
Organisation of virtual enterprise for control and support of product life cycle. Principles, objectives, technologies

© E.I. Kuzin¹, V.E. Kuzin²

¹Bauman Moscow State Technical University, Moscow, 105005, Russia

²Joint-stock Company Power Machines, St. Petersburg, 195009, Russia

The article deals with the main principles of creating a virtual enterprise for control and life cycle support of science intensive high-tech products. We examined the goals and objectives of the architecture of the virtual enterprise providing the science intensive high-tech product life support. We defined the main problems which appear when using existed approaches to the enterprise architecture modeling. Moreover, in this paper we propose the declarative approach to the description of the virtual enterprise architecture of the product life support. That is based on the use of the first order predicates and the calculus lambda logic and provides an automatic model correction test, strategic goals conformity and also flexibility and adaptability.

Keywords: *product life support control, PLM, enterprise architecture, business process control, united information space.*

REFERENCES

- [1] Kuzin E.I., Kuzin V.E. *Inzhenernyy zhurnal: nauka i innovatsii — Engineering Journal: Science and Innovation*, 2016, no. 1.
DOI: 10.18698/2308-6033-2016-1-1457
 - [2] Kuzin E.I., Kuzin V.E. *Inzhenernyy zhurnal: nauka i innovatsii — Engineering Journal: Science and Innovation*, 2016, no. 2.
DOI: 10.18698/2308-6033-2016-2-1458
 - [3] Lankhorst M. et al. *Enterprise Architecture at Work: Modelling, Communication and Analysis*. Berlin Heidelberg, Springer-Verlag, 2005.
 - [4] Minoli D. *Enterprise Architecture A to Z*. Boca Raton, Auerbach Publications, 2008.
 - [5] Cunha M.M., Putnik G.D. *Tekhne-Review of Politechnical Studies*, 2004, no. 1 (1), pp. 143–164.
 - [6] Cunha M. M., Putnik G.D. *Agile Virtual Enterprises: Implementation and Management Support*. USA, Idea Group Publishing, 2006.
 - [7] *The Open Group Architectural Framework (TOGAF)*. Version 9.1.
Available at: <http://pubs.opengroup.org/architecture/togaf9-doc/arch/>
 - [8] *DoDAF Architecture Framework*. Version 2.02.
Available at: <http://dodcio.defense.gov/Library/DoD-Architecture-Framework/>
 - [9] *FEAF. Federal Enterprise Architecture Framework*. Version 1.1.
Available at: <https://www.whitehouse.gov/omb/e-gov/FEA>
 - [10] *TOGAF Metamodel content*. Available at:
<http://pubs.opengroup.org/architecture/togaf9-doc/arch/chap33.html>
 - [11] Karpenko S. *Primenenie modeli Zakhmana dlya proektirovaniya IT-arkhitektury predpriyatiya* [Application of Zachman model for the design of IT architecture of an enterprise–2011]. Available at: <http://www.management.com.ua/ims/ims177.html>
 - [12] *Open Group, ArchiMate 2.0 Specification*. The Open Group, 2012. Available at:
<http://pubs.opengroup.org/architecture/archimate2-doc/>
-

-
- [13] Kuzin V., Kuzina G. *Proceedings of the 2013 OTM Confederated International Workshops in Lecture Notes in Computer Science*, vol. 8186. Berlin–Heidelberg, Springer, pp. 112–123.
- [14] *IDEF0 Methodology. Standard*. Russian version. Moscow, MetaTechnology, 1993.32 MC ISO 9000:200033, MC ISO 9001:200034, MC ISO 9004:2000.

Kuzin E.I. (b. 1946) graduated from Moscow State University in 1970. Cand. Sci. (Eng.), Assoc. Professor, Department of Automatic Control Systems, Bauman Moscow State Technical University. Author of more than 10 publications. The scientific interests include complex engineering products control, CALS-technology.
e-mail: evgeny.cuzin@yandex.ru

Kuzin V.E. (b. 1973) graduated from Bauman Moscow State Technical University in 1995. Works at Joint-stock Company Power Machines. Author of 7 publications. The scientific interests include complex systems control, simulation modeling, business process control.
