

# Application of the EKD Process Model to Support the Coordination of Collaborative Networks in the Civil Construction Sector

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## MOTIVATION

### The Civil Construction Industry

- Occupies strategically position in the economy, especially on Brazil (market opportunity);
- Low degree of innovation, communication, confidence, coordinate cooperation, the culture steel conservative (weak point);
- Benefit to share the risk among the partners, besides combine resources and abilities (market opportunity);
- A Process Model, friendly understanding, to support coordination of collaborative networks, could better motivates the arrangements among partners.

## THE GROUP STUDY “AR-C”

- AR-C “Architectures for Dynamics Collaboration”:
  - Since 1998;
  - Connected to IFM “Millennium Plant Institute” <http://www.ifm.org.br>
- EKD as an organizational modeling methodology:
  - Better understand the business;
  - Facilitate the organizational learning and communication through “friendly” models;
  - Provides to the involved ones in the project to have more analytical organization optics and its components as a whole;
  - Provides a clear and not ambiguous description of how the organization function and how it should be; and
  - Which alternatives must be created to solve problems;

# THE EKD METHODOLOGY

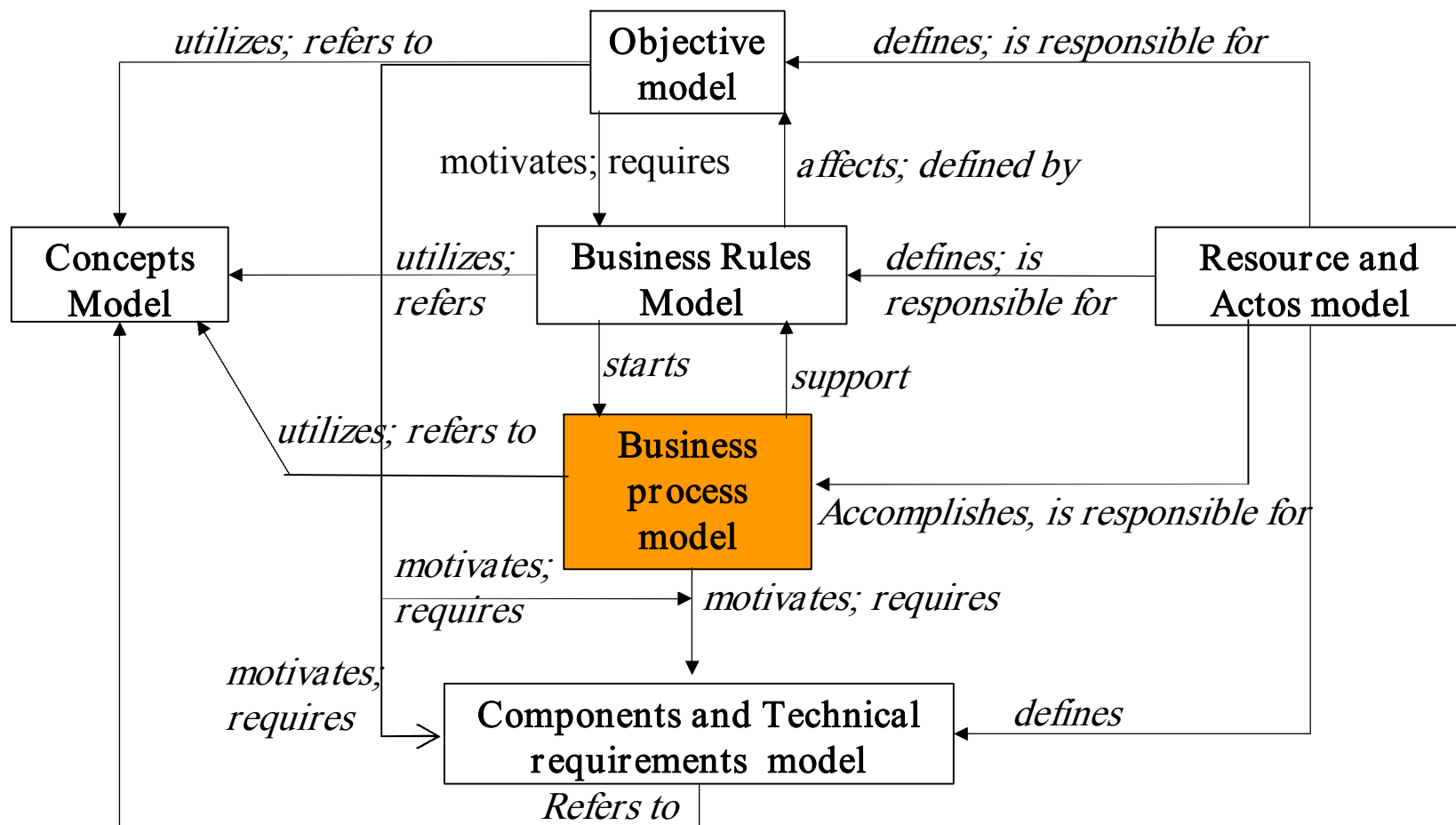


Figure: Sub Models of EKD.

Source: Bubenko *et al* (1998)

## RESEARCHED METHOD

- Qualitative and exploratory analysis through bibliographical research;
  - Empirical Study of four construction workmanships from two Brazilian construction companies (both acting in national level):
    - Interviews with Workmanship’s Managers;
    - Period of six months, year of 2009.
  - EKD (Enterprise Knowledge Development) methodology to modeling.
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## CASE STUDIES

|                  | Hierarchy Structure | Actuation | Foundation | Types of workmanships  | Jobs generated | Company characteristics  |
|------------------|---------------------|-----------|------------|--|----------------|--|
| <b>Company A</b> | Familiar            | National  | 1966       | Residential buildings of high standard; educational; commercial and industrial buildings | 1000           | Stimulate managers to improve the knowledge through partnership with academic institutions             |
| <b>Company B</b> | Familiar            | National  | 1996       | Residential buildings of high standard; commercial buildings and logistical condominiums | 265            | Bonificate the workers at the finish of workmanship, and provide them medical aid check up every month |

## CASE STUDIES

|           | Partnership with Workmanship's Projectors  | Partnership with Suppliers   | Tools Used for Workmanship    |
|-----------|--|--|-------------------------------|
| Company A | Among company and workmanship's projectors. Os these cases, is more difficulty to change the partners due to the fact that the work executed from them has a high level of costs and specificities. The companies used to be afraid to test new workmanship's projectors and besides, do not stimulate the intercommunication among them | Use to has a short period, due to the fact that companies are more receptive to test new suppliers until they gain confidence in definitive. While this, <u>it is usual happens problems</u> of not fulfillment of stated periods, inferior quality of materials and services, among other things. <u>Such occurrences are not registered, consequently do not exist performance registers of any supplier partner</u> | Text editor and spread sheets |
| Company B |  |  |                               |

# CASE STUDIES

|                  | Workmanships studied                                       | “Problems”   |
|------------------|--|--|
| <b>Company A</b> | Commercial Building 1<br>(planning phase)                  | <p>City hall’s licenses were taking a long time to be approved and the operational partners were been paid without executing the service. <u>This mistake was occurring due to the lack of initial planning of time and in having alternatives actions in case of occur unexpected actions like this</u></p> |
|                  | Commercial Buildng 2<br>(under initial construction phase) | <p><u>Difficulty of founding some specific suppliers to execute some specific construction’s services in some phases.</u></p>  |



## CASE STUDIES

| Workmanships studied                                    | “Problems”   |
|---|--|
| <p>Company B</p> <p>Logistic Condominium (finished)</p> | <p>The company made the workmanship in <u>another State</u> and because of this, they had a high level of difficulty in found partners. This brought some problems to the workmanship like: <u>delay of the stipulated time to build</u>, due to the time wasted in found the partners; <u>changing some partners in the middle of the construction phase</u> due to the low qualification of them; <u>waste of materials and a constant changing’s financial chronogram</u></p> |
| <p>High Level Residence Building (almost finished)</p>  | <p>Related to <u>task’s delay</u>. Besides, the initial projects did not match with the task’s executions, due to the <u>lack of communication among projectors</u>. But, it is important to remember that workmanships like this had the special characteristic that the final clients possess a level of decision in construction’s final phase, contributing to delay the conclusion.</p>   |

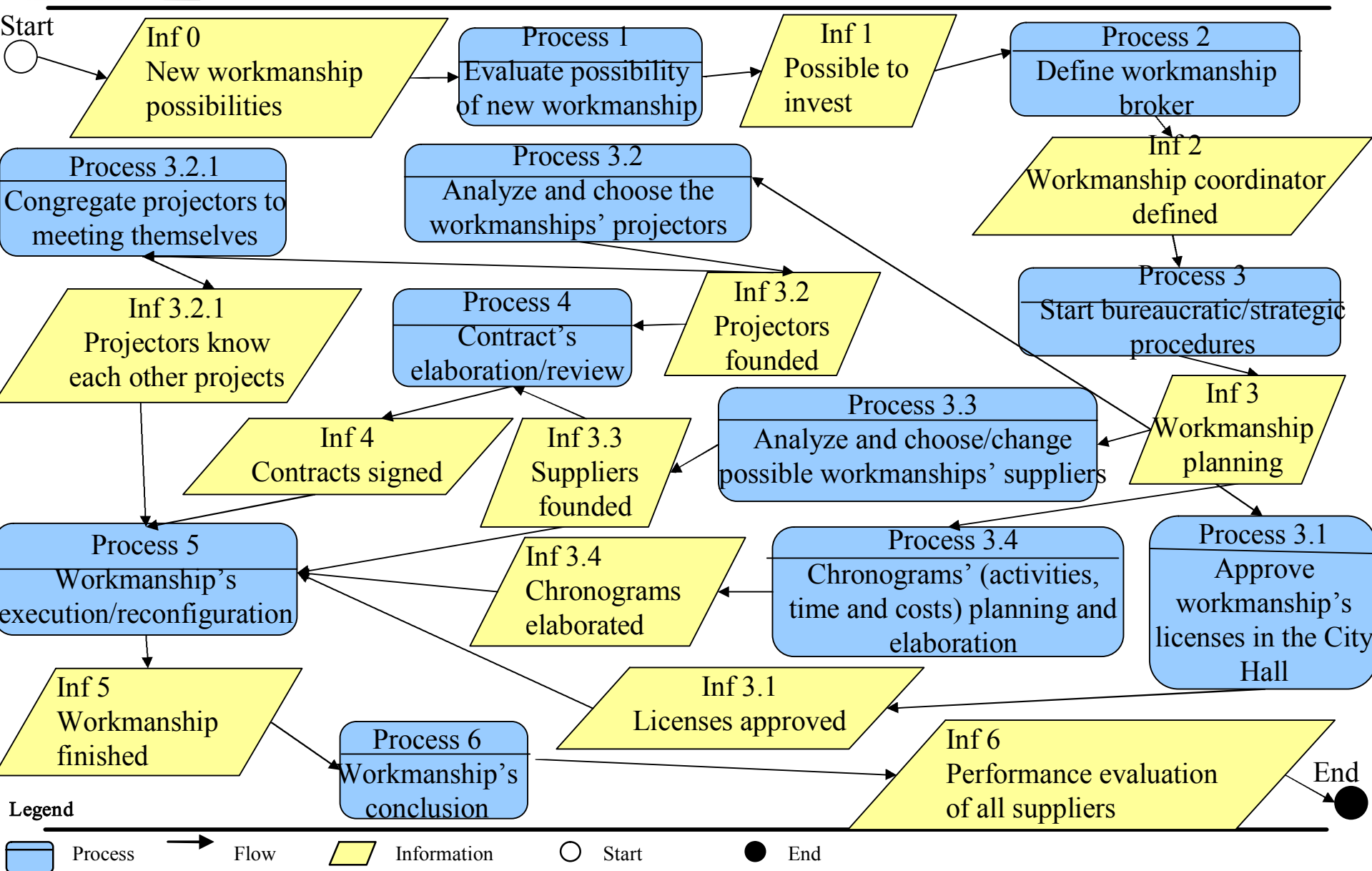


Figure – The Process Model to Coordinate Networks among Workmanships Partners

## CONCLUSIONS

- Brazilian civil construction industry has a very conservative culture. On this way, the article considered the adoption of the EKD methodology, due its facility in understanding the functioning of the business, stimulating the involvement and active participation of all stakeholders;
- EKD independent of specific tool for development. This becomes the proposal highly viable, a time that drastic investments in tools for orientation of the coordination of the organization are not well accepted;
- Process Model proposed by this article propitiates the necessary steps and alternative ways to execute some strategy. On this case, it refers to which process must be executed/done to coordinate a network among workmanships partners;

## CONCLUSIONS

- Actions, proposed by the Process Model, of evaluating the partners makes possible to the directors and decision makers having the necessary information to support the process of chosen partners in future workmanships, based on his past behavior, what probably will increase the partners' commitment with the company due to the fact that they have interest in continuing working;
- With suggestible **future research**, it must be empathized that: the lacks of communication on workmanships' planning phase **presents unsustainable actions** that, consequently, damage, even so, our ecosystem. This occurs due to the fact that this lacks of communication causes, among other things, waste of material on workmanships' execution that is discarded on City Halls Garbage and not recycled. So, another possible future research must also treat the question of sustainability in workmanships.



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