ATLANTIS PRESS
Advances in Economics, Business and Management Research, volume 78
11th International Scientific Conference "Economics, Management and Technology in Enterprises 2019" (EMT 2019)

Possible Economic Benefits from Mandatory Workplace Health Management Systems

Thomas Schiller
Faculty of Business Administraion
University of Economics in Prague
Prague, Czech Republic
Thomas.Schiller@gmx.de

***Abstract*—The increasing incidence of employee health issues generates high costs for employers as well as for the insurers. By reviewing the literature on different forms of integrated workplace health management systems, we find that by implementing just a few prevention measures, positive returns can be achieved for the employer, the employee and the insurer. Given that the market seems incapable of creating this allocation improvement by itself, the integration of health management into the Working Conditions Act seems reasonable.**

Keywords*—*health management systems, human resource management corporate social responsibility

I. INTRODUCTION

The health of employees plays an ever increasing role in companies. "After the growth spurts induced by automation and information technology, a potent growth factor is now mental health and competence – the system of the human being as a whole" [1].

Globalization and demographic changes have resulted in a high competition between employers for highly competent employees, not only on a national level but also on an international level [1]. Recruiting costs or costs for the integration of new employees arise with every employee change or long absence due to illness. Therefore, companies need to take staff retention measures in order to retain the highest performing employees and also need to minimize preventable time lost due to sickness. Certainly, remuneration is an important factor for an employee, when it comes to a choice between different employers. However, recent studies [2] have found that salary is not the most important factor in the context of employee job satisfaction, but factors such as work-life balance and health awareness are of special significance. Additional services, such as integrated workplace health management systems (IWHM), have become a focal point for employees.

Demographic developments indicate that subsequent generations of employees will have to work more years than the current one. In 2024, the group comprising 50-65-year-olds will constitute 40% of the labour force [3]. Mental health issues have increased in performance-oriented societies and are the second most frequent reason for incapacity to work after musculoskeletal disorders. In order to counter this trend, prevention measures in the work place and a functioning health management system become increasingly important. Fig. 1. shows that in a time span of 20 years, the number of days of absence has more than tripled and the number of incidents has increased similarly.

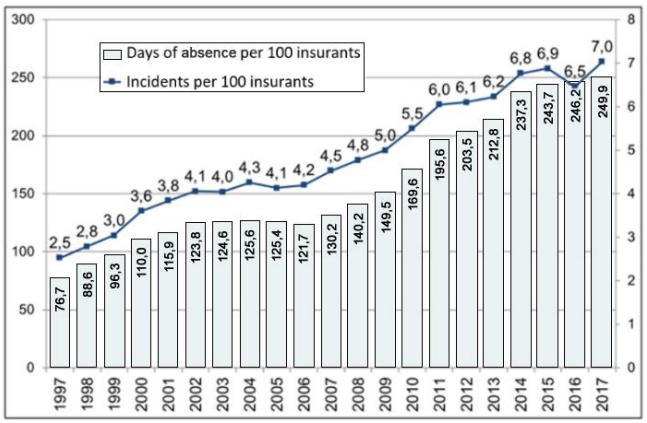

Fig. 1. Absenteism and Incidents per 100 Workers. *(source: [4])*

Some political actors have recognized the benefits of integrated workplace health management (IWHM). The Commission of the European Parliament has reported in its EU Strategic Framework on Health and Safety at Work 2014-2020,that very few companies pursue an IWHM system, that action is needed urgently, and that in most countries legal regulations on safety at work are not complied with [5].

Not only is the topic relevant to staff retention or to limiting public health deterioration, but it has the potential to be a competitive advantage and to generate significant revenue growth through higher cost effectiveness. This applies to employers as well as to insurers, because the expenses for a functioning IWHM system are lower than the cost savings arising from lower rates of absence or from reduced use of medical services and medicines. In a current survey by the University of Bayreuth, Germany, 76% of employee sick days relating to chronic illness can be avoided through prevention measures [3]. The German Federal Institute for Occupational Safety and Health expects that 35% of work incapacity can be prevented by employers' IWHM measures [3].

The employee as a third stakeholder in the IWHM system, besides the employer and the insurer, also benefits from improved mental and physical health, but also from lower insurance premiums in the long run [6]. There seems to be a breakdown in the market , since the IWHM system would make all three direct stakeholders better off, yet it has not been broadly implemented. This situation suggests that a statutory regulation constitutes a pareto improvement.

In this paper, the existing literature on different forms of IWHM is closely analyzed in terms of its effects on different operational variables. Our approach is unique in that we do not concentrate on the literature on one narrow definition of

IWHM, which is mostly country-specific, but instead we consider many forms and evaluate the advantages and shortcomings.The analysis also includes the viewpoints of all three major stakeholders and how they are affected by a broad implementation of an IWHM system. Afterwards, the possible cost savings are estimated in order to evaluate whether a statutory regulation, for example in the Working Conditions Act of each country, is a possible solution to this market failure.

II. The Concept of the German BGM as Example for a Integrated Workplace Health Management System

At first it makes sense to define the concept of the German "Betriebliches Gesundheitsmanagement" (BGM) to give an understanding of its characteristics, because it includes many but not all aspects of the "integrated workplace health management" known in the UK and Australia. For example, it includes workplace health promotion, workplace health prevention and workplace health education. It also includes workplace safety, but since workplace safety is part of the existing mandatory legislation in Germany (ArbSchG), it is not included in the definition of this paper. For reasons of simplicity, we refer to the BGM as integrated workplace health management program (IWHM). The IWHM addresses all health-related issues of the employees of a company, which includes not only the sick but also the healthy workers. It uses operating numbers to analyse and monitor the given health status of the workforce and design measurements to increase the corporate health level. The used instruments consist of sport courses, subsidies for certain sport activities, encouragement to healthy food diets, monitoring the fluctuation rates, the sick days but also the leadership attitudes of the managers in the company [7]. In case of illness, it also concludes measures to assure a quick recovery and an efficient vocational integration. The objective is to improve long-term health of all employees, by using nudging techniques and giving financial incentives to act preventive and health promoting.

Fig. 2. [8] (in the appendix) provides a model of an extensively developed and completely IWHM in the context of a German corporate structure for a company with more than 200 workers. Since the structure of a company of this size depends on the national legislation on integration of labour unions etc., the German company structure is used as an example for one possible implementation of an IWHM. The IWHM acts as the firm's unit in control of all parts in the blue area in Fig. 2. Furthermore, it influences the top management of the company and therefore the corporate culture [9]. Due to the central position of the BGM it is able to encourage cooperation between the single units and generate synergies [10], because it simplifies the communication.

For the implementation, 7 aspects have to be considered according to [10]. At first, health related strategies have to be designed from the company´s strategical management office. The incentive system for the leaders and managers has to depend among other indicators on the health status of the workforce. Corporate coaches for social and health services have to accompany each change-process within the company. Activity offers for sports, food or other health related topics have to be organised according to the needs and demands of the workforce. Moreover, cooperations can be established between particular groups of the health sector and the company. At last, all measurements of the health management have to be evaluated related to the set company goals [10]. After the implementation of the BGM a regular evaluation must be established, that monitors its compliance and analyses key indicators. Fig. 3. provides an example of the way an analysis can be applied.

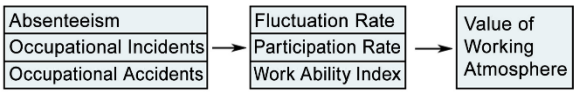

Fig. 3. Indicators for the Evaluation of the BGM. *(source: [1])*

Since the main costs for the employers occur due to employees' sick days, absenteeism is the first issue. The first block in the Fig. 3. shows issues, which directly generate the costs for the employers. The second block shows indicators, which are indirectly connected to the costs. The fluctuation rate increases the education and training costs. The participation rate decreases costs through a lower average number of sick days.

A recent evaluation plan for a well implemented IWHM is the PDCA-Cycle, illustrated in Fig. 4. [11]. It splits the procedure in 4 parts. The first part is the planning phase, which analyses the given demand using quantitative and qualitative measures. The financial budgets are evaluated, and specific goals are set up. The second step is the implementation of the plan of action. The third step is collecting and evaluating data about the implementation. The last step is to make adjustments of the actions, measures and goals. A constant revaluation is highly important in order to ensure that the established BGM remains efficient.

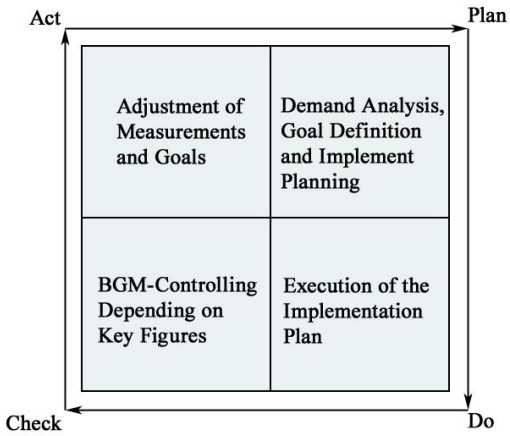

Fig. 4. PDCA-Cycle. *(source: [1])*

All three affected stake holders (employers, employees and health insurances) benefit from the establishment of a BGM. The company profits from reduced costs due to employees' sick days, less working accidents, better corporate image, higher satisfaction of the workforce, improved communication and cooperation between the units within the company, higher working satisfaction, higher productivity, better production quality, decreased fluctuation and the saving of resources. These benefits are not only theoretical considerations, but also the result of a survey study with 1451 European companies in 2008 [12]. The employees benefit, apart from their improved health, from a decreased stress level, reduced cost of leisure activities and own health care,

healthier working conditions, higher staff retention, higher motivation and a better working atmosphere. The health insurances cover the largest part of the expenses, if employees use health services and buy medicine. By decreasing the cases of illness, the insurances significantly decrease their costs.

Hence, the presented concept of the IWHM (BGM) acts supportive for all three stakeholders, by a regular monitoring of the employee's health status for prevention, preventive and educational actions and incentivising the employees financially additional to their intrinsic motivation to remain healthy.

III. Review of Empirical Evidence for the Effectiveness of Workplace Health Mangement Programs by Various Sources and their Methods/Approaches

This chapter discusses the results and methods of several papers evaluating the workplace health management programs of different companies. One of the key issues with workplace health management programs and their evaluation is that they are always company-specific and address very particular characteristics. Therefore, it is difficult to develop general findings and derive policy implications, which can be applied across industries. Furthermore, it exists not many empirical studies on the topic of the German BGM, which can be evaluated and transferred into a general recommendation. Therefore, also international health oriented programs have to be taken into account. Since they provide insights across sectors and countries.

Although several case studies such as [6], in Germany have demonstrated the cost efficiency of establishing workplace health management programs (WHMP) similar to the German BGM, many companies do not apply such a program. This shows, that in the practice, it exists an information asymmetry between the employers and the employees concerning their preferences. While the employees appreciate such measures in particular in the context of staff retention, the employers are partly not informed about their employees' preferences, the effectiveness of the measures and they have doubts about whether these programs are applicable to their companies and the additional expenses.

A major issue for the general implementation is, that employers are not informed about the benefits. Therefore, it is necessary to demonstrate the employers the high return on investment of these programs. This issue is also addressed by a study [6], which focuses on the WHMP in an Australian hospital. The aim of the program is to improve the awareness of the workers about their own and their colleages' health. It includes training to find symptoms ill health and injuries, to report them before they become serious. This improves the connection between the workers and helped managing the daily stress by assisting each other, in particular in cases of previous ill health. The program consists of a daily 6 minutes group exercise, which is used for health education, relaxation, physical activity, leisure conversation, and social integration. After the launch of the program, the insurance companies monitor indicators, which give insights about the duration of the workers average sick days and the lost time due to injuries. If the workforce acts more accordingly to the health self-management, these two indicators decrease. Furthermore, the indicators can be used as a measure for cost effectiveness and productivity increases. The results of this study indicate a decrease in number of incidents (from 119-88 claim), fewer working hours lost due to sick days and a decrease in the cumulative costs of injuries. The result is measured by analyzing the values in the three years previous to the implementation of the program with the values in the three years after the implementation. From the perspective of the insurers, the paid claims from wages and medical treatment decrease from 350.000$ in the year previous to the launch of the program to 150.000$ in the year after [6]. This study does not investigate the implementation of a complete integrated workplace health management program, but rather a program with one single aspect of it. This program already has a positive effect on the employee's health. This demonstrates the power of the program, but the results have to be treated carefully, since a hospital in Australia may face different issues than for example a car factory or a school. Differences can also exist among countries.

The study [13] based on multiple questionnaires investigated, if the given workplace health promotion of health care workers leads to willingness to change their lifestyle in three northern European countries compared to partially given workplace health management systems. The results for the countries varied strongly. The amount of health care workers, which were willing to change their lifestyle for a better personal health ranged between 3% and 27% [13]. The study used internationally self-collected survey answers combined to a cross-sectional data set. Although the results show a correlation, but effects cannot be interpreted as causal. In particular, an issue of endogeneity arises, because the reports about the given health related infrastructure and the expectations/feelings are from the same group of individuals.

The authors of [14] conduct a systematic review study to create a more general perspective on the effect of workplace health interventions. This study focuses on the return-to-work (RTW) programs, which also includes work disability management (MD). It evaluates 36 studies which use different methods such as randomized trials, non-randomized trials and cohort studies with historical and concurrence comparisons. All studies focus on health, service coordination or work modifications. Some of the studies use multi-domain approaches, which address more than one aspect of the IWHM. The authors point out, that only 12 out of 36 studies could be used for interpretation since the others were insufficient because of unreliable results or incomparability of the relevant variables. The 12 remaining studies are grouped by their focus and interventions. The review study [14] furthermore ranks the different interventions of the studies depending on their strength, as presented in the following table 1. H and M stand for high quality study and medium quality study, which were differentiated depending on their number of observations, their timeframe for follow-up studies and study design, as well as 9 other criteria. The third column shows the outcome variable of interest. The identified results show, that traditional cognitive behavioral therapy (CBT) programs do not have an impact on the reduction of lost time due to illness or mental health issues. Instead, CBT programs related to work solutions have positive effects on the RTW and MD. This implies, that the cognitive behavioral therapy addressing work related issues at work lead to a reduction of the lost time and therefore a decrease of the costs. The strength of the model increased enormously if a multi-domain approach was applied. A multi-domain approach consists of minimum two

components, such as service coordination and work modification or health approaches. The health of the workers increased in particular concerning mental health issues, musculoskeletal injuries and pain related cases. This led to a strong decrease in sick days and in financial costs for the employers. These results remain coherent for the given set of studies, which include 7 countries [14]. The ranking results show the effectiveness of each intervention with regard to the investigated outcome. These ranking results must be interpreted carefully, since the efficiency of the interventions depend on the company's specific necessity.

TABLE I. OVERVIEW OF STUDIES EVALUATING APPLIED INTERVENTION AND OUTCOMES

Levels of evidence (direction of effect)	Intervention (No. of H and M studies)	Outcome
Strong (positive)	Multi-domain MSK interventions (4H, 10M)	Lost time
	Work-focused CBT for MH conditions (6H, 1M)	Lost time
	Work-focused CBT forMH conditions (4H)	Cost
Strong (no effect)	CBT for MH conditions (6H, 1M)	Lost time
Moderate (positive)	Graded activity (2H, 1M)	Lost time
	Work accommodations (2H, 3M)	Lost time
	Multi-domain MSK interventions (1H, 2M)	Work functioning
	Work-focused CBT for MH conditions (2H)	Work functioning
	Multi-domain MSK interventions (2H, 4M)	Cost
Limited (positive)	Work accommodations (1H, 1M)	Cost
	Health-focused multi-component (1H)	Work functioning
Limited (no effect)	Work hardening (1H)	Work functioning
	Physician training (1H)	Lost time
	RTW plan (1H, 1M)	Lost time
	RTW plan (1H)	Cost
Mixed	Work hardening (1H, 1M)	Lost time
	Health-focused multi-component (3H, 2M)	Lost time
	Graded activity (1H, 1M)	Cost
	Health-focused multi-component (2H)	Cost
Insufficient	Case management (1M)	Lost time
	Work accommodations (1M)	Work functioning
	Worker education/training (1M)	Cost
	Supervisor education/training (1M)	Cost
	Work hardening (1M)	Cost

Source: [14]

Although the studies concerning the German BGM and the international workplace health management program provide a wider evidence across countries and industrial sectors, the existing results are not sufficient to ensure, that a mandatory implementation can be justified. Since the pareto efficient characteristics are not reliable enough. Therefore, it is necessary to also include studies from the US into this evaluation, which are called "effective workplace wellness programs" (WWP). The possibility to include studies about the WWP is given, because many measures of the IWHM are also included in the WWP. In the US, the WWP are often presented as employer services, but in fact contribute to the company's productivity. The WWP address outcomes such as greater productivity, lower costs of health care, and higher morale of the workforce. In the best case, they consist of the following 6 pillars: multilevel leadership, alignment, accessibility, partnership, communication and scope, and relevance and quality [15]. These programs are set up because the health insurance system in the US is employment based and health insurances can renegotiate the insurance contributions. This system leads to a higher incentive for the employers to promote the health of their workers, since these aspects enhance the outcomes of the company. Therefore, studies about the WWP are well designed to be compared to those of the IWHM. The major difference is the origin and original goal of these programs, when in the US the WWP are initiated by the companies with the purpose of cost reduction by a decrease of contributions to health insurances and for staff retention, the IWHM programs are mainly offered from public health insurances to companies, which are accompanied by side benefits such as staff retention. In the case of the WWP the return on investment ratio of these programs has been evaluated in many studies [15], their results range from 2,71:1 to 6:1 [15], including the many industrial sectors such as: hospitality, tourism, energy communication, grocery retail, software, education, finance, manufacturing, and health care [15]. This wide range of industries shows, that interventions at workplace addressing the physical and psychological health of the employees is profitable for the employer.

The evaluation of workplace wellness programs has received more public attention in the US compared to Europe consequentially more literature has been published. Based on a systematic review of more than a 100 peer reviewed studies, the study [16] argues, that for 1$ spent on wellness programs the company receives 3,27$ due to the fall in medical costs and another decrease of 2,73$ in costs of absenteeism [16]. Although in the case of Germany and most of the EU countries these benefits are split between health insurances and companies, the ROI is still above 100% and a step-by-step implementation does not involve large entrance costs [13].

The existing quantitative studies on the BGM in Germany are not enough to clearly indicate a profitable outcome for companies from a general perspective, because it exists not enough literature to cover several industrial sectors. By including the international health-oriented programs, the evidence increases across countries but still remains not questionable, because these programs are directly connected with single measures to certain health related issues and therefore very specific. By including the literature and studies about the cost effectiveness of the American workplace wellness programs, reliable predictions about the benefits of the IWHM programs for all three stakeholders can be made. As long as they can be applied in similar settings in the EU as in the US. Hence, it is possible to draw policy implications from the economic benefits of workplace health management.

IV. POLICY IMPLICATIONS BASED ON ECONOMIC BENEFITS FROM THE IWHM IN THE EU

Cost-effective illness prevention at the workplace has also been discussed by policy makers in the EU, who have published a strategic framework on health and safety at work 2014-2020 [5]. Since the policy makers in the EU started working on the subject of occupational health and safety with the beginning of the EEC in 1957. The main interest of the

EEC was the safety and health protection during work. The danger for the health resulted from the jobs and therefore the legislation and the policies mainly addressed the topic from a protective perspective. This has changed in the context of prevention strategies. Therefore, the European commission encourages member states to use the European Structural and Investment Fund (ESIF) to finance interventions related to occupational safety and health (OSH). It is addressed to workers, enterprises and entrepreneurs to implement new ways of work organization, education, increased productivity, and training for better health and safety. To support issues with safety and health the OSH also addresses mental well-being at work, social services and rising awareness of labor inspectors [5]. Although the EU takes steps to incentivize employers to establish prevention measures for a better health of their employees, the current situation in the EU is very different across the member states. The topic of health promotion is not part of the legislation of many member states and in case it is, the implementation is mostly not binding [17]. Following the argumentation of [17], the policies of health promotion are infrequent and even more infrequently implemented. Although the implementation of these policies is cost-efficient and generates profits and increases public health [17].

Due to the large differences in policies among the member states in the European Union [17] and the missing option to generate legally binding policies, a national implementation seems preferable. Since, an IWHM leads to benefits for all affected parties, there seems to exist a market failure, and mandatory workplace health management system seems plausible and pareto efficient. Depending on the size of the company, certain legally binding policies for the employers could be financially beneficial to all stakeholders. Since the practice of such an intervention is not very common and could raise resistances in the stakeholders, a slow adaption of certain aspects could be implemented.

The “Vereinigte Innungskrankenkassen” are a union of German health insurances. In 2016 they started to offer companies a reduction of 100€ of their insurance contribution for each employee, if they would choose to make a corporate health report. The health report was only necessary for companies with more than 30 workers to protect personal data. Small enterprises still had the opportunity to participate. Then the employers had to conduct yearly questionnaires to collect health related information and they had to implement 2 out of 5 possible interventions. These interventions were: establishing regular talk sessions between workers of all levels concerning goals and leadership behavior, an employee idea system, health circles, quality circles or regular staff interviews. The mandatory implementation of these three interventions could be a soft start for creating a workplace health management. The insurance was willing to offer 100€ for prevention measures, that decrease later medical treatment costs. Hence, in the case of a mandatory implementation, the insurances can later decrease the insurance premiums.

German insurances invested 150 million euros per year in prevention measures for health care, which equals to 2,19€ per person. Since the IWHM programs are also majorly health preventive the mandatory implementation could increase the savings and public health benefits significantly. This mandatory approach would imply an increase of more than 20 times for the amount of money invested on prevention but also lead to a saving of at least double of the investment, taking the lowest return-on-investment rate. Henceforth, policy makers should consider mandatory workplace health management systems. The main reason for the implementation is the market failure, which allows a new policy to constitute a pareto improvement in comparison to the current market situation. This implies monetary savings for the employers and insurance companies, no negative monetary effects for the employees and an increase of the public health.

V. Conclusion

This paper argues that workplace health management systems should be mandatory for employers. By using the concept of the BGM a pareto improvement can be accomplished. The concept increases the health of the employees, decreases the costs for insurers and increases the profits for the employers. Since there is not enough evidence in studies based on the concept of the BGM, the current paper evaluates international studies of workplace health programs and studies about the US American “workplace wellness programs” to investigate the efficiency of integrated workplace health management systems such as the BGM. Based on this evaluation the results indicate a market failure, since the cost-efficiency of the IWHM programs is given and a pareto-improvement can be accomplished. Although the IWHM programs are very profitable for the employers, only few companies use these programs. Yet, the health level of the employees can be improved, and the insurance companies profit by a decrease of expenses for medicine and medical treatment and the employer benefit from reduced costs for workers absenteeism and resulting productivity losses. A policy, which forces employers to implement a minimal IWHM program could therefore be beneficial for all three stakeholders and lead to significant increase in public health, companies’ competitiveness and savings for the public health insurance companies.

References

[1] P. Buchenau, *Chefsache Gesundheit I: Der Führungsratgeber fürs 21. Jahrhundert*, 2nd ed. Wiesbaden: Springer Fachmedien Wiesbaden, 2018.

[2] M. Hoffmann. (2018). Gehalt kommt erst an sechster Stelle. Studie über die wichtigsten Anreize im Job. Manager magazin, 2018. [Online]. Available: http://www.managermagazin.de/unternehmen/karriere/mitarbeiterbindung-welche-anreize-fuer-arbeitnehmer-am-wichtigsten-sind-a-1186892.html>.

[3] R. Thiehoff, “Rechnet sich Arbeitsschutz im Betrieb?: Arbeitsschutz und Wirtschaftlichkeit,” *Bundesanstalt für Arbeitsschutz und Arbeitsmedizin, Dortmund*, BKKGesundheitsreporte, pp. 2003–2010. 1999.

[4] J. Marschall et al. (2018). DAK-Gesundheitsreport 2018. [Online]. Available: www.dak.de/dak/download/gesundheitsreport-2018-1970840.pdf.

[5] European Commission, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on an EU strategic framework on health and safety at work 2014–2020. European Commission,. [Online]. Available: http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52014DC0332&from=ENS.

[6] T. Ryan, V. Rice, J. Saunders, and S. Limbrick, “Measuring the effectiveness of workplace health management programs: An Australian example,” (eng), *Preventive medicine reports*, vol. 11, 2018, pp. 56–62.

[7] N. M. Junker and A. J. Kaluza, “Möglichkeiten und Grenzen im digitalen BGM aus Unternehmenssicht,” in *Matusiewicz D., Kaiser L. (eds) Digitales Betriebliches Gesundheitsmanagement*. FOM-Edition

(FOM Hochschule für Oekonomie & Management). Springer Gabler, Wiesbaden, 2018, pp. 631–641.

[8] S. Singer and A. Neumann, "Beweggründe für ein Betriebliches Gesundheitsmanagement und seine Integration," in *Betriebliches Gesundheitsmanagement: mit gesunden Mitarbeitern zu unternehmerischem Erfolg*, Wiesbaden: Gabler, 2010, pp. 49–66.

[9] S. Huber, Betriebliches Gesundheitsmanagement und Personalmanagement," in *Betriebliches Gesundheitsmanagement: mit gesunden Mitarbeitern zu unternehmerischem Erfolg*, Wiesbaden: Gabler, 2010, pp. 67–87.

[10] A. O. Kern, Betriebliches Gesundheitsmanagement ist Führungsaufgabe und Erfolgsfaktor, in *Buchenau, Peter (Hrsg.): Chefsache Gesundheit I, Wiesbaden: Springer Fachmedien*, 2018, pp. 157–174.

[11] A. Scholz, U. Singh, A. Ghadiri, and T. Peters, "Nachhaltiges betriebliches Gesundheitsmanagement: Empfehlungen für die Implementierung in der Praxis," in *Gadatsch A., Ihne H., Monhemius J., Schreiber D. (eds) Nachhaltiges Wirtschaften im digitalen Zeitalter*. Springer Gabler, Wiesbaden, 2018, pp. 345–356.

[12] O. Kruse and V. Wittberg, Eds., Fallstudien zur Unternehmensführung: The Technical Writer's Handbook Kruse, Oliver; Wittberg, Volker (Hg.) (2008): *Fallstudien zur Unternehmensführung. Wiesbaden*: Gabler, 2008.

[13] L. Bulotaitė, et al., "Workplace health promotion in health care settings in Finland, Latvia, and Lithuania," (eng), *Medicina* (Kaunas, Lithuania), vol. 53, no. 5, pp. 348–356. 2017.

[14] K. L. Cullen, et al., "Effectiveness of Workplace Interventions in Return-to-Work for Musculoskeletal, Pain-Related and Mental Health Conditions: An Update of the Evidence and Messages for Practitioners," *J Occup Rehabil*, vol. 28, no. 1, pp. 1–15. 2018.

[15] L. Berry, A. M. Mirabito, and W. Baun, (2010). What's the Hard Return on Employee Wellness Programs? *Harvard Business Review*, December 2010; Mays Business School Research Paper, no. 2012-68. 2010. [Online]. Available: <https://ssrn.com/abstract=2064874>.

[16] K. Baicker, D. Cutler, and Z. Song, "Workplace Wellness Programs Can Generate Savings," *Health Affairs*, vol. 29, no. 2, pp. 304–311. 2010.

[17] S. E. Verra, A. Benzerga, B. Jiao, and K. Ruggeri, "Health Promotion at Work: A Comparison of Policy and Practice Across Europe," *Safety and Health at Work*, vol. 10, no. 1, pp. 21–29. 2019.

APPENDIX

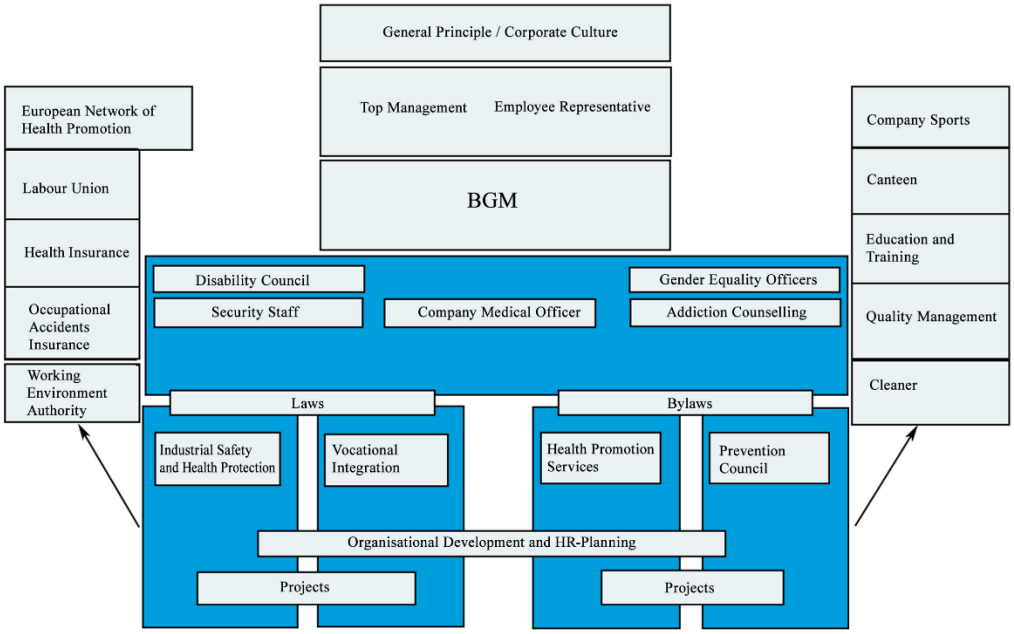

Fig. 2. The Concept of the Completely Integrated BGM. *(source: [8])*