

CONFIGURATION MANAGEMENT SUPPORT FOR THE DEVELOPMENT OF AN EMBEDDED SYSTEM: EXPERIENCES IN THE TELECOMMUNICATION INDUSTRY

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ABSTRACT

As an embedded system, a radio base station involves several design parties including HW development, HW-related SW development, and application SW development with solutions for air interface standards and the base station itself. The development usually follows the concurrent development paradigm where different SW and HW portions are developed in parallel in separate projects. On the other hand, configuration management (CM) is a widely used and well-known support discipline for product development. This paper reports experiences from the telecommunication industry, in Nokia Networks, related to the embedded systems' CM in a concurrent development environment. It deals with CM concerns that were found especially useful during this study. It also encourages discussion about issues concerning embedded system's CM. The findings are based on an empirical study performed while the authors were working on a project developing DSP application software and hardware-related DSP software. In complex systems the product development is usually organized into separate hierarchical development projects. The paper highlights the efficient inter-project CM planning in a hierarchical project environment. The term inter-project CM planning refers to the planning of those CM practices and constraints that need to be collectively agreed and compatible between projects. Without the inter-project approach the CM might be well realized inside one project but the whole system's CM would be inadequate.