

## EA & Academia

*The alliance of University, Industry and TOG to  
promote EA as a discipline*

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*Open Group San Diego APC – Feb. 4, 2009*



# Agenda : how to faster develop EA curriculum ?



**The war of talents**

**EA curriculum  
2 viewpoints**

**French  
example**

**TOG value  
proposal**

## Education

- ✓ Context
  - worldwide competition to hire the best brains
- ✓ Solution
  - To teach best of class curriculum
  - To be attractive
- ✓ Leverages
  - Selection
  - To be international
  - Innovation
  - **To fund new curriculum**
    - **Network, partnership**

## Enterprise

- ✓ Context
  - A world of services
    - From manufacturing goods to services
  - worldwide competition to hire the best brains
- ✓ Solution
  - To hire new talents trained to manage business and IT
  - To build partnership with University
- ✓ Leverages
  - To improve communication with University
  - to invest in education

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- The gap
- The ecosystem
- To bridge the gap

- In June 2007, the CEISAR conducted a survey to understand what company needs are in terms of training on **Computer Science and Management of IS**. Our objective was to understand what they expect from a young graduate from **Ecole Centrale Paris**, but also what they expect from our graduates when they have become experienced professionals (which might require **Executive Training** to complement his prior education and professional experience).
- Each company had to distribute twenty points across a set of 70 themes, which are commonly taught or should be taught in most universities.

We have received answers from the 12 following companies :

- Aviva
- Axa
- BNP Paribas
- Crédit Agricole
- JC Decaux
- Macif
- Michelin
- Renault
- Schlumberger
- SNCF
- Société Générale
- TOTAL

# Prioritized list of topics – Junior Graduate

16 topics gather 59% of votes



**Sample**

Domain	Topics	Vote	cumul. %
Business and IT Strategy	<b>How to translate Business Needs in Business Processes and IT Architecture</b>	12	6%
<b>Enterprise Architecture</b>	<b>What is Architecture : everything that can be shared (components, Business Processes, Business Entities, development environment, deployment architecture)</b>	10	11%
Information System Structure and Architecture	EA, maps and interfaces	10	16%
Software Development	Development Process: specifications, design, versioning, integration	9	20%
IT Governance	<b>Which structure and processes for decision making and control? Management of a portfolio of projects</b>	9	24%
Information System Structure and Architecture	Master data: <b>international and local level (actors, client, organization, product, ...): Data management</b>	8	28%
Information System Structure and Architecture	Global structure <b>of an Information System</b>	8	32%
How to define Business Needs	<b>How to define Business Entities and create a common language between Business and IT?</b>	7	36%
Soft Skills	<b>Project Management</b>	7	39%
IT Operations Environment	Overview	6	42%
Choosing and managing an IT Development Environment	Tools and languages: <b>analysis, programming, tests, documentation, non regression, ...</b>	6	45%
How to define Business Needs	Process Analysis: <b>link between Business Process and IT + how to change the Organization without changing software?</b>	6	48%
How to define Business Needs	Requirements <b>Management</b>	6	51%
Technical Skills	SOA, EAI, Web Services	6	54%
How to define Business Needs	<b>How to model data?</b>	5	56%
Soft Skills	Team <b>work</b>	5	59%

# Prioritized list of topics – Senior Professional



12 topics gather 65% of votes

Domain	Topic	Votes	Cumul.%
Business and IT Strategy	<b>Enterprise Transformation and consequences on IT</b>	18	9%
Business and IT Strategy	<b>How to translate Business Needs in Business Processes and IT Architecture</b>	17	18%
IT Governance	<b>Which structure and processes for decision making and control? Management of a portfolio of projects</b>	15	26%
IS Financial Performance	<b>Develop a view on financial impact of technology choices and know how to identify financially optimal solutions, be able to calculate and take into account the total cost of ownership of a solution</b>	14	34%
IT Governance	IT Strategy Planning	11	39%
IT Governance	Application Portfolio Management	10	45%
How to define Business Needs	<b>How to identify and analyze Common Functions: authentication, rights, GUI, navigation, workflow, documentation tools, ...</b>	9	49%
Choosing and managing an IT Development Environment	<b>Integrating software developed in heterogeneous development environments</b>	7	53%
Enterprise Architecture	<b>Business strategic alignment and Architecture scope</b>	6	56%
IT Governance	<b>How to migrate legacy applications towards an Architecture?</b>	6	59%
Information System Structure and Architecture	<b>Global structure of an Information System</b>	6	62%
Information System Structure and Architecture	<b>Academia and EA, maps and interfaces</b>	6	65%

**Sample**

# Prioritized list of topics – Senior Professional



12 topics gather 65% of votes

Domain	Topic	Sample	Votes
IT Operations Environment	Hardware		0
IT Operations Environment	OS		0
IT Operations Environment	Network		0
IT Operations Environment	DBMS		0
Other topics	<b>Innovative business</b> creation		0
Other topics	History <b>of computer science</b>		0
Other topics	Information Theory		0
Other topics	Technology competitive intelligence		0
Choosing and managing an IT Development Environment	Tools and languages: <b>analysis, programming, tests, documentation, non regression, ...</b>		0
Choosing and managing an IT Development Environment	<b>How to build or modify a component?</b>		0
How to define Business Needs	<b>How to model data?</b>		0
Soft Skills	English Language		0
Software Development	Object <b>Oriented Analysis and Programming</b>		0
Software Development	<b>Basics in programming</b>		0
Software Development	Tests & Integration		0
Business expertise	CRM		0
Business expertise	Business Intelligence		0
Business expertise	ERP		0
Business expertise	<b>Computer science for financial markets</b>		0
Business expertise	PLM, CAD		0
Business expertise	<b>Product Factory to design new products in the Services Industry</b>		0
Technical Skills	Robotics		0
Technical Skills	Web <b>design</b>		0
Technical Skills	<b>Documentation Management</b>		0
Technical Skills	Artificial Intelligence		0
Technical Skills	<b>Virtual Reality</b>		0
Technical Skills	<b>Neurone networks</b>		0
Technical Skills	Security		0
Technical Skills	<b>electronic systems</b>		0
Technical Skills	<b>embedded systems</b>		0
Technical Skills	<b>Image Processing</b>		0
Technical Skills	<b>Signal Processing</b>		0
Technical Skills	Workflow Engine		0



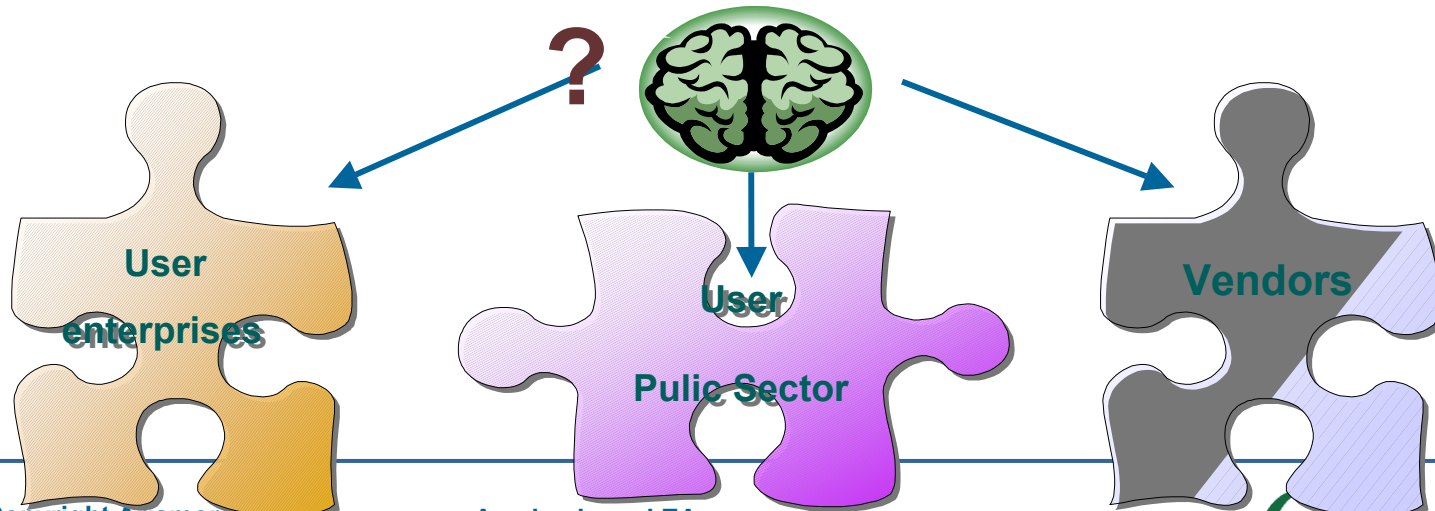
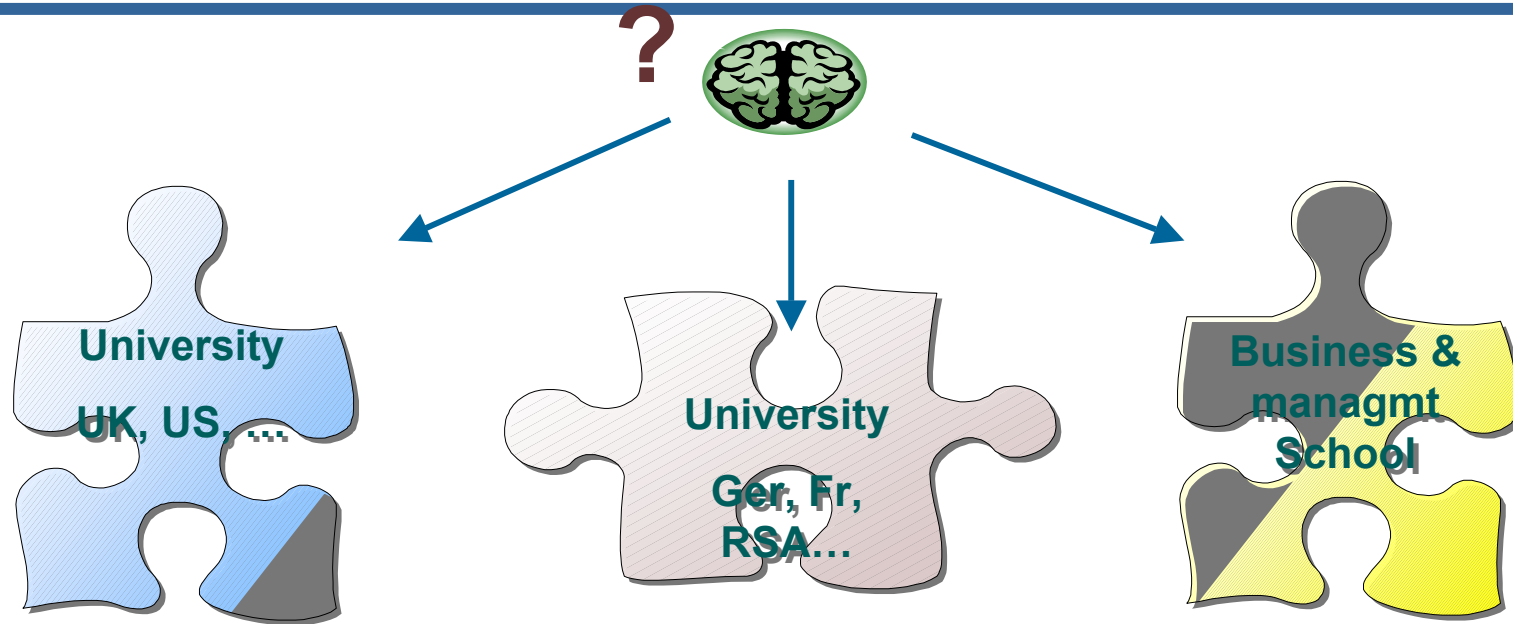
# Conclusion: CIOs expectations towards graduates from Ecole Centrale Paris are about :



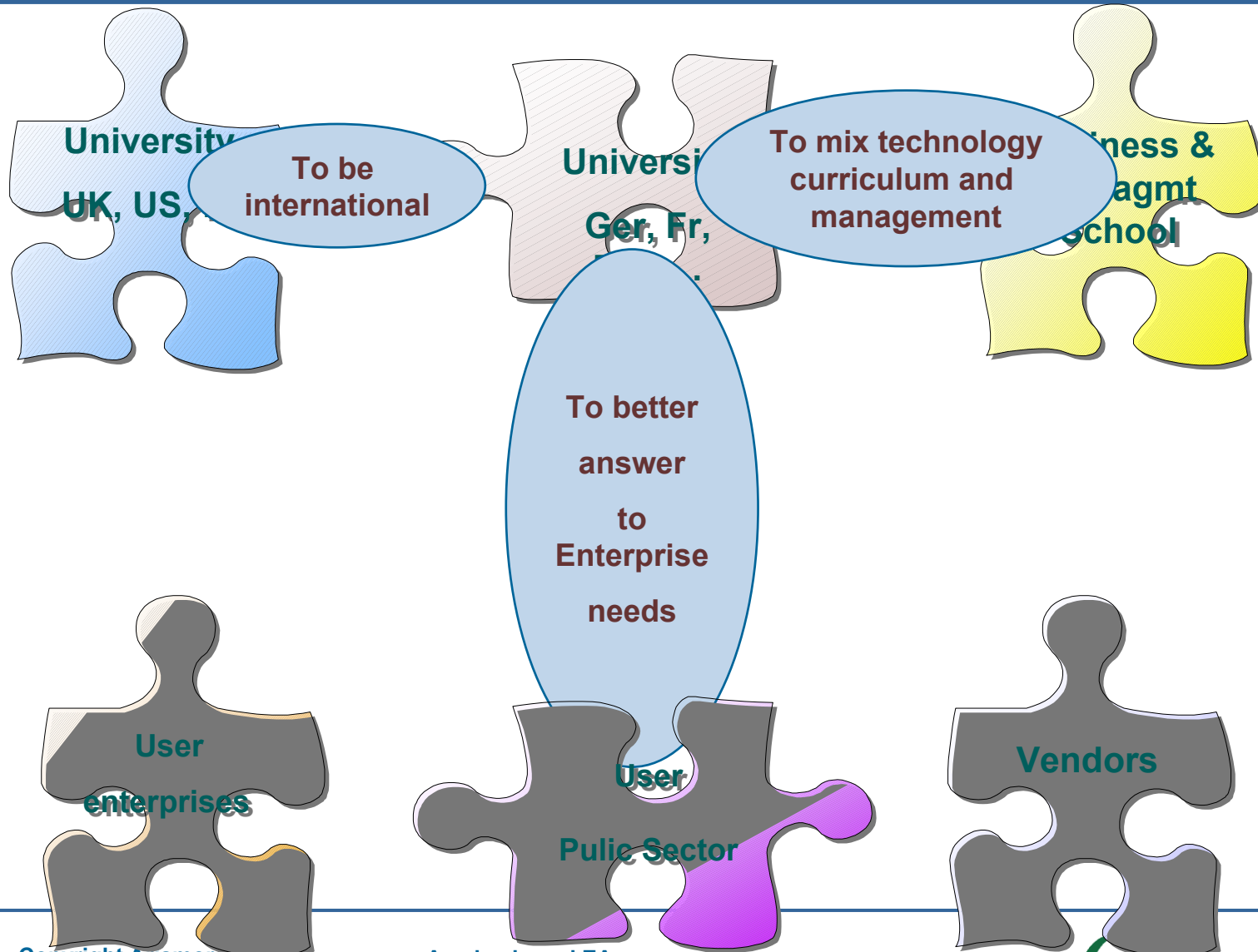
## *No Fit between Enterprise Requirements and University Offer*

- A **cross-functional** and **strategic vision** of the IS linked to the business of the company
  - Understanding of the business and strategy of the company and translating it into IS
  - Ability to communicate with every dept of the company (speaking **business language**)
  - Ability to integrate various dimensions (technical, financial, behavior, ...)
- The ability to design and control the **overall architecture** of the Enterprise and its IS
- Leadership role (governance):
  - Ability to manage a complete **portfolio of projects** or applications
- Knowing the **software engineering process** and the **project management** best practices

# EA competence : the stakeholders



# To bridge the gap



**The war of talents**

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example**

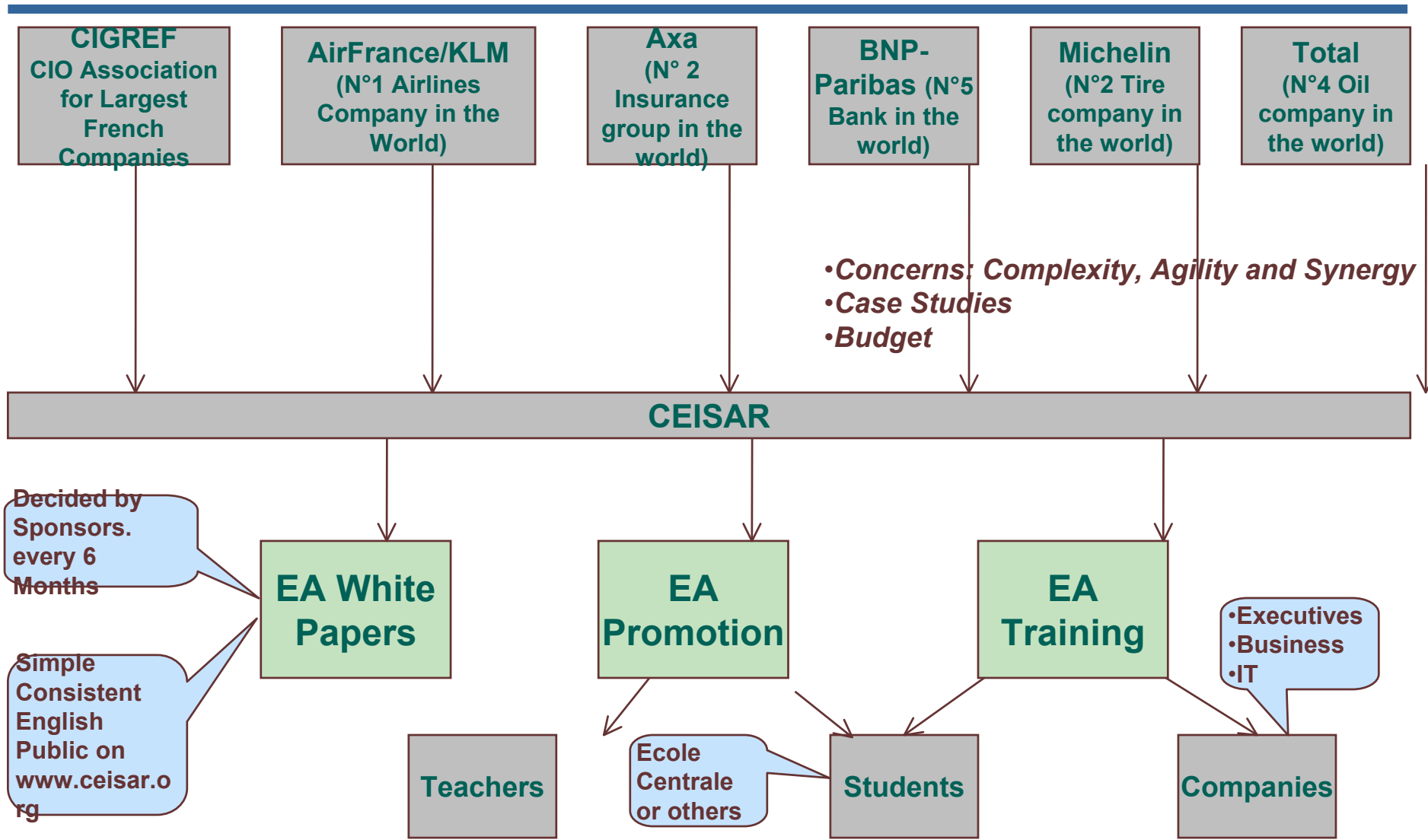
**TOG value  
proposal**

- CEISAR
- Pasc@line

# Associations to bridge the gap : French example



# CEISAR focuses on Enterprise Architecture (Engineering and management) for International Groups



## ■ A Global Enterprise Model

- ✓ Business and IT, Operations and Transformations, Reusable Models (Components, SOA, Roles...), Shared resources: Information, Actors (Teams), Glossary

## ■ How to Model Informations

## ■ How to Model Actions and Actors

## ■ Transformation and Agility

## ■ Simplify Legacy Systems

## ■ EA Governance

## ■ New Organizations

## ■ How to train « Business Transformers »

- Apply CEISAR white papers on real projects
  - ✓ 3 projects analysis : how EA can improve the current way to do projects ?
- Focus on
  - ✓ Cooperative approach rather than contractual approach
  - ✓ Well defined Problem
  - ✓ Reuse in all topics: user interface, repository, master data, SOA, patterns
  - ✓ To consider organization and management issue (EA process)
- Deliverable
  - ✓ Recommendation based on CEISAR meta model and TOGAF



## ■ French association

- 66 universities (63 engineer curriculum + 3 Business school)
- IT industry
- ✓ To share between University and Industry the trends and needs in IT skills and competencies

## ■ European initiative : e-competences framework <http://www.ecompetences.eu/>

- A common European framework for ICT Professionals in all industry sectors
- Profile categories : Plan – Build – Run – Enable – Manage
- Plan profiles
  - A.1. IS and Business Strategy Alignment
  - A.2. Service Level Management
  - A.3. Business Plan Development
  - A.4. Specification Creation
  - A.5. Systems Architecture
  - A.6. Application Design
  - A.7. Technology Watching

**The war of talents**

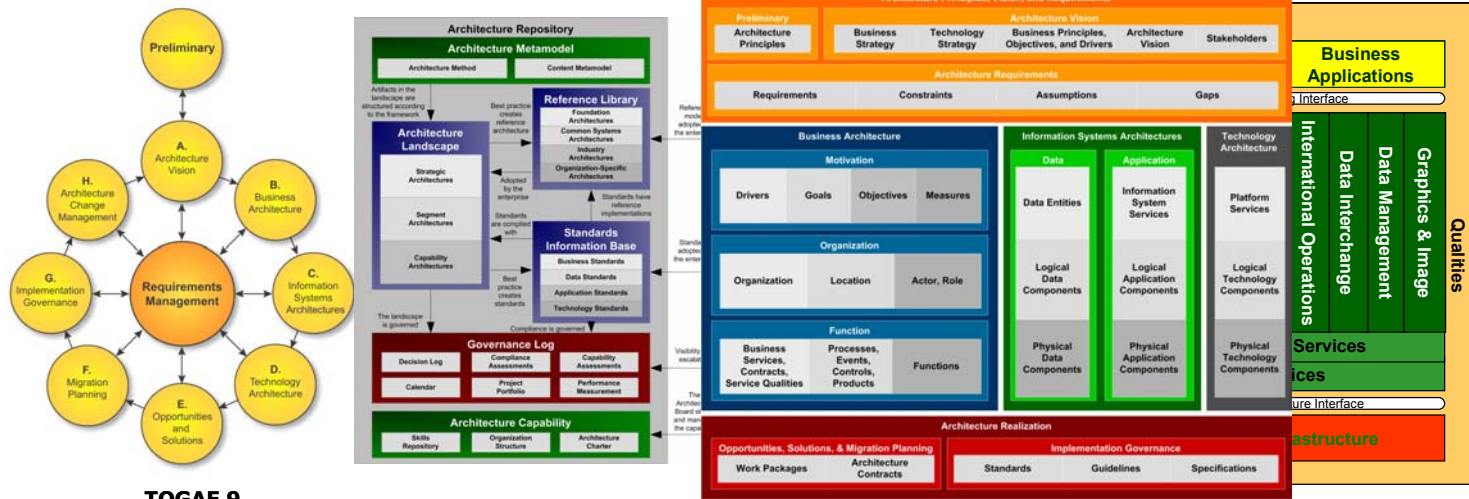
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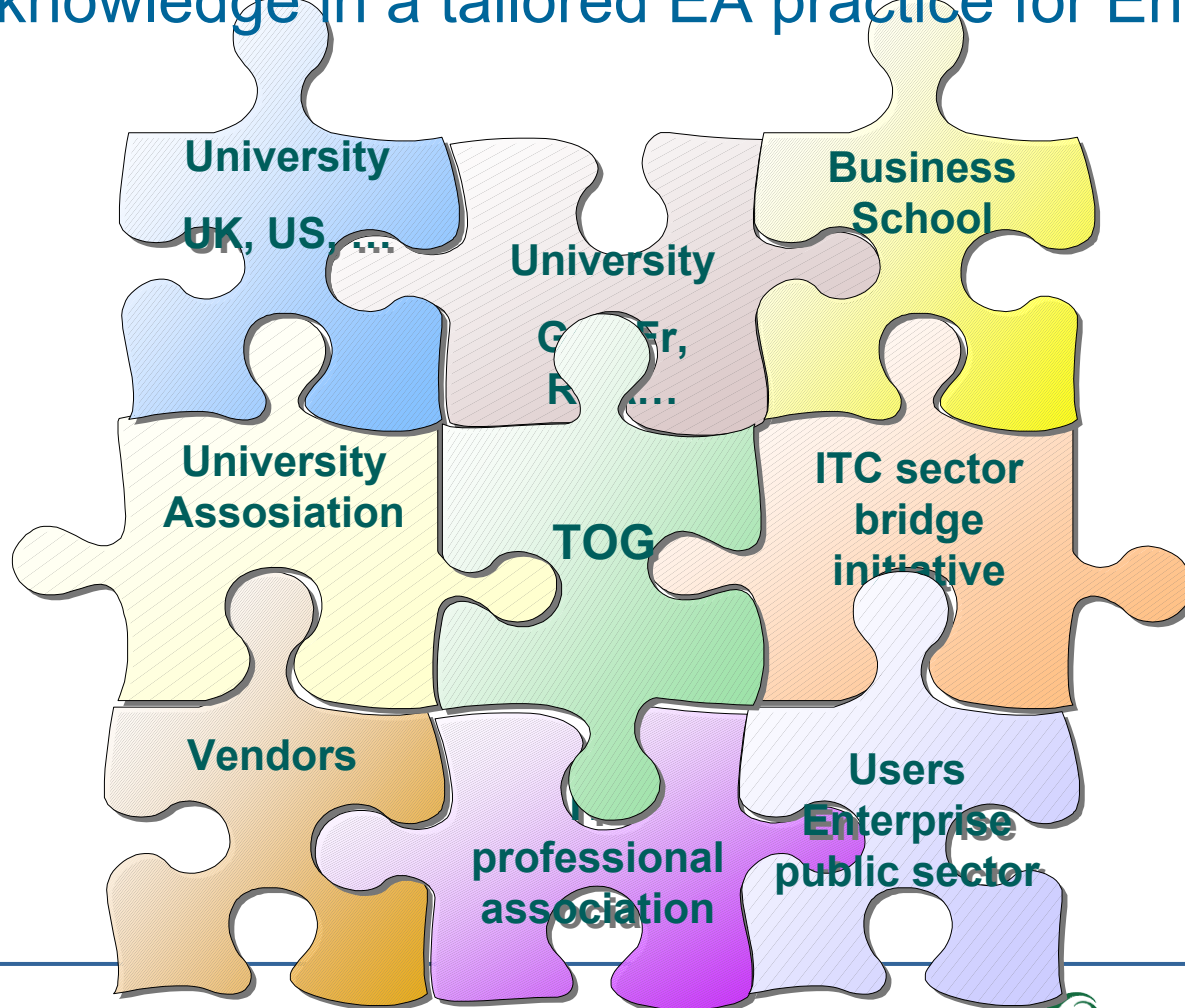
- TOGAF
- WW consortium
- APC ...

- International : TOG is an international consortium
- To bridge management and technology
  - ✓ There is a growing consensus that we should teach enterprise architecture from the perspective of the school of business rather than the computer science department. (Len Fehskens TOG)
- TOGAF body of knowledge in business & IT directions



Management, organization, meta models and set of architecture models

The Enterprise Architecte role is to transform TOGAF as a body of knowledge in a tailored EA practice for Enterprise



## ■ 1st session in Munich Oct.08

- ✓ 9 Universities
- ✓ Universities claim to look for :
  - Funding to develop new curriculum
  - Embedding EA in IT and project management curriculum
    - To do more in supporting strategic initiatives
  - Association to leverage the cost of new curriculum
  - To share research works or training material
- ✓ Next step
  - To establish a list of Universities interested in the EA&Academia WG

# We would like to engage you on the list



University	Country	contact name	email	title	existing EA curriculum	range of interest (research, training, networking...)	member of TOG
	USA			Professor and DMIT Program Director	Enterprise architecture at the undergraduate and		Y
							Y
	NL			Pro Vice-Chancellor Deputy Director (Corporate Information Systems)	Arts and Education Schools plus smaller schools in no	We need to do more in supporting strategic initiatives Member of the Open Group in relation to our EA project funded	Y
	Singapore			Principal Consultant	ISS is currently conducting TOGAF 8 training. 7 days	Solution architecture or architecture training 1 level below	Y
	Pol			Professor	In the enterprise computing area, the School of		Y
	Austria				only a module in Master of Science (Informatics, EA White paper and training	Networking, sharing of experience and possibly lecture	Y
	FR					Networking, sharing of experience and EA white paper	Y

**example**

## ■ Share

- ✓ Experience
- ✓ Documents
- ✓ Research work
- ✓ Contracts

and network !

Thank you

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