



# SLA-Ready Common Reference Model

***Ruben Trapero***

*Technical University of Darmstadt & SLA-Ready*

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# SLAs and the Cloud

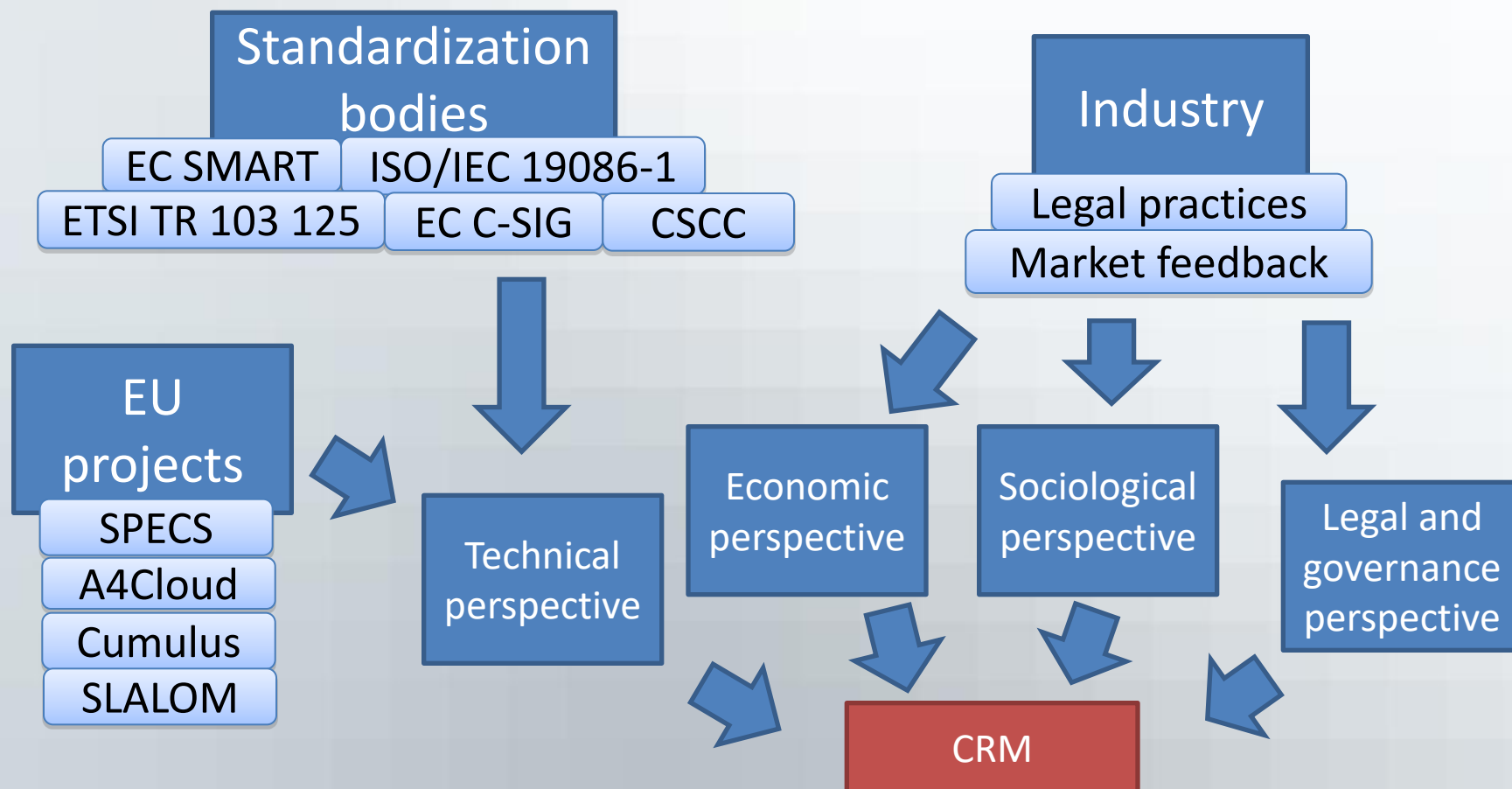
- ☁ Contracts and Service Level Agreements (SLAs) are key components defining cloud services, but.....
- ☁ SLAs are **the least understood cloud attributes**
  - ☁ Complex language and terms of service (technical and legal)
- ☁ Lack of widely accepted standard frameworks, vocabularies
- ☁ Uncertainties as to what is regulated, who is responsible and which laws actually apply

Diminish trust in cloud services and limit its uptake

# SLA-Ready Common Reference Model (CRM)

- ☁ CRM is a reference specification for building Cloud SLAs
- ☁ Compiles:
  - ☁ Standards & Best practices
  - ☁ Research activities
  - ☁ Analysis of economical, sociological and legal domains

# SLA-Ready CRM: Inception



# SLA-Ready CRM hierarchy: elements

## Groups (8)

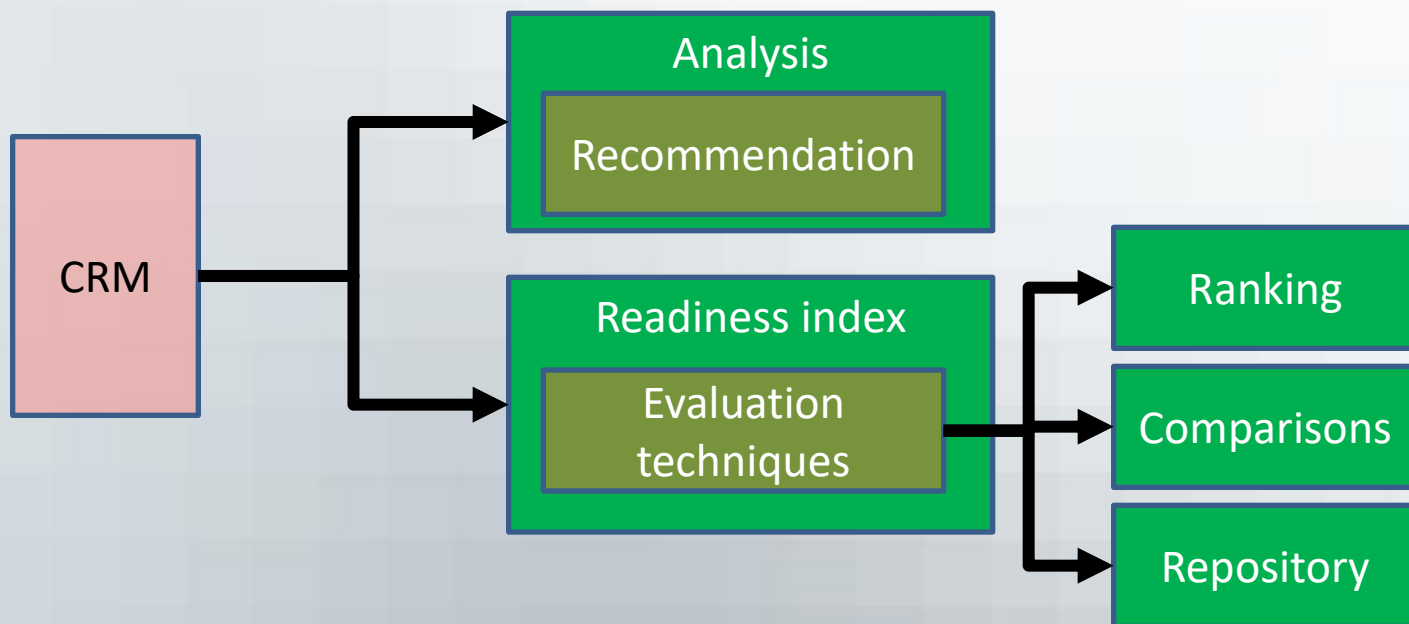
## CRM Elements (30)

General	→	SLA URL	Findable	Choice of Law	Roles and responsibilities	Cloud SLA Definitions		
Freshness	→	Revision date	Update Frequency	Previous versions and revisions		SLA Duration		
Readability	→	SLA Language	Machine-readable format		Number of pages			
Support	→	Contact support			Contact availability			
Credits	→	Service Credit	Service credit assignment		Max. Service credits provided			
Changes	→	SLA change notifications			Unilateral change			
Reporting	→	Service levels reporting	Service level continuous reporting	Feasibility of specials and customizations	General carve-outs			
SLO & Metrics	→	Specified SLO metrics	General SLOs	Performance	Reliability	Data Mgmnt.	Security	PDP

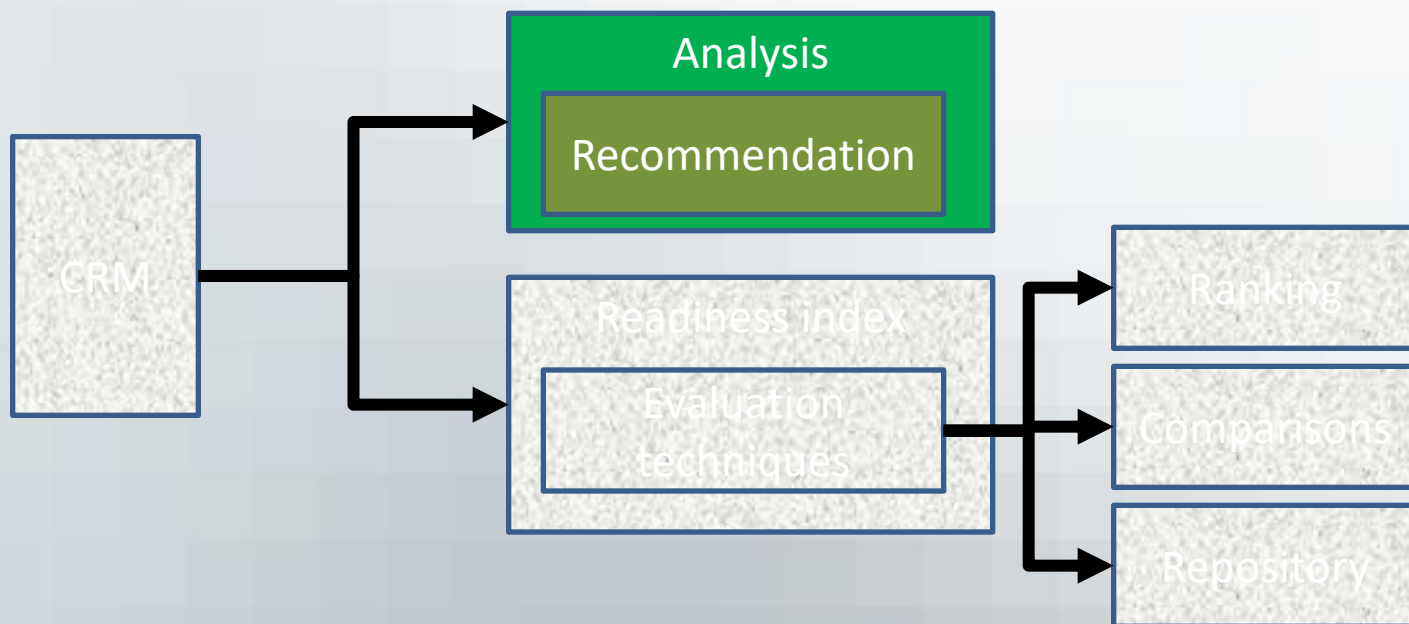
# SLA-Ready CRM: Elements and components of the SLO & Metrics group



# Using the CRM




# Using the CRM




# Recommendation based on the CRM





 **Problem:** SME wants to offer/use cloud services

 What SLA to offer? What elements to include?

 **Solution:** recommendation based on the CRM

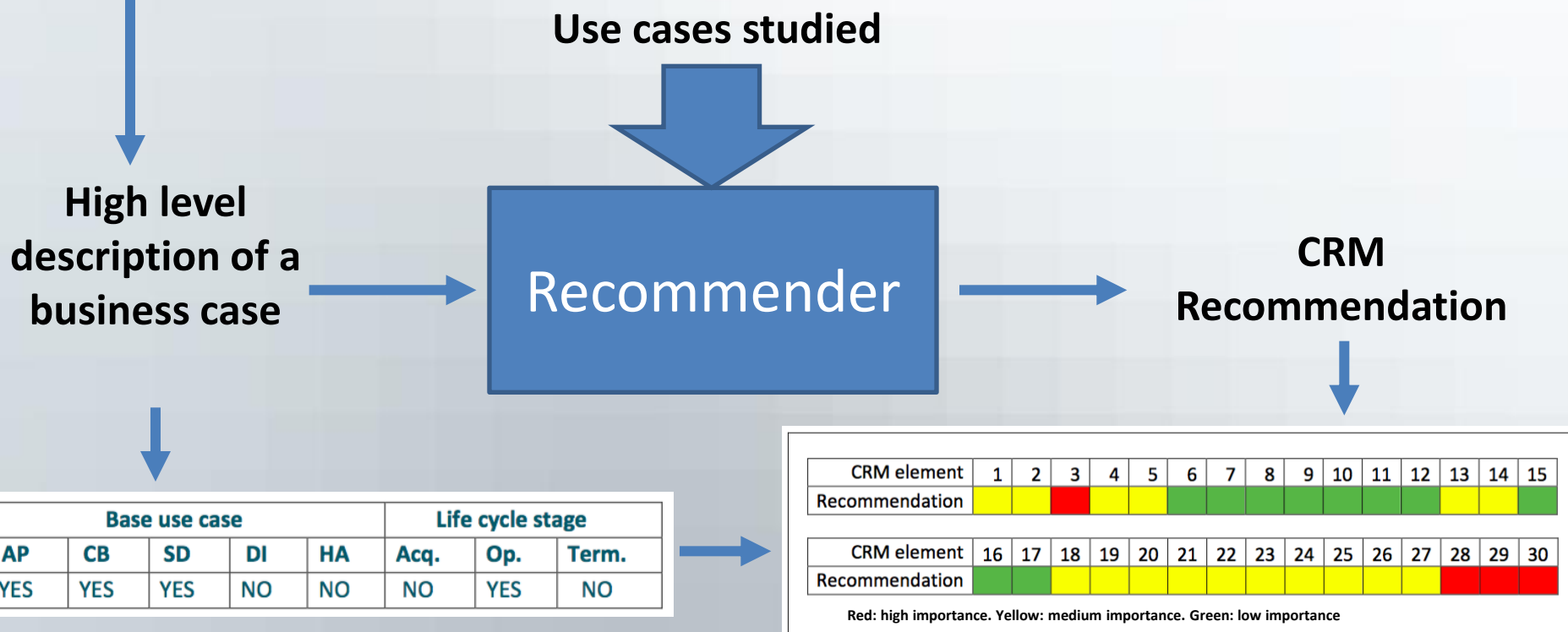
 **Result:** Level of importance of every element of the CRM based on the type of business case

 **Easy:** Requires just a high level description of the business case

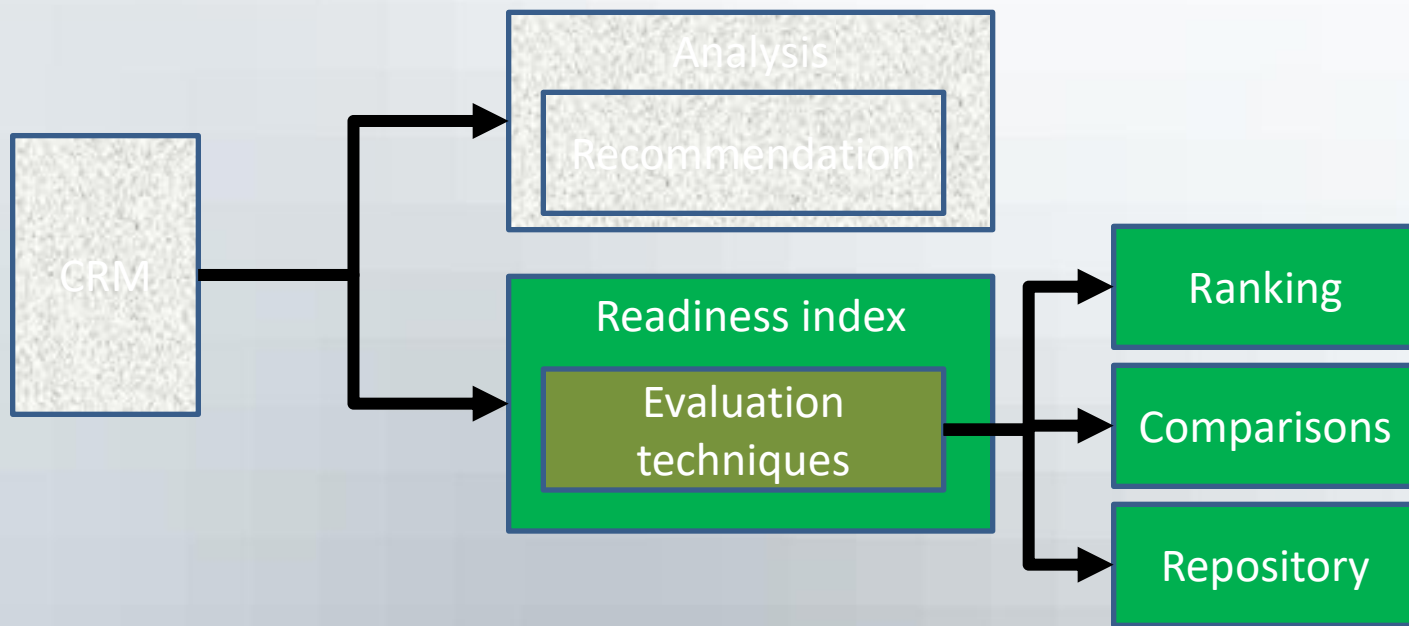
 **Precise:** Technique based on machine learning

# Recommendation methodology

*A company will provide cloud services to hospitals for genetic testing on its patients, by combining public and private cloud applications*







# Using the CRM







# CSP evaluation based on the CRM



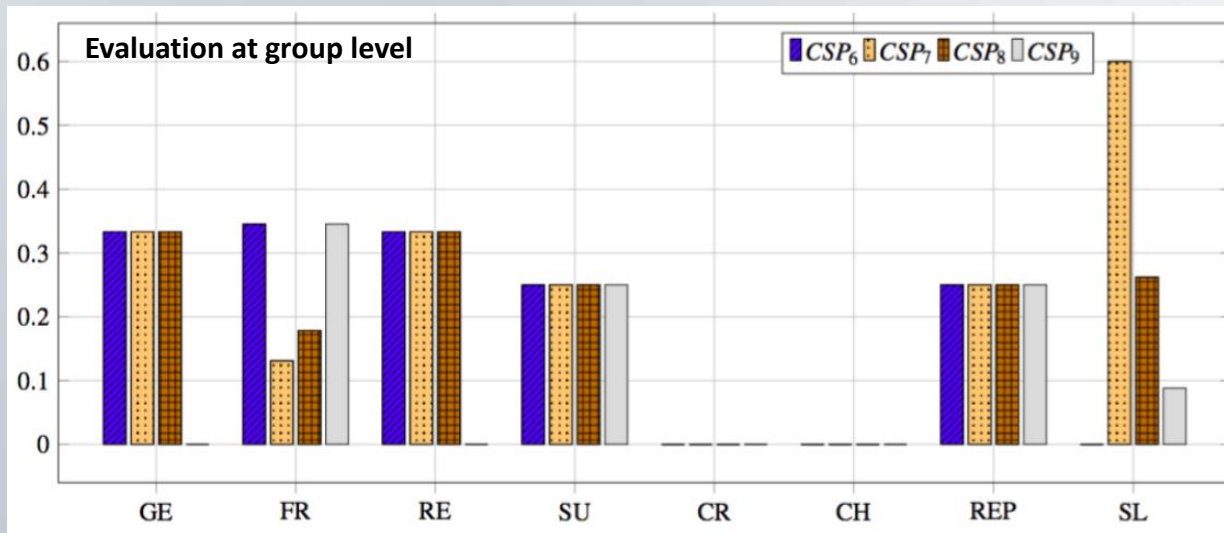
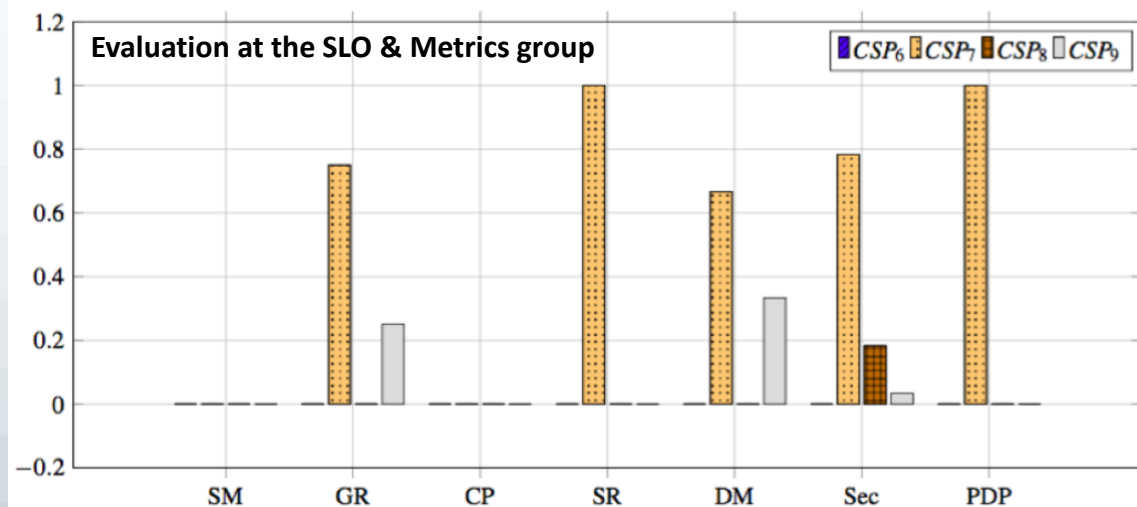
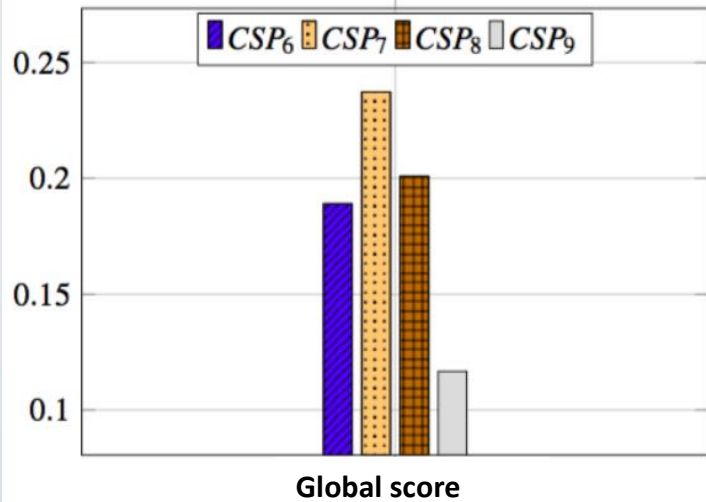
## Inputs available:

-  Surveys to CSPs about the adoption of the CRM
-  Self assessment of CSPs based on the CRM using:
  -  Publicly available information (i.e., Web site)
  -  SLA repositories (i.e., CSA STAR repository)

## Assessment technique used:

-  QHP (Quantitative Hierarchy Process)
  -  Developed in DEEDS (TUDA) for security assessment
  -  Adapted to use the CRM as input
  -  Allows to evaluate at any level of the CRM

# Results of CSP evaluation





***Thank you!***

**Ruben Trapero, University of Darmstadt**

**rtrapero@cs.tu-darmstadt.de**



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