |
| --- | --- | --- |
| **Criteria** | **Weight** | **Description** |
| Functional Fit | 30% | Degree of how well software supports functional requirements |
| Time-to-Market | 10% | The length of time it takes from a functional requirements to the implementation of the solution |
| Risk to implement | 20% | Business continuity risk; degree of risk of disruption to critical (urgent) organization functions/activities. |
| Adaptability | 10% | Ease of adding additional functionality to an existing application. |
| Total Cost of Ownership | 30% | The total cost of IT including hardware and software acquisition, management and support. |
| **TOTAL** | 100% |  |

The Weight of the applied criteria can be adjusted but was believed to be good reflection of the relative importance of each of the criteria for the organization.

## Scenario evaluation

After analyses of the different scenarios against the evaluation criteria it becomes clear that the scenarios for Building Blocks, DG Solutions and COTS provide preferred alternatives for supporting DEVCO operations, see below.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Legend**  Harvey Balls in the tables indicate relative levels of fit for each of the criteria   |  |  | | --- | --- | |  | Insufficient | |  | Limited | |  | Partial | |  | Good | |  | Excellent | |

Table 4 - Scenario evaluation



The following sections detail this analysis further per Criteria.

From a Functional Fit perspective, ERP is the least attractive scenario:



These scores were obtained taking into account the following input:

* Business processes and requirements of DEVCO are highly organization specific with some functional clusters that are more common within the European Commission, such as Document Management, Tendering and Collaboration
* Custom Build and Building Blocks provide the highest degree of functional fit because they can be completely tailored to the processes
* Next best is DG Solutions (can be based on building blocks) and COTS, where DEVCO can cherry-pick application components to integrate in a best of breed landscape
* Least attractive is ERP (Vanilla) which will not meet DEVCO requirements without major business process reengineering or heavy customization

While time to market is not the most important criterion, there is little variance between scenarios except that the Custom Build scenario is expected to take longer:



These scores were obtained taking into account the following input:

* DEVCO has worked around the absence of this functionality for more than a decade, however at a high operational productivity cost
* The Building Blocks, DG Solutions and ERP Vanilla scenarios provide functionalities out of the box that can speed up implementation efforts
* COTS provides generic functionalities that can be tailored to the needs of DEVCO within a reasonable time, but integration efforts can negatively influence time-to-market
* Custom Build risks from suffering from extensive analysis and design of the complex DEVCO processes

Every scenario entails a degree of business continuity risk, with the largest that of a full-fledged ERP implementation



These scores were based on taking into account the following input:

* While DEVCO ‘works’, the discussions with the user group makes clear this is no longer sustainable, and there is a burning issue, especially given the budget and public reporting scrutiny (austerity) pressure
* Building Blocks provide the lowest implementation risk because these provide good interoperability, based on market standards (hence good available skills) and are supported by DIGIT
* ERP increases significantly the risks for failing project implementation and budget overrun, unless phasing is possible and significant changes to processes are acceptable

Of the five scenarios, the Building Blocks hold the highest level of adaptability:



These scores were obtained taking into account the following input:

* Building Blocks provides the highest agility score, if built according to a best practice architecture with a separate rules engine and good modularity of functionality
* ERP and then COTS provide the lowest agility scores, due to the fact that DEVCO will be for the most part reliant on the development roadmap of third parties unless it risks increasing complexity by customizing the core applications
* DG Solutions could either be relatively agile if DEVCO installs its own instance, or relatively poor if it is one of many clients served by another DG. We are assuming a high degree of control and/or effective governance in this score
* Complete custom-build solutions in the Commission are generally not agile because they rely on providers sourced through Time and Means framework contracts that are not incentivized to build flexibility into new systems

The Total Cost of Ownership values are the highest for the Custom Build and ERP scenarios, and expected to be the lowest for COTS:



These scores were obtained taking into account the following input:

* COTS is attractive because these can offer very competitive offers with further opportunities to negotiate
* ERP is known for large variations in pricing, which can be steeply discounted in the original deal, but increasing prices once locked in
* Custom Build is also relatively unattractive, due to the lack of incentives that can be offered using classical Time and Means development framework agreements, thereby risking projects take longer to implement and therefore cost more
* Building Blocks offer a kick-start possibility, with shorter development cycles. The same holds true for DG solutions. Thanks to available skills when based on standard technology and platforms DEVCO should benefit from competition

# Towards a roadmap, phasing

This chapter describes the analysis conducted to define the basis for a digital transformation roadmap. The sections in the chapter cover the various stages of the analysis:

* Clustering: Initial identification of work packages and grouping in work streams by using current and future state architecture elements identified in previous chapters
* Work Packages: Assessment of work packages using prioritisation techniques
* Roadmap: Planning of the work packages along work streams by taking into account priorities and dependencies
* Business Case: Rough order of magnitude estimation of benefits and costs associated with the execution of the digital transformation roadmap
* Challenges: Identification of the main challenges associated with digital transformation

## Clustering

The clustering analysis starts from the Business Capability and Information Model identified in Chapter III.1, combined with the Business Requirements identified in Chapter II and results in a series of work packages[[28]](#footnote-28) in line with the Future State Architecture described in chapter IV.

Taking into account business, information and architectural viewpoints the following preliminary 13 work packages have been identified. The 13 work packages define logical groups of information system functionality that the business expects from the underlying systems.

Further clustering, taking into account technology commonalities among the work packages, groups highly complementary work packages in 5 workstreams. An additional supporting workstream delivering the foundations, program and architecture, for digital transformation has been added.

Table 5 - Workstreams and work packages descriptions

|  |  |
| --- | --- |
| **Workstream BASE** | **Establishes the program organisation and identifies a modern technology platform for driving digital transformation** |
| **i. Programme, Governance and Change** | This work package officially operationalizes the Digital Transformation programme within DEVCO by obtaining full operating authority and authorization for the strategy and roadmap. It also oversees staffing of key roles, such as the Program Director, and culminates in a system wide kick-off and/or marketing campaign to inform stakeholders at all levels of the path forward. |
| **ii. Architecture and Solution Design** | This work package encompasses all activities required to maintain the architecture, evaluate solution/vendor alternatives through market research and technology assessment, execute acquisition activities and deploy base tools and technologies. |
| **Workstream KX**  ***Knowledge Exchange*** | **Establishes content, communication, collaboration and social capabilities that enable people to find and manage the right content and to work together effectively** |
| **1. Collaboration management** | This work package will bring improved collaboration, initially around action documents driving further stages of business revision. In later phases it delivers more flexibility in staffing organisation to support regional finance and contract units. Furthermore it aims to make external collaboration possible and more systematic. |
| **2. Knowledge and communication management**  **(incl. Document Management)** | This work package aligns with DEVCO’s top strategic priority strategy to become a learning organisation and promotes a collaborative and integrative approach to the creation, capture, organization, access and use of information assets, including the tacit, uncaptured knowledge of people. Furthermore, it improves the diffusion of information across different channels, to support communication. |
| **Workstream OPS**  ***Operations*** | **Operationalises DEVCO’s core processes** |
| **3. Sector management** | This work package improves budget support operations and pushes for a greater attention to sector policies. In a second phase it should allow in key sectors a form of "sector intelligence" including the follow up of sector dialogue and donors management, as well as a general overview – country at a glance. |
| **4. Tender and Proposal management** | This work package improves the tender and proposal management lifecycle by ensuring a holistic view on the tender and proposal management process by streamlining data input coming from the programming phase (e.g. Action Document in the Identification & Formulation process). To improve the daily work of DEVCO staff it will establish a link between the call management functions and the functions supporting the planning of operations. |
| **5. Relationship management** | This work packages delivers a foundational component of the new operational system that uniquely identifies all involved parties of the DEVCO business. This includes interaction with EU partners (to strengthen EU external action, joint programming), with other partners and with beneficiaries countries (aid effectiveness agenda). Within EU it aims to offer a more permanent involvement and coordination with EU MS, and with EIB and EU DGs. |
| **6. Programme[[29]](#footnote-29) Management (incl. Time and Task Management)** | This work package sits at the centre of DEVCO’s daily operations and conceives the single entry point for access, encoding and management of all operational information. The new component should be seen as a map where clear visibility is given to the progress throughout the programme and milestones up to the end of a process. |
| **7. Programming, identification and formulation management** | This work package delivers information systems services to support programming, identification and formulation activities and will support various processes based on the type of programme defined. |
| **Workstream FIN**  ***Finance*** | **Optimises integration of DEVCO operations in EU financial processes** |
| **8. Planning, Consolidation and Forecasting** | This work package contributes to support consolidation and financial forecasting for preparation of DEVCO’s contribution to the Commission's draft budget, to prepare the estimates of the Member States' contributions to the EDF, for monitoring the execution of the annual budget and for preparing transfers between budget lines. |
| **9. Financial management** | This work package contributes to clarifying the way forward for the management of financial commitments and the role and integration with the accountancy system (ABAC). In a first iteration it clarifies the preferred way forward for the registration and validations of financial commitments Level 1 and 2 between the new operational system and ABAC systems. |
| **Workstream M&E**  ***Monitoring&Evaluation*** | **Monitor and evaluate operations to improve performance and results** |
| **10. Evaluation management** | This work package will support in integrating Risk, Audit and Evaluation processes with the operational system, allowing a follow up of mitigation measures, results, recommendations, and minimizing re-encoding work by granting external partners access to provide inputs. It is meant to complement audit and evaluation modules. |
| **11. Monitoring management** | This work package complements External monitoring/ Result-Oriented Monitoring (ROM) module to be put in service in Q2-2015.  Furthermore it aims to support internal monitoring including site visits and Programme events by giving the possibility to EU Delegations and HQ units to organise monitoring based on a similar methodology as for ROM. It also foresees to deliver operational dashboards for operations managers. |
| **12. Results management** | This work package delivers results management functionality. |
| **Workstream BA**  ***Business Analytics*** | **Measuring results of DEVCO to optimise operations and create transparent insight** |
| **13. Performance management** | This work package will support performance reporting to DEVCO Management and transparent external reporting to the budgetary authority, OECD, EuropeAid Annual Report, Annual Activity Report, United Nations, Financial Transparency Service (FTS) or in the framework of the International Aid Transparency Initiative (IATI). |

## Work package assessment

The following provides a preliminary assessment of the different work packages along dimensions of feasibility, value, effort and risk.

**Description of dimensions:**

* **Feasibility**
  + Qualitative: Complexity of processes, Number of interfaces with other systems, integration
* **Value**
  + Quantitative:Improved Productivity (input: FTE, time, money saved), Improved Results (output: outcomes reaching beneficiaries)
  + Qualitative: Increased beneficiary satisfaction (external: quality), Increased user satisfaction (internal: way of working)
* **Effort**
  + Quantitative: Rough order of magnitude estimate of the functionality provided by the service (in Function Points) based on preliminary analysis business requirements.
* **Risk**
  + Qualitative: Based on business impact in case of deficiencies in the quality or continuity of this service.

Table 6 - Work package assessment



|  |
| --- |
| **Legend:** Harvey Balls indicate relative levels for each of the dimensions   * **Low** - Up to one quarter * **Medium** - Two or three quarters * **High** - Full circle |

The following prioritisation bubble chart visualises the outcomes of the work package assessment for each the four dimensions, feasibility (y-axis), value (x-axis), effort (bubble size) and risk (bubble colour). Starting from the green zone in the top right corner and working backwards to the bottom left corner, Work-packages can be considered candidates in line with business priorities for on-boarding in the Roadmap.



Figure 9 – Work package assessment bubble chart

## Preliminary Roadmap

Taking into account the priorities derived from the work package assessment and the agile methodology for program execution and organisation, the following preliminary roadmap has been drafted. The program roadmap is organised along identified Work-streams and Work-packages to deliver blocks of information system functionality on a nine month release schedule.

The second, third and fourth quarter of 2015 are allocated for initialising the program, governance and change management as well as defining the target architecture and solution design building further on the foundations identified in this report.

Initial priorities for the first release are on Sector Management (supporting Sector/Country tagging of programmes), initiating Programme Management (supporting Budget Management, Action and Decision Contract), developing further on lessons learnt from the prototyping project to support Results Management while at the same time ensuring continuity of the ABAC migration.

This Roadmap should be considered as version 1, and will need to be further elaborated.



Figure 10 - Preliminary roadmap

## Business case : costs/benefits analysis

The new operational information system will bring indirect and direct benefits to the organisation:

1. **Indirect benefits:**

Digital transformation will benefit first and foremost to cooperation programmes and policies. The EC needs to transform itself to stay relevant, to open up the potential for innovation and to increase the impact of its policies. Although they are hardly quantifiable, those indirect benefits are considerable.

*Internally, within DEVCO and concerned DGs and service:*

* Facilitating the harmonisation and simplification of business processes by (1) de-locking IT constraints (brake on change) and (2) developing a collaborative work
* reduce fragmentation and duplication of work (use of parallel and/or disconnected platforms, paper tray, email, excel)
* Less time spent by users on their IT tools for non-productive tasks (document searching, re-encoding, data control, ..) and time saving on automated tasks (portfolio management, tenders, deadlines, forecasts): should allow spending more time on productive tasks (sector policies, program design, aid coordination, analytical work)
* Decision making on internal processes facilitated by a better quality/availability of data/analytics
* Improve Programme management capability in EU priority policy areas, thus allowing rebalancing the implementation modalities of our portfolio as for international organisations and raising our policy profile.
* Management/accountability facilitated by a feedback and handover mechanism

*Externally:*

* Improve EC capability to steer programme management and policy dialogue according to intelligence on results
* Improve EC capability to access to information and good practice, with the following benefits:
  + improving the quality of design and avoiding repeating errors,
  + improving the quality of our analyses, briefings and grounding our policy statements on real data from our own programmes,
* Beneficiaries and implementing partners of our cooperation work: they should see the benefit faster, better (higher quality: design and alignment on sector policies) and get more transparency (what will be done, what is on-going, what has been done)
* Opsys will support the EU external action by starting to integrate the EU MS dimension and by making a link with all EU institutions intervention in a given country/region
* Opsys will support a corporate dimension for the benefit of the EU/COM external affairs cluster (linking DEVCO/NEAR/FPI and other concerned DGs)
* Opsys will contribute to the improvement of our external communication

1. **Direct savings:**

* CRIS: 6.8 M€/year keeping in mind that a substantial part corresponds to financial functions to be migrated to ABAC (estimated to 1.8 M€ for the CRIS financial modules)
* Development costs still planned for PCM modules or operational reporting module (partially depending on what will be finally made as transitory measures: ROM, evaluation, operational part of the decision and contract modules phasing out, Delegations management dashboard):
  + Development costs for PCM modules (initial full package) were estimated in 2014 at: 14.5M€ to 17.8M€ for 2015-19, meaning an average of 3 M€/year
* Other tools maintenance costs for tools replaced by the system (no figures available yet, will depend on the assessment of use/re-use of existing tools)
* Consultants paid to compensate gaps in data quality and document management (unit 08, unit R1, thematic units..): estimated at a minimum of 1 M€ per year

The overall IT budget for DEVCO is about 15 M€ in 2014. The investment cost for Opsys as estimated by the consultant is 10 M€ per year for 5 years, equivalent to a workforce of 72 people per year. It is planned to cover 80% of the functionalities, limiting the total investment cost at 40 M€; Recurrent costs for further maintenance can be estimated at 20% of IT development costs.

It is worth to note that:

* the estimated cost for the investment excludes les following additional costs: change management, migration from CRIS to Opsys and interoperability with existing tools
* a reasonable margin has been taken for the investment cost estimate: the time unit attached to a function point (35 hours) is a prudent ratio.

Moreover the experience of the Opsys definition phase has shown that it is possible to develop functionalities (initial prototyping) in an agile, fast and cost-efficient way; the investment cost proposed by the consultant covers de facto the risk linked to the increasing complexity when the system becomes larger and several different applications have to be integrated.

Therefore the Task Force **considers this estimation as a maximum budget** and considers that the risk is medium to go beyond this amount with the current definition of the scope of the system.

These maximum investment costs (average 10 M€ / year, for 4 years[[30]](#footnote-30)) are largely acceptable compared to the current level of investment in IT and compared to the expected benefits in terms of internal organisation, increasing the impact of EU policies, improved service delivery to the final beneficiaries and EU image for external stakeholders. In terms of direct costs, they are offset to a large extent by direct savings expected from CRIS, other ongoing or planned initiatives (PCM) and consultant fees related to addressing the current gaps (data quality, document search).

## Initial prototyping : lessons learnt

The goal of the "initial prototyping" was to support the reflection work and the feedback capture from users at the early stage of defining the platform. About 9 areas were explored, analysed, developed and tested (see report in annex 5).

The main findings of this experience are the following:

* The development of functionalities happened at a quick pace, thanks to the agile methodology, and the direct interaction between the business (the task force) and the developers. It is worth noting that a light structure without interference also helped a lot. Therefore scaling up this approach would pose some challenges and reduce the efficiency.
* The user feed-backs were useful to improve the prototyped functionalities.
* The way of working (including the technology) proved flexible to build and adapt the functionalities (e.g. a number of user's requests have been implemented with a light effort).

From the previous observations, we draw the following lessons:

1. An agile methodology is one the best practices to be recommended in our environment, including tests on real work with users.
2. The structure in charge of implementing the programme should include experienced operational colleagues to be involved in the work of development teams.
3. According to the recommended "building block" scenario, the use of open source technology and open-source building blocks as Drupal could directly contribute to the architecture of the global OpSys solution.

## Challenges for the implementation of the new system and how to address them

The task force sees four groups of challenges as key for success for the implementation of the new operational information system:

1. ***A change of mindset is required for digital transformation***

Digital transformation is seen as the process encompassing all actions to be performed to get the highest benefit of IT tools: moving from text documents to web content documents, further reform of our business processes, change of working habits.

A “business as usual” attitude is strongly enrooted in our mindset, and even more when we are under work pressure. Staffs have been confronted in a recent past with various attempt of transformation as for the simplification exercise and they might not be receptive to engage right now in a digital transformation process which will suppose a huge adaption effort.

The proposal would be to move in two steps: delivering a first Opsys module being able to create interest and incentive among staff (user friendliness, efficiency gain), and then engaging in the digital transformation with a triggering event and a vision, paving the way for a change of mindset. The path to digital transformation should be carefully looked at.

1. ***The best choices should be made in term of organization: IT Governance, coordination, staffing and role, programme organisation for the new Opsys management structure***

On IT governance as well as on the scope, composition and positioning of the new Opsys management structure a reflection work has been made under the umbrella of unit 02. In that context the task force considers the following messages as essential:

* + 1. *IT Governance*

IT Governance is essential internally and externally when working with Commission corporate solutions.

Internal IT Governance should be adapted in order to:

* introduce an enterprise architecture vision and management, preferably jointly with the Opsys business management structure, fully in line with the conclusions of the 12/06/2014 IT Steering Committee;
* address IT projects coherence issues in the operational sphere (one single IT program steering committee instead of separate project steering committees);
* integrate the corporate dimension of the COM external relations cluster (role of DG NEAR, of FPI, potentially of other partners).

When working with corporate Commission IT tools it matters to ensure a presence of DEVCO in the corresponding governance bodies (being sure that DEVCO needs are considered with an acceptable level of priority).

* + 1. *Coordination*

Coordination remains an important challenge with other on-going IT initiatives (CRIS-ABAC, PROSPECT, BPC, Implementation dashboard, audit, evaluation, ROM) as well as with the on-going work on IT architecture. It may create confusion for users, duplication of efforts and risk of inconsistencies.

It should be addressed with the appropriate internal IT governance. The stake is particularly high with the CRIS ABAC rationalization exercise and the implementation dashboard initiative for which respectively a common vision is being built and still has to be built.

* + 1. *Staffing and role for the new Opsys management structure:*

Skilled staff resources on IT related issues are limited and already mobilized on various initiatives. Opsys implementation by its ambition and stake will need to mobilize skilled staff. The task force recommends to do a mapping of existing resources in DEVCO working on IT initiatives and to explore how to make the best use of those resources (merger, mutualizing, avoiding duplication).

* + 1. Programme organisation

One of the immediate challenges will be to set up a programme organisation. The team should consist of a programme manager, a programme support team (programme support office, architecture office, programme quality assurance), workstream teams (each responsible for delivering a work package) and horizontal teams for foundation components to be used for each workstream. More details are given in annex 7.

1. ***The methodology should privilege an incremental agile way to work***

Setting up a heavy structure right from the start represents a major risk. Therefore, an agile method should be the preferred option, provided that the right profiles are made available to the implementation team. It follows a **"think big, start small"** principle and is good practice to avoid running risks of inefficiency and internal coordination difficulties.

It would also be appropriate for supporting a digital transformation process, as changing the way we work will need incremental development and continuous user feed-back.

Incremental development will allow delivering the first results in a short time frame (less than 2 years) and moving step by step in term of decision on financial investments with the possibility to stop Opsys project implementation after each functional release.

1. ***Time is of essence and a battle plan is required starting with a transition structure to manage the next steps leading to the IT development starting point***

In order to reach timely the starting point for the development of Opsys a number of actions have to be taken without delay (see chapter VII-2) “next steps” below); the new structure of Opsys will take time to be set up. The task force is ending its work on 31 March 2015 and a transition needs to be decided in order to keep the momentum and to deal with the next steps. The transition could be built on a progressively extended task force, comprising 4 to 8 staffs, with the support of consultants:

* to set up the detailed roadmap (“project charter”), to assess the technology choices and to support the implementation of the new structure (estimated cost: 300 k€).
* to work on detailed business requirements for the first modules (estimated cost to be determined)
* to work on a prototype based on the technology to be selected (estimated cost: 500 k€)



# Conclusions and recommendations

## Conclusions, recommended scenario and recommendations

1. **conclusions**

As first main conclusion the ambition of Opsys is an absolute necessity for DEVCO and partner DGs to better support their business processes and to cover essential new needs as for external collaboration, results management, knowledge management, transparency and communication. It is an opportunity to address current major issues as for data quality and to reflect our changing environment, our new duties: the agenda for change starts internally. It is also an opportunity to engage step by step in a digital transformation process putting our organisations better in phase with our quickly evolving digital world. Opsys ambition is the result of a strategic reflection on our business needs; this work must be the starting point for the implementation of an enterprise architecture vision to which it will constitute the solid foundations.

The buy in by users has been so far remarkable and particularly by EU Delegations, with a genuine interest for the initial prototyping and a solid appetite for change. As expressed by many of them, **"let's move to the 21st Century".**

The second main conclusion is that the dream of such ambition is affordable. The task force assessed with Gartner the complexity of the work to be made and comes to an average investment cost of 10 M€ per year for 5 years or for 4 years if we limit ourselves to cover 80% of identified business needs. It is at the scale of our current IT investments. It is at the scale of other comparable digital transformation processes.

The third conclusion is that the risk is moderate in engaging in such process. The proposed incremental methodology allows to proceed step by step and to stop financing at each step if results are not satisfactory. So the recommendation will not be to engage the full investment package in one go but to engage for the first two years and then assess the benefits.

And finally addressing data quality issues was one of the major objectives assigned to the new operational information system. It has been mainstreaming the design work and the task force considers that the best way to get the greatest improvement in data quality is to apply the following principles:

1. Data must be encoded the closest possible to the source (it includes the possibility to get direct inputs from implementing partners and contractors)
2. Avoid re-encoding of data (source of frustration and mistakes). Ensuring interoperability in the reuse of (possibly corporate) information systems, especially in its semantic dimension, contributes to this "encode once principle".
3. Allow improving the existing portfolio (e.g. thematic unit may improve the quality of the sector tagging). To the extent possible offer short circuits for modification with automatic notifications.
4. Adopt controls by sampling and coherence test rather than by business rules; found issues should be notified to the concerned persons;
5. User should be accountable for the encoded data (therefore tracking at any time who encoded, who validated, who modified)
6. User should see directly the benefit (user first principle: direct use of data for dashboarding, facilities to use data for local purpose – ie export to local tools)
7. User friendliness of the system to get a buy in (short time response, improved user interface with a self explained system providing guidance and clear forms and fields to ease encoding tasks; as an example for sector tagging the system will offer labels rather than code DAC, the link being made in back office)
8. support the interoperability objective[[31]](#footnote-31);
9. Aim at the completeness of the data set recorded or available through OpSys, by making sure core operational entities are implemented in addition to the existing financial entities. Enrich data, e.g. through tagging, to both improve its quality and contribute to knowledge sharing.
10. **Recommended scenario: technology and scope**

With regard to the elaboration of the recommended scenario there are two dimensions to be considered:

* The technology part (technology scenario)
* The prioritization part (phasing/roadmap scenario) defining the scope

Regarding the technology scenario analysis the best three scenarios that come out are the Building Blocks, DG-Solutions and Commercial-Off-The-Shelf scenarios. The recommended package is to start with a mix of DG solutions and building blocks; it will need finetuning based on a further analysis on the use or re-use of existing IT tools. It leads to the total cost estimate for investment of 50 M€ over 5 years.

Regarding the prioritization analysis rather than selecting ex ante a narrow or wide scope for the new system it is proposed to consider all the identified needs with their prioritization level (MoSCoW) and to proceed as follows:

* Limit ourselves to cover 80% of the identified needs, limiting the total investment cost at 40 M€ or 10 M€ for 4 years. Not all requirements will be met by the Programme, not even in a duration of 4-5 years, and compromises will need to be made: in principle essential needs (Must[[32]](#footnote-32)) will be covered, important needs however non-essential (Should) might be non-covered, useful needs (Could) might be covered, nice to have needs (Would) will not be covered.
* Based on the definition of work packages and on the complexity/value analysis, integrating business continuity aspects (with CRIS) and incentives for users (they should see a gain at each release) it is proposed to proceed on an incremental basis with the possibility to scale down the ambition after each stable release. The preliminary roadmap to be refined with the project charter could be therefore as follows, knowing that at this stage it can only be purely indicative:
  + 1st release (01/10/2016): results management (including sector and country tagging)
  + 2nd release (01/07/2017): residual CRIS including related document management, collaboration including with EU MS locally,
  + 3rd release (01/04/2018): initial staff directory (profiles), implementation/tasks management, risk management/complement evaluation, further connection with external partners
  + 4th release (01/01/2019): further staff directory (experience), e-tendering, implementation/time management, complement monitoring, further connection with external partners
  + 5th release (01/09/2019): e-invoicing, forecasting, last step for connection with external partners
* The first firm financial commitment should be done for the first two years and then submitted to IT steering committee review.

And finally the duration of this effort of the Task Force for analyzing and formulating this new vision for DEVCO was precisely long enough to be able to draw meaningful conclusions with an acceptable level of certainty for decision making, following the ’80-20’ rule (80% of the issues addressed).

1. **Recommendations**

The task force recommends to:

1. **"Think big": Endorse the high level of ambition** to allow DEVCO and partner DGs progressively and within 5 years:
2. To **address the current major issues** and to **cover their essential new needs**: definition of an operational entity to be at the center of Opsys (programme entity), external collaboration (EU MS, implementing partners), results management, knowledge management, transparency and communication, greater efficiency and ability to evolve
3. Technology scenario: **mix of DG solutions and building blocks**, leading to an estimated investment costs of 40 M€ for 4 years covering 80% of the needs
4. To define and implement an **Enterprise Architecture** in order to establish and to preserve a better match between business needs and IT answers
5. Finally to define and implement a **Digital Transformation Programme** which besides being responsible of executing changes to Technology (Opsys systems) also oversees the implementation/changes to Organization, Governance, Processes, Information, Metrics and Employee Engagement.
6. **"Start small": Agree on the proposed scenario** for technology option and phasing:
7. Phasing: "think big, start small approach", to proceed on an **incremental basis** with a set of five 9 monthly stable releases for delivering 80% of functionality in 4 years, with the possibility to scale down the ambition after each stable release
8. **Start with a Work Package that delivers immediate tangible benefits fast**, such as Results Management which is new so there is not changes to the way of working involved, and **in parallel start with building Programme management functionality** which is has the highest value but also requires the most effort and is more complex with the largest number of interfaces
9. Firm financial commitment for the first 2 years based on a project charter
10. **Engage with partner DGs** NEAR and DIGIT at the appropriate level,
11. In the spirit of enterprise architecture**:**
12. **adapt the IT governance** for DEVCO by strengthening the coordination between the various IT initiatives (overtaking the silos' approach) and introducing the enterprise architecture approach
13. **Explore additional synergies between on-going initiatives**, including between the evaluation and new audit modules which present similarities in term of high level functional grouping
14. **Set up the framework for the Digital Transformation Programme:**
15. **Create / appoint an organizational entity** with full responsibility for execution of the scope of the Digital Transformation. Clear roles and responsibilities will need to be described, as well as a **Programme Governance** structure reflecting the corporate dimension of Opsys
16. **Confirm the positioning of Enterprise Architecture** in the same entity, in close collaboration with **IT Architecture situated in R6**
17. **Appoint a dedicated Programme Manager** initially **supported by a small but effective Programme Support Team** (internal and external experts in the areas of Programme and Project Management, Cross-Functional business knowledge, Enterprise Architecture, Change Management, Quality Assurance, Sourcing Strategy)
18. **Mobilise a temporary structure** to ensure the continuity of the work and to prepare next steps without delay, with the appropriate staffing,
19. **carry out a mapping of existing related IT human resources** (business and IT) in order to look for synergies to support the priority given to Opsys process
20. On that basis **task the temporary structure to prepare a project charter** ideally by end of June 2015 and no later than mid-September 2015, with a description of the Digital Transformation Programme, more detailed planning and refinement of work packages.
21. Consider the following aspect for the methodology:
22. **Apply Agile Development Methodology** wherever possible to reduce the cost and time to market
23. Carry out a **reflection on the best option for development sourcing**
24. Prepare a **communication plan for digital transformation** as it is first about change of mindset; adopt the right sequencing starting with a first release of the new system before launching officially the digital transformation process; launch a call for ideas to find a name for the Opsys/Digital Transformation Programme

## Next steps

The following immediate actions are needed in order to reach the starting point for the development of the first module of Opsys:

1. work with DG NEAR in finalizing a common vision, in addition to inputs provided by DG NEAR in the framework of the user group, ideally by end of May 2015; the same apply for FPI;
2. put in place the new IT Governance, the structure for the management of Opsys and of enterprise architecture, and transitory solutions, with the appropriate external support;
3. draft the project charter by end of June 2015 (detailed roadmap) to be approved by the IT Steering Committee; it will include responsibilities, costs and timeline, architecture elements; timeliness is closely linked (i) to the implementation of the transitory solution for Opsys management and (ii) to the final outcomes of CRIS ABAC rationalisation survey;
4. establish the draft budget for the first phase and look for solutions, by end of June 2015
5. get support from DIGIT and engage the internal Commission process to get the opinion of ISPMB
6. work on IT solutions together with directorate R/unit R6: selection of applications and benchmarking; further work on use and re-use of IT tools/corporate solutions
7. prepare the terms of reference for the next development phase once IT solutions have been agreed; tendering if needed, or work through DIGIT, or work through DIGIT framework contracts
8. work on detailed business requirements for the first Opsys modules, building on the outcomes of CRIS ABAC rationalization exercise (for CRIS contract and decision modules); needed for the recruitment of developers. Fine tune the concept of programme entity (test –preferably though prototype- and semantic).

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1. 2.8 FTE=2.1 FTE (task force including an effort of 0.5 FTE for initial prototyping)+0.4 FTE (temporary support)+0.3 FTE (user group)

   240 k€= 120k€ Gartner contract + 120k€ initial prototyping [↑](#footnote-ref-1)
2. Lessons learnt from recent IT initiatives as for PCM modules [↑](#footnote-ref-2)
3. MoSCoW methodology [↑](#footnote-ref-3)
4. Initially thought as a project entity ; concept of programme seems reflecting better the operational entity; in order to select the best option between" project" and "programme" further discussion is needed with users and also with NEAR to adopt the appropriate terminology as NEAR uses programme in different contexts. [↑](#footnote-ref-4)
5. including gaps identified by the team in charge of CRIS ABAC rationalisation [↑](#footnote-ref-5)
6. Or any similar solution, as the Enterprise Service Bus of DG Regio [↑](#footnote-ref-6)
7. The four first points are in line with the Project Steering Committee recommendations [↑](#footnote-ref-7)
8. OPSYS should be designed in a way to be able to push selected OPSYS’ data to ABAC through web-services as soon as they are available; the DG Regio Entreprise Service Bus solution is currently being explored by unit R6 as a possible solution. [↑](#footnote-ref-8)
9. An evaluation module is under design and is expected possibly by the end of 2015; there are similarities with the new audit module under development and planned for end of June 2015 [↑](#footnote-ref-9)
10. Due to the complexity of the research the solution is sometimes to recruit consultants to do the research work; in other DGs it might a task devoted to a group or trainees [↑](#footnote-ref-10)
11. Planned to be developed by the Secretariat General in 2016 [↑](#footnote-ref-11)
12. ERDMS: Electronic Records and Document Management System [↑](#footnote-ref-12)
13. DG REGIO has developed its own data base as information contained in Sysper was not sufficient; SG confronted to a similar issue [↑](#footnote-ref-13)
14. From CRIS experience : only 5 users worldwide working with the ES version [↑](#footnote-ref-14)
15. Remark that the aim is not to try to structure the data in the business or define databases. [↑](#footnote-ref-15)
16. Remark that the same individual or organization can act under multiple roles depending on the activities being performed. [↑](#footnote-ref-16)
17. (SEC(2010)1182) [↑](#footnote-ref-17)
18. Directive 2014/24/EU on public procurement: <http://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32014L0024&rid=1> ;

    Communication COM/2013/0453 "End-to-end e-procurement to modernise public administration": <http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1408968216682&uri=CELEX:52013DC0453> ;

    Directive 2010/45/EU on the common system of value added tax as regards the rules on invoicing: <http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1408968329639&uri=CELEX:32010L0045> . [↑](#footnote-ref-18)
19. See CRIS Financial Modules Phasing Out meeting minutes from Project Steering Committee, 11/02/2014 [↑](#footnote-ref-19)
20. Idem previous footnote [↑](#footnote-ref-20)
21. See section on Architectural principles [↑](#footnote-ref-21)
22. By creating a single repository or “file” in which all information relative to a project can be found [↑](#footnote-ref-22)
23. The use of metadata, structured information input by the contractors and indexation have been foreseen in business requirement of components 2, 4.5 and 6. [↑](#footnote-ref-23)
24. ABAC has always been used in background to support these processes and the Authorising officer’s visa can only be granted in it. [↑](#footnote-ref-24)
25. Gaps have been identified by colleagues from unit R1 [↑](#footnote-ref-25)
26. See minutes from User group on CRIS DEC/CTR potential migration to ABAC, 12/02/2014 [↑](#footnote-ref-26)
27. Around these entities are foreseen a number of improvements such as linking the results to the management entity, its documents (including metadata for enhancing the search and sharing purposes), sharing knowledge around the entity (project information). For more details, please see the business requirements of components 3, 5, 6, 8. [↑](#footnote-ref-27)
28. Table of correspondence is available in annex IV. [↑](#footnote-ref-28)
29. "Programme" corresponds to the key entity used during implementation [↑](#footnote-ref-29)
30. If we limit ourselves to cover 80 % of the needs, see above [↑](#footnote-ref-30)
31. through solid common references through the use of REFDATA = lists of predefined codes to categorise data in a consistent way among all DEVCO IT tools [↑](#footnote-ref-31)
32. MoSCoW methodology [↑](#footnote-ref-32)