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Modeled to bits: Decision models for the digital, networked economy

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Abstract

Leeflang and Wittink [Internat. J. Res. Marketing 17 (2000) 105] sketch a future for marketing modeling that differs primarily in scale and scope from today's environment. We have a different vision: the digital networked economy will induce significant structural changes in (a) how models are developed and deployed, (b) who uses marketing models, and (c) what types of models are developed. To be successful, marketing modelers must adapt by gaining a better understanding of the role of marketing modeling in the new environment and by learning how to use emerging information technologies (IT) for developing, deploying, and validating marketing models. © 2000 Elsevier Science B.V. All rights reserved.

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1. Introduction

Leeflang and Wittink (2000) provide a useful historical perspective on the field of marketing decision models and offer their vision of developments to come. We expand on their discussion of how the Internet and, more specifically, the World Wide Web (WWW), will influence the development, deployment, and use of marketing decision models. The Internet is bringing about major changes in how businesses are conceived and managed, ushering in the era of e-business. Our goal here is to articulate how model deployment and use are changing because of the Internet: How will the Internet change the environment for marketing modeling? And, what should marketing modelers do to better adapt to this environment?

We first describe three important ways the Internet influences marketing modeling: (1) It de-couples model, data, and the user interface, unlike traditional models that integrate these components. (2) It expands the reach of marketing models to a much broader, more heterogeneous group of users. (3) It vastly increases the opportunities for gathering and using data, information, and insights to support decision-making. We then sketch the new challenges facing model developers working in the Internet environment, and the new kinds of thinking they must embrace to encourage wider and more effective use of their models.

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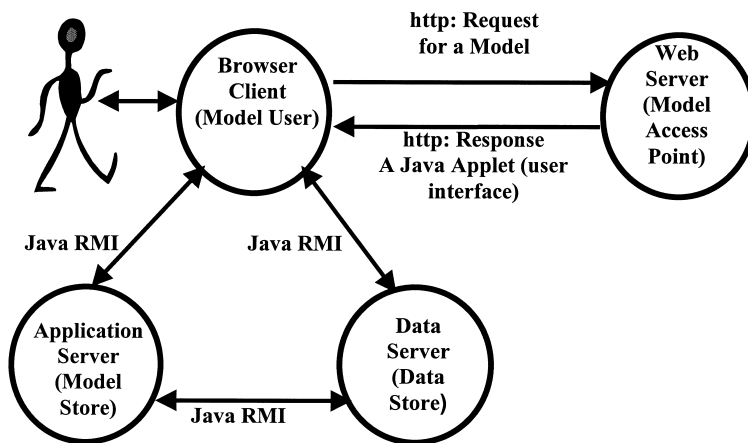
2. Marketing modeling on the Net

2.1. De-coupling models, data, and user interfaces

The Internet is built on the client–server architecture for computing. Because of this architecture, a client (e.g., a manager using a browser) can access software applications (e.g., marketing models) located on servers anywhere in the world. Further, the data required for executing the models can be located on servers elsewhere. In contrast to traditional models on standalone computers (where these elements are typically integrated), this architecture permits a model, its data, and the user interface to be de-coupled as shown in Fig. 1. This de-coupling can both enhance the scope of models used by managers and improve the speed and convenience associated with using those models. In particular, a user can employ a simple universal tool (i.e., a browser) as a model interface, provide real-time data feeds for model execution, and integrate multiple data sources and models to address specific marketing decision problems. See Krishnan and Padman (1997) and Bhargava and Krishnan (1998) for more detailed discussions about how the Internet's architecture creates flexible modeling environments.

On the Internet, knowledge resources (e.g., content, data, and models) are digitized, decentralized, and networked. Thus, these resources can be combined when and where needed, driven by user needs. However, before this opportunity can be fully exploited, knowledge resources must be given the same "name tags" throughout a distributed system. Thus, words like "repeat purchase" or "Bass model," must be interpreted in an identical way by all the systems sharing the common knowledge resources. Standards and protocols, such as Extended Markup Language (XML), Resource Description Framework (RDF), Remote Method Invocation (RMI), Common Object Resource Broker Architecture (CORBA) — a more general version of RMI — and Microsoft's version of CORBA, called Distributed Component Object Module (DCOM), make it feasible to use consistent tags and data and communication structures for developing models that can be deployed on the Internet.

The emerging flexible modeling environment of the Internet can greatly expand the deployment and use of marketing decision models. We envision a continuum of marketing models, classified along two dimensions, which can be leveraged on the Internet, shown in Fig. 2. On the horizontal axis (Degree of Integration), we distinguish between standalone models (e.g., supporting a single user for a single task) on one extreme and those that are integrated with organizational processes, databases, and other

Fig. 1. Modeled to bits: one approach by which models, data, and user interfaces, traditionally combined together, are de-coupled in a web environment.