The Impact of Business Model Characteristics on IT Firms' Performance

Jean Rédis

Université Paris Est, ESIEE Management and IRGO, France
redisj@esiee.fr

ABSTRACT

This paper is an exploratory study. Its purpose is to investigate the influence of business model (BM) characteristics on the performance of new firms in the IT sector. We looked at three BM characteristics based on a review of the theoretical literature: the positioning of business activity on the industry value chain, the customer base targeted and the company's income model. Taken from a sample of 112 French companies set up between 1998 and 2002, the impact of these variables was successively tested on: the time it took a business to make a profit, its level of turnover and the total amount of venture capital raised. Our findings confirm that BM does indeed impact on the performance of new IT firms. In particular the company's positioning on the industry value chain and the choice of customer base targeted appear to have a clear impact on turnover and the time it takes a company to become profitable.

I. INTRODUCTION

A new company needs to be able to forecast its performance and plot its expansion path. This is true for both the entrepreneur who is setting out his business plan as well as for the venture capitalist likely to provide it with funding.

Forecasting is a sensitive issue, especially in the high tech sector. Indeed, there have been many technological (the internet and digital boom), economic (embracing value creation systems driven by institutional investors) and regulatory (the international deregulation movement) changes over the past ten years, leading to major shake-ups in the way companies are managed, particularly in the high technology sector. A number of new phenomena have arisen as a result of these developments: new professions have sprung up, companies are able to call on new sources of income and inter-company relationships are increasingly complex. The concomitance and suddenness of these radical changes called into question the traditional methods of strategic analysis and new analytical instruments are now required to gain insights into these new managerial realities. These are the main reasons why the business model (BM) concept came into being (Rédis, 2007).

According to Magretta (2002), a BM is like a story and this story describes how a company operates. The BM concept can be contrasted with the strategic concept. Magretta (2002) sees the BM as a system that describes how the pieces of the business puzzle fit together but, unlike a system, the BM does not include the notions of performance and competition. The BM provides a structural template of how a focal firm transacts with all its external factor and product market constituents (Zott and Amit, 2008). This is a relatively new concept in the strategy literature and it appears to provide promising avenues for future research (Zott and Amit, 2008).

However, whilst it is widely accepted that the BM concept can take research on new organizational structures forward, it is still extremely rare to find empirical studies based on this concept (Zott and Amit, 2007). Zott and Amit (2008) tested the influence of this type of business model on a firm's performance (measured on its stock market value), differentiating between the "novelty-centered" business model, which refers to the adoption of new ways of carrying out economic transactions in the marketplace, and the "efficiency-centered" business model, which refers to the measures firms may take to achieve transaction efficiency (e.g. reducing transaction costs for all the participants concerned). The findings indicate that the adoption of a "novelty-centered" business model, coupled with differentiation strategies, cost leadership, and being the first on the market, can improve the firm's performance. Andries and Debackere (2006) tested the impact of adapting the initial business model on a firm's survival rate, based on a sample of 117 independent new ventures and business units. They found that adaptation of the business model is especially beneficial in the newest and most capitalist industries and those developing most rapidly.

However, the relationship between a firm's BM and its performance and development path has not been examined to date. The aim of this paper is to test the influence of BM characteristics on the development path of IT[1] start-ups taken from an original sample of new French companies.

This paper is of interest both theoretically and empirically. From a theoretical perspective, it tests hypotheses that are directly rooted in theoretical definitions of a BM in order to assess the robustness of the concept. In empirical terms, the BM concept is

widely used by practitioners. It could be extremely useful to gain better insights into the links between the BM and the development path of a new company, both for the businessman setting out his business plan and for investors looking to assess a company's potential and how long they may have to wait before they can expect a return on the capital invested.

Firstly, we will review the literature and the hypotheses of the present study. We will then present the study methodology. This will be followed by the results of the tests carried out on the hypotheses. Lastly, these results will be discussed and we will look at the limitations of the study together with potential avenues for future research.

II.   LITERATURE REVIEW AND RESEARCH HYPOTHESES

There have been a number of attempts to clarify the BM concept from a theoretical perspective and several papers have consequently been published on the topic. We will firstly explore the various definitions of the BM and will then set out the hypotheses of the present study.

A.   Definitions of the Business Model in Literature

Timmers (1998) was among the first authors to provide a definition of the BM concept. He described it as an architecture for product, service and information flows, including a description of the various business actors involved and their roles, the potential benefits for the latter and an analysis of the sources of revenue for the company. To understand how a company achieves its objective, he included a "marketing model," which is a combined BM and marketing strategy of the company in question.

Hamel (2000) described a BM as simply an applied management concept. This approach provides an overview of a company. It identifies four main elements in the BM: the basic strategy (which sets out the firm's mission statement, the product and market field and the company's market sectors), the strategic resources (key company skills[2]) the customer interface (how the company accesses the market and reaches the customer) and the value network (suppliers, partners and coalitions).

These components are linked by three connecting factors and are broken down into different sub-elements: the Configuration (the unique manner in which the skills, assets and processes are combined and inter-related in a given strategy: Benefits for the customers (the specific range of benefits a company offers its customers) and the firm's Boundaries (decisions regarding what the company does for itself and what it sub-contracts).

Amit and Zott (2001) looked at the BM from a new angle, focusing on the concept of network. They defined a BM as an architectural configuration of transactional components designed to take advantage of business opportunities. Their framework defines the way the transactions are enabled via the network of firms, suppliers, partners and customers.

Chesbrough and Rosenbloom (2002, pp. 533-534) consider the role of a business model *"to articulate the value proposition, identify a market segment, define the value chain structure, assess the cost structure and potential benefits, determine the firm's position within the value network and formulate the competitive strategy."*

Rappa (2002) defined the BM as a business methodology used by businesses to generate revenue. According to Rappa, the BM spells out how a company makes money by specifying its positioning in the value chain. He identifies 9 e-BM categories.[3] These models enable us to classify business organizations according to the nature of their value propositions or their method of generating income.

Aftuah and Tucci (2003) defined the BM as a collection of activities (linked or not to the internet) which provide a firm with a sustainable method of earning money. They see the BM as value-focused and identify the value creation between several actors. In their view, a BM should answer a number of questions:

- What is the nature of the value proposition to the customer going to be?
- What categories of customer does the value proposition cover?
- How can the value proposition and its price be assessed?
- Who is going to pay for it?
- What is the underlying strategy behind the value proposition?
- How can the value proposition be constructed?
- How can advantages gained from the value proposition be sustained?

This approach to the BM focuses on value, and takes value creation between several participants into account. Their definition of BM reflects a number of components: the value proposition, the scope, the firm's value proposition assessment, sources of income, related offers, the company's network, and the skills and sustainability that depend on the company's competitive edge, based on its unique and inimitable skills.

Using Kaplan and Norton's (1992) Balanced Scorecard approach, Osterwalder (2004), divides the BM into four components: product, customer interface, infrastructure management and financial aspects. Osterwalder breaks down these four BM 'pillars' into nine interrelated components. The product implies reflecting on the value proposition (the range of goods and services offered to the customers). The customer interface refers to the target customer group: i.e. the customers that the company intends to offer the product to), the distribution channel (the means to reach the customers) and the types of relationship (the links that the company makes with the customers). Infrastructure management refers to the value configuration (all the activities and resources required to create value for the customer), sustainability (the capacity to repeat all the operations required to create value for the customer) and partnerships (joint ventures between two or more companies working together to create value for the customer). Lastly, the financial aspects, which include cost structures (the translation into monetary terms of all the means used to make the BM operational), and the income model (that sets out how the company earns money through an array of income flows).

Other authors who have worked in the field of biotechnology have added the degree of the venture's "hybridity" to the definition of the business model, corresponding to the notion that firms can have several sources of income. In this instance, a company may also offer a consulting activity to help finance the development of its core activity (Fisken and Rutherford, 2002; Catherine *et al.*, 2002; Desmarteau, 2004; Bellon and Plunkett, 2005).

The literature review identified components of the BM that can be found in different definitions, in particular the positioning of the company's business within the industry value chain, the type of target customer and the income model.

B.   Research Hypotheses

Three features of the business model need to be examined in order to test the influence of the BM on the company's performance: the positioning of the company's business within the industry value chain, the type of customer and the company's income model.

1.   Positioning the core business within the industry value chain.

A key question regarding the definition of the BM is the position of the company's business with respect to the industry value chain (Rappa, 2002). There is a clear need to clarify this issue in view of recent upheavals in the sector (new types of jobs, the disintegration and reintegration of value chains, etc.), especially in the field of new technologies.

According to Lasch (2005), IT sector companies must be able to withstand high costs, not only because of the large amount of R&D involved but also because of the significant period of time spent on developing ideas for innovative markets or on hi-tech products.

The positioning of the company's business on the value chain ostensibly impacts on the company's future cash-flow. In effect, initial requirements for start-up capital include the purchase of the premises, materials and other start-up expenses. The running costs must then be added, in particular the payroll and other current expenses. As Tidd *et al*. (2006) noted, a number of factors determine the company's cash-flow profile: development time and costs, sales volume and profit margins, etc. While different development and sales strategy choices may be made, technological and market characteristics will chiefly determine these strategies. Therefore, the positioning of the company's business on the value chain will be the main determining factor for the future business cash-flow profile, largely influencing the viability of the BM. For hi-tech start-ups, there is a strong link between the type of business (research, development, production) and the company's future income/expenditure results (see Figure 1). Electronics companies, for example, generally require more seed capital than software companies, and the product development time is characteristically longer (Tidd *et al*, 2006, op. cit).

The positioning of the company's business on the value chain thus presumably affects both the time taken for a business to become profitable and the turnover of the new company. However, the longer it takes to become profitable, the more "financial reserves" are needed. Therefore, the positioning of the company's business on the value chain should also influence the total amount of capital raised from investors.

Figure 1
Positioning of the business and cash-flow structure (Tidd *et al.*, 2006)
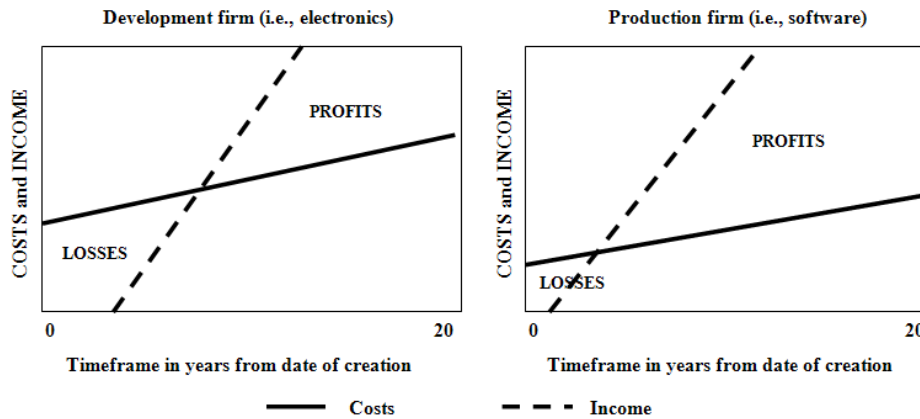
Thus, the positioning of the company's business on the industry's value chain is the first element to consider when designing the BM. This leads to the following hypothesis:

Hypothesis 1: the positioning of the company's business on the industry value chain impacts on the business development path

- *H 1.1. The further downstream the company's business is positioned on the industry value chain, the faster the company can become profitable.*
- *H 1.2. The further downstream the company's business is positioned on the industry value chain, the faster the turnover will grow.*
- *H 1.3. The further upstream the company's business is positioned on the industry value chain, the greater the capital requirements are.*

2.   The type of customer

The type of customer that the company selects is a central element in defining the business model (Chesbrough and Rosenbloom, 2000; Hamel, 2000; Afuah and Tucci, 2003; Osterwalder, 2004, etc.). In a French business context, Lasch *et al.* (2005) demonstrated empirically that the type of customer targeted will influence the survival rate of IT sector start-ups.

The type of customer is therefore also likely to affect the development path of the new company, depending on whether it targets a BtoB or a BtoC type model. Two reasons are put forward for this. First, the time taken to acquire a 'private' customer is not the same as for a 'business' customer. It takes much longer and is more complicated to win over 'professionals' than 'private' customers. In particular, the decision-making process for 'large customer accounts' is, in general, especially long and drawn out. Another issue that comes into play here is the question of payment terms. 'Private'

customers tend to settle their purchases right away, whereas business customers generally take much longer.

Thus, the choice of customer probably indicates differences in the time it takes to access the customers and also in the time it takes them to pay. These differences are reflected not only in the time needed for new companies to become profitable but also in how fast the turnover develops. Accordingly, the choice of customer should also influence the total amount of capital raised from the investors.

This leads to the second hypothesis:

Hypothesis 2: the type of customer targeted by the company influences the company's development path.
- *H2.1: Companies targeting BtoC type customers can become profitable faster than companies deciding on BtoB type customers.*
- *H2.2: Companies targeting BtoC type customers can develop turnover faster than companies deciding on BtoB type customers.*
- *H2.3: Companies targeting BtoC type customers require less capital than companies deciding on BtoB type customers.*

3.   Business Income Model

The income model is a core element in the BM design (Timmers, 1998; Chesbrough and Rosenbloom, 2000; Hamel, 2000; Rappa, 2002; Afuah and Tucci, 2003; and Osterwalder, 2004). Many practitioners limit their BM to sources of income generated by the company.

Defining the income model can be quite difficult depending on the complexity of the BM, and so the company's sources of income must first be identified. While this question may have been considered trivial in the past, it has now become far more relevant with the onset of the internet and the introduction of new models. This is especially true for companies financed by advertising income for in such cases the user is not necessarily the payer.

The BM design therefore involves identifying the sources of potential income and their relative importance in the new company's turnover. These elements will have a direct impact on the company's future cash-flow and consequently, on the viability of the BM. Usually, when there are several different sources of income this will affect the new company's development path, as much of the work on BM theory has shown, especially in the field of biotechnologies (Fisken and Rutherford, 2002; Catherine *et al.*, 2002; Desmarteau, 2004; Bellon and Plunkett, 2005). A mixed revenue model (i.e. a company that has several sources of income) should mean that it is easier for the company to become profitable and to develop turnover more quickly, implying that the company will require less capital. This leads to the following hypothesis:

Hypothesis 3: the number of sources of income that a company has can affect its development path.
- *H3.1.: Companies which have several sources of income become profitable more quickly than those that have just one source of income.*
- *H3.2.: Companies which have several sources of income develop turnover more quickly than those that have just one source of income.*

- *H 3.3.: Companies which have several sources of income require less capital than those that have only one source of income.*

We will now set out the method applied in this study.

III.   THE METHOD APPLIED

The study method is based on data collection and the presentation of the variables selected.

A.   The Data

The sample population was comprised of French IT sector start-ups. The present study incorporates the following definition: French IT start-ups are defined as young French companies in the IT sector (information and communication technologies) that have received at the very least a capital contribution from a venture capitalist. Our study is based on companies founded between January 1998 and December 2002. The companies were selected from various data sources: AFIC[4] member risk capital fund websites, specialized media (Capital Finance, Journal du Net, etc.), and spin-off cells from the main scientific research centers involved in the IT sector (in particular the CEA, the CNRS and INRA). In all, we identified 295 companies from within the IT sector that had received financing from venture capital, all founded between January 1998 and December 2002.

Data collection was based on information about a company's economic development and how the companies were financed. All the data related to the first five years of existence of each company. Information on turnover and profitability for the sample was taken from the Diane database. Data on business positioning, customer types and sources of income were obtained by cross-referencing different sources: the companies' own websites, Company's House (trade register as well as trade press (e.g. Capital Finance and Le Journal du Net). News articles from the Factiva database were systematically followed up and the information cross-checked.[5]

Leverage data about the firms in the sample were derived from various sources: companies' own websites, venture-capital websites, press releases issued by the companies and/or the investors whenever an open meeting was set up, as well as specialist media, in particular Capital Finance and Le Journal du Net. The sums invested in each of the companies by venture capital funds were also included as was any public and private (Business Angels) funding when the information was available. In all, a complete set of data was collected for 112 companies set up between the beginning of 1998 and the end of 2002. All of these firms were in business and still independent five years on.

B.   Variables

Below we present the dependant, independent and control variable indicators.

1.   Dependant variables

The three dependant variables are: how long it takes a company to become profitable, how its turnover develops and the total amounts (of money) raised or collected during its first five years.

Profitability period variable: we observed whether a company reached positive profitability (started to make a profit) within its first five financial years. The data were then reverse-coded (O if the company had not made a profit before its fifth year, 1 if it became profitable in its fifth financial year, etc., up to 5, if profitability was achieved in its first year.

Turnover variable: the indicator is the turnover made in a company's fifth financial year.

Cash flow variable: the indictor is the total sum raised or collected over the first five years in business. Information on both subsidies and private funding was not always available, causing data collection bias. However, whilst such contributions are very useful for young companies who benefit from them, the sums involved are not usually very high when compared to amounts provided by venture capital in subsequent years. Over a five-year period, the omission of such sums does not substantially alter the overall amounts supplied to these firms, and does not appear to call into question the final results.

The indicators retained for independent variables are the following:

2.   Explanatory variables

The positioning variable: this variable relates to how the company is positioned on the industry value chain. Four levels were selected to show where a company activity is along the industry value chain, noted in ascending order as we go downstream the industry value chain (Tidd *et al*, 2006): (1) producer (component or hardware), (2) software developer, (3) service provider, and (4) E-business operator. If a company's positioning changed within its first five years, then it was excluded from the sample.

The Customer variable: this variable represents a company's customer profile. Two categories were defined (Lasch *et al*., 2005): (1) BtoB - Business customer base, and (2) BtoC - Private customer base. When a change in the customer base was observed within the company's first five years, it was excluded from the sample.

The Income Number variable: this variable measures how many different sources of income a company has. There are two kinds (Fisken and Rutherford, 2002): (1) single source of income (or main source of income providing more than 90% of turnover), and (2) multiple sources of income (one main source of income, one or more other sources of income providing at least 10% of turnover).

When a change in a company's number of incomes was observed within its first five years in business, the company was excluded from the sample.

3.   Control variables

One control variable was retained: the business set-up year.

The set-up year variable: the period between 1998 and 2002 was marked by changes regarding access to credit facilities (e-commerce crash in the year 2000). The Chausson Finance index has been recording venture capital pools since 1998.[6] This index groups investments made in all sectors of activity. The investment graph shows that the amount of venture capital invested soared until the e-crash in 2000 and then subsequently plummeted (Figure 2).

Figure 2
Amount of venture capital invested (1998-2006)
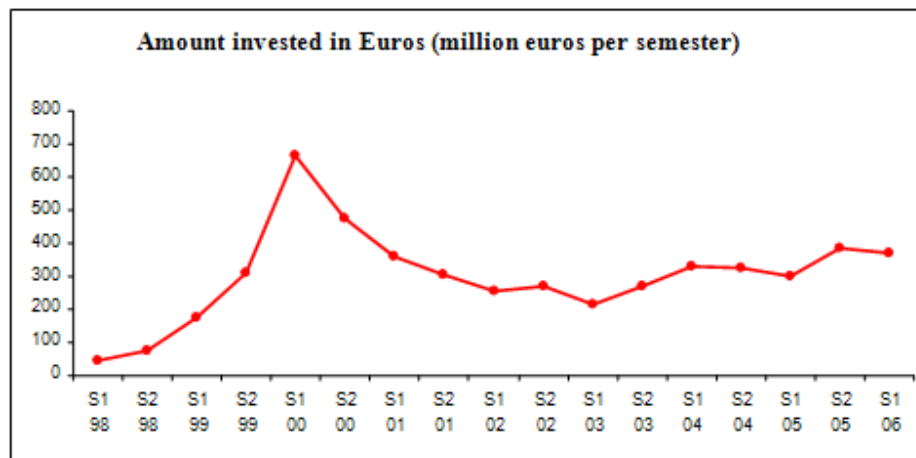
Source: Chausson Finance Index, 2006.

The set-up year variable was also introduced to incorporate this factor, alongside the BM characteristic variables used to explain the total amount leveraged for each company during its five first years.

We will now present the research findings.

IV.   RESULTS OF THE EMPIRICAL RESEARCH

We successively present the statistics describing the sample, followed by the respective findings about how BM characteristics influenced the time it took companies to become profitable, the turnover made in year five, and the amount of funds a company was able to raise from capital investors.

A.   Presentation of Descriptive Statistics

The descriptive statistics (Table 1) concern the 112 IT sector companies making up our sample. In particular, we observed a wide variation in the amounts of capital provided by capital investors. Total amounts leveraged per company vary between 0.7 M€ to 66.5 M€.

Table 1
Descriptive statistics

Variables	Observations	Minimum	Maximum	Average	Type of discrepancy
Positioning	112	1,000	4,000	2,277	0,738
Customer Base	112	1,000	2,000	1,161	0,369
Income Number	112	1,000	2,000	1,536	0,501
Leveraged amounts	112	0,700	66,500	11,077	11,023
Set-up Year	112	1998,000	2002,000	1999,777	1,129

Table 2
Correlation matrix

Variables	Positions	Customer base	Number of incomes	Creation Year	Leveraged amounts
Positioning	**1,000**	0,596	0,180	-0,077	-0,146
Customer Base	0,596	**1,000**	0,164	-0,065	-0,061
Number of Incomes	0,180	0,164	**1,000**	0,006	0,008
Creation Year	-0,077	-0,065	0,006	**1,000**	-0,240
Leveraged amounts	-0,146	-0,061	0,008	-0,240	**1,000**

The correlation matrix (Table 2) does not show a significant link between the different independent variables. We can observe a certain correlation between the type of positioning and the choice of customer base, depending on whether a company with a BtoC type customer base is positioned mainly upstream on the value chain, amongst the service providers and e-business operators.

We will now turn to the results relating to the hypothesis tests for the empirical research.

B.   Influence of BM Characteristics on How Long It Takes the Company to Become Profitable

The multiple regression results presented in Table 3 are calculated on factors which determine how long it takes the company to become profitable. The first observation is that the model explains almost 30% of the relative variation of this variable. This means that the BM characteristics retained had a considerable influence on the time it took to make a profit, a result which indicates the validity of the explanatory frameworks based on the BM (Zott and Amit, 2007). The part of variation that remains unexplained by the BM is probably due to specific characteristics of the firm in question (micro-positioning, management quality, etc.) and to market conditions.

Table 3
Regression of the profitability time variable

Variables	Value	t	Pr > |t|
Constant	-1,791[***]	-4,429	< 0,0001
Positioning	0,298[*]	1,897	0,061
Customers	1,154[***]	3,684	0,000
Income number	0,295	1,566	0,120
F	15,391[***]		
Pr > F	< 0,0001		
R²	0,299		
R² adjusted	0,280		
N = 112			

[*] *0,05≤p<0,1*   [**] *0,01≤p<0,05*   [***] *p<0,01*

The variable with the highest level of significance, and producing a positive coefficient, is the choice of customer. It was noted that companies that chose BtoC type models managed to make their business profitable more quickly than companies choosing BtoB. This can be explained by the reasons mentioned earlier. Firstly, it takes longer to get new 'business' customers as it can take several weeks or even months of negotiation to get a new business customer. The decision-making processes are long, especially in large corporations. In comparison, getting 'private' customers is generally far quicker. In addition, the time business customers take to pay is generally longer than 'private' customers.

The positioning of the company's business on the industry value chain also has a significant influence (10%) on the time taken for the company to become profitable. As anticipated, the relationship is positive. The further downstream the company is in the value chain, the faster the company makes a profit. This result corresponds to our expectations. A company whose business is upstream with respect to the value chain (e.g. hardware or component manufacturers) will often require longer R&D time, and the company may also have to carry the cost of building the plant, etc. All these stages take time and of course draw out the period before any profit can be made. On the other hand, a company whose business is downstream on the value chain (service or e-commerce) can set up more rapidly and generate income more rapidly.

There is a positive relation between the number of sources of income for the company and the time taken to make a profit. This appears to indicate, quite logically, that if a company can have several sources of income (e.g. a consultancy business running alongside the core business of developing a product or service), it would shorten the time needed to become profitable. However, this variable has a low level of significance.

C.   The Influence of the BM on Turnover Development

The multiple regression results calculated from the turnover determinant reached in year 5 are shown in Table 4. This model can help to explain almost 25% of the variance in turnover (achieved five years after being set up) by companies in the sample group.

These results show that the BM characteristics tested can help us understand a sizeable proportion of the turnover achieved in year 5.

Table 4
Regression of the turnover variable

Variables	Value	t	Pr > |t|
Constant	-11,013**	-2,223	0,028
Positioning	6,001***	3,120	0,002
Customers	7,906**	2,061	0,042
Income number	-3,791	-1,644	0,103
F	10,977***		
Pr > F	< 0,0001		
R²	0,234		
R² adjusted	0,212		
N = 112			

*0,05≤p<0,1   **0,01≤p<0,05   ***p<0,01

Here, the variable with the highest significance level is the firm's 'positioning variable' on the industry's value chain (1% significance). As expected, the relationship is positive. The further downstream the company is positioned along the industry's value chain, the higher the turnover in year 5. This result is consistent with earlier statements. A company positioned upstream of the industry's value chain (e.g. hardware and component production) could suffer from a long R&D timeframe, and then have to set up a production process, etc. These stages would be lengthy and would slow down the development of turnover. On the other hand, a company positioned downstream on the industry value chain (service, e-commerce) would be able to generate turnover faster.

We observed a positive relationship between choice of customer and turnover in the fifth year. This coefficient is significant (at the 5% threshold), which implies that companies that choose BtoC have a higher turnover five years after being set up than companies opting for BtoB type models. This can be explained by the reasons mentioned earlier. Firstly, it takes longer to get new business. It can take several weeks or even months of negotiation to get a new customer. The decision-making processes are long in BtoB type relations, especially when dealing with large companies. In comparison, acquiring BtoC customers is generally far quicker.

It is interesting to see that, contrary to expectations, there is an inverse relationship between the number of sources of income and turnover five years after the company was set up, although the significance level is reduced.

D.   The Influence of BM Characteristics on the Amounts Raised

The multiple regression results calculated from the total amounts raised from venture capitalists are shown in Table 5. A further variable has been added to the three preceding explanatory variables (positioning on the value chain, customer choice, and income model), namely, the year the company was set up. This variable has been added

to take into account the greater difficulty experienced by companies to obtain funding after 2000-2001, following the e-commerce crisis after the year 2000.

There appears to be a negative relationship between the positioning of the company on the value chain and the capital raised by the company from venture capitalists during its first five years. This means that companies positioned upstream along the industry's value chain (components, hardware…) require more funding than those positioned downstream. However, if companies positioned upstream along the value chain requires large amounts of capital (long R&D period, considerable scientific resources, setting up of plants if applicable, hiring operators, etc.), the funding required to develop companies positioned downstream of the value chain (service, e-commerce) can also be sizeable: advertising costs (particularly for BtoC models), hiring salespeople or after-sales staff, etc. This could explain the relatively low significance level of the 'Positioning' variable.

The only significant variable (at 1%) regarding the capital raised is the year the company was set up. This indicates the changes that resulted from the 2000-2001 e-commerce meltdown. On the other hand, customer type (BtoB or BtoC), together with the number of sources of income that the company has, does not significantly influence the capital raised during the company's first five years. In fact, the model only explains a small proportion of the variance in the total amounts raised by business ventures during their first five years (less than 10%).

Table 5
Regression of the financing requirement variable

Variables	Value	t	Pr > |t|
Constant	4962,350***	2,741	0,007
Positioning	-2,845	-1,644	0,103
Customers	0,905	0,262	0,793
Income number	0,866	0,418	0,677
Set-up year	-2,474***	-2,733	0,007
F	2,555		
Pr > F	0,043		
R²	0,087		
R² adjusted	0,053		
N = 112			

*$0,05 \leq p < 0,1$ **$0,01 \leq p < 0,05$ ***$p < 0,01$

V.   DISCUSSION, LIMITATIONS OF THE STUDY AND AVENUES FOR FURTHER RESEARCH

This study provides several contributions to current research. Firstly, we offer a simple framework for the business model concept, based on three key variables: the positioning on the value chain, the business hybridity and the type of customer targeted. We subsequently test the model put forward. We provide an empirical study that aims to test the influence of the business model characteristics on the performance of IT sector start-ups. While the business model concept is recognized as helping move

forward the body of emerging research on new types of organization, empirical studies based on this concept are few and far between (Zott and Amit, 2007). The results are interesting both for IT sector company creators and for venture capitalists. Our findings show that BM characteristics influence IT sector start-up performance and that, above all, the type of customer chosen by the company has a clear influence on the time taken for the company to make a profit and on the turnover in year five. Companies that opt for a BtoC type model appear to become profitable more quickly and have a higher turnover than companies that choose a BtoB type model. These results differ from those of Lasch *et al*. (2005) as the latter argued that the BtoC customer choice tended to have a negative impact on the IT start-up survival rate. Secondly, the positioning of the company's business on the industry's value chain also influences both the time taken to make a profit and the turnover in year 5, as was expected (Tidd *et al*., 2006). The further downstream the company is on the industry value chain, the faster it will become profitable and the higher the turnover in year 5. Thirdly, we have to be very cautious about drawing conclusions with respect to the number of sources of income a company has access to as the significance rate of this variable is low. In our regressions, we noticed a positive relationship between the number of sources of income a company has access to, and the time taken for it to become profitable, and an inverse relationship between the number of income sources and the turnover five years after the company was set up. This indicates that if a company has several sources of income (often a consultancy which helps finance the development of the main business; Fisken and Rutherford, 2002), a company can make a profit more quickly, but it could also slow down the development of the main business as it 'distracts' the young company from its main business to some extent. Lastly, and contrary to our expectations, BM characteristics do not appear to influence financing requirements of companies, on the basis of the total capital raised by each firm during their first five years of existence.

Finally, a number of limitations need to be considered. Firstly, it would have been interesting to include other business model components in our modeling, such as the nature of the company's value proposition or the type of partnerships the company enjoys. Our database did not allow us to do this. This partly explains the relatively limited level of coefficients of determination in several of the regressions tested, which is indeed another limitation of our empirical study.

Our study adds a further stage to the exploration of new lines of research. Two potential avenues could now be pursued. Firstly, it would be useful to add other business model variables, such as the nature of the company's value proposition or a relative indicator for the types of partnerships set up by the company. In addition, an analysis of the business model characteristics could be tested on young companies in other industries, such as the biotechnology sector.

ENDNOTES

1. A start-up is defined here as a young company whose core business presents a high degree of technology, and which has received at least some venture capital. These firms all belong to innovative sectors and/or develop cutting-edge technologies.

2. The key competencies include knowledge of the company, and its distinctive competencies and capacities that enable the strategic assets to be defined and the company's key processes and how they work.
3. The e-BM set out by Rappa (2001) includes Brokerage, Advertising, Infomediary, Merchant, Manufacturer, Affiliate, Community, Subscription and Utility.
4. AFIC: French Capital Investors Association, which includes most French capital venture funds.
5. The author would like to thank the students from the Financing and Innovation Major (Classes of 2006, 2007 and 2008) at ESIEE Management (MAJE.Fi.) for their help in collecting the data concerning the financing and development of IT-based start-ups which served as the basis for the present study.
6. Chausson Finance indicator, www.chaussonfinance.com.

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