An Encyclopedia of Software Resources – A Possible and Realistic Project?

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***Abstract*: Personally, I strongly believe that it is very difficult to imagine today's civilized world without computers and Information Technology. Within a relative short period of time, computing has been implemented in all the possible domains of activity. Technology has developed rapidly and the notions of information society and knowledge-based society have become familiar. In my view, there is no doubt that the humanity's future goals cannot be accomplished without a solid understanding of how to use a computer properly and of the art of computer usage. In this sense, all of us who aim to be well informed and productive need to understand not only a limited number of specific software applications to work with, but also to have the possibility to access valuable information about software packages of all kinds. Starting from the definition of an encyclopedia as "A book, or set of books, or digital version of such, containing authoritative information about a variety of topics..." [1], in this paper I will try to show that this Encyclopedia of Software Resources which I envisage will be a collection of information related to all possible software applications, very useful for students, for developing specific lessons/courses, for the research community, the industry, and the general public.**

***Key words*: information society, knowledge-based society, open source, computer-based learning (CBT), Web-based tutorials, software resources, software classification, software features, software packages, tutorials, multimedia, platform-independent tutorial, comparative approach.**

NOTE: A few months ago, I sent a paper to IDPT 2006 World Conference on Integrated Design & Process Technology, held in San Diego, CA, on June 25-30. The paper [2], which presents a Web-based tutorial as an example of a comparative approach to word processing, concludes by launching *the idea* of an encyclopedia of software resources. Unfortunately, I could not effectively participate in the conference and therefore I did not have the chance to introduce this idea to the audience. That is why I avail myself of this opportunity to relaunch, with many more arguments, this project to build an encyclopedia of software resources. The IDPT 2006 paper [2] is freely downloadable from my personal website.

I. Introduction

The Internet and a great number of dedicated conferences, events, and summits offer a huge amount of papers about information society and knowledge-based society. I will herein mention just two aspects:

1. "What do we mean by an "information society"? We mean one in which human capacity is expanded, built up, nourished and liberated, by giving people access to the tools and technologies they need, with the education and training to use them effectively. The hurdle here is more political than financial. The costs of connectivity, computers and mobile telephones can be brought down. These assets – bridges to a better life – can be made universally affordable and accessible. We must summon the will to do it.

The information society also depends on networks. The Internet is the result of, and indeed functions as, a unique and grand collaboration. If its benefits are to spread around the world, we must promote the same cooperative spirit among governments, the private sector, civil society and international organizations." [2]

2. "Citizenship and governance must evolve with a view to increasing globalization, European integration and Union enlargement and the emergence of new forms of cultural identity and social dialogue. Specifically, the Union will support:

- transnational comparative studies and research and the coordinated development of statistics and qualitative and quantitative indicators;
- interdisciplinary research to support the policies of Member States;
- the creation and Europe-wide use of research infrastructures and data and knowledge bases." [3]

Thus, from our observation of the development processes and from our day-to-day activity, the above remarks and the information found on the Internet, we can come to the conclusion that, in the near future, we will need a specific interdisciplinary product, based on collaborative and comparative studies and with accessibility via networks around the world. This product is to be a large multimedia, hypermedia or even a virtual reality software package. It will be based on quality computer programming and will be "consulted" through universal viewers, e.g. browsers under

[1] *http://faculty.valencia.cc.fl.us/jdelisle/lis2004/glossary.htm*

[2] Statement by H.E. Mr. Kofi Annan, Secretary-General of the United Nations, World summit on the information society, Tunis, 16 November 2005. Source: *http://www.itu.int/wsis/tunis/statements/docs/io-un-opening/1.html*

[3] Citizens and governance in a knowledge-based society. Source *http://ec.europa.eu/research/fp6/index_en.cfm?p=7*

M. Iskander (ed) Innovations in E-learning, Instruction Technology, Assessment and Engineering Education, 211 216

any operating system. Today's information technology with all its ingredients makes all this possible. This product's name might be An Encyclopedia of Software Resources.

II. Related Materials

If we do research on the Internet, we can find material that can sustain the idea of an Encyclopedia of Software Resources. In the following, I will mention only three of them, but I am absolutely sure that one can find many other examples in libraries, databases and on the Internet.

The first material is **Linux Software Encyclopedia** by Steven K. Baum, Texas A&M University[4]. It seems that it was last updated on March 8, 2001. Being very close to the idea of an Encyclopedia of Software Resources, some pages of this site contain:

- **Programming Texts and Tutorials** – a list of freely available documents (i.e. tutorials, books, guides, reference manuals, etc.) for learning how to program in various languages as well as about various Linux and UNIX related topics[5];
- **Software Metasites** (fig. 1) – a list with available software for specific application areas like Astronomical Software and Documentation, Biological Software and Databases, Chemical Informatics, CodEc for Economics and Econometrics, International Cryptography, Fuzzy Logic and Neurofuzzy Software, Linear Algebra Software, Machine Learning Resources, Operating Systems Projects, Pattern Recognition and Image Processing, Seismological Software Library, Software Engineering Resources and many more[6].

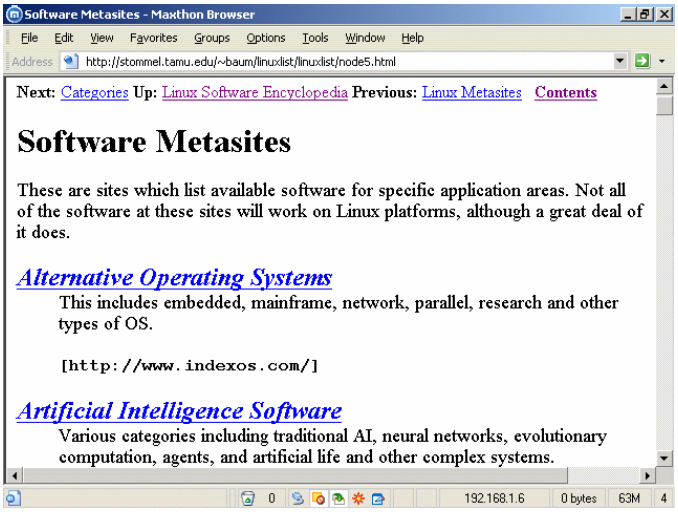


Fig. 1. Software Metasites
A list with available software for specific application areas

The second material is the **Computer User High-Tech Dictionary** (fig. 2). Without going into detail, I will mention only that the dictionary is limited to explaining different specific IT&C terminology.

Fig. 2. The Computer User High-Tech Dictionary
(*http://www.computeruser.com/resources/dictionary/*)

The third material, which may be a future competitor of an Encyclopedia of Software Resources, is **Wikipedia** – The Free Encyclopedia. Fig. 3 and fig. 4 present a general description of software and a comparison.

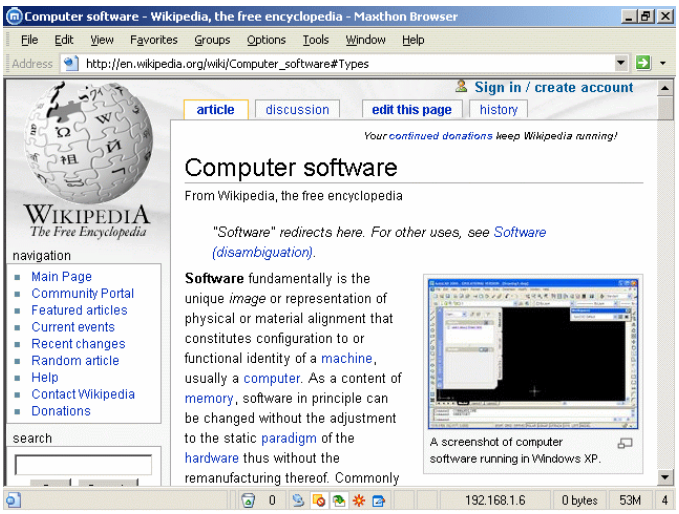


Fig. 3. Wikipedia – The Free Encyclopedia
A general description of software

III. Software Resources

The market offers a wide selection of more and more integrated software packages. A possible classification of well known software resources, available around year 2000, with some of their corresponding products is as follows [1]:

- Operating systems: DOS, Windows, Unix, Solaris, Linux;

[4] *http://stommel.tamu.edu/~baum/linuxlist/linuxlist/linuxlist.html*
[5] *http://stommel.tamu.edu/~baum/programming.html*
[6] *http://stommel.tamu.edu/~baum/linuxlist/linuxlist/node5.html*

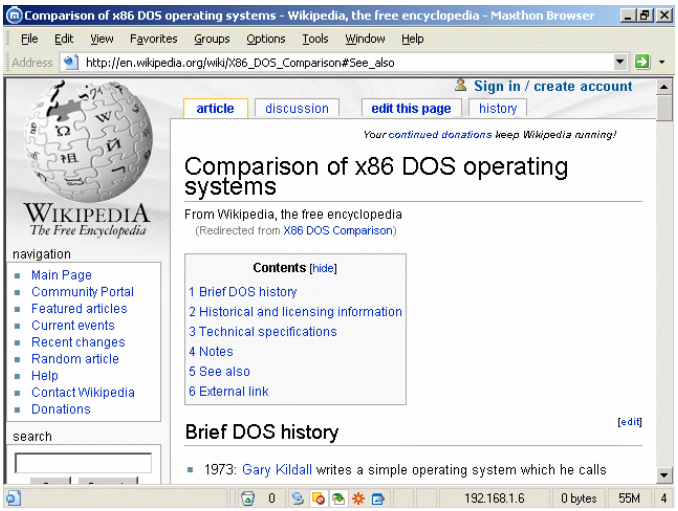


Fig. 4. Wikipedia – The Free Encyclopedia
Software comparison

- Word processors: Word Star, WordPerfect, Word, QuarkXpress;
- Spreadsheets: Lotus 1,2,3, QuattroPro, Excel.
- Database Management Systems: dBASE, FoxPro, Access, Paradox, Oracle;
- Graphic and Presentation packages: Astound, Bravo, Asymedia, Charisma, Power Point, WordPerfect Presentations, Freelance Graphics, SmartDraw Pro, Corel Draw, Macromedia Action, Persuasion, Stanford Graphics, Adobe Illustrator, Macromedia Freehand, ABC Graphics, GSP Design Works, Windows Draw;
- DeskTop Publishing software: Xpress, PageMaker, Ventura, Page Plus, Publisher, Frame Maker, Canvas, ipublish, PressWorks;
- Voice Recognition software: Voice Type Simply Speaking, Via Voice, Voice Command, Dragon Dictate, Naturaly Speaking, Voice Pad;
- Digital Video software: Adobe Illustrator, Adobe After Effects, Ulead Media Studio;
- Optical Character Recognition software: Inovatic Easy Reader, OmniPage, Recognita, TextBridge, Ocron Perceive Personal;
- Computer Aided Design software: AutoCAD, CorelCAD, Corel Visual CADD, Design CAD, Drafix CAD Pro, MicroGDS Pro;
- Browsers: Internet Explorer, Navigator, Opera, HotJava Browser;
- Remote connection software: LapLink, Carbon Copy, pcANYWHERE, CoSession Remote, ReachOut;
- Videoconference software: Captivator, Net Meeting, Intel Proshare Conferencing System, VideoLogic;
- Antivirus software: BitDefender, Dr. Solomon's Home Guard, F-Secure Anti-Virus, IBM AntiVirus, McAfee VirusScan, Norton Antivirus, PC-cilin, VDS Pro, VET Antivirus, Sophos Antivirus;
- Visual Programming Languages: Visual J++, Java Workshop, Delphi, Optima, Power Objects, Power Builder, Visual Basic, Visual C++, Visual FoxPro, Visual Café, JBuilder, Visual Age;
- Multimedia Authoring software: IconAuthor Net Edition, ToolBook II Instructor, MacroMedia Authorware, Macromedia Director, CBT Express, Click & Create, Illuminatus, Dazzler, MatchWare Media8or, Multimedia MM 200, Immedia.

I stress that the above list (completed with tables that contain comparative data) was "valid" for the year 2000. Since then, there have been great advances in computer science, with Microsoft still remaining top of the software market. Thus, Sun Microsystems has spent a lot of energy and millions of dollars on the development of Solaris operating system, Linux and Linux-related magazines have become easily accessible, OpenOffice.org 2.0, Star Office 8.0 and many more complex software resources are available to the users.

Starting from the possible classification of software resources presented in my tutorial written in Romanian for Romanian students (fig. 5, fig. 6, fig. 7 and fig. 8), and taking into consideration the introduction and the related materials, we can conclude as shown in the ensuing section.

THE IDEA

- refine the above classification;
- make an inventory of all the types of software existing on the market;
- elaborate a material dedicated entirely to software resources, such as Home Edition, Enterprise Edition, Professional Edition, etc.;
- organize the entire material into a classical and electronic dictionary with cross-references among keywords;
- give examples of screen captures, photos, graphics, sounds, and digital video for the software resources found and place them on one or more (HD)-DVDs, Blue Ray or holographic storage media;
- provide tutorials – comparative approach about basic functions explained in common, natural language;
- place the whole material and the examples in university intranets and libraries so that all members of the community can access them at any time; part of it may even become an open source;
- provide the electronic version with a complex local search engine;
- if developed for the intranet/Internet, introduce the following types of pages: Home page, Index pages, Content pages, Study pages, and Evaluation pages;
- provide ways to complete the material with new topics (a kind of Wikipedia);
- publish the book and the high-capacity storage media as The Encyclopedia of Software Resources.

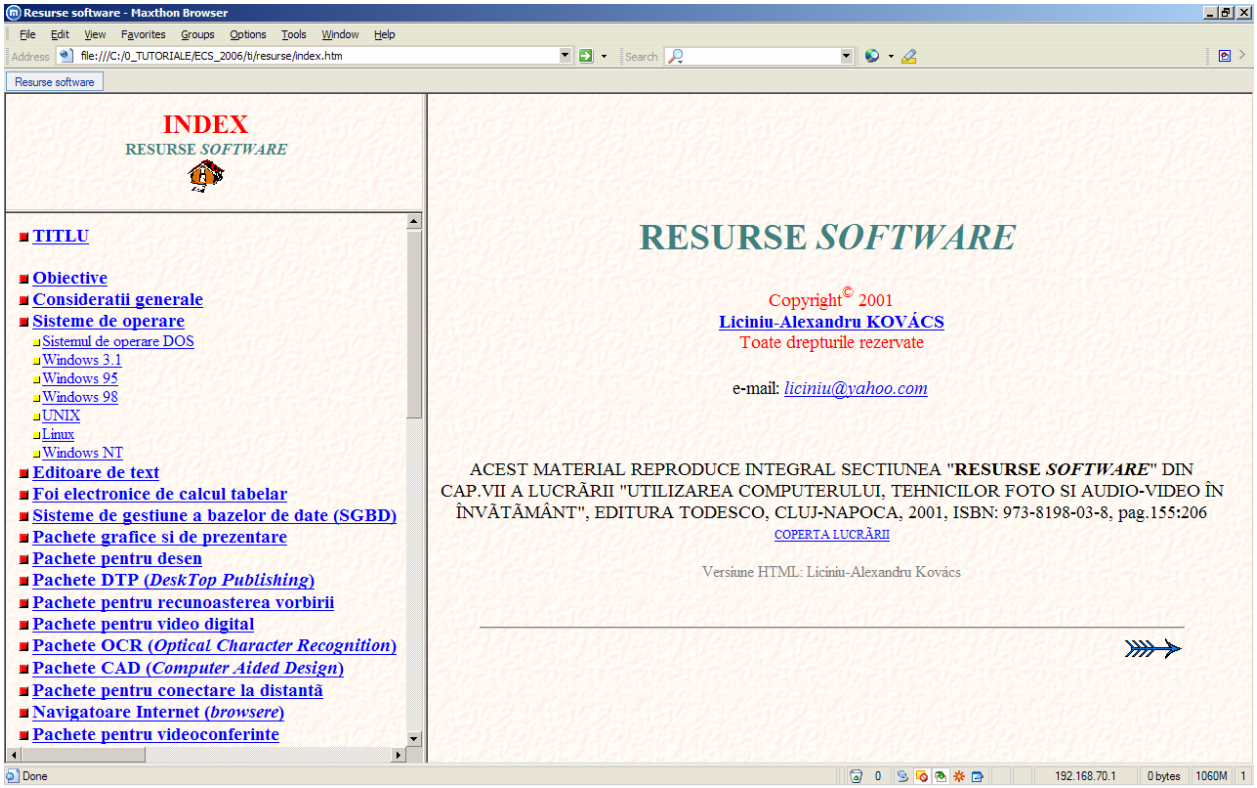


Fig. 5. Software resources – tutorial written in Romanian for Romanian students (main page)

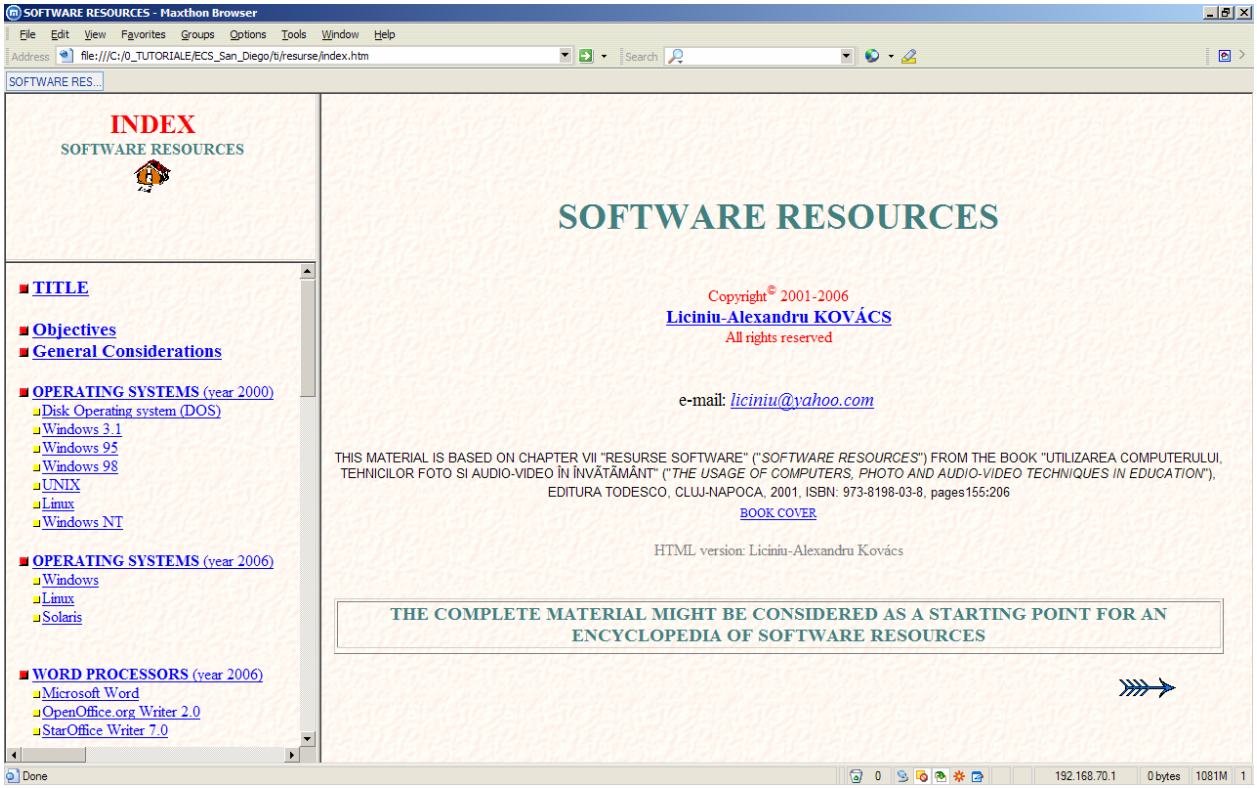


Fig. 6. Software resources – the above main page, updated with new topics and translated in English

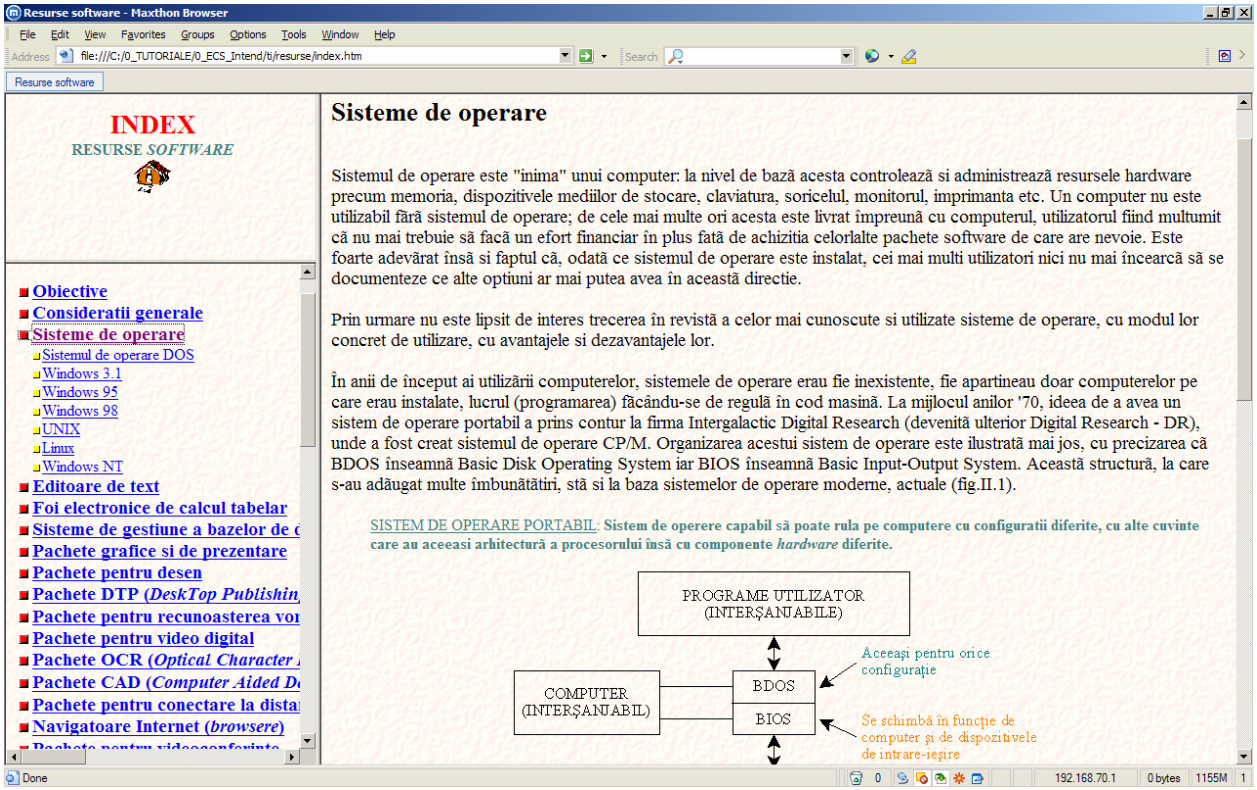
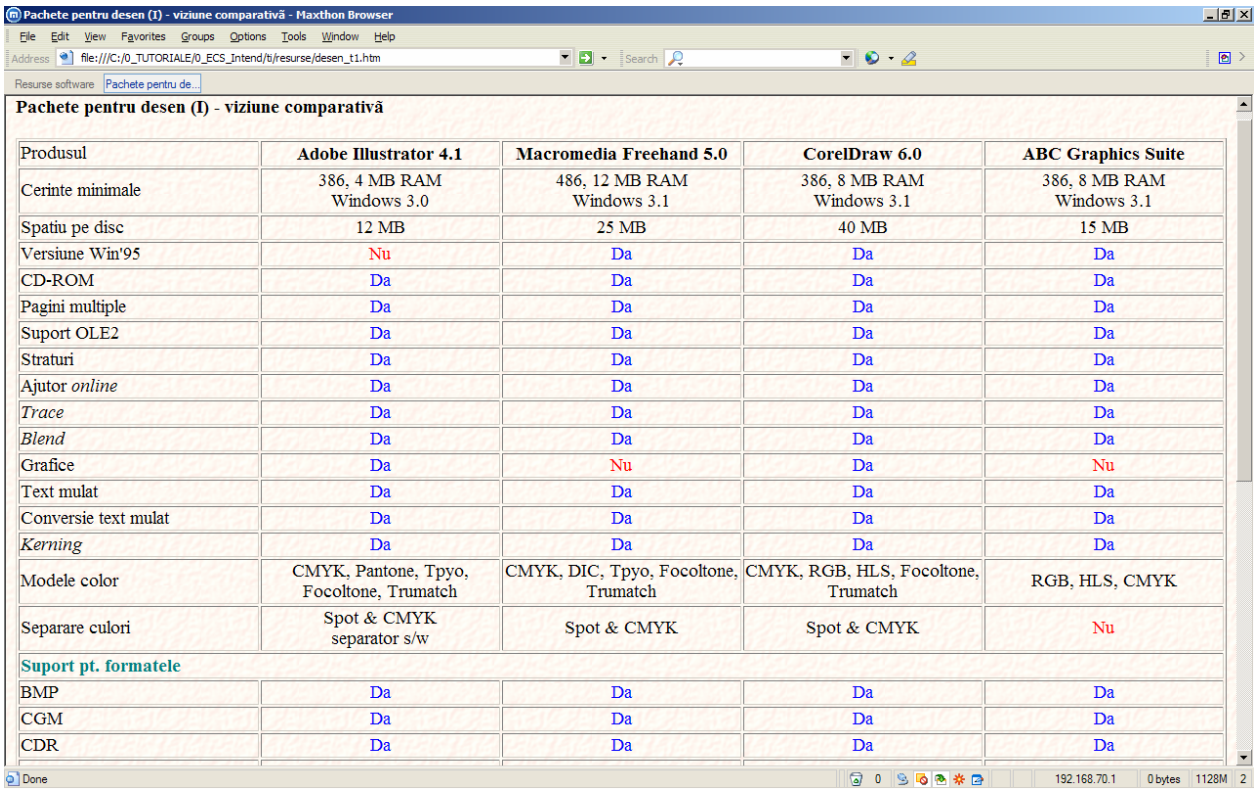


Fig. 7. Software resources – details about operating systems



Produsul	Adobe Illustrator 4.1	Macromedia Freehand 5.0	CorelDraw 6.0	ABC Graphics Suite
Cerinte minimale	386, 4 MB RAM Windows 3.0	486, 12 MB RAM Windows 3.1	386, 8 MB RAM Windows 3.1	386, 8 MB RAM Windows 3.1
Spatiu pe disc	12 MB	25 MB	40 MB	15 MB
Versiune Win'95	Nu	Da	Da	Da
CD-ROM	Da	Da	Da	Da
Pagini multiple	Da	Da	Da	Da
Suport OLE2	Da	Da	Da	Da
Straturi	Da	Da	Da	Da
Ajutor *online*	Da	Da	Da	Da
Trace	Da	Da	Da	Da
Blend	Da	Da	Da	Da
Grafice	Da	Nu	Da	Nu
Text mulat	Da	Da	Da	Da
Conversie text mulat	Da	Da	Da	Da
Kerning	Da	Da	Da	Da
Modele color	CMYK, Pantone, Tpyo, Focoltone, Trumatch	CMYK, DIC, Tpyo, Focoltone, Trumatch	CMYK, RGB, HLS, Focoltone, Trumatch	RGB, HLS, CMYK
Separare culori	Spot & CMYK separator s/w	Spot & CMYK	Spot & CMYK	Nu
Suport pt. formatele				
BMP	Da	Da	Da	Da
CGM	Da	Da	Da	Da
CDR	Da	Da	Da	Da

Fig. 8. Software resources: drawing software packages – comparative approach

MOTIVATIONS

- As far as we know, there is no dedicated material on the market in encyclopedia format;
- A dictionary of software packages, even illustrated, is not sufficient;
- A tutorial covers usually only one software resource;
- The comparative approach generates competition on the software market which is highly desirable from the end-user point of view;
- The IT&C and the software industry is too important for all of us and thus is to be avoided the monopoly stage in this sectors;
- It is a strong necessity to build a place where to meet (ideally) all the software applications.

TARGET "MARKET"

- This reference resource can be used primarily to develop specific lessons/courses in education units like universities, colleges, and high schools – in this sense, we can mention that there is no course entirely dedicated to software resources;
- The Encyclopedia of Software Resources will be useful for the research community;
- The Encyclopedia of Software Resources will be useful for the medical community, the industry, etc.;
- The Encyclopedia of Software Resources will also be useful to the general public, as it can help the potential (end)-users understand what information and knowledge-based society means.

OBJECTIVES

- To help (end)-users understand clearly what specific software packages are good for;
- To provide a reference source that explains what can be done with a certain software package;
- To integrate knowledge of software resources in the education system and in the society.

MEANS AND TECHNIQUES

- The entire material or just some specific sections of it can be organized according to CBT standards as multimedia, hypermedia or virtual reality.
- The project structure is to be debated and designed by a (large) team of professors, engineers, specialists, and software end-users.
- The software resources might be structured according to something similar to Universal Decimal Classification (U.D.C.). In this sense, a particular software resource can be easily correlated to the corresponding domain.

NAVIGATIONAL STRUCTURE

- This suggested Encyclopedia of Software Resources might be based on a complex composite navigational structure used in multimedia applications described by T. Vaughan – fig. 9 [4].

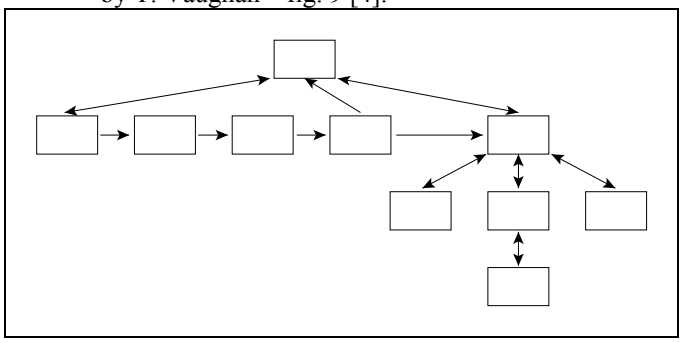


Fig. 9. Composite navigational structure

RESEARCH

- After collecting and organizing the material, further research will be done to determine the optimum quantity of multimedia for the printed version and high-capacity storage media's content in order to ease the operation of finding a certain software resource and have a maximum transfer of information toward the students and/or other users.

IV. CONCLUSIONS

If we start from the title of this paper, "*An Encyclopedia of Software Resources – A Possible and Realistic Project?*", the only possible answer is ***YES***!

Acknowledgment – I am grateful to Ms. Emilia Plãcintar for revising this paper.

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