CRITERIA FOR SELECTING THE CAD SYSTEM - HOW TO CHOOSE CAD SYSTEM

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Abstract

CAD systems are now an integral part of the development of new products and innovations to existing products. They help to speed up and improve the development process while reducing costs. Looking at the current market with CAD systems, we find that there are numerous available CAD systems, which differ in price, functionality, support, and so on. Therefore, the question arises in choosing which of a number of CAD systems to choose for the job. The article deals with the selection of CAD systems, focusing on the criteria that influence the selection of CAD system.

Key words

CAD, how to choose

Introduction

On the market there are many CAD systems. We can mention for example. AutoCAD, Autodesk Inventor, CATIA, Creo (formerly Pro/Engineer), NX, Solid Works, Solid Edge, Shape Power, Kompas 3D, ZW3D, Microstation, ZWCAD, Alibre Design, etc. Individual systems are distinguished by their functionality, but each of them provides features for 3D modeling and creating drawings. Given that, in order that the required functionality of CAD system is for 3D solid modeling of parts and example: assemblies and 2D drawings creation and the specified requirements may be available to satisfy by a wide range of CAD systems, the question arises which one to choose for the job. There are many criteria which we can take to mind.

Criteria for selecting CAD system

When selecting a CAD system is appropriate and necessary to take into account the various criteria that include:

Price - it's for the average user probably one of the most important criteria. Each person is interested in how much selected CAD system will cost you.

Next costs - purchase of the selected CAD system may cause additional costs, that are directly associated with the CAD system. This may be the

purchase of new hardware, the cost of the annual fee for a license with subscription, the cost of staff training and installation costs particularly if it is a server installation.

Hardware requirements - depending on how difficult the tasks to be solved, it is possible that the CAD system can not be operated on to date hardware and there will be need to purchase a new one.

What are the capabilities of CAD - i.e. what it can do, what functionality it offer? E.g. volume parametric modeling, surface modeling, production of sheet metal parts, support modeling pipeline and cable assemblies, various analysis (strength, thermal, kinematic, etc..), supporting the creation of photo-realistic visualization, semiautomatic creation of drawings, support generating NC code for the production and so on.

Internal Compatibility - if the company use some CAD system and decided to move to the new one, will be old data compatible with the new system? It is possible to open and edit old files in the new CAD system? If company not use any CAD system, will be created data compatible with systems for planning, organizing and promoting the product life cycle, which are currently used in the company?

External Compatibility - will be data from the selected CAD system compatible with CAD systems used by customers and suppliers? Sometimes the role of major customers company is so big that the choice is not choice, but in fact it is adaptation to the customer requirements for a CAD system to eliminate problems with the transmission and editing of CAD data. It is also necessary to verify that the chosen CAD system supports import and export exchange formats such as STEP, SAT, IGES, JT, DXF, DWG, VRML, etc., to allow to import components created in other CAD systems, and export data in these formats.

Support - what support the CAD system manufacturer provides to its customers? Are there subsidiaries with workers who can if it is necessary to come directly to the point and solve the problem? It is possible to contact support at any time, for example 24 hours /7 days per a week?

Language version - all major CAD systems are available in English, but not every user of CAD system can use this language, which can be a significant obstacle when working with CAD systems. At that time plays an important role existence of such language version, to which user will understand.

Accessories and add-ons - what supplements and extensions are available for the

CAD system (e.g. modules for simulation, FEM calculations, different design automation tasks, etc.)? Some extensions are available for a variety of CAD systems, but some specialized add-ons and extensions can be used only with a particular system, and if the user needs to increase its productivity by the functionality of these extensions, it does not remain anything other than to buy the CAD system, for which additions are made.

Operating System - which operating system is required by a CAD system? If the user is using other operating system than Microsoft Windows, may be spectrum of available CAD system significantly reduced.

Upgrade - how often the manufacturer will upgrade its CAD system? It is necessary to always have the latest version of CAD, or you can after release of the most recent versions of CAD to work long enough with the older version without fear of losing data compatibility between versions?

License model - what type of license is for the CAD system available? Is there discount when purchasing multiple licenses, are there floating licenses, portable dongle or license is firmly tied to one particular computer? It is possible to rent a CAD system? When considering licensing model there should be carefully consider how many people will use the system. For small businesses it is common that a CAD system is used by one person and he works not only at work but also at home. Some CAD system producers allow use purchased license also at home computers. It is ideal situation, but it is not possible for all CAD systems. If such option does not exist, either the CAD system will be installed on the laptop, which will staff take with him (disadvantage is the continuous need to carry the computer, risk of loss, damage or theft), or purchase two licenses, which can greatly increases costs. If the system offers the possibility of a floating license, the worker can connect from home to the license server and use a CAD system at home, but the condition is to have an Internet connection and access from the house to the licensing server. However, in case of failure, the network connection will be not able to work at home. The same applies to the work based on remote access to a computer at work from home. The current network technology and data transfer speed allow work on a remote computer through another computer e.g. thin client as if we were sitting right behind the remote computer's keyboard, but in the case of break network work is impossible. connection Some manufacturers protect their CAD systems against illegal use by using a dongle and CAD system works only when this key is installed, but this key can be transferred from one computer to another. So the worker is working at work where dongle is installed to computer and when leaving to home he

Diffusiveness – diffusive CAD system means usually a large community of users who can share knowledge and experience on various forums as well as through direct communication. It is also assumed that the widespread CAD system has its quality when it is used by so many users.

very probable will be necessary to pay for new

license).

Existing knowledge and experience – there is high probability that if the choice of the CAD system will be depend on its next user and he already has experience and can work with particular CAD system, he will choose this particular CAD. In this case play very important role schools. Schools teach different CAD systems, and if student will learn to work with some of them, there is high probability that in future praxis he will choose for firm where he is working such CAD system which he knows operate.

Learning curve - how long it will take until workers learn to effectively use CAD system?

Communication with no CAD people how it is possible to present project created in the CAD system to people without CAD? Just as images, or as a live 3D data? Are there any free viewers for the data created in CAD system? Allow these viewers to view data only, or you can print, measure model, create comments, notes, and so on? Is there possibility to export big assemblies as one relatively small file that can be sent by e-mail? This criterion is particularly important in large projects which takes into account the whole product life cycle management (PLM) and to the process of developing products enter managers and many others who are not included directly to process of creating a 3D model, but must be informed and approve each step. When it should be purchased CAD license for each one of these persons, financial requirements would be extremely increased, while those users only need to see the data and approve and comment.

Conclusion

Taking into account the above mentioned criteria can help choosing the right CAD system. However, it is not always possible due to time to make detailed comparison of all the available CAD systems in the respects all criteria. The ideal would be to test work with all considered CAD systems, but in practice this is rarely possible. Some CAD systems are available in fully functional trial versions, some with limited functional and some in demo versions. Despite the existence of these versions it is a problem, particularly for small and medium firms to do such experiments, because there is no time for this. Employees must perform their daily tasks and they do not have time to try any available CAD system. In these cases, some of the mentioned criteria significantly outweigh the other and the choice is made on the basis of only some of them.

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