**CHAPTER SIX**

**CONCLUSIONS AND REMARKS**

The proposed PN based approach to project management facilitated modeling (resource – constrained) projects, and verifying some properties of the projects networks, exploiting the well known place (transition) invariants, through the basic PN semantics. There is no need to modify the basic PN semantics to model activities and decisions related to a project. This increases the capability of the basic PNs, *without any extension in the theory,* to model projects. Places (Transitions) were used to model all the preconditions, including resources, for an activity to start, which was modeled via a place (transition). The place (transition) invariants were then used to verify some properties of the projects. This PN model can then be analyzed through (PN based) scheduling techniques, used to find the critical path, used as a basis to develop algorithms for resource-constrained project management, and used for other decisions related to project management.

The transition (place) invariant means that the sum of each and every row of the incidence matrix should be zero. Hence, *to verify that the project can be completed, it is sufficient to show that the sum of each and every row of the incidence matrix is zero, and that each and every column has at least one -1 and +1 entry.*

The proposed PN based approach enables the project manager to consider not only resources but also all different types of variables/constraints related to a project, e.g. costs, labors, and equipments of activities. Any of these variables can be considered fuzzy as well. In this case, fuzzy arc weights cause the firing rule to be modified. These are possible future research directions.