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Assessment of Entrepreneurial

Skills Using Simulations

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Simulations, particularly those which are computer-based are typically used in either a classroom or company training situation. As the field of business simulation expands, because of increased interest and sophistication, their use must be expanded into new areas. Hopefully, these new areas will then lead to even further advancement of the use of simulation and gaming in business education and training. This development can also lead to new arenas for the validation of simulation materials.

The assessment of entrepreneurial ski I Is through the use of a computer- based simulation is an example of several new approaches to business simulation. It involves several different considerations in the development and use of the simulation, considerations somewhat different from the "typical" computer simulation. These include administrator intervention into the computer model during its run, ethical decision-making, and observation of the teams as their strategy is planned and their decisions made.

THE ENTREPRENEUR

The entrepreneur is the individual or small group of individuals who start a new business and who stand to lose significant financial commitment or to gain significant financial rewards based upon the success of that formation. It includes the person or group of persons who may purchase a small business with the purpose of growth. Research into the nature of The entrepreneur has shown that he or she has somewhat unique patterns of family background, schooling, attitude towards work, business management and operation, and risk. Many of these factors can be objectively measured through interviews and some measurement instruments. The overall "working ability" of the entrepreneur however, can only be judged by seeing the person operate in a working environment.

THE ENTERPRISE ASSESSMENT CENTER

The Enterprise Assessment Center was established to meet the need for assessing the performance and behavioral patterns of an entrepreneur or an entrepreneurial team. Specifically, it was established to offer a service to venture capitalists and other investors, for example, banks, individuals, or government-sponsored support programs, in newer and emerging growth companies.

Generally, venture capitalists and other investors are quite capable of assessing the technical plans of a newly formed company or a company in a fast growth path. Most of these assessments are based upon depth understanding of the technology involved, the marketing arrangements, the production capabilities, and particularly, the financial statements and projections. However, there is great difficulty in assessing the individual and team abilities necessary to carry through with these plans and to stick with the program until it is clearly successful or unsuccessful.

In general, such growth plans take 5-7 years to mature, although failures seem to exhibit themselves sooner. Many companies plateau and neither grow nor fail.

usually, such plans call for follow-on investments of new capital (for example, a rapidly growing company is generally not able to generate its own capital base and needs periodic infusions). Human beings change perspectives and motivations. During this 5-7 year span, many changes occur, often very rapidly, before the company reaches a stage of maturity.

What is needed by the investors is an assessment that is not so concerned with the "normalcy" or "personality" of the party or parties (most such investments go to companies where there is a team of entrepreneurs), but rather one which answer the question: Can this team take the business plan, run with it, and make it happen? Most investors in these rapidly growing business firms attest to the fact that the plan, even after failure, is not at fault. Rather, the team lost perspectives, lost sight of the goals and methods of the plan, and most certain motivations which were clearly present at the earlier stage.

While the assessment includes a background interview and some paper and pencil instrumentation, It s clear that such an a5sessrnent cannot be based on this type of information alone. What is needed 5 a "link trainer" which would put the team into a realistic situation of business operation, one ii which the team can experience good times, abnormal times, and abysmal times. This allows for observation under these varying conditions.

The assessment s currently being used to evaluate the management team of small and medium-sized "growth" companies. It is usually conducted during a six to eight hour time period, during which the participants are interviewed and during which they complete certain standardized instruments. Currently, the Enterprise Assessment Center is working with the Gordon Survey of Personal Values and the Gordon Survey of interpersonal V3lues, and Gordon Study of Values.

The key pan of this assessment is the simulation of a small company which the entrepreneurial team (usually composed of the company's top 3 or 4 people) manages in competition with other companies.

THE USE OF SIMULATION THE ASSESSMENT SETTING

Several characteristics of the Enterprise Assessment Center simulation quite different from the typical management simulation used in educational and management training settings. The need to adapt computer- based model for these purposes created several problems in addition to the creation of some new opportunities for simulation ion and gaming.

Start-up Time

The typical computer-based simulation is accompanied by a participant's manual which contains anywhere from fifty to several hundred pages. An understanding of the company setting, background, financial data, market structure, and the parameters of game must be achieved before the simulation begun. While this is a valid attempt at creating the most realistic of circumstances for the simulation, presents the need for the participants to read, study, and analyze several sets of information prior to making a preliminary decision. In the classroom setting, students often introduced to simulation,

presented with preliminary results, and given up to several weeks to analyze data before submitting the simulation decision for Period I. In few circum- stances is the time period reduced to a matter of hours; in fewer, if any, is it reduced to a matter of 30 minutes. The nature of the Enterprise Assessment Center requires that this goal of short lead time be achieved and it becomes a parameter in the use and construction of simulation models.

Beginning a Business

Most of the popular simulations used in the business schools are built on the concept of managing a business. The premise often given to the student is that they are taking over a business, or are already managing a business and will continue to do so in the upcoming time periods. The nature of the entrepreneur is one which contains a much stronger relationship with the business. As its creator, the entrepreneur or team of entrepreneurs, has a much closer feeling with the organization. It is the difference between managing the business and "growing" or raising the business, much like a father raises a son.

This premise in most management games is furthered by the inclusion of prior operating results of the firm, or the inclusion of what is commonly termed "Period 0" data to be run. In other words, the participants begin from a previous operating position. The company is already in operation; it is not a new business.

For the entrepreneur, this can present a meaningful experience. But it is still not the true picture of the small business start-up that is desired for the Enterprise Assessment Center. This creates a more difficult role in the early decision periods and a constraint in deciding upon a simulation model which can be used for the assessment. The model used must have a capability of starting without the "Period 0" data and be written in a fashion which allows the participants to make their first decision without the benefit of historical or competing data.

Competition

The basic structure of business simulation also includes competition with other participant teams. In the classroom or management training class this presents no problem because the class is simply divided into the appropriate number of teams. In the assessment process, only small groups of 3 or 4 people are involved. This necessitates two specific actions. One of these is the assurance given to the individuals being competing teams are not being operated from an unfair advantage. Most individuals participating in the Enterprise Assessment Center question how this is done and it has to be explained that a certain number of competing companies will be operated against pre-set decisions and strategies.

Secondly, these strategies are not based on an analysis of the computer model being used. They are strategies taken from previous assessment or classroom applications of the model. Some are considered somewhat successful strategies; some are obviously not good decisions. Changes are made in these decisions as the simulation progresses; but they are not made from the standpoint "beating" the team being assessed. They are constantly checked against a list of

"pre-set" conditions and decisions.

Administrator Intervention

Without deliberately tampering with the market and competition data, it would be impossible to randomly hope for a situation which would put a company in a bad situation. Given a losing situation created by the market or competition, there is also a problem of time. The team, once losing in a competitive market situation, may not have a sufficient among f time remaining to recover.

The creation of a losing situation, however, is a valuable tool in the assessment of the management team. admittedly, it is difficult to recreate certain abysmal times because time is required to gnaw at the guts of the individuals working together and hostilities need to be aired periodically to get everyone on edge. But a simulation of -he experience is better than no such experience and this also becomes a constraint for the Enterprise Assessment Center.

This situation is created by temporary disaster which can be 'administratively" affected on any team. It is not a long lasting disaster in terms of its affect, if the team can react enough recover. In one of the simulation ion models being used for the Enterprise Assessment Center, this disaster takes the form of a fire at the company's ke'$_7$ summer. The result is no available production for the time period which gives The company only about 0% of is previous period's sales and a small lagging effect in the company's growth from that period on. The lag lasts about two or three time periods during which the competing teams experience a small benefit in total sales.

Observation

of these conditions arid opportunities provide far a new element in the use of business simulation, the direct observation of the tea, during their decision-making process. Simulations used in the classroom usually present information to the teams in the manuals, provide for collection of the data during class times, and give feedback in the form of the operating results. The data which the instructor uses to assess 'he success or failure of a particular team is limited t: the financial reports provided by the model and his or her analysis of these results.

The changes made in simulation modeling for the Enterprise Assessment Center were designed to modify this basic concept. Throughout the entire planning and decision-making sessions, the management earn being assessed is observed. This observation takes place while the initial planning is being done, while each period decision is being made, while the team is awaiting the computer results, and during their analysis of the data. The information provided by this observation of the management teams has provided more realistic information about the performance and managerial capability than the results of the simulation itself.

Additional Characteristics

Three other concepts are needed in this type of assessment. One is the need to have a computer model which can be :banged so that teams can be re-assessed at a later date. A venture recital company using the Enterprise Assessment

Center may want to know how a team works together before a major investment is made. However, they also feel the composition and interaction within the team may change from "before we had the money" to "now we've got the money from them". The assessment can then be repeated, using different circumstances or a different simulation models, to provide new information at this point.

A second consideration involves the use of ethical problems to be confronted by the management team. In these situations, they must make an ethical decision in addition to operating decisions and the effects may or may not be felt until I sometime in the future. A third consideration is the ability to have the team present the observers with a plan of operation. The venture capitalist is often none interested in how well the team can set and meet objectives than it is in actual operating results in the simulation.

SIMULATION MODELS

For use in this Enterprise Assessment Center, Lakeshore Group Ltd. has purchased or developed three different simulation models that meet the conditions set forth for the assessment.

Model

The first model used is STARTING A SMALL BUSINESS, A Simulation Game, by Shiv K. Gupta and Ray Hamman (Prentice-Halt, 974). This is a simple model, meeting the assessment's need for quick start-up. The model was modified for use H the assessment to include options for administrative intervention and use with the pre-set data. This model has the "supplier fire? mentioned above which tests the participant's ability to respond to a disaster.

STARTING A SMALL BUSINESS involves the sale of a snack product, "popcorn with Pizaz". The competition is keen with five or six companies competing for a share of the market. Decisions must be made for the following variables: product price, advertising expenditures for radio and newspaper, production capacity expansion, and two variable for product quality.

While this model is a very simple computer simulation, it does effectively simulate the small company start-up process. This information in the manual is short, yet comprehensive enough to make initial decisions difficult. The environment is excellent for the company is given no information on company operation prior to Period With the added features needed specifically for the Enterprise *Assessment* Center, the data provided by this model has proved very valuable in assessment. This model, in modified form, is also being used for two classroom situations: an introduction to business class and small business management class.

Model 3

A second simulation model is THE SMITH MANAGEMENT GAME developed by Jerry Smith of the University of Louisville. This model, introduced at the ABSEL Conference in Indiana, contains the ethical decisions desired as part of the assessment process.

THE SMITH IH MANAGEMENT GAME involves the operation of a small firm which manufactures FM Auto Radios in competition with proximately 5 other companies. The team makes decisions on size of plant, production scheduling, engineering, price, marketing, research and development, dividends, bank loans, and sales of stock. Like Model I, the simulation provides for a variety of objectives, including profit, cash position, share of the market, utilization of capacity, and community citizenship. The key factor of this model is the ethical decision made during each operating period.

This model also can be started from a Period 0 position, therefore not requiring any previous operating information. The manual is concise and al lows for many of the operating characteristics specified by the assessment.

The Enterprise Assessment Center wants to observe the role of ethics part of the management team's operating procedure. In pre-testing one of the models, it was observed that group of participants wanted or joked about wanting to obtain confidential information about the operating results of the competing companies. It is relatively easy develop a model when information like this can be made available-- optional information available at a cost is common in many simulations -- but in this setting it s classified as confidential information. If it is then made available, the possibility of being caught and penalized must also he able. So this model is also valuable for the assessment of a management team, particularly they are being observed. THE SMITH MANAGEMENT mode' contains these options

The ethical evaluation of the management teams s attempting to answer several questions. Will I the company the investors' money and nun according to the agreed Upon plan, or did they develop the plan to get the money with variation of that plan in mind? the ethical constraints on a smaller company facing disaster? Is indeed easier for a big, well-established company to behave ethically than with no resources to fall back on? Do teams make better ethical decisions when matters are going as opposed to when all is not so well? How deeply ingrained is the growth syndrome in a company, for example, will they make unethical decisions under the duress of growth as opposed to survival This second simulation model is designed to place company teams being assessed in just such conditions and to observe the calculations and decisions and the decision process.

Model 3

A third simulation model is currently being developed. It designed to combine many the features of first two models, not exclusive use of single model, , but to design singly model which I meet of the demands, constraints, and characteristics of Enterprise Assessment Center.

It will be set in a small company start-up situation, probably production operation. will enable the assessment center to make real-time assessments orethical decisions along the competitive decision-making. Decisions will involve ethical considerations and also key operating decisions which may not have ethical considerations, yet will involve managerial judgement of alternatives and possible outcomes.

More importantly, a third element will be added to this simulation. Most investors want the entrepreneurial team to come forth with a business plan and then make the plan work. Thus, as in Bridge, the scoring is based upon how closely you came to your plan rather than how big you score or how far off the mark you were from where you predicted. Thus, in this game, a reward/punishment system will be created which is based on the participant's own framework.

Part of this element is possible using Model I. Using this simulation, the participants are asked to submit a written plan during the simulation. Throughout the simulation, the team is allowed to modify this plan, and state the strategies which they will use to meet these plans. After the simulation, the de-briefing includes a discussion of how the goals were set, how the company's actions met or failed to meet the goal, and any justification for change of strategy.

This model, when fully developed, will be the most comprehensive of the three. The advantage of using, experimenting, and making mistakes with the other models, will aid in the development of this model. It will be created in a fashion which will allow it to be used in classroom situations.

RESULTS

The Entrepreneurial Assessment Center has been successfully used in measuring the performance of management teams in the settings described here. In addition to measuring the potential of a management team for a new investment, the assessment can be used as a continuing measurement or as a measurement to consider pulling back an investment or taking action to correct management deficiencies.

The use of business simulation models makes this assessment possible. 1t also provides for the use of simulations in a unique new application of simulations in the assessment of managerial and entrepreneurial ski I Is. It provides the link between actual operating practice and the need t0 assess these operating skills in a short time period.

t is the intention of the staff involved in the development and use of the Enterprise Assessment Center to continue developing, using, and most importantly, assessing the value of the assessment center itself and the simulation models being used. Communicating the results of these evaluations and the plans for development are an important pant of this process.

Additional information concerning the use and development of the Enterprise Assessment Center can be obtained by contacting:

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