



# **Do Some Business Models Perform Better than Others? A Study of the 1000 Largest US Firms**

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MIT Sloan School of Management Working Paper No.  
MIT Center for Coordination Science Working Paper No. 226

## **Abstract**

Despite its common use by academics and managers, the concept of *business model* remains seldom studied. This paper begins by defining a business model as what a business does and how a business makes money doing those things. Then the paper defines four basic types of business models (Creators, Distributors, Landlords and Brokers). Next, by considering the type of asset involved (Financial, Physical, Intangible, or Human), 16 specialized variations of the four basic business models are defined. Using this framework, we classify the revenue streams of the top 1000 firms in the US economy in fiscal year 2000 and analyze their financial performance. The results show that business models are a better predictor of financial performance than industry classifications and that some business models do, indeed, perform better than others. Specifically, selling the right to use assets is more profitable and more highly valued by the market than selling ownership of assets. Unlike well-known concepts such as industry classification, therefore, this paper attempts to describe the deeper structure of what firms do and thereby generate novel insights for researchers, managers and investors.

## **Do Some Business Models Perform Better than Others?**

### **A Study of the 1000 Largest US Firms**

Few concepts in business today are as widely discussed—and as seldom systematically studied—as the concept of business models. Many people attribute the success of companies like eBay, Dell, and Amazon, for example, to the ways they used new technologies—not just to make their operations more efficient—but to create new business models altogether. In spite of all the talk about business models, however, there have been very few large-scale systematic empirical studies of them. We do not even know, for instance, how common the different kinds of business models are in the economy and whether some business models have better financial performance than others.

This paper provides a first attempt to answer these basic questions about business models. To answer the questions, we first develop a comprehensive typology of four basic types of business models and 16 specialized variations of these basic types. We hypothesize that this typology can be used to classify any for-profit enterprise that exists in today's economy. As partial confirmation of this hypothesis, we classify the business models of the 1000 largest US enterprises. Finally, we analyze various kinds of financial performance data for the different kinds of business models to determine whether some models perform better than others.

We find that some business models are much more common than others, and that some do, indeed, perform better than others. For example, the most common business models for large US companies involve selling ownership of assets to customers (e.g. manufacturers and distributors). However, in the time period of our study (fiscal year 2000), these business models

perform less well (in terms of both profitability and market value) than business models in which customers use—but don't buy—assets (e.g. landlords, lenders, publishers, and contractors).

This study does not answer other questions like why these differences exist, whether they are changing over time, or how individual companies can exploit or modify their business models to improve their performance. But we hope that the work described here will provide a foundation for future work on these questions.

## **Background**

Even though the concept of business model is potentially relevant to all companies, our search of the organization, economic, and strategy literatures, found few articles on business models, and no large-scale studies on the topic. Instead several authors have provided useful frameworks for analyzing businesses, such as profit models (Slywotzky and Morrison, 1997) and strategy maps (Kaplan and Norton, 2004). These approaches are based on a long tradition of classifying firms into “internally consistent sets of firms” referred to as strategic groups or configurations (Ketchen, Thomas, and Snow 1993). These groups—typically conceived of, and organized through the use of typologies and taxonomies (e.g., Miles and Snow, 1978; Galbraith and Schendel, 1983; Miller and Friesen, 1978)—are then often used to explore the determinants of performance.

Most of the academic research on business models was done in the context of e-business—new ways of doing business enabled by information technology. Research on e-business models has focused primarily on two complementary streams: taxonomies of business models and definitions of components of business models (Hedman and Kalling, 2001). For example, Timmers (1998) defines a business model as including an architecture for the product, service, and information flows, a description of the benefits for the business actors involved, and

a description of the sources of revenue. While Timmer's definition does not limit the notion of a business model to e-commerce, he applies business models to that domain, using two dimensions 1) functional integration (number of functions integrated) and 2) degree of innovation (ranging from simply translating a traditional business to the Internet, to creating completely new ways of doing business) resulting in eleven distinct Internet business models.

Business model definitions and descriptions have proliferated since Timmers. For example, Tapscott, Ticoll, and Lowy (2000) focus on the system of suppliers, distributors, commerce service providers, infrastructure providers, and customers, labeling this system the business-web or "b-web." They differentiate business webs along two dimensions: control (from self-control to hierarchical) and value integration (from high to low). Weill and Vitale (2001) include "roles and relationships among a firm's customers, allies, and suppliers, major flows of product, information, and money, and major benefits to participants" in their definition of a business model. They describe eight atomic e-business models, each of which can be implemented as a pure e-business model or combined to create a hybrid model. Rappa (2003) defines a business model as "the method of doing business by which a company can sustain itself" and notes that the business model is clear about how a company generates revenues and where it is positioned in the value chain. Rappa presents a taxonomy of business models observed on the web, currently listing nine categories.

Other definitions of business models emphasize the design of the transactions of a firm in creating value (Amit and Zott, 2001), the blend of the value stream for buyers and partners, the revenue stream, and the logical stream (the design of the supply chain) (Mahadevan, 2000), and the firm's core logic for creating value (Linder and Cantrell, 2000). In an attempt to integrate these definitions, Osterwalder, Lagha, and Pigneur (2002) propose an e-business framework with

four pillars: the products and services a firm offers, the infrastructure and network of partners, the customer relationship capital, and the financial aspects.

Common to all of these definitions of business and e-business models is an emphasis on how a firm makes money; some go beyond this and discuss creating value. Porter (2001) described the emphasis in business models on generating revenues as “a far cry from creating economic value”. In contrast, Magretta (2002) argued that the strength of a business model is that it tells a story about the business, focusing attention on how pieces of the business fit together - with the strategy describing how the firm differentiates itself and deals with competition. Business models have the added attraction of being potentially comparable across industries.

### **Defining business models**

For a systematic study of business models, we need to define business models and distinguish their different types. We define a business model as consisting of two elements: (a) what the business does, and (b) how the business makes money doing these things.

To distinguish different types of business models we created a typology of how companies differ in terms of these two elements. Of course, there is no single right way to distinguish different types of business models. But some typologies are certainly better—or more useful—than others. In developing our typology, we focused particularly on trying to achieve the following desirable characteristics (see Scott, 1981, for a related set of criteria for organizational typologies):

- (1) The typology should be *intuitively sensible*. That is, it should capture the common intuitive sense of what a business model means by grouping together businesses that seem similar in their business models, and separating businesses that seem different.

These similarities and differences should not just be at a superficial level (such as grouping together all businesses in the same industry). Instead, the typology should group together businesses at the deeper level of how their activities create value. The names of different categories should also be self-explanatory.

- (2) The typology should be *comprehensive*. That is, it should provide a systematic way of classifying all businesses, not just “e-businesses” or any other restricted subset of companies.
- (3) The typology should be *clearly defined*. That is, it should define systematic rules for determining the business model(s) of a given company in a way that does not depend on highly subjective judgment. While some amount of subjective judgment is always needed in classifying real organizations, different people should, as much as possible, classify the same company in the same way, if given the same information.
- (4) The typology should be *conceptually elegant*. Conceptual elegance is somewhat subjective, but we were guided by the desire to use as few concepts as possible, with the additional conditions that the concepts also had to be simple, and as self-evidently complete as possible.

In developing the typology, we went through three major versions of our typology (and numerous minor revisions) over the course of three years. At first, we simply tested our proposed typologies with obvious examples generated in discussion. Later, we tested the proposed typologies more systematically by classifying large numbers of companies. The last major revision occurred after we had already classified almost 1000 companies and resulted in

reclassifying almost all the previously classified companies (often by moving an entire category of companies to a new category).

Our final typology is based on two fundamental dimensions of what a business does. The first dimension—what types of rights are being sold—gives rise to four basic business models: Creator, Distributor, Landlord, and Broker. The second dimension—what type of *assets* are involved—distinguishes among four important asset types: physical, financial, intangible, and human. This distinction leads to four subcategories within each of the four basic business models for a total of 16 specialized business model types. Of these 16 possible business models, only 7 are common among large companies in the U.S. today. Together, we call all of these business model types the MIT *Business Model Archetypes* (BMAs).

### **What rights are being sold? The four Basic Business Model Archetypes**

The heart of any business is what it sells. And perhaps the most fundamental aspect of what a business sells is what kind of legal rights they are selling. The first, and most obvious, kind of right a business can sell is the right of *ownership* of an asset. Customers who buy the right of ownership of an asset have the continuing right to use the asset in (almost) any way they want including selling, destroying, or disposing of it.

The second obvious kind of right a business can sell is the right to *use* an asset, such as a car or a hotel room. Customers buy the right to use the asset in certain ways for a certain period of time, but the owner of the asset retains ownership and can restrict the ways a customers use the asset. And, at the end of the time period, all rights revert to the owner.

In addition to these two obvious kinds of rights, there is one other less obvious—but important—kind of right a business can sell. This is the right to be *matched* with potential



buyers or sellers of something. A real estate broker, for instance, sells the right to be matched with potential buyers or sellers of real estate.

As Figure 1 shows, each of these different kinds of rights corresponds to a different basic business model. The figure also reflects one further distinction we found useful. For companies that sell ownership of an asset, we distinguish between those that significantly transform the asset they are selling and those that don't. This allows us to distinguish between companies that make what they sell (like manufacturers) and those that sell things other companies have made (like retailers).

(Insert Figure 1 here.)

We could have ignored this distinction and had only one basic business model (called, for example, "Seller") including all companies selling ownership rights. But if we had done so, the vast majority of all companies in the economy would have been in this category, and we would have lost an important conceptual distinction between two very different kinds of business models: manufacturers and distributors. Conversely, making this distinction in all the other rows of the table would have divided intuitively sensible categories in ways that are of little apparent intuitive value in business. For instance, people do not usually distinguish between landlords that have created the assets they rent out and those that haven't.

With these two distinctions—kind of rights sold and amount of transformation of assets—we arrive at the four basic business models shown in Figure 1:

(1) A *Creator* buys raw materials or components from suppliers and then transforms or assembles them to create a product sold to buyers. This is the predominant business model in all manufacturing industries. A key distinction between Creators and Distributors (the next model)

is that Creators design the products they sell. We classify a company as a Creator, even if it outsources all the physical manufacturing of its product, as long as it does substantial design of the product.

(2) A *Distributor* buys a product and resells essentially the same product to someone else. The Distributor may provide additional value by, for example, transporting or repackaging the product, or by providing customer service. This business model is ubiquitous in wholesale and retail trade.

(3) A *Landlord* sells the right to use, but not own, an asset for a specified period of time. Using the word “landlord” in a more general sense than its ordinary English meaning, we define this basic business model to include not only physical landlords who provide temporary use of physical assets (like houses, airline seats and hotel rooms), but also lenders who provide temporary use of financial assets (like money), and contractors and consultants who provide services produced by temporary use of human assets.

This business model highlights a deep similarity among superficially different kinds of business: All these businesses—in very different industries—sell the right to make temporary use of their assets.

(4) A *Broker* facilitates sales by matching potential buyers and sellers. Unlike a Distributor, a Broker does not take ownership of the product being sold. Instead, the Broker receives a fee (or commission) from the buyer, the seller, or both. This business model is common in real estate brokerage, stock brokerage, and insurance brokerage.

### **What assets are involved? The 16 detailed Business Model Archetypes**

The other key distinction we use to classify business models is the type of asset involved in the rights that are being sold. We consider four types of assets: physical, financial, intangible,

and human. *Physical* assets include durable items (such as houses, computers, and machine tools) as well as nondurable items (such as food, clothing, and paper). *Financial* assets include cash and other assets like stocks, bonds, and insurance policies that give their owners rights to potential future cash flows. *Intangible* assets include legally protected intellectual property (such as patents, copyrights, trademarks, and trade secrets), as well as other intangible assets like knowledge, goodwill, and brand image. *Human* assets include people's time and effort. Of course, people are not "assets" in an accounting sense and cannot be bought and sold but their time (and knowledge) can be "rented out" for a fee.

As Figure 2 shows, each of the Basic Business Model Archetypes can be used (at least in principle) with each of these different types of assets. This results in 16 detailed Business Model Archetypes (BMAs). While all of the models are logically possible, some are quite rare, and two (Human Creator and Human Distributor) are illegal in most places today. Definitions and examples of these BMAs follow:

(Insert Figure 2 here.)

(1) An *Entrepreneur* creates and sells financial assets. The most common case of this business model occurs in companies or individuals who create and sell other companies. Examples: Serial entrepreneurs, "incubator" firms, other active investors in very early stage companies. We use the term "entrepreneur" here in a more restricted sense than the ordinary English meaning because we don't include in this business model entrepreneurs who never sell the companies they create.

(2) A *Manufacturer* creates and sells physical assets. Manufacturer is the predominant type of Creator. Examples: General Motors, Bethlehem Steel.

(3) An *Inventor* creates and then sells intangible assets such as patents and copyrights. Companies using this business model exclusively are very rare, but some technology companies generate part of their revenues this way. Example: Lucent's Bell Labs (see [patentsales.lucentssg.com](http://patentsales.lucentssg.com)). Firms that license the use of their intangible assets while still retaining ownership are not classified as Inventors; they are Intellectual Landlords (see below).

(4) A *Human Creator* creates and sells human assets. Since selling humans—whether they were created naturally or artificially—is illegal in most places today, this business model is included here for logical completeness, but it does not play an important role in the U.S. economy.

(5) A *Financial Trader* buys and sells financial assets without significantly transforming (or designing) them. Banks, investment firms, and other financial institutions that invest for their own account are included in this business model. Examples: parts of Merrill Lynch and Goldman Sachs.

(6) A *Wholesaler/Retailer* buys and sells physical assets. This is the most common type of Distributor. Examples: Wal\*Mart, Amazon.

(7) An *Intellectual property (IP) Trader* buys and sells intangible assets. This business model includes firms that buy and sell intellectual property such as copyrights, patents, domain names, etc. Example: NTL Inc.

(8) A *Human Distributor* buys and sells human assets. Like Human Creators, this business model is illegal and rare in most places and is included here only for logical completeness.

(9) A *Financial Landlord* lets others use cash (or other financial assets) under certain (often time-limited) conditions. There are two major subtypes of this business model:

(9a) Lenders provide cash that their customers can use for a limited time in return for a fee (usually called “interest”). Examples: Bank of America, Fannie Mae.

(9b) *Insurers* provide their customers financial reserves that the customers can use only if they experience losses. The fee for this service is usually called a “premium.” Examples: Aetna, Chubb.

(10) A *Physical Landlord* sells the right to use a physical asset. The asset may, for example, be a location (such as a hotel room or amusement park) or equipment (such as a rental car). Depending on the kind of asset, the payments by customers may be called “rent”, “lease”, “admission”, or other similar terms. This business model is common in industries like real estate rental and leasing, accommodation, airlines and recreation. Examples: Marriott, Hertz division of Ford.

(11) An *Intellectual Landlord* licenses or otherwise gets paid for limited use of intangible assets. There are three major subtypes of Intellectual Landlord:

(11a) A *Publisher* provides limited use of information assets such as software, newspapers, or databases in return for a purchase price or other fee (often called a subscription or license fee). When a Publisher sells a copy of an information asset, the customer receives certain limited rights to use the information, but the publisher retains the right to make additional copies and resell the information. Example: Microsoft. Many publishers also receive revenues from advertising that is bundled with the information assets, but this revenue is classified as part of the Attractor business model (see below).

(11b) A *Brand Manager* gets paid for the use of a trademark or other elements of a brand. This includes franchise fees for businesses such as restaurant or hotel chains. Example: Wendy's.

(11c) An *Attractor* attracts people's attention using, for example, television programs or web content and then "sells" that attention (an intangible asset) to advertisers. The Attractor may devote significant effort to creating or distributing the assets that attract attention, but the source of revenue is from the advertisers who pay to deliver a message to the audience that is attracted. This business model is common in radio and television broadcasting, some forms of publishing, and some Internet-based businesses. Example: New York Times.

(12) A *Contractor* sells a service provided primarily by people, such as consulting, construction, education, personal care, package delivery, live entertainment or healthcare. Payment is in the form of a fee for service, often (but not always) based on the amount of time the service requires. Examples: Accenture, Federal Express.

In most cases, Contractors also require physical assets (such as tools and workspace), and Physical Landlords also provide human services (such as cleaning hotel rooms and staffing amusement parks) associated with their physical assets. In cases where substantial amounts of both human and physical assets are used to provide a service, we classify a company's business model (as Contractor or Physical Landlord) on the basis of which kind of asset is "essential" to the nature of the service being provided.

For example, a passenger airline would generally be considered a Physical Landlord—even though it provides significant human services along with its airplanes—because the essence of the service provided is to transport passengers from one place to another by airplane. Conversely, a package delivery service (like Federal Express) would generally be classified as a

Contractor because the essence of the service provided is to have packages picked up and delivered (usually by people) regardless of the physical transportation mode used (bicycle, truck, train, etc.).

(13) A *Financial Broker* matches buyers and sellers of financial assets. This includes insurance brokers and stock brokerage functions in many large financial firms. Examples: e\*Trade, Schwab.

(14) A *Physical Broker* matches buyers and sellers of physical assets. Examples: eBay, Priceline, Century 21.

(15) An *Intellectual property (IP) Broker* matches buyers and sellers of intangible assets. Example: Valassis

(16) A *Human Resources (HR) Broker* matches buyers and sellers of human services. Examples: Robert Half, EDS.

As the subtypes of Financial Landlord and Intellectual Landlord listed above illustrate, it is certainly possible to subdivide these 16 detailed Business Model Archetypes even further. For now, however, we have found that this level of granularity provides a useful level of analysis. In fact, for many purposes, we find it useful to merge the cells in the rows where most of the cells are sparsely populated. This leads to the following 7 business models which we call the Common Business Model Archetypes: Creator, Distributor, Financial Landlord, Physical Landlord, Intellectual Landlord, Contractor, and Broker.

## **Method**

To answer our basic questions about business models, we needed to select a sample of companies, classify their business models, and then analyze their financial performance.

### *Sample of companies*

We chose to use the largest 1000 publicly traded companies based in the United States, with size determined by gross revenues as reported in the COMPUSTAT database for fiscal year 2000.<sup>1</sup> Together, these 1000 firms account for 76% of the US Gross Domestic Product. We chose not to use the Fortune 1000 database because it includes non-publicly traded firms for which some of the data needed for our analysis were not available.

### *Classifying companies' business models*

We classified companies' business models using the companies' revenue as a guide (recall the second part of our definition of business models: "how a company makes money"). We conjectured that many companies would have more than one business model so we classified a company's business models separately for each revenue stream the company reported; that a company had multiple revenue streams, however, did not necessarily mean that a company had multiple business models.

More specifically, we used: (a) the dollar amounts of the company's revenue segments as reported by COMPUSTAT or the publicly filed SEC Form 10-K and (b) the textual descriptions of the revenue segments as reported in the 10-Ks.<sup>2</sup> In each case, we read the textual descriptions of the revenue segments and then, using the definitions of the business models above, classified the revenue according to which Business Model Archetype(s) it represented.

We faced two major issues in classification. First, we had to interpret the qualitative, textual descriptions each company provided for its different business segments. Even though there was, of necessity, some subjective judgment involved in this process, we trained a team of raters to do this in a reliable and consistent way (see below).



Second, when the text indicated that multiple business models were included in a single reported revenue segment, we had to somehow allocate revenues across the different business models. To do this, we first used any detailed information in the 10-K to make a specific split of the revenue. In the absence of any such details, we used our judgment to allocate revenue across models. However, we did not attempt to make arbitrarily fine-grained subjective allocations. Instead, we either split the revenue evenly across all of the different models that were included in the segment or, if the text implied that one model was much more important than the others, we assigned all the revenue to that model.

To illustrate these classifications, Figure 3 shows the classification for General Electric (GE). Note, for example, that the line item “Equipment Management (GE Capital Services)” is repeated and assigned to two different business models (Lender and Contractor). The text of the Form 10-K implied that GE Capital Services both lent money and performed services for the Equipment Management line of business, but it gave no details as to how much of each was done. Therefore we split the revenue for the line item equally among the models.

(Insert Figure 3 here.)

In order to classify the large number of companies we needed to analyze, we trained a team of eight MIT students to use the classification methodology just described. Each company’s business models were classified by at least one of these students and all the classifications were also reviewed (and, if necessary, corrected) by a senior MIT research staff member (Herman). We used an interactive online database to record all the classifications along with comments about how classifications were determined.

To assess consistency we tested inter-rater reliability among our eight raters for a random sample of 49 companies. For the 173 revenue line items in these 49 companies, two raters independently rated each line item. Of these ratings, 90% (156) were identical, and Cohen's Kappa statistic was 0.86 (significant at  $p < .01$ )<sup>3</sup> confirming that the different raters applied the classification methodology consistently.

### *Measuring financial performance*

There is no universally or even commonly used set of measures for evaluating the financial performance of firms. Multiple measures covering investor and accounting returns are typically recommended (e.g., Brealey and Myers, 2000; Cochran and Woods, 1984) including: *profitability*, *efficiency*, and *market value*. A wide range of measures has been used in previous research assessing strategic groups or other organizational factors against firm performance. (e.g., Ketchen et al, 1993; Capon et al, 1990). For consistency with prior work to evaluate the financial performance of strategic groups we followed the lead of Ketchen et al who identified a table of 45 measures of performance in 6 categories: Sales, Equity and Investment, Assets, Margin and Profit, Market share and Overall (perceptual measures). Like Ketchen et al we used measures from each of these categories that were appropriate for our objective. We dropped the overall perceptual category (e.g., respondent rating) as not objective and used the sales category as a control rather than dependent variable as we were not interested in predicting size. We combined the Equity and Investment and Assets categories and used market valuation rather than Market Share as we were more interested in predicting the investor's view of future performance rather than share. The result was a performance assessment using two metrics in each of three classes of performance: operating income and Economic Value Added<sup>4</sup> (as measures of *profit*), return on invested capital (ROIC) and return on assets (as a measures of rates of return and

*efficiency*), and market capitalization and Tobin's Q (as a measures of *market value*). All these measures have been used in many studies of financial performance. For each of the three performance constructs, the two measures gave very similar results and thus we only report the first measure listed.

All of these measures are based on data from the COMPUSTAT database for fiscal year 2000, including any restatements available up until September 30, 2003. To measure operating income, we used Operating Income Before Depreciation (OIBD), which includes Sales minus Cost of Goods Sold and Selling, General, and Administrative expenses before deducting Depreciation, Depletion, and Amortization. We used Operating Income Before Depreciation instead of Operating Income After Depreciation because depreciation charges can be manipulated by management in ways that do not necessarily reflect the operating performance of the business model. Similarly, other measures of income (such as Net Income) include non-operating expenses like taxes and interest, and they also include extraordinary items like buying and selling other companies. While these other measures are useful for evaluating the overall performance of a company and its management, they are not as direct a measure of the operating performance of the business models themselves.

To measure ROIC, we used OIBD divided by Total Invested Capital. Total Invested Capital is the sum of the following items: Total Long-Term Debt, Preferred Stock, Minority Interest, and Total Common Equity<sup>5</sup>. To measure market capitalization, we used the COMPUSTAT variable by the same name, defined as the total number of shares of common stock outstanding times the share price.

Since these measures of financial performance are reported only for the firm as a whole, we use regression equations in which each business model gets "credit" for the performance of

the whole firm in proportion to the amount of revenue from that business model. Two of our performance measures (operating income and market capitalization) are measured in dollars, while ROIC is a ratio. These two different kinds of measures require different kinds of statistical treatment.

*Estimation for Dollar-Amount Performance Measures.* Both operating income and market capitalization are highly correlated with revenue (correlations of .75 and .64, respectively). To control for firm size, therefore, we include total firm revenues as one of the control variables in the equation:

$$P = \alpha + \beta_1(BM_1) + \beta_2(BM_2) + \dots + \beta_{n-1}(BM_{n-1}) + \gamma_1R + \gamma_2\ln(E) + \delta_1I_1 + \delta_2I_2 + \dots + \delta_{20}I_{20} + \varepsilon$$

where  $P$  is firm performance, the explanatory variables  $BM_i$  denote the dollar amount revenues from each business model in the firm,  $R$  is total firm revenue, and  $\varepsilon$  is the normally distributed error term. Two other types of controls are also used:  $E$  is the number of employees in the firm, and  $I_i$  is 1 if the firm is classified in industry group  $i$ , 0 otherwise. For these industry classifications, we use the two-digit NAICS<sup>6</sup> code of the main industry group into which the company is classified in COMPUSTAT. Each firm is classified into a single industry group even if it actually participates in multiple industries. The firms in our sample were classified into a total of 20 industry groups.

Since the total of the revenues from all business models ( $\sum BM_i$ ) is the same as  $R$ , there is a potential problem with multi-collinearity in the regression. To avoid this problem, we omit one of the types of business model and use it as a baseline reference for the performance of the

remaining models. In each case, we (arbitrarily) pick the most common business model in the set of business models being compared as the baseline.

*Estimation for Return on Invested Capital.* When using the ROIC to measure firm performance, we use ratios (instead of dollar amounts) for business model participation:

$$\text{ROIC} = \alpha + \beta_1(\text{bm}_1) + \beta_2(\text{bm}_2) + \dots + \beta_{n-1}(\text{bm}_{n-1}) + \gamma_1\text{R} + \gamma_2\ln(\text{E}) + \delta_1\text{I}_1 + \delta_2\text{I}_2 + \dots + \delta_{20}\text{I}_{20} + \varepsilon$$

where  $\text{bm}_i$  stands for the percentage of total firm revenue attributable to business model  $i$ , and all the other variables are the same as above. In this case, the total of contributions from all the business models is 1, so we again exclude one of the business model categories.

## Results

### *Distribution of Business Models*

Figure 4 shows the distribution of different business models in our sample of large US firms. By far the most common basic business model in our sample is Creator, with 46% of total revenues of the firms in our sample falling within this category. Landlord type models account for 34% of total revenues, followed by Distributors with 18% of total revenues, and Brokers with 2%. In addition, an overwhelming portion (70%) of the business of large-revenue, publicly traded firms still involves physical assets. Financial and Human assets account for 12% and 13%, respectively, and Intangible assets are only 4% of the revenues of large firms. Figure 4 also shows the numbers of firms generating revenues with each model and asset type.

(Insert Figure 4 here.)

The distribution of asset types among the different basic business models also presents an intriguing pattern. Two of the basic business models have almost all their revenues concentrated in only one or two types of asset (physical assets for Creators, physical and financial assets for Distributors), while the other two basic business models (Landlords and Brokers) have their revenues spread fairly evenly across all asset types.

### *Financial performance of Business Models*

Figure 5 shows sample regression results for predicting one of our measures—Operating Income Before Depreciation—with and without business models as predictors. In the regression without business models as predictors, only one variable is significant, total firm revenue, and the total variance explained is only 59% (as measured by the adjusted  $R^2$ ). In the regression with business models as predictors, all three of the business models included are significant predictors, and the total variance (adjusted R Square) explained increases to 83%.

(Insert Figure 5 here.)

This means, first of all, that a company's business models are substantially better predictors of its operating income than its industry classification and other control variables alone. Second, we can interpret the business model coefficients as follows: Increases in a company's revenue from the Broker or Landlord business models are associated with significantly greater increases in the company's operating income than an equal increase in their Creator or Distributor revenue. Figures 6, 7, and 8, summarize similar regressions for the three performance measures Operating Income, Return on Investment, and Market Capitalization, respectively. Each table summarizes three regressions: one regression comparing the four Basic

Business Model Archetypes (rows); one comparing the four asset types (columns), and one comparing the 12 detailed Business Model Archetypes (interior cells) with non-zero representation in our sample. In each regression, a baseline model is used: Creator for the row comparisons, Physical assets for the column comparisons, and Manufacturer for the interior cell comparisons. The significance tests shown are tests of difference from the relevant baseline model in each case.

(Insert Figures 6, 7, and 8 here.)

The coefficients in these three Figures have been scaled to be interpretable as changes per \$1M of revenue (for Operating Income and Market Capitalization) and per 1% change in revenue (for ROIC). For instance, the coefficient of -0.074 for Distributor revenue in Figure 5 is shown as -\$74,000 in Figure 6. This means that \$1M in Distributor revenue (instead of Creator revenue) is associated with a decrease of \$74,000 in Operating Income.

The most important results shown in these three figures involve the row and column comparisons. Both Brokers and Landlords have significantly higher Operating Income than Creators and Distributors.<sup>7</sup> Brokers and Landlords also have significantly higher Market Capitalization than Creators, but we don't know whether the differences are significant for Distributors. Similarly, business models based on the three non-physical types of assets (Financial, Intangible, and Human) all have significantly higher Operating Income and Market Capitalization than those based on Physical assets. The interior cell comparisons are also qualitatively quite consistent with these row and column results.

Interestingly, there are essentially no significant differences among any of the business models for ROIC. Only 1 of the 17 tests shown in the table for Return on Investment is significant, and that is only at the 5% level.<sup>8</sup> This result is quite consistent with an efficient markets hypothesis: If some business models consistently generated higher returns on investment than others, then we should expect to see investment capital migrate to those business models until that was no longer the case. The efficient markets hypothesis, however, would not necessarily lead to the same prediction about our other measures. Even in an efficient market, some business models could generate higher incomes or market capitalization than others, even after adjusting for revenue and industry.

For instance, one possible explanation for the result that Landlords have higher Operating Income and Market Capitalization than Creators and Distributors could be the following: Creators and Distributors need only enough capital to create or acquire the assets they sell, and then their customers take over financing ownership of the assets. Landlords, on the other hand, need enough capital to finance ownership of the assets throughout their useful lives. This means, first of all, that Landlords should have higher depreciation charges, and thus that the effect might disappear if we were to use Operating Income After Depreciation (OIAD) instead of Operating Income Before Depreciation (OIBD). Second, this need for additional capital could lead to a need for higher Market Capitalization (controlling for revenue). To compensate investors for this additional capital requirement, Operating Income (controlling for Revenue) would also need to be higher.

To test these possible explanations for our results, we first ran the same regression with OIAD instead of OIBD. This changed the absolute values of the coefficients, but both Brokers and Landlords still had significantly higher Operating Income than Creators and Distributors.



Next, we added Total Invested Capital as a control variable in the regressions for OIBD and Market Capitalization. Surprisingly, adding this control variable also made almost no difference in the qualitative results.<sup>9</sup> There must, therefore, be some other—less obvious—explanation for our results.

Figure 9 summarizes our key results with the rank orderings of the 7 most common business models in the largest U.S. firms. The four cells in the Landlord row are broken out separately, and the other three rows have their interior cells merged. Again, it's clear that Brokers and all four types of Landlords have both higher Operating Income and higher Market Capitalization than Creators and Distributors (with uncertainty about whether the difference in Market Capitalization is significant for Distributors). For both these measures, it is striking that all four types of Landlords cluster together in the rank orderings, even though they are in very different types of industries. These results also show, again, very weak or nonexistent differences among the different business models in Return on Investment.

(Insert Figure 9 here.)

## **Discussion**

Our results have answered—in the affirmative—the question posed by the title of our paper. For at least two broad measures of financial performance—profit and market value — some business models do, indeed, perform better than others. Furthermore, business model classifications are better predictors of these measures of financial performance than two-digit industry codes. Why should this be so? One possible explanation is simply that our business model classifications are much more precise than COMPUSTAT's industry classifications. We classified each of a company's revenue streams individually and used a percentage weighting of

these classifications to explain performance rather than using a single industry classification for the entire company.

Another possible explanation—more consistent with our conceptual approach—is that our business models capture the essence of what a company does more accurately than its industry. In some cases, our models make finer distinctions than industry classifications. For instance, NAICS industry code 53 (Real Estate and Rental and Leasing) lumps together three types of businesses (real estate lessors, real estate brokers, and real estate property managers) which we would classify in three different business models (Physical Landlord, Physical Broker, and Contractor, respectively). In other cases, our models group together industries that seem very different on the surface but that actually have deep similarities. For instance, we include all the following industries in our Landlord business model: real estate leasing (NAICS 5311), transportation (NAICS 48), accommodation (NAICS 721), and publishing (NAICS 511).

Perhaps most intriguing is that—at least during fiscal year 2000—selling *use* of assets to customers was more profitable, and more highly valued by the market, than selling *ownership* of assets. Our conceptual model distinguishes sellers of assets (Creators and Distributors) from sellers of use (Landlords and Brokers). Landlords sell the use of their financial, physical, intangible or human assets. Brokers sell use of their expertise and contacts to provide a match between buyers and sellers of any of the four types of assets. These conceptual differences may provide some insight to help explain the performance differentials.

Sellers of use, like providers of service tend to have capabilities “derived from idiosyncratic assets (such as investments in training and knowledge)” (Brouthers and Brouthers, 2003) with a greater involvement of the end consumer in the transaction. Sellers of ownership, like manufacturers, are more dependent on the capital and associated skills required to produce

and distribute the physical assets typically with less direct involvement of the consumer. In addition to the use-ownership differences, we found that business models based on non-physical assets were more profitable (and associated with higher market capitalization) than those based on physical assets. These benefits of idiosyncratic and non-physical assets (e.g. knowledge, customer relationships) may have been particularly significant (especially for market valuation measures) in the year 2000 when the value of online and intangible assets was at a peak. However, the trend toward selling services and use with a reliance on non-physical assets and relationships appears to be continuing today in the U.S. economy if at a more modest and realistic pace. In future work, we intend to investigate whether this performance difference is evident in a longitudinal analysis.

## **Conclusion**

In this paper, we have taken a first step toward the systematic study of business models. We have defined a reliable and practical classification framework for business models, and we have classified the 1000 largest public US companies using this framework. Using this framework, we found that some business models do, indeed, perform better than others on key measures of financial performance.

We hope that our results so far will be useful to several different kinds of readers. First, we hope they can help *researchers* systematically analyze changes over time in the business models of individual companies and whole populations of companies. We are especially interested, for example, in how this can shed light on the changes in our economy due to the increasing use of information technology. Second, we hope that *managers* can use our business model concepts to understand at a deeper level the structural choices they have to make about

their own companies' business models and how to manage these different business models effectively. Finally, we hope that our framework can provide *investors* with a useful lens for analyzing potential investments. Unlike well-known concepts such as industry classification, this perspective focuses on the deep structure of what companies actually do. And, since this perspective is not yet well-known, it may lead to novel insights about which investment opportunities are most attractive.

In any case, we believe that the work we have done so far is only the beginning of the systematic study of business models. We believe it raises more questions than it answers, and we hope it will provide a foundation for future work on these important questions

### **Acknowledgements**

We would especially like to thank Tom Apel for his insights and exemplary software support for this project and the extensive datasets it involved. In a future paper, we hope to report on his even more impressive work on automatic classification of business models. We are grateful for the insightful comments of Erik Brynjolffson, S.P. Kothari, Wanda Orlikowski and JoAnne Yates on earlier versions of this paper. We would also like to thank Rani Bhuvu, Preeti Chadha, Armando Herrera, J B. Hohm, Sonia E. Koshy, Kelsey Presson, Kristen Quinn, Elisa Rah, Alice Takajan, Isaac Taylor, and Jason Yeung for their work on coding business models, and Aaron Johnson and Jon Scott for their work on selecting financial performance measures. This research was funded by the National Science Foundation under grant number IIS-0085725.

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Figure 1. The Four Basic Business Model Archetypes

<i>What rights are being sold?</i>	<i>How much does the business transform the asset?</i>	
	<i>Significant</i>	<i>Limited</i>
Ownership of Asset	<b>Creator</b>	<b>Distributor</b>
Use of Asset	<b>Landlord</b>	
Matching of buyer and seller	<b>Broker</b>	

Figure 2. The Sixteen Detailed Business Model Archetypes

<i>Basic Business Model Archetype</i>	<i>What type of asset is involved?</i>			
	<i>Financial</i>	<i>Physical</i>	<i>Intangible</i>	<i>Human</i>
Creator	<b>Entrepreneur</b>	<b>Manufacturer</b>	<b>Inventor</b>	Human Creator*
Distributor	<b>Financial Trader</b>	<b>Wholesaler/ Retailer</b>	<b>IP Trader</b>	Human Distributor*
Landlord	<b>Financial Landlord</b>	<b>Physical Landlord</b>	<b>Intellectual Landlord</b>	<b>Contractor</b>
Broker	<b>Financial Broker</b>	<b>Physical Broker</b>	<b>IP Broker</b>	<b>HR Broker</b>

\* These models are illegal in the US and most places today because they involve selling human beings. They are included here for logical completeness.



Figure 3. Classification of General Electric Revenue for FY2000

<b>Company Segment</b>	<b>Revenue in \$000</b>	<b>% of Revenue</b>	<b>Business Model Archetype</b>	<b>Split</b>
Aircraft Engines	10,779	8.16	<i>Manufacturer</i>	
All Other (GE Capital Services)	4,582	3.47	<i>Distributor</i>	
Appliances	5,887	4.46	<i>Manufacturer</i>	
Consumer Services (GE Capital Services)	23,893	18.09	<i>Financial Landlord (Lender)</i>	
Equipment Management (GE Capital Services)	7,374	5.58	<i>Financial Landlord (Lender)</i>	50%
Equipment Management (GE Capital Services)	7,374	5.58	<i>Contractor</i>	50%
Industrial Products & Systems	11,848	8.97	<i>Manufacturer</i>	
Mid-Market Financing (GE Capital Services)	5,483	4.15	<i>Financial Landlord (Lender)</i>	
NBC	6,797	5.15	<i>IP landlord</i>	
Plastics	7,776	5.89	<i>Manufacturer</i>	
Power Systems	14,861	11.25	<i>Manufacturer</i>	
Specialized Financing (GE Capital Services)	5,648	4.28	<i>Financial Landlord (Lender)</i>	
Specialty Insurance (GE Capital Services)	11,878	8.99	<i>Financial Landlord (Insurer)</i>	
Technical Products & Services	7,915	5.99	<i>Manufacturer</i>	
Total Revenue	\$132,094			

Figure 4. Distribution of Business Model Archetypes

Percent = Percent of total sample revenue in Business Model Archetype

Number = Number of firms with any revenue in Business Model Archetype

<i>Basic Business Model Archetype</i>		<i>What type of asset is involved?</i>				<i>Total by Asset Right</i>
		<i>Financial</i>	<i>Physical</i>	<i>Intangible</i>	<i>Human</i>	
<i>What rights are being sold?</i>	<b><i>Creator</i></b> <i>(ownership of asset with significant transformation)</i>	Entrepreneur (0%; 0)	<b>Manufacturer</b> (46%; 565)	Inventor (0%; 0)	Human Creator (0%; 0)	(46%; 565)
	<b><i>Distributor</i></b> <i>(ownership of asset with limited transformation)</i>	Financial Trader (~0%; 34)	<b>Wholesaler/ Retailer</b> (18%; 258)	IP Trader (~0%; 2)	Human Distributor (0%; 0)	(18%; 288)
	<b><i>Landlord</i></b> <i>(use of asset)</i>	Financial Landlord (10%; 187)	<b>Physical Landlord</b> (6%; 132)	Intellectual Landlord (5%; 85)	<b>Contractor</b> (13%; 308)	(34%; 516)
	<b><i>Broker</i></b> <i>(matching of buyer and seller)</i>	Financial Broker (2%; 55)	<b>Physical Broker</b> (~0%; 15)	IP Broker (~0%; 1)	HR Broker (~0%; 5)	(2%; 75)
	<i>Total by Asset Type</i>	(12%; 205)	<b>(71%; 774)</b>	(5%; 86)	(13%; 308)	100%; NA

Note: All the non-negligible revenues from the entire sample are included in the 7 highlighted cells.

Figure 5. Regression Coefficients for Predicting Operating Income Before Depreciation with and without Business Models

	<i>Without business models</i>	<i>With business models</i>
Creator Revenue (Baseline)	—	—
Distributor Revenue	—	-0.074**
Landlord Revenue	—	0.231**
Broker Revenue	—	0.801**
Total Firm Revenue	0.19**	0.143**
Ln (Employees)	73.1	-106*
Industry control for Postal Service, Couriers, Warehousing and Storage	-455	-2976**
Other 19 industry controls not significant and not shown...	...	...
<i>Adjusted R-squared</i>	0.59	0.83
<i>N</i>	983	983

\*  $p < .05$ \*\*  $p < .01$ 

Note: N is less than 1000 because 17 firms have either an industry classification or number of employees missing in the COMPUSTAT database.

Figure 6. Performance of Different Business Model Archetypes on Operating Income

<i>Basic Business Model Archetype</i>	<i>What type of asset is involved?</i>				<i>Performance by Basic Business Model Archetype</i>
	<i>Financial</i>	<i>Physical</i>	<i>Intangible</i>	<i>Human</i>	
<b><i>Creator</i></b>	--	Baseline	--	--	<b>Baseline</b>
<b><i>Distributor</i></b>	\$525,000**	-\$79,000**	\$10,448,000	--	<b>-\$74,000**</b>
<b><i>Landlord</i></b>	\$238,000**	\$263,000**	\$269,000**	\$60,000**	<b>\$231,000**</b>
<b><i>Broker</i></b>	\$871,000**	-\$568,000**	-\$11,745,000	-\$180,000	<b>\$801,000**</b>
<b><i>Performance by asset type</i></b>	<b>\$36,000**</b>	<b>Baseline</b>	<b>\$20,000**</b>	<b>\$9,000**</b>	

\*\* p &lt; .01

Cells represent predicted changes in Operating Income per \$1M increase of revenue.

Figure 7. Performance of Different Business Model Archetypes on ROIC

<i>Basic Business Model Archetype</i>	<i>What type of asset is involved?</i>				<i>Performance by Basic Business Model Archetype</i>
	<i>Financial</i>	<i>Physical</i>	<i>Intangible</i>	<i>Human</i>	
<b><i>Creator</i></b>	--	Baseline	--	--	<b>Baseline</b>
<b><i>Distributor</i></b>	-2.4%	-0.2%	-447%	--	<b>-1.5%</b>
<b><i>Landlord</i></b>	-26%	-22%*	-9.2%	-10%	<b>-14.3%</b>
<b><i>Broker</i></b>	1.6%	-25%	1960%	-56%	<b>-0.04%</b>
<b><i>Performance by asset type</i></b>	<b>-11.1%</b>	<b>Baseline</b>	<b>5.1%</b>	<b>-1.0%</b>	

\* p &lt; .05

Cells represent predicted changes in ROIC per 1% increase of revenue but are not interpretable as the coefficients are not significant.

Figure 8. Performance of Different Business Model Archetypes on Market Capitalization

<i>Basic Business Model Archetype</i>	<i>What type of asset is involved?</i>				<i>Performance by Basic Business Model Archetype</i>
	<i>Financial</i>	<i>Physical</i>	<i>Intangible</i>	<i>Human</i>	
<b><i>Creator</i></b>	--	Baseline	--	--	<b>Baseline</b>
<b><i>Distributor</i></b>	-\$985,000	\$413,000**	-\$98,867,000	--	<b>\$380,000**</b>
<b><i>Landlord</i></b>	\$1,989,000**	\$1,034,000**	\$7,880,000**	\$1,817,000**	<b>\$1,899,000**</b>
<b><i>Broker</i></b>	\$709,000	\$3,138,000	\$71,220,000	-\$2,718,000	<b>\$666,000**</b>
<b><i>Performance by asset type</i></b>	<b>\$1,400,000**</b>	<b>Baseline</b>	<b>\$7,500,000**</b>	<b>\$1,300,000**</b>	

\*\* p &lt; .01

Cells represent predicted changes in Market Cap per \$1M increase of revenue.

Figure 9. Rank Orderings of the Seven Common Business Models on Three Performance Measures

<i>Operating Income</i>	
Broker	\$819,000**
Physical Landlord	\$269,000**
Intellectual Landlord	\$266,000**
Financial Landlord	\$253,000**
Contractor	\$81,000**
Creator	BASELINE
Distributor	-\$73,000**

<i>Market Capitalization</i>	
Intellectual Landlord	\$7,910,000**
Financial Landlord	\$1,965,000**
Contractor	\$1,742,000**
Physical Landlord	\$1,042,000**
Broker	\$731,000
Distributor	\$401,000**
Creator	BASELINE

<i>Return on Investment</i>	
Creator	BASELINE
Distributor	-0.38%
Broker	-8.6%
Intellectual Landlord	-9.3%
Contractor	-10.8%
Physical Landlord	-22.3%*
Financial Landlord	-27.9%*

\* p &lt; .05

\*\* p &lt; .01

## Notes

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<sup>1</sup> For information on the COMPUSTAT database, see <http://www.compustat.com>. Other studies have used the top gross revenue firms from the COMPUSTAT database as the sample for analysis (e.g., Lang & Stulz, 1994), but there is no commonly used name for this sample. We informally call our sample the “SeeIT 1000”, where “SeeIT” stands for “Social and Economic Explorations of Information Technology,” the name of the NSF project funding this research. See <http://seeit.mit.edu>.

<sup>2</sup> The US Securities and Exchange Commission (SEC) Form 10-K filings are available at <http://www.sec.gov/edgar/aboutedgar.htm>. We used the versions available from Thomson Research (formerly Global Access) at <http://research.thomsonib.com>. We classified companies’ business models during the period September 2001 to September 2003, and we used the most recent 10-K available for a company at the time of the analysis. All analysis, however, was based on revenue reported for FY 2000.

<sup>3</sup> Cohen's Kappa is useful to demonstrate inter-rater reliability for nominal data adjusting for agreement due to chance. (see Cohen, 1960).

<sup>4</sup> Economic Value Added (EVA) refers to a financial performance measure that is based on operating income after taxes, the investment in assets used to generate that income, and the weighted average cost of capital (Brewer, Chandra, and Hock, 1999). Stern Stewart has copyrighted the term EVA, though measures with similar conceptual underpinnings have been used for years. For more information about EVA, see Stern Stewart’s website: <http://www.sternstewart.com/evaabout/whatis.php>

<sup>5</sup> Note that the standard COMPUSTAT definition of ROI uses Income Before Extraordinary Items in the numerator, but we used OIBD instead for the reasons described above.

<sup>6</sup> North American Industry Classification System. For a description see [www.census.gov/epcd/www/naics.html](http://www.census.gov/epcd/www/naics.html).

<sup>7</sup> Even though not shown here, we also performed similar regressions for Economic Value Added (EVA), a measure of income that subtracts out the cost of the capital used to produce the income. The relative sizes of the coefficients and the significant differences in these regressions were almost identical to the ones shown here for Operating Income.

<sup>8</sup> Even though not shown here, we also performed similar regressions for Return on Assets. Here, too, there were only four significant differences, all at only the 5% level.

<sup>9</sup> Adding Total Invested Capital as a control in the regressions for the four rows and four columns leaves the rank ordering of coefficients and the significance levels unchanged with two exceptions (both for Market Capitalization): (1) the comparison between the Broker and Creator rows is not statistically significant, and (2) the rank ordering of the Human and Financial asset columns is reversed.