The Semantic Web meets eGovernment
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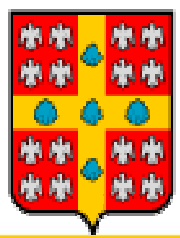
# A critical step in eGovernment evolution

*By Mamadou Tadiou Koné*



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- Prologue
- eGovernment evolution
- *Semantic Web technologies* for transformation in eGovernment
- The example of Québec (Canada)
- Epilogue

# Introduction

- Government structure in Canada;
- eGovernment in the world, in Canada and Québec;
- Semantic Web and its applications;
- Semantic Web for eGovernment.

# eGovernment

The real value of an eGovernment :

- The effectiveness of its programs ;
- The broad availability of its enhanced online services ;
- The satisfaction of customers (citizen, business, gov.);
- The tangible savings in time, money and human resources.

# eGovernment evolution

eGovernment expansion and adoption is generally seen as a four-step process:

**Presence** phase: publication on the Web of static information on government operations and services;

**Interaction** phase: basic Web portals containing online forms, requests for proposal and opinion surveys on critical issues of interest;

**Transaction** phase: complete and secure online setting like in eCommerce with multi-tier architectures with authentication and digital signatures;

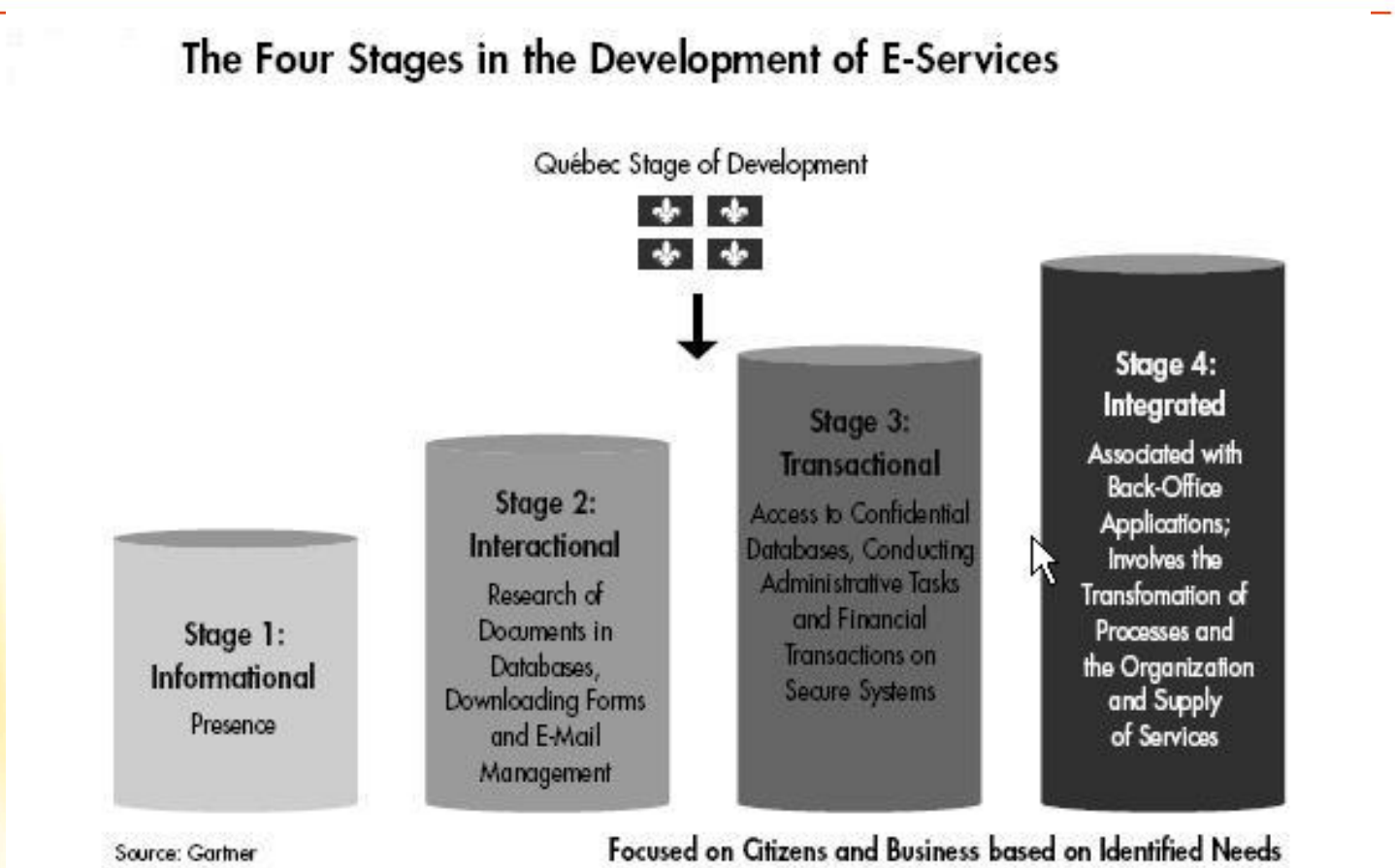
**Transformation** phase.

# eGovernment evolution

Goal of **transformation** phase: integrate several internal services at the vertical and horizontal levels, into a one-stop, whole-of-government with innovative services operating seamlessly across departments, agencies and programmes.

According to a recent survey conducted by Accenture, only the federal government of Canada has embarked on this stage.

# eGovernment evolution



# The questions

- Are Web services a sound technological choice for implementing *service transformation* in eGovernment ?

- « Can Service Oriented Architecture be deployed as a method by federal, state, and local agencies to break down barriers among agencies ? » José A.B. Fortes ,Herman Lam, Joachim Hammer
(The exemple of Kentucky with SOA)

- Can semantic Web technologies help achieve real transformation in eGovernment ?

Source : Tobby Redshaw, CTO of Motorolla

# eGovernment in Québec (Canada)

- The current context
- Online address change in Québec
- Online assistance programmes for investors in Québec

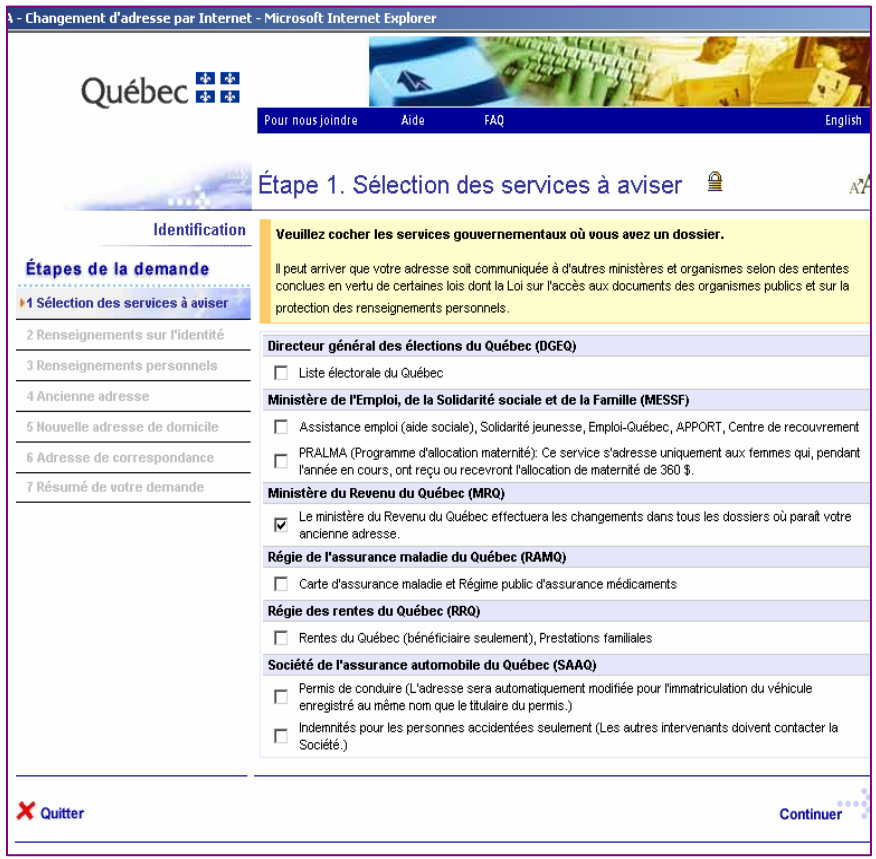
# eGovernment in Québec (Canada)

Québec 7th in Canada provincial rank (Accenture, 2000)

# Québec (Canada) :
## The current context

- The current system has no semantic search capability;
- There is a great deal of waste of time reading a long list of mostly irrelevant services and programmes;
- The current system with limited capabilities cannot help users efficiently.

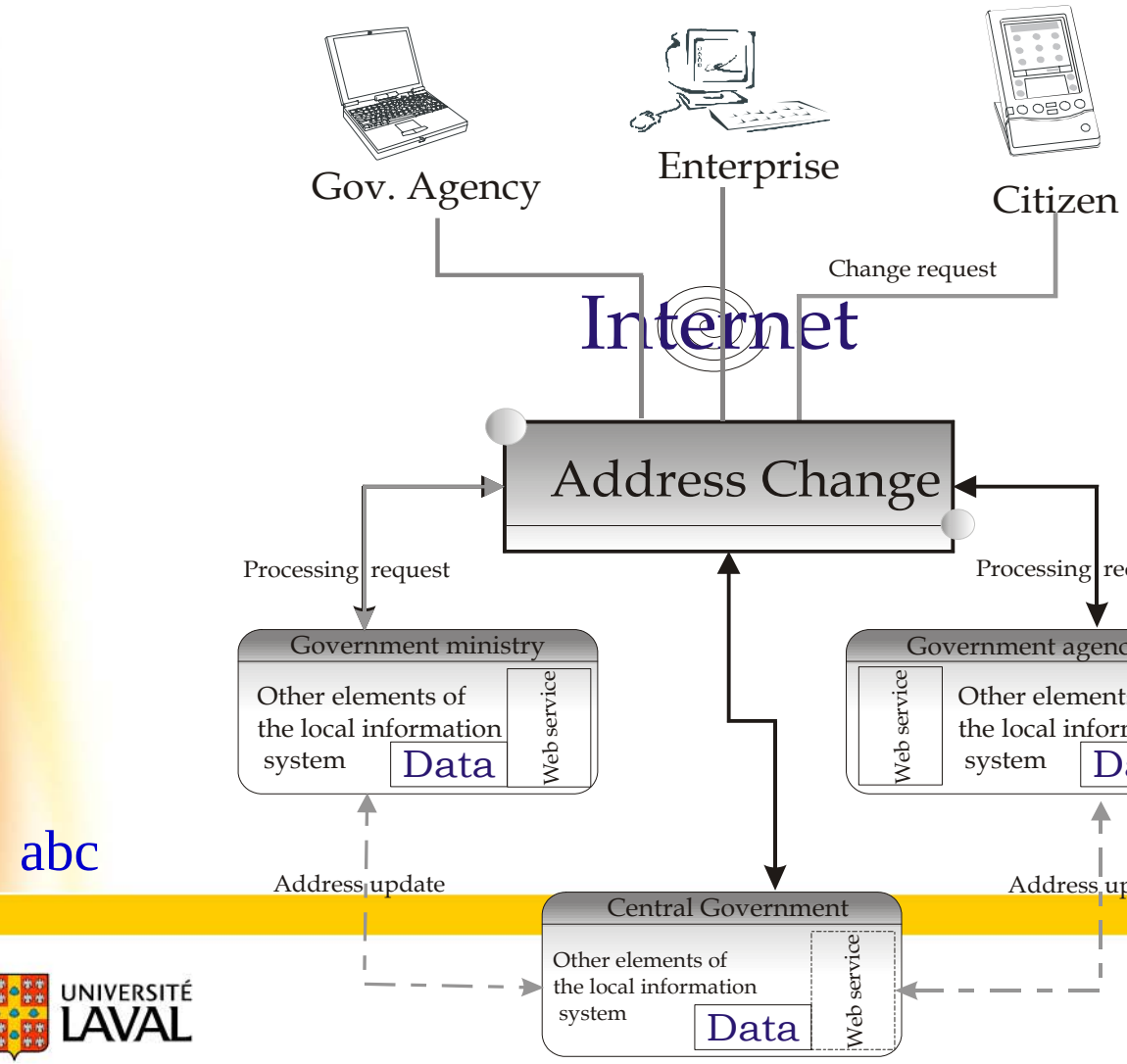
# Québec (Canada) :
## Current online address change



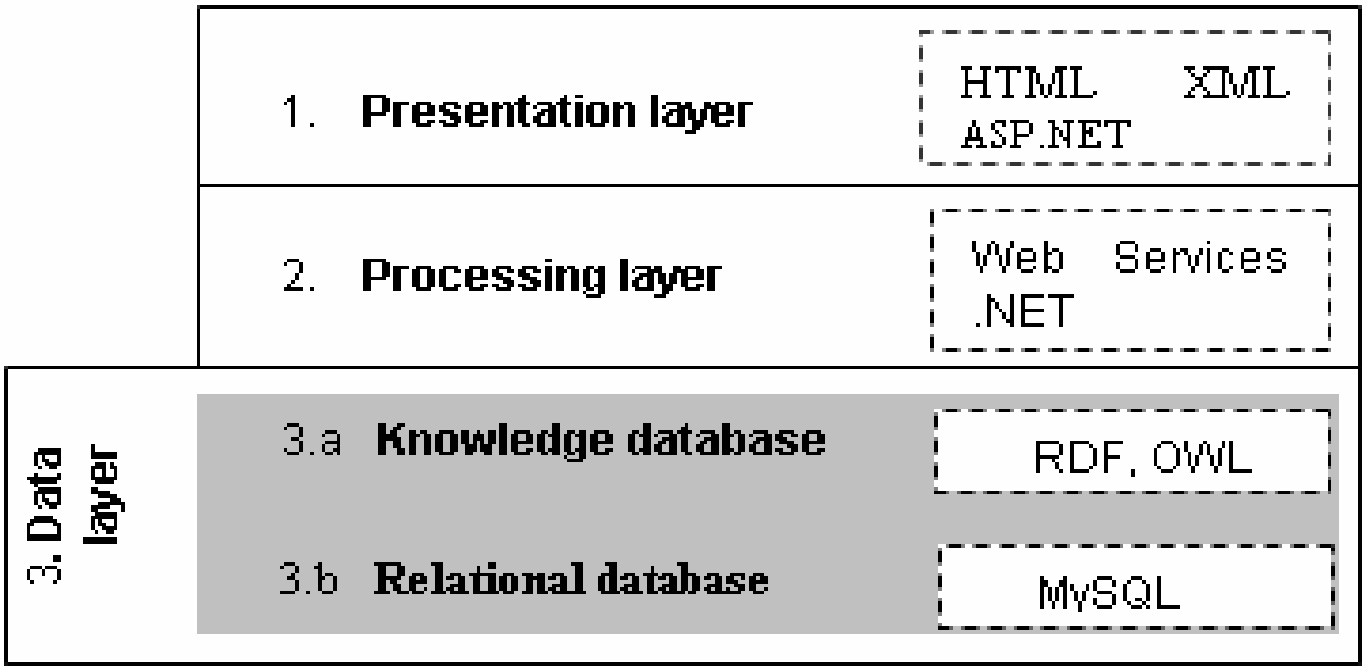
# Québec (Canada) :
## The current context

- Each government agency still bears the burden of validating itself the address change with its own rules;
- In Québec, it is unlawful to share information about citizen or businesses between government ministries or agencies;
- In Québec, about 66% of online address change requests through this system are rejected during validation;
- Indeed, the general public is slowly loosing interest in the current system.

# Québec (Canada) :
## WS-based online address change



# Québec (Canada) :
## WS-based online address change




The 3-level system architecture of the *eGov* platform

# Québec (Canada) :
## WS-based online address change

The eGovernment Web services portal (eGOS) components :

- The login system;
- The profile access system;
- The Services Request Folder system (SRF);
- The Services Search system (SS).;
- The Address Change Service (ACS).

# Québec (Canada) :
## WS-based online address change

Émulation of an eCommerce shopping cart system to an eGovernment system.

- The SRF allows a user to select and then add desired services in his request folder ;
- Allow the treatment of simultaneous service requests ;
- keeps track of all operations according to preferences.

The services request folder system (SRF)

# Québec (Canada) :
## WS-based online address change

- Accessible to all the users via a Web service;
- Enables online search of all available government services;
- Designing an ontology model for online services.

### The Service Search System (SS)

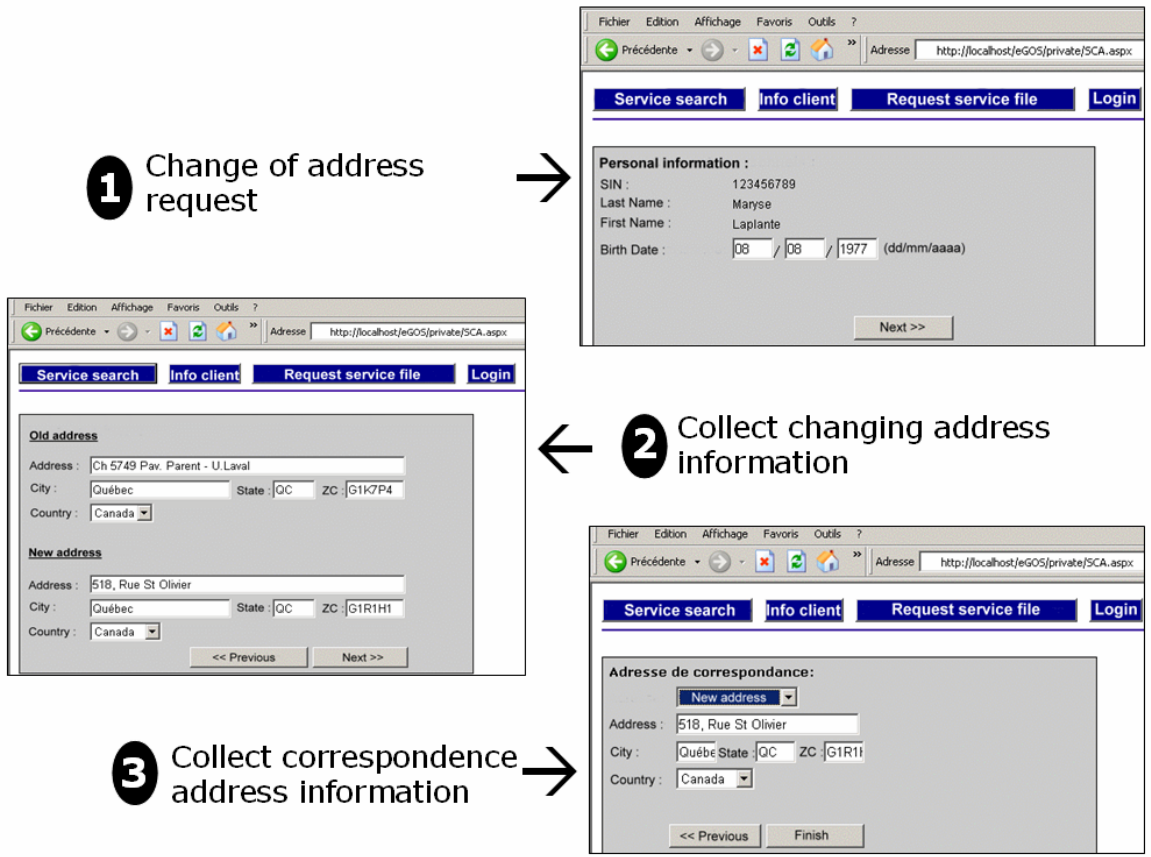
# Québec (Canada) :
## WS-based online address change

- OWLJessKB Java libraries → automatic reasoning on the user search requests
  - Conversion of the semantics content into facts and rules usable by an expert system.
  - RDF/XML domain model format is transformed into a first order logic representation used by the Jess expert system to develop an inference engine.

- The Service Search system (SS) is accessible through a Web service.
  - Concepts and properties are extracted from the ontology.

The Service Search System (SS)

# Québec (Canada) :
## WS-based online address change




## The changing address steps

# Perspective and recommendations

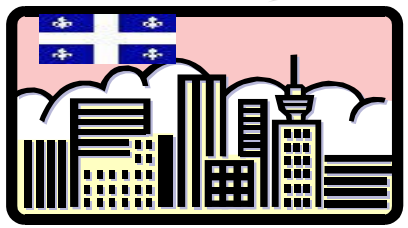
- Completing the existing ontology by a more real government service representation
- Developing and an integrating other services with the Web services technology
- Implementation of the system in a  concrete setting
- Evaluate the system performance within the government

# Online assistance programmes for investors

# Online assistance programmes for investors

Local Developmnent Center

LDC



State
Municipality

Consumers
(Investors)

CESC

Canada Enterprise Services Center

Federal Suppliers

(Gov. entities)

Government's help for start-up Businesses

# Online assistance programmes for investors

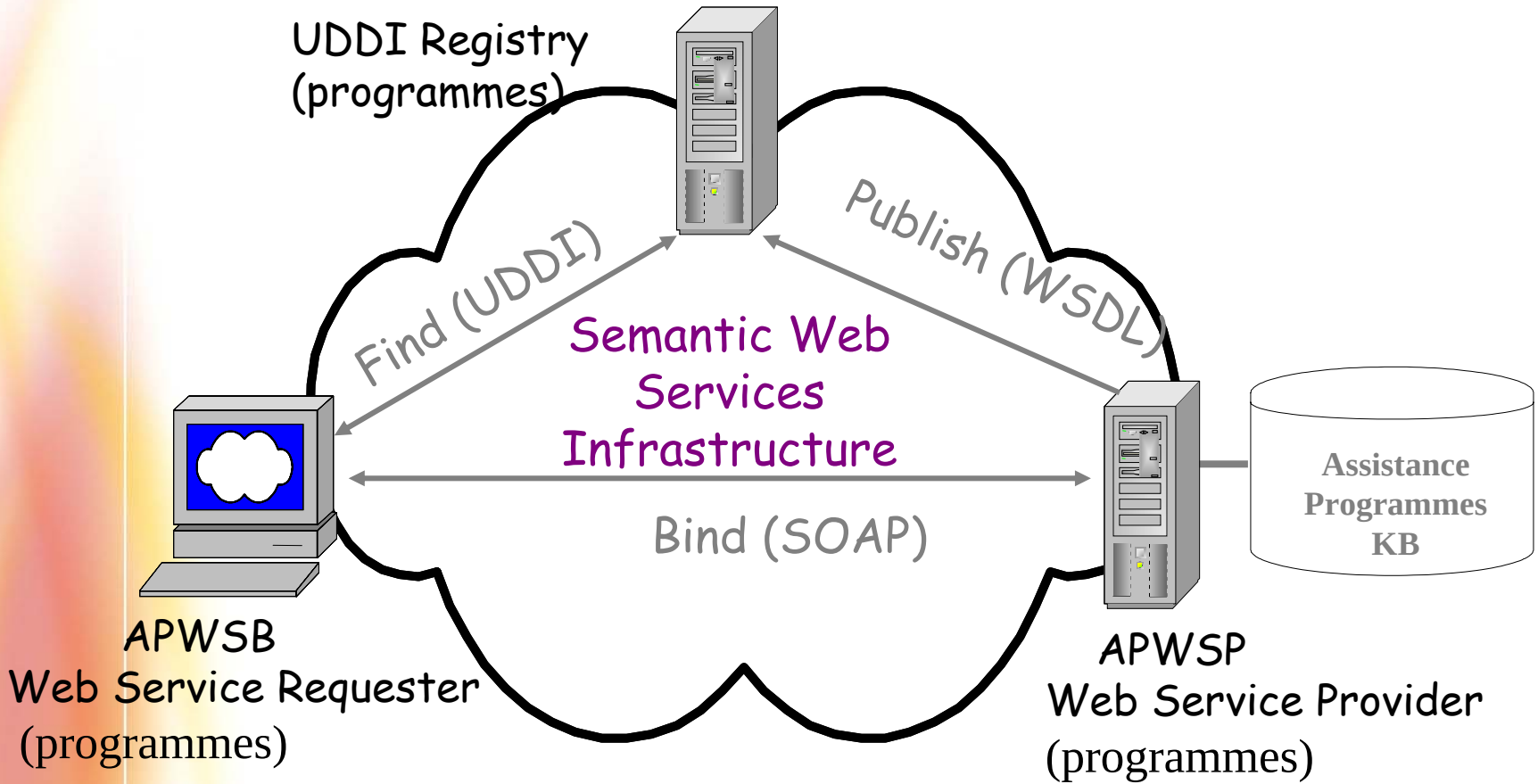
## Eligibility Conditions

# Online assistance programmes for investors

## Current Landscape

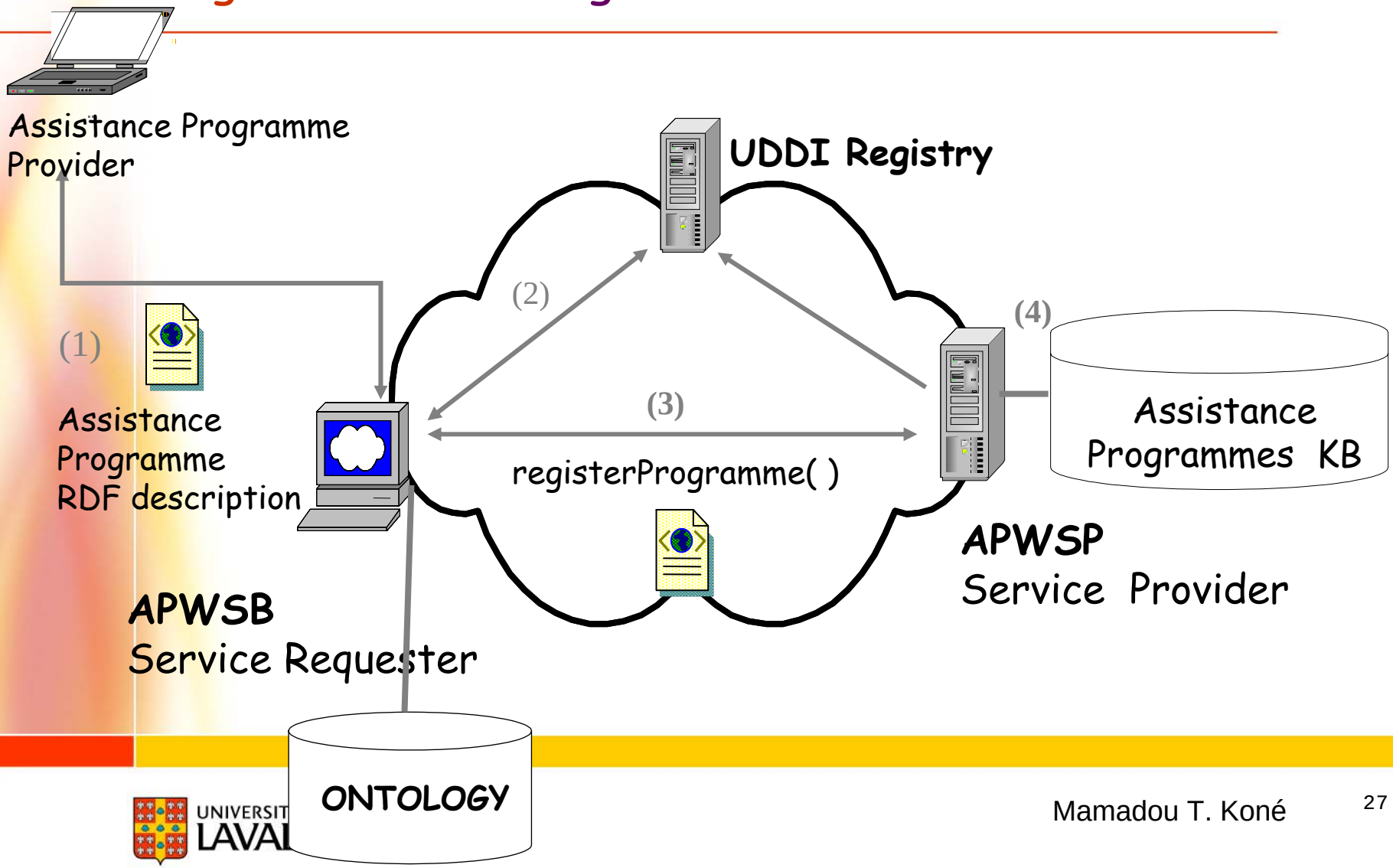
- Investors spend much time consulting irrelevant
- assistance programmes.
- Most of the Web content is intended for human usage.
- Limited software capability

# Online assistance programmes for investors

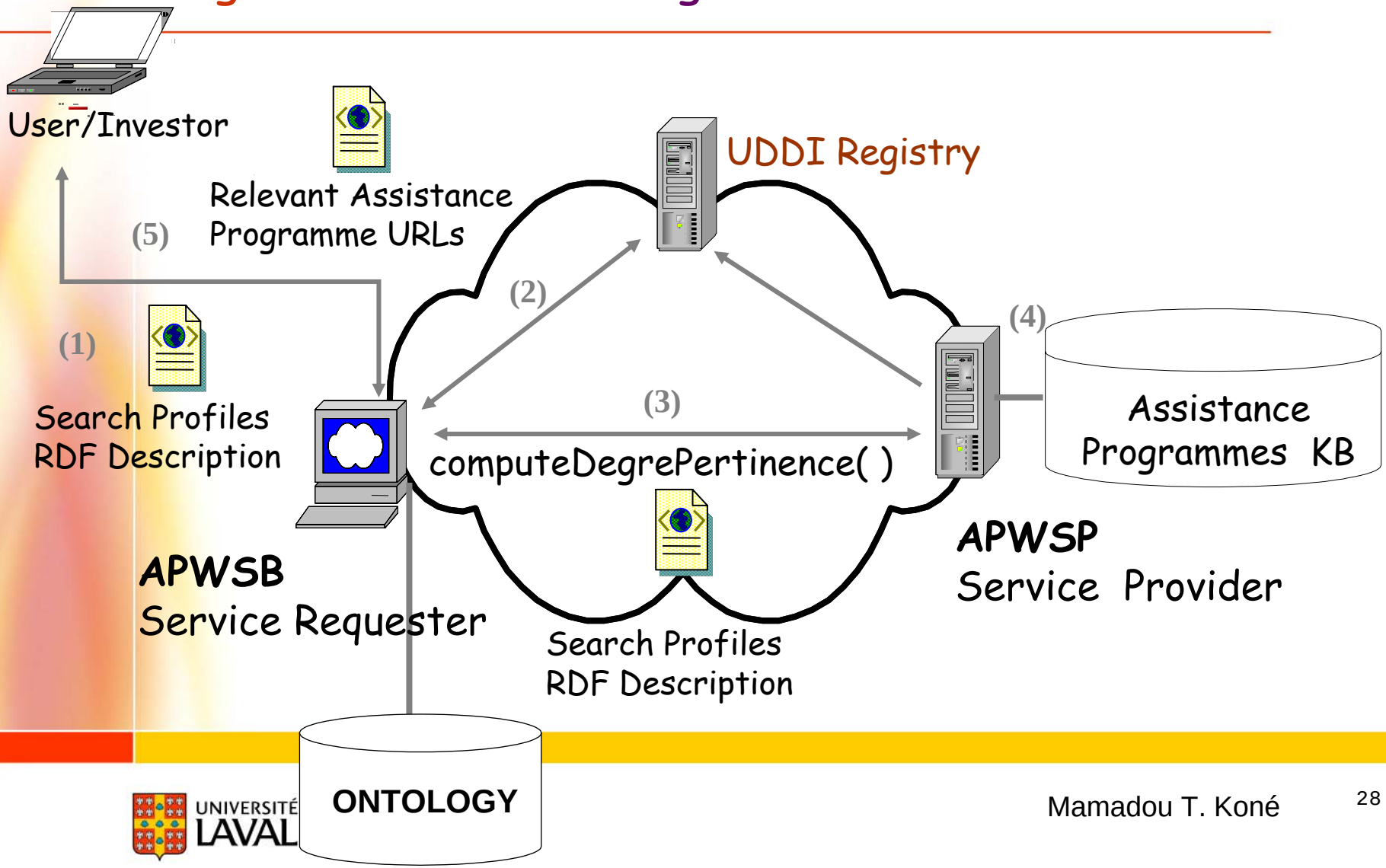



Processing Architecture

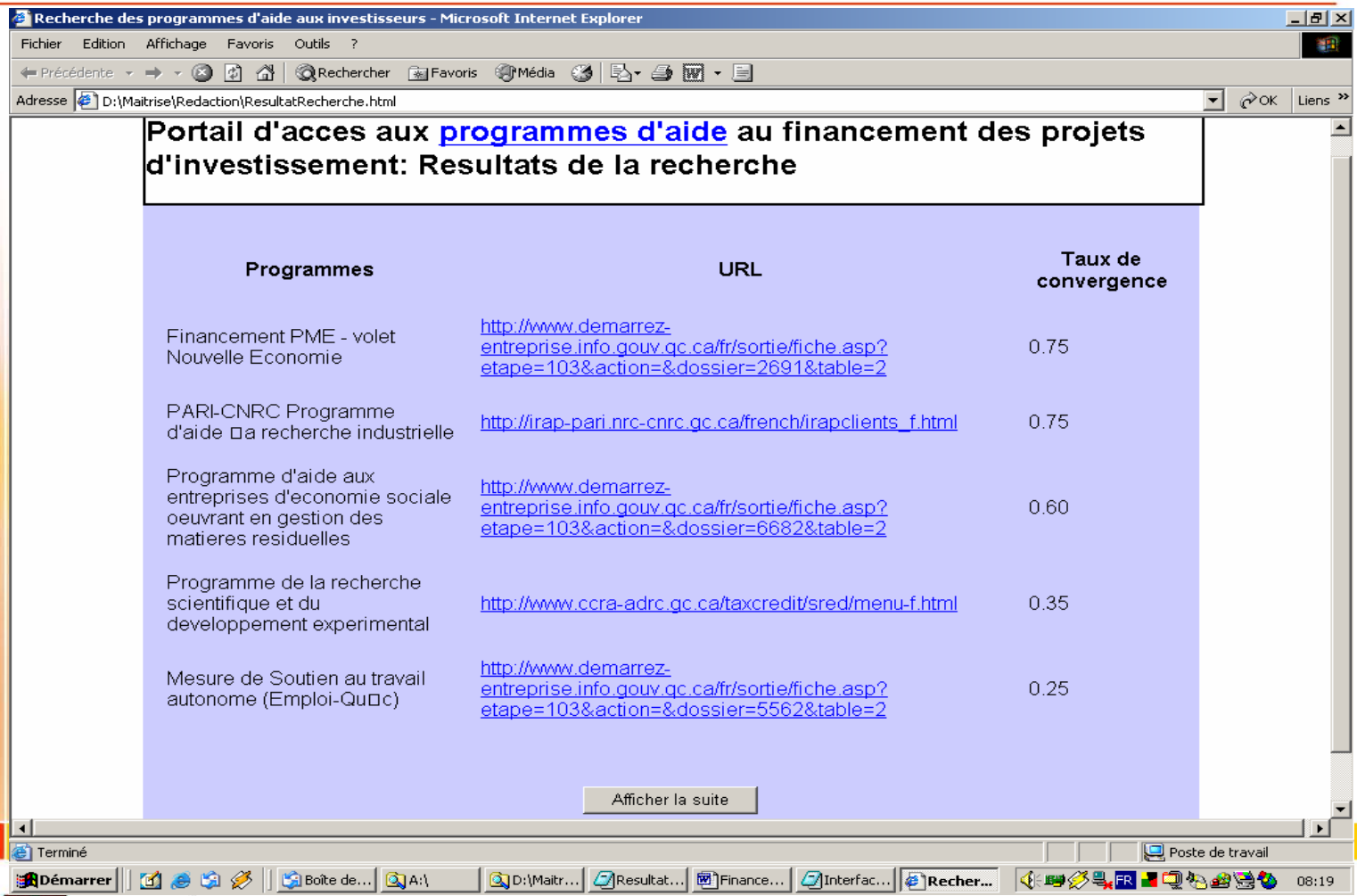
# Online assistance programmes for investors:
## Publishing Assistance Programmes



# Online assistance programmes for investors:
## Searching for Assistance Programmes



# Online assistance programmes for investors




Search Results

Thank you for your attention.

Question ?

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