# INTEGRATING TRUST CONCEPTS IN A DASHBOARD INTENDED FOR THE BUILDING CONSTRUCTION COORDINATOR

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## ABSTRACT

The growing complexity of AEC projects leads to increase the importance of the building construction coordinator's role. Moreover, the uncertainty linked to the environment of the building construction activity makes way for the notion of trust. The coordinator canmake use of a multiple tools/views for accomplishing his mission (e.g. planning, meeting report) but these views offer only a limited vision of the cooperation context. So we suggest analyzing data coming from these different views to obtain some trust indicators informing the coordinator about trust in the good progress of the building construction activity. Our approach distinguishes 4 aspects of the activity conditioning the global trust level: task progress, actor's performance, documents required to perform the task, and building elements resulting from the task. Our proposal suggests introducing these trust indicators in a dashboard included in a multi-view interface allowing the coordinator identifying the tasks with a low level of trust and understanding the nature of the potential dysfunctions.

## KEYWORDS

Building construction, Coordination, Trust, IT-support, Dashboard, Model-Driven Engineering.

## 1. INTRODUCTION

The AEC sector has some specific characteristics, distinguishing it from other industrial sectors. Indeed, the heterogeneity of a team of actors constituted for the duration of the project leads to the difficulty to create and maintain durable relationships. Moreover, the execution of a building is in a sense the execution of a prototype and consequently, the uncertainties related to the environment are numerous (e.g. nature of the ground) and risks of dysfunction are multiple. In this article, we will focus on the execution stage and more precisely on the coordination of building construction activity and on the coordinator's role.

The building site constitutes a particular environment and the place of numerous potential dysfunctions that can be firstly, linked to documents (e.g. problems of update), then, linked to interactions between actors (e.g. lack of trust that limits the exchanges) and finally, linked to tasks and their execution (e.g. difficulty of performing a building element) (Tahon
1997). Thus, in such a context and because of the increasing complexity of the construction projects, the coordinator's role becomes more and more important. In the French context, the coordinator is in charge of assuming the scheduling, the coordination and the management of the building construction activities. More precisely, in the execution phase, he is in charge of defining the detailed execution planning as well as its update to maintain the global execution time. He is also responsible for the follow-up and the monitoring of the budget. In order to carry out the different aspects of his mission, diverse tools are at the disposal of the coordinator. We can distinguish them in two categories: current tools and emergent tools. Among the frequently used tools, we can cite Gantt and Pert scheduling methods, or some tools such as word processors allowing writing the building site meeting report synthesizing the points of dysfunction and the taken decisions. We can also identify some other tools more rarely used. Among these, we can mention document management platforms, 4D simulation tools (Sadeghpour et al. 2004; Chau et al. 2005), putting into relation a 3D modelling of a building and its planning and performance evaluation systems (Arslan et al. 2008), which allowing the evaluation of the actor's performance. However, these tools offer only a partial vision of the cooperation context. Therefore, we suggest that a dashboard, which will synthesize data coming from these

different views, could constitute a good decision support system. Moreover, we make the hypothesis that the uncertainty linked to the environment of the building construction activity makes way for the notion of trust. Thus, we propose a dashboard based on the representation of trust to support coordination of building construction activity.

In this article, we will begin by addressing the theoretical aspects linked to the notion of trust. Then, we will focus on the notion of context linked to the cooperative activity. After that, we will identify the trust criteria within the framework of a building construction activity. Finally, we will describe our proposal of a dashboard based on trust.

## 2. STUDY OF TRUST IN THE AEC SECTOR

We will concentrate in this section on the trust within the framework of a cooperative activity performed during the building execution stage. Trust constitutes indeed an essential element for cooperation because the achievement of a common objective cannot be serenely envisaged without trust in a context where there are interdependences between stakeholders.

### 2.1. DEFINITION AND ESSENTIAL CONCEPTS

Even if scholars do not converge on a unique definition, trust is often associated to positive expectations about the behaviour or intentions of another person (Deutsch 1962). Literature describes also trust as a device allowing overstepping the complexity of the environment (Luhmann 1988) and sates the limited character of trust in a given context (Hardin 2000)

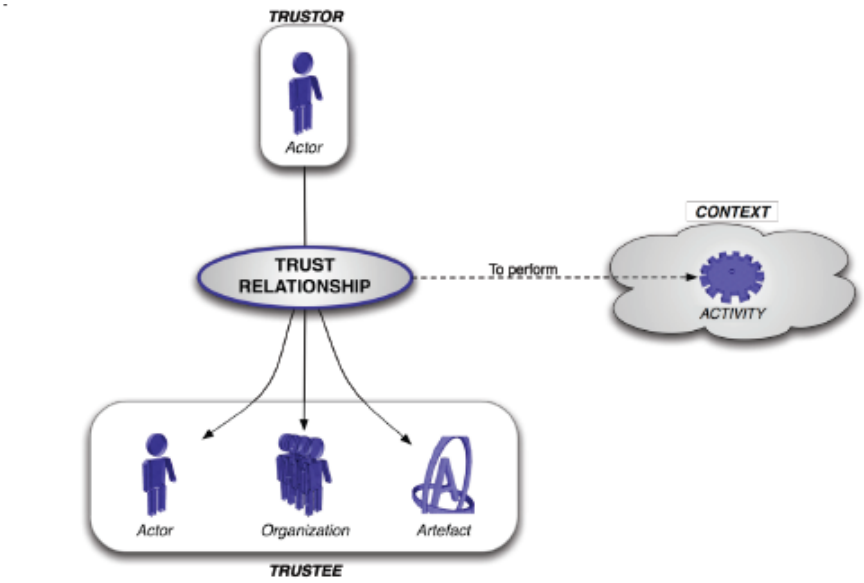


Figure 1. Concepts of Trust

The examination of trust allows highlighting the concepts represented in Figure 1. First, the trust relationship is a relationship that exists between a “Trustor” (Person who trusts) and a Trustee (in whom / in which the trust is reposed). In literature, the trustee can take diverse forms: an actor, an organization or an artefact (e.g. a software, a website…). Then, the second important notion is related to the context in which the Trustor trusts a Trustee. Indeed, we trust somebody in the framework of a particular activity, at a given moment and at a given context, because trust is inserted in a dynamic process and can change over the time positively or negatively in function of experiences. At last, two notions are still important when we talk about trust: the

notions of dependence and risk. The trust relationship generates dependence between a Trustor and a Trustee. So the Trustor becomes vulnerable and has to consider the risk he takes when he delegates an activity.

### 2.2. SOURCES OF TRUST

Our examination of Kramer's works has allowed us to identify principal sources of trust (Kramer 1999). We exclude voluntarily the aspects related to psychology because they are less relevant in the framework of our analysis. So, we distinguish:
- *Trust based on characteristics*. This trust is based on internal characteristics of the individual, such as culture and the group in which he is involved… If we consider a building construction activity, this form of trust between actors coming from a same category is predominant. Architects, engineers or contractors constitute 3 groups well marked inside of which trust naturally exists.
- *Trust coming from a third party*. This type of trust relies on the notion of reputation. If we consider a building construction activity, teams are short-lived and consequently, reputation plays an important role and determines an « a priori trust » based on exchanges with third parties.
- *Trust coming from previous experiences*. This trust is based on past successful references. If we consider a building construction activity, experiences coming from anterior AEC projects strongly condition trust.
- *Trust coming from the role*. This trust corresponds with a trust relative to the performance of an actor according to the role that he plays in an organization. If we consider a building construction activity, roles are clearly determinate. These roles generate precise expectations concerning competences and know-how and condition trust relationships.
- *Trust based on rules*. This type of trust is based on contractual mechanisms, rules, certification organization or norms. In the AEC sector, a large number of certifications progressively appear (e.g. certifications related to competence of actors, quality of the building elements…), standard contracts (e.g. contracts describing the mission of the stakeholders), norms (e.g. norms concerning the execution of building elements). These certifications strongly condition trust within an organization.

## 3. "CONTEXTS" OF COOPERATIVE ACTIVITY

Up to the present, we have determined the theoretical framework of trust in the AEC activities, which our research work is joined in. We have seen that the context is very important within the trust mechanisms. We think that the interest of new generations of ITbased tools is to represent and take into account the context of their users. We will then focus in this section on the notion of context and on its different understandings in IT-supported cooperation.

### 3.1. THREE CONTEXTS OF COLLECTIVE ACTION

Our study of the cooperative activity allowed us to highlight three different types of contexts (Kubicki et al. 2007): the cooperation context, the actor's context and the user's context. Figure 2 illustrates these contexts.

**Cooperation context** (See Fig. 2, [1]) describes the collective dimension of the activity. The generic elements constituting each cooperation context are the following ones:
- Actor. This concept refers to a human resource included in an organization and taking part in the execution of the activity.
- Activity. It is decomposed and structured. Its execution constitutes a common goal for the actors.
- Document. This concept refers to "definitive" or "intermediate" results of the activity.
Documents are required to perform building elements.
- Building element. This concept results also from the activity. Its execution concretizes the common goal of the actors.
The **actor's context** (See Fig. 2, [2]) refers to the knowledge manipulated by the actor and to the cognitive processes which he carries out in preparation for his individual action.
Knowledge mobilization and treatment mechanisms are intimately linked to the actor's business competences and to their point of view on the cooperative activity.
Finally, the **user's context** (See Fig. 2, [3]) is situated between the cooperation context and the actor's context. It considers the actor as a user of computing tools. Such tools consist of supports for perceiving the

cooperative activity context. Taking this context into account is essential when we try to design activity support tools. Indeed, this context allows us to consider the tool as a mediator between the actor and the activity. It highlights the fact that a tool must not only take into account the collective activity but also to adapt itself to its user.

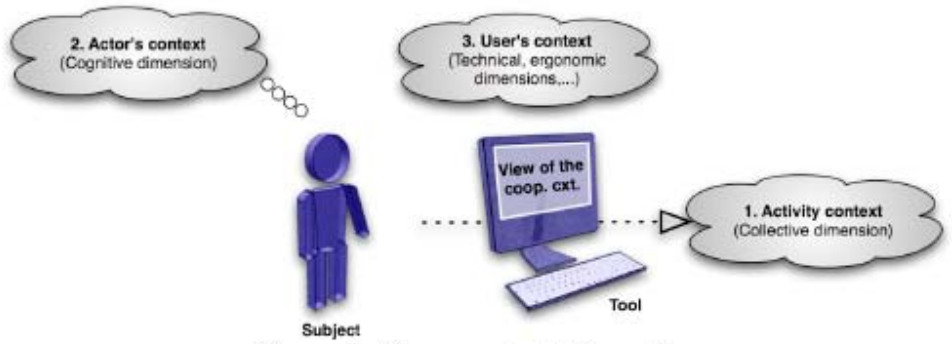


Figure 2. Three contexts for action

### 3.2. TRUST IN THE ACTOR'S CONTEXT

The actor's context refers to the cognitive mechanisms which the actor proceduralizes a part of his knowledge with (related to the cooperation context) in order to adjust his action.
We have, however, to insist on the uncertainty that exists in a collective activity and more precisely, on the achievement of the expected results. This uncertainty comes from the individual's limited rationality (Simon 1959), and from the unpredictability of the environment, which makes that every action cannot be envisaged independently of its context. Seeing that the action is completed in an uncertain context, two aspects seem fundamental: trust and risk. The question of trust is actually central if we are interested in the action in a cooperation context: trust in the good progression of the collective activity, trust in the achievement of the expected results, trust in human resources… Concretely, this concerns the question of trust in each aspects of the cooperative activity (See part 3.1). The assessment of these types of trust seems us essential in order to adjust action on the cooperation context. Let's consider, for example, an activity with a weak level of trust. In this situation, an action performed on the cooperation context could be a control action (e.g. time, resource or documents control), which would contribute to reduce risk and consequently to increase trust.

### 3.3. SYNTHESIS OF OUR APPROACH ABOUT THE CONTEXTS

We have identified the different types of contexts necessary for each action. The Figure 3 allows us to summarize the fundamental aspects of our approach:
- **Cooperation context**. It is an information source mediated by tools and perceived by the actor.
- **Actor's context**. It refers to the actor's knowledge and only a part of this knowledge is proceduralized in preparation for action. Moreover, it allows the actor to determine the trust in the good progression of the activity and consequently, to adjust his action on the cooperation context.

- **Trust**. It refers to trust in each aspects of the cooperation context (i.e. Trust in the progress of the task, in the documents linked to this task, in the building element resulting from this task and in the actor's performance.
- **User's context**. It is mediated by the tool and allows the user to obtain a contextual visualization adapted to him.
- **Perception of the cooperation context**. It is guided by the tools and the actors' business skills.
- **Action on the cooperation context**. It refers to an action adapted to its context and guided by the trust perception in each aspect of the cooperation context (Progression of the task, actors, building elements and documents).
- **Capitalization**. It is essential in the concept of trust, because trust is built on the basis of previous experiences.

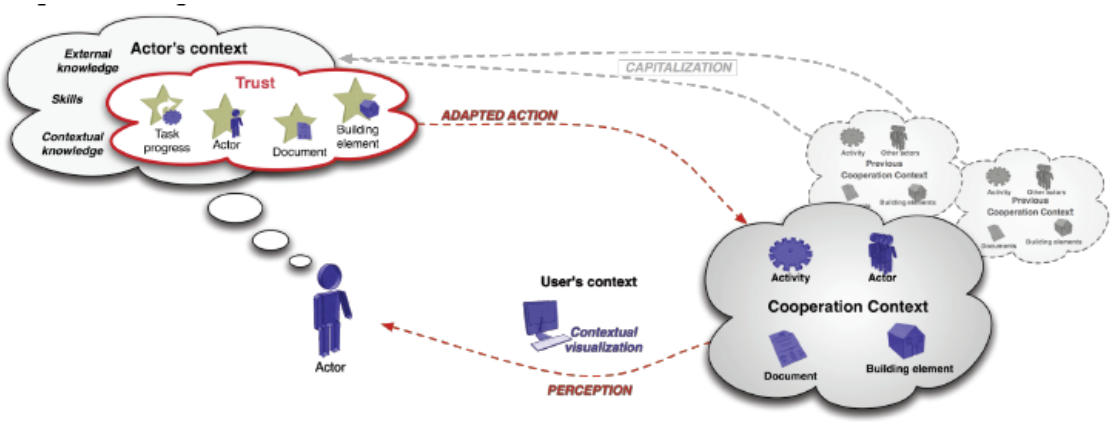


Figure 3. Trust and contexts of action

## 4. MEASURE OF TRUST INDICATORS FOR COORDINATION IN THE AEC DOMAIN

We have seen that our approach of trust in the cooperative activity lead to four types of specific trust (i.e. task progress, actor, document, building element). We will identify in this section the criteria allowing us to assess trust and we will determine how we suggest making their assessment.

### 4.1. IDENTIFICATION OF THE TRUST CRITERIA

Our approach for identifying the trust criteria consisted in searching the elements that condition the good progression of the building construction activity. These trust criteria will be then introduced in a dashboard in order to inform the coordinator about the potential dysfunction on the building site. Our approach differs from other studies related to the risks on the building site (Klemetti 2006; Boone 2007; Zou et al. 2007) because our information categorization is slightly different. We suggest structuring information in function of four aspects specific to the construction task: its progress, the actors in charge of the execution, the building elements resulting from the task, and the documents required for the execution of the task. After having defined the trust criteria and categorized them in function of the 4 aspects cited above, we confronted them to professionals coming from the construction sector (architects, engineers and contractors) in order to adjust and validate them. We can now summarize the identified indicators (See Table 1) and identify the sources of information related to each of them.

(1) **The assessment of "Task Progress-Specific Trust"** (T tp) depends on:
- *The state of the task*. The trust relies on similarity with a state initially planned or with a state that could be more favourable (e.g. building construction activity in advance).
- *Problems identified during the execution*. A high level of remarks coming from the building site meeting report and corresponding to the task under consideration leads to decrease the trust level.
- *The environment*. The trust is determined by the risk run by the task when there is bad weather forecast, or potential seism…

(2) **The assessment of "Actor-Specific Trust" (***Ta***)** is coming from:
- *The competence*. It is materialized through various certifications (e.g. ISO, Qualibat1).
The fact that an organization is certified constitutes a good warrantee.
- *The performance*. It is coming from previous experience and it is possibly capitalized in some performance evaluation systems2. Positive previous experience contributes to increase trust, while negative previous experience contributes to increase mistrust.
- *Attendance at building site meeting*. Stakeholders have to regularly attend construction site meetings to be informed about the state of the construction activity, and about all the decisions concerning the activity that they have to perform. If stakeholders do not attend frequently the building site meetings, they cannot be informed about decisions and therefore, it can be a source of dysfunction.

Table 1. Trust criteria and information sources

| **(1) Task Progress- Specific Trust** | **Information sources** |
|---|---|
| State of the task | Gantt Planning, Pert Planning, 4D |
| Problems of execution | Remarks in the meeting report |
| Environment | Weather prediction,... |
| **(2) Actor-Specific Trust** | **Information sources** |
| Competence | Certification (ISO, Qualibat[3]) |
| Performance | Performance evaluation system |
| Attendance at building site meeting | Meeting report |
| **(3) Document-Specific Trust** | **Information sources** |
| State of the documents | List of documents |
| State of the documents requests | Documents transmission list |
| Availability on the building site | List of documents |
| **(4) Building Element-Specific Trust** | **Information sources** |
| Level of difficulty of execution | Technical report[4] |
| Modifications | List of modifications |
| Respect of budget | Budget monitoring |

(3) The assessment of "Document-Specific trust" (*T d* **)** required for the task takes into account:
- *The state of the documents*. The fact that all the documents are up-to-date contributes to increase the level of trust.
- *The state of the documents requests*. The requests linked to the documents (e.g. request for modification, for validation, etc…) have to be performed within the time limits allowed. A delay contributes to decrease the level of trust.
- *The availability on the building site*. The documents required for the execution of the building element have to be available on the building site. The trust level increases if all the required documents are on the building site.

1 Qualibat : French organism in charge of qualification and certification of French construction firms , http://www.qualibat.com/
2 See for example Rating Source: http://www.ratingsource.com
3 Qualibat : French organism in charge of qualification and certification of French construction firms , http://www.qualibat.com/
4 We make reference here to the « Unified Technical Documents » (DTU), which are standard norms in the French construction sector.

(4) **The assessment of "Building Element-Specific Trust" (***T be* **)** relies on:
- *The level of difficulty of execution of the task*. It comes from the coordinator's experience or from other technical judgment issued by organisms such as the CSTB5 for more complex or experimental technical design. A weak level of difficulty of execution of the task ensures a high level of trust.
- *Modifications in comparison with the specifications*. Modifications during the building construction activity are a source of mistakes at the moment of the execution. Indeed, a modification on a building element implies to take into account its impact on the whole building project and on all the documents. Building elements on which we can identify some modifications have to be more controlled and consequently, considered as having a weak level of trust.
- *Respect of budget*. Modifications on building elements and unexpected events (e.g. delay linked to the nature of the ground) are sources of difficulty to respect the budget. These types of situations have to be more controlled.

### 4.2. MEASURE OF THE TRUST INDICATORS

To evaluate the level of trust in the good progression of an activity, we have adapted

S.P. Marsh's approach (Marsh 1994), which identifies the trust during cooperation to our specific context of cooperation.

We distinguish two levels of trust indicators: the Global Trust and the Specific Trust. Figure 4. Global Trust and Specific Trust

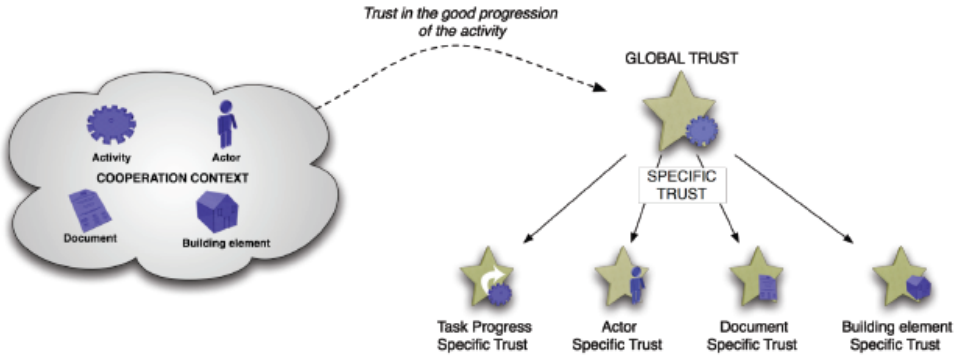


Figure 4. Global Trust and Specific Trust

The Global Trust characterizes the trust in the good progression of the activity in a particular situation. The Specific Trust corresponds to each aspects of the task. We distinguish four types of Specific Trust in a particular situation:
- Task progress Specific Trust,
- Actor Specific Trust,
- Document Specific Trust,
- Building Element Specific Trust.

The Figure 4 illustrates our approach related to the Global Trust and the Specific Trust.

### 4.2.1. MEASURE OF THE GLOBAL TRUST

$T(\alpha)$ represents the Global Trust in the good progression of an activity $\alpha$ (The Table 2 summarizes the notions).

$$T(\alpha) = \frac{T_{tp}(\alpha)\, I_{tp}(\alpha) + T_a(\alpha)\, I_a(\alpha) + T_d(\alpha) I_d(\alpha) + T_{be}(\alpha)\, I_{be}(\alpha)}{I_{tp}(\alpha) + I_a(\alpha) + I_d(\alpha) + I_{be}(\alpha)}$$

[5] CSTB : Scientific and Technical Centre for the Building Industry, French organism.

Table 2. Measure of the Global Trust – Summary of annotations

| Description | Representation | Value range |
|---|---|---|
| Activity | $\alpha$ | |
| Global Trust | $T(\alpha)$ | [-1, 1] |
| Specific Trust | $T_x(\alpha) \quad x \in \{tp,a,d,be\}$ | [-1, 1] |
| Importance | $I_x(\alpha) \quad x \in \{tp,a,d,be\}$ | [0,1] |

Thus, the Global Trust results from the trust in each aspects of the task (Progression of the task under consideration, actors in charge of its execution, required documents, performed building elements) and is balanced according to the importance6, which is valuated by the building construction coordinator.

### 4.2.2. MEASURE OF THE SPECIFIC TRUST

We have to determine the values of $T_{tp}(\alpha), T_a(\alpha), T_d(\alpha)$ and $T_{be}(\alpha)$.
These values depend on the intrinsic characteristics of the different aspects of the task. In order to evaluate the four types of trust, we make use of the following formula.

$$T_x(\alpha) = \sum_{i=1}^{n_x} NV(C_{x_i})_\alpha * \gamma(C_{x_i})$$

$$C_x = \{C_{x_i}\} \qquad x \in \{tp,a,d,be\} \quad et \quad i \in [1,n_x]$$

$$\gamma(C_{x_i}) = \frac{1}{n_x}$$

$$NV(C_{x_i})_\alpha = 1 \quad si \quad V(C_{x_i})_\alpha \in V^+(C_{x_i})$$

$$NV(C_{x_i})_\alpha = -1 \quad si \quad V(C_{x_i})_\alpha \in V^-(C_{x_i})$$

$$NV(C_{x_i})_\alpha = 0 \quad si \quad V(C_{x_i})_\alpha \in V^0(C_{x_i})$$

The Table 3 below summarizes the annotations.
Table 3. Measure of Specific Trust – Summary of annotations

| Description | Representation | Value |
|---|---|---|
| Set of criteria for type x specific trust | $C_x$ | *Set of Alphanumeric* |
| Type of Specific Trust | $x$ | tp ;a ;d ;be |
| Criterion *i* for Type *x* Specific Trust | $C_{x_i}$ | 0 ;1 |
| Number of Criteria for Type *x* Specific Trust | $n_x$ | [0,n] |
| Set of Values of Criterion *i* for Type *x* Specific Trust | $V(C_{x_i})$ | *Set of Alphanumeric* |
| Set of Positive Values of Criterion *i* for Type *x* Specific Trust | $V^+(C_{x_i})$ | *Set of Alphanumeric* |
| Set of Negative Values of Criterion *i* for Type *x* Specific Trust | $V^-(C_{x_i})$ | *Set of Alphanumeric* |
| Set of Null Values of Criterion *i* for Type *x* Specific Trust | $V^0(C_{x_i})$ | *Set of Alphanumeric* |
| Numerical Value of Criterion *i* for Type *x* Specific Trust in the situation $\alpha$ | $NV(C_{x_i})_\alpha$ | -1 ; 0 ; 1 |
| Value of Criterion *i* for Type *x* Specific Trust in situation $\alpha$ | $V(C_{x_i})_\alpha$ | *Alphanumeric* |
| Type *x* Specific Trust in situation $\alpha$ | $T_x(\alpha)$ | [-1,1] |
| Coefficient of Criterion *i* of Type *x* Specific Trust | $\gamma(C_{x_i})$ | [0,1] |

[6] According to S.P. Marsh, "importance is an agent-centred or subjective judgement of a situation on the part of the agent concerned".

### 4.3 APPLICATION OF THE METHOD TO MEASURE TRUST INDICATORS

We consider a particular activity (e.g. Shaft column groundwork). We have to identify data related to the task and to the criteria necessary for the measure of trust (See Table 4).
Then, we associate the criterion value to a numerical value:

- [+1]: if the criterion value is a positive value for the good progress of the task.
- [-1]: if the criterion value is a negative value for the good progress of the task.
- [0]: if the criterion value is a neutral value for the good progress of the task (e.g. if we don't have data related to the criterion).

So, if we consider the task "Earthwork", we can identify the following situation:

- The progress of the task conforms to the planning.
- There are some remarks related to the task in the building site meeting report.
- The weather forecast is favourable for performing the task.
- The contractor has no competence certification.
- The contractor frequently attends the building site meetings.
- The building element is not especially difficult to perform.
- There is no modification in comparison with the specifications for the building element.
- The budget is respected for this building element.
- The document is good for execution and available on the building site.

The Table 4 summarizes the situation and explains the measures of Global and Specific Trust.
Table 4. Measure of Global and Specific Trust: example

| **(1) Task progress Specific Trust** - $T_{tp}(\alpha)$ | | | **(2) Actor Specific Trust** - $T_a(\alpha)$ | | |
|---|---|---|---|---|---|
| **Criterion** | **V** | **NV** | **Criterion** | **V** | **NV** |
| *State of the task* | *In progress* | +1 | *Competence certification* | *No* | -1 |
| *Problems of execution* | *3 remarks* | -1 | *Performance* | *Positive* | +1 |
| *Environment* | *-6°C* | -1 | *Attendance at building site meetings* | *Frequent* | +1 |
| $T_{tp}(\alpha)$ = **-0,33** | | | $T_a(\alpha)$ = **0,33** | | |
| **(3) Document Specific Trust** - $T_d(\alpha)$ | | | **(4) Building element Specific Trust** - $T_{be}(\alpha)$ | | |
| **Criterion** | **V** | **NV** | **Criterion** | **V** | **NV** |
| *State of the documents* | *Good for execution* | *+1* | *Level of difficulty of execution* | *Good for execution* | +1 |
| *State of the documents requests* | *Finished* | *+1* | *Modifications* | *Finished* | +1 |
| *Availability on the building site* | *Ok* | *+1* | *Respect of budget* | *Ok* | +1 |
| $T_d(\alpha)$ = **+1** | | | $T_{be}(\alpha)$ = **+1** | | |

| **Global trust** - $T(\alpha)$ | | | |
|---|---|---|---|
| **Specific Trust** | **NV** | **Import.** | |
| Task progress Specific Trust | -0,33 | +1 | $T(\alpha)$ = **+0,51** |
| Actor Specific Trust | +0,33 | +0,75 | |
| Document Specific Trust | +1 | +1 | |
| Building element Specific Trust | +1 | +1 | |

## 5. BAT'iTRUST, A DASHBOARD FOR THE CONSTRUCTION ACTIVITY COORDINATOR

We have noted in section 1 that the coordinator disposes of multiple views (e.g. planning, meeting report…) to support the coordination of the building construction activity.
Anterior research works have dealt with relationships between the contents of these views.
These works have contributed to implement a models infrastructure based on the concepts of MDE (Model Driven Engineering) describing the cooperation context model in the AEC sector as well as the models of the concepts represented in the views. They have also led to the implementation of a prototype called "Bat'iViews" (For more information see (Kubicki et al. 2006)). This tool suggests putting into relation the concepts of four dynamic views regularly manipulated by the stakeholders of the building construction activity (i.e. meeting report, 3D view, planning and list of remarks coming from the meeting report) integrated in a multi-view interface. The user can freely navigate between views and the selection of an element of a view allows refreshing the global interface and putting in relation elements of the other views in correspondence with the selection.

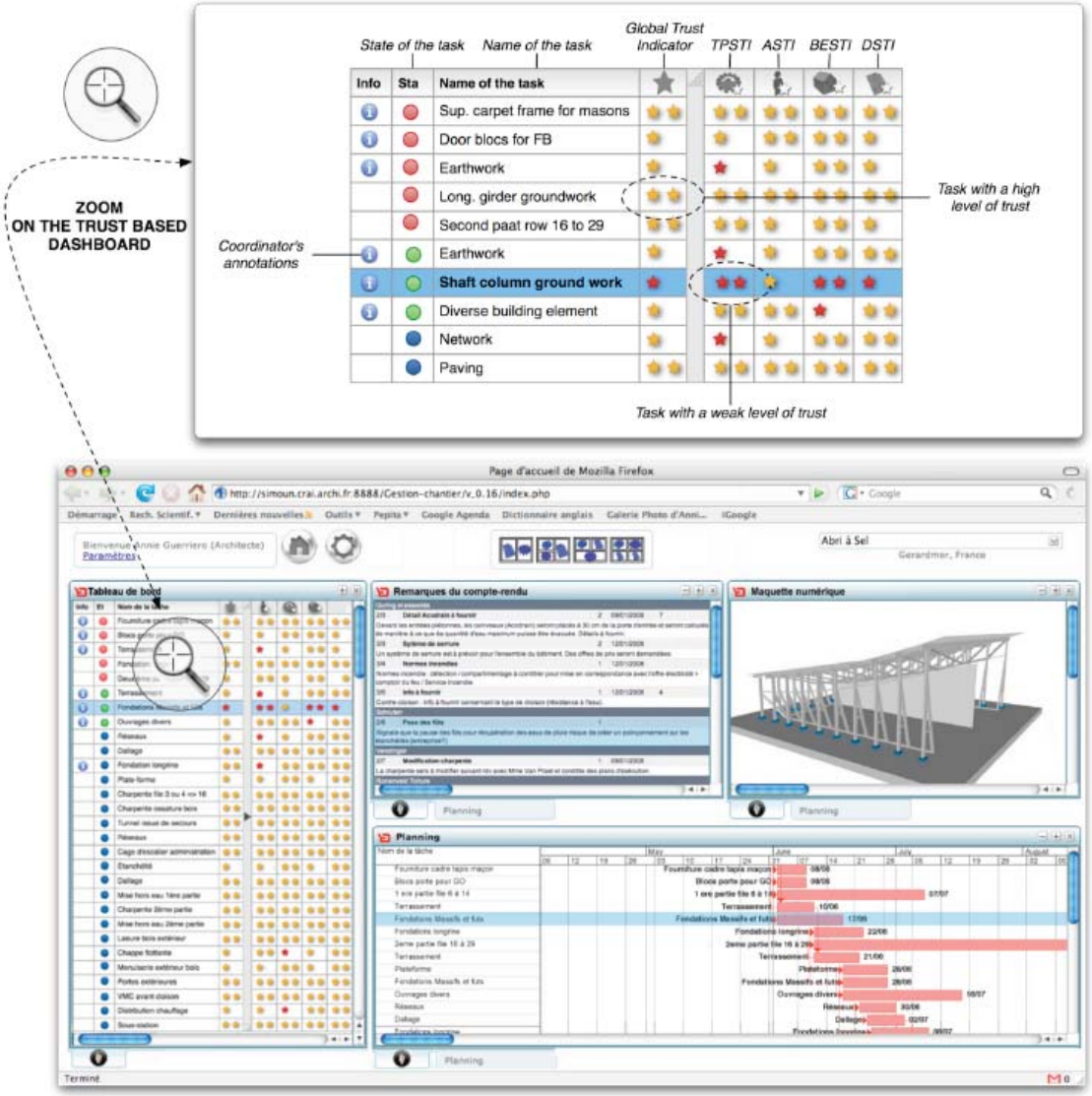


Figure 5. Hypothetical view of the Dashboard based on trust

Our proposal of a dashboard based in trust is integrated in the continuity of these works. We suggest inserting a new view dashboard based on trust in the multi-view interface in order to guide the navigation of the building construction coordinator. Our prototype called Bat'iTrust allows visualizing the trust indicators calculated based on the method detailed in section 4.2. and information coming from the cooperation context. The aim here is, not to surcharge data entry but on the contrary to extract trust indicators from available information (See Table 1).

The interface of the dashboard (See Figure 5) represents a list of construction tasks to which are bounded the state of the task (i.e. on hold, in progress…), the possible annotations of the coordinator and the following different trust indicators:

- Global Trust Indicator,
- Task progress-Specific Trust Indicator,
- Actor-Specific Trust Indicator (concerns actors in charge of the execution of the task under consideration),
- Document-Specific Trust Indicator (concerns documents required for the execution of the task),

- Building element-Specific Trust Indicator (concerns building elements resulting from the task).

This interface allows the coordinator to rapidly identify the tasks on which there is a potential dysfunction. Moreover, the selection of a Specific-Trust Indicator generates a configuration of views adapted to more easily understand the nature of the dysfunction. If we consider, the example detailed in the Figure 5, the coordinator identifies a weak level of Global Trust for the task “Shaft column groundwork”. Then, he notices a low level of trust for the Task-
Progress Specific Trust and he can select the indicator to refresh the multi-views interface and to obtain a configuration of views fitted to the understanding of the problem. In this case, it is a configuration composed of 3 views: the planning, the meeting report, and the 3D mock-up.
Finally, the coordinator can join some notes related to the task in order to make a synthesis of information that he has consulted.

## 6. PROSPECTS AND CONCLUSION

In conclusion, we have characterized the mission of the building construction coordinator and highlighted the potential of a view dashboard based on trust as a coordination assistance tool. At this stage of our research work, we have made interviews with coordinators, and diffused a survey to the professionals coming from the construction sector (architects, engineers, and contractors) to validate and to adjust our trust criteria. A first prototype of Bat’iTrust is under implementation in order to confront our proposal to professionals coming from the AEC sector, to assess its relevance and possibly to adjust it in function of feedbacks. For the moment, our effort is concentrating on the utilization of data coming from two Web-based tools integrated in the same infrastructure of models as our dashboard. These tools comes from CRTI-weB [7] suite: the first one is intended for writing and reading building construction meeting report [8] and the second one allows managing plans [9]. On the short run, our prototype could calculate the value of trust criteria related to building construction meeting report and to plans exchange. Evidently, information sources (tools) necessary for the assessment of the set of trust criteria to which we make reference (See section 4.1.) are heterogeneous. Emergent works about modelling of business services in the AEC sector are important perspectives to ensure to credibility of a proposal such as ours. Our prototype will use besides a set of Web-services interrogating the two CRTI-weB tools. Our aim is to make the prototype as generic as possible, that is to say independent from a given suite of tools.

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[7] The CRTIweB suite has been implemented in the framework of the Build-IT project. This project aims to lead the Luxembourguish AEC sector to electronic cooperation
[8] http://buildit.tudor.lu/demo (Login : demo Password : demo)
[9] http://demoged.buildit.tudor.lu/ (Login : demo Password : demo)

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