Individual Research Paper

Quality Function Deployment
-QFD matrix analysis software review

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I. *Introduction*

Quality Function Deployment (QFD) is one of the many management planning tools that modern organizations take advantage to achieve highest customer satisfaction. It is originated from Japan by Dr. Mizuno in 1972, and was introduced to the United States in 1984 by Dr. Clausing of Xerox (Besterfield, 1999, pp. 283). Now it has become a standard practice by most leading companies. Over the years some of the major proponents of QFD have been Volkswagen, General Motors, Budd, and ITT. QFD played a major role in Ford Motor Company's last major turnaround in 1987, and Toyota cut the cost of launching a minivan by 61% thanks to QFD (Piszczalski, 2003).

QFQ employs a series of matrices to quantify customer requirements, product ratings and technical descriptors. By identifying the correlation factors among all these factors, the importance weights of each technical detail toward actually production can be calculated through simple algorithm. One major approach to implement the QFD process is through the House of Quality (Figure 1)

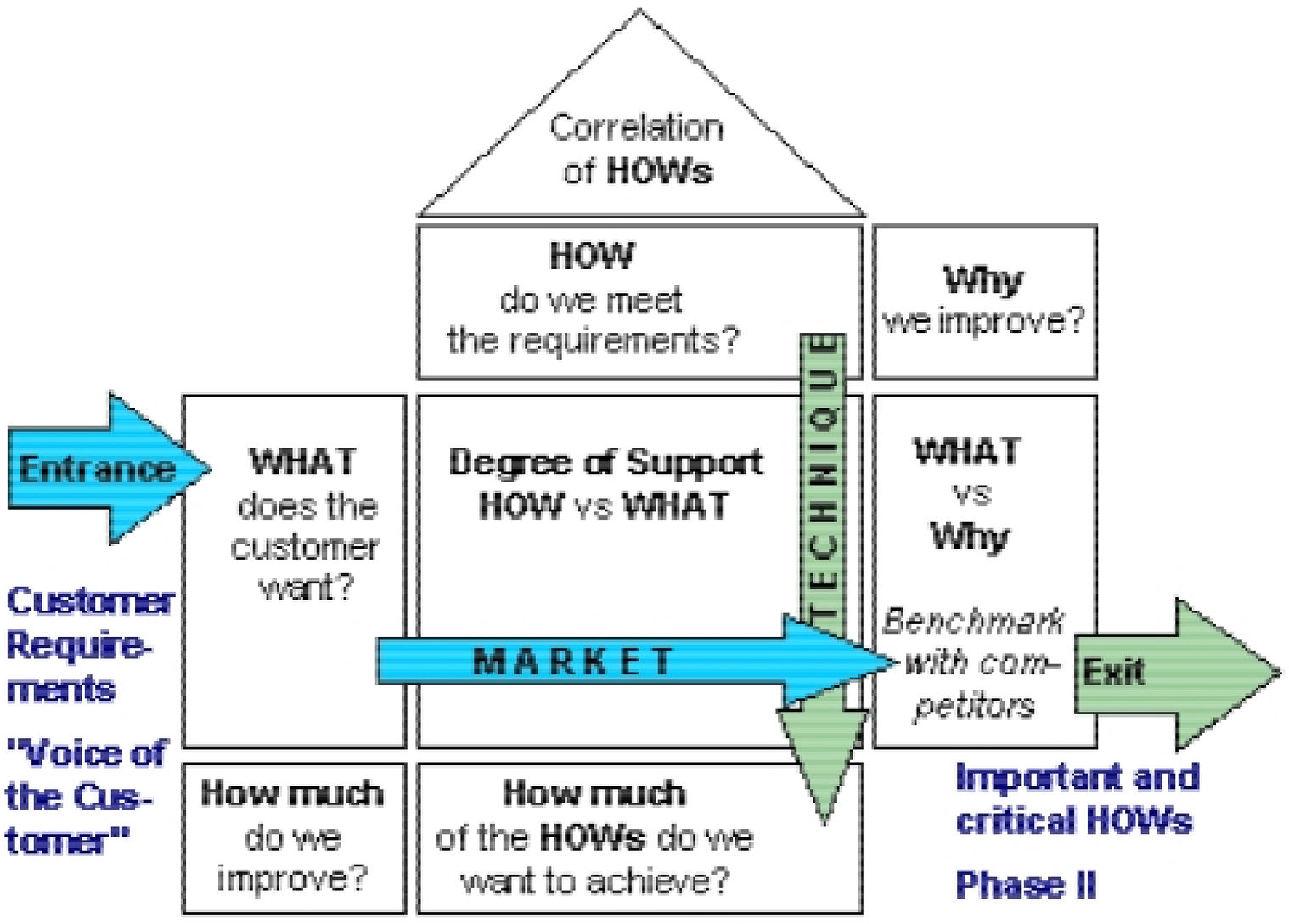

Figure 1.

House of Quality is a plan of four stages in which a QFD Team translates customer requirements into product characteristics, product characteristics into part characteristics, part characteristics into process targets, and finally process targets into production targets. Further refinement can be done be putting the output of first matrix into the input part of the second, and so on. Usually a four-phase refinement process can reach the most detailed requirements during production, like machine settings, material measurements, etc.

Since QFD process may take into account of so many customer requirements and technical descriptors, it is wise to take advantage of computer aided planning software. Such software may ease but not limit the process of organizing information and matrix calculation, plus the benefit of recursive usage of each output in next phase.

II. QFD Softwares

Table 1 is a list of QFD software that was gathered around the Internet in this research. It may not a complete list since newer and more advanced tools are emerging, and companies typically have their own internal specialized QFD software, which are excluded from this list.

Tool Name	Vendor	Description	Hardware Supported	Operating Systems	Uniform Resource Locator
Invention Machine	IM Corporation	A series of software packages (TRIZ) designed to meet the complex requirements of engineers, scientists, and inventors who seek creative solutions for developing new technologies	x86	Win16 Win32	http://www.amsup.com
QFD 2000	Total Quality Software	Quality Functional Deployment (QFD) software	x86	Win95 Win32	http://www.totalqualitysoftware.co.uk/
QFD Designer	QualiSoft	Quality Functional Deployment (QFD) software.	X86	Win16 Win32	http://www.amsup.com
QFD DesignerQS	QS Software	Quality Functional Deployment (QFD) software.	X86	Win16 Win32	http://www.amsup.com
QFD/CAPTURE	International TechneGroup Incorporated	Quality Functional Deployment (QFD) software.	X86 PPC 68k	Win16 Win32 MacOS	http://www.qfdcapture.com
Qualica QFD	Qualica	Quality Functional Deployment (QFD) software.	X86	Win32	http://www.qualica.de

Table 1

Almost all these software excluded 'Save' and 'Print' functions in their demo versions, and thus in our group projects we cannot produce single outputs for compassion. The following review is based upon if the software is easy-to-use, powerful, and fully functional to all types of matrix.

III. Reviews

Not all of the listed software were compared because of limitations in download website and/or those in the program demos. Some typical or similar features may be mentioned only once in detail.

- Qualica QFD

  Qualica QFD is developed by a German company and naturally embodies their nationality like prudence and seriousness. The first impressive feature of it is they use a database-like matrix management system to manage the versions, structures and storage of each House of Quality. Further, Qualica QFD has also integrated Cause-Effect matrix and Pugh new concept selection, which make it the most powerful and comprehensive analyzing tools during this research. (These two methods are similar applications to HOQ that are used to induct result of certain procedures during the production or service.)

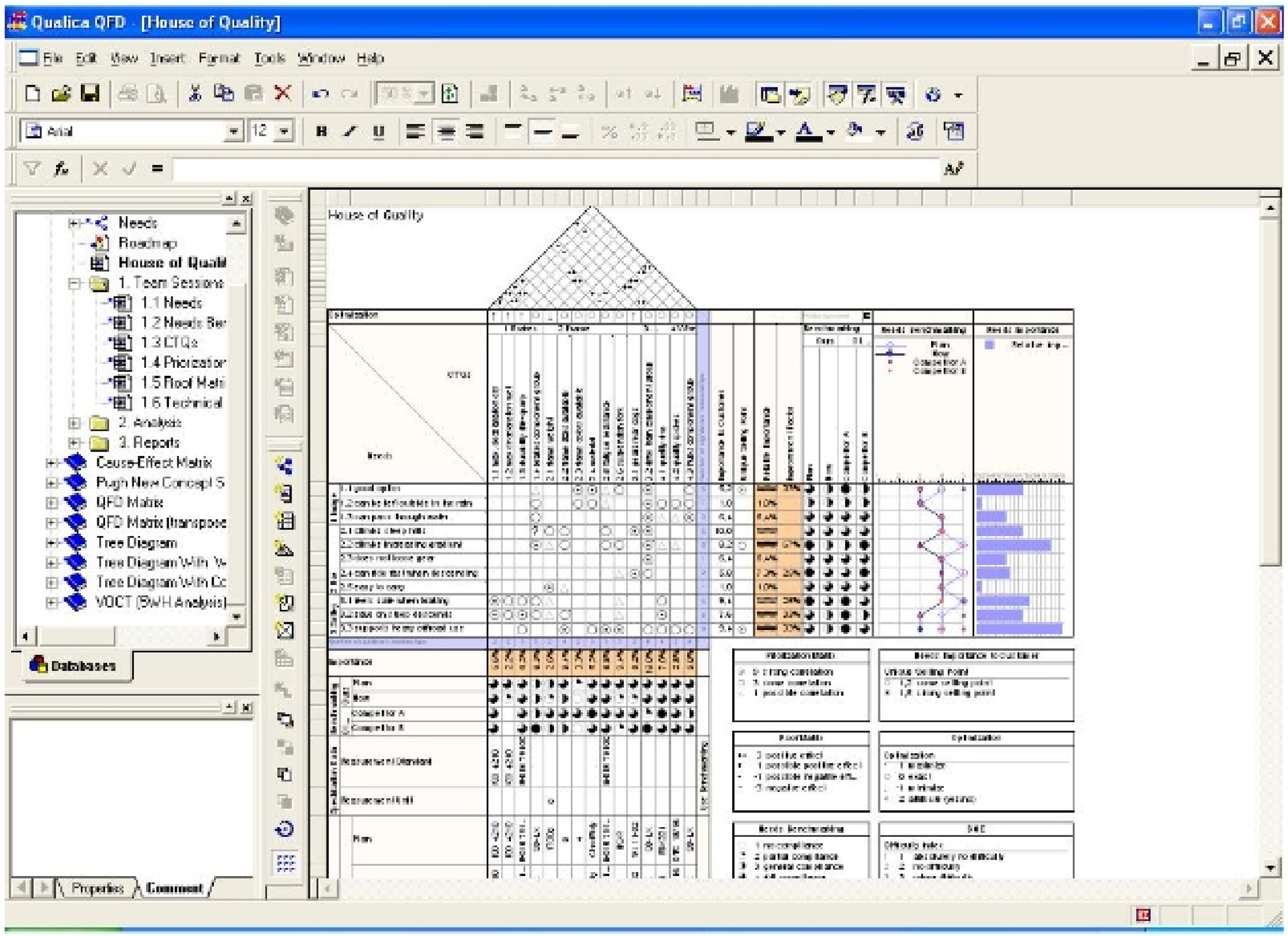

Figure 2