

EEWC 2014



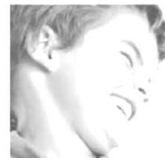
Enterprise Architecture at the Portuguese Government

Pedro Sousa^{1,3}, André Vasconcelos^{1,2}

Instituto Superior Técnico¹, AMA², Link Consulting³



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ADMINISTRATIVA
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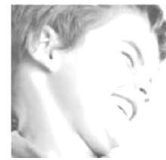
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- **The Organization**
- The Context
- The Challenge
- Main Benefits
- Project Approach
- Results
- Conclusion

The Organization



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AMA – Agency for the Public Service Reform, is a public institute that has the mission to roll out modernization initiatives, developing, coordinating and evaluating measures, programs and projects in the administrative and regulatory areas focused in simplification and optimization, digital administration and public services distribution, within the policies defined by the Government.

AMA is the entity responsible to carry on the task of achieving a Enterprise Architecture at the Portuguese Central Government, and is conducting this project

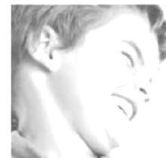


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The context



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- ICT Governance

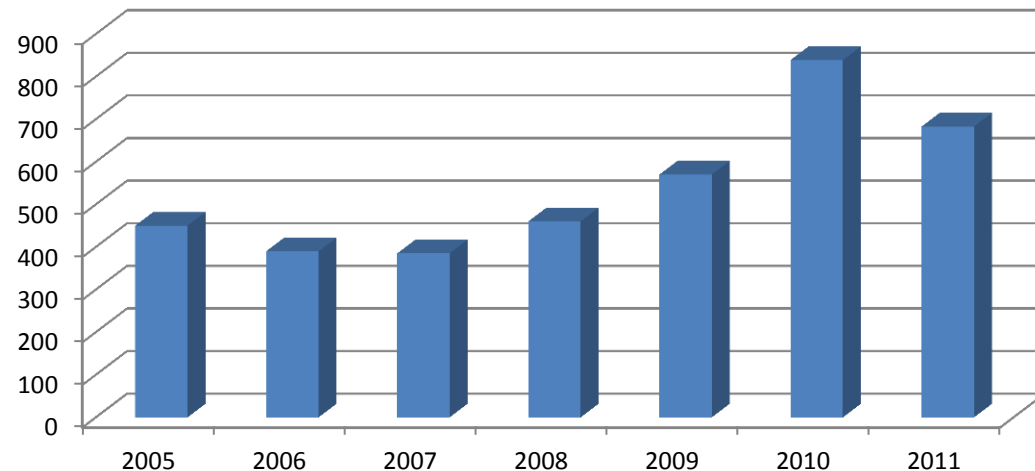
Public organizations may without restrictions :

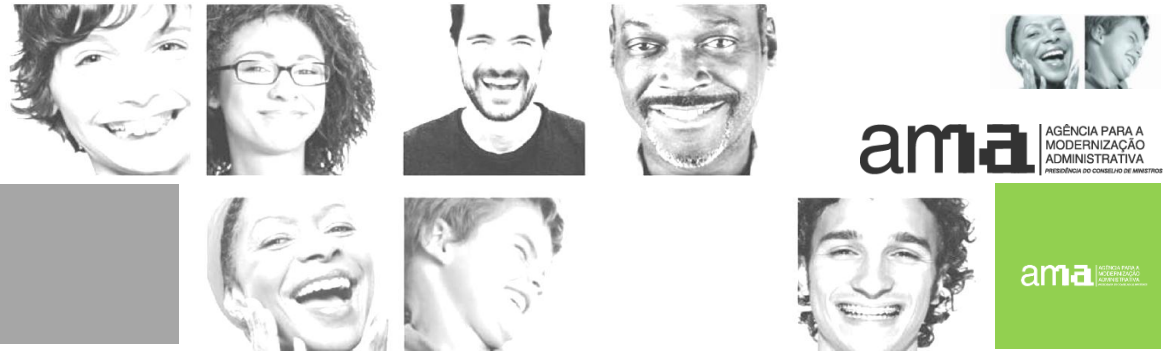
- acquire and manage autonomously each technological infrastructure
- acquire its own information systems
- Contract autonomously its own communications
- create the IT departments "as needed"

- Result

- Need for integration of systems and data between different information systems and public bodies
- Human, IT, and systems redundant
- No scale effect in the acquisition, implementation and management
- Stagnation of human resources in small and poorly managed ICT Departments
- Overall increase of ICT expenditure (between 2006 and 2011 the ICT budget of central Public Administration has grown 75%)

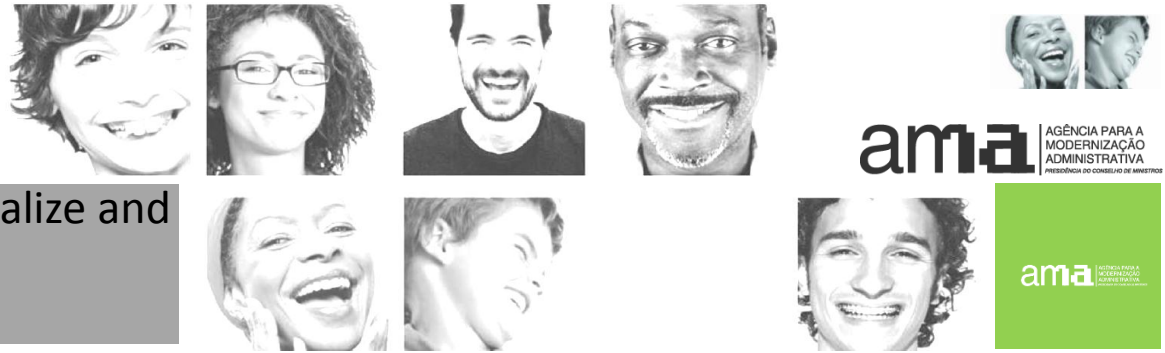
Public Administration ICT budget (MEuros)





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The Challenge



Global Strategic Plan to Rationalize and Decrease ICT Costs in Public Administration

25 CROSS-CUTTING MEASURES



After their implementation, the estimated direct **savings on ICT are of 130 million euros a year in central government.**

Structured within the following axis:

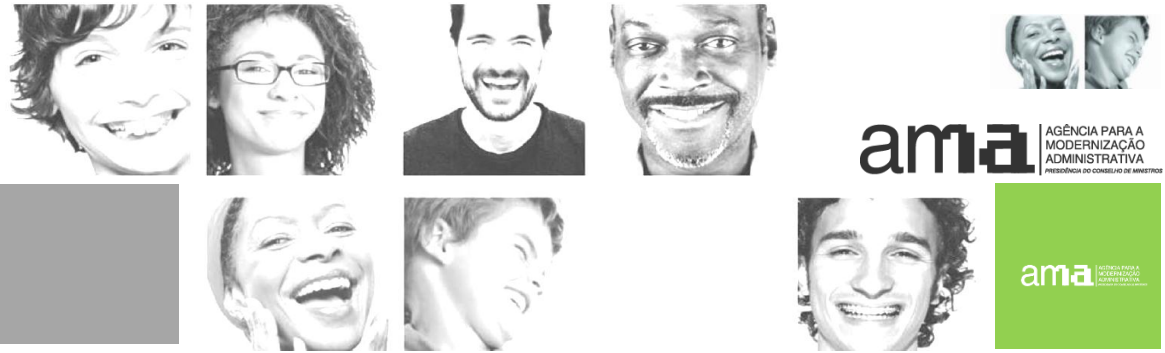
- Improve governance mechanisms
- Cost reduction
- ICT to improve change and modernization
- Common/shared ICT solutions
- Stimulate the economic growth

The Challenge



2) Use both a Descriptive and a Prescriptive approach to EA

- How to achieve an effective Descriptive EA?
 - Simple Concepts
 - Intuitive Views
- How to support a Prescriptive EA?
 - Reference Architecture
 - Design Principles
 - Rules Enforcement

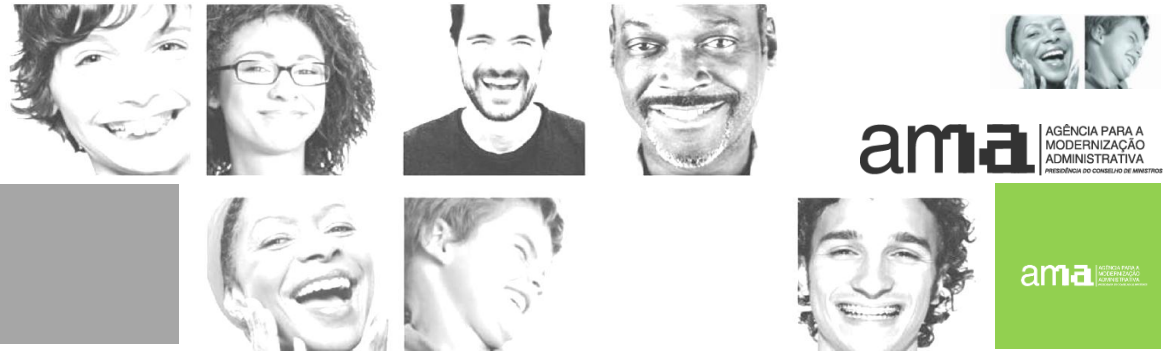


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Main Benefits



- For the **Portuguese Government**
 - **IT cost savings.** Final figures are not yet public.
- For the **Ministries,**
 - the adoption of an instrument that allows the **management of the IT architecture,** including the **sharing of resources and projects** among organisms under their management.
- For each **Public Body,**
 - a **clearly defined architecture** with the ability to perform investment and **impact analysis**
- For **AMA** itself:
 - the solution allows the **standardization of rules and architectural criteria** that would otherwise be impossible to enforce and monitor.



- The Organization
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Project Approach



- The project aims at the creation of a central artifact to allow a descriptive and prescriptive approach for Enterprise Architecture over the entire set of Organisms belonging to the Portuguese Government

Approach:

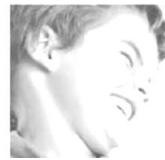
- **Assess Methodology**
 - *Survey Activities*
 - *Survey structure*
- Setting up the Artifact
- Feeding the Repository
 - The Migration Process
 - The Continuous Update Process

Project Approach



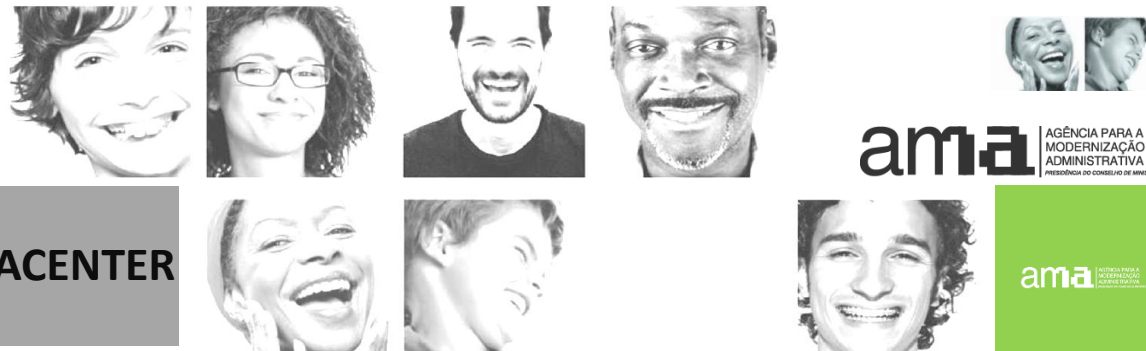
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Assess Methodology



- Three questionnaires were provided to public administration agencies to collect detailed information on:
 1. Characterization of the features of the Infrastructure, Applications, Licensing, and software and hardware maintenance contracts ,
 2. ICT cost function and
 3. Quality of ICT services.

Survey (1) and (2) were supported in spreadsheet's, while survey 3 was supported in an online tool.



SURVEY RESULTS ON THE DATACENTER COMPONENT

Technical Rooms /Datacenters

Number os Datacenters

TR **6050**
DC **15**

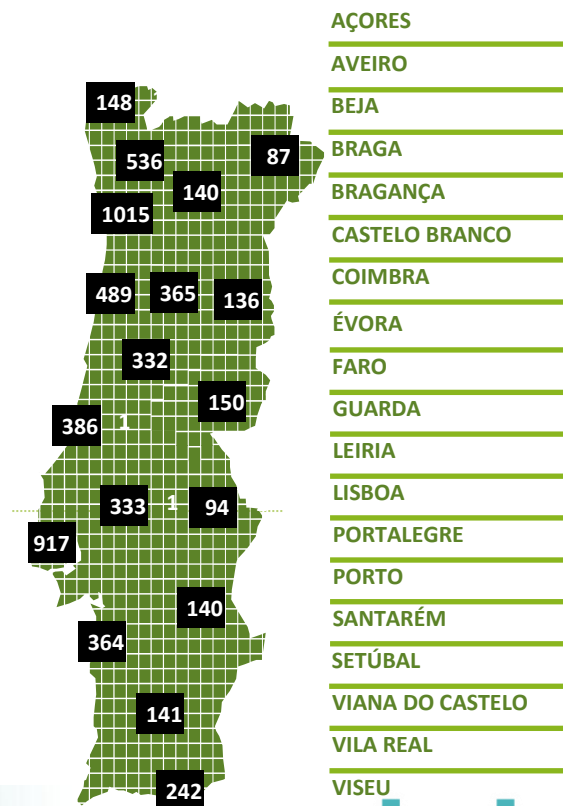
Total area (m²)

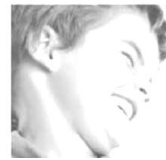
13093

Average PUE

2,6

GEOGRAPHICAL DISTRIBUTION





SURVEY RESULTS ON COMMUNICATIONS COMPONENT

CONTRACTS

Nr of contract by year and type

Tipo	Ano de Termo	# Contratos	Valor Total Anual
Voz Fixa	2012	204	5.143.531,69 €
	2013	79	2.986.203,89 €
	>2013	34	955.093,72 €
Dados Fixo	2012	365	21.326.446,58 €
	2013	40	957.692,20 €
	>2013	48	9.057.552,92 €
Voz Móvel	2012	124	2.101.526,76 €
	2013	39	407.030,05 €
	>2013	45	1.007.635,66 €
Internet Móvel	2012	175	471.070,29 €
	2013	18	50.933,79 €
	>2013	29	370.773,39 €
Outros	2012	8	182.633,77 €
	2013	0	- €
	>2013	7	50.744,16 €
Total		1215	45.068.868,87 €

Communication equipment's

Voice

% IP Phone Centrals

0,8%

DATA

Router / Switch

19309

SECURITY

Firewall

229

Total de Locais

8811

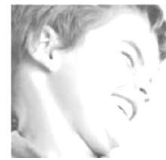
%of places with vide conference technology

1,5%

Project Approach



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- Assess Methodology
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 - *Survey structure*
- **Setting up the Artifact**
- Feeding the Repository
 - The Initial Migration Process
 - **The Continuous Update Process**
 - The Prescriptive Approach

Project Approach



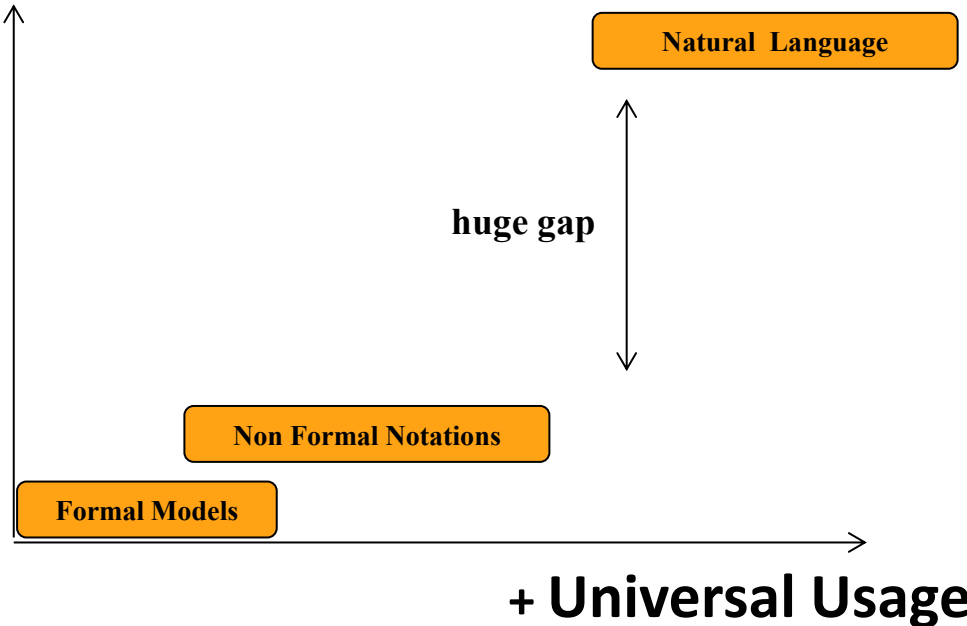
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Setting up the Artifact The general Problem (1)



- Organizations are very complex systems, where decisions implies communication between people.
- How to support communication?
 - Formal models are widely unknown, and it takes too long to draw a model and
 - Natural language is too fuzzy and takes too long to reach consensus
- How reach is a good compromise ?

+ Fuzziness



Project Approach

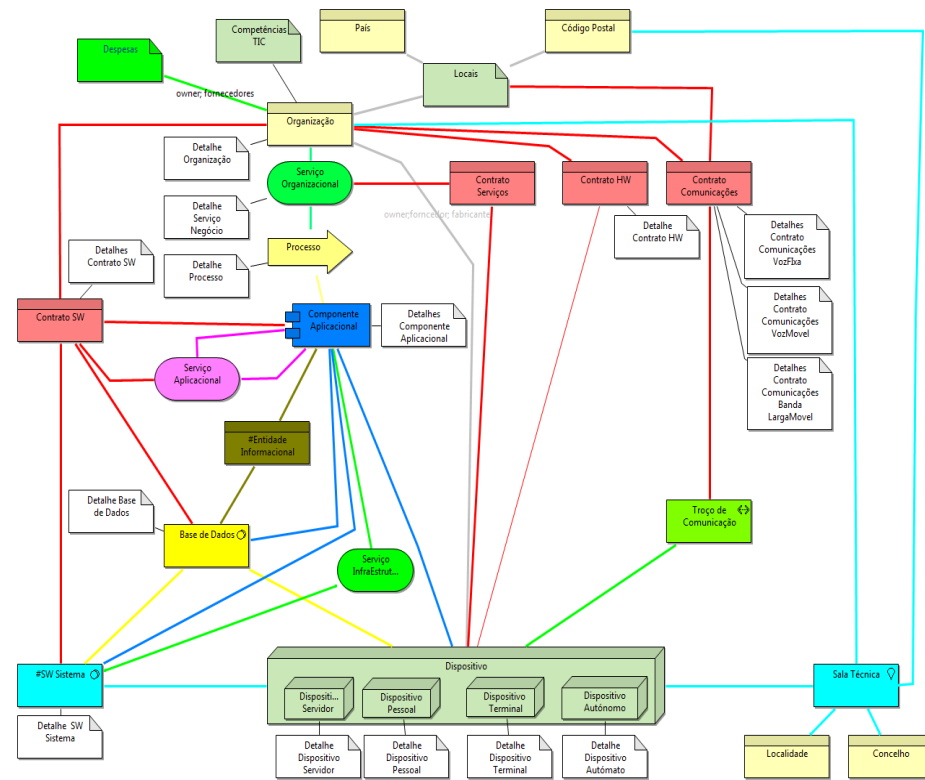


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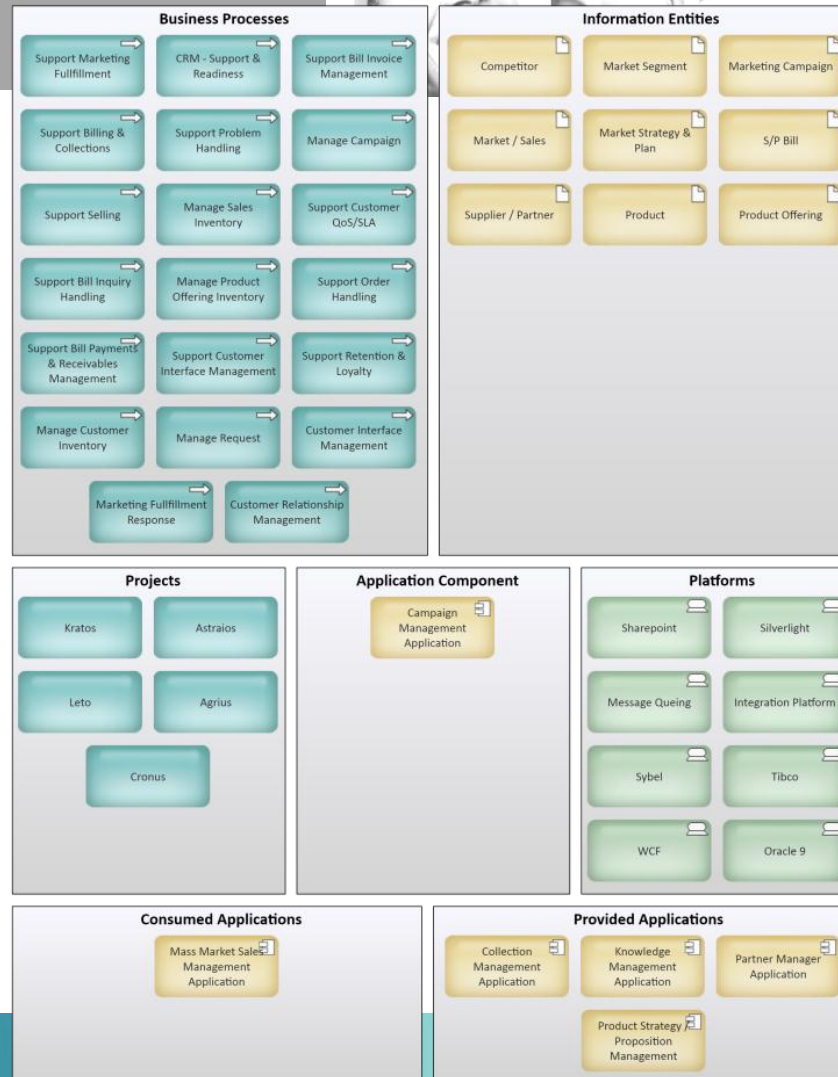
The Descriptive EA...



- EA should allow effective communication to every one, and not only between a small group.
- The meta model is a minimum set of concepts (both subjects and verbs) that allow people to communicate facts and states of the organization effectively.
- EA views are the graphical statements, easy to understand.



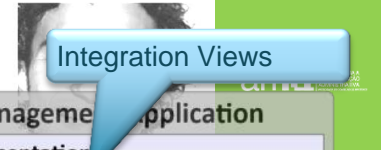
Context Views



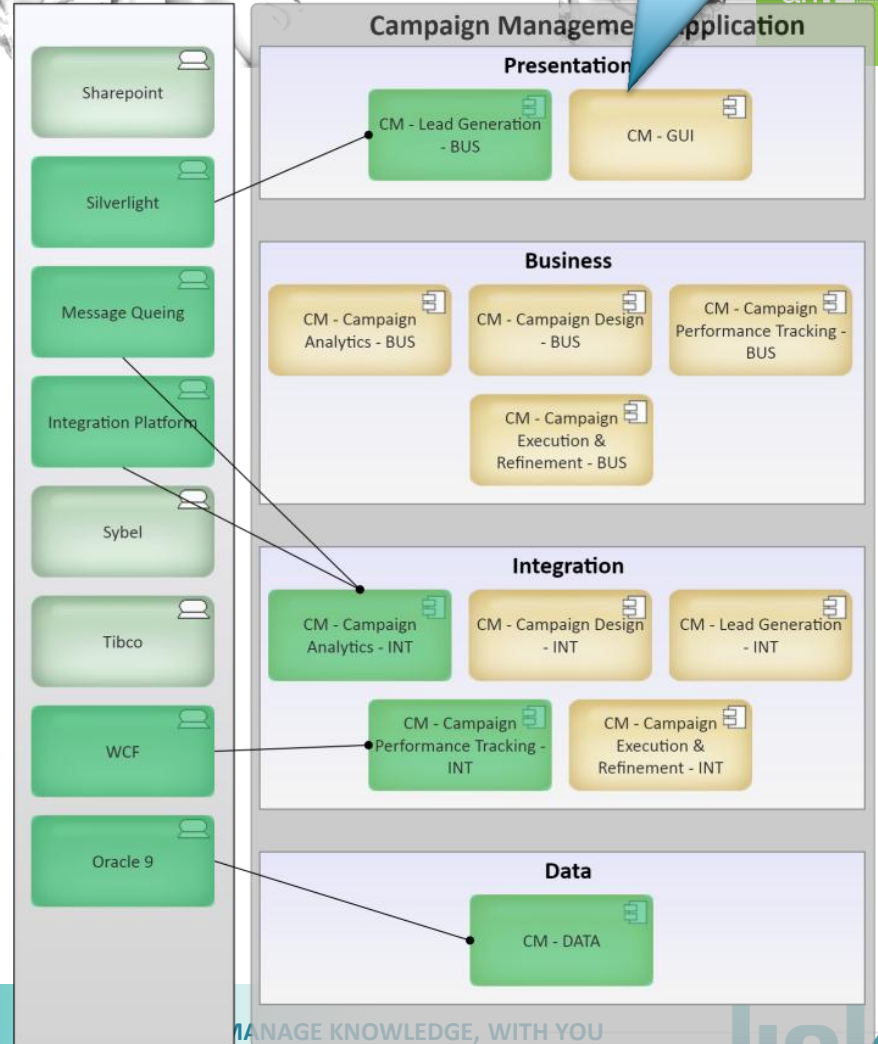
EA views



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Integration Views



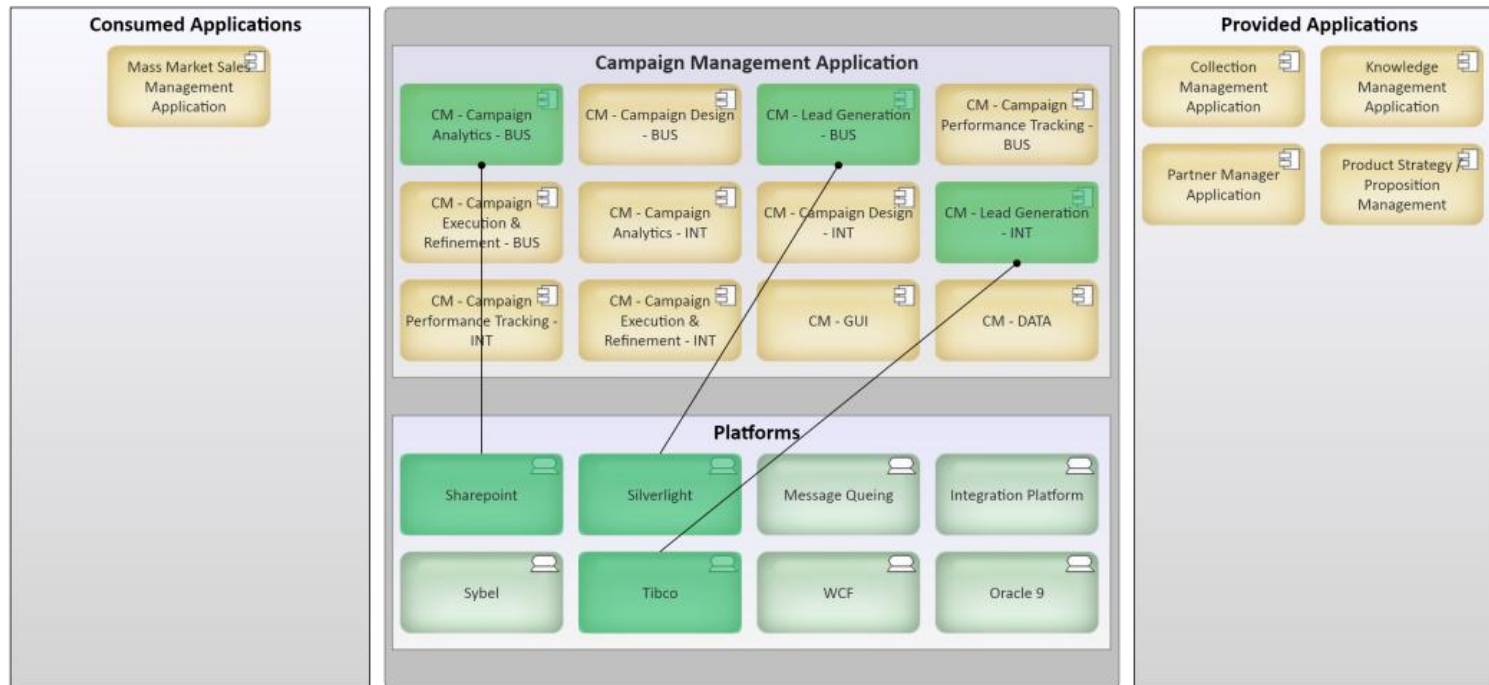
MANAGE KNOWLEDGE, WITH YOU



EA views



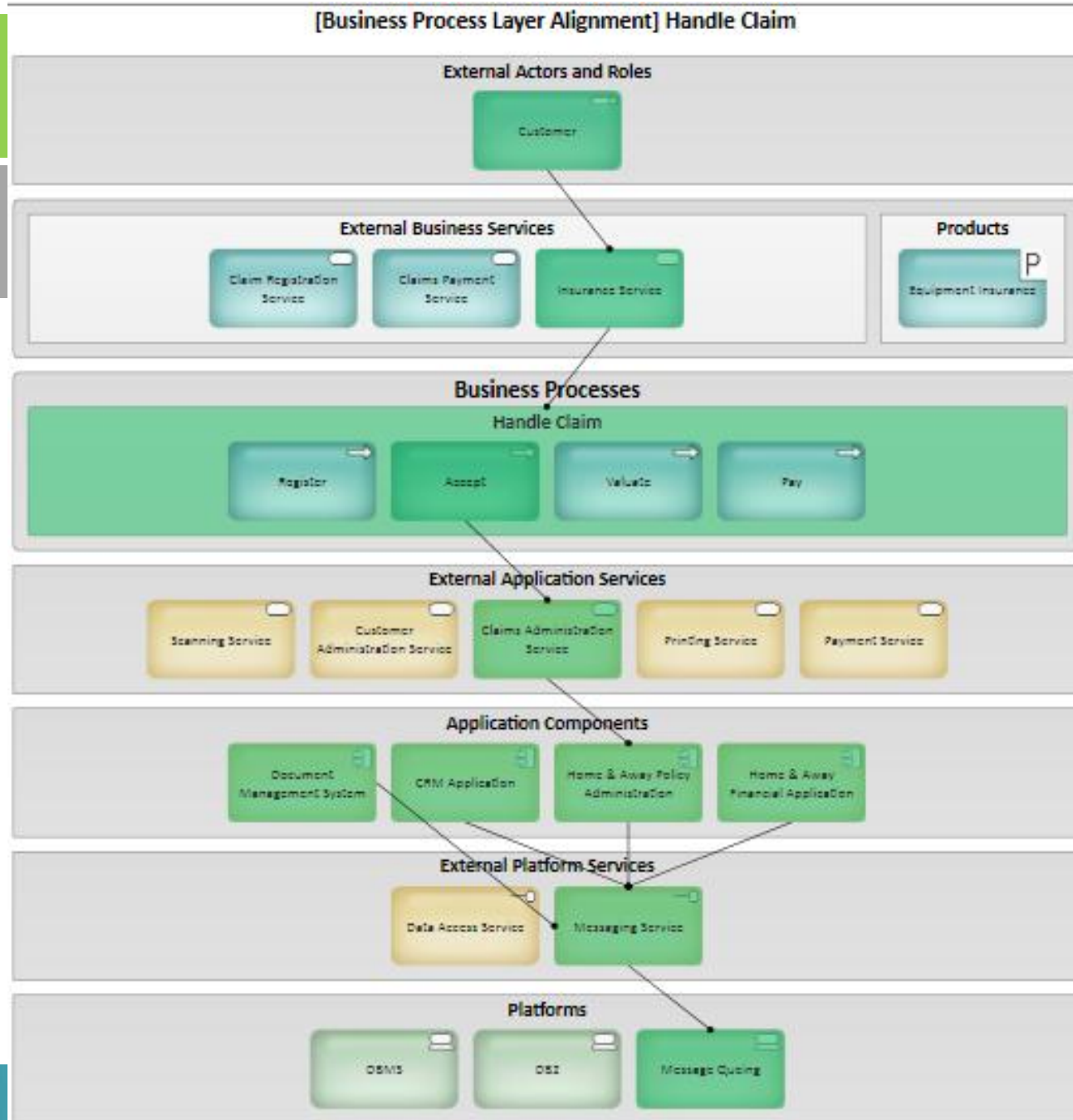
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PRESTADOR DE SERVIÇOS DE GESTÃO



Project Approach

EA Views

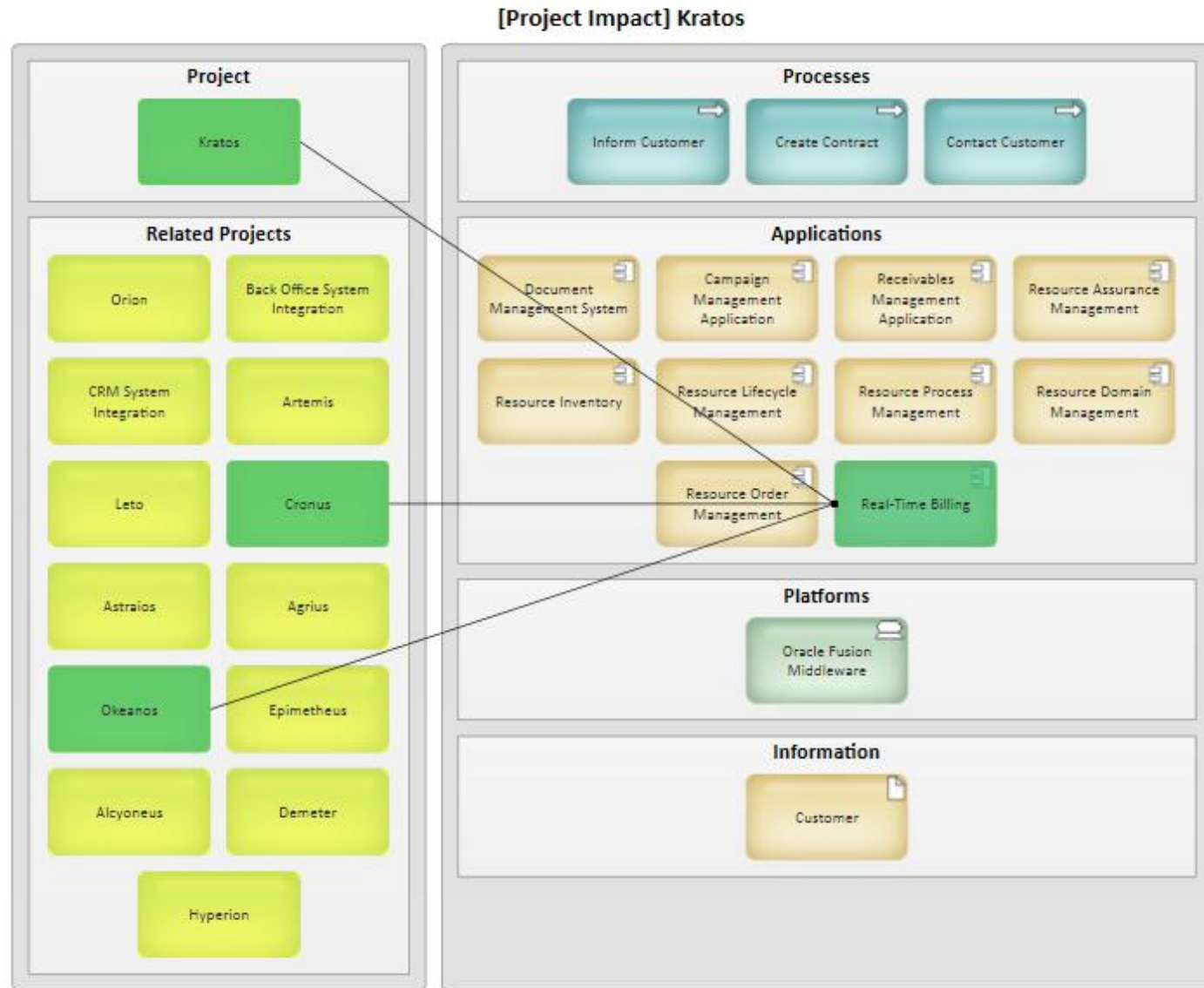
- Layered Views (We support all Archimate views)





EA Views

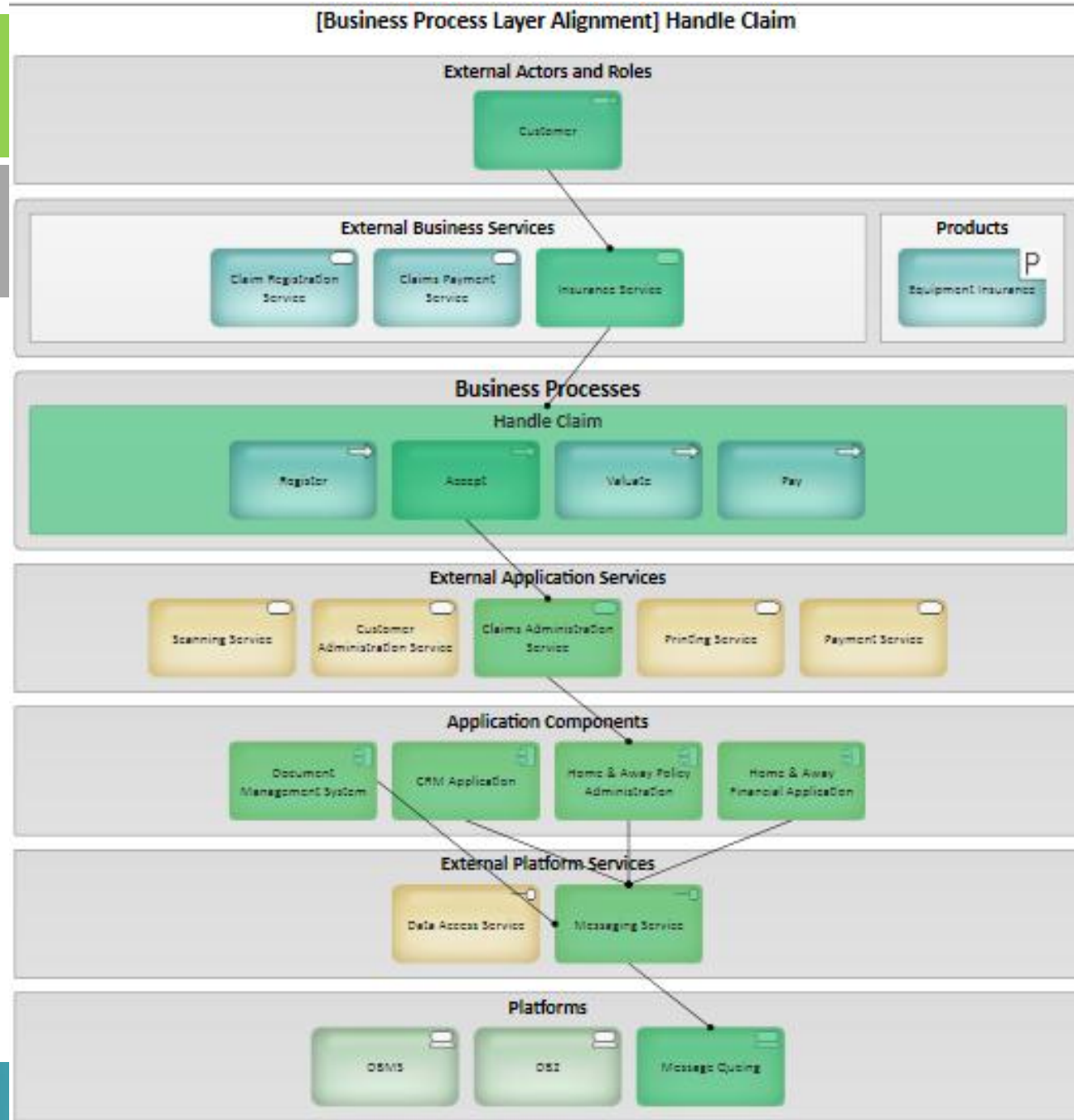
- Impact views



Project Approach

EA Views

- Layered Views
(We support all “Archimate like” views)

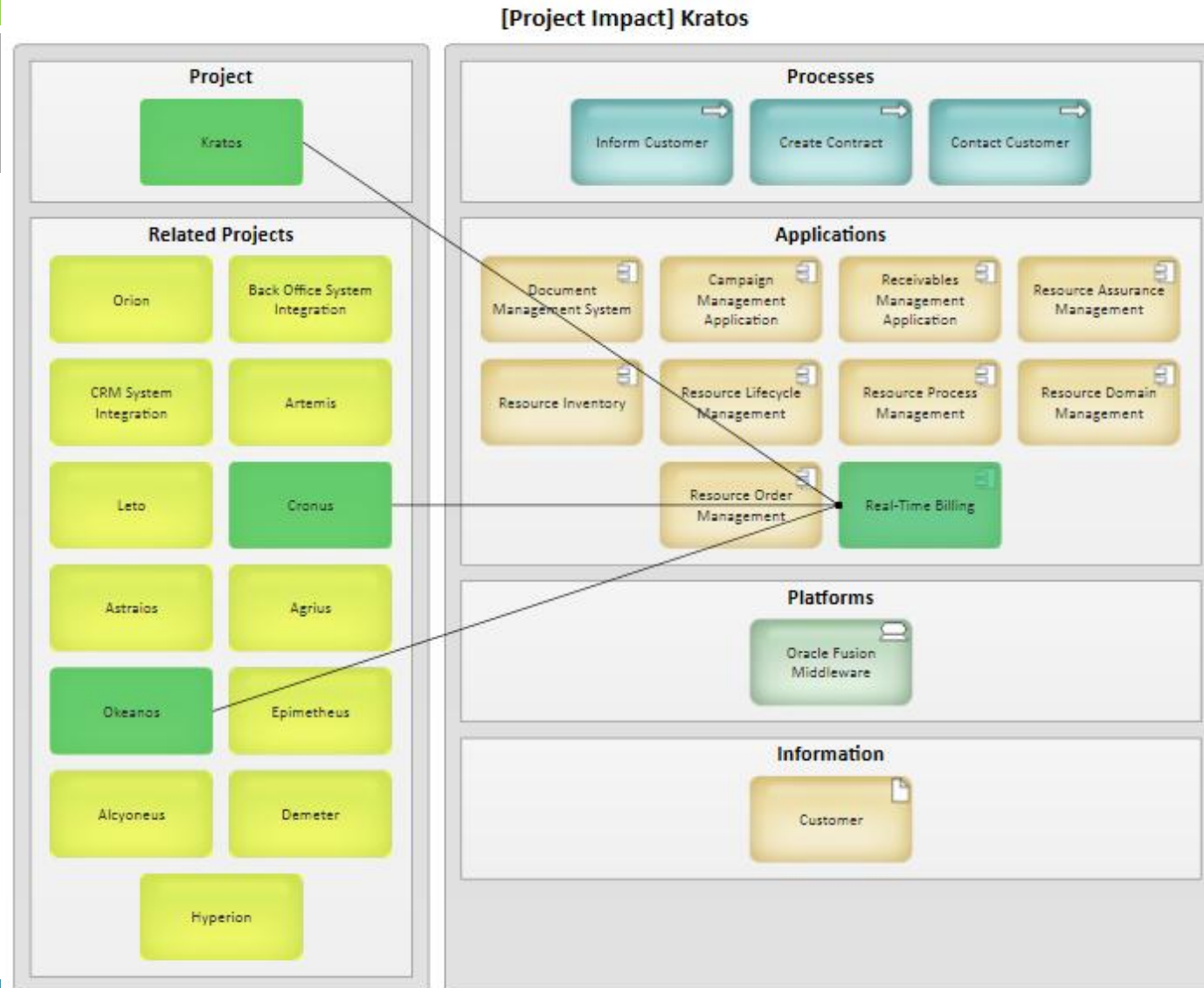


Project Approach



EA Views

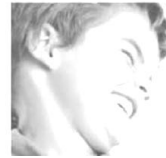
- Impact views



Project Approach

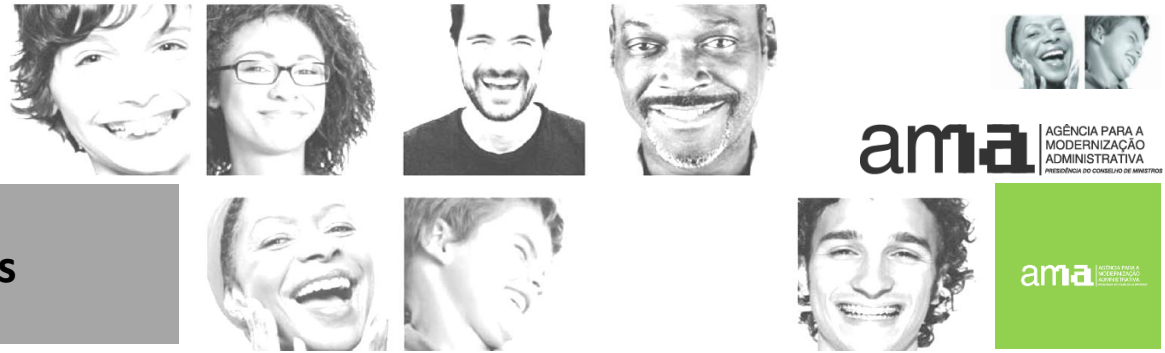


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 - The Prescriptive Approach

Project Approach



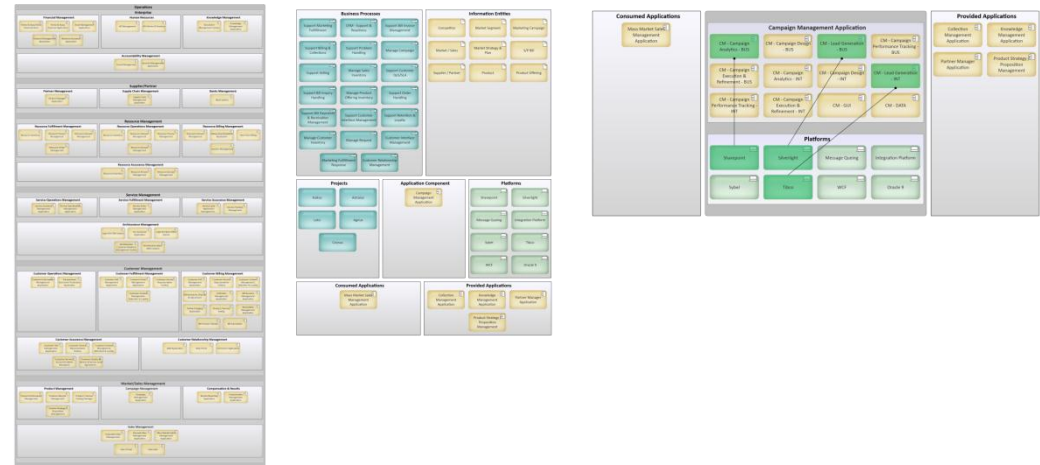
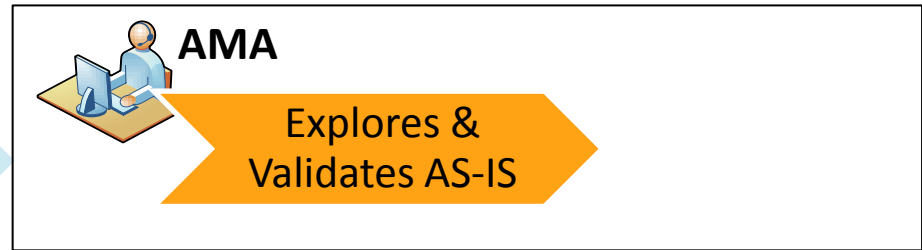
The Initial Migration Process

170 Excel Surveys!

1

Architectural Repository

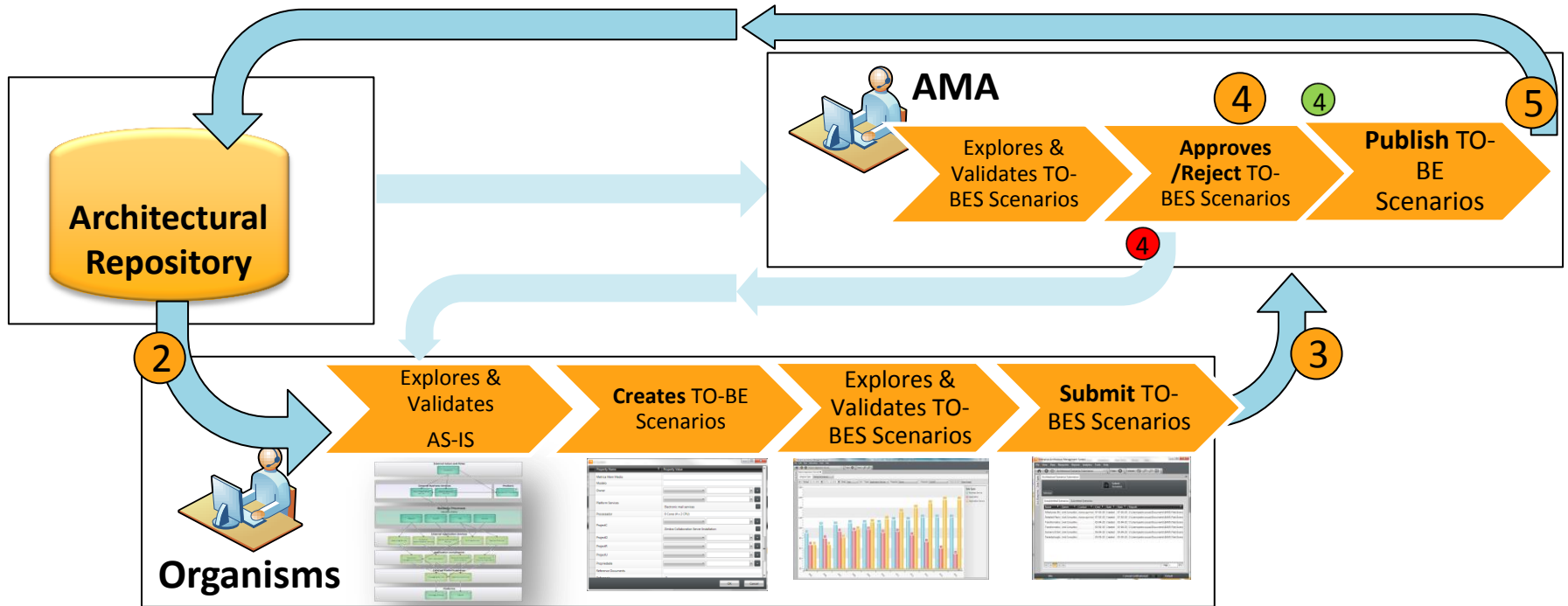
87K Devices
15K Servers
14K DataBases
10K Expenses Reports
Plus 20 other entities



Project Approach



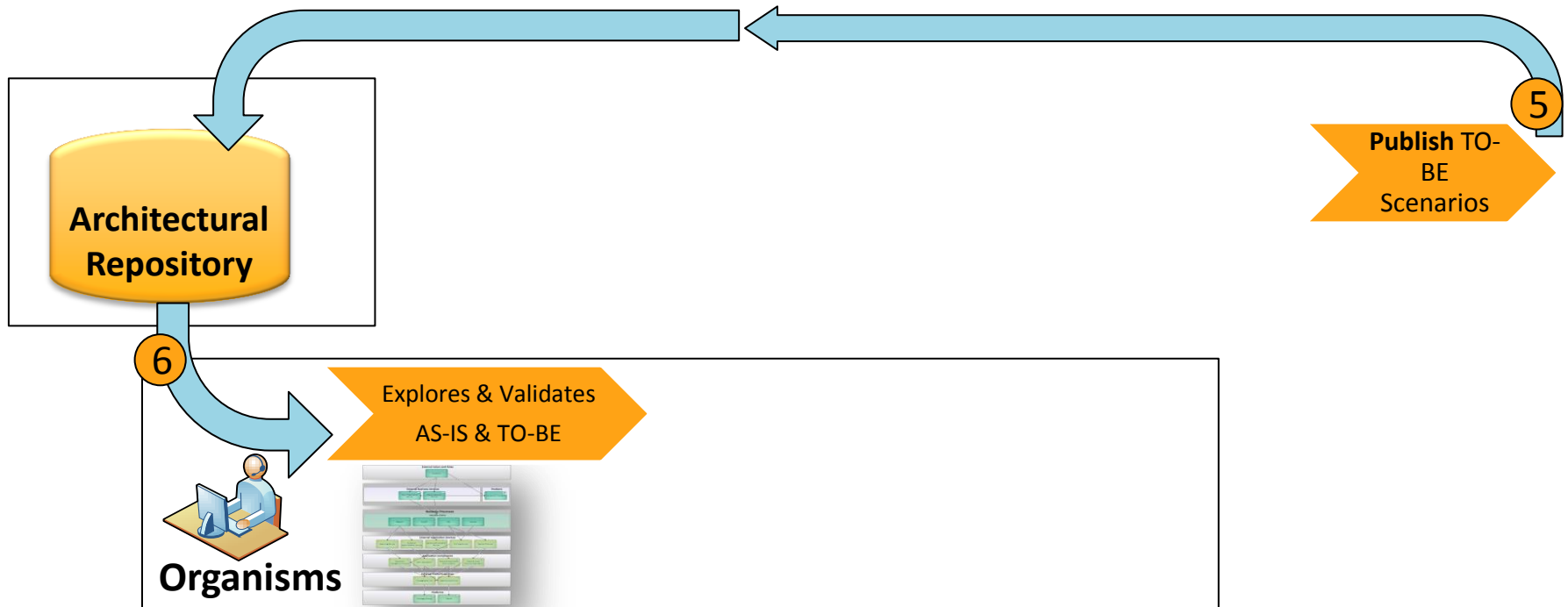
The Continuous Update Process



Project Approach



The Continuous Update Process

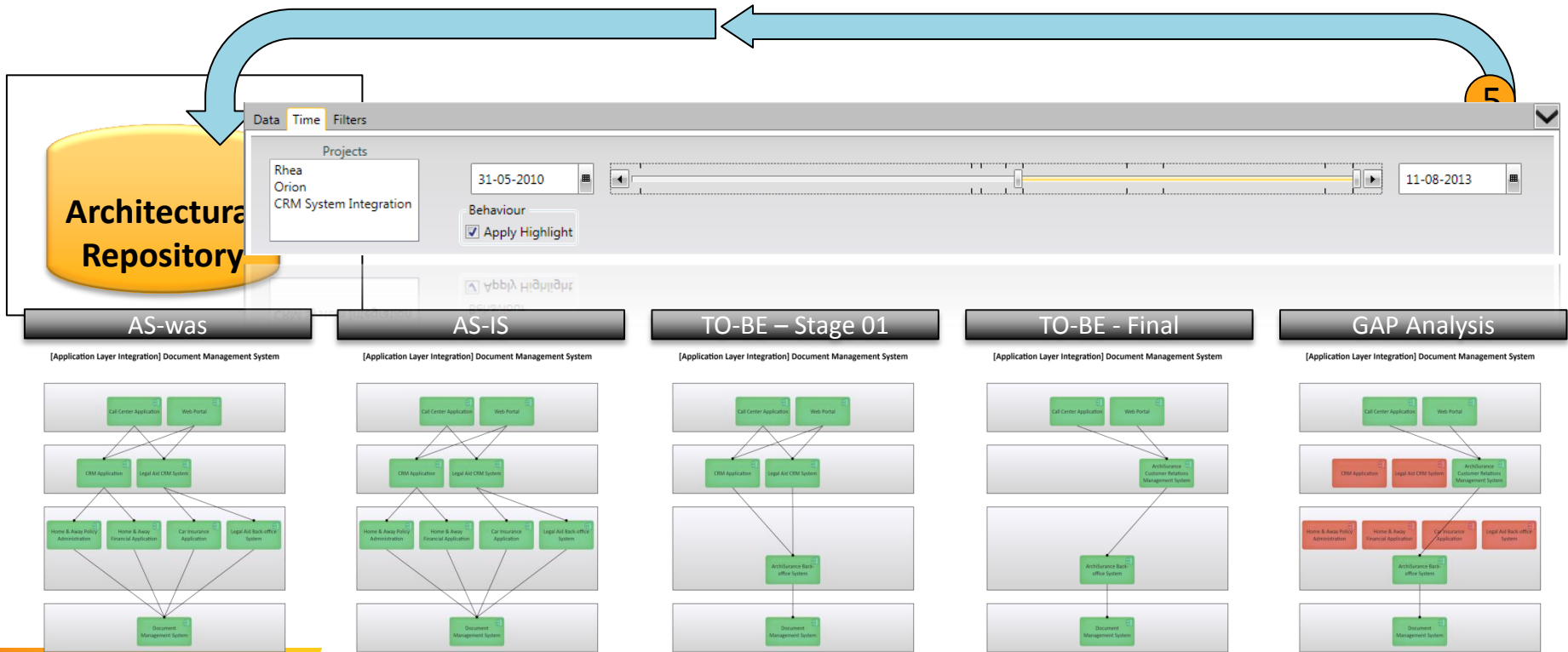


Project Approach

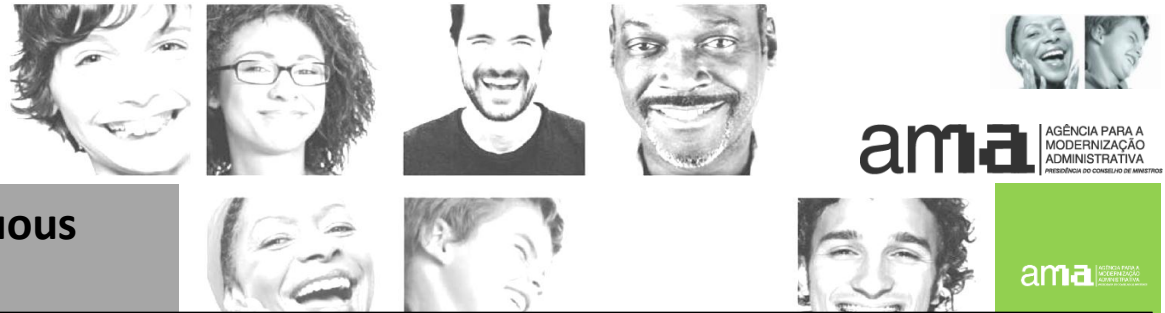
The Continuous Update Process

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PROTEÇÃO DE CONSUMIDOR DE SERVIÇOS

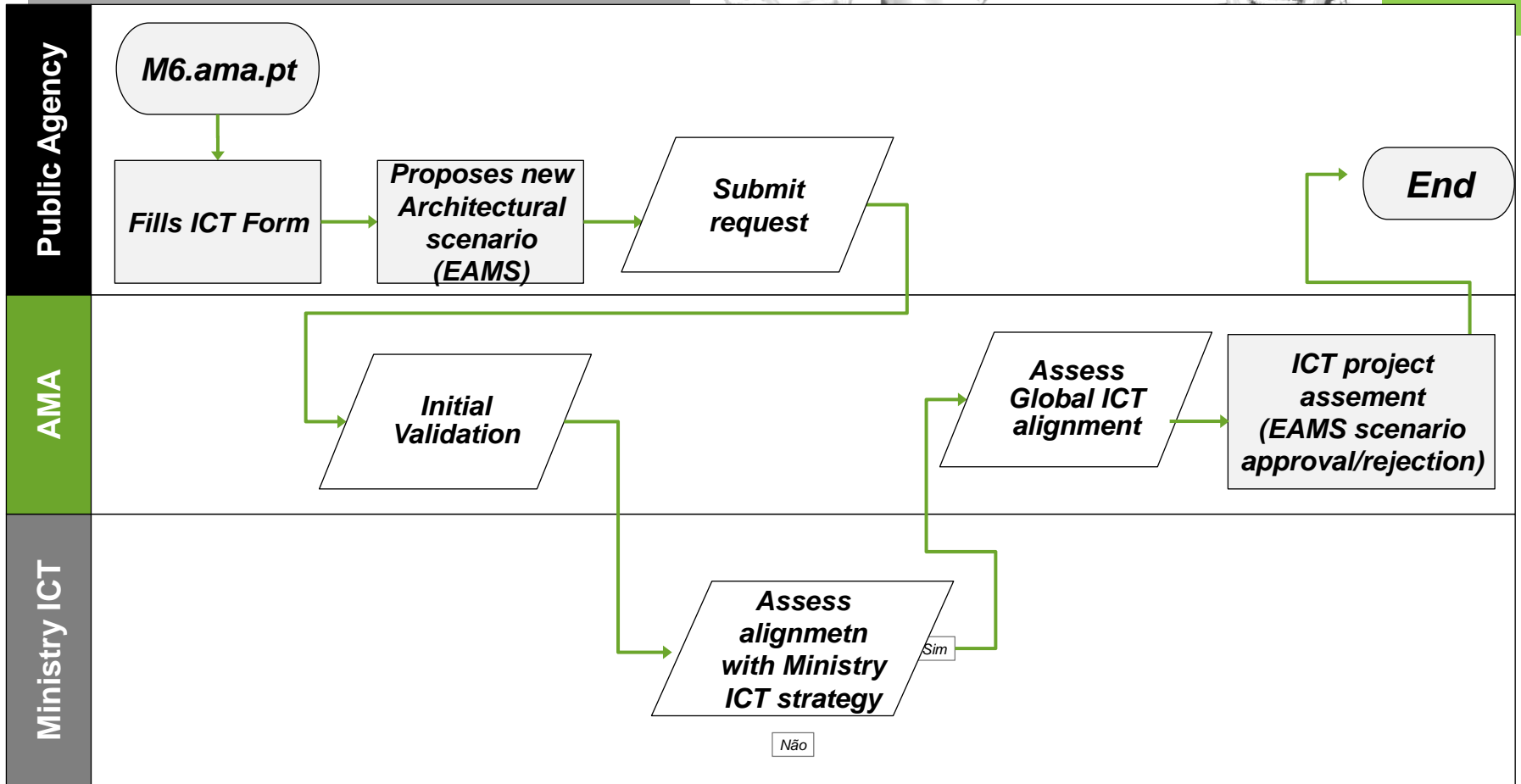
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Project Approach



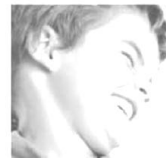
Broader view of the continuous update process



Project Approach



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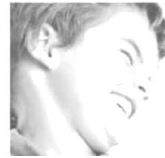
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 - **The Prescriptive Approach**

Project Approach



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The Prescriptive Approach



Prescriptive Architecture comes in the form of reduce freedom of design by adding rules at different layers addressing different concerns :

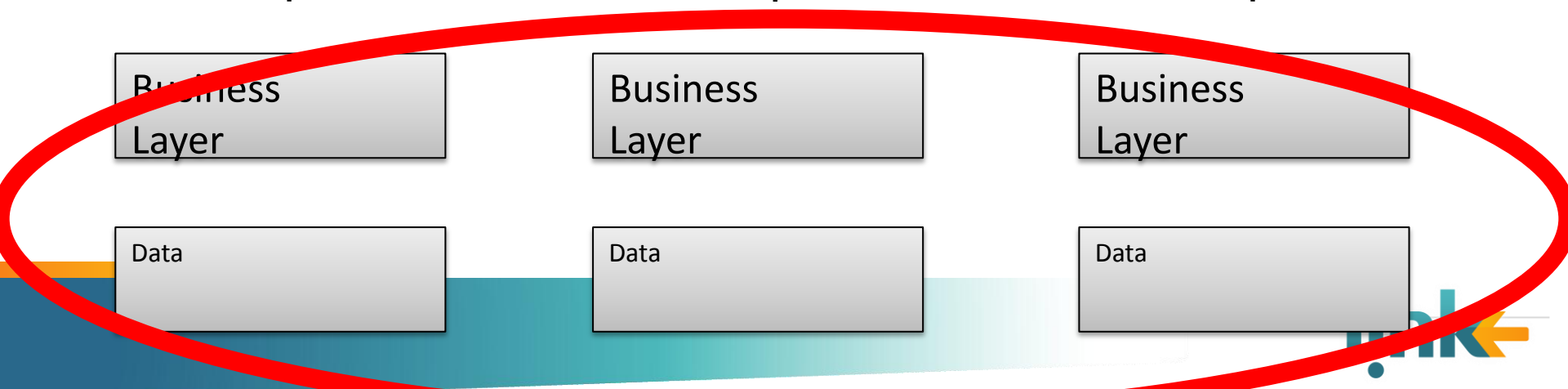
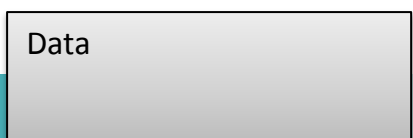
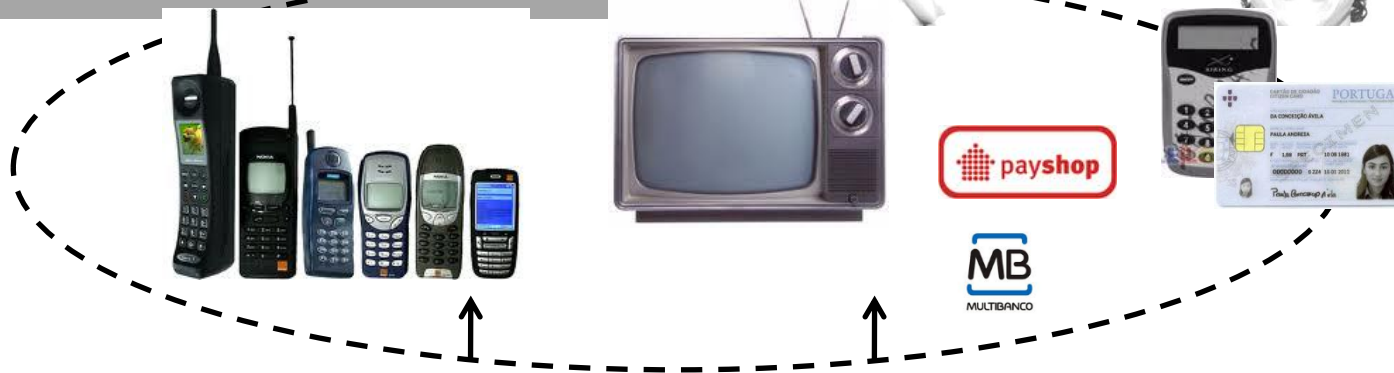
- Rules concerning basic referential Integrity Rules (always)
- Rules leading into an Architectural Reference and better design:
 - Specific types of artifacts must imply the existence of others
 - Specific types of artifacts are standardized
 - Specific types functions are standardized
 - Specific functions must be performed by default components

Project Approach



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ICT Guidelines for the Portuguese Public Administration





➤ Information Architecture

➤ Defining of information entities (common data model)

➤ Definition of concepts as::

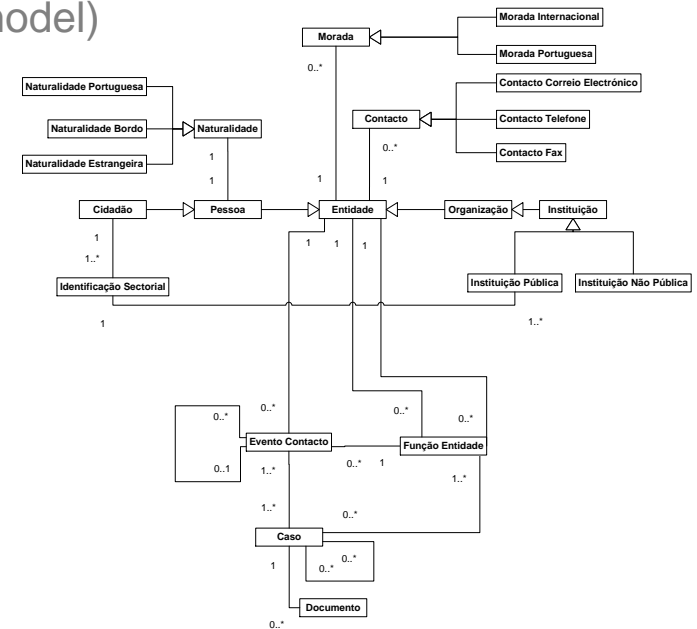
- Citizen
- Contact
- Address

➤ Canonical attributes

- Identification
- Format
- Mandatory/optional
-

➤ Reference Tables

- Nationality
- Municipalities
- Zip Code
- ...



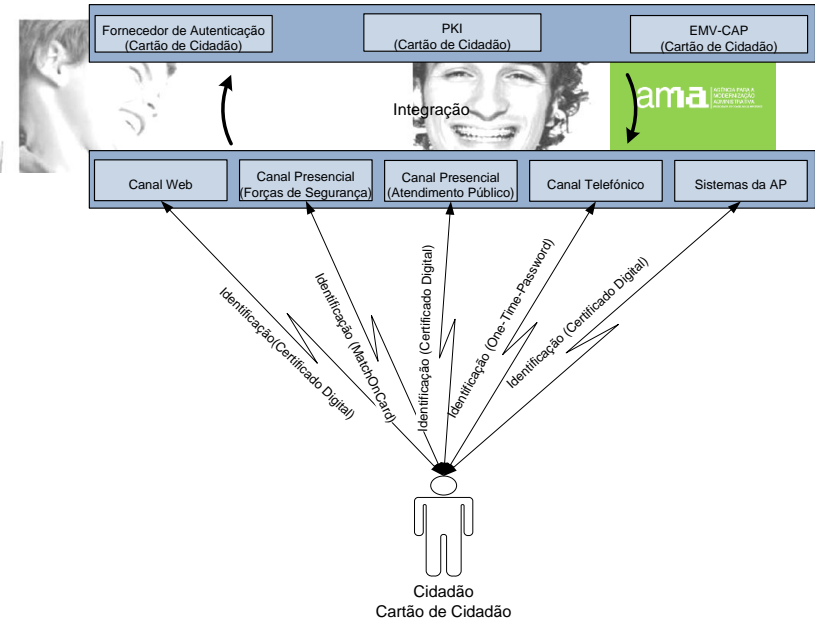
Project Approach



ICT Guidelines for the Portuguese Public Administration

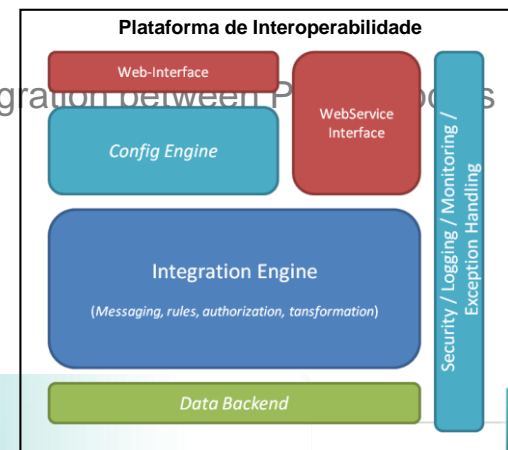
➤ Electronic Identification and signature

- Single Sign On
- eID: Portuguese Citizen Card
- Norms and guidelines for:
 - Certificate Validation
 - OCSP
 - CRL
 - Types of certificates
 - X.509 v3

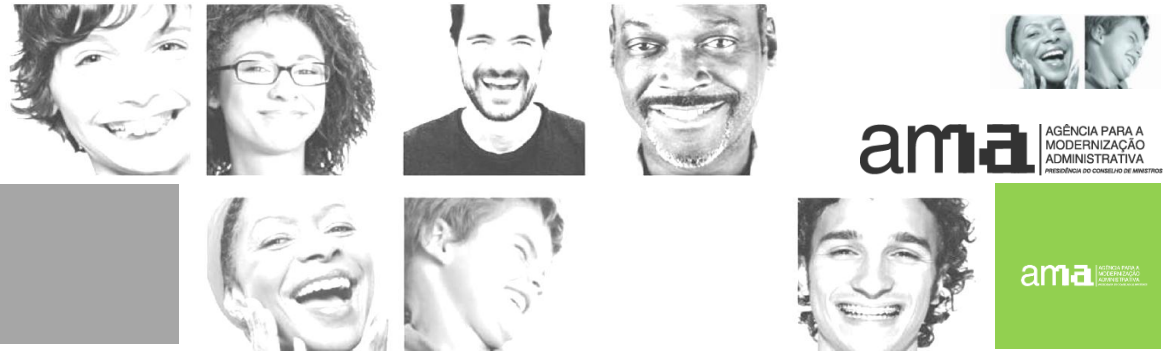


➤ Interoperability and Open Standards

- Use of a common Integration central Platform for integration between systems
- **Norms and open standards for integration (WS*):**
- Mandatory Open Standards for several purposes (e.g., ODF, XML, PDF,)

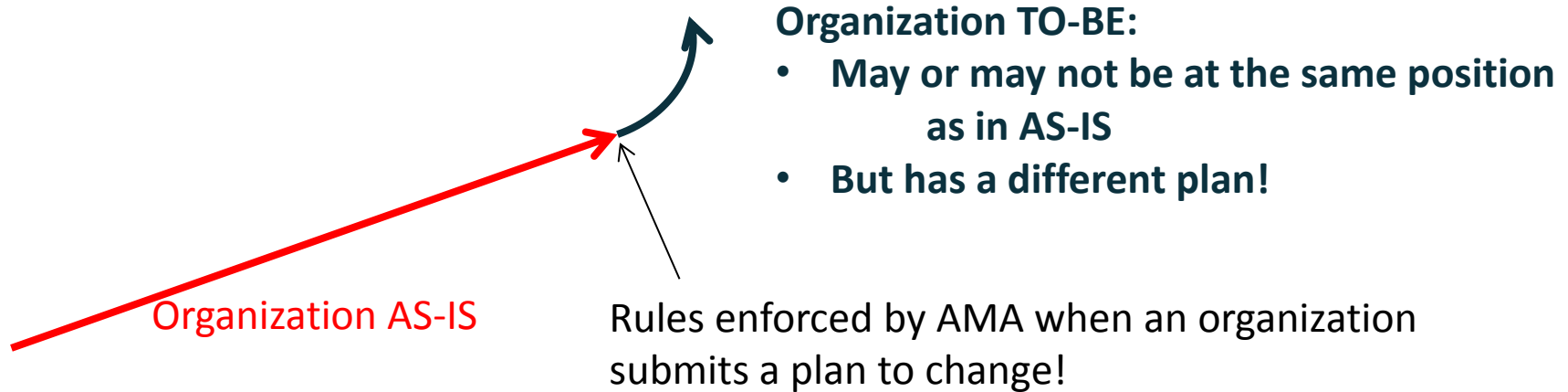


In different words...



The **AS-IS** is the current “vector”, including:

- Where you are “the current position”
- Where you plan to be “The current plans” (speed and expected future states)



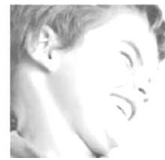


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Results



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- This project provided, by using EAMS across all the 650 public bodies, with the ability to:
 - Explore their IT architecture
 - Produce Impact analysis
 - Create New Architecture Scenarios (NAS)
 - Analyze As-Is and To-Be Scenarios
 - Submit to AMA New Architecture Scenarios (NAS)
- Allowed AMA to:
 - Standardize efficiently the rules for a national public architecture
 - Control compliance for new projects
 - Optimize resource usage across all ministries



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Conclusion



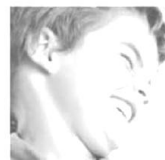
- Concerning the EAMS(*), it allows for the establishment of standards and criteria, and consolidation of a vision of systems and IT infrastructures across public organizations, becoming a fundamental tool for Public IT Governance. The Multilevel inter-organizational features of EAMS allow, on one side for the autonomy and on the other for a consolidation of the different architectures.
- Project next challenges
 - Ensure use and understanding of the benefits of EA definition
 - Integration with existing CMDB tools
 - Continue developing (global and sectorial) guidelines
 - Making the tool “owned” by each organization

(*) www.linkconsulting.com/eams

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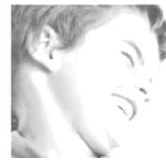
Thanks!

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Project Approach



Assess Methodology



- The Assessment's main function was to assess the current situation in terms of ICT platforms providing a comprehensive review of the existing ICT environment. The assessment comprised about 200 public agencies ICT, from 7 different Ministries, and was split into two phases (the first phase for the agencies from 4 ministries and the second phase from agencies from three more ministries).

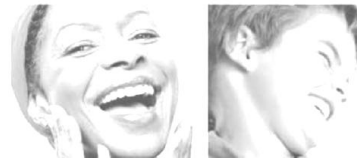
Project Approach Assessment Methodology



AS-IS survey ("AS-IS") – phase 1



* Except for Universities

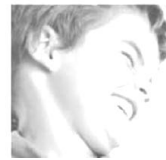


AS-IS survey (“AS-IS”) – phase 2





Survey Activities



- In order to perform the ICT survey the following activities were performed, for each public agency surveyed:
- Six survey activities were performed, including the definition of the questionnaire, the Sending of the questionnaires, and the Reception data and validation of the data.

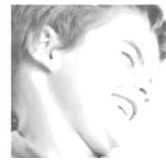


Project Approach



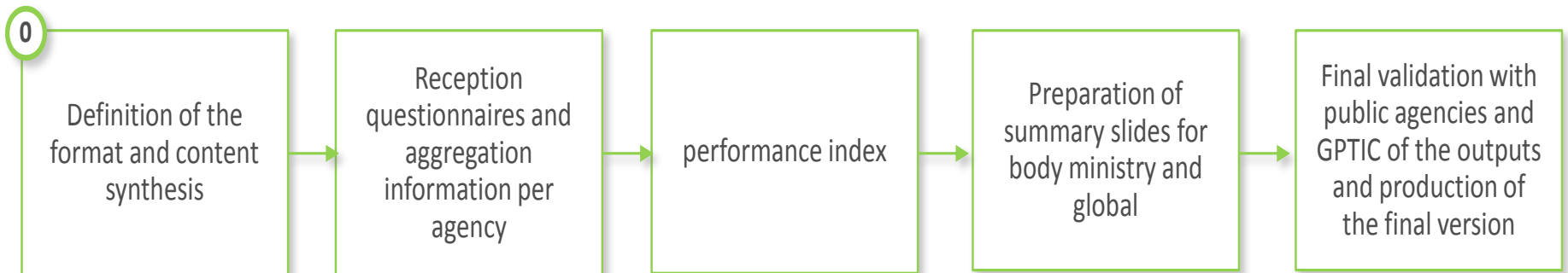
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Survey Activities



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- Four analysis and synthesis activities were performed, including the aggregation information per agency, the definition of performance index and the summary slides for each ministry and for the all public administration.

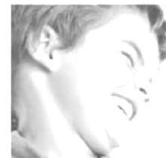


Project Approach



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ADMINISTRATIVA
PRESENCIA DO CONSELHO DE GESTORES

Survey Structure

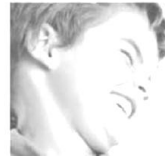


- **Infrastructure:** Classification of platforms computing resources, CPU (eg x86), RAM, space allocation and physical storage locations. Rating versions of supported operating system, Windows Server, Linux, Unix and the respective storage. also included evaluating the performance of different computational resources
- **Network:** Access / bandwidth required, supported protocols, protocol restrictions, Firewall options, capacity VPN / IP and or Wan;
- **Security:** Physical and Logical, eg. Firewalls, physical access, etc. ...
- **Datacenter:** location, environmental characteristics, fire extinguishing, cooling, consumption of energy, UPS, generators, etc. ...
- **License and Software Maintenance contracts:** for all ICT, Servers, active network components support tools for the management of Infrastructure
- **Reliability:** Number of Datacenters, hours of availability of support, redun-dance network, fault tolerance and disaster recovery support when applicable.

Project Approach



Survey Structure



- Survey Infrastructure Communications
 - Characterization of the infrastructure of communications (between poles of the same organism and other organisms)
 - Costs and Contracts communications (implementation, maintenance, traffic management)
- Characterization of IT Function
 - IT Governance
 - the characterization of the organization of computer areas;
 - Characterization of the service provided ICT
 - Evaluation of the maturity of process management service-desk/incident
 - IT spending

Project Approach



We present the project approach in the following topics:

- Assess Methodology
 - *Survey Activities*
 - *Survey structure*
- Setting up the Artifact
- Feeding the Repository
 - The Initial Migration Process
 - The Continuous Update Process
 - The Prescriptive Approach

Project Approach



Infra-Structure Key components

