The Obje^3-Value Method for e-Commerce

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Abstract

This paper treats of the importance of the analysis through viewspoints in e-business. Then it presents a method based on value for viewpoint in e-business. The main objective is to demonstrate the technical and commercial viability of a new idea. It is proposed a method that makes an extension of Use Case Map for e-commerce, it uses the e^3-value and the Goal Based Requirement Analyses Method (GBRAM) in the elicitation process It is waited that the objective method (Obje3-value) it reduces the time of understanding and begin of the development of the idea. It'sstill presented a study of case.

Keywords: e-business, viewpoint, goal, requirements, economical viability, technical viability.

1 - INTRODUCTION

During the last years many and innovators ideas for e-commerce have been appearing turning necessary the creation of new methods for the requirements elicitation. For considering the requirements definition stage as being one of the stage more critics of the system life is that various researchers study that area seeking a larger understanding on the requirements of a software.

In this paper a objective economical is proposed based on value for analysis of the technical and commercial viability of a new one ideal.

Concepts will be used as the scenerios, goal, viewpoint and e-commerce. Scenerios are behavioral descriptions of a system and his enviroment that appear starting from restricted situations, and they offer a natural way to describe hidden circumstances or necessary aspects to an additional resolution that it could be neglected. Already the goals are the goals of high level of the business, organization or system.

The viewpoint consist of the analysis of different opinions and aspects of a system done by different stakeholders as middle of to organize and to structure the activity of requirement engineering of seeking the best possible solution for all the involved parts.

With the internet expansion the on the part of the companies as middle for us to render their businesses comes developing a new commerce modality, the e-commerce and consequently the e-business that is much wider. Among the advantages of closed businesses for the internet are: use easiness, comfort, economy of expenses, time and a level very inferior of bureaucracies.

In function of the e-commerce that Jaap Gordijn [3] it has been developing a methodology using scenerios for a fast analysis of the viability economic/technical.

The more innovators are the ideas for e-commerce, minor will be the time made available by demand of the market for elaboration and development of their systems projects tends in view the technological and of the appearance of new ideas speeds. Therefore they are necessary methodologies every time better than they make possible a development of those ideas quickly and efficiency. However it is not enough a fast development of the systems if they don't also get to show in the same speed to the stakeholders that those ideas are technique and commercially viable. We see here also as in [3] the need to do two questions initially to verify the technical and economical viability of the electronic system.

The questions are the following ones:

1. Is the e-commerce idea hoped to be lucrative for each actor involved?

2. Are the supports e-business information systems technically feasible?

Just as the approach of Scenerios, in [3], this is also based on multi-viewpoints r.e. as in [1] and [2] for a fast evaluation of the technique and commercial viabilities.

The separation of concerns don't have any doubt, famous principle in information

technology development, is explored in this method by separating their specialist stakeholders in their viewpoints.

Seeking that integration that is proposed in this paper a Goal Method, based on the junction of GBRAM in [9], e3-value and Use Case Maps (UCM´s) in [5], [6], [7], [8] and this new method can be enlarged with graphs of feature and solutions [4] to solve problems of conflicts that could still be found.

The method was used GBRAM for discover a set of non-operational goal. This implicates in a small alteration of the method GBRAM, in the stage of Goal Refinement, where we removed the stage operational. We opted to remove the operational of GBRAM and not of the framework e3-value, because soon afterwards to GBRAM we will apply us framework that in the first moment we need the non-operational goal and in a second moment operational.

This paper have initial point the scenarios method proposed by Jaap Gordijn, in [3] and we develop a goal method for integration viewpoint in e-business with advantages how to simplify, to facilitate the understanding of the analyzed idea. Such method seeks to reduce conflicts tends in view that is used for the elicitation of those goal the GBRAM seen in [9] that verifies the possible obstacles of the same in his stage of goal analysis.

The motivation to develop goal, same already possessing a scenerios method, it is for goal to be of higher level, soon being of easier to get a general understanding of the idea and not worrying about complicated graphs as for examples, scenerios.

Sheets costs and profits are put for each involved actor seeking with this to justify the commercial and technical viability of the e-commerce idea. According to Jaap Gordijn in [3], that leaves are not so necessary and they don' t serve as forecast of expected profits, because initially they are dear for the specialists' of the viewpoint experience.

The rest of this paper is organized as it proceeds. In Sec. 2 are introduced UCM, the framework e3-value and GBRAM. In Sec. 3, the goal method is explained proposed. In Sec. 4, it is made a case study. In Sec. 5 conclusions and to conclude, in Sec. 6 are striped some future works.

2 - BACKGROUND

The method proposed in this paper will have as bases UCM, the e^3-value and the method GBRAM that we will synthesize them to proceed:

2.1 - UCM

A UCM is a visual notation to be used by humans to understand the behavior of a system at a high level of abstraction [6]. As [3] and [5], the notation of basic UCM is very simple, and it consists of four basic elements: Start Point, responsibilities, components and End Point. To proceed, in fig.4 a simple example of UCM was only put to illustrate their basic elements and some of their builders.

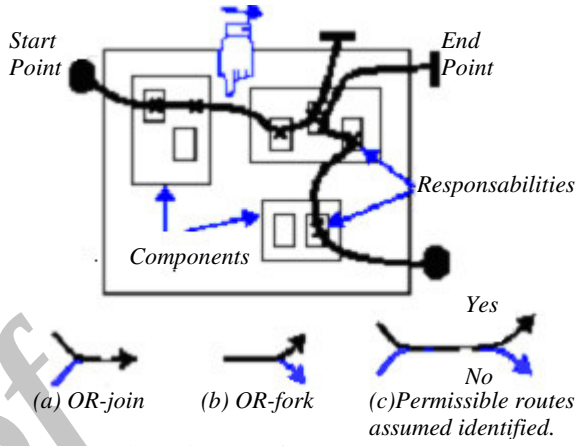

Figure 1. Main builders of UCM

2.2 - The Framework of the e^3-Value for e-commerce.

2.2.1 - Viewpoint of the e-commerce.

2.2.1.1 – Business Value Viewpoint

It captures" what" is doing the business and" with whom", but it doesn' t say" how" it is done. The"how" it is already part of the Business Process Viewpoint.

2.2.1.2 – Business Process Viewpoint

It focuses in operational fulfillment in terms of business process, the Business Value Viewpoint. To represent the Business Value Viewpoint will be used the same process modelling of [3].

2.2.1.3 – System Architecture Viewpoint

It focuses in the system of information that enables or it supports the trade processes.

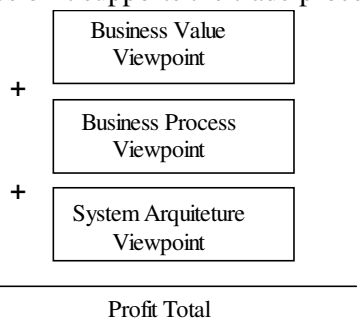

Figura 3: O Framework do e3-value

2.2 - GBRAM

As in [1] and [9] it is presented GBRAM. Like this, the analyst should work starting from all of the available information sources as textual declarations of needs, additional sources of information as interview, transcription with the stakeholders seeking to determine a group of objectives wanted.

The GBRAM described in the figure 2 involves two stage: the analysis stage of goal and the refinements stage of goal, producing as exit DRS (Document of Requirement of Software).

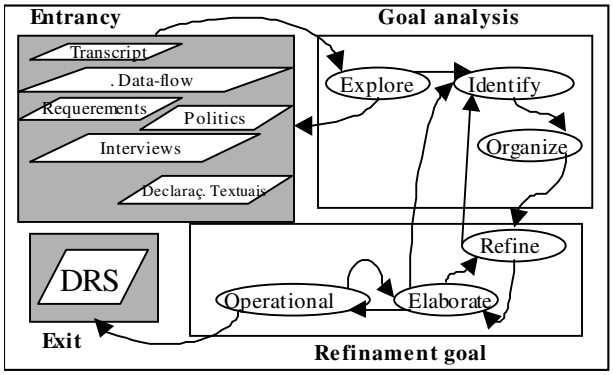

Figure 2: The GBRAM Method

The goal analysis stage of GBRAM can be summarized in three smaller stage as:

a) Explorate; b)Identify; c)Organize.

Already the stage refinements goals can be summarized in other three smaller phases as:

a) Refine; b)Elaborate; c) Operational.

In the goal elaboration stage are identified the obstacles of the goal, considering the possible ways of flaws of goal, and as these they can be blocked facilitating the anticipation of exceptional cases. This will reduce the graph of FS (Feature and Solution Graph), because many of the obstacles will already have been found by the method GBRAM remaining few interaction needs in the graph. The obstacles are identified through questions.

So that they are identified objectives, the method suggest other questions that it is in [1].

3 - THE GOAL METHOD.

3.1-Alterations in GBRAM

For the goal elicitation it was chosen GBRAM that offers in his exit a set operational goals. However, as soon afterwards the method e^3-value composed of three viewpoints will be used and that the first viewpoint uses the goal no operational and the second the to turn operational.

This implicates in a small alteration of GBRAM, in the stage refinement goal, where we removed the stage operational of the goal for there not being redundancy of operational stages.

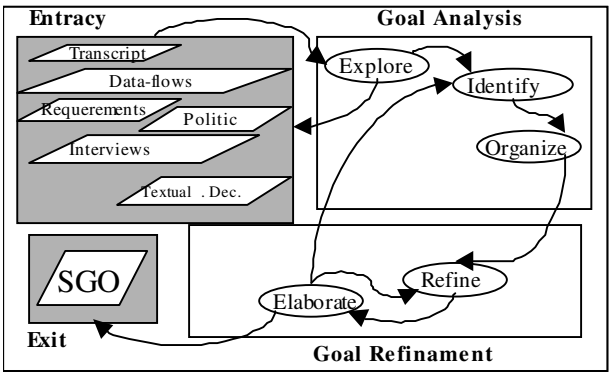

Figure 4 –The GBRAM method for the e^3-value

This will exhibit in the exit a goal no operational set goal no operational (SGO) that will be used by the method e3-value.

According to the Illustration 4, the document of exit of GBRAM is a set of goal no operational (SGO). Same groups the those will be put it all of the viewpoint and analyzed by their respective stakeholders.

The Goal Method can be illustrated as it proceeds:

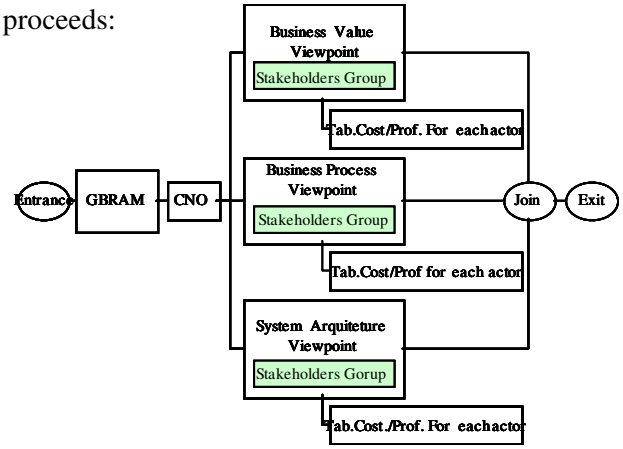

Figure 5 – The Goal Method

Soon afterwards, the construction of the value model. And for that is necessary if knows their builders and to also use the tool UCMnav for construction of maps in this case with objectives.

3.2 - Builders of the Value Model

For construction of Valor Commercial' s Model it's necessary the builders that are striped and considered to follow some of the used here, for brevity reasons, to know more he reads [10] and [11].

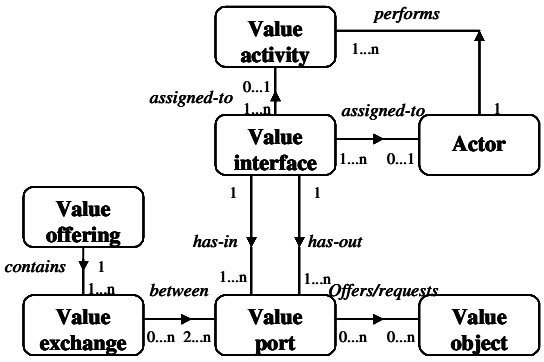

Figure: Builders main.

Actor- it's independent economic as a company or a person and they are capable to execute an or more value activities;

A Value Activity- the process that adds value and it reproduces objects of value;

A Value Object- it is what produced or consumed by an activity of value;

A Value Port- it is the connector that interconecta actors or activities of value based on component.

Interface of value - it represents the service of offered trade or requested of an activity of value and it possesses an or value ports, and model of the contributions of an action or value activity lives goes his environment.

A Value exchange - it represents the trade of an value object among ports of value.

A Value offering- consists of the set of value changes. Considering that value exchanges connect value ports, value offering connects actors' value interfaces.

After the construction of the value model it is hour of building the use case maps using the goal for each viewpoint discussing with their stakeholders.

Last it will be built the cost/profit leaves that are to analyze about the innovator' s economical and technical viability idealizes.

3.3 – Sheets profits and Costs.

For the value goal sheets profit will be put for each actor involved (Table 2) that is built as it proceeds, in agreement with [3].

1. Make a list of values entering and leaving the actor.
2. Remove the value-neutral" in" and" out".
3. Estimate value of the remaining value objects.
4. Calculate the profitability of the goals paths.
5. Calculate the probability of the goals paths.
6. Calculate the expected profitability of a goals paths.
7. Calculate the expected profitability of a goal.

3.4 – Goal and UCM.

In an attempt of elevating still more the level of abstraction of UCM is that we decided to put goal instead of sceneries as suggested initially by the authors of the other project. This form progress some impedes us of consulting sceneries for solutions of problems in the lowest level. Transforming like this UCM´s in a notation that can use goal path.

4 – VIEWPOINTS AND GOAL ILLUSTED BY AN E-BUSINESS CASE STUDY.

4.1 – The Initial e-Business Idea.

Initial situation is the following:

Ad Association is a company that coordinates more than 150 FAPs (Free ad papers) in the world. This produces goods independently (no electronic) and it serves to a certain geographical area. The handling of the goals is how it proceeds. A customer submits an paper to a FAP and this it checks it regarding the pornographic language and style. In case this wants to put an international paper FAP for which the article was submitted distributed the paper to Ad Association that redistributes them to other FAPs (serving different geographical areas). These other documents publish the paper as soon as possible.

New idea with e-commerce:

Ad Association and FAPs want to explore their established places naming a mark to develop internationally, based on the internet, service of contact paoer. In the next sections we will apply viewpoints with the objective of building the trust in the technical and commercial viability of the idea. Firstly a business value model and a business process model. Soon afterwards, two software architectures that both notice the certain commercial value and process model discussed.

4.2 - Goal in the Study of Case

After a declaration of the commercial idea, then it is hour of if we use the set goal for the idea elicitation of GBRAM. The goal used here during the project viewpoint are based in the scenerios of the [3]. The possible set goals the commercial idea is the following:

- To publish an paper in a FAP;
- To read paper in the website of a FAP;
- To publish in other FAPs.

It is obvious that various other goal exist, for instance, to change paper among FAPs without intermission of the Ad Association that are not presented for not fleeing of the objective of the study that is to show the method.

4.3 – Viewpoint of the e^3-value in the case study.

4.3.1 – Business Value Viewpoint.

We will begin to project the Business Value Viewpoint, after identified the goal set seeking to obtain the first understanding of the stakeholders. It will be used the builders previously mentioned.

4.3.1.1 – Business Value Model.

In Fig. 7 are presented a business value model for the idea of sec.4.1 using the concepts and builders mentioned previously. It is very important to point out that in this viewpoint we only modeled the change of goal that has value for somebody.

During analyses, stakeholders discovered a new goal or under-goal that it is it of checking paper that is introduced in this model.

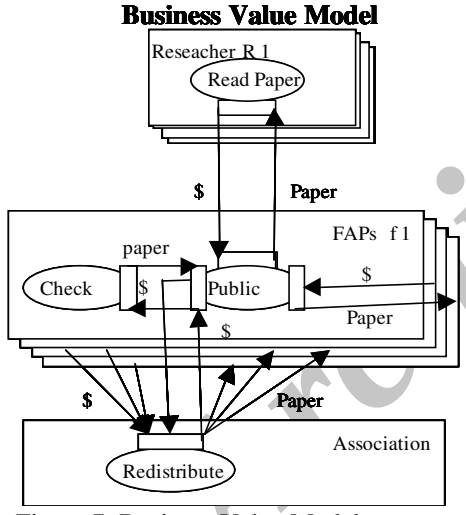

Figure 7: Business Value Model

4.3.1.2 – Business Value Goals.

In Fig. 8 are presented the three goal of the commercial value previously for the idea mentioned in sec.4.1. and the UCM path of each goal.

The approach supposes the ordination of time again supposed already in the method of UCM for [8] and that the scenerios method in [3] it had disrespected, assumed only causal relationships.

The scenerios method discards the ordinations initially for thinking you tend to give the wrong focus in the discussion of the model tends still in view that this only to treat of what is changed and that stakeholders are especially interested parties on whom doing so that for who and in the resulting profits and costs.

It is seems clear to see that the ordination done by the method that will elicitate the goals are useful, because it will facilitate when the necessary ordination in the viewpoint of processes.

As for the elicitation of the goal set we used the GBRAM and for this to possess in the stage analysis of goal the stage of organization of the goals, where the goals are classified according to the conditions goal and dependence relationships. Starting the goal to have beginning and end, different from the scenerio method that only possesses delimitadores, because there is no ordination of time only causal relationships.

Put the method GBRAM for being a elicitation goal method, and also, for having a stage of organization of the goal, where these are ordered and to reduce times of analyses.

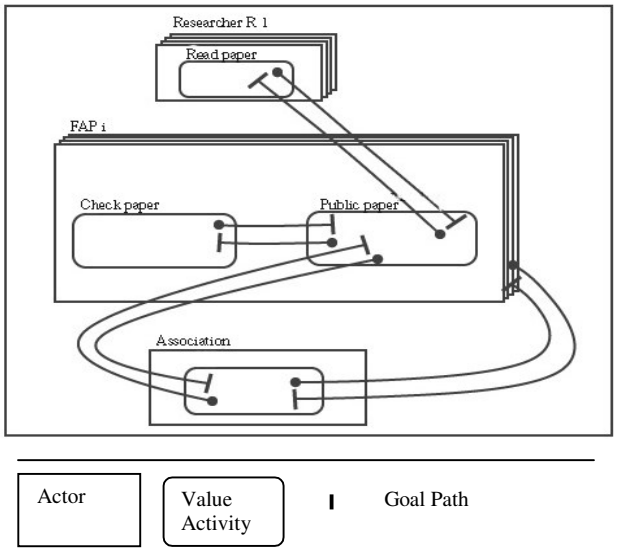

Fig. 8 Business Value Goal

The points of responsibilities are used to model changes in the an actor' s profit sheet" as a result of executing the goal path. Through the idea of execution time of the sceneries and alterations of the profit leaves we will get to have an idea through about the profitability of the commercial idea Table 2.

4.3.2 – Business Process Viewpoint.

Its illustrates processes to be driven by actors, and messages changed among those actors, in a conceptual level. For construction of the table it is necessary analyze the scenerios for publication of an paper in a FAP. Where will arrive to 4(quatro) goal path:

co1: A paper is submitted to a FAP, checked in that same FAP, published and the Association pays for origin FAP to publish it;

co2: A paper is submitted to a FAP that reviews for another FAP to check the paper, soon origin FAP receives from the Association and he pays a tax for other FAP to have checked the announcement;

co3: A paper is submitted and checked in own FAP and soon afterwards rejected, soon cost is inside of own FAP, it can be said 0 (I reduce to zero).

co4: A paper is submitted to a FAP that reviews for another FAP to check and this is rejected, therefore it generates a cost for origin FAP that will have to pay a tax FAP that checked the paper.

Table 2 – Profit sheet for FAPi for the goal of publishing paper in a FAP(Business Value Viewpoint).

Viewpoint	Business Value
Actor	FAPi
Goal	To publish a paper in a FAP
Goal path	*Profit*
co1 (60%)	p1 = Fee dist. Ad Association
co2 (20%)	p2 = Fee dist. Ad association- Fee check FAP other
co3 (15%)	p3 = 0
co4 (5%)	p4 = - Fee check FAP other
Expected profit	P = 0.6_p1+0.2_p2+0.15_p3+0.05_p4

The table above explain actor FAP' S commercial viewpoint in the goal of Publishing a paper in a FAP to verify the profitability. Reasonable percentages are put to indicate the occurrence of the paths.

4.3.2.1 – Business Process Model.

To business process model have been used in [3].

Fig. 8 display a business process model and it explains as a value model is driven by their actors. It is important to remind that the interactions were not shown here to avoid a complex and unnecessary visualization. All those interactions can be visualized in their use case maps.

They just exist informal guidelines to map a business value model on a process model because they express different viewspoints. They should be mapped:

1. the value activities on roles;
2. the value exchanges;

Value exchange is different from interactions, because in the change of value only things of value are changed that not always they result in interactions among actors. And the reverse is also true, because they can be introduced new interactions that he doesn' t have any tally in changes of value.

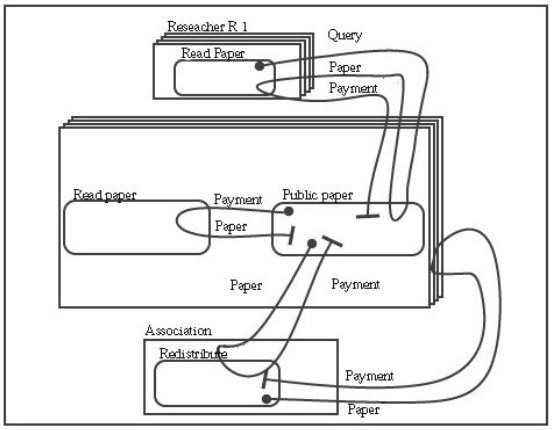

Fig.8 – Business Process Model

4.3.2.2 – Business Process Goal.

As in the business value model they were also here used the same set of goal, however here they present now in Fig.8 a succession of interactions among papers showing, in practice, exactly what is a business process model

Table 3. Cost sheet for FAPi for the goal. To publish a paper in a FAP (Business Process Viewpoint)

Viewpoint	Business Process
Actor	FAPi
Goal	To publish paper in FAP
Goal path	*Costs*
co1 (60%)	c1 = cost-selection + cost-checking + *cost-admin/N*
co2 (20%)	c2 = cost-selection + (2 * cost-admin)/N
co3 (15%)	c3 = cost-selection + cost-checking
co4 (5%)	c4 = cost-selection + cost-admin/N
Expected cost	Commercial Cprocess = 0.6*c1+0.2*c2+0.15*c3+0.05*c4

4.3.3 – System Architecture Viewpoints.

4.3.3.1 – System architecture models.

Two options are suggested based in the same style structural architectural conform [3]: (1) the database, (2) the commercial logic and (3) the user interface. This architecture is good in distributividade and escalabilidade. However the difference among the two options is that in a, the bank is decentralized Fig. 9 and in the other the database is centralized Fig. 10.

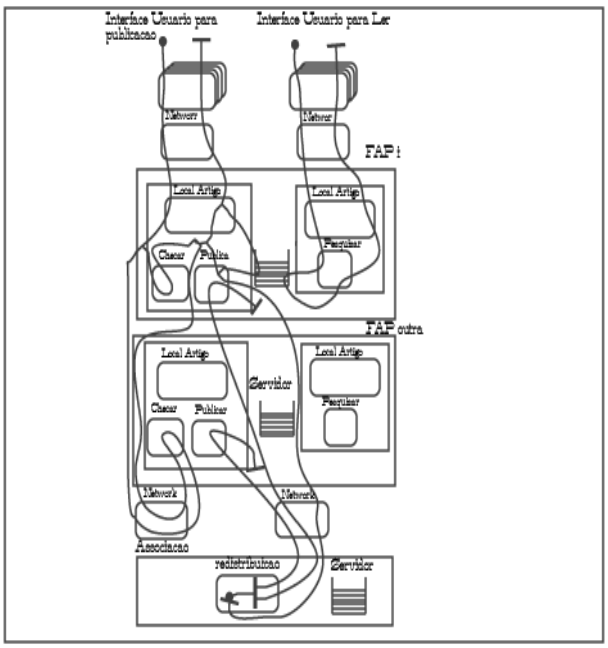

Figure 9:A decentralized architecture.

As the database is decentralized each FAPi possesses independent database to offer papers to their readers and in case he wants to distribute for other areas this he sends it for Ad Association.

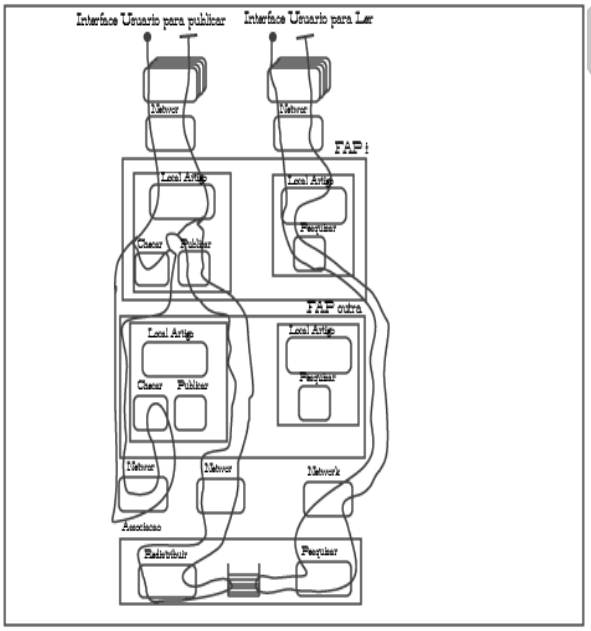

Figure 10: A centralized architecture

With the centralized database only a database will exist in Ad Association with whole the papers for all of the readers. The request of an papers goes by his FAPi and it is reviewed for Ad Association.

4.3.3.2 – System Archiecture Goals.

This paper will stop in evaluating the two architecture solutions above mentioned. For a decentralized database if it assumes a message server to generate costs.

Table 4: Cost sheet for descentralized version (System Architecture Viewpoint)

Viewpoint	System Architecture (decentralized)		
Actor	FAPi	another FAP	Ad Association
Goal	To publish a paper in a FAP(Costs)		
co1 (60%)	Desc.	0	0
co2 (20%)	Desc.	0	0
Co3 (15%)	0	0	0
Co4 (5%)	0	0	0
Goal	To distribute paper (Costs)		
co1 (100%)	0	Decentralized	Message servant
Goal	To read paper (Costs)		
co1 (100%)	0	*Decentralized*	0

Different goal possess different goal path, in other words, the co1 of the goal to publish an paper in a FAP it is different from the co1 of the goal to read paper and so forth. In the table above indicates where it is the cost for the accomplishment of the goal.

The technical viability was certain starting from when it was made a sketch of the Business Process Model and two system architectures for a group of based services in goals that it supports all the identified goals. The trust in the technical viability is much easier, however the trust in the commercial viability is much more difficult. This process is executed as it proceeds.

1. Estimate goal frequency.
2. Identify requirements groups.
3. Estimate of global profit of a group of requirements for each actor.

Table 5. Cost sheets for centralized variant (System Architecture Viewpoint)

Viewpoint	System Architecture (centralized)		
Actor	FAPi	Another FAP	Ad Association
Goal	To publish paper in a FAP (Costs)		
co1 (60%)	*0*	0	central BD
co2 (20%)	*0*	0	central BD
co3 (15%)	0	0	0
co4 (5%)	0	0	0
Goal	Paper distribution (Costs)		
co1 (100%)	0	*0*	*0*
Goal	To read paper (Costs)		
co1 (100%)	0	*0*	Central BD

5 CONCLUSIONS

Aiming at the integration of viewpoin, and using the separation of concerts method, we propose in this paper a Obje3-value Method, based on the junction of GBRAM in [9], e3-value and Use Case Maps (UCM´s) in [5], [6], [7], [8], as a method of Requirements Engineering to reach the necessary of integration viewpoint. We used the GBRAM method for elicitation a goal set non-operational. This implicated in a small alteration of the GBRAM method, in the stage Goal Refinement, where we removed the stage of to turn operational of the goal tends in view that these will be operational in one of the viewpoints of the framework and in other we needed the goal non-operationalizados.

Now only we possessed the Scenerios Method based on value for integration of viewpoint, soon we found very important we build a method and with higher level and consequently of easier understanding for several involved stakeholders. Unassuming that a fast justification and understanding of the commercial viability of the initial idea as well as its technical viability is an important point in the first stage requirements engineering for an innovator e-commerce idea. Such understandings should happen before researching thoroughly in requirements engineerings.

Another point that we considered important it is to put the GBRAM to work with requirements for and-business, here no seen by us. It is still as the GBRAM method possesses in the stage of goal analysis the organization stage that orders the goal that it will reduce the diagrams of feature and solutions for resolution of possible conflicts that have not been identified for the GBRAM during the identification of obstacles of the goal.

It transforms like this the notation of UCM in a notation that can also use goal path and still scenario path previously.

I don' t have doubts on the importance of that method, because it is treated basically of level elevation, abstraction that implicates most of the time in easy and fast indispensable understanding for innovators e-commerce ideas.

6 - FUTURE WORKS

As future works could mention the construction of a tool to build Use Case Maps using goal or just to alter the existent tool UCMnav putting in her more resources and improving his presentation.

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