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Developments in e-Systems Engineering
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L O N D O N

e-System for public administration reporting services

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Outline

- Scope and motivation
- Reporting e-system
- Reporting services
 - Data gathering
 - Data interpretation
- Implementation of the workflow
- Conclusion and future work



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Scope and motivation (I)

- Efficient public administration relies on data about companies
 - Statistics about number of employees
 - Revenue data
- Collecting such data is not a trivial task
 - Companies are required to voluntarily transmit the data
 - In many cases, data is copied from the internal back-office system (database), converted and sent to the public administration :



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Scope and motivation (II)

- We propose an e-Services system that integrates:
 - Optimized data transfers
 - Optimized document workflows
 - Business reporting services
- **Why?**
 - To help organizations
 - periodical report data
 - automatically manage interactions with public administration



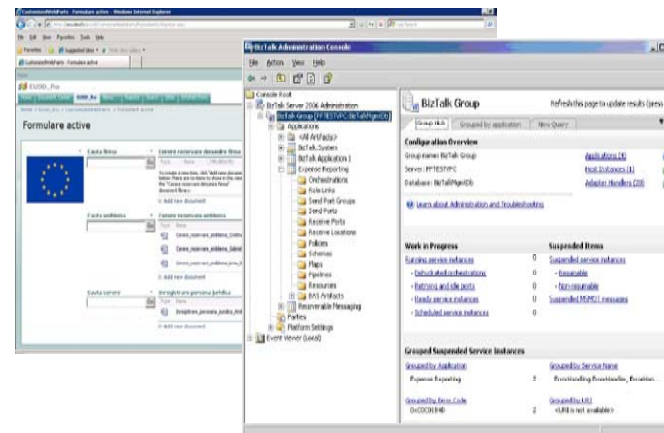
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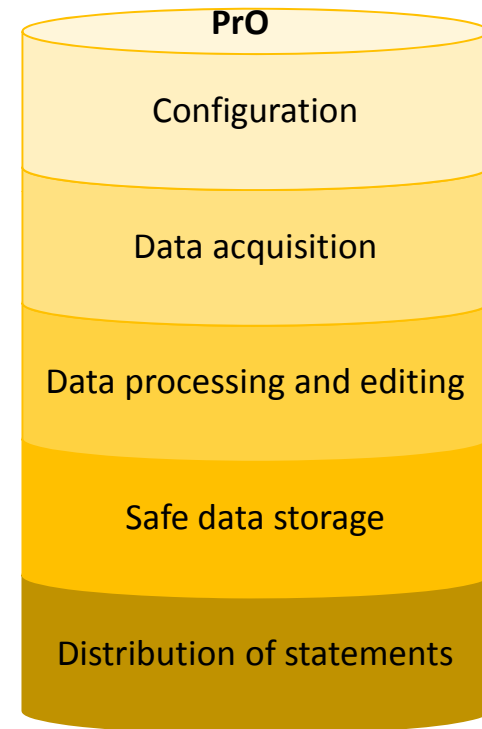
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- Romanian non-profit association
 - Fraunhofer Institute for Open Communication Systems (FOKUS), Berlin, Germany
 - University POLITEHNICA of Bucharest (UPB), Romania
 - Bucharest Academy of Economic Studies (ASE), Romania.
- Objectives
 - Research and Development in the field of e-Government service-oriented architectures, infrastructures and systems
 - Support for e-Government research and applicative programs and initiatives concerning e-Government,
 - e-Commerce and development of modern public administration.

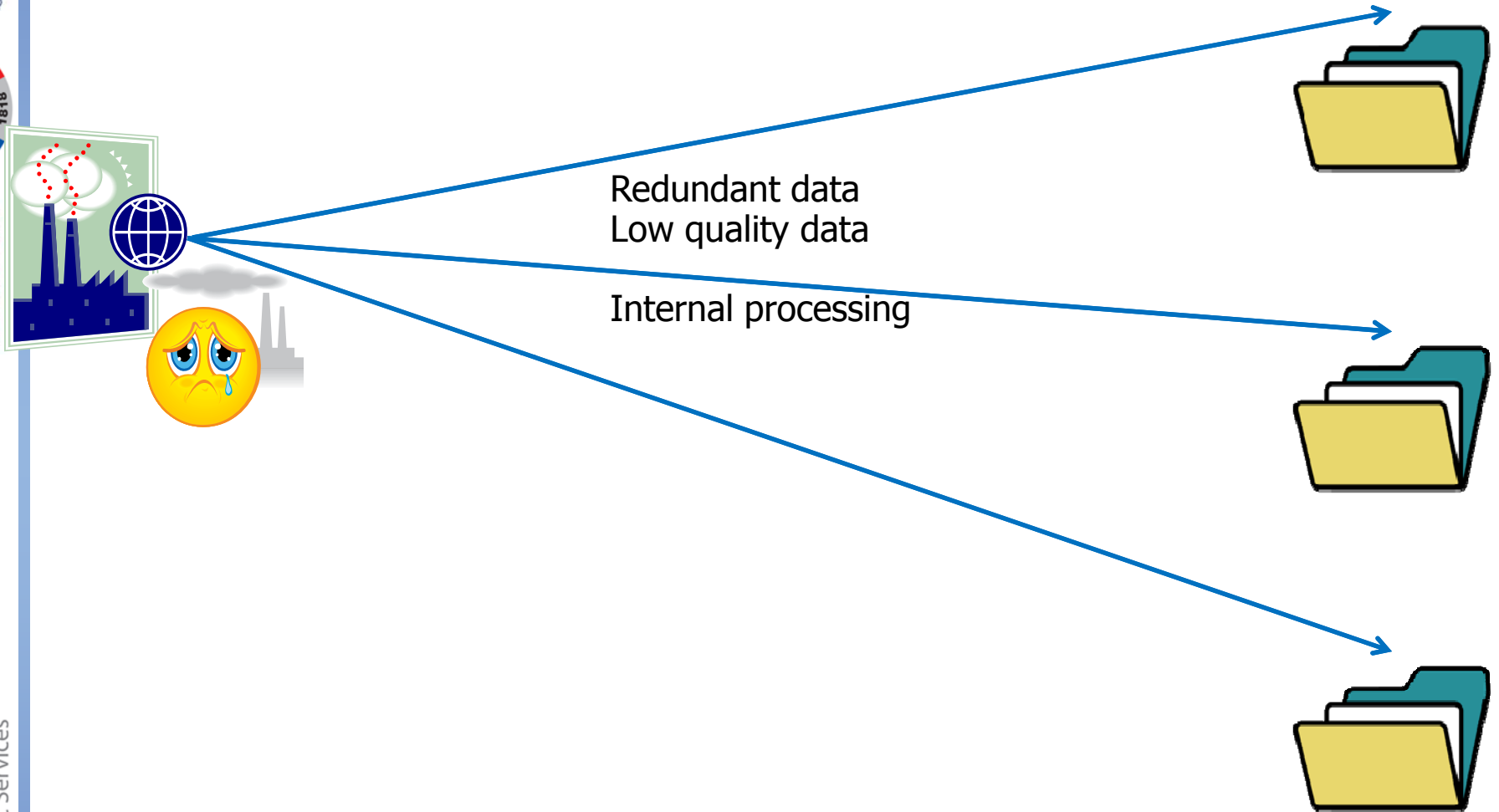


PrO

- Communication processor between companies and public administration
 - Flexible
 - According to the legally
 - Simple
 - Safe



Actual processes



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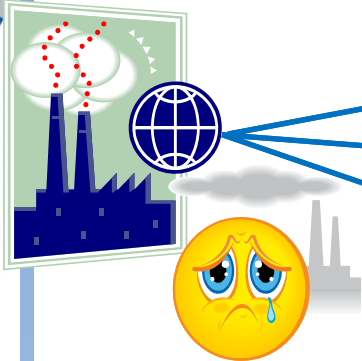


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Actual processes

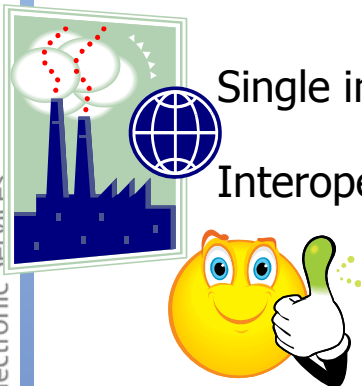


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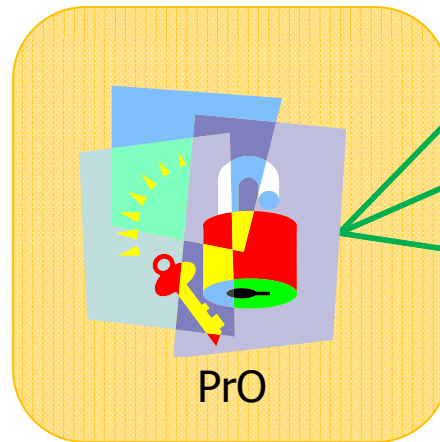
Redundant data
Low quality data

Internal processing



Single input

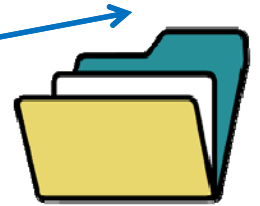
Interoperability



PrO

Data quality
Security

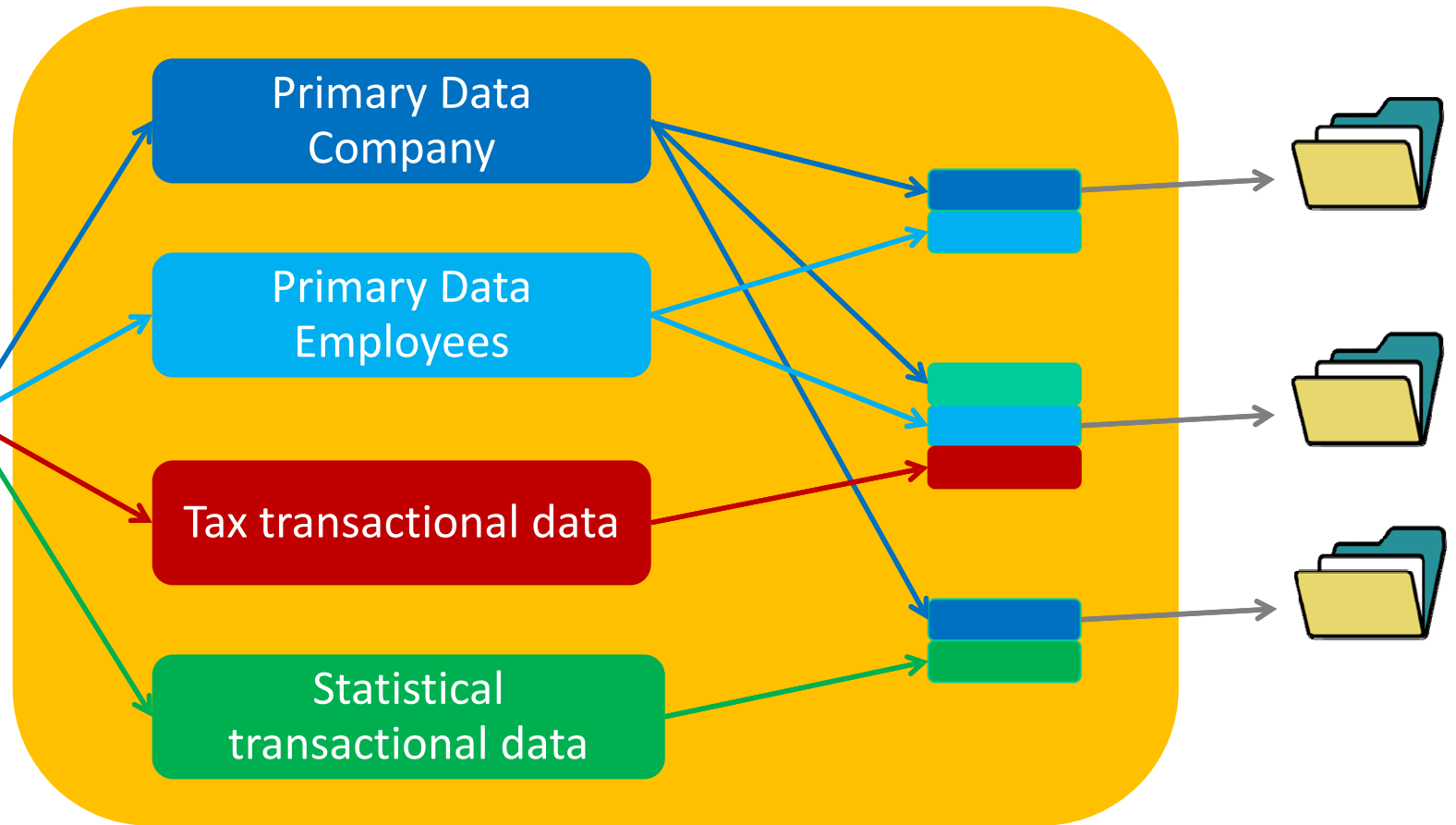
Optimized processes



Aggregation and sending statements



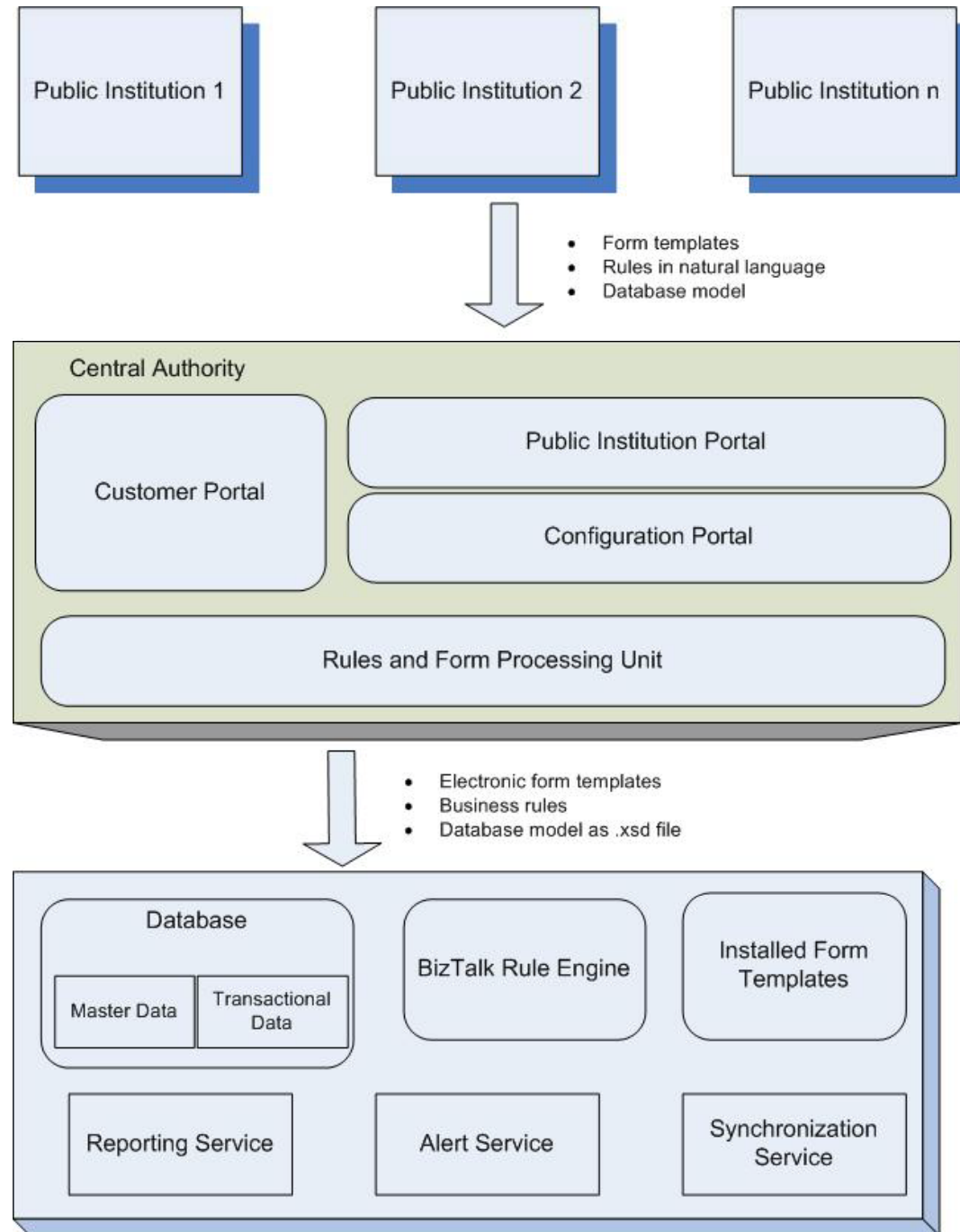
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Architecture of the Reporting e-System

- Central Authority
 - Management of rules, reporting templates, processes
- Processors
 - Automatic generation of reports



Pilot implementation

- Specific Romanian public administration reports
 - Social insurance
 - Environmental
 - Fiscal reporting
 - Statistical data
- Pilot implementation focuses on **010 Fiscal Registration Declaration** = declaration of amendments for judicial persons, associations, and other entities without judicial personality
 - Identification data of the taxpayer
 - The categories of declared tax obligations (called a fiscal vector).
- The fiscal vector:
 - Permanent obligation of the taxpayer
 - Data regarding financial aspects: VAT, excises, petrol tax and natural gases from the internal production tax, gambling tax, profit tax, fiscal royalties, micro corporation income tax, wages income tax, special taxes (social health insurance tax, unemployment tax, professional illness and accidents tax, social insurance tax)



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Central Authority

- Input from the Public Administration:
 - Form templates
 - Sets of rules to fill the report
 - List of data requirements for the report
- The information is passed to the CA using the Public Institution Portal
- The data is processed and transformed in an electronic format:
 - XML-format for electronic templates
 - Processing rules – such as BizTalk Business Rules
 - The XSD form of the data model
- These components are dynamically sent to all Processors by a synchronization service
- Configuration Portal
 - Starting date of the report
 - Database the report is associated with
 - Periodicity of the report
 - Ending date



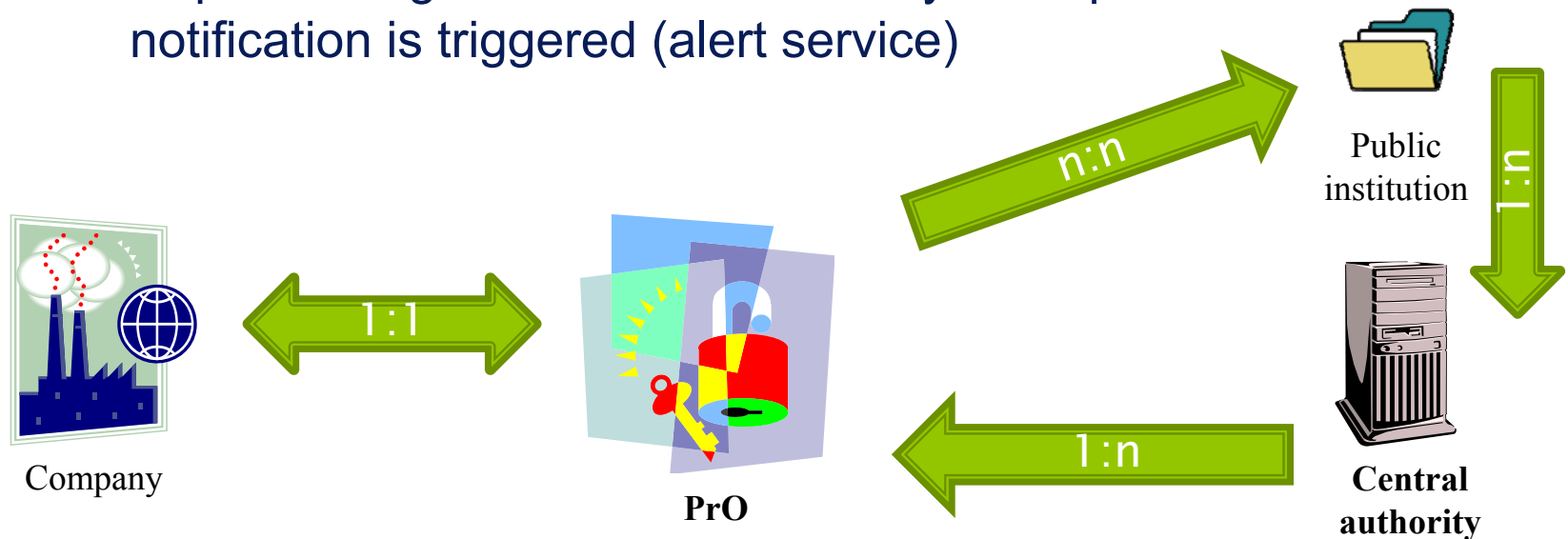
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Processor

- When data is received from CA:
 - The Data Model is processed → a new database is automatically created (XSD file containing the database structure)
 - The new database is filled with data from existing databases from the processor's warehouse
 - Unavailable data are collected from the business organization
 - Reports are generated automatically if a report deadline notification is triggered (alert service)



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Data Interpretation Service

- Responsible with gathering data for the Processor
- Two sets of data:
 - **Master data** – describes the business organization as known by the public administration entities: id, name, address, legal representative
 - Entered in the Customer Site of the CA
 - Transferred along with the Processor
 - Also available on the company's premises: employees of the company (name, salary, starting date of activity, ...)
 - **Transactional data**
 - Obtained by aggregating data using Business Process Rules



Data Gathering Service

- Service to automatically collect data from local databases (from the back-bone systems)
 - Configuration web-based interface to set up relations between local back-office systems and the Processor
 - The service connects to the company's database and to the database inside the Processor
 - User-based credentials
 - Using the web interface, the user can define mappings of columns and tables between databases in the Processor and back-bone



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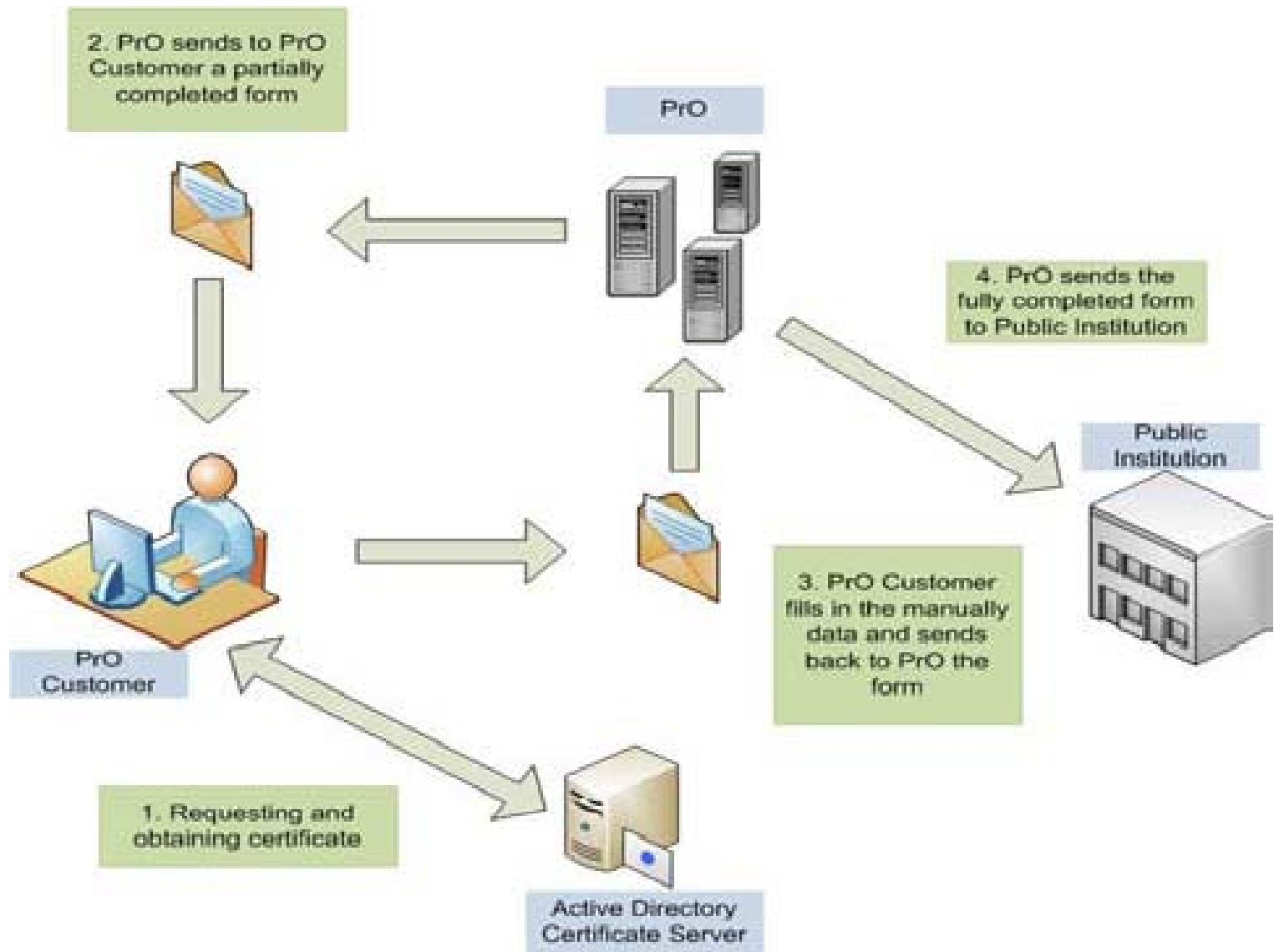
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Implementation of the Workflow

- A Processor gathers data and generates statistics and reports as needed by the public organizations, conforming to existing **rules and regulations**
- We analyzed the steps involved in several real-world report generation processes and mapped them into electronic business rules and processes:
 - BizTalk orchestrations exclude most of the human interaction, and keep the flow of the document as close as possible to the real public administration workflows
- For standardization, communication between the components described by the workflow is accomplished using either web services or email
 - For email, integrated Outlook with Infopath



Workflow describing a business process for reporting data to public administration



Steps to Reporting

- **Step 1:** The processor generates a report using existing data, triggered by the date of the next scheduled run. The automatically generated report is sent to the person configured as being the responsible from the company for validation and digital signature.
- **Step 2:** The person responsible with the Processor fills in the manual data (if such data is required) and sends the data back to the Processor (using either e-mail or the web interface).
- **Step 3:** The Processor archives the report and sends it to the Public Institution. The BizTalk orchestration offers the possibility to retrieve the content of an xml attachment using the POP3 adapter. The XML generated data is also stored locally.



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Conclusions

- E-System designed to help business organization optimize their **reporting processes** required by public administration
 - Better interaction between business enterprises and the government
 - Can help government better plan the short and long-time strategies based on reports and statistics and the private sector
- The platform is designed to automatically
 - Collect data
 - Aggregate data according to government-defined rules
 - Help the business by generating reports and statistics and send them to the public administration
- The solution was successfully implemented, for 010 Fiscal Registration Declaration.



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Q&A

Thank you! 😊



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