

To: jdmacomber@buildingvision.net
From: "Brad Phillips" Brad_Phillips@beckgroup.com
Subject: Destini: Brad Phillips' Answers to Questions from MIT
Cc:
Bcc:
Attached:

John,

Here are my responses to questions emailed from your class:

How does it really work?

Beck Technology as a part of The Beck Group has been developing software since 1996 for use in the Architectural, Engineering and Construction (AEC) industry. The software is an intelligent 3D architectural design solution that offers an automated integrated approach to the building design, drawing production, estimating and scheduling process.

Product Overview

The core engine - code named VIVA - is a multiple user 2D/3D object oriented A/E/C application designed on Windows NT and Windows 2000. Viva is written in C++ and uses MFC, ATL, COM, and OpenGL. It includes a fully dynamic 3D parametric modeling environment, 2D/3D geometry, a Developer's Toolkit, import and export to and from AutoCAD, a WYSIWYG drawing production interface, high quality photo realistic rendering, and movie production. Using the Developer's Toolkit, a software developer can customize the user interface to produce different A/E/C related applications.

The applications - code-named DESTINI - are focused on integration of the design, estimating and construction disciplines within the real estate delivery process. This technology will dramatically reduce the cost and schedule associated with the delivery of real estate assets, improve the functionality of the space and enhance our customers' core businesses. This is being accomplished by integrating technology with a substantially improved delivery process in which the DESTINI applications incorporate object-oriented, parametric modeling technology to develop rules-based applications for the AEC industry.

The DESTINI applications in conjunction with the VIVA core automate the design/engineering process and produce a model that contains a collection of knowledge (obtained earlier through experts in their respective fields) including many design rules, for example including: building codes, unit prices, ambient temperatures by latitude, etc. Each application element designs a specific component of the building such as HVAC,

curtainwall, structure, etc. Elements pass information back and forth between each other to coordinate and process information during the automated design/engineering/assembly of the building.

For example, an object like an elevator contains information about how to calculate the number of elevators that will be required for a building based upon industry accepted traffic analyses. The elevator object then graphically displays itself in plan, elevation and 3D. It also contains non-graphical information such as cost, schedule, code requirements, best layout requirements and behavioral information which it then passes on to other elements like the structure so the openings can be placed in the correct location in the structural slabs and so the opening beams can be engineered.

Since an object is intelligent, it can react and recalculate its own values based on any changes made to any one of its variables. This results in a comprehensive database from which one can obtain a variety of "views", depending upon the information needed, including 2D drawings and 3D views, architectural schedules, renderings, cost estimates, heating loads, reinforcing steel counts by type, beam sizes, the most economical pattern for cutting of curtainwall mullions, etc. All of the information is pre-coordinated and 100% complete, based upon the internal rules within each element combined with the variables entered by the user to describe the building of interest.

This technology will help Beck design, engineer, estimate, schedule, purchase and construct projects substantially faster than is possible today. The goal is to enable clients to reduce the total delivery time for their facilities by as much as 50%, with commensurate savings in design and construction costs.

Who are your targeted clients?

Owner/Operator clients who require design services and are most interested in speed to market and maximum cost efficiency. Another potential market is with other integrated service firms similar to Beck, who serve those same Owner/Operator clients in other market segments.

Has it proven an effective mechanism to reduce construction time of projects?

Yes, we have utilized it on several projects to various degrees and have seen that it has played a role in reducing the total delivery time of design and construction.

On which areas does DESTINI/VIVA focus - for example initial design, procurement, construction phase?

The primary focus today is in the design, drawing production, estimating and scheduling processes. These touch on procurement as well.

Has it been able to create a critical mass of users?

No, it is still for internal use only.

What market segments do you feel have been most receptive to the DESTINI concept? Why?

Building Owner/User corporations such as IBM, AT&T, SBC, Mills Corporation; and Real Estate Developer/Landlords.

These fit the profile of firms interested in speed to market and maximum cost efficiency.

Which market segments have been the least receptive? Why?

CAD operators and estimators because they don't see a future for their position if this technology takes hold. However, we believe that this tool will free Architects to practice what they love most -- creating form and function while eliminating the mundane aspects of producing the final product. We also believe there is still a role for estimators but again it will not be in the area of mundane task such as quantity take-offs, but rather in applying their judgement and experience to the best way to deliver projects in the fabrication shop and in the field.

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This email was edited by John Macomber on May 7, 2001 for purposes of class discussion and varies somewhat from Brad Phillips' original message. For classroom discussion only.

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