

Business Excellence Models: supporting the cultural perspective to operationalize excellence sustainability in manufacturing organizations

André Mendes de Carvalho
MIT Portugal Program – EDAM focus area
Ph.D. Candidate

ALGORITMI Research Centre
Dep. of Production and Systems Engineering
School of Engineering, University of Minho
Guimarães, Portugal
andre.carvalho@dps.uminho.pt

Visiting Student Researcher
Sociotechnical Systems Research Center
Massachusetts Institute of Technology
Cambridge, MA, United States
andremc@mit.edu

Paulo Sampaio
ALGORITMI Research Centre
Department of Production and Systems Engineering
School of Engineering
University of Minho
Guimarães, Portugal

Eric Rebentisch
Sociotechnical Systems Research Center
Massachusetts Institute of Technology
Cambridge, MA
United States

Abstract

Over the past 25 years, Business Excellence Models – such as the one supporting the Malcom Baldrige National Quality Award or the Excellence Model and corresponding Awards given by the European Foundation for Quality Management – have been used in the scope of helping organizations attain performance excellence and sustain that organizational level. In the last few years, however, the engagement of manufacturing and operations firms has been declining consistently. Based on the available evidence from literature and on official figures of the engagement with Business Excellence Models, we analyze some of the possible reasons for that decline and review the main organizational challenges in sustaining excellence over time.

The contribution of this paper is to raise the discussion over the role and current challenges of these Models in promoting and sustaining Excellence, and draw some conclusions on the key importance of people (both the leadership and the workforce) in making Business Excellence initiatives sustainable. With this work, we hope to clarify perspectives around these initiatives and to reinforce the importance for an excellence-oriented culture in sustaining excellence in manufacturing organizations.

Keywords

Business Excellence Models; Organizational Excellence, Quality Management, Organizational Culture.

1. Introduction

Business Excellence Models (BEMs) and their implementation programs and recognition awards focus on helping organizations as a whole to improve their level of performance and achieve outstanding, sustained results (European Foundation for Quality Management, 2018a). Throughout the years, and since their establishment in the late 1980's or early 1990's, the implementation of such models has proved to be a valuable approach for organizations to achieve these goals (Boulter, Bendell, and Dahlgaard, 2013).

Excellence has its roots in Quality Management, and although maintaining a strong relation with the principles of Quality, it was developed with a different approach in mind. Much of this effort had to do with avoiding some of the critique that Total Quality Management (TQM) initiatives faced: being too rigid, not allowing enough room for adaptation to the context of each organization, and minding more the tools and methods than the people (McAdam, 2000). Accordingly, Excellence initiatives were built to evade a prescriptive approach: more than promoting or suggesting the implementation of certain tools or methods, these programs fostered the continuous assessment (self-driven or through an external evaluation) of the organizational capabilities and the identification of opportunity pools for further improvement. While doing this, they also put higher emphasis on the people of an organization.

In fact, Excellence Models consider the workforce as one of their key drivers for success. Any accomplishments related with excellence programs will be conditional to their engagement and adaptation to the established culture - and their principles and objectives must be fully integrated with the regular practices of the organization (Araújo and Sampaio, 2014; European Foundation for Quality Management, 2018a). The cultural perspective is essential as we understand that the objective of excellence programs is not to change organizations *per se*, but rather to identify change and improvement opportunities, and advise on the tools, methods or approaches that the people in the organization can use to do it (Shingo Institute, 2014).

Nowadays, the Malcom Baldrige National Quality Award (used mainly in the United States of America), and the European Excellence Award of the European Foundation for Quality Management (used throughout Europe and in Western Asia) can be seen as two of the main representatives of the practical pursuit of Business Excellence, while being still inspired and embedded by the principles of Quality Management. In this sense, they will be explored and used as examples in this work, as we look into the current panorama in Excellence and discuss the challenges in maintaining it over time.

2. Business Excellence Models and Awards: history and current panorama

Business Excellence Models have been used for over 25 years as means to develop organizational improvement capabilities and achieve outstanding performance levels. As a result of the success of these approaches, the number of Excellence Models in the world has greatly increased during the decades of 1980 and 1990 (Talwar, 2011). The inspiration for a large number of these Models and Awards are the European Foundation for Quality Management (hereafter EFQM) Excellence Award and the Malcom Baldrige National Quality Award (MBNQA) (Mann, Adebajo and Tickle, 2011). Although the criteria and structure of each model slightly varies from one another, they focus on similar organizational aspects or enablers and results to draw their assessment. The same is valid for their central, supporting concepts: both the Baldrige's core values and concepts and EFQM's fundamental concepts focus on ideas such as leadership, the improvement of partners and suppliers or the development of their workforce as key success factors to achieve superior performance levels (National Institute of Standards and Technology, 2018a; European Foundation for Quality Management, 2018b).

The creation of Excellence Models and Awards in the U.S. and in Europe had a lot to do with the superior performance of the Japanese industry (Samson, 1997), where since the 1950's the Deming Prize has been motivating companies to follow the path towards excellence (Kudtarkar, 2014). As a result, the early numbers of both the MBNQA and the EFQM Excellence Award showed a strong engagement of manufacturing organizations. However, as the time went by, the number of organizations engaging with production, development and operations activities that were applying and committing to these awards started to decrease – to a point where there often are little to no applications from manufacturing-driven organizations. From the viewpoint of those who believe that Business Excellence Models (BEMs) should be approaches to promote sustainable Excellence in manufacturing industries (the vision that drove those establishing these Models and Awards, which we share), the current numbers regarding these two major Excellence programs and awards create a scenario that calls for some attention and discussion.

2.1 Malcom Baldrige National Quality Award

In the United States, the Malcom Baldrige National Quality Award was established in 1987 by the National Institute of Standards and Technology (NIST), an agency of the U.S. Department of Commerce, being first awarded in 1988. During its initial years, the Baldrige Award focused on manufacturing organizations, having nonetheless three main categories: Manufacturing, Service and Small Businesses. The Education and Healthcare categories were established in 1999, and the Nonprofit Award category was established in 2007 (National Institute of Standards and Technology, 2018b, 2018c).

The initial numbers of the MBNQA showed a strong engagement of manufacturing organizations. However, in a matter of few years, this trend was severely altered. The number of applications from Manufacturing organizations show a declining trend since 1990, and the same is valid also for Service organizations since 1991 (National Institute of Standards and Technology, 2018c). During this time, the Baldrige was able to maintain its vitality by adding categories (Hubbard and Klute, 2011). But even these additions seem to not be enough, and after bringing the number up, they were not able to avoid a steady decline in the total number of applicants since 2010 (National Institute of Standards and Technology, 2018c).

As stated above, this decline is especially obvious in regards to organizations in the Manufacturing category – followed closely by those in the Service category. Over the last few years, no awards in these two categories have been given: we need to go back to 2014 to find a winner in the Service category, and the situation is even worse in the case of Manufacturing, with the last recipient in 2012 (Table 1).

Table 1 - MBNQA Winners: total, manufacturing and service (National Institute of Standards and Technology, 2018c).

Year	MBNQA Total	MBNQA Manufacturing	MBNQA Service
2012	4	1	0
2013	2	0	0
2014	4	0	1
2015	4	0	0
2016	4	0	0
2017	5	0	0
Total	23	1	1

These numbers seem to indicate that the MBNQA is losing steam. After years of undisputed success, cemented by the promotion of positive results for applicants and winners (), and a successful expansion to other business and organizational areas, the current situation seems a call for the excellence community to raise a flag. In this scope, we believe it is essential to promote discussion, supported on evidence from literature and complemented by a similar analysis to other excellence frameworks, in order to understand what may be driving the attention of manufacturing organizations away from this or other Excellence Models.

2.2 European Excellence Award

In Europe, by the same time of establishment of the MBNQA, a group of companies got together with the intent of forming a Foundation dedicated to increasing the competitiveness of European businesses. The European Foundation for Quality Management was established in 1989, and by 1992 the European Quality Award was awarded for the first time (European Foundation for Quality Management, 2018c). The shifting focus from Quality to Excellence eventually provoked a name change to European Excellence Award, but the criteria and the Model remained the same - and the Excellence is still seen as a TQM-bound approach (Boulter, Bendell, and Dahlgaard, 2013). The European Excellence Award (EEA) and the supporting EFQM Excellence Model, having been developed on a continental level, show different engagement levels, in part also by offering different levels at which the companies can apply: from the entry-level an assessment to the commitment with excellence - “recognized for excellence” – to competing for Prizes celebrating superior performance in each of the Fundamental Concepts or even the European Excellence Award itself (European Foundation for Quality Management, 2018d).

Although the number of applicants fluctuated over the years, it has been able to maintain a fair engagement, not showing such a sharp decline as the MBNQA. However, if we focus on the Prize and Awards finalists and winners, and set again the focus to manufacturing-driven organizations, the scenario still calls for some reflection. By focusing only in the last 6 editions (the same period analyzed for the MBNQA in the previous section), we see that the number of production and operations organizations engaging with the EEA accounts, in total, for only 40% of the finalist and winners (29 manufacturing and operations organizations out of total of 72 reaching this phase – Table 2), a clear difference from the early years of the award when industrial organizations accounted for a vast majority of the applicants composing the restricted group of finalists and winners.

Table 2 - Finalists and Winners at the European Excellence Award: Total and Manufacturing (European Foundation for Quality Management, 2018e).

Year	EEA Finalists and Winners	Production & Operations
2012	13	4
2013	10	2
2014	8	5
2015	15	8
2016	15	6
2017	11	4
Total	72	29

Much as in the case of Baldrige, it was the broadening of the applicant’s base that helped maintain the levels of engagement with the EEA. Between 2000 and 2010, the first organizations from Healthcare, Education or Government bodies started to make their way into the top-tier group and winning prizes – and from there, to increase their presence to a point of becoming a majority (European Foundation for Quality Management, 2018e). This trend, being so similar to the one followed by the MBNQA a few years ago, further puts the emphasis on our questions on why are manufacturing organizations apparently distancing themselves from these frameworks.

Such distancing is problematic especially in the scope of sustaining excellence, as the lack of engagement with these frameworks may signify that organizations are looking for easier ways to get both improvement and recognition – but are not taking advantage of the potential that these frameworks have in creating excellence systems that promote enduring achievement of excellent levels of performance. At the same time, it reinforces the idea that these BEMs are not able, just by themselves, to promote sustainable excellence. In this scope, we present in the next section a literature review covering some of the possible reasons for the decline in the engagement with BEMs, as well as the main organizational challenges in sustaining excellence over time.

3. Organizational challenges in sustaining excellence over time

Business excellence refers to a state of long-term, sustained competitive success. In this sense, sustainability should be inherent to any organizational approach and engagement with Business Excellence Models. However, many organizations seem to treat achieving Business Excellence as a onetime event, subsequently failing to tread the path of excellence (Vadari and Parandker, 2011). According to Sharma and Kodali (2008), there are 3 main reasons for organizations to engage in a Business Excellence approach: organizational improvement, pursuit of recognition (focus on winning an award) and research/development (focus on developing new understanding or developing new integrative solutions). Although the improvement road is the one that organizations are expected to take, a great deal of attention and focus is given to winning the award and getting a public recognition. And by focusing in the award, companies are not sustaining their excellence approaches, and the success of these problems may become somehow tied with the easiness or difficulty of getting an award. Krueger and Wrolstad (2013) state that winning the Malcom Baldrige National Quality Award (MBNQA) is well-publicized evidence of successful efforts taken to enhance the quality of the management processes within the recipient firm. However, it is unfrequently given, and the low probability of winning the award may lead - together with the perceived costs of application - to the lack of interest of manufacturing organizations.

Several other reasons were pointed for this apparent lack of interest, including a growing engagement with smaller scale national or regional (state-level, in the US) Excellence awards which use the same frameworks and are based in

the same principles as the Baldrige or the EFQM Awards, but which despite that seem to somehow be of easier access (Hubbard and Klute, 2011). At the same time, a large number of other awards recognizing “Excellence” were created over the past two decades – a few of them giving recognition based on very different perspectives and not so much related with the concepts Quality and Improvement. However, they potentially have a similar impact in recognition, deviating companies from the MNBQA or EFQM Excellence frameworks.

Nevertheless, and while the creation of these alternative paths for excellence recognition could help explain the decrease in the number of applications to these two major awards, two important points must be raised for discussion: on the one side, national and state-level quality awards seem to also be facing their own set of challenges and limitations, with a few of these initiatives experiencing long periods where no prizes are given (Abbas, Mann, and Campbell-Allen, 2015); on the other, the fact that organizations are engaging with excellence programs that are little but recognition-oriented is an indicator that the benefits perceived from the recognition with such an award and a recognition from the MNBQA or the EFQM are not so different – or, at least, that the difference in the recognition does not compensate the effort of engaging with them (Carvalho and Sampaio, 2018). In fact, perceptions around the benefits, costs and the overall effort related with engaging with one of the major Business Excellence Programs are an important factor to look at while trying to interpret the decreasing number of the applicants in the major BEMs and the lack of focus in sustaining Excellence. There seem to be fewer and fewer organizations following the excellence programs in a consistent way, improving their score in each participation until reaching the final/prize phase. And by taking a look at the existing perceptions on the Baldrige and other Excellence Models, we find that the benefits, both in terms of organizational improvement and of stakeholder’s trust and recognition, do not seem to be sufficient to make organizations engage with them – and they prefer either awards that are of easier access, or other quality approaches. In fact, Bandyopadhyay and Leonard (2016) show that almost 75% of key Baldrige stakeholders (business owners, managers, examiners, and consultants) believe, amongst other similar perceptions, that development of other avenues to quality improvement and cost effectiveness, such as Six Sigma or lean management, has diverted the attention from the Baldrige Award – even though the Baldrige framework supports such initiatives.

Other problems of sustaining Excellence have been studied by a few authors. Brown (2013) argues that the primary challenges for sustaining excellence have to deal with the lack of leadership support, the lack of drive and constancy of purpose across the organization, and the absence of a communicating strategy system that helps make excellence understood and meaningful across the organization. According to the author, having the “right” infrastructure to support excellence is also essential, avoiding the allocation of Business and Operational Excellence initiatives to smaller areas or subunits inside an organization and thus limiting their potential reach. BEMs promote organizational, business and structural transformations (Dervitsiotis, 2003; Brown, 2013), and such changes expose even more the crucial importance of leadership drive and support, and consistency, transparency, and engagement of the entire organization for achieving success (Vora, 2013). If the organization is to change, people need to be involved, to understand why and towards what they are changing. Providing enough framing and support for the workforce is thus a key success factor, but one that need to find precedence in the full commitment and involvement of leadership and top management. This support needs to be shown not only in terms of discourse, but also – and perhaps, more importantly - in terms of actions and behaviors. Lack of action by the cupula of an organization will also lead to lack of motivation by their employees, leading to poor results regarding the implementation and development of tools, systems, and practices. Ghoshal and Bartlett (1994) state that it is thought action that the organizational context, the practices and the behaviors are truly deployed.

Managers and leaders must thus be actively involved in improvement efforts and in supporting the alignment of principles of operational excellence with systems. They should lead by example, and design, align, and execute systems with appropriate principles and methods to have the greatest impact on their results. Schneider, Brief, and Guzzo (1996) argue that in order to promote sustainable organizational change it is necessary to send strong, tangible messages to employees, both about how the organization will change the way it functions and about the its new focus. This means preparing an implementation plan where the changes promoted by the Excellence Program are well framed and sustained, and creating the right understanding and context next to the workforce.

The capacity to change has a deep impact in the long-term success of BEMs, especially in times when constant transformations characterize the business environments. Dahlgaard, Chen, Jang, Banegas, and Dahlgaard-Park (2013) point the poor performance of some past MBNQA winners as an results of some of the limitations of this framework, and argue that despite financial and non-financial benefits for an organization, it is evident that a BEMs cannot just by themselves guarantee long-term success. Dervitsiotis (2006) contends that the perspective taken by many organizations in regards to attaining excellence is one of reaching a “mountain peak”, being the BEMs a chart that helps them find the best way for their own journey. However, this approach has only proven useful in stable environments. As time goes by, especially in today’s highly unstable business environments, a different approach is

necessary for organizations that want to remain excellence over time. In face of this situation, the need to set a new focus on the sustainability of Excellence Models becomes even more central. In the next section, and based on the evidence gathered in this literature review, we promote a discussion on how to do it from a cultural perspective.

4. Discussion

The literature review presented in the previous section shows that a series of different problems have been uncovered by a fair number of works on the topic of sustaining excellence. However, and despite their differences, a pattern does emerge: many of these problems have to do with the behaviors and understanding of the people in an organization. In fact, and although there are challenges at technical level – regarding for example the structure of the BEMs, or the elements that are included in their Excellence criteria (Carvalho and Sampaio, 2018) – truth is that many of these challenges are highly influenced by the human, social and cultural dimensions of an organization. In our view, efforts to tackle these challenges and create the right organizational context for implementing and sustaining an Excellence framework fall within the domain of organizational culture. Organizational culture influences people's actions and behaviors (Irani, Beskise and Love, 2004), and in the scope of Business Excellence, it helps organizations find context to drive change and achieve superior performances. It is through their culture that organizations are able to build the strong, stable processes and systems that the achievement of business performance demands (Atkinson and Clarke 2006).

The interdependency between Excellence and organizational culture has been well explored. Nevertheless, most organizational efforts to integrate culture and Excellence seem to be focusing substantially more in the implementation of these programs rather than on promoting their sustainability. Several works have focused on the need to understand a culture before implementing a Model, or on mutually adapting Excellence initiatives and the culture of an organization in order to ensure the culture fit. But as we look for the role of culture in sustaining these programs, there is much less practical evidence available (Carvalho *et al.*, 2017).

By looking at the evidence collected and exposed in this paper, we believe that greater emphasis needs to be put on the creation of a culture of excellence – one that is able to follow a long-term development of a BEM in an organization, providing context for the workers but also evolving and adapting to allow a fit for pursuing higher maturity levels in terms of Excellence. The culture of an organization that focuses on sustaining Excellence should go through continuous evolution cycles, absorbing the principles and methods behind these excellence initiatives and its results strategies and supporting them. While doing this, the culture should be able to set ground for further evolution - in face of the future ahead, and the changes that, in a highly volatile and unpredictable market, it will certainly bring. The creation of a culture of excellence needs thus to be based on two ideas. The first is the understanding of organizational excellence not as a state, a place, or an award, but as an ongoing journey in search for competitive advantage (Sampaio, 2017). The second is recognizing that the development of an organizational ability to deal with change is essential. Such ability will be crucial in operationalizing change in an incremental way (such as exposed by Johnson, 1992) and thus helping the organization keep track of the changes in the marketplace – or even, as the organization reaches high levels of maturity in Excellence thinking, allow it to anticipate the market's moves and becoming part of the restricted group of organizations that help defined its trends.

To be successful in these efforts, the focus on people is central. The biggest challenge in dealing with the culture of an organization is that it acts to provide guidelines for tackling challenges and to reduce the anxiety of facing unknown situations (Schein, 1990). Any change made to the culture will need to mind these human needs, under the risk of quickly meeting resistance from the workforce. Perceptions, motivation, and commitment need to be managed, and a deep understanding of Excellence must be shared by the entire workforce. This means promoting employee participation and engagement, investing in training and development opportunities, enforcing a well-structured, constant and clear communication, and guaranteeing rewards and the recognition of benefits brought by excellence are shared amongst all workers. Much as in the case of Total Quality Management, where all workers are seen as having an essential role in the achievement and sustaining of a high level of Quality, also Excellence initiatives and efforts must have this perspective in mind. However, the challenges in creating a culture of excellence are not exclusive of the work base. In fact, is at this point that challenges that lack of leadership support, drive, and the creation of meaning or consistency need to be brought up. Managers and leaders need to be major actors in the deployment of a culture of excellence, namely through the creation of context, meaning, and understanding around excellence. This means that top executives themselves need resources to help them understand and be deeply committed to these initiatives – and, as importantly, in dealing with change. There are few cases of organizations that performed at an Excellence level and championed on their products or services, but that ended up losing their competitive advantage due to their inability to change and answer new market needs and requirements (a couple of examples come to mind

in the development and manufacturing of cell phones or photographic cameras). They ended up failing as they were not able to change and adapt new market trends, as their workforce was too engaged with a single vision and unable to change it as it was bound to excellent results.

Excellence frameworks are developed with at least two ideas that support this rationale: they are meant to promote excellence in an enduring way, and they recognize the vital importance of people in order to unlock their full potential. These two ideas also help explain why BEMs are not able, just by themselves, to promote enduring Excellence: Excellence frameworks are not the agents of change and improvement – people are. In this sense, the creation of a true culture of Excellence seems to be the logic step to sustain Excellence initiatives throughout time. While understanding the culture and creating a fit will allow the implementation of a BEM, convincing the organization to take the improvement opportunities and pathways derived from it demands a long-term perspective and commitment to be developed. If organizational culture does in fact influence all aspects of the work in an organization, then it will surely influence the way these results will be regarded by the people in the organization. When efforts have been done only in the scope of promoting only a fit for implementation, or for obtaining recognition, chances are that people will look at Excellence as another “job done” and move ahead with their daily tasks. If, however, there is an effort to embed the principles of excellence in all tasks and procedures of the company (namely through the promotion of a quality- and excellence-oriented culture), the workforce will feel naturally more compelled to go after these improvement opportunities, to absorb new tools, methods and strategies, and to be naturally more responsive to change – framing it as part of the search for competitive advantage and value creation for the customer.

In this perspective, sustaining excellence, and using BEMs in an enduring way, keeping organizations bound with them throughout the years, needs a dedicated investment in creating the right organizational context. With this work, we hope to call for the attention of both organizations wishing to engage with BEMs, and of the promoters of these Excellence Models and Awards themselves, to the importance of organizational culture, and the promotion of initiatives, training opportunities and both leadership and workforce development in the scope of excellence. Changing mindsets regarding Excellence is essential, and the human side of organizations needs to be brought with stronger emphasis to the discussion on how to bring manufacturing organizations back into BEMs, and more importantly, use them to promote Excellence sustainability. This, however, must be done as a call for action. Excellence initiatives have promoted these ideas before, but have not been able to enforce it next to organizations. In the scope of reverting what seems to be a less optimistic period for these approaches, the timing seems perfect to promote clear, practical efforts to help revert the situation.

5. Conclusions

Excellence Models have proven to be an efficient quality and improvement tool that allows organizations to achieve enhanced results (Bou-Llusar, Escrig-Tena, Roca-Puig and Beltrán-Martín, 2009). However, looking at the number of participants engaging in the major Business Excellence Awards in the latest years, they seem to be losing their shine next to manufacturing organizations.

As shown in this work, a great deal of the problem that Excellence Models have to deal with relate with the way people in organizations perceive, relate and get involved with them. One of the basic principles of Total Quality Management is that everyone in an organization – associates, managers and leadership – is responsible for ensuring Quality, and it is through their commitment that organizations accomplish their mission and achieve good results. As we argue in this work, the same seems to be valid for Excellence initiatives. Although there are technical and structural challenges that cannot be neglected in face of highly unstable business environments [some examples of the ongoing discussion can be found in Carvalho, Sampaio, Rebentisch, Carvalho and Saraiva (2017)], we believe that it is essential, at this point, to address with stronger emphasis the challenges on the human/social side of organizations. This effort is done in the perspective of discussing the existing perceptions about Excellence initiatives, and help motivate organizations and their workforce to engage with them in a sustainable way. In the same sense, we argue that the creation of an excellence-oriented culture is essential in the perspective of sustaining Excellence over time; and that such a cultural development has to be done through continuous investment in the human resources, with training, well-structured and clear communication, and transparency in all processes and actions related with the pursuit of Excellence.

There is already enough discussion (and proof) of the importance of supportive environment and culture for the successful implementation and achievement of full potential of Excellence Programs (Irani, Beskise and Love, 2004; European Foundation for Quality Management, 2018a). However, the discussion around the need for this supportive culture to go beyond the implementation phase still sees comparatively less focus. With this work, we hope to raise

and disseminate attention to the topic, helping to define an excellence-oriented culture as one of the keys for sustaining performance excellence and continually attaining outstanding performance levels.

Acknowledgements

This work has been supported by COMPETE: POCI-01-0145-FEDER-007043 and FCT – Fundação para a Ciência e Tecnologia within the Project Scope: UID/CEC/00319/2013.

Furthermore, the first author gratefully acknowledges the support of the Portuguese Foundation for Science and Technology (FCT – “Fundação para a Ciência e Tecnologia”) to this project through the scholarship PD/BD/114149/2016, as well as all the support of the MIT Portugal Program and the ALGORITMI Research Centre at the University of Minho.

References

- Abbas, A., Mann, R. and Campbell-Allen, N. National Business Excellence Awards and Initiatives, 2015. Retrieved from <http://blog.bpir.com/wp-content/uploads/2015/04/List-of-Active-National-Business-Excellence-Awards.pdf>
- Araújo, M., and Sampaio, P., The path to excellence of the Portuguese organizations recognised by the EFQM model. *Total Quality Management and Business Excellence*, 25(5-6), pp. 427-438, 2014.
- Atkinson, P., and D. Clarke. Achieving cultural excellence: Integrating processes with passion. *Management Services* 50, no. 2, pp. 38-42, 2006.
- Bandyopadhyay, P. K., & Leonard, D., The Value of Using the Baldrige Performance Excellence Framework in Manufacturing Organizations. *The Journal for Quality and Participation*, 39(3), pp.10, 2016.
- Bou-Llusar, J.C., Escrig-Tena, A. B., Roca-Puig V., Beltrán-Martín I., An empirical assessment of the EFQM Excellence Model: Evaluation as a TQM framework relative to the MBNQA Model. *Journal of Operations Management*, 27(1), pp. 1-22, 2009.
- Boulter, L., Bendell, T., and Dahlgard, J., Total quality beyond North America. *International Journal of Operations and Production Management*, Vol. 33, 2, pp. 197-225, 2013.
- Brown, Alan. Managing challenges in sustaining business excellence. *International Journal of Quality & Reliability Management*, vol. 30, no. 4, pp. 461-475, 2013.
- Carvalho, A. M., Sampaio, P. Are Excellence-oriented Organizations More Adaptable? *ASQ World Conference on Quality and Improvement 2018*, Seattle, April 30 – May 2, 2018.
- Carvalho, A.M., Sampaio, P., Rebentisch, E., Carvalho, J.Á. and Saraiva, P., Operational excellence, organisational culture and agility: the missing link?. *Total Quality Management & Business Excellence*, pp.1-20, 2017.
- Dahlgard, J. J., Chen, C. K., Jang, J. Y., Banegas, L. A., & Dahlgard-Park, S. M., Business excellence models: Limitations, reflections and further development. *Total Quality Management & Business Excellence*, 24(5-6), pp. 519-538, 2013.
- Dervitsiotis, K. (2006). Building trust for excellence in performance and adaptation to change. *Total Quality Management*, 17, pp. 795–810, 2006.
- Dervitsiotis, K., The pursuit of sustainable business excellence: Guiding transformation for effective organizational change, *Total Quality Management & Business Excellence*, 14, no. 3, pp. 251-267, 2003.
- European Foundation for Quality Management, What is Excellence?, Available: <http://www.efqm.org/efqm-model/what-is-excellence>, May 5 2018 (2018a).
- European Foundation for Quality Management, Fundamental Concepts, Available: <http://www.efqm.org/efqm-model/fundamental-concepts>, May 5 2018 (2018b).
- European Foundation for Quality Management, Our History, Available: <http://www.efqm.org/about-us/our-history>, May 5 2018 (2018c).
- European Foundation for Quality Management, Recognition, Available: <http://www.efqm.org/what-we-do/recognition>, May 5 2018 (2018d).
- European Foundation for Quality Management, Award History, Available: <http://www.efqm.org/what-we-do/recognition/efqm-award-history>, May 5 2018 (2018e).
- Ghoshal, S. and Bartlett, C.A., Linking organizational context and managerial action: The dimensions of quality of management. *Strategic management journal*, 15(S2), pp.91-112, 1994.
- Hubbard, D., Klute, P., Salvaging Baldrige, *Quality Progress*, 44, no. 10, pp. 12, 2011.
- Irani, Z., Beskese, A., and Love, P. E., Total quality management and corporate culture: constructs of organizational excellence, *Technovation*, 24(8), pp. 643-650, 2004.

- Johnson, G., Managing strategic change—strategy, culture and action. *Long range planning*, 25(1), pp. 28-36, 1992
- Krueger, T.M. and Wrolstad, M.A., Is It a Good Investment Strategy to Invest in Malcolm Baldrige Award Winners?: An Update. *Journal of Finance*, 12, pp.1-15, 2013.
- Kudtarkar, S. "Deming Award, A Journey Towards Business Excellence. *Journal of Business and Management*, 1-9, 2014.
- McAdam, R., Three leafed clover?: TQM, organisational excellence and business improvement. *The TQM Magazine*, 12(5), pp.314-320, 2000.
- Mann, R., Adebajo, D., Tickle, M., Deployment of business excellence in Asia: an exploratory study, *International Journal of Quality & Reliability Management*, Vol. 28 Issue: 6, pp. 604-627, 2011.
- National Institute of Standards and Technology, About the Baldrige Excellence Framework, Available: <https://www.nist.gov/baldrige/about-baldrige-excellence-framework>, May 5 2018 (2018a).
- National Institute of Standards and Technology, History, Available: <https://www.nist.gov/baldrige/how-baldrige-works/about-baldrige/history>, May 5 2018 (2018b).
- National Institute of Standards and Technology, Baldrige Award Recipients Listing, Available: <https://www.nist.gov/baldrige/award-recipients>, May 5 2018 (2018c)
- Sampaio, P., Organizational Excellence: The Desired Journey, *The Quality Management Forum*, No.3, Spring, pp. 6-7, 2017.
- Samson, D., Progress in total quality management: Evidence from Australasia. *International Journal of Quality Science*, 2 (4), 214-235, 1997.
- Schein, E.H., 1990. Organizational Culture: What it is and How to Change it. *Human resource management in international firms*, pp. 56-82, Palgrave Macmillan, London, 1990.
- Schneider, B., Brief, A.P. and Guzzo, R.A., Creating a climate and culture for sustainable organizational change, *Organizational dynamics*, 24(4), pp.7-19, 1996.
- Sharma, M. and Kodali, R., TQM implementation elements for manufacturing excellence, *The TQM Journal*, 20(6), pp.599-621, 2008.
- Shingo Institute. (2014). Shingo Institute - Shingo Model. Utah, USA. Retrieved from Shingo Institute - Utah University: <https://shingo.org/model>
- Talwar, B., Business excellence models and the path ahead..., *The TQM Journal*, 23(1), pp.21-35. 2011.
- Vadari, S. and Parandker, S.R., A systems approach to business excellence to improve the sustainability of an organization. In India Conference (INDICON), 2011 Annual IEEE (pp. 1-4). 2011.
- Vora, M. K., "Business excellence through sustainable change management." *The TQM Journal* 25, no. 6, pp. 625-640, 2013.

Biographies

André Mendes de Carvalho is PhD Candidate of the MIT Portugal Program, working in a joint project with the University of Minho (Portugal) and the Massachusetts Institute of Technology (US). He is assistant lecturer of Quality and Organizational Excellence at the University of Minho. Since February 2018, he is Visiting Student Researcher at the MIT. André has working experience in the automotive and in the packaging industries, having had medium and long term academic and professional experiences in Portugal, Denmark and Brazil. In 2016 he was the founding chair of the University of Minho Student Branch of the American Society for Quality (ASQ).

Paulo Sampaio is professor of quality and organizational excellence at the University of Minho, Portugal. Currently, he is vice dean of the School of Engineering of the University of Minho and a visiting scholar at Massachusetts Institute of Technology (MIT). Sampaio is author of several publications and presentations in the field of quality (more than 200) and was distinguished several times with international awards, namely the inclusion in the list of the "New Voices of Quality" by Quality Progress in 2011, the Feigenbaum Medal by ASQ in 2012, and the inclusion in the list of the "New Fresh Faces of Quality" by Quality Progress in 2016. Sampaio is a member of the ASQ Global Advisory Board and incoming ASQ board member (2018-2019). He is an ASQ Senior member and Associate Academician of the International Academy for Quality.

Eric Rebentisch is research associate at the Massachusetts Institute of Technology's Sociotechnical Systems Research Center. There he leads the MIT Consortium for Engineering Program Excellence (<http://cepe.mit.edu>) focusing research on improving engineering program outcomes, as well as other research projects at MIT. His research has addressed the development and management of enterprise technical competencies, including knowledge management and knowledge transfer, intellectual capital management, long-term institutional change, and

the “fuzzy front end” of product development. He is co-author of the book *Lean Enterprise Value*, the Shingo Prize-winning “*Guide to Lean Enablers for Managing Engineering Programs*”, and numerous other publications. At MIT he has taught courses in research methods and Lean/Six-sigma processes. He has advised dozens of graduate student theses at MIT on a range of topics.