A MEASURE FOR THE COMPETITIVE ADVANTAGE IN THE INTERNET ERA

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Abstract: The drive to introduce this new parameter arose when we asked ourselves two crucial questions about capabilities to obtain and maintain distinctivity in the Internet era. The first question is: "how can nowadays an e-business idea be inimitable, non-substitutable, non-transferable and innovative and different from the existing ones?". While the second question is: "how this can be measured?". In this paper we propose an answer to these questions by defining a metrics and a parameter, called e-distinctivity, that quantitatively measures the fundamental distinctivity aspects of an e-business idea. To evaluate the e-distinctivity of an e-business idea we used a reference user panel. The assessments and results on the parameter have been evaluated on a panel of eighteen e-business enterprises, taken as reference examples of successful implementation of e-business ideas. At the end of the paper we finally discuss the results and underline the advantages of this methodology.

1 INTRODUCTION

In this paper we propose a new metrics in order to support the feasibility evaluation of an e-business idea through a new parameter created "ad hoc", named "e-distinctivity".

This original metrics aims to quantitatively support the selection phase of a new e-business idea in order to evaluate its distinctivity in the actual e-business arena. In order to do that, we introduce the new parameter, "e-distinctivity", that aims to evaluate how much a new e-business idea is difficult to imitate, difficult to substitute, difficult to transfer and how much is innovative&different with respect to the existing competitors. This approach aims to extend to the e-business the concepts of "distinctive competencies" as key factors to gain a competitive advantage that have been widely discussed in the literature in the strategic management (Teece, 1998).

The e-distinctivity parameter extends the model proposed in a previous paper for the evaluation of e-business ideas where we identified two parameters called "Conceptual Accessibility" and "Technological Accessibility" (Capece, 2006). The first parameter, the "Conceptual Accessibility", aims to evaluate how much the new e-business idea is close to known and common e-business concepts and ideas. The goal is to give a measure of how much the new idea will be promptly understood and accepted given the existing cultural background of the expected users. The second parameter, the "Technological Accessibility", aims to evaluate how much the new e-business idea implementation will require the use of well-known and wide-spread technological instruments.

In the e-business environment the assessment of the soundness of a new idea not only requires the traditional tools of business analysis, but also the evaluation of the aspects specifically related to the media that will be used to bring the idea to the final users. In our analysis we will refer to an e-business idea as a business idea which derives its distinctiveness and competitiveness from two key factors:

• it is proposed to the target users through internet;

• its realization would not be possible without the internet support.

It is necessary to clearly identify the motivations behind the idea, the user target of the idea and the aspects of innovation and differentiation that should drive the idea towards success with respect to the existing business scenario.

A widely accepted approach in evaluating a new idea is based on a detailed analysis of the existing

environment i.e. it depends on the capability to identify and anticipate the needs of defined users targets and thus on the capability to offer solutions that will satisfy these needs. In the e-business specific scenario then we need to adapt those categories to take into account the used media (i.e. the Internet).

Following the classic marketing literature, to be successful a business idea must be innovative, attractive, competitive, pursuable and capable to generate revenue (Kottler and Scott, 1991).

The most recognized methods for the evaluation of new ventures are the feasibility analysis and the cost/benefit analysis. In the literature the typical phases of the development of venture projects are defined as: ideation, selection, preparation, evaluation and actuation (Kottler and Scott, 1991).

In this paper we will concentrate on the feasibility analysis during the selection phase for e-business ideas.

The feasibility analysis aims to define the viability of the realization of the e-business idea and to give to the decision makers the information needed to confirm the start of the project realization and therefore the needed investments. The feasibility study for e-business is an important instrument to ensure an effective use of the ICT tools and in the economic effectiveness of the ventures. It also increases the awareness of the investment decision and therefore helps in evaluating the expected benefits vs. the required costs. In this way it contributes to decrease the projects risks and it represents an instrument to manage the complexity of the projects.

2 THE REFERENCE USER PANEL

In order to tune the parameter and to execute all the needed evaluations a user panel has been provided by a database in which there was a list of 240 people names and phone numbers. This list has been used in order to perform the interviews. The database containing the users' information has been selected in order to represent the expected target of a new e-business idea being evaluated. Contact was made with 188 customers; 52 were unreachable. Of the 188 customers contacted, 138 agreed to participate in the questionnaire. The survey instrument included questions on demographic information. All the panel components of the database are European people, that frequently access the Internet both for work and for leisure. In particular the panel consists of 138 people aged between 20 and 50. Seventy percent of the panel components have a bachelor degree or are university students. Forty percent uses ICT and internet specifically for work purposes and all the components use it also for study and other personal interests.

3 THE REFERENCE ENTERPRISE GROUP

The assessments and results on the parameters have been evaluated on a panel of eighteen e-business enterprises, taken as reference examples with respect to the e-business idea definition given in section 1. All the components of the enterprise reference group are examples of successful implementation of e-business ideas, although they are very different from each other for strategy and user proposition: Abebookes, Amazon, AOL, Apple, Dell, eBay, Expedia, Google, Internet Movie Database, iTunes, Nike, Million dollar homepage, Motorola, Paypal, Ryanair, Skype, SuperEva, and Yahoo.

The identified parameters have been evaluated on the components of the enterprise reference group to ensure their soundness with respect to existing successful e-business ventures.

4 E-DISTINCTIVITY PARAMETER

The necessity to create this new parameter arose when we asked ourselves two crucial questions about capabilities to obtain and maintain distinctivity in the Internet era:
1. how can nowadays an e-business idea be inimitable, non-substitutable, non-transferable and innovative and different from the existing ones?
2. how this can be measured?

We tried to find an answer to these questions by defining a metrics and a parameter in order to measure the fundamental aspects that describe the distinctivity of an e-business idea. After that we decided to apply the identified metric to a panel of successful business idea to assess its soundness and accuracy though the found results. As said the e-distinctivity parameter aims to evaluate how much the new e-business idea is difficult to imitate,

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difficult to substitute, difficult to transfer and innovative&different from existing competitors.

As first step four aspects have been identified to give a quantitative evaluation to the e-distinctivity: inimitability, non-substitutability, non-transferability and innovation&differentiation with respect to the existing competitors. For each of these four aspects two characteristics have been pointed out in order to better specify and evaluate the parameter and its significance. They have to be defined carefully to determine the importance and significance of the e-distinctivity attribute. All these eight characteristics interact and contribute to the final value of the parameter.

For the first one, inimitability, the two characteristics we wished to evaluate are:
  1. how much the idea is protected by license, patents or intellectual property;
  2. how much the information about the idea are exposed;

For the second one, non-transferability, the two characteristics we wished to evaluate are:
  1. how much the idea is influenced by the local, regional or context forces;
  2. how many information, and thus knowledge, about the definition of the idea are tacit and non codified when investigated by an external analysis.

For the third one, non-substitutability, two characteristics we wished to evaluate are:
  1. how much the use of the idea fosters customers' loyalty;
  2. how much the idea is customized or customizable by the final users.

For the fourth one, innovation&differentiation with respect to the existing competitors, the two characteristics we wished to evaluate are:
  1. how many complementary and successful ideas exist;
  2. how much the approach is different from the existing ones.

Once the idea has been explained to the reference user panel, the four aspects have been evaluated by measuring each of the eight characteristics. The measure of each characteristic is realized by answering to a specific statement with a value between 1 (low) and 5 (high). The results for each e-business idea can then be visualized in a two dimensional radar consisting of four principal zones each representing one of the e-distinctivity aspects.

The radar graph allows to represent the results in a form that will be simpler to understand. It is immediate to recognize, through the radar graph, which is (are) the aspect(s) of the e-distinctivity that is (are) crucial for the success of the business idea.

Indeed, the zone(s) in which there is a larger graph area is (are) the most meaningful one(s) and this means that the two characteristics are the most important and competitive ones. It is also easy to point out the aspect(s) that must be improved in order to enhance the e-distinctivity of the e-business idea. Indeed, the zone(s) in which there is a smaller graph area is (are) the ones in which the characteristics must be strengthen to become a strong point. The radar graph is also useful to evaluate different e-business ideas in order to understand the one that has a strategic position in comparison with the others. Indeed, the idea that has the larger radar graph in every zone, also has the best characteristics and, as a consequence, the greater e-distinctivity value as key factor to gain a competitive advantage.

Once the idea has been explained to the reference panel, the eight characteristics have to be evaluated one by one by the reference panel components that have to give to each characteristic a value in the established range. To implement a synthetic representation of the results on the radar all the results from the same characteristic have been averaged. The value assumed by a given e-business idea on each characteristic is set as arithmetic mean of the values obtained for that characteristic from all the components of the reference user panel

The shape of the radar for an e-business idea is then delineated by the mean values of its characteristics.

At the end of the evaluation, we have a single value for each characteristic for every e-business idea considered for our study. Every quadrant represents a selected aspect of the e-distinctivity parameter. In each quadrant there are two axis that indicate the characteristics to evaluate for the aspect. See figure 1 presented next:
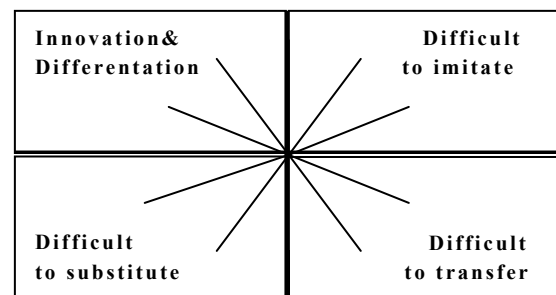

Figure 1: The radar graph area with the four crucial aspects and the two characteristics for each quadrant

As explained before each respondent gave an evaluation of each aspect by responding to a specific question.

In order to make the evaluation needed for our work, we asked to answer to each question with a value from 1(low) to 5(high) and we gave to each value a specified meaning.

For the first aspect, "inimitability", regarding the first characteristic, "how much the idea is protected by license, patents or intellectual property", we have to identify how much licenses, patents or intellectual property provide protection against the imitation of an idea. These resources offer rights for exclusive use by the owner and can keep imitators at bay. The degree of their power is also in other external factors, such as regulations, that can try to block or al least limit the invent-around alternatives from the competitors.

To evaluate this characteristic we decided to assign the meanings to the different values as follows:

5: the idea is completely protected by license, patents or intellectual property;
4: the idea has all the key aspects protected by intellectual property;
3: the idea has some key aspects protected by intellectual property;
2: the idea has some non-key aspects protected by intellectual property;
1: the idea is completely unprotected.

For the first aspect, "inimitability", regarding the second characteristic, "how much the information about the idea are exposed", we have to explain the concept of observability. The observability of the technology or the organization is an important factor for imitation and plays a crucial role.

To evaluate this characteristic we decided to assign the meanings to the different values as follows:

5: in order to implement the idea it is not necessary to expose any part of the idea itself to the final user;
4: in order to implement the idea it is necessary to expose only the non-key aspects of the idea itself to the final user;
3: in order to implement the idea it is necessary to expose some key aspects of the idea itself to the final user;
2: in order to implement the idea it is necessary to expose some key and non-key aspects of the idea itself to the final user;
1: in order to make use of the idea it is necessary to completely expose the idea itself to the final user.

For the second aspect, "non-substitutability", regarding the first characteristic, "how much the idea is influenced by the local, regional or context forces", we have to underline how some ideas can be influenced by local, regional or context forces. Firm's capabilities are deeply shaped by these factors. Porter (1990) in fact attests that differences in local product market, local factor market and institutions play an important and strategic role in shaping competitive capabilities. This means that replication and imitation in a different geographical context may then be difficult and costly in terms of time and money. Understanding the idea, the processes, the production and even the management is a key factor in order to improve because an enterprise cannot develop what it does not deeply and accurately understand and know.

To evaluate this characteristic we decided to assign the meanings to the different values as follows:

5: the idea can be implemented only by leveraging on local, regional or context forces;
4: some key aspects of the idea are implemented by leveraging on local, regional or context forces;
3: some non-key aspects of the idea are implemented by leveraging on local, regional or context forces;
2: the idea is negligibly influenced by the local, regional or context forces;
1: the idea is not influenced at all by the local, regional or context forces.

For the second aspect, "non-substitutability", regarding the second characteristic, "how many information, and thus knowledge, about the definition of the idea are tacit and non codified when investigated by an external analysis", we have to explain the concepts of tacit and codified knowledge. Tacit knowledge (Teece, 1981) is difficult to articulate in a way that is meaningful for the others. This means that the more a given item of knowledge has been codified, the more it can be transferred. This is an important and crucial property that depends on the ready availability of channels of communication suitable for the transmission of well-codified information. Uncodified or tacit knowledge is slow and costly to transmit or reproduce. Ambiguities and error of interpretation can occur in the process. The first ones can be overcome only when communications take place in a manner that is the most similar to a face-to-face dialogue. The second ones can be corrected only when there is a meaningful and appropriate system of feedback. This means that messages and therefore knowledge can better be transferred if they are structured in a codified form.

To evaluate this characteristic we decided to assign the meanings to the different values as follows:

5: the greatest part of the information and knowledge of the idea are tacit;
4: most of the key aspects of the information and knowledge of the idea are tacit;
3: some key aspects of the information and knowledge of the idea are tacit;

2: the non-key aspects of the information and knowledge of the idea are tacit;

1: the greatest part of the information and knowledge of the idea is not tacit.

For the third aspect, "non-transferability", regarding the first characteristic, "how much the use of the idea fosters customers' loyalty", we have to investigate the reasons that allow a firm aim to gain customers' loyalty.

Factors that determine that consumers make most of their transactions in the same place are very important in order to avoid substitutability. Retaining customers is a financial imperative for any e-commerce or e-business enterprise, especially as attracting new customers is considerably more expensive than for comparable, traditional, brick-and-mortar stores. Understanding how to determine a sense of loyalty in the final user remains one of the crucial management issues. The development, maintenance, and enhancement of customer loyalty represent a fundamental marketing strategy for attaining competitive advantage (Gould, 1995; Kotler, 1988; Reichheld, 1993). It is important that the partners of an economic relationship are prepared to work at preserving it because it must continue indefinitely (Morgan and Hunt, 1994).

To evaluate this characteristic we decided to assign the meanings to the different values as follows:

5: customers' loyalty is always fostered by the use of the idea;

4: customers' loyalty is fostered in most of the cases by the use of the idea;

3: customers' loyalty is fostered only under certain conditions or due to particular sales promotions;

2: customers' loyalty is fostered only during the first period of the utilization by the final user;

1: customers' loyalty is not fostered at all by the use of the idea.

For the third aspect, "non-transferability", regarding the second characteristic, "how much the idea is customized or customizable by the final users", we have to better specify the concept of "customization". The term mass customization was coined by Stan Davis (1997) who predicted that the more a company was able to deliver customized goods on a mass basis, relative to their competition, the greater would be their competitive advantage, a view supported by Pitt, Bertham and Watson (1999), and Duray and Milligan (1999). Pine, Victor and Boynton (1993) describe the synergy of mass customization and continuous improvement as a 'new' competitive strategy to challenge 'old' strategies such as mass production. Hart and Taylor (1996) offer an operational definition: 'Mass customization is the use of flexible processes and organizational structures to produce varied and often individually customized products and services at the price of standardized, mass produced alternatives'. The concepts of flexibility, timeliness and variety are essential to the notion of mass customization. It is determining what the customer really needs and attempting to respond quickly with an offering which costs to the customer relatively little more than standardized, mass produced alternatives' (Duray & Milligan, 1999). So mass customization is a firm's ability to meet specific customer requirements en masse, yet at a low cost, which rivals mass production capabilities.

To evaluate this characteristic we decided to assign the meanings to the different values as follows:

5: the idea can be deeply customized by the final user;

4: the idea can be customized in many key aspects without restrictions by the final user;

3: the idea can be customized in a restricted and fixed number of key aspects;

2: the idea can be customized only in a restricted and fixed number of non-key aspects;

1: the idea is not customized not even customizable by the final user.

For the fourth aspect, "innovation & differentiation with respect to the existing competitors", regarding the first characteristic, "how many complementary and successful ideas exist", we have to determine if an idea could have the possibility to gain a competitive advantage. To do so it has to be compared with the other ideas in the same economic field. The greater the number of competitor is, the most difficult could be to emerge in a specified market. This is enhanced above all if the complementary ideas are successful ones. It is not simple to gain a slice of the market if many similar and successful ideas exist.

To evaluate this characteristic we decided to assign the meanings to the different values as follows:

5: it does not exist any similar idea;

4: a number between one and two of successful similar ideas exist;

3: a number between three and six of successful similar ideas exist;

2: a number between six and eight of successful similar ideas exist;

1: many similar and successful ideas exist.

For the fourth aspect, "innovation&differentiation with respect to the existing competitors", regarding the second characteristic, "how much the approach is different from the existing ones", we have to observe the approach of the idea and to compare it with the other approaches that characterize the other

existing ideas. To gain competitive advantage the new idea has to be different form the others. If in the market there are many successful and similar ideas, the only way to survive is to present something different in order to capture the attention and the interest of the customers.

To evaluate this characteristic we decided to assign the meanings to the different values as follows:

  5: the idea is substantially different from the other existing ones;
  4: the idea is different in many key aspects;
  3: the idea is different in a restricted number of key aspects;
  2: the idea differs only in a restricted number of non-key aspects;
  1: the idea does not considerably differ from the other existing ones.

After the definition of the e-distinctivity parameter and all its characteristics, the next step is to define how to visualize the results of an e-business idea. To implement the representation of the results we made use of a radar graph and every e-business idea has been considered separately. In this way, for each e-business idea, we will obtain a value for each axis of the radar, and this means that we will have eight assessments. In the following we will show the final radar for a chosen e-business idea taken into consideration for our study, just as an example of its final shape.
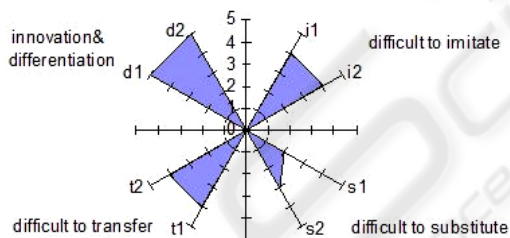

Figure 2: Final radar for a chosen e-business idea taken as an example.

As explained this method has been firstly applied to the enterprise reference group to see if the obtained results are sound with the reality of some well-known reference e-business ventures.

We have to underline the results of the test we made: every e-business idea from the enterprise reference group has obtained values quite high in two or more quadrants of the radar and this result is consistent with the fact that all the chosen enterprises are well known and have a great success in their business.

We analyzed the results and we compared them in order to find significance for further applications. This method can be used in order to comprehend if a new e-business idea has the sufficient distinctivity to be a successful one. This means that a new e-business idea, on the one hand, can be compared with a group of different and successful ideas to understand which is its strategic position in comparison with the others and, on the other hand, can be compared with different new e-business ideas in order to make easier for the enterprise the choice of the idea to put on the market.

In order to give an additional interpretation of the found results we calculated the total sum of the values considering all the four quadrants of the radar, the mean value and the variance. These three numbers can give us additional insights to analyze the e-distinctivity of the e-business ideas.

At first step of our work (Capece, 2006b), we had a panel of one hundred people and we considered ten e-business enterprises as reference example for e-business ideas. The results have been quite interesting even though the two reference panels were too modest. In table 1 the results of our first study are shown.

Table 1: The table results of our first study with ten enterprises.

Results	Value
Sum	**>20**
Mean	**>2,5**
Variance	**<1,6**

We decided to improve the reference user panel and the reference enterprise group to test the first results and to achieve a more stable and defined measurements. According to this goal, we made a new study and we now show the latest results. These can be considered the definitive ones, because in a third phase of our study we considered twenty-six enterprises and the results of the sum, mean and variance didn't change. The sum value changed from 20 to 18. The mean value changed from 2,5 to 2,25. The variance value didn't change. We can therefore think that in table 2, showed below, the definitive results of the sum, mean and variance are shown.

Table 2: The sum, mean and variance values for the eighteen enterprises considered.

Enterprise	Sum	Mean	Variance
Google	24	3	1,166667
Amazon	30	3,75	0,416667
Ebay	30	3,75	0,416667
iTunes	31	3,875	1,0625
Expedia	26	3,25	0,083333
Yahoo	22	2,75	1,583333
AOL	22	2,75	0,75
SuperEva	21	2,625	1,229167
Skype	28	3,5	0,166667
MDHP	24	3	5,333333
Dell	24	3	0,75
IMDB	23	2,875	0,615
Motorola	24	3	0,25
Paypal	25	3,125	0,61
Nike	25	3,125	0,186
Ryanair	18	2,25	0,69
Abebooks	21	2,625	0,48
Apple	25	3,125	0,41667

The results of the sum underline the position of Ebay, Amazon and iTunes. They obtained the highest values, 30 and 31, while the lowest value belongs to Ryanair, 19, Supereva and Abebooks, 21. All the chosen enterprises obtained a value that is higher than the mean value of the sum (18) and this lead us to a first consideration: in order to be successful, a new e-business idea should have a sum value of the e-distinctivity parameter higher than 18.

Through the observation of the mean values we also observed that all the eighteen enterprises have a value that is higher than the median. This leads us to a second consideration: in order to be successful a new e-business idea should have the median value higher than 2,25, which is the lowest value and is therefore taken as a reference rate for the mean value.

The variance is the third value we considered for our study and gave us another important information: the variance in our study is a value between 0 and 5,333. Anyway, excluding the Million Dollar Home Page, the range is reduced to 0 and 1,6. Considering the peculiarities of the business case for MDHP this leads us to a third consideration: in order to be successful a new e-business idea

should have the variance value lower than 1,6. In table 3 the results of our study are shown.

Table 3: The target values of our study.

Results	Value
Sum	>18
Mean	>2,25
Variance	<1,6

Considering the success records of the enterprise reference group, these values can be considered as targets when evaluating the e-distinctivity of a new e-business idea.

5 CONCLUSIONS

In this paper we proposed a new metrics in order to support the feasibility evaluation of an e-business idea and quantitatively sustain the selection phase of a new e-business idea The new approach is different from the existing ones because we identified an original parameter to be evaluated on a given e-business idea in order to provide a quantitative measure of its distinctivity. To be applied the method requires only a detailed description of the idea; therefore it is easy to compare many different alternative ideas during the feasibility phase and have quantitative data to evaluate them without requiring huge investments.

Another advantage of this method is that the new proposed idea can be easily compared with other e-business ideas through the comparison of the parameter value. A panel of eighteen successful e-business ideas has been evaluated towards the parameters and it can then be used to assess how a new idea compares to them. Our results confirm the soundness of this evaluation parameter. The study provided three important properties that a new e-business idea must have in order to be successful in terms of distinctivity: the first one is that the new e-business idea should have a sum value of the e-distinctivity parameter higher than 18; the second one is that a new e-business idea should have the mean value higher than 2,25; the third one in that a new e-business idea should have the variance value lower than 1,6. However, this parameter is not intended to be sufficient for an exhaustive assessment of the feasibility of an e-business idea. It is necessary to continue the investigation in order to determine other parameters and evaluation tasks in order to improve the accuracy of the model. Our aim is to support the selection phase of new

e-business idea with the aid of new parameters that integrate the traditional methods of business analysis.

Further developments will be necessary for the definition of an extended set of parameters specifically designed for a complete assessment of an e-business ideas.

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