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Selection and Analysis of a Predictive Model to Forecasting Sales in Projects of Winning Management Consulting

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Abstract:

Winning Management Consulting (WMC) is a Management Consulting Company, certified and accredited. It is a company that provides services to other companies, so it is strongly dependent on sales and clients that buy their services. Have the ability to predict which are the factors that clients have in mind when decide to accept or refuse a proposal done by a consulting company, can give an enormous competitive advantage to company reach the success.

It was the objective of this study analyses and determines which are the factors that affect the clients' decision to accept or refuse a proposal of WMC. To do that, it was invited experts to participate in the study and define, in their opinion, which are the factors that might affect those decisions. A selection of the factors using correlation analysis was done and the 183 proposals of the sample were classified across those factors.

A multiple regression analysis between the defined factors (independent variables) and the result (dependent variable - acceptance or non-acceptance proposal) was done to select the five factors that better explain the total variation of the result. The results allow to conclude that the five factors are: Technical Credibility in Proposal Phase, Budget Availability, Knowledge of Clients Target Price, Competitive Price and Interlocutor Benefits. An analysis of the results allows provide to WMC a path of how to lead the negotiations with clients in order to reach a successful result, which means the acceptance of the WMC proposal.

Keywords: Predictive model; Multiple Linear Regression Model; Proposal Acceptance; Clients Decisions Factors.

1. Introduction

Companies have as goal growth in the market, win their market share and have profit, in order to be successful. Winning Management Consulting (WMC) is a company that provides to its client services of consulting in management area, which helps them to define strategy, goals and reach their own success. As all the profit companies in the market it is WMC intention reaches the highest number of clients and provides as many services as possible with the consequent financial return.

The first contact between WMC and potential clients is accomplished of a proposal, in which WMC presents to its clients, in detail, the services they will provide and the price of that service. So, in a sales perspective, this is a crucial moment and the acceptance of the proposal will mean the success for the company and allows it to be a step closer to the defined goals. Have, in advanced, the knowledge of the factors that affect or influence the client's decision to accept or refuse a proposal will allow to WMC a competitive advantage in negotiations and the ability to influence clients in order to reach the success. So it is the goal of this study determine the factors that influence clients' decision of acceptance of a proposal done by WMC.

2. Methodology

Winning Management Consulting is a consulting company that mostly provides the expertise, knowledge and management tools in form of services to its clients, so sales are the baseline of this company. The knowledge of the factors which influence the clients' decisions is a competitive advantage that could make the difference in the negotiation process. The ability to anticipate or at least predict which the factors that clients give value are can make the difference between an acceptance or non-acceptance of a proposal.

2.1. Research Question and Hypothesis

The present study intention is to answer to the Research Question:

“Is it possible to develop a mathematic model, based on historical data, in order to know the factors that influence the success of a WMC services proposal?”

The present study has, also, the goal of satisfy the following hypothesis:

- Predictive model allows improve forecast sales of Winning Management Consultancy with more accuracy than other empirical models.
- Predictive model allows identify opportunities and leverage the business plan of Winning Management Consulting.
- Predictive model allows managing resources, reduce costs and manage changes improving Winning Management Consultancy performance.

2.2. Methods, Processes and Tools

According to the studies research of Eckerson (2007) and Bose (2009) the methodology for creating predictive models are: Project definition, Exploration, Data preparation, Model building, Deployment and Model management.

The first step, Project definition, intends to define the goals and desired outcomes translated into predictive analytic objectives and tasks (Eckerson, 2007). In our study this step was done initially with the CEO of the company by an interview, in which, it was defined the needs of the company and how the knowledge of the factors that might affect an acceptance decision of the client can have a big impact in a services company as WMC. It was also defined the competitive advantage that knowledge can bring to the sales process.

In Exploration, data is analysed to determine the most appropriate and build the approach (Eckerson, 2007), which represent in our study the review of literature and research of the methods, techniques and best practices applied to predictive models developed by other authors with similar objectives.

Data preparation phase includes selection, extraction and transformation of data (Eckerson, 2007). In this phase the first tool or technique used was the interviews, the experts of WMC were interview in order to settle the determinant factors that affect the acceptance or non-acceptance of a proposal by a client. The expertise and experience of experts allowed to define the factors. Those factors were analysed, the definitions and the selection to avoid repeated information was done. The analysis of factors, using the observation of data and critical analysis of the investigator, closed this step.

In this study of development of the predictive model of acceptance proposals in WMC the sample used was the proposals presented to clients by the company during the year of 2012 and 2013. That represents a total of 415 proposals from which 135 were accepted. From this sample were removed the proposals that didn't involve money, which means the proposals of services that were offered to the client.

The sample suffered a process of classification and due to the fact of one of owners didn't work in WMC anymore those proposals were removed due to the fact that classification process can't be done properly, because it has to be done by the owner of each proposal.

Latterly the sample was selected by a data cleaning process, in which, the noise was removed and incoherencies eliminated, like the different classification of the same client. From that process, the sample of the study resulted in 183 proposals which represent 91 accepted proposals and 92 non accepted proposals.

The final sample was submitted to a correlation analysis between the factors in order to understand which relations can be settle crossing the factors and eliminate possible repeated concepts. A correlation analysis with the result, the dependent variable, was done to understand also association relationships between each one of the factors and the result. This process ended with the associations of factors with the result considering *ceteribus paribus*, which means everything else constant.

In Model Building phase the models are created, tested, validated and is done an evaluation of metrics and goals (Eckerson, 2007), which represent in this study the construction of the model that associates a group of factors with the result using the multiple linear regression model.

The Deployment phase is in which the developed model is applied, specifically in our study, it was proposed some implementation suggestions. In Model Management phase was done the improvement of performance and standardization that might be done latterly by company when the model developed will be applied and some lessons learned can be extract from the process and model (Eckerson, 2007).

3. Results

The goal of this study is to determine the factors that influence clients' decision of acceptance of a proposal done by WMC. To do that, a survey of possible factors was done with the *experts*, in which 29 factors were defined. A selection of the factors was done to avoid repeated concepts that resulted in 17 factors that were defined as the factors that influence the acceptance of a proposal made by WMC Company in proposal phase, in *experts* opinion:

1. Consciousness of client of its own needs;
2. Understanding of clients' needs or problems;
3. Historical of previous acquisition with Winning Management Consulting;
4. Services differentiation;
5. Services customization;
6. Past references;
7. Competitive Price;
8. Clients perception about Winning Management Consulting;
9. Time spent to deliver the proposal;
10. Technical details of proposal;
11. Technical credibility in proposal phase;
12. Existence of competitors;
13. Interlocutor benefits;

14. Budget availability;
15. Knowledge of Clients Target Price;
16. Knowledge of Success Criteria;
17. References of a third part;

After that a dictionary was built to clarify the concepts of each factor, in order to increase the objectivity of the proposals classification. The scale construction was done to classify the 183 proposals of the sample, each one done by the owner of the proposal.

The selection and treatment of data was done using correlation analysis and a predictive model was built to determine the five factors that affect the result (acceptance or non-acceptance proposal) dependent on the defined factors.

The predictive model was built using the multiple regression analysis model which allow to conclude that the five factors that better explain the total variation of the result (acceptance or non-acceptance proposal) are: Technical Credibility in Proposal Phase, Budget Availability, Knowledge of Clients Target Price, Competitive Price and Interlocutor Benefits. In the next table is presented the results of the multiple linear regression analysis:

	4.º	5.º	3.º	2.º	1.º	
	mIB	mCP	mKTPC	mBA	mTCPP	b
m	5,3%	4,4%	7,5%	9,5%	16,5%	0
Error	0,02904	0,02348	0,024352959	0,023881186	0,017459976	#N/A
R ²	85,7%	27,1%	#N/A	#N/A	#N/A	#N/A
F	212,498	178	#N/A	#N/A	#N/A	#N/A
	77,9423	13,0577	#N/A	#N/A	#N/A	#N/A

Table 1: Multiple Linear Regression Model Results

Source: The Author

According to the results our specific case the multiple linear regression model will be design according to:

$$Y_i = mIBX_{IB} + mCPX_{CP} + mKTPCX_{KTPC} + mBAX_{BA} + mTCPPX_{TCPP} + b \quad (1)$$

The Coefficient of Determination (R^2) obtained with the association of these factors was 0,857 or 85,7%, that means that, in this sample, 85,7% of the total variation on result is explained by Technical credibility in proposal phase, Budget availability, Knowledge of Clients Target Price, Competitive Price and Interlocutor benefits.

The standardized coefficient of Technical Credibility in Proposal Phase is the biggest one with 16,5%, so it possible to say that this is the variable with the highest impact over the dependent variable, so the result. It is follow by Budget availability with a beta of 9,5%, by Knowledge of Clients Target Price with 7,5%, by Competitive Price with 4,4% and by Interlocutor benefits with a beta of 5,3%, which allow to express the model as:

$$Y_i = 0.053X_{IB} + 0.044X_{CP} + 0.075X_{KTPC} + 0.095X_{BA} + 0.165X_{TCPP} \quad (2)$$

4. Discussion

The model that was developed in this study establishes a strong linear correlation with five factors: Technical credibility in proposal phase, Budget availability, and Knowledge of Clients Target Price, Competitive Price and Interlocutor benefits.

The Technical credibility in proposal phase and Competitive Price are two endogenous factors, which means they can be controlled by Winning Management Consulting partners and commercials, by opposite Budget availability and Interlocutor benefits are exogenous factors, so the level of control and ability to manage is lower. The Knowledge of Clients Target Price is, simultaneously, an endogenous and exogenous factor, because client fixes its target price and the value that is available to pay for the service, however is WMC representative function to do an effort, during the negotiations, to discover which the target price of the client is.

4.1. Technical credibility in proposal phase

The Technical credibility in proposal phase is an endogenous factor that can be managed by WMC, in this factor the scale is only between 2 factors “Meeting with BDO (exclusively)” and “Meeting with Partners (with or without BDO)”. The obtained results demonstrate that when Partners are involved the acceptance decision is higher.

This factor has the highest standardized coefficient with result, so it is crucial that in all future proposals, at least one partner, is involved and go to the meetings with clients. From the interviews done, partners have a big knowledge of the business, they are great communicators and can provide to the client the confidence and trust that the service provided is the best. So once again, it is important reinforce that a least one partner must be involved in the sales process.

4.2. The Budget Availability

The budget availability is the factor with the second highest standardized coefficient of the predictive model. If client has the budget availability to buy the service it is easier to sell it, otherwise it can't be possible to buy something if you don't have the money to pay it.

WMC can't influence the budget availability, it is an internal management that companies do, beside that WMC can't provide cheap services just to go and match the clients' target, what they can do is, in the first approach with the client, try to understand what the budget is and which are the clients' limits.

Some of the services can't be provided at once, so create implementation phases, with payments divided by those phases can provide a better acceptance of proposals.

As other profit companies WMC must manage its margins and potentiate them as much as possible, however respecting the range of the minimum and maximum that could\ should request to the client. Having that in mind, it will be interesting develop a model with an estimation of costs and margins, to calculate the prices in a fast and intuitive way, in which the baseline is composed by the goals that WMC want to achieve. This pre-defined model should allow just putting the costs of resources and automatically generating the range that company can practice. To develop the model, all the cost resources must be considered, human, material and time resources.

In this factor there are actions that can be done before the contact with the client, they can be denominated as Pre-Sales actions and might include, doing a study or an analysis of the public information available about the clients, such as the market share, the strategy of the company and the defined goals.

Specifically for the Budget Availability and considering public companies, WMC can consult the Government Budget that is available to all people and it will allow to know how much the availability of the public companies budget is. To private companies that are listed on stock market, their financial statements are public, so it would be interesting consult this information (Statement of Profit or Loss) and understand which was the spent money, in the last year, on services similar to those that WMC is offering. Create a file with this information will make the process simple and fast when WMC consultants are creating the proposals.

As it was demonstrated in this study WMC possess a very detailed characterization of the proposals done across the years, it would be interesting define that when consultants are doing a proposal they have to consult previous proposals, wined and lost and the reasons of lost, in order to do a simple analysis of the market, industry or services. The creation of a file with the name of client, industry, type of service, result, price and reason of lost (if the case) can also make this process more intuitive.

The suggestions presented to this factor, could be useful also to Knowledge of Clients Target Price and Competitive Price because the three factors involve price decisions.

4.3. The Knowledge of Clients Target Price

The Knowledge of Clients Target Price is the other factor that influence the result, the acceptance or non-acceptance of a proposal so a model where costs are analysed can be very useful, in order to WMC managers know previously what is the range in which they can balance the negotiations.

A strategy that could be used is to leave the proposals without the price and negotiates the price when client is analysing the proposal. The main idea is to manage with the client and across the negotiations defining the price with clients. An action like this implies a powerful negotiation skills and ability to lead the negotiations.

It would be interesting include in the proposals characterization the range of the target price of previous presented proposals because it will allow a preparation of the negotiations based on past experience due to the fact of price negotiation being done with client and not previously.

In this factor the relationship between the client and the partner or WMC representing is crucial, the price that a client is able to pay for the service is a personal information and clients won't provide easily. Communication skills will be crucial to make the client provide information that can give to WMC the advantage in negotiations. If client have a target price above the service cost it will be easier convince him to accept the proposal however the big challenge will be when it is below the service cost and manage ways to provide him a service that can satisfy its needs but with different characteristics due to the price constraints.

4.4. The Competitive Price

The Competitive Price is the factor that evaluates if the price is below or above the competitors. Nowadays companies are facing some economic constraints and difficulties, services are provided for many companies and sometimes in similar conditions, so price can be a differentiator factor that clients will analyse when they decide to buy a service to a company instead of another one. WMC can only survive if provides services with high levels of quality and with costs that clients are able to pay for. Sometimes, and especially for clients that never bought services to WMC, price can influence strongly their decisions.

The creation of a portfolio with information about competitors can be a useful tool to manage the prices and analyse the rates that are practice in the market. To build and improve daily this portfolio, managers can use techniques like mystery clients' interviews, collect data from competitors' proposal and get information of services bought by clients.

This study demonstrate what have been told in literature review, that despite the price had lost some of its power and other non-price factors have increased their importance to clients, it is still one of the most important factors when client decides to buy some product or service (Craciun, 2013). The prices, in consulting services companies, should be based on three factors: Ability to deliver results, Benefits of consulting firms and the ability of market to pay (Craciun, 2013), so the decisions of clients are very dependent on this factors also and the association of factors will lead to the results.

4.5. The interlocutor benefits

The Interlocutor benefits is the last factor that designs the developed model. In model the interlocutor is the person that will buy the services and if he has benefits to the implementation of that service he will be more available to accept the proposal and the improvement that a service can bring to its company.

I isn't about personal interests or bribery, but benefits that interlocutor might have to reach a goal in the company like a promotion or have the empowerment to influence strategic decisions or even to reach some strategic goals of the company that will give him recognition in the company.

Once again WMC partners can manage these benefits with their communication skills, showing to the client which are the main benefits they can withdraw buying the service, but it could be interesting to change the actual proposals template to the type: problem-cause-impact-solution-benefits.

A personal characterization of the client according to personality criteria can help future negotiations, but also a registration of information like the progression that client intends to do in career or the goals that company wants to achieve can be very useful information to use in future negotiations.

4.6. Factors association

The factors designed by the predictive model were analysed individually and some actions were suggested to influence the clients decisions of acceptance a proposal specifically to that factor, however, sometimes, factors work as a hole and some improvements can't be applied to a specific factor, like the suggestions that will be done in the following paragraphs.

One suggestion is to include these factors in the template "request of a proposal", in which the applicant will have to characterize the client according to the scale. That graduation will allow to have a first prediction of which can be the result of a specific proposal and consequently influence the factors that negotiators have to manage carefully to produce an acceptance result.

Give some past references to the clients tend to increase the confidence and the credibility of the company, so a suggestion is to include some past references in all the proposals. The use of engage tools, as workshops, demonstrations of the services (pilot) or assessments, before the proposals presentations will allow that client check for itself the quality of the services provided by the company and buy it easily and with more confidence.

Another action that might produce some good results is send some case studies to help clients to understand the work that is done by WMC or even to invite clients to visit other clients in which services were successfully implemented. This action can help potential clients to contact with the reality of previously provided services and increase the probability of a proposal acceptance.

The following table will resume the actions presented above in a perspective of actions that can be done before the proposal, during and even after the proposal, in meetings with clients:

Factor	Pre-proposal action	Proposal phase	Meetings
Technical credibility in proposal phase		- Change the template of proposals to the methodology of problem-cause-impact-solution-benefits;	- Partners always present in meetings with client.
Budget availability	- Analyse the Government Budget and Financial Statements of potential Clients (public information)	- Exclude the price from the proposals; - Check the prices of previous proposals of the same client.	- Analyse, negotiate and present the price to the client
Knowledge of Clients Target Price		- Exclude the price from the proposals; - Check the prices of previous proposals of the same client.	- Check with client the availability of the resources
Competitive Price	- Create a portfolio with information from the services prices provided by competitors	- Check the prices of previous proposals of the same client.	
Interlocutor benefits	- Personal characterization of the client	- Change the actual proposals template to the type: problem-cause-impact-solution-benefits	
Factors Association	- Engage tools - Send case studies to the clients - Allow that future clients visit other clients where the services was\ are implemented - Inclusion of the factors in the template "request of a proposal", in which the applicant will have to characterize the client according to the scale		

Table 2: Resume of actions that improve proposals results

Source: The Author & BDO managers

5. Conclusions

The developed model demonstrate that Technical credibility in proposal phase, Budget availability, Knowledge of Clients Target Price, Competitive Price and Interlocutor benefits, have the highest linear association that is possible to establish between these factors and the result, so it is important that now on WMC partners and commercials start to use this as a baseline to characterize the clients and anticipate some possible decisions.

Having the previous knowledge of how clients' decisions can be influenced is a huge competitive advantage that can lead the negotiations of a proposal, that could result in its acceptance and that WMC must explore.

If these are the factors that influence strongly the decision to accept or refuse a proposal, WMC has to bet and be as much competitive as possible assuring that in each proposal that is presented to the client can be in the 2-3 classification of the scales.

WMC is a company that uses the best techniques in the market to improve its sales, it is frequent the use of techniques as the "elevator pitch" and POLDAT. This study was only possible because WMC already has a very detailed characterization of the proposals with a detailed registration of its clients, proposals and sales that tries to maximize the portfolio of clients and increase the clients' satisfaction. However with this study is possible to maximize and improve the existent portfolio because from now on WMC partners and commercials can act by anticipation, which means, the knowledge of the factors that affect clients decisions will allow them to know in advance how to negotiate with client and drive the negotiations to the strategy they define.

The study also demonstrates that companies and clients are still very focused on price and costs of services that are provided by other companies. However the driver must change, it is important that companies stop to be focus on costs and start to focus in benefits of implement a service. Winning Management Consulting is a company that is starting to drive clients to that change, is guiding companies and its managers to leave the focus on budget and budget availability to analyse the benefits they can catch from a new service implementation.

The Predictive model developed will allow to improve forecast sales of Winning Management Consultancy with more accuracy than other empirical models because it give an objective tool that managers can use in order to influence the clients decision of accept a proposal done by Winning Management Consulting Company.

The model developed in the present study will allow to identify opportunities and leverage the business plan of Winning Management Consulting because it was the baseline to propose measures and action plans that will improve the negotiations during the proposal phase increasing the probability of reach the desired result, the acceptance of the proposal. In conclusion, the present study and the developed model will help Winning Management Consultancy to manage the resources, reduce costs and manage changes improving Company's performance.

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