

1. Description du Mod \heartsuit le

Goal of the model: to investigate how collaborative behaviour appears in the team of CENDITEL responsible for designing a planning methodology and its tools, and on what variables/parameters such behaviour depends on, in order to suggest policies for promoting collaboration. This could include variation of solidarities and stakes (and norms in a future model). The suggestions from the simulation in terms of these variables can be interpreted and then implemented in terms of action for increasing, for instance, friendship or group cohesion. For this, sociological or organisational theories could be useful (e.g., Peter Senge: the Fifth Discipline (personal compromise, learning in group, etc.)). Hypothesis: The model allows: 1) To identify factors related with collaboration. 2) To characterise the variations of collaboration as a function of the change of those factors. 3) To select the values of the factors more favourable to promote collaboration. 4) To develop some policies aimed at promoting collaboration, extrapolating from the significance of the chosen values of the factors to the real organisation.

Characteristics of the CENDITEL: a public Centre for Free Software Research and Development: This organisation aims at developing pertinent free technologies for the Venezuelan society. Workers in all units/departments should be highly creative and committed, in order to increase usability, quality and pertinence of the products for the Venezuelan society, and, in particular, for the Venezuelan public organisations. It has four departments and each worker is assigned to one of these. A worker in a department should know the basics about the work going on in the other departments, in order to facilitate interaction with workers in such units. The units or departments are named in accordance to their duty, action (behaviour), or task to be done:

- Pertinence: its duty is to promote high impact of the products of the organisation (e.g., that the developed technologies respond to an important need in the sense that it has a wide number of users in the country, or that it can support covering basic and/or cultural needs). People in this unit should advise workers in other units in order to increase pertinence of the developed technologies. Additionally, to increase their knowledge, members of this department have to work along external (from outside the organisation) researchers with wide experience in planning methodologies and their pertinence.
- Research: this department is responsible for designing free technologies both social (e.g., methodologies and organisational forms) and instrumental (tools).
- Development: this unit is responsible for producing the tools for the methodologies, or for other needs.
- Technological spread: This unit must help in increasing the impact of the organisation by working along the users of the generated products.

Apart from these departments, the organisation has a Director and a Board of Directors, as well as an Administrative team. The organisation is engaged in several projects. For each project, the team is conformed by chosen workers from the four described units. As said above, the group modelled in SocLab is the team responsible for the project: designing a planning methodology for the public Venezuelan sector (planningMethodologyDesign, or PMD). This team is described in the rest of the report.

Apart from the previously mentioned behaviours (Pertinence, Research, Development, Spread of the developed technology and Direction), an additional attitude is found (both in the organisation and in this team), associated to the degree of compromise, creativity and willing of the actor to give to the organisation and to the society as a whole (morality). Such attitudes are: (i) some actors of the team are highly compromised, creative, identified with the organisation and thus their work is strategical in the sense that they are continuously looking for ways of improving their work and their product, i.e., the quality of their action and product; (ii) other members of the team have a low willing to give, and they are more motivated to take from society, and so from the organisation, and thus, their work is of less quality and they are little creative. These last actors are more dedicated to operative work in the sense that they do at most the job that is assigned to them from other members of the team, or from an external actor, without questioning such a suggestion, and/or comparing it with other similar work, in order to increase their capabilities for decision making and increase the quality of their action and of the product. The first kind of behaviour can be called strategical and the second one operative. Actors with strategic behaviour are expected to have higher power than those engaged in operative action/attitude. .

2. Acteurs et solidaritŽs

2.1. Identification des acteurs

2.1.1. director

Description : This actor is conformed by the director of the organisation and his assistant. It controls two relations: control of work (controlWork) understood as the work report and evaluation mechanisms; and material support (materialSuport), i.e., all material assistance (e.g., computers, video beams, transport and communication media, monetary help for meetings and workshops). The assistant is who participates in meetings of the PMD organisation and reports to the Director.

2.1.2. researcherS

Description : Designs the planning methodology, including its main processes and how these processes will be carried out. This actor specifies also the main characteristics and requirements of the tools needed for the methodology, and must know very well about the best known planning methodologies, and brings ideas from them. His his involvement is strategic, controlling the relation researchMethS. He is the head of the whole PMD team, and is responsible for generating the plans and direction of the project, after consulting and discussing with the rest of the group and with the Director.

2.1.3. researcherO

Description : Operatively helps the ResearcherS, doing only at most the work it is assigned to. For instance, to describe detail of some particular steps of the methodology. Do not understand well the whole methodology. It is an actor preferring to receive or to take than to give.

2.1.4. developerS

Description : Develops software tools for the methodology. He is highly compromised and his behaviour is strategical.

2.1.5. developerO

Description : Helps the developerS actor operatively, developing particular functionalities of the software. The deloperS has to remember him about his tasks and continously assist him in order to keep him working. He prefers to receive or take than to give.

2.1.6. pertAdviserS

Description : It is responsible for advising the rest of the team about the social pertinence of the methodology and the software tool. It is highly compromised and his work is strategical.

2.1.7. techSpreaderO

Description : It is responsible for technological spread, i.e., for promoting the use of the methodology and its tools by the public sector. For this, it has to help users of the methodology to know and implement it. Her involment is operative.

2.2. SolidaritŽs

solidarit y	director	researcherS	researcher O	developerS	developerO	pertAdviser S	techSpread erO
director	1.0	0.0	0.0	0.0	0.0	0.0	0.0
researcherS	0.0	1.0	0.0	0.0	0.0	0.0	0.0
researcher	0.0	0.0	1.0	0.0	0.0	0.0	0.0

O							
developerS	0.0	0.0	0.0	1.0	0.0	0.0	0.0
developerO	0.0	0.0	0.0	0.0	1.0	0.0	0.0
pertAdviserS	0.0	0.0	0.0	0.0	0.0	1.0	0.0
techSpreaderO	0.0	0.0	0.0	0.0	0.0	0.0	1.0

Matrices des solidarités entre acteurs. Chaque cellule représente la solidarité qu'un acteur (en ligne) accorde à un autre (en colonne). La valeur absolue indique l'intensité de la solidarité, elle peut être positive ou négative.

2.2.1. Solidarité de director

^ Pour director : President is consistent with his own interest

^ Pour pertAdviserS : The director and pertAdviserS have a similar interest outside the team, as they are part of a group active in politics.

2.2.2. Solidarité de researcherS

^ Pour researcherS : This actor is consistent with his own interest

2.2.3. Solidarité de researcherO

^ Pour techSpreaderO : techSpreaderO and developerO have a similar interest different from that of the project and of the organisation, as they are part of a group active in academics.

2.2.4. Solidarité de pertAdviserS

^ Pour director : The director and pertAdviserS have a similar interest outside the team, as they are part of a group active in politics.

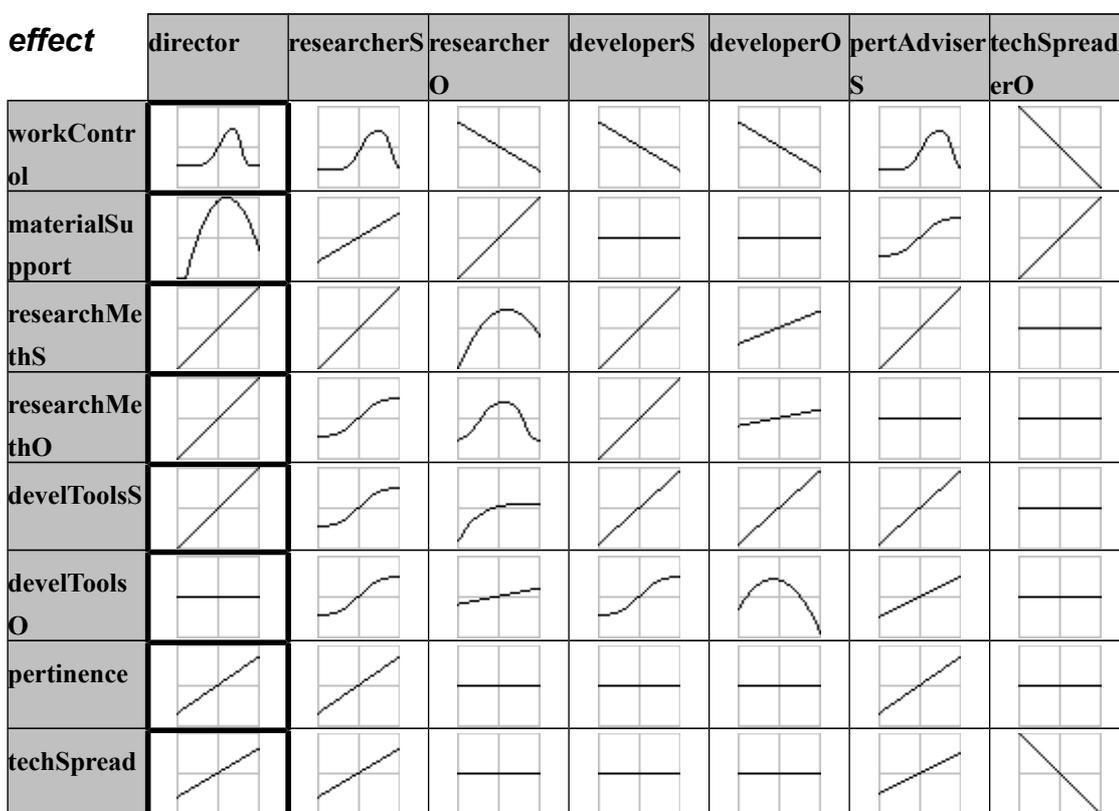
2.2.5. Solidarité de techSpreaderO

^ Pour researcherO : techSpreaderO and developerO have a similar interest different from that of the project and of the organisation, as they are part of a group active in academics.

3. Relations

Relation	Controller	Bmin	Bmax	Frequence
workControl	director	-10.0	10.0	1.0
materialSupport	director	-10.0	10.0	1.0
researchMethS	researcherS	-10.0	10.0	1.0
researchMethO	researcherO	-10.0	10.0	1.0
develToolsS	developerS	-10.0	10.0	1.0
develToolsO	developerO	-10.0	10.0	1.0
pertinence	pertAdviserS	-10.0	10.0	1.0
techSpread	techSpreaderO	-10.0	10.0	1.0

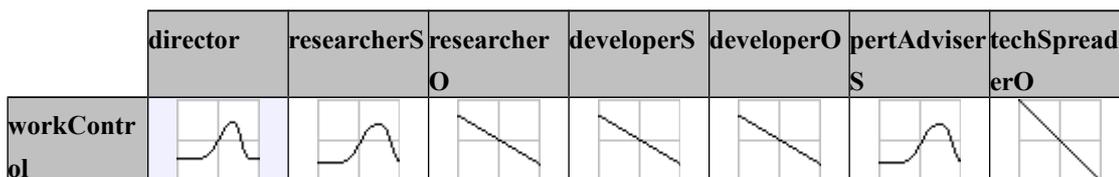
Liste des relations pertinentes du SystŽme d'Action Concret.



Matrice rŽcapitulative de l'ensemble des fonctions d'effet.

3.1. workControl

Description : Bureaucratic mechanism to monitor activities and people. It is implemeted via work report and evaluation processes.



Matrice des fonctions d'effet de la relation "workControl".

Intervalle	Interpretation
[-10.0 ; -5.0]	work control is poor. The director might be very

	busy or his attention to the project is low. He might have other priorities. The project might take a way of research to which later he does not agree with
]-5.0 ; 0.0]	there is a low level of control of work. The director controls the work but such as control is not good enough to guarantee a good direction of the team's job
]0.0 ; 5.0]	work control is good, the director is able to check and feedback work of people properly without perturbing their job.
]5.0 ; 10.0]	work control is high. The control perturbs activities of the team as they need to continuously spend time for elaborating reports in detriment of the activities of the project

Echelle d'intervalle de la relation "workControl" et interprétation(s) sociologique(s) associée(s).



Effet sur director

Justification : The higher the level of control, the more the Director feels he is doing in accordance to the goals of the project. However, as the Director needs to concentrate and expend effort in other activities of the organisation, and in politics, after a certain point is reached, work control requires too much effort, constraining the effort that can be directed towards those other activities, what is not of interest for the Director.



Effet sur researcherS

Justification : Up to some point, the higher the work control, the better for the coordination of the team and its effectiveness (also it helps to control deviations of the operative actors), but after some point the strict bureaucracy perturbs the actor activities.



Effet sur researcherO

Justification : Any increase in work control is bad for this actor's activity, as she is used to dedicate time for activities different from those of the project, such as academics, which will be perturbed.



Effet sur developerS

Justification : This actor is highly compromised with his duty, but he is also involved in other diverse activities, so work control perturbs his other activities.



Effet sur developerO

Justification : Work control is bad for him, as he is used to dedicate time for activities different from those of the project, such as academics.



Effet sur pertAdviserS

Justification : Up to some point, the higher the work control the best for the coordination of the team and its effectiveness, but after some point that strict bureaucracy perturbs the actors activities.



Effet sur techSpreaderO

Justification : Her compromise with the project is poor, and control perturbs her other activities, like academics.

3.2. materialSupport

Description : Time and resources (e.g., a car, a driver, payment for lunch or for a coffee drink of all people assisting to a meeting) afforded for coordinating or facilitating the project activities

	director	researcherS	researcherO	developerS	developerO	pertAdviserS	techSpread
materialSupport							

Matrice des fonctions d'effet de la relation "materialSupport".

Intervalle	Interpretation
[-10.0 ; -5.0]	Material support is poor. It can be directed to other projects, or to activities which are not the duty of the organisation like politics or academics
] -5.0 ; 0.0]	There is low material support. It is not enough and negatively affects activities of the project.
] 0.0 ; 5.0]	There is a good level of material support, which is in general enough for the needs of the team
] 5.0 ; 10.0]	There is excellent material support, what is desirable for the projects but part of it might be wasted, what is not well seen by the Director.

Echelle d'intervalle de la relation "materialSupport" et interprétation(s) sociologique(s) associée(s).



Effet sur director

Justification : Up to some point, the higher the material support, the better for the project, but after that point resources could not be properly used (e.g., no used for the duties of the project, but rather for academics or just be kept without been using). This can limit assignation of resources to other projects, and some activities beyond the duty of the organisation such as politics



Effet sur researcherS

Justification : The higher the availability of material support, the more it facilitates the activities of the project. However, its importance and impact for designing the methodology is lower than for other activities of the project.



Effet sur researcherO

Justification : The higher the material support, the more it can be used not only for the duty of the actor in the project but also for academics.



Effet sur pertAdviserS

Justification : The higher the material support, the better for promoting the pertinence of the project. However, after some point some members of the team might make bad use of material resources (when their availability is too high) limiting its use for other projects.



Effet sur techSpreaderO

Justification : Material support is good, for instance, for meetings with people collaborating with the project, but, in this case, it is specially appreciated for facilitating academics. Its impact is important.

3.3. researchMethS

Description : Strategical design of the planning methodology, including its main processes and how these processes will be carried out. Specification of the main characteristics and requirements of the tools needed for the methodology. Good knowledge about the best known planning methodologies, in order to and bring ideas from them.

	director	researcherS	researcherO	developerS	developerO	pertAdviserS	techSpreaderO
researchMethS							

Matrice des fonctions d'effet de la relation "researchMethS".

Intervalle	Interpretation
[-10.0 ; -5.0]	Strategic collaboration is poor, the methodology is bad designed and the processes are not described. There is no specification of requirements for the software tool
] -5.0 ; 0.0]	The methodology is not well designed but there is some general lines about what it could be. This linement are not good enough to give the development of the software tool
]0.0 ; 5.0]	The methodology is designed and its design can guide the development of the software tool, but that work is not satisfactory at all
]5.0 ; 10.0]	The methodology is very well designed and guides satisfactorily the development of the software tool

Echelle d'intervalle de la relation "researchMethS" et interprŽtation(s) sociologique(s) associŽe(s).



Effet sur director

Justification : The higher the strategically work for the methodology the best for the goals of this actor, as he is responsible for the achievements of the organisation.



Effet sur researcherS

Justification : The higher the strategical work for the methodology the best for the goal of this actor, as she is highly committed to her duty.



Effet sur researcherO

Justification : The higher the strategically work for the methodology, the better for the operative design of the methodology. However, up to some point, after which the advance in the strategical design of the methodology generates high requirements to operative work, what collides with the interest of this actor in academics, this is not desirable by this actor.



Effet sur developerS

Justification : The better specified the methodology is and the software requirements are, the better guided the strategically work for the software methodology will be.



Effet sur developerO

Justification : The better specified the methodology is and the software requirements are, the better guided the operative work for the software methodology will be.



Effet sur pertAdviserS

Justification : The better the strategically design of the methodology, the higher its pertinence.



Effet sur techSpreaderO

Justification : The higher the level of the strategical development of the methodology the better for the spreading of technology, but after some point it does not matter, because of the poor interest of this actor in his duty.

3.4. researchMethO

Description : Operative work about the design of the methodology , i.e., detail about how to implement it and carry out the processes. This operative work complements the strategical relation researchMethS.

	director	researcherS	researcherO	developerS	developerO	pertAdviserS	techSpreaderO
researchMethO							

Matrice des fonctions d'effet de la relation "researchMethO".

Intervalle	Interpretation
[-10.0 ; -5.0]	Collaboration is poor. The actor prefers to dedicate its effort to academics (to some activity in collaboration with the university or to some course no connected with his duties in the organisation).
] -5.0 ; 0.0]	Collaboration in this process is low. The actor dedicates more time to academics but also dedicates some time to operative research, though it is not enough for the needs of the project
]0.0 ; 5.0]	Operative research is good but not enough for the need of the project. However, most of the need of the project are satisfied.
]5.0 ; 10.0]	Operative research is excellent. The actor is not dedicating time of the project for academics or other kind of activity (e.g., politics)

Echelle d'intervalle de la relation "researchMethO" et interprétation(s) sociologique(s) associée(s).



Effet sur director

Justification : The higher the operative work in the methodology the more the achievements of the whole methodology advances.



Effet sur researcherS

Justification : The higher the operative work of he meth. the higher the help for the strategical work, as it allows to describe detail of the methodology. A poor contribution is negligible until it reaches a critical point from which its effect becomes important.



Effet sur researcherO

Justification : Research operative is good up to some point, after which it requires too much work and limits the effort that can be dedicated to academics



Effet sur developerS

Justification : The higher the operative work of he meth. the higher the help for the strategical development of the software tool.

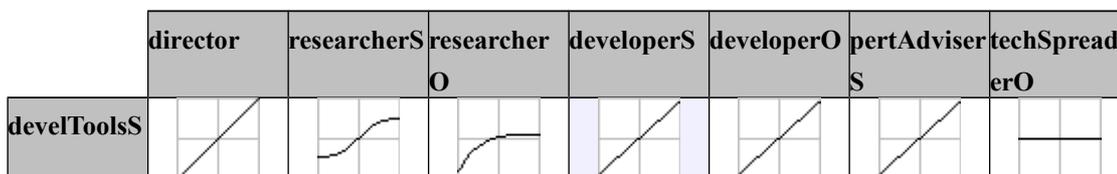


Effet sur techSpreaderO

Justification : Her interest for spreading tech. is poor, so a low level of this activity will be enough for her purpose.

3.5. develToolsS

Description : This relation respresents the strategical tasks for the development of software for the planning methodology. Some of these tasks are to design the tools (software), to know about existing tools, to be aware about the pertinence and characteristics of these tools, in order to design one with good features in accordance to the needs of the public sector and the policies of the organisation, to plan its development, and to develop the planned functionalities.



Matrice des fonctions d'effet de la relation "develToolsS".

Intervalle	Interpretation
[-10.0 ; 0.0]	bad quality and pertinence of the designed software. There is not product
]0.0 ; 5.0]	The design of software is good, but the product is not good enough as to fit the requirements of the methodology.
]5.0 ; 10.0]	good quality of the design and of the product, in accordance to the requirements of the methodology

Echelle d'intervalle de la relation "develToolsS" et interprŽtation(s) sociologique(s) associŽe(s).



Effet sur director

Justification : The higher the level of the strategical development of the software, the better for the project.



Effet sur researcherS

Justification : The higher the level of the strategical development of the software the better for the strat. design of the methodology. However, it needs to reach a critical point before its effect became important.



Effet sur researcherO

Justification : The higher the level of the strategical development of the software the better for the operative design of the methodology, as it provides feedback, but after some point it does not matter, as the compromise of the actor with her duty is not too high and its effort would not be high enough to manage all coming feedback.



Effet sur developerS

Justification : The higher the level of the strategical development of the software, the better for this actor, who is highly committed with his duty.



Effet sur developerO

Justification : The higher the level of the strategical development of the software, the better guided the operative development of software will be.



Effet sur pertAdviserS

Justification : The higher the level of the strategical development of the software, the better for its pertinence and for facilitating this kind of work for the whole methodology.



Effet sur techSpreaderO

Justification : As her interest for her duty is low, even a poor level of this activity will be enough.

3.6. develToolsO

Description : Operative work for developing the software methodology. The product of this relation is complementary to that of the relation develToolsS

	director	researcherS	researcherO	developerS	developerO	pertAdviserS	techSpreaderO
develToolsO							

Matrice des fonctions d'effet de la relation "develToolsO".

Intervalle	Interpretation
[-10.0 ; -5.0]	No complementary work is done.
]-5.0 ; 0.0]	Complementary work is low. It not enough for the needs of develToolsS
]0.0 ; 5.0]	Complementary work is good for supporting develTools tasks
]5.0 ; 10.0]	Complementary/operative level of work is excellent and wholly fulfills the needs of develToolsS

Echelle d'intervalle de la relation "develToolsO" et interprŽtation(s) sociologique(s) associŽe(s).



Effet sur researcherS

Justification : The higher the level of operative work for development the software, the more tested the methodology will be. However, its impact is lower than that of strategical software development.



Effet sur researcherO

Justification : This activity has a low effect, only as a way of testing certain operative design of the methodology.



Effet sur developerS

Justification : The higher the level of operative dev. of software, the higher the impact for strat dev. of software, as this activity will be facilitated and verified. However, a poor contribution is negligible until it reaches a critical point from which its effect becomes important.



Effet sur developerO

Justification : A higher development of software is good up to some point, after which it could perturb the effort dedicated to academics



Effet sur pertAdviserS

Justification : The higher the level of operative work for developing software, the better for testing in practice the pertinence of the methodology and of its software tool.



Effet sur techSpreaderO

Justification : As her interest for her duty is low, even a poor level of this activity will be enough

3.7. pertinence

Description : Action (effort) afforded for dialogue/reflection about social pertinence/validity of the planning methodology and its tools. It helps in choosing the form and specificities of these two elements in accordance to the goals of the organisation.

	director	researcherS	researcherO	developerS	developerO	pertAdviserS	techSpreaderO
pertinence							

Matrice des fonctions d'effet de la relation "pertinence".

Intervalle	Interpretation
[-10.0 ; -5.0]	Pertinence of the product is poor. The pertinence of the products are even lower from those found somewhere else (e.g., in the market or in the internet)
] -5.0 ; 0.0]	Pertinence of the product results to be low. It does not differentiates from those found some where else
] 0.0 ; 5.0]	Pertinence of the productd is good, better than those found somewhere else, but the difference is not important

]5.0 ; 10.0]	Pertinence of the product is excellent. It clearly overcomes available product in relation to its validity and good qualities for its application at the public sector.
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Echelle d'intervalle de la relation "pertinence" et interprŽtation(s) sociologique(s) associŽe(s).



Effet sur director

Justification : The higher the level of pertinence, the better for the project.



Effet sur researcherS

Justification : The higher the level of pertinence, the better for the strat. dev. of the method, as each one of these activities facilitates the other.



Effet sur pertAdviserS

Justification : The more the pertinence of the work, the better for this strategical actor, who is highly committed to his duty.

3.8. techSpread

Description : Consists in promoting spread of technologies in the society. It promotes usability of the planning methodology and its tools in Venezuelan public sector.

	director	researcherS	researcherO	developerS	developerO	pertAdviserS	techSpreaderO
techSpread							

Matrice des fonctions d'effet de la relation "techSpread".

Intervalle	Interpretation
[-10.0 ; -5.0]	Promotion of the methodology is poor. Contact with public sector with this aim is almost nule.
]-5.0 ; 0.0]	Low promotion of the methodology. Public sector finds a responsible and can contact her, but her collaboration is highly deficient.
]0.0 ; 5.0]	Good promotion of the methodology, but it still does not covers the needs of the users and the aims members of the team have in this sense.
]5.0 ; 10.0]	Promotion of the technology is excellent. It fulfills the expectation and needs of the public sector and of the rest of the team

Echelle d'intervalle de la relation "techSpread" et interprŽtation(s) sociologique(s) associŽe(s).



Effet sur director

Justification : The higher the level of technological spread, the better for the project.



Effet sur researcherS

Justification : The higher the level of use of the methodology by the public sector, the higher the experience and the feedback for improving its strat. design.



Effet sur pertAdviserS

Justification : The higher the technological spread, the better its pertinence can be verified in practice, and then improvements can be introduced.



Effet sur techSpreaderO

Justification : The higher the technological spread, the more it takes time from other activities of this poorly committed actor, especially from academics, an activity the actor has preference for.

4. Enjeux

stake	director	researcherS	researcherO	developerS	developerO	pertAdviserS	techSpread	erO
workContr ol	2.5	0.5	1.5	1.0	1.5	0.5	2.5	
materialSu pport	2.0	0.5	1.0	0.0	0.0	0.5	3.0	
researchMe thS	1.5	4.0	2.0	2.5	1.0	2.0	0.0	
researchMe thO	0.5	1.0	4.0	1.0	1.0	0.0	0.0	
develToolsS	1.5	1.5	1.0	4.0	2.0	2.0	0.0	
develTools O	0.0	0.5	0.5	1.5	4.5	0.5	0.0	
pertinence	1.0	1.0	0.0	0.0	0.0	3.5	0.0	
techSpread	1.0	1.0	0.0	0.0	0.0	1.0	4.5	

Matrice des enjeux. La somme de la distribution des enjeux pour chaque acteur est normalisŽe à 10.

5. Constraints

Contraintes	workControl	materialSupport	researchMethS	researchMethO	develToolsS	develToolsO	pertinence	techSpread
workControl								
materialSupport								
researchMethS								
researchMethO								
develToolsS								
develToolsO								
pertinence								
techSpread								

Matrice rŽcapitulative de l'ensemble des fonctions des contraintes.

