Collaborative Negotiation Methodology for Innovative Procured, Multi-Cultural, and Multi-Phase Projects

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OBJECTIVES

- Development of a Collaborative Negotiation Methodology adequate to Tren Urbano characteristics.
- Use the Methodology to prepare the contract language regarding conflict resolution for the next phases of Tren Urbano.
- Set up recommendations for the current phase.

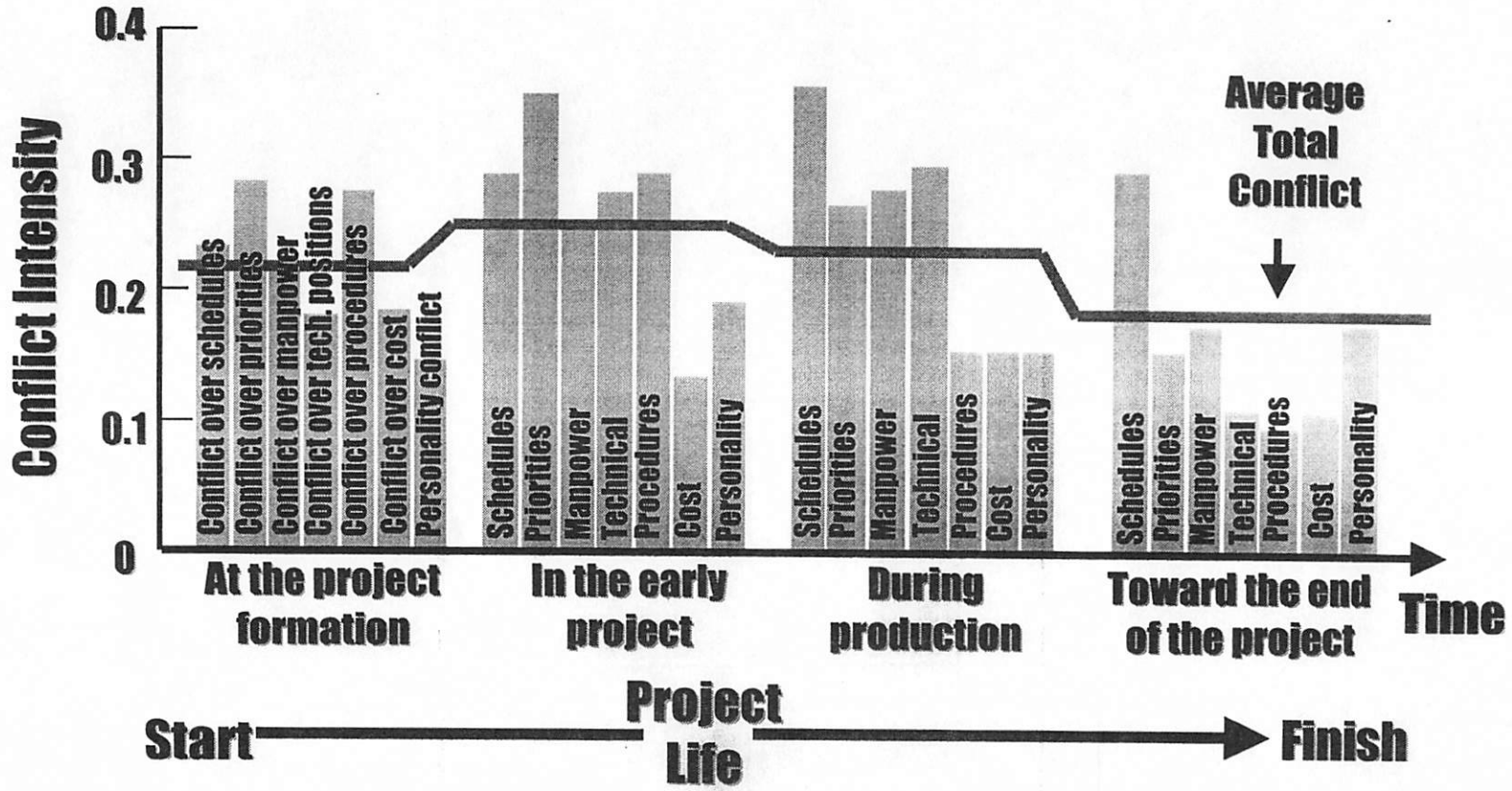
MOTIVATIONS

Tren Urbano has several characteristics that can improve the risk of conflicts increasing the total cost of the project:

- Large-Scale Project
- Innovative/experimental procurement
- Multi-Cultural
- Multi-Phase
- Political and Social Implications

ABSTRACT

Large-scale engineering and construction projects are unique endeavors that require a high level of human creativity where successful collaboration is critical. Since the participants are from diverse technical backgrounds and come from several organizations, competitive stresses exist within project relationships. Better methodologies are needed to relieve the tensions that exist in this medium. The objective of this study is to contribute to the development of the collaborative negotiation model and methodology such that successfully takes into consideration the issues faced during large-scale projects in the A/E/C industry. The Tren Urbano Project in San Juan is taken as a case study of an innovative procured, multicultural, and multiphase project.



Stages of a project: A collaborative negotiation methodology has to consider the type and intensity of conflicts for each stage.

RESULTS

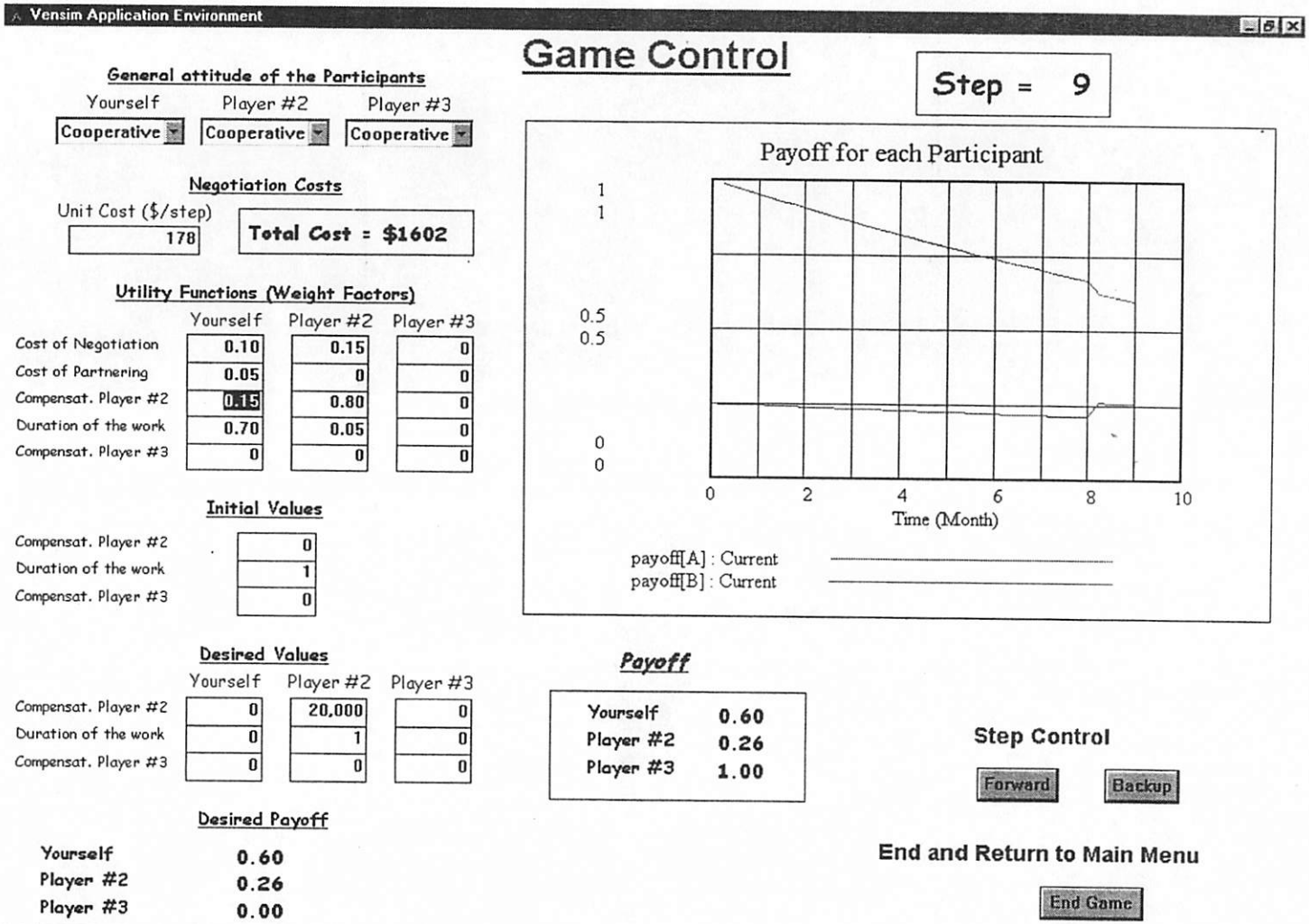
- How partnering affects negotiation. ✓
- Combine Game Theory Concepts with System Dynamics Techniques. ✓
- Collaborative Negotiation Methodology Simulator (First version). ✓
- Collection of Data from Rio Piedras segment. ✓
- Model partially validated (more interviews and data are required). ✓
- Buenos Aires (Metrovías): Lessons learned for future phases of Tren Urbano regarding Interface Conflicts.
- The key concept is: How can we measure all the indirect costs associated to a conflict? → The simulator can help!

RESEARCH BACKGROUND AND METHODOLOGY

Contract, game, and negotiation theories are used to develop the Collaborative Negotiation Model and Methodology based on:

- Previous work performed at the Intelligent Engineering System Laboratory at MIT.
- Collection of data through interviews and claims documentation.
- System dynamics model that includes the relevant variables involved in a negotiation process.

The study is focused on the process. However, in the case where a conflict cannot be solved at the first instance, tools for conflict resolution negotiations will be provided.



Negotiation Simulator: Help Managers to discover the "total" cost of a conflict.

FUTURE WORK

- Continue developing the negotiation simulator to help managers in negotiation issues.
- Set up recommendations for the implementation of Collaborative Negotiations for conflict resolution in the future phases of Tren Urbano Project.
- Study of the effect of innovative delivery methods in the negotiation process.
- Detailed research regarding behavioral attitudes of participants during a negotiation.
- Refinement of the model to include all the variables involved in a negotiation process.

PRIMARY SOURCES

- Rio Piedras Design-Build Agreement (contract # AC-500083)
- MIT MS Thesis: N. Harpoth, C. Sosa, G. Kwok, J. Kennedy.
- Design Build in the Federal Sector, ASCE 1992
- Interviews:
    - TU office
    - KKZ/CMA (Rio Piedras Contractor)
    - Metrovías (Buenos Aires)