

## Review

# Half a century of management by objectives (MBO): A review

Grigorios Kyriakopoulos

School of Electrical and Computer Engineering of the National Technical University of Athens (NTUA), Electric Power Division, Photometry Laboratory, 9 Heron Polytechniou St., GR-157 80 Athens, Greece. E-mail: [gregkyr@gmail.com](mailto:gregkyr@gmail.com).

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**This review paper presents the second half of the 20th century research of Management by objectives (MBO) approach. The relevant research is spanning over the last five decades and an approach to position representative common characteristics of this wide spectrum of studies, is implemented through their grouping into 15 main areas of application. The presented studies were analyzed, revealing the favourable areas of application by using the MBO approach. Among 82 literature survey, it is found that the main area of MBO application is in the medical sector. The four main medical sub-groupings of healthcare, that is, healthcare, nursing, hospital management and hospital pharmacy account for 40% of the total references. The paper also denotes determining factors of potential MBO malfunction, such as the observing distortion between MBO introductory structure and its function in real business environments, which are proved detrimental to their operation.**

**Key words:** Business environment, decision making, management by objectives, review.

## INTRODUCTION

Nowadays, existing strategies in any contemporary business unit could conclude to the functional and operational strategic forms. Functional strategies includes the main following types of management: marketing, new product development, human resources, supply-chain, legal, financial, and information technology (IT). In functional strategies, short- and medium-term plans are foremost priority, and these strategies are limited to the domain of each department's functional responsibility. Since each functional department attempts to do its part in meeting overall corporate objectives, functional strategies are derived from broader corporate strategies.

Nevertheless, many companies feel that a functional organizational structure is not an efficient way to organize activities, therefore they have reengineered according to processes or strategic business units (SBUs). A SBU is a semi-autonomous unit that is usually responsible for its own budgeting, hiring, price setting, and new product decisions. SBUs are treated as an internal profit centre

by corporate headquarters. Therefore, although a technology strategy is focused on technology as a means of achieving an organization's overall objectives, it may include dimensions that are beyond the scope of a single business unit, engineering organization or IT department.

Another level of strategy, named operational strategy, was encouraged by Drucker (1954) in his theory of management by objectives (MBO). According to organizations' structure they are very narrow in focusing and dealing with day-to-day operational activities, such as scheduling criteria. Moreover, organizations' have to operate within a budget but having no liberty to adjust or create that budget. Conclusively, operational level strategies are informed by business level strategies which, in turn, are informed by corporate level strategies.

## Historical development of strategic management

The introduction of strategic management to the businesses market originates in the 1950s and 1960s. Among the numerous early contributors to the relevant literature, the most influential and notable pioneers of strategic management were Chandler (1962), Selznick

**Abbreviations:** MBO, Management-by-objectives; IT, information technology; SBUs, strategic business units.

(1957), Ansoff (1965) and Drucker (1954).

According to Chandler (1962) the importance of coordinating the various aspects of management under one all-encompassing strategy was pointed out. Since then, the various functions of management were separate, having little overall coordination or strategy. The determining mechanism of Chandler's (1962) theory was the occurring interactions between functions or between departments.

These interactions were typically handled by a boundary position, where there were one or two managers that relayed information back and forth between two departments. Moreover, Chandler also stressed the significance of taking a long-term perspective when looking to the future (Chandler, 1962). The idea of matching the organization's internal factors with external environmental circumstances was introduced by Selznick (1957).

This fundamental idea was developed into the well-known Strengths-Weaknesses-Opportunities-Threats (SWOT) analysis; the latter were introduced by Learned, Andrews, and his colleagues at the Harvard Business School General Management Group. Strengths and weaknesses of the firm are assessed in light of the opportunities and threats from the business environment (Selznick, 1957).

Ansoff's (1965) work is built on Chandler's (1962) approach by adding a range of strategic concepts and inventing a whole new vocabulary. He developed a strategy grid that compared the following marketing types: market penetration, market development, product development, diversification, as well as horizontal and vertical integration.

In the classic *Corporate Strategy*, published in 1965, he developed the gap analysis, in which the key-factor is the understanding the gap existence between where we are currently and where we would like to be. Based on gap analysis Ansoff (1965) consequently developed what he called "gap reducing actions".

Finally, unique placement in the contemporary strategic management is deserved to Drucker (1954), who was a prolific strategy theorist and author, plentiful of management books. Among Drucker's (1954) contributions to strategic management, the following two are considered utmost importance. Firstly, the Management-By-Objectives (MBO) theory, that is systematically presented and evaluated in the present paper. His other seminal contribution was in predicting the importance of the so called intellectual capital. Particularly, Drucker (1954) predicted the rise of what he called the "knowledge worker" and explained the consequences of this for management. According to him, knowledge work is non-hierarchical. Conclusively, work would be carried out in teams; each team would have its temporary leader, the person who is most knowledgeable and skilfully implementing the task at hand (Drucker, 1954).

## Management by objectives (MBO)

The MBO theory has been introduced to the business science at the mid of 1950s. Drucker's (1954) concept idea of the MBO introduction was the apparent importance of businesses' clear objectives to their profitability productivity, share market increase and concurring reputation. According to Drucker (1954), the procedure of objectives' setting and progress' monitoring are determining factors towards the function of organizations, thus these factor should permeate the entire organization, from top to bottom.

MBO theory is spanning over five decades. The present study aims at revealing the impact of the MBO theory in business market, using a succinct and concise methodology. Particularly, the following extended Table 1 presents all the relevant references involving the MBO theory in a variety of (mainly) business-based operations. The identification of these studies was implemented through three search avenues. First, computerized database searches from 1970 to 2010, using the key words "management by objective", and "MBO" were conducted. Second, manual searches of those journals that featured prominently in both ISI Web of Knowledge and Scopus databases search were also conducted. Finally, the reference lists in several meta-analyses were examined. To the reader convenience, these research studies of the MBO theory, being spanned over the second half of 20th century, are concentrated in the Table 1. According to the structure of Table 1, the studies are firstly categorized according to their publication year within the above references' period, from the latest to the earliest; and secondly in alphabetical list of authors' surname, for studies being published within the same year. Moreover, the "Area of Application" and the "Scope – Method – Results" traits of each study are presented, thus revealing the worldwide strengths, weaknesses, opportunities and threads (SWOT) evaluation of the MBO theory itself. In Table 2, the presented references of Table 1 are further grouping into 15 main areas of application. The structure of Table 2 is based firstly on the MBO area of application in accordance to each application reference plethora, and secondly in alphabetical list, in the cases of existence the same subtotal references' number, among two or more of these 15 main groupings.

## DISCUSSION

The above gathered and presented references depict a wide spectrum of MBO applications. Their grouping over 15 main areas of application are representative and it is estimated that future studies could easily be classified into one of these proposed groupings. Moreover, the geographical dispersion of the above references is indicatively expressing the global character of the MBO approach within a viable business environment, throughout the last half of the 20th century. It is also notable

**Table 1.** Management by objectives (MBO) during the second half of the 20th century.

Reference item #	Reference (Reference section #)	Area of application	Scope – Method – Results
1	Lee and Ahn (2010) (49)	Hospital Nursing	The study is designed to develop performance evaluation key indicators (PEKIs) for management by objectives (MBO) and to estimate their weights for hospital nurses. PEKIs and their main weights – placing in the order of: customer satisfaction, patient education, direct nursing care, profit increase, and safety management – can be utilized for impartial evaluation and MBO for hospital nurses. Further research to verify PEKIs would lead to successful implementation of MBO.
2	Cao et al. (2009) (14)	Power supply reliability based on a distribution network GIS platform	Specific codes introduction describes completely the topological structure of distribution network which is necessary for MBO. Additionally, a new algorithm used in objective decomposition for power supply reliability is designed. The factors which can influence the results of objective decomposition are discussed and determined. The algorithm is integrated in power distribution network GIS platform, showing that the decomposition algorithm can obviously improve the reliability of power supply.
3	Jia et al. (2009) (41)	Human error rate assessment for power companies	Human error is the key reason of accidents in power companies. Approaching the problem of how to impartially evaluate the human error rate of power companies and the branches, the concept of contribution rate is given, in order to embody the effect of branches under the particular condition including the surrounding and their task according to the MBO theory. A mathematical programming model is founded to get the due human error rate of power companies and to evaluate the branches' contribution to the company.
4	Li et al. (2009) (50)	Quality Management By Objectives (QMBO) for product manufacturing process	The evaluation problem to rationally assign Quality Management By Objectives (QMBO) throughout the execution process of relevant product manufacturing departments is approached with a three-step methodology of the establishment, decomposition and evaluation of quality objectives. Firstly, the product quality objectives are established and selected by using the method of Quality Function Deployment (QFD). The results of an aircraft manufacturing enterprise application prove that it is effective to guarantee the realization of enterprise quality objectives.
5	Pavlova and Afanasieva (2009) (64)	Decision tree and MBO effective methods from the point of view of healthcare economics	In Bulgaria, general practitioners who give primary medical care have to accomplish their mission in condition of insufficient financial resources. The approaches of "decision tree" and "management by objectives" are implemented through filling in a questionnaire. Equal opportunities concerning medical qualification, conditions of work the knowledge of modern economic approaches are also considered advantageous to general practitioners medical treatment.
6	Roth (2009) (71)	MBO structural analysis, critic upon MBO obsolescence	The corporate dogma of MBO for many decades is criticised in the view of its touted strengths rapidly becoming liabilities in the new global century, as more empowering and flexible approaches sprout up as promising new models for performance management. The study examines the dampening effect MBO can have on creativity, teamwork, and the ability to respond to changes in the business. Moreover two cases of organizations that broke out of the mould are also presented.
7	Concepción (2008) (18)	MBO structural analysis; MBO in the light of creativity and conceptual clarity	In this study the need of co-application of MBO with creativity and conceptual clarity is investigated.

Table 1. Contd.

8	Elvik (2008) (26)	MBO approach for road safety national planning	The Norwegian Public Roads Administration has developed a comprehensive system of road safety MBO. A broad set of objectives regarding road user behaviour, vehicle safety standards and the safety of roads has been formulated as part of the National Transport Plan for the term 2010-2019. The study describes the system of reducing fatalities and serious injuries and provides a critical analysis of it. Factors that influence the effectiveness of management by objectives are identified. It is concluded that while the system of management by objectives developed in Norway has a number of attractive characteristics it also has a number of weak points that may limit its effectiveness.
9	Sohn et al. (2007) (76)	Information system and MBO collaboration to R&D projects implementation	The study investigates the way of MBO to achieve successful implementation of massive research and development projects requiring collaboration among industries, universities and government-supported research institute. An engineering process innovation model, based on information system, implements a real-world web-based project (objective) management system. Overall effect is analyzed through the web-based-approaching questionnaires. The scope of the above approach is to observe how well the system and its generated information meet requirements on the ultimate impact of the system upon objective management and communication. The questionnaire on the system effect reveals that the information system is useful to objective management and communication, and that the quality of the system is more than acceptable as well. The responses to the questionnaires are subject to improving those in-depth interviews.
10	Wibeck et al. (2006) (84)	Integration of ecological concerns into national, political and administrative structures, in conjunction to MBO technique	MBO technique could be appropriate for integrating ecological concerns into national political and administrative structures. The study examines communicative aspects of environmental MBO, looking specifically at the implementation, administration, and assessment of Swedish environmental quality objectives. The proposed methodology is illustrated by quotations from individual and focus group interviews, and the possibility of communicative arising problems is also commented. In assessing the achievement of environmental objectives, indicators are used as communicative tools. The investigation of whether and how these indicators contribute to the de- and recontextualization of environmental objectives is also discussed.
11	Antoni (2005) (5)	The role of MBO to team working effectiveness	MBO is considered as a means for leading self-regulating teams. The function and effectiveness of MBO systems are investigated. Particularly, the MBO system of a company in the construction supply industry is analysed. The exploration of the mechanisms and the effects of MBO at team level are materialized by testing a model for group goal setting. Group goal commitment and group goals moderated by task interdependence are supposed to influence group processes as a mediating variable for group effectiveness. Results do not consistently support this model. The moderating effect of task interdependence could not be supported. The consequences for developing a model for MBO at team level and implementing effective MBO systems are discussed.
12	Cai and Hu (2005) (13)	MBO application in drug administration of hospital pharmacy	The study implements MBO in the process of drug administration, in order to raise the managing level of the hospital pharmacy and improve professional quality of staff. Objective systems were built in outpatient-department, inpatient-department and emergency pharmacies. The correspondence between the accounts and the numbers of the drugs, and the error rates of checking cost were the examination indexes. The study revealed that MBO deserves to be widely used in drug administration of hospital pharmacy.

Table 1. Contd.

13	Dahlsten et al. (2005) (21)	Car manufacturing companies using internally-oriented MBO	This study aims at studying a car company volume target, regarding the consequences it has on organisational practices. Interviews with relevant managers at the company were conducted. Interpretations of a seemingly clear objective showed different views on both the rationale for and possible direction of the needed change. Moreover, an increasing gap between middle and top managers are organisational responses to the demanding volume ambition. The study deals with long-term objectives, suggesting that the lack of academic research interest in the MBO discourse is misleading and that management researchers should examine how existing of renewal of research on MBO is used in practice. Organisations rely on objectives, but such objectives need to be translated into detailed actions by top management. The creation of meaning and actual means to fulfil the targets is an important dimension to consider for managers wanting to manage the organisation by using objectives. Organisational context and cultural obstacles must not be neglected.
14	Zahraee (2003) (88)	MBO approach to evaluating university faculty	MBO approach, reflecting the Human Resource practice of performance plans and evaluations in corporate America, is used for the design, analysis and implementation of a faculty evaluation system in both departments of Electrical Engineering Technology and Manufacturing Engineering Technologies and Supervision at Purdue University Calumet. This new system asks faculty to set goals and objectives with some degree of flexibility and is in line with the accreditation requirement changes of Accreditation Board for Engineering and Technology (ABET).
15	Tatarkin (2001) (79)	MBO in conjunction to market management mechanisms	The study investigates the collaboration of both MBO and market management mechanisms for regional (particularly Ural) development.
16	Ricci et al. (1999) (69)	MBO application in national healthcare service	The study presents the introduction of MBO in the management of National Health Service, being especially experienced from the USL 2 Pentria Agency.
17	Busch (1998) (12)	MBO structural analysis; Relationship among the concepts of MBO, self-efficacy and goal commitment	The study investigates the relationship among the concepts of self-efficacy, the goal commitment, and the knowledge about the MBO programme. The results revealed that self-efficacy in improving productivity and commitment to productivity goals are both positively correlated to attitudes towards MBO. There is no significant correlation between participation and attitudes towards MBO. The study establishes self-efficacy and goal commitment as significant constructs in explaining attitudes towards MBO in the public administration.
18	Tan et al. (1997) (78)	MBO and nursing	The study investigates the MBO application of its principles in training all-round nurses in China district.
19	Migliore and Gunn (1995) (56)	MBO contribution for healthcare administrators	The study handles the necessity of hospital and clinics in terms of delivering effective, efficient healthcare that it is undergoing rapid change. The study demonstrates how strategic planning can contribute to that end.
20	Paez (1993) (63)	MBO features of quality policy, drug prescription, drug distribution, drug administration	This study examines the implementation of an Improvement Plan for the quality of the drug prescription, dispensing and administration process at a regional hospital. The MBO is planning to: a) Improve the quality of how medical prescription is filled out. B) Eradicate errors due to the way medical orders are transcribed by nursing staff. C) Eradicate errors due to the way drugs are dispensed by the Pharmacy Service. D) Record drug prescription and administration in the Emergency Department on a specific form. E) Evaluate the importance of returns of uncalled for drugs (not administered), making corrective decisions on the spot. Analysis of the results supports the future redefinition of objectives as well as improvement strategies.

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21	Braithwaite et al. (1991) (9)	MBO and healthcare institutions	An evaluation of MBO approach with particular reference to health care institutions is presented and the disadvantages this approach are discussed. A more comprehensive performance management system than MBO is advocated. The study outcomes reveal that experience provides guidelines by which senior managers may successfully implement goal-directed performance management programs in health care institutions, in order to enhance organisational effectiveness and the goal-oriented behaviour of managers.
22	Buj Fernández et al. (1991) (11)	MBO in hospital management	The study investigates the MBO application of its principles in training all-round nurses in Spain district.
23	Rodgers and Hunter (1991) (70)	MBO structural analysis; Organizational productivity outcomes in combination of MBO	The successful combination of the processes of goal setting, participation in decision making, and objective feedback with MBO, have each been shown to increase productivity. One factor that is predicted to be essential to success is the level of top-management commitment to MBO. Additionally, results of the meta-analysis show that when top-management commitment was high the average gain in productivity is more than 9 times higher comparing to the average productivity when commitment is low.
24	Pearson and Reyes (1991) (65)	Effective clinical education methodology by using MBO	Educational programs must ensure that students continue to receive appropriate clinical education. The present study applies the MBO simple technique that has been successful in ensuring appropriate clinical education at the institution of the authors is discussed.
25	Racz and Simon (1990) (67)	MBO in the healthcare sector	The study relates the MBO application in the Szabadsaghegy children's sanatorium of Budapest.
26	Benson and Townes (1990) (7)	QMBO application to the healthcare sector	The study is positioned critically to existing MBO standard tool in the managerial inventory, since the Department of Ambulatory Care Services in Methodist Hospital of Indiana (USA) is proved detrimental to each daily operation. Alternatively, the study proposes the suitability of the Quality Management By Objectives "QMBO" as a viable tool to the examined healthcare system sustainability.
27	Jeffers (1988) (40)	MBO in the healthcare sector	The study reveals the potent MBO use in the radiation oncology center.
28	Williams and Hinings (1988) (86)	MBO structural analysis; MBO revisiting in combination to matching control system implications and organizational characteristics	The implementation of new control systems governed by a rational-technical logic is influenced from the underlying value and belief structures lodged within prevailing control systems, task and hierarchy. The present study denotes several prescriptive implications offering for the design of systems change, such as the discordance facing the context of MBO and zero-base budgeting (ZBB) complementarity.

Table 1. Contd.

29	Friesen (1987) (33)	MBO structural analysis; MBO, managerial effectiveness, and efficiency interactions	The components and dimensions of an individual or organization as an operating entity are described and suggestions for better management are proposed. Managerial effectiveness and efficiency are also defined.
30	Lively (1987) (51)	MBO application in hospital pharmacy management	This study shows the main MBO topics regarding the hospital pharmacy management.
31	Maguire (1987) (52)	MBO and nursing	The study investigates the MBO application of its principles in the nursing sector.
32	Adorian et al. (1986) (1)	MBO use to the healthcare of hypertension administration	MBO approach is funding and used to improve the detection and quality of treatment of hypertensive patients. This MBO approach, when accompanied by regular feedback, appears to motivate primary case teams, in order to improve the detection of hypertension in their patients.
33	Bozis (1986) (8)	MBO and medical group practice	MBO is both theoretically and practically determined via three primary functions of objective setting, objective using, and employee involvement. MBO in medical group practice could be proved beneficial when properly introduced. MBO approach falls beyond an academic concept, revealing its major strength in its recognition of the importance of human resources in implementing its function.
34	Kost (1986) (47)	MBO instalment in an academic medical center containing clinical laboratory divisions	MBO was installed in the author's institution in clinical laboratory divisions meeting prerequisites and fit the system to the local management environment. MBO is proved beneficial to improving communication, organizational clarity, planning for deadlines, motivation of participants, work load distribution, and productivity. Moreover, projects are easier to visualize, track, and coordinate. MBO optimum functions with one- to two-year-long projects, involving problem solving and innovation. Finally, MBO is recommended for other academic medical center laboratories, provided executive management commits the necessary time and resources to install MBO carefully as a relatively loose, locally administered form of management philosophy, rather than management technology.
35	Seyna (1986) (73)	MBO structural analysis; MBO: its comprehensive definition gains diversified benefits	This study positions a continuing controversy about the meaning of MBO and whether it has been of value, in the reference publication year. The author argues that most of the problems have been due to the lack of a generally accepted definition. A new and comprehensive definition, based on MBO "introducer" Peter Drucker's original work on the subject, is presented. The proposed definition will help organizations use MBO to increase productivity, improve quality, lower costs, make faster decisions and serve customers better.
36	Fisher (1985) (29)	MBO concepts embodied in Optimized Production Technology (OPT)	The study examines the underlying assumptions of both MBO and the traditional goal-setting techniques typically applied during the optimized implementation of just-in-time and Zero Inventory Systems. Moreover, a set of application rules and tools for both goal-setting and performance evaluation is introduced.

Table 1. Contd.

37	Williams (1985) (87)	MBO and Zero-Base Budgeting (ZBB) systems complementarity	This study argues the existence of popular arguments in the management literature advocating the implementation congruity and complementarity of both ZBB and MBO systems. Moreover, the management perceptions on ZBB implementation variables for MBO users and non-MBO users gathered from managers at two hierarchical levels within a single private sector organization are examined. Both univariate and multivariate tests indicate that ZBB implementation was not facilitated by the existence of an MBO system for either lower level management or for upper level management. The evidence obtained here strongly suggests that ZBB design implementation issues need to be thoroughly re-assessed, with the emphasis on matching compatible systemic properties between information sub-systems.
38	Deegan 2nd and O'Donovan (1984) (22)	MBO at disposal to the healthcare management: Allocating the resources appropriate for each of the objectives, and the process of budgeting	MBO effectiveness is determined through its minimum wastage of time, money and effort. In these cases, satisfactory performance is based on meeting agreed-on standards of performance. Budgeting by MBO requires a shift in the mentality of the typical manager with regard to the budgeting process. Budgets' development is materialized by using the current level of operations as an established base. Therefore, managers itemize only desired increases, thus looking at only a small fraction of the final budget. The proposed methodology of this study does not require a detailed review of ongoing operations and expenditure levels. It might be called incremental budgeting.
39	Fain and Sheathelm (1984) (27)	MBO administrative tool in nursing service administrators	The study points out the role of nursing leadership to minimize frustration among staff and optimize nursing effectiveness and job satisfaction. A manager administrator is called upon time and time again to increase the productivity to staff, by handling potent conflict between the organization's goals and the individual staff member's needs. MBO is not considered a mechanical or dehumanizing approach, but one that recognizes the importance of human relations to effective administration. MBO motives are the notions of "democratic procedures", "involvement", and "motivational techniques" and MBO prerequisites are a considerable amount of time and energy, in addition to organizational support. The study concludes considering MBO as an approach within a system, it provides a major organizational advantage-improved planning.
40	Gruner (1983) (36)	MBO and employment	The study correlates the phenomenon of employment discrimination in MBO systems. This phenomenon is also reported in the view of the labour law legislation.
41	Kelly (1983) (43)	MBO structural analysis; Remedial MBO	The study examines the remedial prosperity of sustainable MBO theory.
42	Kordick (1983) (46)	MBO and quality assurance system	The study provides a quality assurance system based on MBO.
43	Mills (1983) (57)	MBO cooperation with task-centered system for mental healthcare facilities	Mental health facilities have apparently influenced from a variety of groups for recognition in the decision-making processes. The study positions earlier conceptions of MBO as either ill suited for social service agencies or not allowing for or encouraging involvement of the service consumer in the process. The study introduces the Social Service Model of Management by Objectives as an approach which can be used as a planning and communication tool for staff, administration, and the board with on-going input from clients and potential clients. The study concludes that, firstly utilizing client input through the problem identification process of the task-centred system in order to enhance the measurability of objectives in mental health facilities. This approach can also further staff identification with and involvement in agency functioning.

Table 1. Contd.

44	Moore and Scott (1983) (58)	MBO in a public agency	In this study, Black and White managers, supervisors, and professionals of the City of Detroit transportation system consists the sampling population. The participants they had been involved with an annual MBO project. Explanations derived from the racial demographics of the organization, the MBO installation, and characteristics of MBO as a management process in public agencies are also presented.
45	Noble (1983) (60)	MBO In Hospital Pharmacy Management	The study evaluated the key – topics involved in hospital pharmacy management.
46	Pollok (1983) (66)	MBO in nursing	In this study, MBO traits are adaptable to the nursing service setting. Managers responsible for nursing service units exploit MBO elements of formulation of goals and objectives, development of action plans, and implementation necessary to increase the accountability and the output of the work rendered. MBO for the nursing service is evaluated as a logical system of results and proven value.
47	Swiss (1983) (77)	MBO structural analysis; The interactions between the power shifts and personality under federal MBO	The study points out the detrimental effect of MBO shifted-power to the secretary office in part by documenting a “cycle of failure” for subordinates and by lessening the influence of outside groups. The study argues the normative case of welcoming the above type of shift and the determining affection of secretarial personality – which is expressed by him or her to value their internal power – for MBO success. As the study notably denotes: “Information is power in a large organization, and MBO forces information (particularly bad news) up to the secretarial level”.
48	Alberts (1982) (2)	MBO structural analysis	MBO is considered as a participative management system, leading to decentralization and self-control of the individual. . This system provides the research establishment with a profound sense of purpose and direction, which is essential for effective planning and control. The results-oriented MBO principles adopt the performance standards, in association with costs and manpower, value assessment, feedback, and improvement. Moreover, the wisely implemented MBO, with the necessary respect for creative work, it can enhance the job satisfaction of the research worker as well as the overall productivity of the research establishment.
49	Brumback and McFee (1982) (10)	MBO development and implementation in the U.S. Department of Health and Human Services	The author of this study asserts the uniqueness of their work to describe, develop and implement their MBO approach in the U.S. Department of Health and Human Services. Their three-years study integrates a two-fold performance appraisal into a broader performance management process. The proposed performance accounts for the individuals’ behaviour on the job and the results achieved. The authors denote that performance planning to be the function most crucial for successful performance.
50	Ford and McLaughlin (1982) (31)	MBO structural analysis; MBO programs	The study in especially focuses on avoiding disappointment in MBO programs.
51	Hatfield (1982) (38)	MBO in the hospital management	In the present study MBO, and its concurring objections, are co-evaluated.

Table 1. Contd.

52	Johnson and McMurry (1982) (42)	MBO in the hospital management	MBO is particularly studied in the view of its introducer Drucker's management by objective concept.
53	Kenneth and Lampi (1982) (44)	MBO in the healthcare sector	The study presents the MBO function in the business office, regarding the particular traits of the healthcare sector.
54	Martin et al. (1982) (53)	MBO in the healthcare sector	The MBO attempts to introduce the management to the new-born (at the time of the study's publication) management application to the medical personnel. The specific MBO application is in the field of a surgical residency team.
55	Murphy and Redden (1982) (59)	MBO in in medical education enrichment programs	The scope of this study is overcome the difficult in evaluating the effectiveness of numerous medical education enrichment programs that have been established throughout the United States. Despite the programs goals' existence, yet most program managers do not have a simple tool for transforming these broad statements into measurable performance standards, unless a goal clarification process is initiated. Therefore, the study regards MBO as an appropriate process for refining a program's goals that enables the fair evaluation of these enrichment programs.
56	Wehrich (1982) (82)	MBO and strategic career management	The publication period of this present study coincides to a critical standpoint of MBO theory. Therefore, the present study attempts to reveal the critical traits of MBO by introducing the strategic career management to successfully MBO implementation.
57	Wehrich and Thomsen (1982) (83)	MBO structural analysis; MBO and Data-based research collaboration	The study utilizes the existing MBO characteristics by applying a data-based research. The ultimate scope is the improvement of the former (MBO's) traits.
58	Cornillon et al. (1981) (19)	MBO in hospital management	Hospital on objectives is an enormous and dangerous objective, therefore, it should be for a good reason and be linked with deep-going causes. The authors ask themselves about the evolution of the French administrative environment, which is the factor causing a great number of obstacles, in particular, of the planning negotiated between the State and the public enterprises. The study states that governing by objectives is a technique of management; but in the hospital there is no concentration of power in the hands of one person. Thus, the study attempts to identify who are the real prime movers – "those persons who get things done" – both internally and externally.
59	Covaleski and Dirsmith (1981) (20)	MBO in hospital management	In this study an attempt to implement the management of two hospitals, using the MBO system as a means of improving organizational planning and control. The study concluded that, as a goal-directed form of management technology, MBO may lead to dysfunctional decision making at the institutional level within organizations, especially those facing complex, dynamic environments. Nevertheless, in case that MBO is viewed as a philosophy of management administered at the sub-unit level, it may serve as a catalytic agent for encouraging decentralized decision making and performance evaluation.

Table 1. Contd.

60	Deegan 2nd (1981) (23)	MBO in hospital management	The study handles the functionality and appropriateness of MBO in hospital management.
61	Kondrasuk (1981) (45)	MBO in employee productivity and job satisfaction	MBO system efficacy remains questionable at the era of the study's publication. Therefore, the present study analyzes numerous studies for the effects of MBO on employee productivity and job satisfaction. Research support for MBO was found to be inversely related to the degree of research design sophistication. Moreover, it appears a contingency approach to MBO is more appropriate than a definitive affirmation or rejection of MBO effectiveness.
62	Bell (1980) (6)	MBO in nursing	In the study, MBO is explained and its advantages for nursing management discussed, according to its stimulating growth and measuring performance in an organization. The study reveals the way of the system implementation and success. Additionally, two examples of MBO in nursing are given, namely staff evaluation and patient care planning.
63	Cheetham (1980) (17)	MBO application within a building contracting company	The present study presents the philosophies and techniques that the MBO technique incorporates, with reference to a case study development within a building contracting company.
64	Fischer and McLaughlin (1980) (28)	MBO and Research and Development (R&D) in organizations	MBO is successfully addresses both job design and motivational incentives for the majority of organizations' efforts towards increasing productivity. The study examines the dynamic of both MBO and R&D setting, regarding the overall system's desirability. Alternatively, the approach to MBO stresses the non-evaluative contributions an MBO system can make to the researcher. The results of applying this alternative approach to simulated MBO and R&D setting results in a substantial increase in productivity and the maintenance of social harmony within the group.
65	Garrison and Raynes (1980) (35)	MBO in the healthcare sector	This study denotes the challenge of the burgeoning complexity of administering mental health programs calls for increasingly sophisticated management strategies. Moreover, MBO is considered an administrative tool that may assist mental health managers in meeting administrative needs, as well as service demands in a more efficient fashion. Additionally, the study describes the results of a pilot MBO project applied to an outpatient service in a community mental health centre.
66	Taylor (1980) (80)	MBO in the healthcare sector	The scope of the present study originates from management-coordinated efforts of a network of organizational members and health professionals, in order to effective health protection and materialization at the workplace. Moreover, the application of a specific MBO program to preventive health care in an industrial corporation is discussed.
67	Wallace (1980) (81)	MBO in nursing	The study provides various aspects of consultation and MBO.
68	Cassidy (1979) (15)	MBO structural analysis; MBO as a theory of life's goodness	According to this study, MBO is viewed as a theory of life's goodness, especially within the businesses' environment.

Table 1. Contd.

69	Dirsmith and Jablonsky (1979) (24)	MBO as a governmental means for managing agencies and programs	This study aims at MBO evaluation as a management technique and as a political strategy, using concepts developed in the organizational theory, general systems theory, planning and control, and political science literatures. The study's results that MBO falls short of its mark and that it has been primarily used as a political strategy for controlling and directing controversy.
70	Ford (1979) (30)	MBO in the current (1970s) business environment	The present study is chronologically placed with the critical third decade of MBO introduction. During this period, MBO is generally valued as a not successful theory with questionable usefulness, because of what appears to be an inherent conceptual problem. This severe critical standpoint of MBO has also stated that if this theory could leave to us any kind of legacy, it will be to serve as a guideline to the mistakes new concepts should avoid.
71	McConkie (1979) (55)	MBO structural analysis; Clarification of the goal setting and appraisal processes in MBO	The notions of "goal setting" and "performance appraisal" have assumed many different shapes and purposes within the MBO concept. The MBO concept clarification is materialized in this review study through various writings of leading MBO experts' examination. Moreover, the study extracts those elements common to their respective definitions of goal setting and performance appraisal, and joins them into a single definition of MBO.
72	Odiorne (1978) (62)	MBO in the current (1970s) business environment	The study presents a backward glance of the MBO theory in the current business environment.
73	Futrell et al. (1977) (34)	MBO in hospital products' sales management	The study reports the results of a MBO evaluation program for over 200 salesmen in a hospital products company. The main favourable and unfavourable effects of the MBO program were also discovered.
74	Sims (1977) (74)	MBO in industrial sales management	This study focuses on the area of sales management, as a key-point which can benefit from the MBO procedure. The unique characteristics and activities of salesmen and sales managers demand a flexible tool of evaluation are also presented. The study's objectives are: the examination of some specific problems and needs of industrial sales management, the outline of suggested MBO procedures for industrial sales management, and a discussion on how MBO can operationally deal with the problems and needs of industrial sales management.
75	Hand and Hollingsworth (1975) (37)	MBO in hospital management	The purpose of this study is to prescribe a remedy utilizing MBO, in order to elucidate the phenomenon of high employee turnover rates in hospitals, which detract from the quality of patient care and sub optimize financial resources.
76	Hives (1975) (39)	MBO in the current (1970s) business environment	MBO characteristic is that it rarely seems able to sustain the promise of its initial impact because it is essentially bosses' movements rather than popular movements. The MBO ideology does, however, come close to that of a genuine social movement if only it is interpreted and applied correctly. The convergence of MBO and the Organisation Development movement promises that together they will be seen as an acceptable response to the changing expectations and values of the participants in the currently large, augmenting and complex businesses.
77	William (1975) (85)	Differentiating MBO and appraisal systems	The study focuses on differentiating MBO and appraisal systems, in a contingency viewpoint within the business environment.

**Table 1.** Contd.

78	Anonymous (1974) (3)	MBO in the current (1970s) business environment	The purpose of this study is to ensure the MBO by using the managerial grid.
79	Fri (1974) (32)	MBO and politics	This study examines the ways of managing the government for results, using the MBO perspective.
80	Odiorne (1974) (61)	MBO and politics	The study correlates the politics of implementing the MBO theory.
81	McConkey (1973) (54)	MBO in the current (1970s) business environment	The study states that any significant validation of MBO effectiveness has yet (1970s) to be done. The study is also serving as a preliminary evaluation for MBO, tracing the important steps in the development of the system and making some general appraisals on the extent to which it has been adopted. Moreover, some of the primary changes, which MBO created in the management process, are discussed, as well as some of the reasons why MBO has failed in certain situations. Finally, the author considers the future of MBO, according to the present indicators of its future placement in management systems.
82	Reif and Bassford (1973) (68)	MBO in the current (1970s) business environment	This study describes the concept and its emphasis on results and on human behaviour and motivation. The system has the following four basic components: setting objectives, developing action plans, conducting periodic reviews, and appraising annual performance. Moreover, a list of major benefits that an organization can expect is also listed.

**Table 2.** References' grouping according to the Management-By-Objective (MBO) area of application, in accordance to each application reference plethora.

Area of Application Grouping (MBO and :)	Reference item #(according to Table 1 numbering)	Number of references	Percentage
Healthcare	5, 16, 19, 21, 25, 27, 32, 33, 34, 38, 43, 49, 53, 54, 65, 66	16	19.5
Structural analysis	6, 7, 17, 23, 29, 35, 41, 47, 48, 50, 57, 68, 71	13	15.9
Systems (including R and D)	9, 28, 36, 37, 42, 44, 64, 77	8	9.8
Hospital management	22, 51, 52, 58, 59, 60, 75	7	8.5
Nursing	1, 18, 31, 39, 46, 62, 67	7	8.5
Business environment within the 1970s	70, 72, 76, 78, 81, 82	6	7.3
Management (in conjunction to the market, strategic and sales types)	15, 56, 73, 74	4	4.9
Education	14, 24, 55	3	3.7
Employment	11, 40, 61	3	3.7
Hospital pharmacy	12, 30, 45	3	3.7
National planning	8, 10, 69	3	3.7
Quality MBO (in conjunction to manufacturing, hospital pharmacy, and healthcare areas of application, respectively)	4, 20, 26	3	3.7
Manufacturing	13, 63	2	2.3
Politics	79, 80	2	2.3
Power supply	2, 3	2	2.3
Total		82	100

that the main contribution of the references is accounted for the developed countries, while the MBO approach is of the limited usefulness within the developing countries.

Specifying the interpretation of Tables 1 and 2 outcomes, it could be observed that the main area of MBO application is in the medical sector. Indeed, the four main medical sub-groupings of healthcare, nursing, hospital management and hospital pharmacy account for 40% of the total references. The medical area of application is also directly or indirectly bounded to the notions of Quality MBO, education and employment groupings. Additionally, a smaller portion of the presented references upon MBO approach focuses on the following indicatively presented areas: structural analysis, systems, business environment within the 1970s, and types of management analysis.

Moreover, the above references' presentation reveals the advantages and disadvantages of applying the MBO approach. This presentation depicts that there are areas of especially successful MBO application, while the main disadvantages of this approach are mainly due to the lack of consistency and the concurring distortion between the MBO structure and its function in real industrial or business environments. Particular critics have been expressed during the 1970s; that period coincides within the 20-years period from the MBO introduction. The main disadvantages are relevant to several prescriptive implications offering for the design of systems change, such as the discordance facing the context of MBO and its complementarity to other existing systems. The above statement combining to the lack of generally accepted definition of MBO causes its structural deficient that can be proved detrimental to the businesses' short-, medium-, and long-term organization and operation.

## CONCLUSION

The review paper provides a half of century research of MBO. The relevant research is spanning over the last five decades period and an effort to place representative common characteristics of this wide period is implemented through these studies' grouping into 15 main areas of application. Among 82 literature survey, it is found that that the main area of MBO application is in the medical sector. The four main medical sub-groupings that is, healthcare, nursing, hospital management and hospital pharmacy account for 40% of the total references.

The gathered studies are also presented and succinctly analyzed, in order to reveal the favourable and unfavourable areas of application by using the MBO approach.

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