How to model Complex Systems?

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***Abstract*—We propose a general mathematical definition of a system jointly with system transformation operators that model respectively system integration and "grain" level description mechanisms. We deduce then from it a generic notion of system model consisting in an exhaustive series of views allowing to represent completely any system. We finally explain how to use practically this formalism which leads us to the concept of system architecture. All these notions are illustrated by a case study.**

***Index Terms*—Architecture, Model, System, View.**

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