Compliance and Efficiency Management with DCR at the Municipality of Genoa

(in collaboration with DCR Solutions)

MAPS
SHARING KNOWLEDGE

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MAPS GROUP

Software Solutions Provider working in the **Digital Transformation** Market with a focus in solutions for **Healthcare**, for **Energy**, and for **Environmental, Social and Corporate Governance metrics**

SME with **210+ employee** and revenues of roughly **18M€**

Listed in the Italian Stock Exchange, AIM Segment

COMUNE DI GENOVA

Genoa

Population: 580.000+ residents (**6-th most populated town in Italy**, roughly the size of Copenhagen)

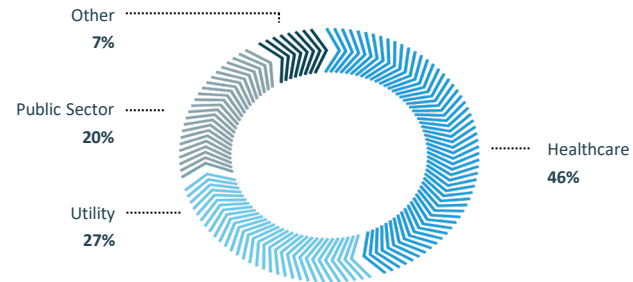**Employee of the municipality**: 5.000+ (not including healthcare services)

Density of population: 2.400 ppl/km^2

Other
7%

Public Sector
20%

Utility
27%

Healthcare
46%

MAPS for the Municipality of Genoa

Long-term supplier of a Performance Evaluation solution to define, track, and monitor **Key Performance Indicators and Objectives of the Municipality and of its employee**

GZOOM
VALUE GOVERNANCE

MUNICIPALITY GOAL AND DIFFICULTIES

Improve the efficiency of procedures, in terms of durations of each case instance

Long term initiative approached in a *standard* way with workflow based business process analysis, relying on domain expert description of what is done to carry out cases

Missing structured and reliable method to measure process performances

Missing method to assess compliancy of execution of case instances

Missing method to record and formalise logical relationships among process activitities

PROJECT PROPOSAL

Model one such procedure with DCR using DCR Solutions tools focusing on logical relations among activities, temporal deadlines for activities execution
- analysing the law
- interview domain expert

Connect to legacy BPM tool to **collect traces of executed tasks**

Interpret traces as **DCR activities**

Evaluate sequences of traces o f the same case instance:
- **compliance** with the model
- **respect of deadlines** for executed tasks
- **risk of missing deadlines** for responses that are still due

Report to case instance managers and office managers

OBJECTIVE

Demonstrate to the Municipality the usefulness of the DCR approach for

- Generating case models that **capture the essence of the rules** governing the execution of procedures, **including the temporal deadlines**
- **Monitor reliably the execution** of case instances, **collecting crucial data** for subsequent **BPR initiatives**

All this **in a non-intrusive mode** with respect to the **current way of working** of municipality employees and **without requiring the adoption of new BPM tools**

1

CASE MODELLING

This required **various iterations** with both **domain experts**, and **experts of the legacy BPM tool** (known as BackOffice)

Crucial tools from DCR Solutions:
- The Highlighter
- The Simulation Engine
- The Repository of Scenarios

Critical Elements
- **DCR Model** ends up being quite **complex** and **difficult** to understand **for non-expert**
- Modelling of **temporal constraints not easy in case of non-straightforward constraints**
- **Backoffice tracing** of events **not complete**

2

SOLUTION DESIGN AND IMPLEMENTATION

This included
- elicitation of reporting needs (**user-requirements**)
- Design of a software system able to
    - Read and interpret traces
    - Query the DCR Solutions engine
    - Evaluate answers witht respect to the reporting needs
    - Generate reports

Crucial tool from DCR solutions:
- DCR Engine as an API server deployed as a Docker instance embeddable in our solution

Critical Elements
- DCR is *only* a component of a solution
- APIs not designed for the specific purposes of the project

3

EVALUATION

Solution delivered to end-users **last July**

Undergoing evaluation of *usefullness* for reaching the municipality overal goals: due time End of October

Nevertheless...already started a discussion with the Municipality regarding the opportunity of replicating the project for other procedures
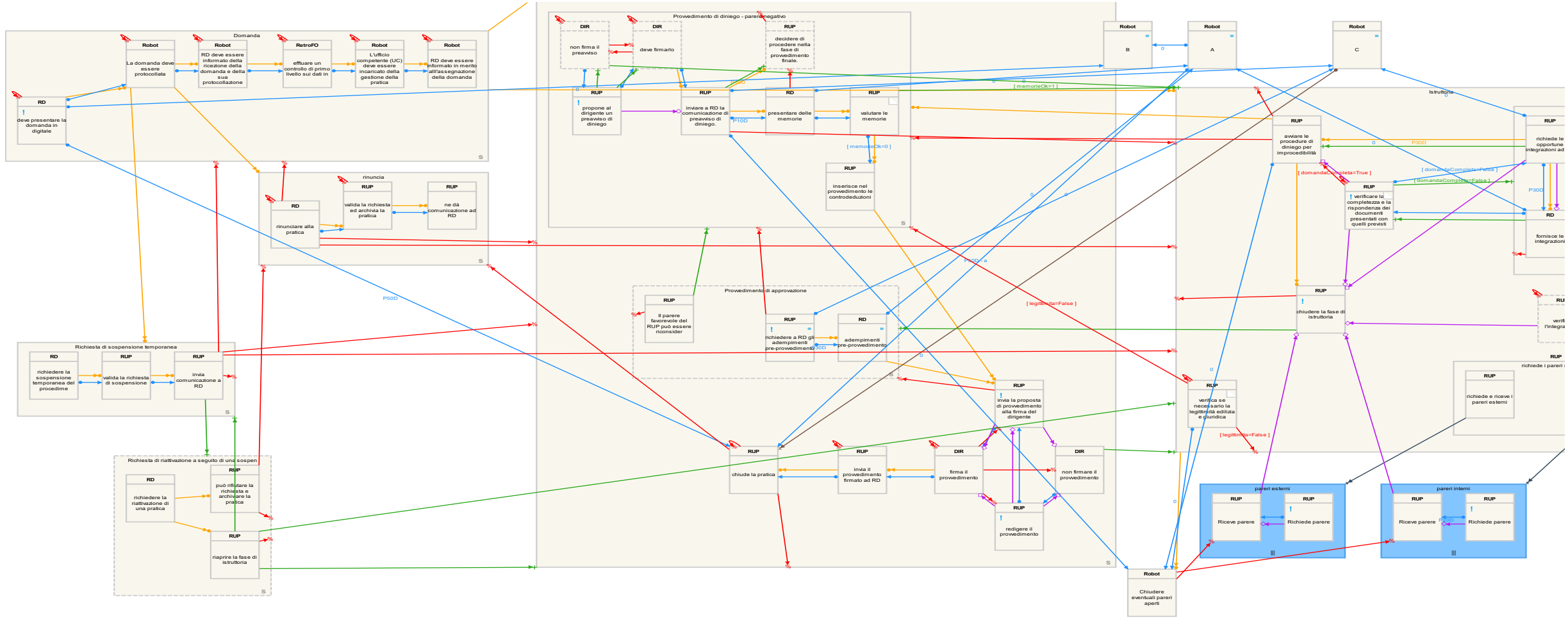
- **Traces are captured** by the Backoffice Importer and **passed** to the **DCR Processor** as Dossier, that is Case, activities
- The **DCR Processor is the main logical component** that starting from traces generates the information that must be notified in the reports
- The **Notification Service generates and distributes the reports**

FOCUS ON THE DCR PROCESSOR

- A multiplexing algorithm uses the **DCR Process Definition, and Backoffice-DCR Mapping of the specific case at hand to generate a DCR Log** out of the interpreted traces received from the Importer

- The DCR Log is fed into the **DCR Solutions Engine that replays the sequence of activities and provides compliancy and efficiency feedback**

- A *de-multiplexing* extracts from the response received all the information needed by the end-users
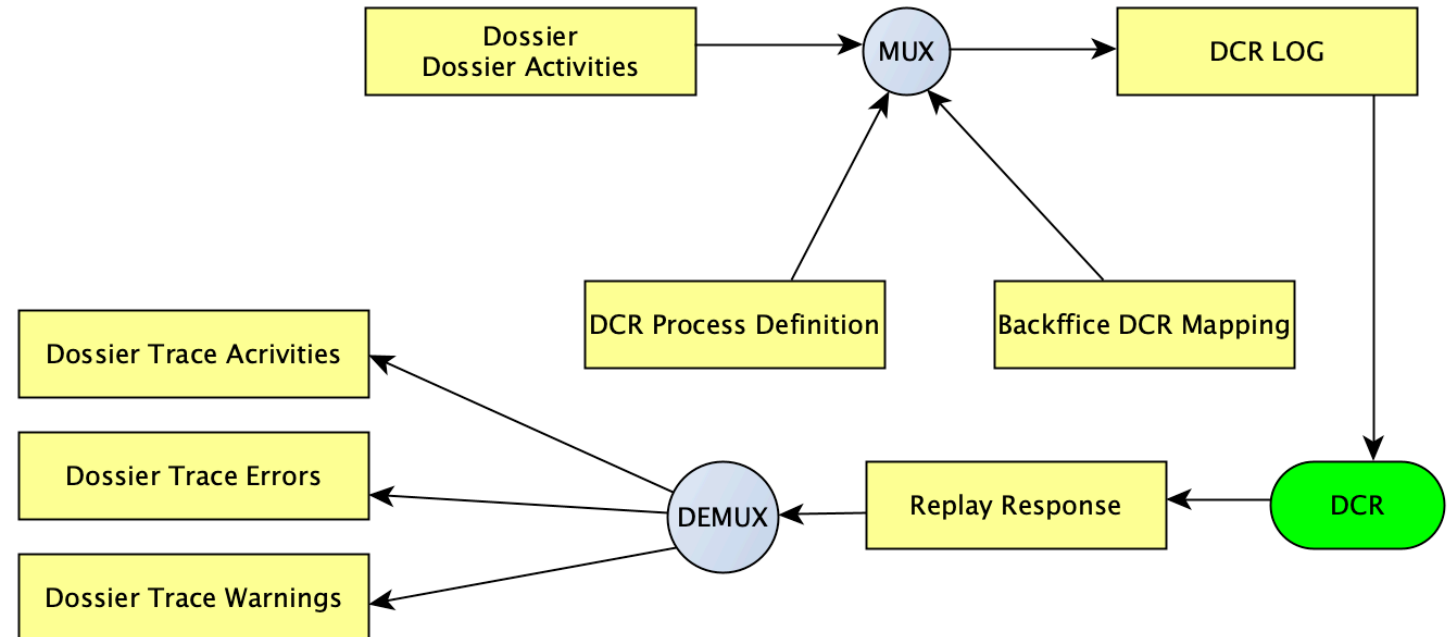
Based on the data received from the backoffice and interpreted by the DCR Processor, we can classify case instances and case instance activities as follows.

A case instance can be:

- **Completed or Not Completed; if Completed we can tell how many days it took to do so since it was opened**

- **Compliant**

- **Late or On Time**

A single case instance activity can be:

- **Compliant, with respect to the full trace of activities that preceded its execution**

- **Late or executed on-time**

Additionally we **evaluate pending activities with attached deadlines to provide warnings for activities whose deadline is very near**

INFORMATION PROVIDED

Send reports via e-mail

- **To Case Instance Managers:** warnings, and details about their case instances

- **To Office Managers and to General Management:** aggregated measures of compliancy and efficiency

CASE MODELLING

General **DCR principles are quite intuitive**, still **detailed DCR Modelling** is a task that **requires profound expertise with the formalism and methodology**, and that to be effective relies essentially on complex supporting tools such as those provided by DCR Solutions
- it is dangerous to leave this task to domain expert alone not properly trained and without an inclination for rigorous formalisations
- the quality of the supporting tools is crucial

KPI measurement is a relevant necessity of organization. Models and the supporting tools should cater for this

PROVIDING VALUE

Setting up clear cut objectives was crucial for us as they **drove the data mining aspects of the project**.

Executable DCR models are likely to need to interoperate with existing legacy systems; this requires a **non negligible amount of system integration** that must be considered while proposing and planning a project

Thank You for Your Time and Attention