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Business Control and Decision Making (BCDM): A One-Stop-Shop Methodology and Tool for Accurate Business Engagement

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Abstract **– Whenever a business opportunity emerges, any company's management (i.e.: marketing staff, financial officers, legal advisers etc.) has to assess the viability of the opportunity. This may be done through analysis based on financial measures such as the expected Return-On-Investment (ROI) or other business measures. The purpose of the assessment is aimed at eliminating any non-profitable/non-desirable business engagement.**

In today's dynamic business environment with intensive competition the dilemma is quite simple: On one hand there is a need to perform a thorough background analysis, resulting in a high cost and time consuming efforts. On the other hand, the faster the relevant analysis is completed naturally the chances to achieve the business opportunity is much better (for example; to sign a contract with a customer before the competitors do or to submit a "winning" proposal in a public tender). Sometimes management's due to various reasons such as lengthy procedures and\or time pressures decisions are based on intuition and not on systematic analysis which may lead to wrong decisions. In other words, the Business Engagement Process (BEP) has to be optimized and accessible since it may impact both, the business opportunity approval by management and the realization flow (Exploration, Research, Development, Qualification, Execution, and Customer Support).

The conclusion is that in a dynamic business environment there is a need for a Generic and State-Of-The-Art Methodology, based on available Automatic Tool – a One-stop-shop – supporting the Go/No Go Decision made by management. In this article, we present a generic tool developed through an empirical case study in the ITC sector (Information, Communication Technology). This tool based on mathematical models transformed into simple questionnaires, may be applicable to many other types of businesses, hopefully upgrading the BEP from the exploration phase to the Decision Making execution phase.

Keywords **– Business Opportunity (BO), Business Engagement Process (BEP), Return-On-Investment (ROI), Benchmarking, Decision Making.**

I. INTRODUCTION

A. The Globalization Impact

Globalization is already part of our fast changing world, and in order to remain competitive, we may be ready for any new opportunity of innovation and upgrade, in order to improve our corporate existing added values. Corporate's upgrade is a very long and accurate process, starting from a deep audit of the company specifications, and continuing through the implementation of advanced methodologies and tools inside the business. Several methods have been developed across the last 20-30 years in order to reevaluate and improve the competitive efforts and positioning of the corporates [1].

As presented in Fig. 1, among the last three decades we can find the following developed methodologies: The Theory Of Constraints (TOC) [2] for advanced projects' management, the Lean Management (LM) [3] for cost effectiveness, the Just-In-Time (JIT) [4] complementary approach, the Supply Chain Management (SCM) [5] for the creation of virtual cartels towards win-win situation, the Enterprise Resource Planning (ERP) [6] for the on-line synchronization and follow-up of all the resources. These methods are well usable whenever the corporate is already working on contracts signed with customers.

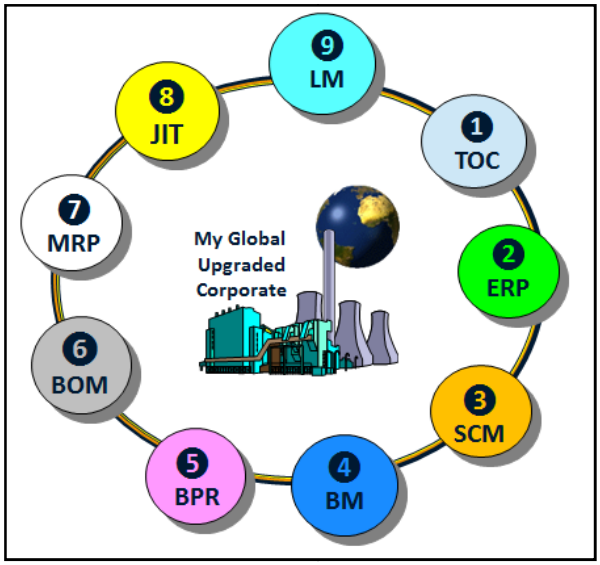

Fig.1.Schematic of the possible methods and tools which can be applied in a corporate to improve the performance.

The question we rise and solve here is how to improve the preliminary stage of Business Engagement Process (BEP). How to choose the good deals and customers? This question becomes more complex today since it combines two large domains: 1) The Corporate Upgrade Process (CUP) and the 2) Decision Making Process (DMP), as shown in Fig. 2:

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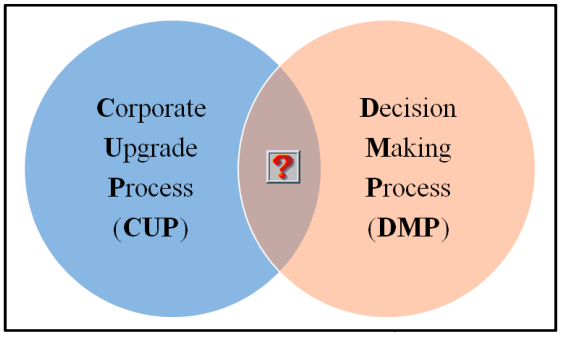

Fig.2.Schematic of corporate's management dilemma.

B. *Business Engagement Process (BEP)*

Recently new developed methodology, addressing the domain of Business Engagement Process, was confirmed to be the next evolution step in corporates' upgrade [7] in the industry.

Since we are living in a fast changing world of technological complexity, in which business opportunities arise every day, it becomes more difficult to filter the "good deals" from the "bad deals". How can we definitely assure that a new opportunity would bring benefit to a Corporate and not a disaster, spending unnecessary efforts, resources, time and cost? The project approval process starts with a business opportunity, for which we investigate the Return-On-Investment (ROI). In the past, several studies were published regarding the methods for measuring and comparing benefits, including a Cost-Benefit Ratio criterion and a graphical cost-benefit approach [8]. The method, which permitted to build a range of valuable decisions through various transformation methods, was mainly oriented to computer system, hardware or software selection. Later on, additional useful methods were developed to determine an optimal order of project implementation [9].

Usually the Business Engagement Process(BEP), starting from a feasibility analysis, is being separately performed by marketing field staff, when most of the time, the Go/No Go decision is made without any synchronization with the rest of the corporate, based sometimes on feelings. Accepting decision analysis requires a belief in the value of systematic, logical thought as a basis for decision making. This cognitive style will not be natural to people who prefer to be guided primarily by feelings rather than thought [10].This personal judgment may sometimes cause non-adequate decisions such as the rejectionof some good opportunities. On the other hand, the Chief Executive Officer (CEO) require a more global overview of all the potential business opportunities, when deeply looking at customer specifications, key learning from previous projects, and post-mortem.

Starting from a local investigation at Aman Corporate [11], the Industrial Engineering Department at the Lev Academic Center [12] developed an advanced tool and methodology, enablinga follow up of the main phases of a project from the exploration phase to the final Go/No Go Management decision, as shown in Fig.3. The tool combines Excel, Visual Basic and GUI-based User form Windows formats as shown in Fig. 4. In addition to the user-friendly GUI-based windows, the tool includes several calculators, questionnaires, and filtering spreadsheets.

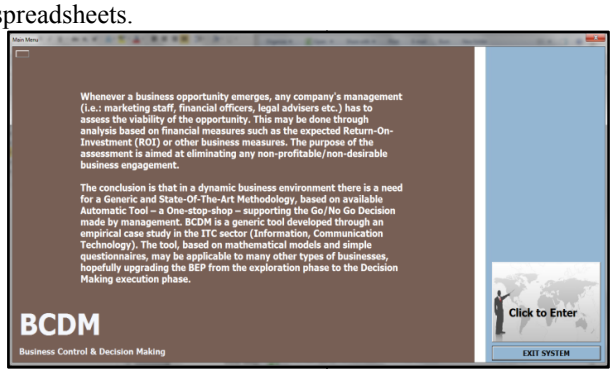

Fig.3. Entrance window of the BCDM Tool.

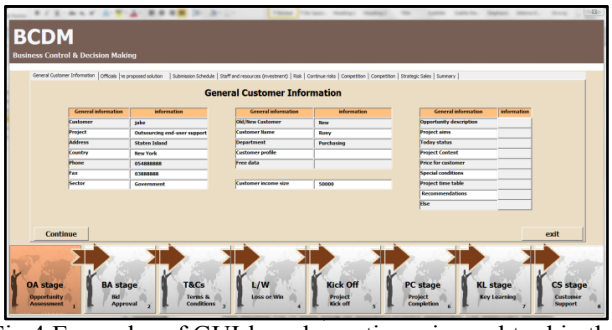

Fig.4.Examples of GUI-based questionnaire and tool in the Exploration Phase called OA.

As presented in Fig.5, the full flow of the Business Control and Decision Making (BCDM) is composed of 8 stages:

1) Opportunity Assessment (OA): Advanced data collection on customer specifications and background.
2) Bid Approval (BID): A risks' assessment of the business opportunity.
3) Terms & Conditions (TC): Preparation of the contract aspects based on the previous analysis.
4) Loss or Win (LW): Details of the win/loss decision.
5) Kick-Off: Start of the project R&D toward a final outcome.
6) Project Completion (PC): Pre-release, including Qualification & Testing steps.
7) Key Learning (KL): Challenges and difficulties' documentation, Post-Mortem.
8) Customer Support (CS) – Follow-up and service after project delivery.

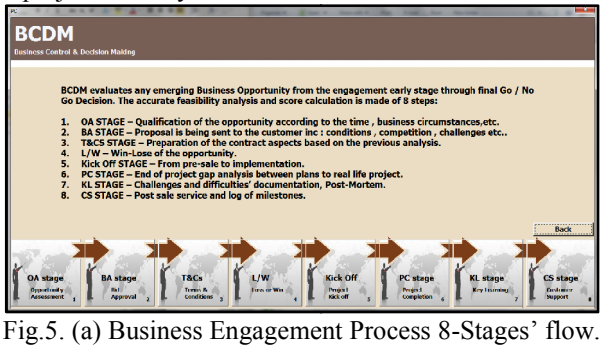

Fig.5. (a) Business Engagement Process 8-Stages' flow.

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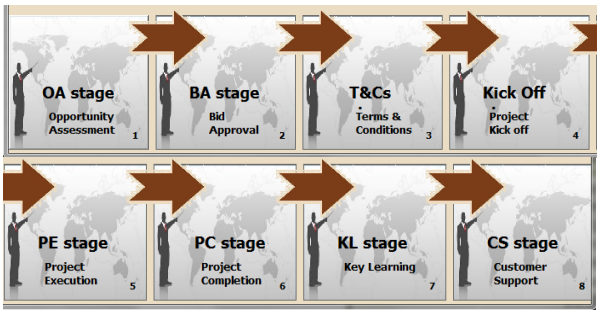

Fig.5. (b) Zoom-out of the 8-Stages Bar.

II. Tool Process and Specifications

A. A One-Stop-Shop of Integrated Methodologies

Among other analyses, the tool includes the Bench-Marking (BM) [13], the Earned Value Management (EVM)[14], and several mathematical models. The Earned Value Management is a methodology used to measure and communicate the real physical progress of a project and show its true cost situation. This tool was developed by the US Department of Defense in 1967 and later used successfully for monitoring DOE projects, in particular the US LHC accelerator project. If some of the used models are more basic, like the 4-steps lexicographical order or taxonomy selection (Must, Want, Nice-To-Have, Don't Care), they still permit a clear selection of the data that a corporate want to collect about the potential customer and the proposed project.

B. The Step-By-Step Filtering Process

Several steps are necessary in order to evaluate the project selection, when crucial questions must be asked such as: Is it a well-known customer or a new one? If it is a new one, is it the result of an "appel d'offres" or a self-promoting customer? Is there any legal and/or ethics conflict to deal with this customer? Etc… In order to answer all relevant questions and concerns a step-by-step filtering flow was established.

Whenever a decision is made to propose a contract to a potential customer, and as a consequence to accept the project, additional user form series will permit to document all the necessary efforts in resources, time and cost. The 8-Stages bar would be available all the time at the bottom of the tool, in order to permit user-friendly surfing through the questionnaires and tools (Fig. 6).

Fig.6. Example of the Step-By-Step Filtering Process.

Each one of the 8 steps icon opens series of questionnaires and tools to be filled for business opportunity evaluation.

C. Dashboard of Accurate Indicators for Decision Making

At the end, the CEO will be able to analyze all the collected data and analyses before making the decision towards a possible green light for the project. The final Go/No Go decision will be made based on a dashboard of indicators. Of course, a No Go decision, based for example on serious legal drawbacks, will be made earlier. The tables summarizing the risks will be automatically filled after translating the collected data from the potential customer. However, assuming that no show stopper would prevent the project from running, the final decision will be made using the indicators ultimate dashboard. The dashboard (Fig. 7) includes, at this stage, four important graphs/criteria, providing scores of the analysis:

The first criterion is the "Solution" one, where we take into account the capacity of the corporate to carry out the project (staff, efforts, budget, functionality, experience, implementation feasibility etc…). This score permits to evaluate the potential of the project realization.

The second criterion is the "Corporates" one, meaning the capability of similar corporates (competitors) to execute such a project. This criterion is like an advanced benchmarking analysis; permitting to evaluate the risk another corporate will finalize the contract.

The third criterion is the "Risk Assessment". This score includes all the risks evaluated for such a project.

The fourth criterion is the "Networking" one, meaning how close the relations between the customer staff and the corporate staff are. Can we develop good relationship in order to permit a smooth realization of the opportunity/project, and a win-win situation?

The fifth criterion would be now the "Priority Order (PO)" to be set by the CEO between all the relevant Business Opportunities (BO) currently on the table. This criterion would help to allocate the correct resources and efforts across a well-defined timeline. Criteria results are summarized in a dashboard as shown in Fig. 7.

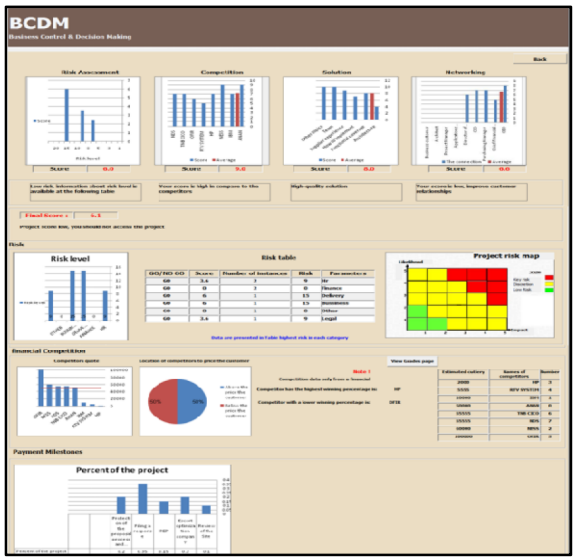

Fig.7. Dashboard of indicators for CEO Decision Making is presented above. The dashboard includes several fields such as the risk summarizing table, presented in Table I.

Table I: Example of a dashboard Risk Assessment (RA) summarizing table is presented below.

Go/No Go	Score	Phases	Risk Ass.	Parameters
Go	3.6	2	9	HR
Go	0	2	0	Finance
No Go	6.4	1	16	Delivery
No Go	10	1	25	Business
Go	0	1	0	Other
Go	3.6	0	9	Legal

III. Results and Discussion

A. Pilot Phase

As part of a preliminary analysis and of the tool implementation in the corporate, three old projects (completed) were re-analyzed using the One-Stop-Shop methodology and tool [7]. For each customer (A, B, C), the relevant data was inserted to the tool, automatically translated to numerical scores, and finally weighted according to the importance of the parameter, in order to get a graphical evaluation at the dashboard of indicators.

Analyzing the four final parameters (Solution, Competitors, Risks, and Contacts) and their weighted scores (Table I), there appears to be a conflict: For two projects (Customer A and Customer B), the marketing old-process and the new tool-based decisions were matched (respectively Go and No Go), whereas for the third project (Customer C), the decisions were opposing. The marketing department decided to go forward and to run the project, in spite of a very low final score (3.27), when, in fact, the tool decision was to reject the project. A post-mortem conducted by the corporate agreed with the tool result. The main reasons why the field marketing staff "missed" the correct decision were:

1) Insufficient data collection on the customer and the proposed project.
2) Incorrect risk assessment calculation and interpretation.
3) Lack of visual evaluation (the dashboard of indicators).

Of course, at this stage, a disclaimer should be taken into consideration: These are preliminary results. Evidently more statistical analyses should be performed. However, the post-mortem discussions clearly raise the need for such an automatic Cost-Benefit evaluation implemented/ facilitated by the tool.

Table II: Summarizing comparison of the made decisions for 3 customer projects. (a) Customer A, (b) Customer B, (c) Customer C. For one of them (33%), the tool could advise a better decision than the real one which was made.

	Customer A	
	Parameter	**Weighted score**
Dashboard Indicators for Analysis	Solution =	1.90
	Competitors =	1.90
	Risks =	2.60
	Contacts =	1.00
	Final grade =	**7.40**
Decision Making Result with or without Tool	Marketing decision (w/o tool) =	**Go**
	Corporate decision (with tool) =	**Go**
	Conflict existence =	No

	Customer B	
	Parameter	**Weighted score**
Dashboard Indicators for Analysis	Solution =	1.07
	Competitors =	1.47
	Risks =	1.00
	Contacts =	1.00
	Final grade =	**4.53**
Decision Making Result with or without Tool	Marketing decision (w/o tool) =	**No Go**
	Corporate decision (with tool) =	**No Go**
	Conflict existence =	No

	Customer C	
	Parameter	**Weighted score**
Dashboard Indicators for Analysis	Solution =	1.50
	Competitors =	1.30
	Risks =	0.00
	Contacts =	0.47
	Final grade =	**3.27**
Decision Making Result with or without Tool	Marketing decision (w/o tool) =	**Go**
	Corporate decision (with tool) =	**No Go**
	Conflict existence =	**Yes**
	Remark: Corporate's Post-Mortem agreed with the tool analysis	

B. Pre-Production Phase

In order to better evaluate the tool capabilities, tens of "old" business opportunities were checked again with and without the tool.

As a consequence, 36 corporates/customers which with were signed business opportunities, were analyzed again. After uploading all the customer and Business Opportunity data into the tools, the information was translated and calculated to provide final scores at the dashboard. The findings permitted to get more accurate analysis: 24/36 of the Go/No Go decisions were found matched between the two methods (with and without the tool), means 67% of good matching in decision making. However, 12/36 additional Go/No Go decisions were found totally opposite (33%). Looking more deeply in the results (Table II), we found that 8/12 those decisions conducted to accept the Business Opportunity in spite the fact, these projects were found bad deals. In parallel BCDM raises the flag these

are risky projects. Post-Mortem discussions have shown that management agreed with the BCDM analysis.

Table III: Summarizing sub-analysis of the results.

Number of Opportunities	BCDM Decision	Corporate Decision
8	No Go	Go
4	Go	No Go

IV. Conclusion

A generic One-Stop-Shop Methodology and Tool concept called BCDM was developed. It permits the correct evaluation and risk assessment of the customer and proposed project background. Not only is the field marketing staff involved in the Go / No Go decision, but a complete loop of Stake Holders who reviews and analyzes the data collection. Using this tool, the CEO will now be able to make a correct and accurate decision, and to initiate alternative scenarios to any new opportunity. The concept is generic, and the tool can be used for any kind of business activity, with most of the questionnaires, spreadsheets and calculators remaining relevant. Some minor customization of the tool can be undertaken to adapt to a more specific business activity. We believe that such a generic One-Stop-Shop Methodology and Tool concept can bring benefit to the Industrial Engineering Community.

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Author's Profile

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was born in France in 1965. He emigrated from France to Israel in 1983, and received the Engineering and BSc Degree in Physics/Electro-Optics Department from the *Jerusalem College of Technology (JCT)* in 1989. Pursuing Research (Eshkol Grant) at the *Fredy & Nadine Hermann Graduate School of Applied Science*, he received the M.Sc. Degree in Applied Physics & Material Science (Microelectronics & Electro-Optics Divisions) from the *Hebrew University of Jerusalem (HUJI), Israel* in 1996, and the PhD Degree in Applied Physics & Material Science (Microelectronics & Electro-Optics Divisions), from the *Hebrew University of Jerusalem (HUJI), Israel* in 2003.

He worked more than 22 years in High-Tech industries, in Europe and Israel, part of which as Senior Engineer and Manager for 16 years (1995-2011) with Intel Electronics Corporation. In 2011, he joined the *Jerusalem College of Technology (JCT),* now called *The Lev Academic Center,*where he is leading parallel research in Applied Physics (Nanoscale electro-optics devices) and Industrial Engineering (Management and upgrade of corporates).

Dr. A. Karsenty is IEEE Member, IEF (Israeli Engineering Federation) Member, and received more than 40 Awards in Engineering and Physics. Part of the Industrial Engineering Staff, and based on 22 years High-Tech industry experience, he has developed several methods of management and Decision Making, supervising his students.

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