

An analysis of a structured benchmarking project: the case of Dubai Electricity and Water Authority's benchmarking project.

Abstract

Purpose: The study investigates a benchmarking project carried out by the Dubai Electricity and Water Authority (DEWA) as part of a structured benchmarking initiative. The project was based on the TRADE benchmarking methodology and this paper examines the tools, activities and outcomes that relate to each stage of the adopted methodology

Design/methodology/approach: This study is based on case study methodology. Data was collected from various sources including analysis of project reports written by DEWA's benchmarking team reporting on their activities during the project. Data was also collected from four project presentations given at different stages of the project. In addition, the research team held three meetings with the DEWA Benchmarking team at different stages of the benchmarking project.

Findings: The results show the key challenges and successes faced during each stage of the benchmarking project. It indicates the actions taken to overcome the challenges and the role played by internal and external stakeholders in facilitating the success of the benchmarking project.

Practical implications: The study presents information that would guide organisations that wish to carry out a benchmarking project – and particularly those implementing benchmarking for the first time. The study provides a summary of the key lessons learnt by DEWA's benchmarking team as a guide for other organisations.

Originality/value: Academic research has not adequately examined and analysed the stage-by-stage elements of a benchmarking project from the perspective of the implementing organisation. This study addresses this gap by detailing and analysing the experiences of a benchmarking project by tracking the stage-by-stage activities of the benchmarking team.

Keywords: Benchmarking, Dubai, TRADE Benchmarking Methodology, DEWA, DGEP

Introduction

Benchmarking has been recognised as one of the most widely known and adopted improvement techniques worldwide. A study by Adebajo et al. (2010) and more recently Rigby and Bilodeau (2015), found that more than a quarter century after the publication of the first book on benchmarking by Dr Robert Camp (1989), it continues to be one of the most popular improvement tools in the world.

Best practice benchmarking involves organisations learning from other organisations and adapting such knowledge to improve their own performance (Whiting, 1991). The potential to improve organisational performance is arguably, a key reason for the popularity of benchmarking.

While the literature discussing the applicability, processes and benefits is mature (Yasin, 2002; Dattakumar and Jagadeesh, 2003; de Castro and Frazzon, 2017), there has been, surprisingly, very limited academic literature describing and analysing the experience of undertaking a benchmarking project from the perspective of an organisation that has chosen to adopt the technique. This study seeks to address this gap by analysing the benchmarking journey of the Dubai Electricity and Water Authority (DEWA) as it undertook a benchmarking project using the TRADE benchmarking

1
2
3 methodology. The study examines the activities, tools and outcomes of the benchmarking team at
4 every stage of the deployment of the TRADE benchmarking methodology. According to Adewunmi et
5 al. (2016), implementation plays a very important role in achieving benchmarking success and
6 consequently, studies that investigate the process of implementation of benchmarking have the
7 potential to contribute significantly to research and industry alike.
8

9 The importance of this study derives from its ability to investigate and present, in detail, what
10 happens in the 'closed box' between when an organisation begins a benchmarking project and the
11 point where the benchmarking project is deemed a success. The need for such studies was stressed
12 by Masden et al. (2017). Consequently, the study findings can provide insight into the challenges and
13 successes encountered along the journey, the usefulness, or otherwise, of the tools and activities
14 deployed and the perceptions of the participants undertaking the project. From both research and
15 industry points of view, such findings can inform better understanding of the factors and minutiae
16 that underpin minimise the chances of a failed benchmarking project.
17
18

19 The study is based on the case study of DEWA and its benchmarking project entitled, "Shams Dubai
20 Initiative – increasing customer awareness and engagement". The project was approved in
21 September 2015 but began in January 2016 and its progress and results were monitored up to
22 January 2017. The project had an overall aim, "to increase customer awareness and engagement
23 with Shams Dubai initiative, improve marketing efforts, build effective conversations, create brand
24 advocates and increase Dubai based customer uptake of solar projects". The benchmarking project
25 was part of a wider benchmarking initiative called 'Dubai We Learn' (DWL) which was administered
26 and facilitated by the Dubai Government Excellence Program (DGEP) and the Centre for
27 Organisational Excellence Research (COER), New Zealand.
28

29 **The overall aim of the study was to investigate and report on the journey and experience of a**
30 **public sector organisation (DEWA) undertaking a formal benchmarking project. The study will also**
31 **investigate the role and impact of the wider DWL initiative in the benchmarking project carried**
32 **out by DEWA. The following objectives underpin this aim:**
33

- 34 1. Investigation of tools and activities used by DEWA at different stages of the benchmarking
35 project and clarification of the role they played in the outcomes of the project.
- 36 2. An analysis of the role and impact of external support provided by the DWL initiative in
37 enabling DEWA to achieve its project outcomes.
- 38 3. An understanding of the challenges faced during the benchmarking project and any
39 actions that were taken to address these challenges.
40
41

42 The rest of the paper is presented as follows. A literature review and an introduction to DEWA and
43 the benchmarking project are presented next. Thereafter, the research methodology and findings
44 are presented. A discussion of the findings and contributions as well as the study conclusions are
45 thereafter presented.
46
47
48

49 Literature Review

50
51 **There has been much academic debate and literature on the nature of benchmarking. While it was**
52 **described by Moffett et al. (2008) as a structured process that enables organisational**
53 **improvement by adopting superior practice from other organisations, Adewunmi et al, (2016)**
54 **noted that benchmarking involves information collection, organisational assessment and self-**
55 **improvement to achieve specified goals. The academic literature is also lively with much debate**
56
57
58
59
60

1
2
3 about types of benchmarking with different articles contrasting between internal, competitive and
4 generic benchmarking (Camp, 1989; Adewunmi et al.; 2016). There has also been distinction place
5 between process (or best practice benchmarking) and performance benchmarking. According to
6 Adebajo and Mann (2008) performance benchmarking involves a comparison of metrics while
7 best practice benchmarking involves “studying the practices of those organisations that are higher
8 performers and adapting their ‘better practices’ to another organisation”. A full discussion of the
9 history, nature and types of benchmarking is out of the scope of this paper and especially as these
10 have been severally discussed in other publications (e.g. Meybodi, 2015; Madsen et al. 2017).

11
12 However, it is clear from the literature that benchmarking has been very widely deployed (Madsen
13 et al.2017). Taschner and Taschner (2016) noted the ability of benchmarking to improve process
14 performance while Panwar et al. (2013) identified benefits that range in focus from inventory
15 management to customer satisfaction to new product development. The versatility of
16 benchmarking to be applied to different aspects of organisational activity (Adebajo et al, 2010) is
17 one of the characteristics that has made it such a powerful and popular improvement tool. It is
18 therefore unsurprising that benchmarking has been adopted in a wide range of industries
19 including manufacturing, financial services, construction, healthcare and education (van Veen-
20 Berkx et al. 2016; Hong et al., 2012; Luu et al., 2008).

21 22 Shortcomings of the academic literature on benchmarking

23
24 Benchmarking is clearly a popular academic topic that has enabled a vast number of research-
25 based articles in several journals (e.g. Benchmarking: An International Journal; Total Quality
26 Management; International Journal of Quality and Reliability Management). However, and
27 surprisingly, there is a dearth of detailed case-study based articles that describe and examine the
28 actual experience of undertaking a benchmarking project from the perspective of an implementing
29 organisation. A comprehensive review of the academic literature over the past five years failed to
30 identify any article that has done this.

31
32 Recently published articles in the field of benchmarking seem to fall into four main categories. The
33 first category are articles that are based on some form of mathematical modelling or analysis such
34 as DEA or Fuzzy Logic/AHP. For example, studies by Ruiz and Sirvent (2018), Ramon et al. (2018)
35 and Molinos-Senante and Guzman (2018) use DEA to set targets to quantify savings while Kassem
36 et al. (2017) use AHP to benchmark excellence criteria. This group of articles are more focused on
37 setting or comparison of metrics and targets and are arguably more aligned with performance
38 benchmarking. The second category of studies are based on survey data and examples include
39 studies by Ridgeway and Macdonald (2014), Adewunmi et al. (2016) and Entradas and Bauer
40 (2017). While these studies provide robust aggregated data, they are focused on performance in
41 particular sectors (e.g. Legal sector) rather than on the actual process of benchmarking. The third
42 category of publications are case-study based and include studies by Agrawal et al. (2017) and
43 Augusto and Miguel (2013). However, these case studies do not present or analyse the
44 benchmarking process or experience of the case study companies. The last category of papers
45 propose a benchmarking process or model but do not provide details of how organisations have
46 experienced its deployment. Examples include Goncharuk and Getman (2014), Reino et al. (2014)
47 and Sukcharoensin, (2017).

48
49 Therefore, while there is a multitude of benchmarking studies, there is a relative absence of
50 studies that investigate, report and analyse the granular steps involved in a benchmarking project.
51 It raises an important question about what actually happens within the process and how are the
52 much touted success factors such as training, benchmarking model, partner selection,
53
54
55
56
57
58
59
60

1
2
3 **benchmarking visit, team selection and performance evaluation actually integrated and used to**
4 **deliver a successful benchmarking project. This study provides a revelatory perspective on these**
5 **issues based on the case of DEWA.**
6
7

8 Benchmarking and its adoption in the Public Sector.

9
10 While it is widely acknowledged that benchmarking evolved from the private sector, with Xerox
11 often credited as a pioneer in its effective adoption (Hong et al. 2012; Chen, 2002), its use has
12 spread and it has been used extensively in the public sector (Madsen et al., 2017; Rendon, 2015;
13 Mugion & Musella, 2013; May & Madritsch, 2009). Private sector organisations are likely to use
14 benchmarking to enable improvements in aspects such as production efficiency, competitive
15 advantage and product development (Camp, 1989; Hong et al., 2014). Public sector organisations, on
16 the other hand, are characterised by other drivers of which best value or maximising value for the
17 benefit of the public is prominent (Raymond, 2008). This search for best value has been a key reason
18 why public sector organisations have sought out and adopted improvement methodologies such a
19 benchmarking (McAdam et al., 2002). Adoption of benchmarking in the public sector has also been
20 underpinned by the increasing availability of international benchmarking comparison data including:
21 Government Effectiveness comparing government governance and effectiveness across 209
22 countries (World Bank, 2016), Transparency and Accountability comparing 176 countries in
23 corruption perception (Transparency International, 2016) and Global Energy Architecture
24 Performance comparing 127 countries (World Economic Forum, 2017). **Therefore, public sector**
25 **organisations have advanced to the forefront of adopting benchmarking as an improvement**
26 **approach.**
27
28
29
30
31

32 Benchmarking Models and TRADE

33
34 Benchmarking has been described as a 'structured process' that enables organisational
35 improvement (Brah et al., 2000). The emphasis on embracing a structured approach during
36 benchmarking is a fundamental tenet of best practice benchmarking. Over the years, a multitude of
37 benchmarking models for enabling the benchmarking process have been developed. In a
38 comprehensive review of such models Anand and Kodali (2008) found that more than 60
39 benchmarking models were in existence. The models all differed in their origins and in the number
40 of steps they encompassed. Anand and Kodali (2008) classified the benchmarking models into three
41 based on their origin – research-based models developed by academics; expert-based models
42 developed by consultants, and; bespoke organisation-based models developed by individual
43 organisations. Table 1 presents an overview of some of the models found in the literature.
44
45
46
47

48 **Place Table 1 here**
49
50

51 For the purposes of the DWL initiative in general and DEWA's project in particular, the TRADE
52 benchmarking methodology developed by Mann (2017) was adopted. The TRADE methodology was
53 adopted as a result of its detailed and prescriptive approach which guides users through the various
54 stages and steps and is particularly user-friendly for organisations new to benchmarking. TRADE
55
56
57
58
59
60

consists of 5 main stages with each stage comprising of between 4 and 9 sequential steps. The main stages are:

1. *Terms of Reference – plan the project*: This stage involves selecting the aim of the project, forming a project team and developing the Terms of Reference (TOR). The Terms of Reference provides the foundation for a successful project. It should include a clear scope, expected benefits, resources required, expected time-line and identify the stakeholders who will be impacted by the project to ensure that their needs are considered.

2. *Review current state*: The second stage involves researching the extent of the current problem/issue and identifying and understanding the current practices. This stage ensures that the project team has a thorough understanding of its own organisation's systems, processes and performance before learning from other organisations and helps to identify precisely the areas for which best practices will be sought.

3. *Acquire best practices*: This stage involves identifying which organisations are likely to have superior practices and finding out what they do differently. Various methods can be used for learning from other organisations such as internet research, surveys and site visits.

4. *Deploy – communicate and implement best practices*: This stage involves communicating best practice findings from the Acquire Stage to the relevant stakeholders, deciding what should be changed with the current practice/process and implementing the changes.

5. *Evaluate – evaluate the benchmarking process and outcomes*: This stage is designed to make sure the project has delivered the expected benefits that were outlined in the Terms of Reference. It involves undertaking a cost and benefits analysis and a review on how well each stage of the benchmarking project was undertaken so that this learning can be applied to future projects.

DWL Initiative and DEWA

The 'Dubai – We Learn' initiative was launched in October 2015 as part of the Dubai Government Excellence Programme (DGEP). The DGEP is a programme of the General Secretariat of the Executive Council of Dubai. The Dubai We Learn one-year benchmarking program consisted of Benchmarking training (TRADE Methodology), research and facilitation support for 13 benchmarking project teams. Each project team was based in a different government entity and the foci of the benchmarking project were chosen to reflect the priorities of the different entities.

One of the 13 benchmarking projects that was a part of the DWL initiative was the DEWA project. The aim of the project was "To build a robust foundation for effectively promoting and marketing Shams Dubai". Shams Dubai is an initiative that was launched in 2014 following the promulgation of resolution number 46 by Dubai Executive Council to regulate electricity produced from photovoltaic panels to the power distribution system in Dubai. The initiative aims to encourage household and building owners (Residential, Commercial and Government) to install Photovoltaic (PV) panels to generate electricity and connect to DEWA's grid. Households and owners primarily use electricity generated in their buildings first and any surplus is then exported to DEWA. The Shams Dubai initiative contributes to the Dubai Clean Energy Strategy 2050 and Demand Side Management Strategy 2030. A key issue for DEWA was how to innovatively market the initiative and consequently, generate the momentum that will enable increased solar power generation. It was important to

1
2
3 ensure that any efforts in this regard were based on best practices and the route chosen to enable
4 this was the adoption of benchmarking.
5

6 Participation in the DWL initiative provided an opportune environment for DEWA to undertake a
7 benchmarking project with external assistance. Prior to this project, DEWA had already undertaken
8 benchmarking projects using the TRADE benchmarking methodology since twenty of their staff had
9 been trained in TRADE in 2013. However, for none of these projects had they received any external
10 assistance and so they were keen to learn more how can they can improve their benchmarking
11 approach within the supportive structure of the DWL initiative.
12

13 There were three dimensions that the DEWA benchmarking team planned to focus on:
14

- 15 • Increased Customer Awareness – this would be achieved by increasing traffic to the Shams
16 Dubai website, expanding the print marketing campaign, maintaining the radio marketing
17 campaign and increasing the use of display marketing.
18
- 19 • Increased Customer Interest – this would be achieved by increasing the number of customer
20 enquiries made to the Shams Dubai website and call centre and increasing the number of
21 subscribers to the Shams Dubai newsletter.
22
- 23 • Increased Customer Engagement – this would be achieved by increasing the numbers of
24 customers making applications to install PV panels.
25

26
27
28 With respect to specific targets, the team aimed to increase customer awareness from 55% to 85%,
29 customer interest from 65% to 85%, enquiries from 108 to 200 and, ultimately customer
30 engagement from 8 to 50 applications to install PV panels per annum.
31
32
33
34

35 Case Study Methodology

36
37 **The methodology adopted for this study was the case study methodology. Meredith (2008)**
38 **stressed that case study methodology allows for a rigorous and holistic investigation while Yin**
39 **(2009) stated that case studies “illuminate a *decision* or set of decisions: why they were taken,**
40 **how they were implemented, and with what result”. This research adopts a single case**
41 **methodology is applicable for representative and revelatory cases. (Yin, 2009). The DEWA case**
42 **study is not only revelatory but it also supports the study of process-related issues associated**
43 **with a specific phenomenon over time (Lorenzo and Kawaleck, 2004).**
44
45
46
47

48 Data collection

49 Data collection was carried out in a number of ways during the one-year project duration. These
50 were:
51

- 52 • Analysis of bi-monthly reports – as part of the DWL initiative DEWA submitted bi-monthly
53 reports and a TRADE project management spreadsheet, consisting of over 20 worksheets,
54 which they used to manage their benchmarking projects. The spreadsheet recorded all the
55 benchmarking tools they used such as fishbone diagrams, swot analysis, benchmarking
56
57
58
59
60

- 1
2
3 partner selection tables, site visit questions, best practice selection grid and action plans.
4 This information enabled the research team to evaluate DEWA's benchmarking journey.
- 5 • The DWL initiative required DEWA to attend and give presentations on their benchmarking
6 project at three progress sharing days. The progress sharing days were attended by three
7 members of the research team and notes were taken on the activities and challenges faced
8 by DEWA.
 - 9 • Two members of the research team met with DEWA's benchmarking team a few days before
10 or after each progress sharing day. These meetings enabled more in-depth understanding of
11 the activities of the benchmarking team, challenges faced and the centralised support that
12 they required to address the challenges. A total of three meetings were held with the DEWA
13 benchmarking team.
 - 14 • At the end of the project, DEWA's benchmarking team submitted a comprehensive
15 benchmarking project report that detailed the purpose of the project, project findings from
16 each of the five stages of TRADE, actions implemented and results achieved, project benefits
17 non-financial and financial, strengths and weaknesses of the project and finally a review of
18 the positive points and challenges faced with the centralised co-ordination of the projects.
 - 19 • At the end of the project, DEWA's benchmarking team gave a final presentation regarding
20 the project and this event was attended by all members of the research team.
21
22

23 Data Analysis

24
25 The multiple data sources indicated above enabled the research team to 'reconstruct' in detail, the
26 benchmarking journey of DEWA by triangulating information collected throughout the project
27 duration. This information was then segregated into stages that encompassed the five stages of the
28 TRADE methodology which underpinned DEWA's project. In addition, a 'Preparation' stage was
29 included to report on the activities carried out before the actual deployment of the TRADE
30 methodology. For each of these stages the information was further segmented to identify and
31 differentiate the activities and tools, the challenges faced and the support required and provided by
32 DGEP and COER – the facilitators of DGEP.
33
34

35 **Findings – Stages of DEWA's Benchmarking journey**

36 'Preparation' Stage

37
38 Prior to the actual benchmarking study based on the TRADE methodology, DEWA's benchmarking
39 team undertook extensive preparation to underpin smooth deployment of the benchmarking
40 project. The key activities undertaken during this stage were as follows:
41
42

- 43 • Team Selection – The project topic for benchmarking was approved in September 2015 but
44 the project did not officially start until January 2016 when all members of the project team
45 were selected. Initially only a Team Leader was assigned to the project to develop the scope
46 and objectives of the project through meetings with appropriate stakeholders. Table 2
47 presents an early version of the project milestones and targets prior to the official
48 commencement of the project. This process of wide stakeholder involvement in developing
49 the projects Terms of Reference assisted the Team Leaders and sponsors to select the right
50 team members for the project based on their competencies and availability. Figure 1
51 describes the positions and responsibilities of the benchmarking team.
52
53
54

55 **Place Table 2 Here**
56
57
58
59
60

Place figure 1 Here

- This project had three Vice Presidents having a sponsorship role of the project, thereby ensuring the benchmarking team had access to appropriate resources and were relieved of some of their other duties to spend time on the project. The Vice Presidents were from strategy, marketing and business excellence as the project required the involvement of all these departments. The Team Leader was selected for two reasons – firstly, this person had sound technical knowledge of Sham’s Dubai and secondly, this was a young executive that DEWA had identified as potential leadership talent for the future. Therefore, the project would serve as an opportunity for personal growth for this individual. There were three other team members that were intimately involved in the project, one was the benchmarking manager at DEWA who would assist in providing benchmarking expertise, one was a business excellence expert that had experience of being involved in a number of improvement projects, and the final team member worked as an advisor to the marketing team. Of importance was that the marketing advisor formed a separate marketing team that linked into the benchmarking project to ensure that there was open communication between the benchmarking team and the marketing function. In effect, the marketing personnel become actively involved in providing and approving ideas that would improve the marketing function, thereby improving ownership by the marketing function.
- Training – All members of the benchmarking team were trained in benchmarking and the use of the TRADE methodology over a three-day period. In addition, the team was given a training manual and TRADE project management system consisting of over 30 worksheets to manage and undertake the project. The worksheets included tools that could be used at each stage of TRADE including a Terms of References form, fishbone diagram, SWOT analysis, partners selection tables, action planning forms, improvement ideas and best practice form and site visit questions form.
- Code of Conduct – All members of the benchmarking team were required to read a Benchmarking Code of Conduct (based on the EFQM’s European Benchmarking Code of Conduct) and sign a ‘Benchmarking Project Agreement Form’ committing them to following the code of conduct.
- –

‘T’ (Terms of Reference) Stage

This was the first stage of the TRADE methodology used by DEWA’s benchmarking team. A key activity of this stage was the formal agreement of the project expectations and targets, confirm membership of the team and officially kick off the project. The Terms of Reference was agreed with and signed off by the Project Sponsors. In addition, the following were carried out:

- Stakeholder Identification – the various stakeholders that would be affected by the benchmarking project were determined. These were internal DEWA stakeholders such as Marketing Department, Customer Service Department, IT Department and DEWA Senior Management. In addition, DEWA customers were identified as external stakeholders.

- Communications Plan – a communications plan to determine how the different stakeholders will be communicated with and how often communication will happen at each stage of the project was determined. For example, the Project Team leader will meet with the Project Sponsors every month and the Project Sponsors would, in turn, provide a progress update to the Managing Director and Chief Executive Officer. In addition to the communications plan with the stakeholders, the benchmarking team also determined a communications plan for themselves. This was agreed to be on a weekly basis by meetings and e-mails with each member providing input to documents and activities based on their expertise and agreed roles. The communication plan was essential to ensuring that all the key stakeholders were engaged in the project from start to finish so that the ideas and experiences of all these key people were captured and ensure that once the final recommendations were proposed, they would be accepted by all concerned.
- Risk Management – potential risks that could negatively impact the benchmarking project were identified and mitigation strategies were agreed.

'R' (Review) Stage

This stage entailed a determination and self-assessment of the legacy Shams Dubai marketing activities as well as a self-assessment of the capabilities of DEWA's Marketing Department. This was carried out by reviewing all previous activities and documentation relating to Shams Dubai and a comprehensive discussion with all members of Shams Dubai Marketing Team. In addition, various tools including a process flow chart, balance scorecard, self-assessment questionnaire, SWOT analysis, brainstorming and a fishbone diagram were used. Figure 2 presents the fishbone diagram developed by the benchmarking team.

Place figure 2 Here

These activities enabled the benchmarking team to determine a baseline of current performance and identify particular areas for improvement relating to marketing of the Shams Dubai initiative. For example, the assessment showed that while there had been a marketing effort which included the use of print media and a website, there were various shortcomings. These included a lack of specific targets to be achieved and marketing was limited to raising awareness in hope that customers would register. There was no targeted e-mail communication and the potential customer base was not segmented (for example, between commercial and residential) and approached in a more specific manner. Furthermore, the marketing effort appeared to be random in nature. The assessment also found that the dedicated website had had only 8652 visits with number of enquiries through the website and the call centre logged as 108. Furthermore, it was found that 53 customers had registered for the newsletter while 29 customers had registered for the Shams Dubai initiative by December 2015.

'A' (Acquire) Stage

Based on the challenges that were identified in the review stage, the team developed benchmarking partner selection criteria to be used in selecting appropriate benchmarking partners. The criteria were deliberately designed to encourage the team to look outside the industry as well as inside the

1
2
3 industry for best practices. The team, based on the training they received, recognised that learning
4 from outside the industry could assist them in finding innovative and breakthrough practices that
5 might not be found from solely learning from the solar power industry. The benchmarking partner
6 selection were:

- 8 • Successful marketing strategies (particularly those with a strong social/environmental focus)
9 that have quickly resulted in changes of public understanding and behaviour.
- 10 • Successful marketing strategies that have quickly resulted in customers switching from an
11 old to a new product.
- 12 • Initiatives that have resulted in a high take-up of solar panels
- 13 • Examples of well- designed and effective websites, smart services, exhibitions,
14 radio/television campaigns and social media campaigns that have supported the marketing
15 strategies.
16

17
18 Based on a search process by the team and an external search by COER, a list of 12 potential
19 benchmarking partners for benchmarking visits were identified. Each of the identified organisations
20 was scored against the criteria and, as a result, the list of potential benchmarking partners was
21 reduced to 6 organisations.
22

23 Subsequently, a visit agenda and a list of 11 main questions and more detailed sub-questions to be
24 asked during the visit were developed. The 6 shortlisted organisations were then contacted by
25 means of an official letter requesting a site/benchmarking visit. Four positive replies were received
26 and, as a result, DEWA's benchmarking team carried out 4 benchmarking visits. The organisations
27 visited were Unilever (UAE), General Electric (UAE), Emirates Airlines (UAE) and LandMark Group
28 (UAE). In addition, internal benchmarking of DEWA's Conservation Team was undertaken.
29 Supplementing the site visits, was an extensive 'desktop' research review for best practices which
30 resulted in detailed information captured on over 30 organisations. In total through the site visits,
31 desk top research and obtaining the views of DEWA's stakeholders a total of 73 improvement ideas
32 and practices were obtained. These ideas and practices were recorded in the Improvement Ideas
33 and Best Practices Form of the TRADE project management spreadsheet ready for consideration for
34 implementation in the Deploy stage of TRADE.
35
36

37 'D' (Deploy) Stage

38
39 The benchmarking team met with the Shams Dubai Marketing Team to decide on which ideas and
40 practices should be approved for implementation. It was important to involve the marketing team in
41 the evaluation, selection and approval of improvement ideas since the marketing team was
42 expected to take the lead in deploying the actions. The key criteria used in selecting improvement
43 ideas that would be deployed were ease of implementation and potential impact.
44

45 Based on the evaluation of the 73 improvement ideas, it was decided that 35 improvement ideas
46 would be accepted for incorporation in the marketing action plan for 2016 while the other
47 improvement ideas would be reviewed in future for inclusion in the 2017 marketing action plan. The
48 marketing plan incorporating the proposed improvement was then referred to the Department Head
49 for approval. The 35 improvement ideas were subsequently approved and implemented.
50

51 Key practices deployed included: a segmentation of the Shams Dubai customers into residential and
52 commercial with key themes for each segment (75% commercial / 25% residential); total
53 redevelopment of the Shams Dubai website; redesign and redevelopment of Shams Dubai
54 newsletter; and launching of an e-mail marketing campaign for registration of interest by customers.
55 Other practices included launching of Shams Dubai outreach program, launching of a School
56
57
58
59
60

1
2
3 program, maintenance of traditional media activities (press, radio and display), organising special
4 Shams Dubai events. In addition, the marketing team participated in an exhibition, launched a Shams
5 Dubai digital communication strategy and adopted innovation in design and branding.
6

7 'E' (Evaluate) Stage

8 The final stage of the TRADE methodology involved the gathering of the results achieved as
9 consequences of the improvement ideas that were implemented. These were evaluated within the
10 context of the overall objectives of the benchmarking project – increasing customer awareness,
11 interest and engagement with the ultimate aim of increasing uptake of solar projects for Shams
12 Dubai.
13

14 Results achieved were analysed in September 2016 and January 2017. The evaluation was carried
15 out jointly by the marketing team and the benchmarking team. The initial results evaluated in
16 September 2016 indicated that the overall results were positive and showed great improvement
17 compared to the starting position at the inception of the benchmarking project. The final results of
18 the implemented 35 improvement ideas were as follows:
19
20

21 *Customer awareness* – surveys showed customer awareness of Shams Dubai increased from 55%
22 (June 2016) to 90% (Sept 2016) while customer understanding/clarity of the website increased from
23 73.5% (June 2016) to 91.4% (Sept 2016) evidencing the success of the new website design. In
24 addition, non-cumulative customer website visits increased from 8,652 (Dec 2015) to 9,642 (Aug
25 2016), 15,281 (Sept 2016), 21,688 (October 2016) and 19,400 (Dec 2016). From a financial
26 perspective, the average acquisition cost per new customer reduced by 92% from 18,787 AED (Dec
27 2015) to 1,475 AED (Dec 2016) while the average generation cost per lead reduced by 77% from
28 5,045 AED (Dec 2015) to 1,147 AED (Dec 2016).
29
30

31 *Customer interest* - surveys showed customer interest increased from 65% (June 2016) to 85% (Sept
32 2016) while cumulative customer enquiries on Shams Dubai increased from 108 (Dec 2015) to 364
33 (Sept 2016) and 589 (Dec 2017). In addition, cumulative customer Shams Dubai Newsletter
34 registrations increased from 53 (Dec 2015) to 398 (Sept 2016) and 417 (Dec 2017).
35

36 *Customer engagement* - Applications for Shams Dubai solar project installations increased from 8
37 (March 2015) and 29 (Dec 2015) to 150 (Sept 2016) and 487 (Dec 2016). This represented a growth
38 of 1479% in solar projects in a one-year period from 2015 to 2016 and demonstrated the full impact
39 of the benchmarking project.
40
41

42 Project Review

43 On completion of the project, the benchmarking team were asked for their opinion on what went
44 well and did not go well. The team identified team leadership and spirit, working together in a
45 structured way, mutual support in accomplishing tasks, development of new ideas and sharing of
46 experience as positive aspects of the project. Other positive attributes were improved and timely
47 decision making, effective resource allocation, understanding of the TRADE methodology, and
48 maintaining high ethical and quality standards. On the other hand, challenges faced were time
49 pressure, lack of focus due to other work commitments and time taken in receiving approval from
50 management.
51
52

53 In addition, the team was asked to provide a list of the lessons learnt from participation in the
54 benchmarking project. A total of 14 points were identified and are presented in table 3.
55
56
57
58
59
60

Place table 3 here

Discussion

This study has reported on the experience of an organisation that has implemented best practice benchmarking using a structured methodology. While some studies such as Bhutta and Huq (1999) and Anderson and McAdam (2004) have identified a number of difficulties regarding the successful implementation of benchmarking, the experience of DEWA has shown how a benchmarking project can be successfully delivered. The study's research contribution and industry insight are presented as follows.

Research Contribution

There can be little doubt that benchmarking is a popular and well-regarded organisational improvement approach that has been well-researched and published in the academic literature. (Madsen et al. 2017; Adebajo et al. 2010; Teuteberg et al., 2013). While some studies (such as Anand and Kodali, 2008; Francis and Holloway, 2007) have identified the importance of adopting a robust benchmarking framework or process, such studies have failed to investigate benchmarking at a granular level. From insights observed in the case study of DEWA, this paper now identifies and argues for the need for academic research to revisit the benchmarking process by focusing on the granularity of delivering a successful benchmarking process. The primary areas of interest are:

Benchmarking skills: Anand and Kodali (2008) classified benchmarking models into three depending on how they were developed - by academics (research-based), consultants (expert based) or individual organisations (bespoke organisation-based). They also identified more than 60 different models in use. However, the nature and importance of training and developing skills for benchmarking are not explored in the academic literature. The DEWA team were trained in two dimensions by expert consultants – firstly they were trained on the concept and nature of benchmarking and secondly, they were trained on the specific use of the TRADE model and its associated tools. The possession of this skillset was important to the team in successfully delivering their benchmarking project. From an academic perspective, there is no clarity about whether benchmarking teams are routinely trained, who carried out the training, what the nature and content of the training was and the impact of these factors on the eventual outcome of the benchmarking process. In essence, while several benchmarking models have been promoted, there is scant research on how these models were assimilated into organisations and the impact of such assimilation on eventual success.

Benchmarking team mechanics: the study by Adebajo et al. (2010) found that 62 percent of respondents suggest that benchmarking be carried out by a team of four or less and for benchmarking teams to comprise of a variety of members by seniority and function. The centrality of teamwork and leadership to benchmarking is not new and had been proposed by early theorists including Camp (1989) and Codling (1992). However, what is less understood is the mechanism for managing a successful benchmarking team. For DEWA, the specification of a communications plan from the onset, the identification of and preparation for anticipated risks, individual ownership of the EFQM's Benchmarking Code of Conduct, high level sponsorship and mentoring from three vice presidents and external consultants were central to cohesion and success of the team. In effect,

1
2
3 the team found that preparation, personal responsibility, risk management and executive support
4 were success factors to teamwork success. This is an important insight as the academic literature
5 has not explored the internal management of benchmarking teams in any detail and neither has it
6 investigated the relationship between how benchmarking teams are managed and the outcome of
7 the benchmarking project.
8

9 *Benchmarking process documentation:* Process benchmarking is commonly associated with the
10 collection of information and data. The large number of publications on benchmarking stress the
11 importance of collecting data and according to Stella and Woodhouse (2007) the data collection
12 quality must be high and appropriate data should be collected. But what data collection tools have
13 been used by benchmarking teams? Which are the most commonly used and which have been
14 found to be most effective? How have different tools been co-ordinated for effectiveness? What
15 documentation was used during the different stages of benchmarking? These are pertinent
16 research questions that the extant literature has failed to answer. The DEWA case study indicates
17 the tools and documentation that the benchmarking team acquired during training and where and
18 how they were used to support the project. Thus, while tools and documentation such as process
19 flow chart, fishbone diagram, Action Planning Forms, Improvement Ideas and Best Practice forms
20 and Partner Selection Tables were used to document and management the benchmarking process
21 by DEWA, academic research needs greater understanding of the development and use of
22 benchmarking tools and documentation at the granular level.
23
24

25 *Identification and selection of improvement ideas:* The studies by Tee (2015) and Goncharuk and
26 Getman (2014) are two of a limited number of studies that have extensively discussed the process
27 and experience of identifying and evaluating best practice ideas from visiting benchmarking
28 partners. However, the experience of DEWA provides two new insights. Firstly, it is possible and
29 desirable to complement formal benchmarking methods (i.e. partner visits) with informal
30 benchmarking methods (e.g. desktop internet research, conference presentations) to generate
31 potential improvement ideas. While informal benchmarking was defined by Adebajo et al.
32 (2010), its role or incorporation in a structured benchmarking project is yet to be fully understood.
33 Secondly, the DEWA experience underpinned the importance of early engagement and integration
34 of a stakeholder team. Specifically, the Shams Dubai Marketing Team was involved in the
35 evaluation, selection and approval of improvement ideas before taking the lead in implementing
36 the ideas. From a research perspective, there has been no research on whether improvement
37 actions were implemented by the benchmarking team or a stakeholder team or a hybrid and
38 whether the choice has an impact on success of implementation.
39
40
41

42 In summary, the study of the benchmarking project of DEWA makes a contribution to the research
43 agenda on benchmarking by focusing on the granularity of the benchmarking process. It suggests
44 that for all of the academic research focused on benchmarking, the research agenda has not
45 sufficiently addressed how benchmarking teams manage and actualise the benchmarking process
46 at the granular level.
47

48 Industry Insights

49 The case study presented has identified a number of factors that enabled the success of the DEWA
50 benchmarking project. These factors are presented as follows:
51
52

53 *Pre-project* - before embarking on the project, DEWA undertook meticulous preparation to enable
54 successful implementation of benchmarking. The key actions taken included the selection of a
55 dedicated and balanced benchmarking team and the selection of an appropriate process to be
56
57
58
59
60

1
2
3 benchmarked. The benchmarking team also highlighted the importance of determining the project
4 scope before starting the actual benchmarking process.

5
6 *Role of the Team Leader and Benchmarking Facilitator* – as indicated, the preparatory work for
7 this project was crucial. In particular, correct decisions were made in the selection of the Team
8 Leader and Benchmarking Facilitator. Both were highly motivated and studious in ensuring the
9 TRADE methodology was followed and the other team members and stakeholders were actively
10 engaged in the project at all stages. As an example of this, over the course of the project there
11 were over 10 separate emails from the Team Leader requesting advice from COER and three
12 individual meetings were held with the Team Leader by COER in addition to meetings with the
13 whole benchmarking team. The Team Leader was continually wanting to learn more about
14 benchmarking and obtain feedback on how to further improve the project. The Benchmarking
15 Facilitator, who had previous experience of facilitating benchmarking projects, also ensured that
16 the highest standards were followed and, in particular, ensured that the benchmarking team were
17 using the right performance measures so that before and after performance could be
18 demonstrated.
19
20

21 *Training* - DEWA understood the importance of ensuring that the benchmarking team had a full
22 understanding of benchmarking and were trained in an appropriate benchmarking model. All
23 team members were trained in the TRADE benchmarking methodology, and the Team Leader and
24 Benchmarking Facilitator were studious in ensuring that all steps of the methodology were
25 followed.
26

27 *Benchmarking Model* – according to Adebajo et al. (2010), the plethora of available
28 benchmarking models and lack of clarity makes it difficult to evaluate the level of effectiveness of
29 the various models. It was important, therefore, for DEWA to adopt a model that would enable
30 success. In this case the TRADE benchmarking methodology was selected by the Dubai
31 Government Excellence Program and assistance was provided through the Dubai We Learn
32 initiative to ensure that the model was fully understood and used appropriately. This was not only
33 through the provision of a TRADE project management system and tools but also through
34 providing access to facilitation support by COER and the opportunity for the participating
35 government entities to learn from each other through various events. Of importance was the fact
36 that the adoption of TRADE entailed its integration with the organisation, thereby avoiding the
37 'fashion' risk alluded to by Masden et al. (2017)
38
39

40 *Multiple ideas and best practices* – DEWA adopted a flexible approach to learning from best
41 practices and obtaining ideas for improvement. While benchmarking theorists such as Codling
42 (1992) highlight the importance of carrying out benchmarking visits, DEWA adopted a flexible
43 approach which consisted of benchmarking visits, internal benchmarking, desktop research and
44 externally supplied benchmarking research. In addition, throughout the project, DEWA captured
45 the improvement ideas of a wide range of stakeholders. This approach enabled the benchmarking
46 team to collect 73 improvement ideas and practices for consideration of which 35 were approved
47 for implementation in 2016. One important finding from monitoring DEWA's project, which was
48 similar to what was found with other Dubai We Learn projects (Mann et al, 2017), is that
49 benchmarking often leads to the implementation of many ideas and practices rather than just one
50 or two. Whilst these individual ideas and practices on their own may not produce a major change
51 in performance it is when they are implemented with others, such as in DEWA's case of 35
52 improvement ideas and practices, that major changes or breakthroughs in performance appear to
53 be achieved. Another key finding related to this is that whilst many of the improvement ideas and
54 practices are learnt from other organisations, there are also many generated by the benchmarking
55
56
57
58
59
60

1
2
3 **team and stakeholders as result of undertaking the project. It appears that through giving the**
4 **benchmarking team space and time to learn and visit other organisations, that are often very**
5 **diverse to their own, it enhances the team's creativity.**
6
7

8 Overcoming Challenges

9
10 Although the benchmarking project was successful, the benchmarking team did face and overcome
11 challenges. The key challenge was to obtain high level sponsorship support and have the right team
12 members working on the project. To achieve this led to a three-month delay from the initial
13 proposed start of the project in September 2015. Whilst the project was approved in principle in
14 September 2015 it took until January 2016 for the project team to be formed and officially start the
15 project. In this time, the Team Leader who had obtained this initial approval undertook considerable
16 work investigating, in more detail, the challenges faced in marketing Shams Dubai, understanding
17 how benchmarking can be used to address these challenges, proposing who should be part of the
18 project team and gaining the support of three vice-presidents to sponsor the project. As a result of
19 this work an initial Terms of Reference for the project was developed which clearly spelled out the
20 potential benefits.
21
22

23 Another challenge was the identification of suitable benchmarking partners. This is a challenge that
24 has been identified in previous studies (e.g. Taschner and Taschner, 2016). In order to overcome this
25 challenge, the benchmarking team sought external support from COER and through working
26 together identified benchmarking partner selection criteria that enabled the benchmarking team to
27 learn from best practices from outside, as well as inside the solar panel industry. For example, rather
28 than solely learning how other countries have transitioned customers from using traditional sources
29 of power to solar panels, one of the selection criteria was written as "Successful marketing strategies
30 that have quickly resulted in customers switching from an old to a new product". This led to DEWA
31 learning from many other industries
32
33

34 **Conclusion**

35
36 This case study has investigated, in detail, how a benchmarking project was undertaken in the public
37 sector of the UAE. The case study has shown that success of the organisation was enabled by a
38 number of important enablers such as external support, executive-level support, prescriptive
39 benchmarking methodology and detailed supporting documentation for each stage of the
40 methodology. The study has also shown the importance team commitment and the willingness of
41 team members to give more than expected. The overall suggestion is that organisations need not
42 worry about adopting benchmarking if they take advantage of the multitude of resources and
43 support that is available.
44
45

46 **In addition to the industry insight presented above, this study has further implications for**
47 **industry.** Firstly, it is important to carefully select a benchmarking model that is suitable for the
48 organisation and which will carefully guide the organisation through the benchmarking process.
49 Secondly, benchmarking success can be enhanced by being willing to seek support when challenges
50 become evident during the benchmarking process. Thirdly, resources and dedication required for
51 successful benchmarking implies a culture of commitment from people at all levels within the
52 organisation including the benchmarking team, senior executives and stakeholder departments.
53

54 Finally, the limitations of the project are presented. The study is based on the experience of one
55 organisation that was focusing on a specific problem. Consequently, their experience (e.g. ability to
56
57
58
59
60

1
2
3 generate a significant number of improvement ideas) may not apply to all organisations or project
4 choice. Further, the project was carried out within the context of a wider public sector
5 benchmarking initiative that was sponsored by DGEP and this may not be the case for other
6 organisations.
7
8
9
10

11 **References**

12
13 **Adebanjo, D, and Mann, Rn(2008) 'Sustainability of benchmarking networks: A case-based**
14 **analysis', *Total Quality Management & Business Excellence*, Vol. 19, No 1 pp. 109 - 124**
15

16 Adebanjo, D., Ahmed, A. and Mann, R. (2010), 'An investigation of the adoption and implementation
17 of Benchmarking', *International Journal of Operations and Production Management*. Vol. 30, No. 11,
18 pp. 1140-1169.
19

20 Adewunmi, Y.A., Koleoso, H. and Omirin, M. (2016) "A qualitative investigation of benchmarking
21 barriers in Nigeria", *Benchmarking: An International Journal*, Vol. 23 No. 7, pp. 1677-1696
22

23 **Agrawal,R., Asokan, P. and Vinodh, S. (2017) "Benchmarking fuzzy logic and ANFIS approaches for**
24 **leanness evaluation in an Indian SME: A case study", *Benchmarking: An International Journal*, Vol.**
25 **24 Issue: 4, pp.973-993**
26

27 Anand, G. and Kodali, R. (2008). "Benchmarking the benchmarking models", *Benchmarking: An*
28 *International Journal*. Vol. 15, No. 3. pp. 257-291.
29

30 Anderson, K. and McAdam, R. (2004), "A critique of benchmarking and performance management",
31 *Benchmarking: An International Journal*, Vol. 11 No. 5, pp. 465-83.
32

33
34 **Augusto, P. and Miguel, C. (2013) "Benchmarking QFD application for developing packaging**
35 **products: A comparison between a company in Italy and one in Brazil", *Benchmarking: An***
36 ***International Journal*, Vol. 20 No. 3, pp.419-433**
37

38
39 Bhutta, K. and Huq, F. (1999), "Benchmarking – best practices: an integrated approach",
40 *Benchmarking: An International Journal*, Vol. 6 No. 3, pp. 254-68.
41

42 Brah, S., Lin Ong, A. and Madhu Rao, B. (2000),"Understanding the benchmarking process in
43 Singapore", *International Journal of Quality & Reliability Management*, Vol. 17, No. 3 pp. 259 – 275
44

45 Camp, R. (1989). "Benchmarking: the search for best practices that lead to superior performance",
46 *Quality Progress* Vol. 22, No. 2, pp. 70-75.
47

48 Chen, H-S (2002),"Benchmarking and quality improvement", *International Journal of Quality &*
49 *Reliability Management*, Vol. 19, No. 6, pp. 757 – 773
50

51 Codling, S. (1992) *Best Practice Benchmarking: The Management Guide to Successful*
52 *Implementation*. Gower, London.
53
54
55
56
57
58
59
60

1
2
3 Dattakumar, R. and Jagadeesh, R. (2003), 'A review of literature on benchmarking', *Benchmarking: An International Journal*. Vol. 10, No. 3. pp. 176-209

4
5
6 de Castro, V.F. and Frazzon, E.M. (2017) "Benchmarking of best practices: an overview of the
7 academic literature", *Benchmarking: An International Journal*, Vol. 24 No. 3, pp.750-774,

8
9 **Entradas, M. and Bauer, M. (2017) "Mobilisation for public engagement: Benchmarking the
10 practices of research institutes", *Public Understanding of Science*, Vol. 26, No. 7, pp. 771 –788**

11
12
13 **Francis, G. and Holloway, J. (2007), "What have we learned? Themes from the literature on best
14 practice benchmarking", *International Journal of Management Reviews*, Vol. 9 No. 3, pp. 171-189.**

15
16 **Goncharuk, A. and Getman, M. (2014) "Benchmarking to improve a strategy and marketing in
17 pharmaceuticals", *Benchmarking: An International Journal*, Vol. 21 No. 3, pp.364-385**

18
19 Hong, P., Hong, S., Jungbae Roh, J. and Park, K. (2012),"Evolving benchmarking practices: a review
20 for research perspectives", *Benchmarking: An International Journal*, Vol. 19, No. 4/5, pp. 444 – 462

21
22 Hong, S., Paterson, G., Mumovic, D. and Steadman, P. (2014). "Improved benchmarking
23 comparability for energy consumption in schools", *Building Research & Information*. Vol. 42, No. 1,
24 pp. 47-61.

25
26 **Kassem, R., Ajmal, M., Hussain, M. and Helo, P. (2017) "Critical factors for culture of judicial
27 excellence: benchmarking study of Emirati courts", *Benchmarking: An International Journal*, Vol.
28 24 No 2, pp.341-358**

29
30 **Lorenzo, O., Kawaleck, P., (2004), "A Model Enterprise System Infusion", In: *Proceedings of the
31 EUROMA 2004: Operations Management as a Change Agent*, INSTEAD**

32
33 Luu, V.T., Kim, S.Y. and Huynh, T.A. (2008), "Improving project management performance of large
34 contractors using benchmarking approach", *International Journal of Project Management*, Vol. 26
35 No. 7, pp. 758-69

36
37 Madsen, D., Slåtten, K. and Johanson, D. (2017) "The emergence and evolution of benchmarking: a
38 management fashion perspective", *Benchmarking: An International Journal*, Vol. 24 No. 3, pp.775-
39 805

40
41 Mann, R, (2017). TRADE Best Practice Benchmarking Training Manual, 2017. Retrieved from
42 <http://www.bpir.com>

43
44
45 Mann, R., Adebajo, O., Abbas, A., Al Nuseirat, A., Al Neaimi, H., and El Kahlout, Z. (2017). *Achieving
46 performance excellence through benchmarking and organisational learning - 13 case studies from
47 the 1st cycle of Dubai We Learn's Excellence Makers Program*. Dubai Government Excellence
48 Program, Dubai.

49
50 May, D. and Madritsch, T. (2009). "Best practice benchmarking in order to analyze operating costs in
51 the health care sector", *Journal of Facilities Management*, Vol. 7, No. 1, pp. 61-73.

52
53 McAdam, R., Reid, R. and Saulters, R. (2002). "Sustaining quality in the UK public sector: Quality
54 measurement frameworks", *International Journal of Quality & Reliability Management*, Vol. 19, No.
55 5, pp. 581-595.

1
2
3 **Meredith, J. (1998). "Building operations management theory through case and field research",**
4 ***Journal of Operations Management*. Vol. 11, No. 3. pp. 239-256.**

5
6 Meybodi, M. (2015) "Consistency of strategic and tactical benchmarking performance measures: A
7 perspective on managerial positions and organizational size", *Benchmarking: An International*
8 *Journal*, Vol. 22 No. 6, pp.1019-1032

9
10
11 Moffett, S., Anderson-Gillespie, K. and McAdam, R. (2008), "Benchmarking and performance
12 measurement: a statistical analysis", *Benchmarking: An International Journal*, Vol.15, No.4, pp. 368-
13 381.

14
15 **Molinos-Senante, M. and Guzman, C. (2018) "Benchmarking energy efficiency in drinking water**
16 **treatment plants: Quantification of potential savings", *Journal of Cleaner Production* Vol. 176, pp**
17 **417 - 425**

18
19 Mugion, R., and Musella, F. (2013). "Customer satisfaction and statistical techniques for the
20 implementation of benchmarking in the public sector", *Total Quality Management & Business*
21 *Excellence*, Vol. 24, No. 5/6, pp. 619-640.

22
23 Panwar, A., Nepal, B., Jain, R., and Prakash Yadav, O. (2013). "Implementation of benchmarking
24 concepts in Indian automobile industry—an empirical study", *Benchmarking: An International*
25 *Journal*, Vol. 20, No. 6, pp. 777-804.

26
27 **Ramón, N., Ruiz, J.L. and Sirvent, I. (2018) "Two-step benchmarking: Setting more realistically**
28 **achievable targets in DEA", *Expert Systems with Applications* Vol. 92, pp 124 -131**

29
30 Raymond, J. (2008). "Benchmarking in public procurement", *Benchmarking: An International Journal*,
31 Vol. 15, No. 6, pp. 782-793.

32
33 **Reino, S., Frew, A. and Mitsche, N. (2014) "A benchmarking framework for eTourism capability of**
34 **destinations' industries", *Journal of Hospitality and Tourism Technology*, Vol. 5 No. 2, pp.126-142**

35
36 Rendon, R. (2015). "Benchmarking contract management process maturity: a case study of the US
37 Navy", *Benchmarking: An International Journal*, Vol. 22, No. 7, pp. 1481-1508.

38
39 **Ridgeway, R. and MacDonald, J. (2014) "A Method for Internal Benchmarking of Criminal Justice**
40 **System Performance", *Crime & Delinquency*, Vol. 60, No1, pp 145 –162**

41
42
43 Rigby, D and Bilodeau, B. (2015). *Management Tools and Trends 2015*, Bain and Co, Inc, Boston, MA.

44
45 **Ruiz, J. and Sirvent, I. (2018) Performance evaluation through DEA benchmarking adjusted to**
46 **goals, *Omega*, available at doi: <https://doi.org/10.1016/j.omega.2018.08.014>**

47
48 **Stella, A. and Woodhouse, D. (2007), *Benchmarking in Australian higher education: a thematic***
49 ***analysis of AUQA audit reports*, Australian Universities Quality Agency, Melbourne.**

50
51 **Sukcharoensin, S. (2017) "A framework for benchmarking the strategic position of bond markets in**
52 **the competing environment", *Benchmarking: An International Journal*, Vol. 24 No. 2, pp.403-414**

53
54
55 Taschner, A. and Taschner, A. (2016). "Improving SME logistics performance through benchmarking",
56 *Benchmarking: An International Journal*, Vol. 23, No. 7, pp. 1780-1797

1
2
3 **Tee, K.F. (2015) "Identifying critical performance indicators and suitable partners using a**
4 **benchmarking template"**, *International Journal of Productivity and Performance Management*,
5 **Vol. 64, No. 3, pp.434-450**

6
7 **Teuteberg, F., Kluth, M., Ahlemann, F. and Smolnik, S. (2013) "Semantic process benchmarking to**
8 **improve process performance"**, *Benchmarking: An International Journal*, **Vol. 20 No. 4, pp.484-511**

9
10 Transparency International (2016). *Corruption Perceptions Index*. Transparency International, Berlin.

11
12 van Veen-Berkx, E., de Korne, D., Olivier, O., Bal, R., Kazemier, G. and Gunasekaran, A. (2016).
13 "Benchmarking operating room departments in the Netherlands: evaluation of a benchmarking
14 collaborative between eight university medical centres", *Benchmarking: An International Journal*,
15 Vol. 23, No. 5. pp. 1171 - 1192

16
17 Whiting, R. (1991). 'Benchmarking: Lessons from best-in-class'. *Electronic Business*. Vol. 17, No. 19,
18 pp.128-134

19
20 World Bank (2016). *The Worldwide Governance Indicators (WGI) project*. World Bank, Washington,
21 DC

22
23 World Economic Forum (2017). *Global Energy Architecture Performance Index Report 2017*. World
24 Economic Forum, Geneva

25
26 Yasin, M. (2002). "The theory and practice of benchmarking: then and now", *Benchmarking: An*
27 *International Journal*. Vol. 9, No. 3. pp. 217-243

28
29
30 **Yin, R., (2009), Case Study Research: Design and Methods, 4th ed. Thousand Oaks, CA: Sage**
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Model or Author's Name	Type	Number of Benchmarking Steps	Reference
APQC	Consultant	4 stages comprising 10 steps	APQC (2009)
Bendell	Consultant	12 stages	Bendell, Boulter and Kelly (1993)
Camp R. C.	Consultant	5 stages, 10 steps	Camp (1989)
Codling	Consultant	4 stages comprising 12 steps	Codling (1992)
Harrington	Consultant	5 stages comprising 20 steps	Harrington and Harrington (1996)
TRADE/Mann	Consultant	5 stages comprising 34 steps	Mann (2017)
AT&T	Organisation	9 and 12 stages (two models)	Spendolini (1992b)
ALCOA	Organisation	6	Bernowski (1991)
Baxter	Organisation	2 stages comprising 15 steps	Lenz et al. (1994)
IBM	Organisation	5 stages comprising 14 steps	Behara and Lemmink, 1997; Partovi, 1994).
Xerox	Organisation	4 stages comprising 10 steps and 39 sub-steps	Finnigan (1996)
Yasin & Zimmerer	Academic	5 stages comprising 10	Yasin & Zimmerer (1995)
Longbottom	Academic	4 stages	Longbottom (2000)
Carpinetti	Academic	5 stages	Carpinetti and De Melo (2002)
Fong et al.	Academic	5 stages comprising 10 steps	Wah Fong, Cheng and Ho (1998)

Table 1 Examples of benchmarking models

1	
2	
3	
4	
5	Terms of Reference (TOR) Stage:
6	1. To have a more focused TOR oriented towards Marketing and Promoting Shams
7	Dubai signed off by 30.12.2015
8	2. To form project team and officially kick-off the project on 8th Jan 2016.
9	Review Stage:
10	3. To assess the current performance, practices and systems by reviewing previous
11	marketing efforts and self-assessment and identify the key areas for best practices by Feb.
12	2016
13	4. To complete the PMR with identified targets related to the Shams Dubai marketing and
14	promoting part by Feb. 2016
15	Acquire Stage:
16	5. To have a list of benchmarking partners at least 5 nos. by Feb 2016
17	6. To have data acquired from site visits to the selected partners at least 1 site visit and to
18	have research based conducted for at least 5 benchmarking partners by Jun 2016
19	7. To have a list of improvement ideas that can be actioned and implemented at least 5
20	nos. by Jun 2016
21	Deploy Stage:
22	8. To have refined marketing activities (ongoing and campaigns) for Shams Dubai with
23	action items to be implemented for the year 2016 and to start the implementation by June
24	2016
25	9. To measure and evaluate the Shams Dubai customer awareness and interest on June
26	2016
27	Evaluate Stage:
28	10. To measure and evaluate the Shams Dubai customer awareness and interest by Sept
29	2016 (as a chance to have it as new measure included)
30	11. To evaluate the marketing performance achieved so far by Sept 2016 and repeat
31	again for the resubmission by January 2017 as compared to the previous efforts prior to
32	Dec 2015.
33	
34	
35	

Table 2 Milestones and Targets suggested prior to commencement of the project.

36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

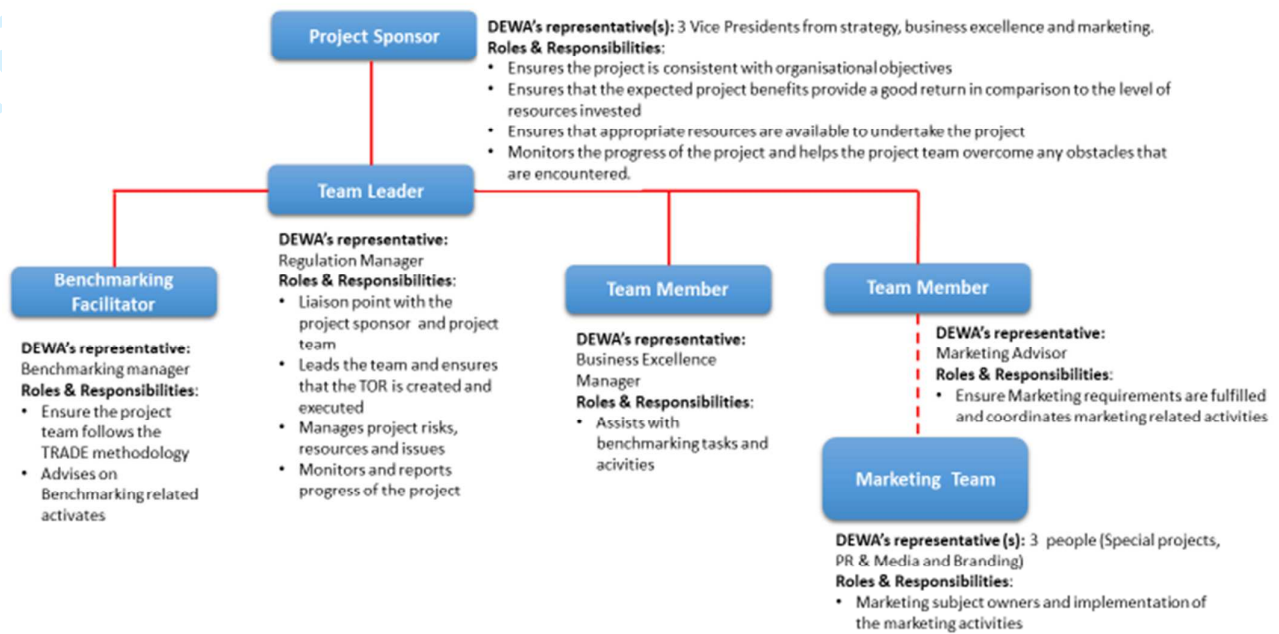


Figure 1. DEWA's Benchmarking Team's Role and Responsibilities

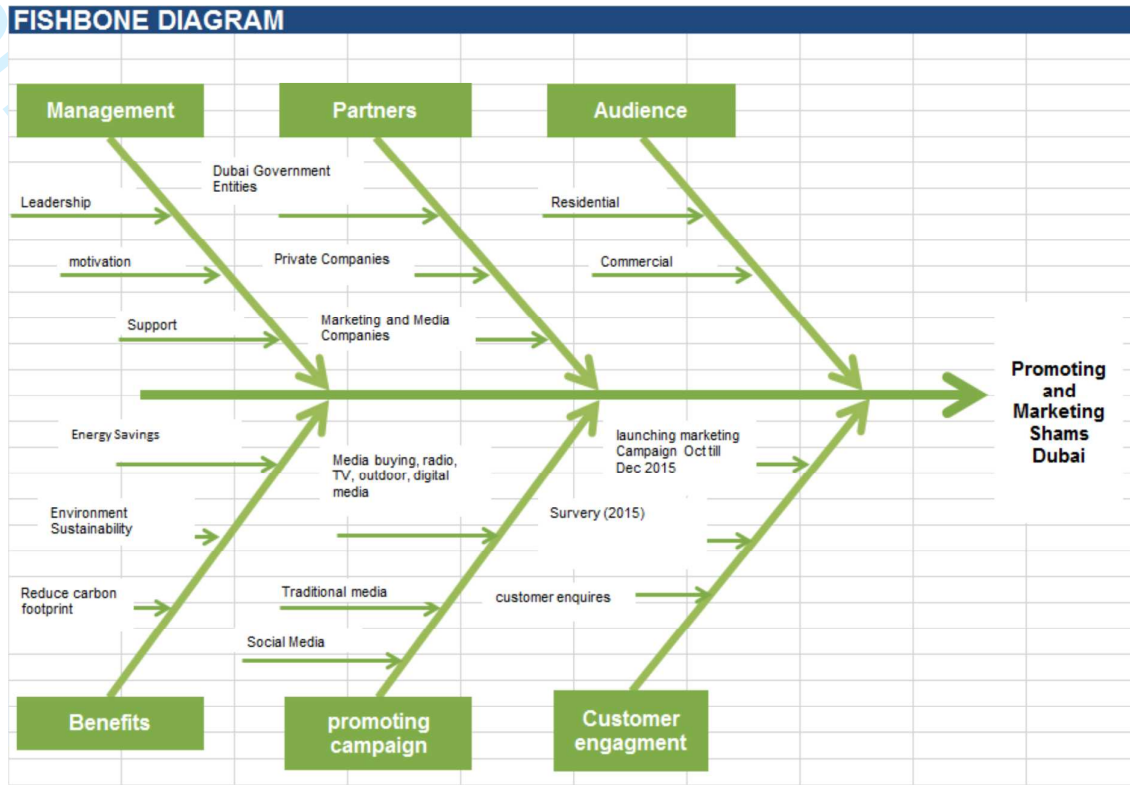


Figure 2. DEWA Benchmarking Team’s Fishbone Diagram (Review Stage)

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

- Sponsor buy-in was critical to the success of the project
- Clear definition of scope will facilitate TRADE implementation
- Narrowing the selection criteria for benchmarking made it difficult to identify potential benchmarking partners and research was not easy
- Having set a proper scope and right criteria helped in deciding an initial list of potential partners
- The benchmarking partners' selection scoring table was lengthy but supported clarifying the need to consider particular organisations as partners
- Good team work and support from existing members was key to the success of the project. Some team members provided support even during times when they were on leave.
- It is very important to identify project scope clearly, by setting up short term targets for long-term projects.
- Benchmarking can be conducted through different methods and not necessary site-visits. i.e Internal Benchmarking and Desktop research were found to be very useful methods.
- Benchmarking did not only give us best practices and improvement ideas but has also confirmed/validated some of our current practices as best practices.
- The selection of the right KPIs will help measure effectively, the success of the project. Teamwork and sharing ideas proved to be the best way for a successful project
- The benchmarking exercise has supported understanding our performance standards vis a via other global benchmarks
- Comparing best practices performance benchmarks supported the identification of performance gaps and areas for improvement
- The TRADE spreadsheet has provided a standardized methodology and processes to achieve actual project improvement
- The TRADE methodology and benchmarking tool has enabled a mind-set and culture of continuous improvement, change management beside learning

Table 3. Key lessons learnt by DEWA's benchmarking team