IMPACT OF APPLICATION OF EXCELLENCE MODELS ON ORGANIZATIONAL PERFORMANCE

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Abstract: In this paper some issues of adaptation and application of excellence models are outlined. Possible approaches to impact assessment of use of excellence models are considered mainly based on international experience relevant for Estonia. Some conclusions for projects related to quality awards and recognition schemes applying EFQM and adapted excellence models in different sectors are presented.
Key words: Excellence models, EFQM, impact assessment, adaptation, sectoral models.

1. INTRODUCTION

Use of excellence models (EM), as one of key tools for promoting quality and excellence in organizations, has become more and more widespread throughout the world in the past two decades. EMs are widely used for self-assessment as well as for external evaluation and recognition. The two most widespread reference models for frameworking different EMs are nowadays the Performance Excellence criteria of Malcolm Baldrige National Quality Award (MBNQA) and the EFQM Excellence Model (EFQMEM).

Designing different national, regional and sectoral quality awards on the basis of these and other reference models requires consideration of various issues related to complexity, usage and cultural environment of EM to be designed, as well as experience with the former use. Therefore the analysis of experience of use of EMs in order to adapt a new or existing EM is important. In this paper we discuss some issues related to the impact of use of EMs, in order to consider this impact while implementing and adapting EM to be used in a small country like Estonia.

2. IMPACT OF EM I: SOME METHODOLOGICAL ISSUES

When trying to assess the impact of use of EM on the basis of experience of use of EMs in Estonia, one of the major problems is that due to the smallness of the country it is practically impossible to collect such amount of statistically homogeneous data, which permits to reach acceptable statistical confidence for building models and making conclusions about relationships and impacts related to the use of EM (e.g., the number of organizations participating in annual national quality award contest is about 10-15, which for 10 years time interval results in only about 10-25 comparable organizations with appropriate excellence level per award category).

Therefore, it seems appropriate to assume that the influence mechanisms and relationships which have been identified in EM studies abroad can be applied to Estonian organizations as well. Despite of the fact that this assumption is de facto forced it still seems rather logical due to the universal nature of EMs, grounded by universality of underlying total quality management (TQM) principles for EMs. In a more detailed manner, the assumption that international experience related to EM impact experience can be directly used in Estonia, can be grounded as follows:
1) Despite the complexity and methodological problems with different TQM implementation and EM impact studies (PIMS study, GAO study et al.), the overall conclusions seem to hold in similar manner in different reports, including mainstream conclusions concerning usefulness and pay-off of use of TQM and EM;

2) Overall conclusions concerning mechanisms of functioning and impact of different EMs are also rather similar, even in case they are grounding on different reference models like MBNQA or EFQM models.

3) At least on the qualitative level, the analysis of available Estonian data has not indicated any major contradictions with existing relevant EM impact studies. However, this assumption of applicability of findings from relevant abroad studies concerning business excellence (BE) may introduce some "calibration error" for Estonia, as two types of critical success factors influence when using TQM/EM: - structural critical factors of excellence or factors required for successful implementation of TQM in any socio-cultural environment, and
- foundation critical factors of excellence or factors needed for the successful implementation of TQM in specific socio-cultural environments.

Therefore it seems appropriate to assume that the general findings about impact of use of EM apply for Estonia, but numerical/quantitative conclusions might need more careful acceptance. In addition to this it is necessary to accept that use of EM cannot guarantee that all decisions will be right (it has been estimated that 20% of Business Excellence programmes in the USA and Europe fail).

3. IMPACT OF EM II: THREE DIMENSIONS

The analysis of impact of use of EM is a rather multifaceted issue. In case of Estonia, when considering the impact of use of EM in current business and cultural environment at least the following three aspects seem to be relevant for most of organizations:

1) excellence level
2) financial performance
3) sustainability / adaptability to change.

These three impact dimensions can be featured by following aspects and trends.

2.1 Excellence Level

The excellence level lies in terms of assessment in the very centre of EM. It reflects the maturity level of use of TQM/EM by the organization and is measured via the (total) excellence score resulting from external or self-assessment procedure used. In terms of underlying TQM concepts and values, it is most closely related to customer and employee satisfaction categories of EM, which usually have the highest weight in total score (often about 20-30% of score in MBNQA and EFQM based EMs). Therefore the total impact of EM is based on different studies strongly correlated namely with scores in customer and employee satisfaction categories. According to several studies, this correlation is supported by positive correlations between different categories in case the assessment indicates successful implementation and use of EM (e.g. study by Saunders and Mann for New Zealand organizations indicates that for self-assessment data correlation coefficient equals $r = 0.94$ for relationship between customer focused results and financial and market results; this corresponds to determination coefficient value $D = 0.88$ and thus indicates very strong connection). Provided that issues like satisfaction and happiness seem to have in current organizational cultural environment growing importance for persons/employees, it is expectable that the importance of these categories at least in near future will remain high. It is also important that there exists strong correlation of corresponding scores with
scores of other enabler and result categories.

2.2 Financial Performance
The financial performance has been traditionally a very relevant impact issue, first of all for profit-oriented organizations. Therefore the impact of use of EMs on financial performance has been a subject of interest in different studies, starting from traditional question "will quality management pay off?". These studies have used data collected by special surveys, and the general conclusion has been that there exists a positive correlation between the use of TQM and financial performance. The first such major study on an excellence model was conducted by the United States General Accounting Office in 1991 [1]. This led to a report linking improvement performance with quality efforts in the 20 highest scoring Baldrige Award applicants over the years 1988 and 1989. The evidence from this sample suggested that the organizations achieved improved employee relations, better quality, lower costs, greater customer satisfaction, improved market share and improved profitability [3].

A milestone study by Hendricks and Singhal introduced into BE studies use of data which is contrasting financial performance of quality award winners (mainly amongst public traded companies in USA, which means that the reference EM was dominantly MBNQA) against benchmark companies forming the control sample [5]. This approach provides a factual, objective, and statistically valid assessment of impact of use of EM on financial performance. In terms of time scale, this study indicated that appearance of impact of EM use takes considerably long time and the benefits will only be realised in the long run. More specifically, the data indicated that not much will happen during the first five years, which could be considered as a reasonably long period for EM implementation and introduction into organization (prior to winning the award). The financial performance results during this implementation period don't indicate significant difference against results of benchmark companies (control sample data). The difference will however appear during post-implementation period, which is next five years after winning the award, the award winners outperforming benchmark companies in all financial performance indicators considered: operating income, sales, return on sales, return on assets, total assets, number of employees. With share price performance, award winners outperformed the S&P 500 companies and the control sample of benchmarks. Thus, the overall conclusion is that when EM is implemented effectively, financial performance improves dramatically.

For Estonia, the natural reference model for different EMs is the EFQM Excellence Model (EFQMEM), and this choice has been also implemented in practice. Therefore, in order to find a closer supporting know-how it is appropriate to use EM impact studies which are based on EFQMEM use as reference model and are close enough in space and time. Accordingly, the closest seems to be a study carried out by Centre of Quality Excellence, University of Leicester (funded by EFQM and British Quality Foundation) [6]. This study uses the same methodological approach as above study by Singhal and Hendricks and analyses financial performance of 120 award winning companies which have been using EFQMEM for their excellence efforts. The companies have been awarded at European, national, and in the cases of some countries, regional level (winning a quality award in Europe is generally an indication that a company has effectively implemented the principles of the EFQM Excellence Model). The performance measures used for the study are share value and accounting based measures, which include revenue/sales, costs, operating income, capital expenditure, total
value of assets and number of employees. For each award winning company a comparison company was selected, thus the size of control sample is also 120 and data is paired. To ensure objectivity in collecting data on financial performance, the data collection and analysis efforts has been focused only on publicly traded companies. The data has been analysed over an 11 year time period anchored around the year when a company received its first award.

The overall conclusion from this financial performance data analysis might be the following: when principles of the EFQM EM have been implemented effectively, performance improves in both short and long periods of time. As a numerical excerpt the following numbers indicating how much the award winning companies outperform the comparison companies by an average in time period five years after receiving an award might be presented: higher growth in sales by an average of 77%, higher increases in operating income by an average of 18%, higher increases in capital expenditure over assets by an average of 28%.

2.3. Sustainability and Adaptability to Change

The third dimension of impact of using EM is related to sustainability and adaptability to change. Thus, this dimension is related to an ensemble of features of organizations which are more difficult to measure in quantitative manner but which in current rapidly changing and somewhat anxious business and cultural environment are very vital for survival and development of organizations. These features are related to the ability of organizations to change, their (strategic) agility, innovativeness, flexibility. For Estonian situation amongst the recent survey-type studies which address these issues the most relevant seems to be the Oakland Consulting PLC study [3]. The conclusions of this study seem to be relevant for Estonia first of all because the sample of analysed organizations is large enough, includes mostly European organizations which business excellence programmes are grounded on the use of EFQM Excellence Model, and considers both private and public organizations (in total 101 public sector and 91 private sector organizations responded in the survey). Brief summary of the conclusions relevant for our purposes can be presented as follows:

- benefit of BE is delivered to several stakeholders: employees, customers and the organization itself;
- organization’s ability to react to its changing environment (strategic agility), was found to have a positive relationship with performance;
- BE positively correlates with strategic agility, which in turn correlates with higher levels of performance;
- key sources of advantage for organizations relate to their people;
- for private sector organizations, reputation, brands and the customer base are also important sources of advantage. For public sector organizations, these are also the culture of the organization and the service providers;
- it takes about three years to build the advantages, which gives an indication of how patient an organization must be when implementing BE.

As expectable, the results indicating relationships between excellence level and the above survival/change ability measures are more difficult to quantify than financial performance impact measurement results. However, the positive correlations can sometimes be calculated and tested for significance (e.g., the determination coefficient of model for strategic agility scale vs BE scale is D = 0.312, and the determination coefficient of model for strategic agility scale vs performance scale equals D = 0.585; both D values were significant at the 0.001 level, N = 192).

In total, the findings suggested that organizations which successfully implement BE develop the ability to respond to change, a capability that is
becoming more critical as the pace of change increases. What is more, this capability leads to benefits for many of the organization’s stakeholders. The conclusions of this study are supported also by a recent study for Asian companies of five countries, initiated by Asian Productivity Organization (APO) [7]. Some findings of this APO study relevant for us can be presented as follows:

- companies reported that in addition to the fact that BE had a major impact on their competitiveness and performance, the use of EM was also relevant for long-term competitiveness and sustainability;
- in general only minor changes to the design of the EM frameworks (if any) were needed, but innovation and how it relates to business excellence needs to be more clearly explained to companies;
- time and effort should be put into making the frameworks easier to understand and the value of the frameworks needs to be more clearly communicated;
- BE should not just be marketed as “BE” or “continuous improvement”. BE frameworks help companies to improve in a multitude of ways;
- BE has major impact on competitiveness and performance;
- the awards are important, but the prime motivator for the majority of companies is to “improve performance”.

4. IMPACT OF EM III: CONCLUSIONS FOR ESTONIA

Summarizing the above findings from BE studies, for Estonia we can conclude the following:

1) The positive impact of use of EMs in different dimensions (excellence, financial performance, sustainability) is practically guaranteed provided that the models are implemented in substantial and appropriate way;
2) It takes considerable time while this positive impact will appear (approximately 3...5 years) and the measurement and direct proof of this effect is very difficult;
3) Provided that financial performance and sustainability/agility dimensions of impact are more difficult to measure than direct excellence score which will be registered during external or self-assessment anyway, while there exists rather strong positive correlation between these three impact dimensions, it is appropriate to assess the excellence level growth mostly on the basis of (external) assessment scores (including total score and different enabler and result category scores). However, comparability of scores and reliable assessment here require that assessment procedures and especially the "calibration" training of assessors are made in correct and careful manner. This should also include intensive communication of assessors and their switchover between use of different EMs (while maintaining general similarity of different EMs and scoring principles).
4) In order to enlarge positive impact of use of EMs, it is necessary to use adaptation of models for different sectors and clusters of economy/society. This helps reception of models and promotes their substantiability while keeping assessment schemes economical and unified on basis of same reference model.

5. SOME CONSIDERATIONS FOR ESTONIAN SCHEMES OF USE OF EXCELLENCE MODELS

On the basis of similarity of impact mechanisms of using EM mentioned above, it is appropriate to use a single reference model for Estonia, and this model should naturally be EFQMEM. The adaptation of this model for different sectoral, cluster and organization's category schemes for different award, recognition and self-assessment purposes should be based on optimal complexity approach while keeping necessary overall BE principles in models. The most important resource for a small country like Estonia for these EM uses is adequate population of qualified and experienced assessors, who can participate in different external
assessment schemes and guarantee adequate level of accuracy of assessments. The assessment should be reliable first of all in terms of total excellence score, which enables also acceptable reflection for other impact dimensions like financial performance and sustainability/agility. Provided that the amount of assessors for a small country is limited while the precision level of assessment cannot be compromised, there is need for minimization of workload for sectoral models while keeping necessary assessment accuracy/precision. Provided that individual score estimates by assessors can be according to normal assessment guidelines taken as independent estimates and assessment consensus can be numerically approximated by statistical average, the two-sigma measurement uncertainty for a team of M assessors can be estimated as \( U = 2\sigma / \sqrt{M} \), where standard deviation \( \sigma \) of individual assessment uncertainty may be estimated via testing assignments of assessor calibration training (preferably averaging \( \sigma \) over sufficient sample of corresponding deviation data). For calculation of recommendable size of assessor team then the assumption might be that width of categorization indifference zone equals to half of categorization zone width \( \Delta \) in assessment result presentation (e.g. in excellence model based recognition schemes C2E or R4E \([3]\)); this leads to about 95% confidence level in category identification correctness. Correspondingly, such considerations for gaining acceptable measurement uncertainty level for assessment procedure lead to following inequality condition for assessment team size limitation:

\[
M \geq \left( \frac{2\sigma}{\Delta} \right)^2
\]

For example, if according to some assessment categorization guidelines \( \Delta = 25 \) point on 1000 point scale and \( \sigma = 28 \) points, then the size of assessment team should be \( M \geq 5 \), which is quite common in practice.

7. REFERENCES


5. ADDITIONAL DATA ABOUT AUTHORS

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