

Matricola_____

Surname_____

Name:_____

Information Systems 01PDWOV

26 february 2013

Books, notes are not allowed. Write only on these sheets.

Internship management at Polito.

As part of their curriculum, students can do an internship in a company. Here is how the process is managed. A company signs an agreement with Polito (Stage and job office), then proposes (every year) a number of internships (each with a title, duration, description, company tutor). A student selects an internship and looks for a teacher at Polito willing to act as academic tutor for the internship. When all is set the student asks to the office the official start of the internship. This requires a signature on a sheet by both the student, the academic tutor, the company tutor. Then the student performs the internship. At the end of it three documents must be produced: time sheet with hours worked by the student (signed by student, academic tutor, company tutor), evaluation on internship (done and signed by student), evaluation on student (done and signed by both tutors). With these documents the Stage and job office officially closes the internship, related credits and grade appear on the student's curriculum.

The AS IS situation uses mostly paper records to handle the process.

The TO BE situation aims at replacing paper as much as possible, using instead smartphones, tablet PCs or similar devices.

In the following, analyze and model in detail the TO BE situation.

1 IT Model / Technological model: describe the hardware architecture of the system

Client server.

Server: data server (student, internship and company data)

Application server (logic to manage internships)

Client: pc or smartphone

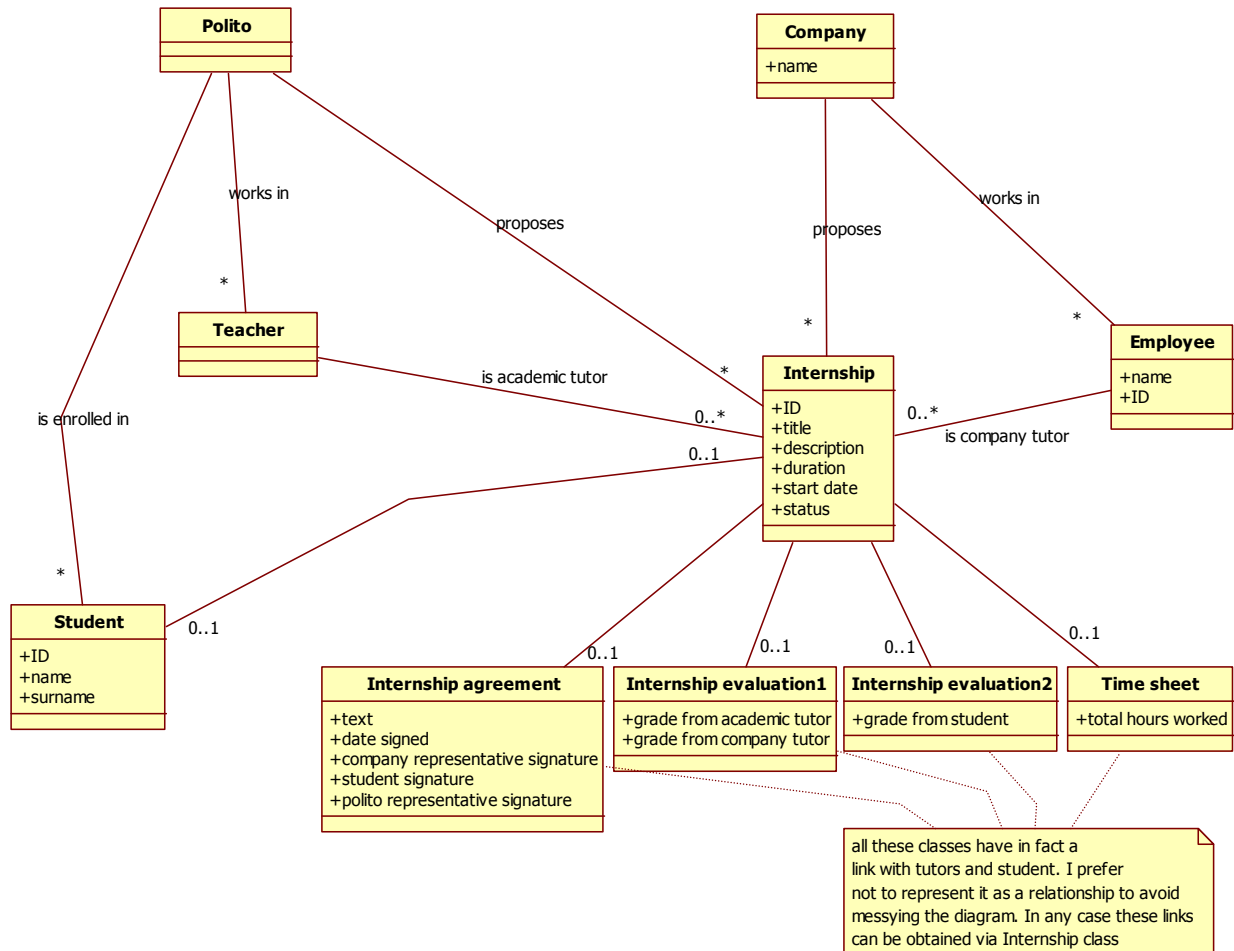
2 Organizational model: list roles or organizational units involved

Student

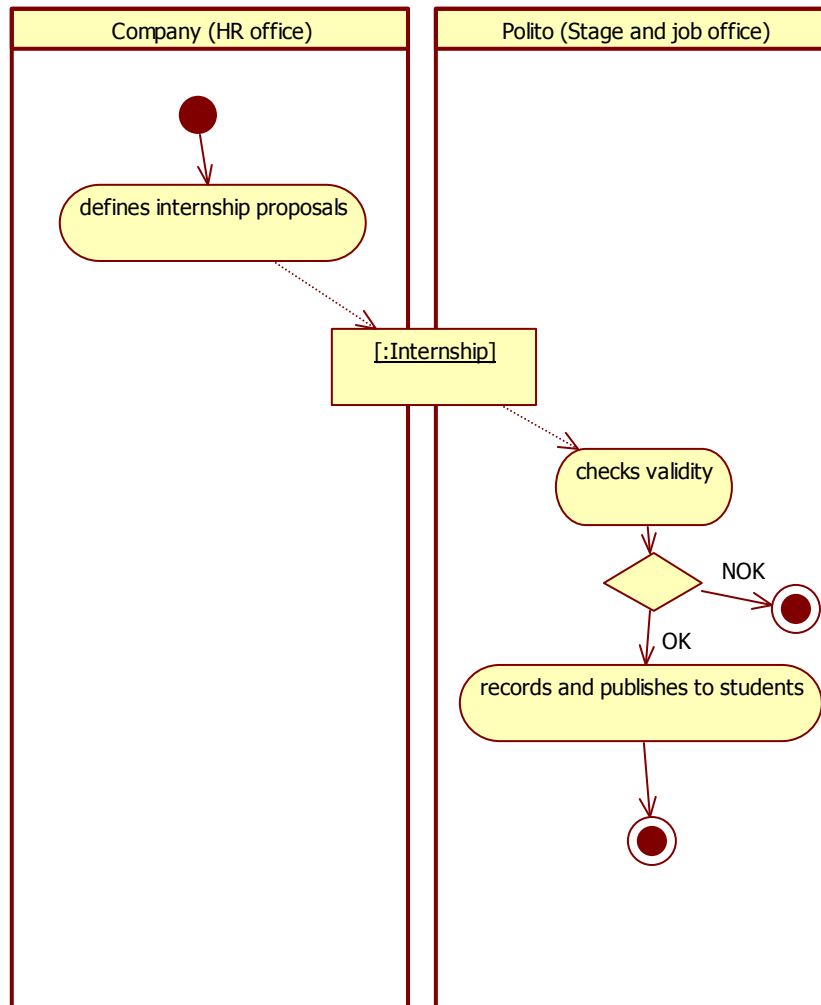
Polito (stage and job office, teacher)

Company (HR office, tutor)

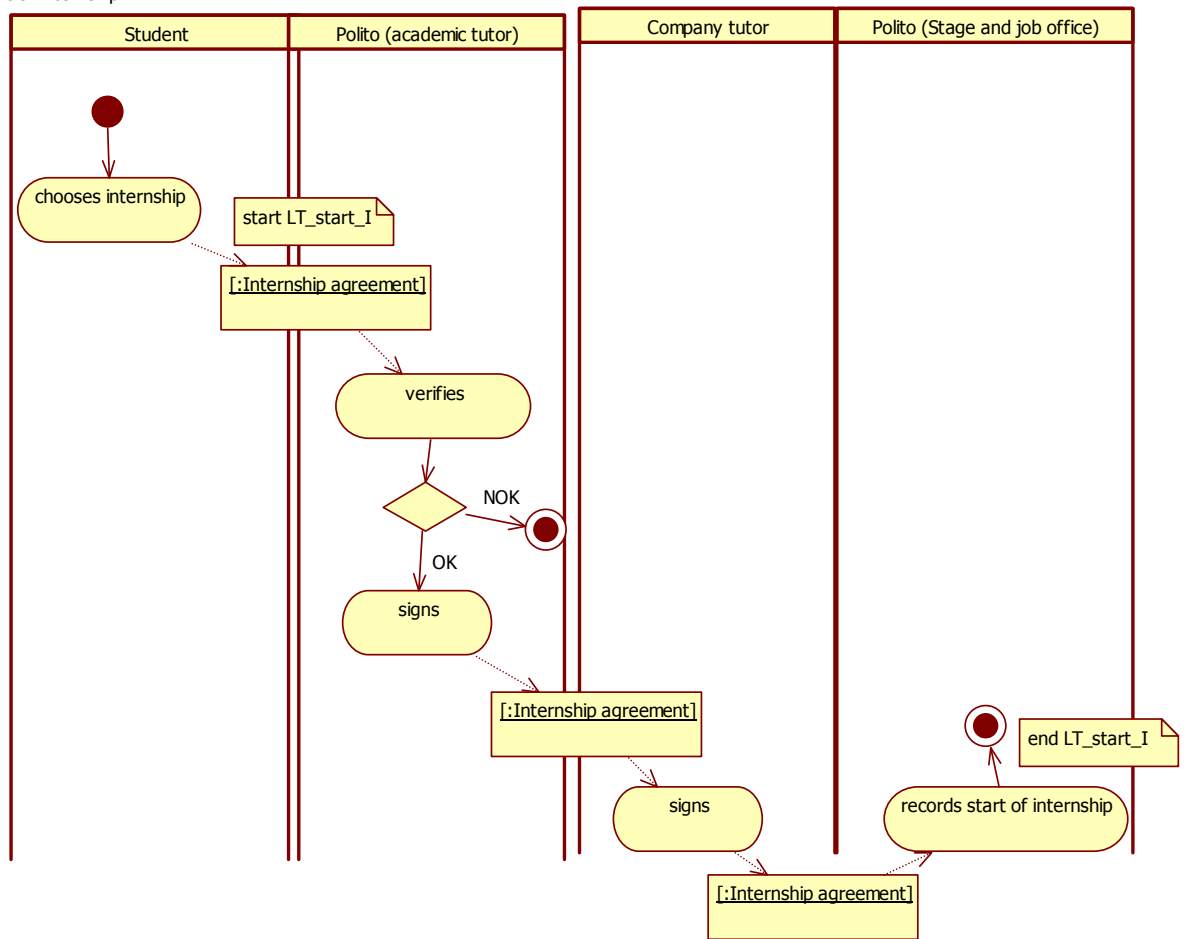
3 Functional model: Design and model (using UML activity diagrams with swimlanes + class diagram) the processes needed



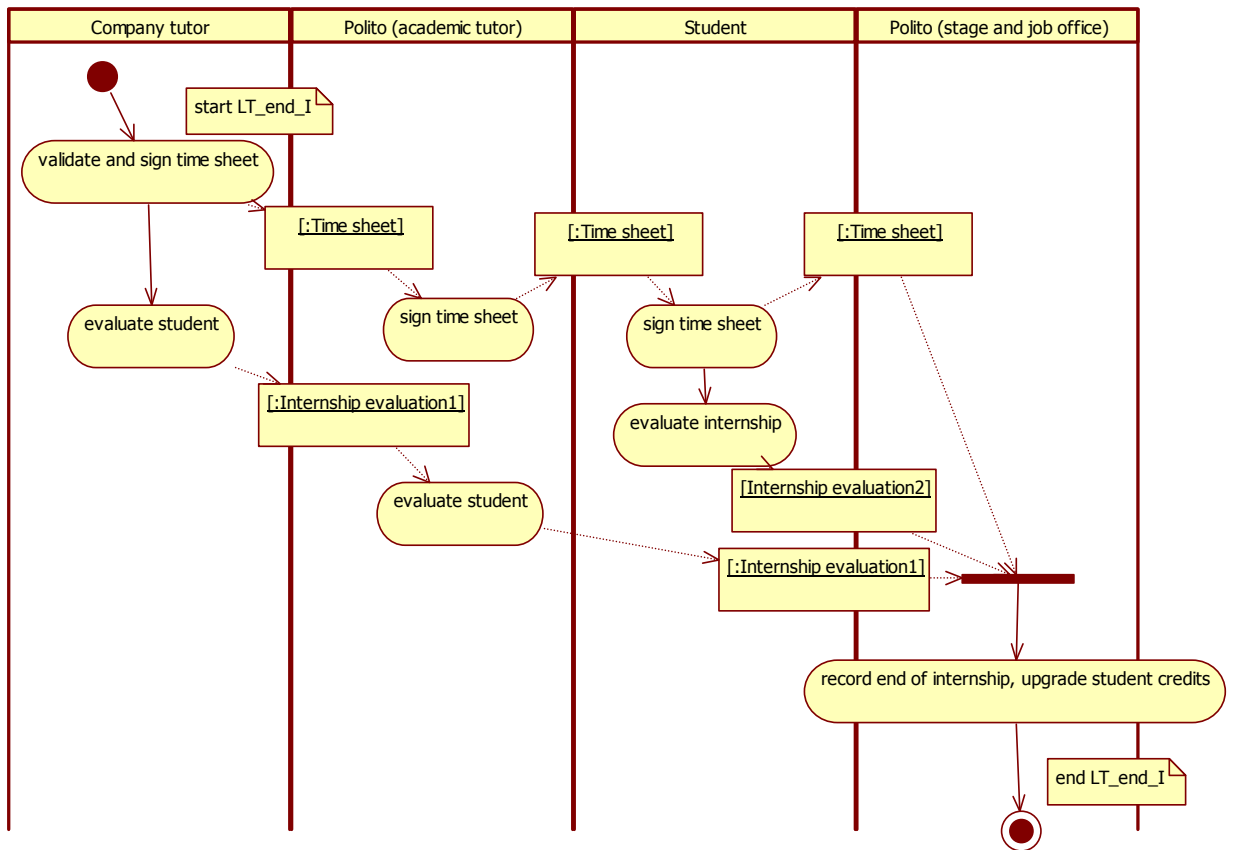
Definition of Internship proposals



Start of internship



End of internship



Define the KPI, considering as strategic goal 'reduction of cost' for Polito and 'better convenience' for all actors involved

Category (General, cost ..)	Name	Description	Unit of measure
General	N_I	Number of internships per year	
	N_P	Personnel in stage and job office	
Service	LT_start_I	Lead time start internship (see activity diagram)	T
	LT_end_I	Lead time end internship (see activity diagram)	T
Cost	Effort_I	Effort to manage internship by Polito (effort to perform activities in swimlines Stage and job office, Teacher, by administrative staff and teachers at Polito)	Person hours
	Effort_S	Effort to manage internship by student	P hours
Quality	N_I_error	Number of internship that require rework because of errors (wrong or missing signatures, evaluations, etc), per year	
	Defectivity	N_I_Error / N_I	%
	Control	Availability of status information on each internship (cfr Agency cost theory, monitoring and bonding)	Yes/no

5 Compare the previous and the current situation, using the KPIs defined above

KPI	AS IS	TO BE
N_I		No change
N_P		Probably no change
LT_start_I		May be reduced thanks to electronic documents and signature. However LT still depends a lot on how fast the actors involved (office, teachers) react to requests
LT_end_I		Same as LT_start_I
Effort_I		Could be reduced
Effort_S	Need to physically bring papers around	No paper circulating, Much reduced
Defectivity		Could be reduced
Control	Hard to obtain information on the status of each internship (is on paper sheets)	Immediately available for all internships

6 List costs and benefits (savings) when switching to the TO BE situation.

Cost	Benefit
Investment for hw and sw infrastructure to support the process, training, learning curve	Effort_I reduced

From Cost Benefit analysis is the TO BE situation better? (answer Yes or No): Yes
Why?

Lead times may change very little. Effort_I could be slightly reduced. However the investment is limited (especially because the hardware infrastructure is already available and used by other

applications), so the pay off should be obtained fast. Regarding convenience, this improves a lot on the side of Polito, considering Defectivity and especially Control. Convenience improves a lot for the students (Effort_S), however this will not appear as a saving (students are not paid ..)

7 What are the main functionalities offered by a CRM package?

Multichannel Interaction with customers, analysis of customer data, campaign management,

8 Describe the Total Cost of Ownership (TCO) for a software service (ex an ERP used as a service).

Search for vendor, contract negotiation, service quality monitoring, service fee

9 A logistic company handles the distribution of food using refrigerated trucks and warehouses. Consider the manufacturing function of the company (i.e. handling of warehouses, truck fleet, drivers, in order to satisfy transport orders from location to location). Analyze it in term of of agency costs, decision costs.

Monitoring: quality of service (punctuality, temperature never above x degrees,), utilization factor of trucks and warehouses

Bonding: report from drivers and warehouse workers on indicators above

Residual loss: suboptimal routes for doing deliveries, excessive low temperature

10 In the case above trucks are owned by the company, and drivers are employees of the company. Analyze (in term of transaction costs, and risks) a different approach, where drivers are independent workers, who own their own truck, and work as outsourcers for the company.

Transaction costs: select drivers, negotiate fees and define contract, monitor service (same KPIs as in point 9)

Risks: low quality of service (carelessness, low quality trucks) and little leverage to improve it (difficult to force truck drivers to pay penalties)

11 Provide an example of a company that is organized in both functional and geographic units

Geographic: the same function is **replicated** geographically (ex Apple, sale function in Europe, in US,.)

A function located in many places (ex factory for engine in Melfi, for body in Turin) does not mean geographical organization.

12 What are, according to COBIT, the main processes in the Deliver and Support domain?

See slides