

NOMENCLATURE AND SYSTEM PROBLEMS OF APPLIED SOFTWARE

Koryagin, Nickolay D., Moscow State Technical University of Civil Aviation (MSTU CA), Moscow, Russia.
Sukhorukov, Alexander I., Moscow State Technical University of Civil Aviation (MSTU CA), Moscow, Russia.

ABSTRACT

The features of the nomenclature of applied software, studied in the training of specialists in managerial and economic profiles, are considered. The main systemic problems of this provision,

characteristic for the higher educational process, are defined. The need for a comprehensive systematization of the list of applied software in accordance with the process approach to the formation of information competencies among graduates is substantiated.

Keywords: higher education, applied software, information competencies, process approach, educational programs.

Background. Despite IT revolution and the rapid saturation of the market with new samples of applied software for the educational process of universities, as well as the adopted vector of import substitution, it should be noted that the nomenclature of such provision, contrary to the trend, is not so diverse. Pic. 1 shows the main types of application software used in universities.

Objective. The objective of the authors is to give a brief outlook of applied software used in the educational process in universities.

Methods. The authors use general scientific methods, comparative analysis, scientific description.

Results. Text, graphic, table, audio and video editors belong to the universal software and can be included both in office packages and in separate stand-alone programs. The most famous package is «Microsoft Office», which includes the entire range of universal programs and popular business applications. In the educational process are also used office package from Sun Microsystems – «Star Office», an office package from the Canadian company Corel Corporation – «WordPerfect Office», and a package of office programs «OpenOffice.org» (distributed on a free basis), created within the project Open Source Projects, and others. Among the independent text editors and spreadsheets, popular software products are «PolyEdit», «AbiWord», «PatriotXP», «CryptEdit». Graphic editors are represented by «GIMP», «Photoshop», «Corel Draw», «Paintbrush», «AutoCAD». To the universal software can be attributed programs for processing 3D-graphics (3D Studio), and animators «Alias Power Animator».

Dictionaries (Lingvo), which are part of the translators (Stylus), belong to automatic machine and computer-aided translations. The most famous of them are Promt, ABBYY Lingvo, Apertium, Google, META, Yandex.

«Universal Encyclopedia of Cyril and Methodius», various specialized and regional encyclopedias are used in the educational process.

Reference and legal systems are offered by Consultant Plus, Garant, Pravo.ru, Glavbukh, Kodeks, and RosPravosudie.

For mathematical, statistical calculations and analysis the programs «SPSS», «Statistica», «StatBase», «GeoGebra», «MATLAB» are used.

Database management systems are represented by:

- «Microsoft Access», «Paradox», «dBase», «FoxPro», «Visual FoxPro» (file-server technologies);
- «Oracle», «Firebird», «Interbase», «IBM DB2», «Informix», «MS SQL Server», «Sybase Adaptive Server Enterprise», «PostgreSQL», «MySQL», «Caché», «LINTER» (client-server technologies).

At the moment, the main classes of information systems represented in the market of business applications are:

- ERP (Enterprise Resource Planning);

- CRM (Customer Relationship Management);
- SCM (Supply Chain Management);
- SRM (Supplier Relationship Management);
- BI (Business Intelligence);
- CPM (Corporate Performance Management);
- BPM (Business Process Modeling);
- SIM (Simulation);
- PPM (Project and Portfolio Management);
- SPSS (Statistical Package for the Social Sciences);
- Project Expert – software for business planning.

Despite the fact that the market offers, for example, only in PPM-direction more than 100 programs of various foreign and domestic manufacturers, this whole class of business applications in universities is represented only by several manufacturing companies.

So, SAP company within the framework of SAP University Alliances program provides universities with remote access to the demonstration version of SAP ERP system. At the same time in Russia, the functions of the system support are assigned to the Academic Competence Center (ACC) SAP of St. Petersburg State University, which cooperates with universities on the basis of hosting contracts (about 4000 euro per year). SAP company gives the opportunity to three teachers of the university to take a 4-day training course «Practice of using ERP systems in production management» free of charge on the basis of ACC and receive the course materials in electronic form. The SAP University Alliances program encompasses more than 2300 universities and educational institutions in 90 countries. Every year, about 3000000 students take part in the courses, of which in the CIS countries – more than 50000 students from 82 higher educational institutions. SAP offers almost the entire line of business applications.

Oracle company (Oracle E-Business Suite, Oracle Siebel), within the framework of the Oracle Academic Initiative, provides the universities with the necessary software and technical support, and also provides training for teachers at Oracle authorized training centers. After the takeover of Primavera Systems, Oracle also offers a portfolio management solution.

Software AG company (ARIS) provides free of charge access to the ARIS system for faculty and students as part of the University Relations Program.

Microsoft company (Microsoft Project, Microsoft Dynamics AX, Microsoft Dynamics CRM) within the framework of the Microsoft Dynamics Academic Alliance program gives universities free access to their application software, all documentation, conducts free training of teachers.

1C Company also offers the whole range of its software products, including for work through the Internet, for inclusion in the process of training in universities.

Corresponding programs of interaction with universities are available for Betec consulting companies (Business Studio, Business Engineer) and Expert Systems (Project Expert system).

Along with the application software of large international companies, a number of specialized

The publication was prepared within the framework of the project No. 15–02–00007, supported by a grant from the Russian Humanitarian Scientific Foundation (RHF).

Editors (text, graphic, tabular, audio, video)
Dictionaries, translators, encyclopedias
Reference and legal systems
Mathematical and statistical programs
DBMS
Business and enterprise management systems

Pic. 1. The main types of applied software in universities.

business applications from different manufacturers are often found in the nomenclature of universities. So, CRM systems are represented by the programs «Client Plus» and «Quick Sales»; BI systems – «Deductor», «TIBCO», «Marketing Analytic»; BPM systems – «Bizagi», «Process Designer», «ELMA», «RunaWFE», «Business Engineer». Often in the educational process, it is possible to find the software product «E-Staff Recruiter» to automate the HR-services of companies and «MetaTrader» – an information and trading platform for the organization of dealing services in the Forex, CFD and Futures markets.

Pic. 2 depicts the share diagram of business applications of various manufacturers studied in leading Russian universities of managerial and economic profiles. The statistics reflect the average values of the National Research University «Higher School of Economics», the Finance University under the Government of the Russian Federation, the Russian Economic University named after G. V. Plekhanov.

The analysis of the nomenclature of applied software revealed systemic problems of its use. If the universal software, dictionaries, encyclopedias, reference and legal systems and DBMS basically do not cause dissonance in the educational process, they are distributed evenly and effectively, then business applications are introduced and operated with a number of serious objective problems.

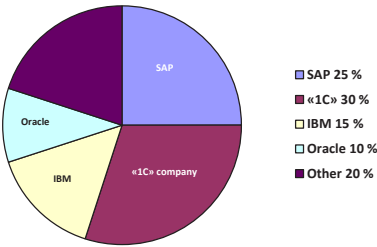
First, the nomenclature of business applications depends on the subjective factor, which is determined by the activity of developers who promote their products to the market and, as a rule, does not fully reflect the theoretical foundations of managerial and economic disciplines. The focus is on the most active software application developers and their preferences.

Secondly, the shortage of qualified teachers does not allow the full use of existing business applications in the educational process.

Thirdly, the lack of IT-equipped rooms limits the time students have access to business applications. And some «advanced» software products such as «ARIS9.8 SR2», which require significant hardware capabilities, and cannot be installed in 90 % of existing computer classes.

Fourthly, the process in the light of the declared policy of the Russian government for import substitution in this area is inertial and the percentage of domestic applied software in universities is not yet enough.

Conclusion. Based on the results of the analysis of the nomenclature of applied software, the necessity of its complex systematization is substantiated in accordance with the process approach [1–5] to formation of information competencies among graduates. This approach will eliminate the identified systemic problems and optimize the training of students. In the conditions of



Pic. 2. The share diagram of business applications of various manufacturers, studied in universities of managerial and economic profiles.

the emergence of a new global networked economy in the world, as well as the introduction of network concepts «Industry 4.0» and «Internet of things», the proposed approach acquires a special practical significance.

REFERENCES

1. Koryagin, N. D. Application of the methodology of quantitative assessment and analysis of organizational culture for the selection of key performance indicators of the perspective of «learning and development» of a balanced system of indicators [Primenenie metodiki kolichestvennoj ocenki i analiza organizacionnoj kul'tury dlja vybora ključevykh pokazatelej rezul'tativnosti perspektivy «obuchenie i razvitiye» sbalansirovannoj sistemy pokazatelej]. *Ekonomika, statistika i informatika. Vestnik UMO*, 2014, Iss. 2, pp. 95–98.

2. Koryagin, N. D. Implementation of modern methodological approaches to management in a balanced system of indicators and business-engineering management technologies [Realizacija sovremennykh metodologičeskikh podhodov k menedzhmentu v sbalansirovannoj sisteme pokazatelej i biznes-inžiniringovykh tehnologijah upravlenija]. *Ekonomika, statistika i informatika. Vestnik UMO*, 2015, Iss. 3, pp. 72–76.

3. Koryagin, N. D. Directions of formation of information competences of managers of aviation enterprises [Napravlenija formirovanija informacionnykh kompetencij menedžerov aviapredpriatij]. *Nauchnyj vestnik MGTU GA*, 2015, Iss. 214, pp. 69–73.

4. Koryagin, N. D., Sukhorukov, A. I., Medvedev, A. V. Implementation of modern methodological approaches to management in information management systems: monograph [Realizacija sovremennykh metodologičeskikh podhodov k menedzhmentu v informacionnykh sistemah upravlenija: monografija]. Moscow, MSTU CA publ., 2015, 148 p.

5. Koryagin, N. D. Strategic directions of ensuring the competitiveness of aviation enterprises in the modern information society [Strategičeskie napravlenija obespečenija konkurentosposobnosti aviapredpriatij v uslovijah sovremennoho informacionnogo obščhestva]. Internet-journal «Innovations in Civil Aviation», 2016, Iss. 1. [Electronic resource]: http://www.mstuca.ru/upload/Innovatcii_blok_1.pdf. Last accessed 30.06.2016.

6. Academic Competence Center SAP. [Electronic resource]: <http://acc-sap.ru/ua.html>. Last accessed 30.06.2016.

Information about the authors:

Koryagin, Nickolay D. – Ph.D. (Eng.), professor, head of department of Economics and Management in Air Transport of Moscow State Technical University of Civil Aviation (MSTU CA), Moscow, Russia, n.koryagin@mstuca.aero.

Sukhorukov, Alexander I. – D.Sc. (Eng.), associate professor of Moscow State Technical University of Civil Aviation (MSTU CA), Moscow, Russia, savelevo16@rambler.ru.

Article received 30.06.2016, accepted 18.10.2016.

