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Contributions on Interoperability Between Healthcare Information Systems Starting from Generic Component Model and Using Standards

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Abstract

The paper contributes to an important domain of interoperability suggesting an efficient and flexible approach for developers and users. It is presented the Generic Component Model. Also, it is presented four Generic Component Model instances. The Obstetrics-Gynecology Department is performed according to the GCM. The communication is ensured by two standards HL7 Clinical Document Architecture and Continuity of Care Document. The interoperability between systems will lead to improved patient healthcare, less medical errors and patient centered care.

References

- [1] IEEE Standard Computer Dictionary: A Compilation of IEEE Standard Computer Glossaries, Institute of Electrical and Electronic Engineers, 1990.
- [2] Electronic Health Record (EHR), Available from <http://www.himss.org/>.
- [3] Institute of Medicine of the National Academies (IOM), Available from <http://www.iom.edu/>.
- [4] B. Blobel, "Architectural Approach to eHealth for Enabling Paradigm Changes in Health", *Methods Inf Med* 2/2010.
- [5] B. Blobel, "Advanced EHR architectures—promises or reality", *Methods Inf. Med.*, 2006, 45 (1): 95–101,
- [6] D. Lopez and B. Blobel, "Formal Design of Electronic Public Health Records," *Medical and Care Compunetics*, vol. 3, 2006.
- [7] D. Lopez and B. Blobel, "A development framework for semantically interoperable health information systems," *International Journal of Medical Informatics*, vol. 78, pp. 83-103, 2009.
- [8] Business Process Modeling Notation, Available form www.bizagi.com.
- [9] OMG, Business Process Model and Notation (BPMN), version 2.0, formal/2011-01-03. Object Management Group. Available from <http://www.omg.org/spec/BPMN/2.0/>
- [10] M. Vida, L. Stoicu-Tivadar, B. Blobel, and E. Bernad, "Modeling the framework for obstetrics-gynecology department information systems", *Journal of Biomedical Informatics*, vol. 8, no. 3, 2012.
- [11] M. Vida, L. Stoicu-Tivadar, and E. Bernad, "Contributions on Interoperability Modeling Starting from Generic Component Model," in *Proc. RO-MEDINF 2012, Timisoara, Romania, 2012*, pp. 1-6.
- [12] M. Vida, O. Lupșe, L. Stoicu-Tivadar, and V. Stoicu-Tivadar, "ICT Solution Supporting Continuity of Care in Children Healthcare Services," in *Proc. 6th IEEE International Symposium on Applied Computational Intelligence and Informatics (SACI 2011), Timisoara, Romania, 2011*, pp. 635-639.
- [13] O. Lupșe, M. Vida, L. Stoicu-Tivadar and V. Stoicu-Tivadar, "Using HL7 CDA and CCD standards to improve communication between healthcare information systems," in *Proc. 9th IEEE International Symposium on Intelligent Systems and Informatics, (SISY 2011), Subotica, Serbia, 2011*, pp. 453-457.
- [14] HL7 Clinical Document Architecture, Release 2.0, HL7 version 3 Interoperability Standards, Normative Edition 2009, Disk 1 – Standards Publication.
- [15] V. Gomoj, D. Dragu, and V. Stoicu-Tivadar, "Clinical Decision Support Based on Topic Maps and Virtual Medical Record," in *Proc. First International Conference on Intelligent Systems and Applications (INTELLI 2012), France, 2012*, pp. 71- 75.
- [16] I. Bilykh, J. H. Jahnke, G. McCallum, and M. Price, "Using the clinical document architecture as open data exchange format for interfacing EMRs with clinical decision support systems," in *Proc. 19th Symposium on Computer-Based Medical Systems (CBMS '06), 2006*, pp. 1-6.
- [17] J. Weber-Jahnke and G. McCallum, "A light-weight component for adding decision support to electronic medical records," in *Proc. 41st Annual Hawaii International Conference on System Sciences, 2008*, pp. 251-251.
- [18] E. K. Nelson, B. Piehler, J. Eckels, A. Rauch, M. Bellew, P. Hussey, S. Ramsay, C. Nathe, K. Lum, K. Krouse, D. Stearns, B. Connolly, T. Skillmana, and M. Igra, "LabKey Server: An open source platform for scientific data integration, analysis and collaboration," *BMC Bioinformatics*, vol. 12, paper 71, DOI: 10.1186/1471-2105-12-71, 2011.
- [19] M. Vida and L. Stoicu-Tivadar, "Developing an Integrated Platform to Identify the Risk Factors in Obstetrics

Department," in Proc. 15th International Conference on Intelligent Engineering Systems (INES2011), Poprad, Slovakia, pp. 39-43.

[20] O. Lupşu, M. Vida, and L. Stoicu-Tivadar, "Cloud Computing and Interoperability in Healthcare Information Systems", in Proc. First International Conference on Intelligent Systems and Applications (INTELLI 2012), France, 2012, pp. 81- 85.

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