Information Systems Planning in WEB 2.0, a new model approach

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1. EXECUTIVE SUMMARY

Since the beginning of the 90's, organizations had been growing in a rapid way, becoming each more difficult to manage. The organization business cycle changed from 7 years in 1970-1980 to 12-18 months in the 90's, and is even shorter nowadays. This change, transformed the organization world in a new and complex reality.

To be able to deal with this reality, organizations put a big pressure in the information access and information became the organization most valuable asset. But this asset, information object, as some main characteristics: exists in larges quantities, as many different ways, is very volatile, must have confidentially, must have integrity, must have availability, in resume, can be very difficult to handle.

It's clear that managing this information reality is only possible with the adoption of information technologies and planning that adoption is a central need in order to get the correct solution for the problem.

1.1. Background

Many studies mention that planning information systems is the major challenge for information systems managers (Hsu, 1995) and the organization information reality confirms that.

Planning can be defined as "***the activity in organizations life where is defined the future wanted for the information system and the way how this system should be supported by the information and communications technologies in order to achieve that support***"(Amaral, 1994).

Actual information systems planning deals with impact and alignment trying to change organizations with the use of technology, with impact planning or changing business, with alignment planning.

1.2. Alternatives

But now, WEB 2.0 (Reilly, 2005) puts the power of information in the user hands, user that collaborates, puts contacts information on-line and even organization private information, in order to produce knowledge in collaborative networks in many different ways or for simple information sharing.

If organizations want to survive they should be able to use this, a "wikinomic" organization is needed (Tapscott, 2007), and this organization wants to give that user a part of the organization information.

1.3. Conclusions

But the way organizations do business demands that in this new business reality, information security must be guaranteed.

In this reality, information system planning must integrate collaboration and security, creating an information ecosystem, is this new way of planning that is presented here. The information nowadays is an asset, this asset as some fundamental characteristics that information planning need to deal.

2. COLLABORATION

Collaboration is really changing everything. Collaboration groups the tree first characteristics of information asset, large, different and volatile.

Due to these characteristics, collaboration is the drive for rapid information change and knowledge creation, and the key for "networked computer" to "networked user" paradigm change.

Collaboration is now a good experience due essentially to WEB 2.0. The new web is not technology centric and publication media but computational and usable and can be define as *"collaborative attitude that joins technology, attitude and philosophy"*(Roman Hoegg, 2007). This new collaborative WEB 2.0 world is changing the way organizations must think business.

Some fundamental ideas as, think global act local, critical capabilities should be inside organization and information technology should be developed to support organization, are obsolete in this era.

Organizations are trying to use this new paradigm for creating value and to survive in the new reality, changing to, think global act global, critical management standards inside work done outside with big specialized teams.

But this can't be done with simply integrating some of the WEB 2.0 tools, like wikis, blogs or sharing centers in the organizational system. Organizations are reproducing the WEB 2.0 thing in the local LAN, creating WEB 2.0 portals. This is not the way. Collaboration is not a technological thing, is supported in technology but is not only that, is a different way to work with information.

Organization need to clearly know what kind of information they have that is a valuable asset, where is stored and what are the key characteristics. The only way to achieve that is to plan the collaboration use and traditional planning model don't deal with information characteristics. Collaboration use within the organizational systems puts information systems planning under pressure to define and implement this business change and how information can be the element.

3. SECURITY

The security is a key word in world of key words.

But what we see is that security investment grows year after year and security doesn't increase in the same proportion(CSI, 2007). From this analysis it's realist to suppose that security is a property of information, since doesn't depend only on technology but also on user interaction.

This user interaction is now more critical, do to the use of WEB 2.0 with tools that give the power to the user and develop a rich user experience. In WEB 2.0 tools world, functionality is more important than security.

For the collaborative user this is not a major concern but for collaborative organizations it's.

Information user relays that all organization information should be secure respecting confidentiality, integrity and availability and no collaborative relation can be established if on of this items fail.

When organizations do WEB 2.0 collaboration, beside the fact that they relay in solutions that potencies user experience and not security, they expose information systems that were developed to be inside organizations and not exposed to the world. In other hand they think security as risk analysis and not as part of information process.

In this world security should be considered as part of the information ecosystem and not something that is only on the communication media, software or hardware.

As organizations most valuable asset, information must integrate confidentiality, integrity and availability to give information security.

4. EFFECTS PLANNING MODEL APPROACH

Is clear that traditional information systems planning model doesn't deal with information ecosystem and don't use information characteristics to get the job done, despite the fact that information is considered a valuable organization asset. But in the WEB 2.0 reality, information characteristics are the key elements for creating collaboration and defining security. The correct use of information is a fundamental element in the information war.

Information like any other object as some key elements, and a fundamental one is the effect. The effect is produced when; over some kind of information is done an interpretation.

In this WEB 2.0 where information is the key word is fundamental to guarantee that information will produce the expect result.

For that, is fundamental that information systems planning should be done in information oriented way. This is the goal of the effects planning model approach. Information system planning is done using the effect of information. The figure 1 presents the architecture of the model.
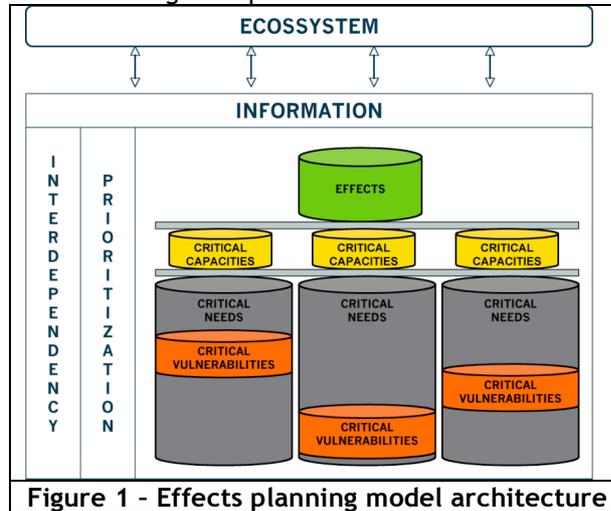
Figure 1 – Effects planning model architecture

This model is centered on the effect of information and how information systems should be planned to produce the expected result.

In order to define information characteristics and integrate that, the effect planning needs to know tree key elements:
- Critical capacities
- Critical needs
- Critical vulnerabilities.

These elements that are part of the information object will guarantee the conditions to produce the correct effect. Critical capacities define the base elements to produce the desired effect; critical needs assure everything that is fundamental to support and effect security is done with the definition of the critical vulnerabilities.

It is also important to define which information should be used first and if it depends on other. For doing that job, is used in the model the prioritization and interdependency, elements normally used on software engineering for requisites management.

Prioritization deals with information effects implementation order and depends on importance, penalties, cost, time, risk and volatility. These variables can be classified using some techniques such as 100-dollar test, analytical hierarchy process or simply using classification from one to ten.

The effects relations, is managed using interdependency that as tree types, structural, conditioned and cost/value.

Table 1 is shows the variable of each interdependency type.

Table 1 – Interdependency variables		
Interdependency		
Structural	Conditioned	Cost/Value
Refined to Changed to Similar to	Requires Conflicts with	Decrease cost of Raises cost of Decrease value of Raises value of

With the architecture of this planning model is possible to define, create and manage any information system in an independent organization manner.

The information effect property is the key element and any organization can define what is the expect effect.

5. CASE STUDY

This model approach was the key element for de development of the information system of IBMC.

IBMC is a research institute dedicated to life sciences. If there is organization where information is volatile, IBMC is one of them.

The implementation of the method resulted on a creation of a data center based on IBM blade center technology, LAN switch solution using Enterasys and anti spam solution from Ironport.

In 2005, IBMC had a huge problem; information systems no longer were able to correspond to expectations. Then IBMC decide to create an information system solution capable to guarantee organizational needs.

But organizational needs are dynamic and defining information systems solutions in the traditional alignment planning way was a difficult and hard.

With this model the center was information and what effect were expected for that information.

On figure 2 and 3 are presented some of the results of the method.

Figure 2– Model results for anti-spam

Item	Information	Effect	Importance	Penalties	Cost	Time	Risk	Volatility	Classification	Order	Refined To	Changed To	Similar to	Requires	Conflicts with	Decrease cost of	Raises cost of	Decrease value of	Raises value of
R2.	ANTI-SPAM																		
R2.1	Remove spam	Number of false positives between 0 and 1 for 100 mail messages	6	6	5	6	6	6	35	1				2.2					2
R2.2		Number of false negatives between 0 and 1 for 100 mail messages	6	6	5	6	6	6	35	1				2.1					2
R2.3	from mail	Robustness and easily integration	5	5	6	5	6	4	31	2								2	2
R2.4		Easily manage	5	5	5	5	5	4	29	4									2
R2.5		Technical capacity	5	5	5	5	5	5	30	3								2	2
R2.6	messages	Efficiency	6	6	5	6	6	6	35	1	2.1, 2.2			2.1,2.2					2

Figure 3 – Model results for switching

Item	Information	Effect	Importance	Penalties	Cost	Time	Risk	Volatility	Classification	Order	Refined To	Changed To	Similar to	Requires	Conflicts with	Decrease cost of	Raises cost of	Decrease value of	Raises value of
R2.	SWITCHING																		
R2.1	Interconnect all	Core redundant equipments	6		1	1	1	4	13	1							r2		r2
R2.2	distribution	Possibility to integrate actual equipment	2		6	6	6	1	21	1						r2			
R2.3	points using a	Management solution setup	3		2	3	3	2	13	2	r2.5						r2		r2
R2.4	redundant	VLAN according to group needs	5		4	5	5	6	25	4		r2.5							
R2.5		LAN user profile definition	7		7	7	7	7	35	3	r2.6								
R2.6	solution	User security at connection level	8		8	8	8	8	40	1									r2

This model is been used in all information systems projects including software and people choice, and the results are being fundamental to develop and manage information systems.

6. CONCLUSIONS

This model treats the way as information effects can be used to produce one expected result. With the definition of information as an object, and with definition of key characteristics it is possible for organizations know the state of information and know where and how secure it is.

They can decide freely decide what to do with the information and the information systems know what to do to achieve the expect goal.

Collaboration in WEB 2.0 is changing every thing, and dynamic information flows constantly. Users are putting information in Flicker, Youtube and other on-line networks, and organizations want to use that information.

But for that, information must meet security characteristics in order to be useful, so it's necessary to guaranty information security.

Traditional models think in an organization centric way, but today organization as no physical limits, useful information is also out there.

This model uses the key element of information it's effect and collaboration and security are now elements of information.

It's necessary to rethink information systems planning and this model is a way to do it.

7. REFERENCES

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