

## **‘A standards-based reference framework for system portability requirements’**

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### **Abstract**

In the system requirements phase, the non-functional requirements (NFR) are often captured only generically at a fairly high level, and they do not yet include the levels of detail necessary for the system engineers to allocate them as specific functionalities to be handled either by the software or the hardware, or a specific combination of the two. The European ECSS series of standards for the aerospace industry includes portability requirements as one of sixteen types of non functional requirements (NFR) for embedded and real-time software. A number of portability-related concepts are dispersed throughout the ECSS, IEEE-830, ISO 9126, ISO 24765, and ISO 2382-1 standards to describe, at varying levels of detail, the various types of candidate portability requirements at the system, software, and hardware levels. This paper organizes these dispersed portability concepts and terms into a standards-based reference framework of system portability requirements. The availability of this framework can facilitate the early identification and specification of the system portability NFR and their detailed allocation as specific portability functions to be handled by the specified allocation to hardware or software, or a specific combination of the two. The approach adopted in this research for the structure of this reference framework is based on the generic model of software proposed in the COSMIC-ISO 19761 model, thereby allowing the functional size of the portability requirements allocated to software to be measured. © 2013 Elsevier B.V.

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