Redefining resilience: insights into project management’s capabilities of organisations through the pandemic and beyond

Sheraz Alam Malik and Rami Bustami

Operation and Project Management Department, College of Business, Alfaisal University, Riyadh, Saudi Arabia

Abstract

Purpose – To better understand the resilience of project management (PM) companies post-pandemic and gain insights into the interplay of the level of preparation, the status of the project and the size of the company.

Design/methodology/approach – Logistic regression was used to analyse the data from 285 companies belonging to more than 7 sectors to understand the crucial factors required to have above-standard project performance post-pandemic.

Findings – Higher project performance was observed in companies with more than 30 years of experience, whereas company history, target group or PM activity did not predict better project performance. The retail sector is leading across all the sectors, whereas the majority of companies have still not recovered from the pandemic.

Research limitations/implications – New factors like planning and controlling phases in PM are identified in Gulf Cooperation Council (GCC) settings to be most impacted post-pandemic, whereas size and length of being in business are other key variables highlighted in this research for better PM performance post-pandemic.

Originality/value – A large-scale analysis of 285 Saudi companies is quite novel in scale and innovation. This cross-sector empirical research highlights key areas of consideration post-pandemic, which were missing from the narrative due to access and emerging issues earlier.

Keywords Resilience, Project management, Post-pandemic

Paper type Research paper

1. Introduction

A lot has been said about the COVID-19 pandemic in current literature, resulting in information overload. However, the pandemic’s long-term impacts, status of the project and lessons learnt are still being established (Müller and Klein, 2020). This is especially true in the project management (PM) domain in Gulf countries, where data about a project’s status, long-term plans and company direction for execution is not available (Ghandour, 2020). Also, a sector-wide analysis of large-scale PM companies is missing. Scale is important to better understand the future planning and execution of mega projects like Vision 2030 (Al Moslih et al., 2021).

Post-pandemic project analysis is key to designing policies in both the private and public sectors that are resilient to the pandemic and any other natural/unnatural calamities. Scant literature is available, mostly in the construction sector of the UAE, and it tends to be...
outdated (Shahril and Kamaruding, 2022). Cross-sectoral project analysis is important to
study the depth and breadth of the pandemic’s impacts and their associated factors. Saudi
Arabia, being the largest economy in the Gulf Cooperation Council (GCC), is an excellent
candidate for this exploration (Malik and Bustami, 2023). Considerable time has passed since
the pandemic and studying its ripple effects on PM will offer novel insights around the
interplay between level of preparation, project status and company size and its impact on
overall project performance. These findings will in turn establish new variables about
resilience in PM for companies.

Key questions about current PM practices need to be answered, given that the literature
has identified new questions regarding situational contingencies (Müller and Klein, 2020).
These include questions pertaining to whether company history or size matters, which PM
activities were most impacted and which sector was most resilient (Alsharef et al., 2021).
Resolving these debates will reduce uncertainty around the future direction of PM, where
proactive use of key resources is critical to gaining competitive advantage.

Therefore, this research aims to answer the following questions:

RQ1. What are the key post-pandemic factors affecting higher PM performance in
companies of different sizes?

RQ2. How do these key factors vary across different sectors, affecting the resilience of
PM activities?

The remaining paper will be structured into a literature review to understand the critical
aspects of project performance at different stages of PM during the pandemic from
developing countries’ perspectives; development of a conceptual framework; data collection
and methodology; logistic regression; and an exploration of existing limitations as well as
recommendations.

2. Literature review
Li et al. (2023) reviewed literature from 35 countries to understand the pandemic from a
project life cycle point of view in construction management. They highlighted that GCC
countries, especially Saudi Arabia, have very scant literature in this arena. COVID-19 affected
the execution phase the most, and project standards and contracts faced the greatest impacts.
They advocated paying closer attention to the both the company’s external and internal
environment. They reviewed multiple factors affecting quality performance in different
countries. However, a more holistic approach is needed to identify risks and mitigation
strategies post-pandemic. Such an approach involves finding urgent post-pandemic solutions
to improve project performance, work efficiency and technical capacity of workforce and to
apply new sustainability technologies that will boost the resilience of future PM.

Involving all stakeholders and establishing a deeper understanding of how different
factors like the type of customer, company profile and operating sector interact with each
other is key in post pandemic PM. Isang and Ebiloma (2023) have conducted qualitative
research on post-pandemic PM performance in Nigeria and highlighted that a lot of
uncertainty exists around management strategies, which creates productivity issues. These
issues are evolving over time and key challenges remain, related to project delays, sector-wide
project contract reviews and cash flow issues. Due to the smaller sample size, this cannot be
generalised, and a broader level of investigation is needed to identify the links between
stakeholders, the business sector and size of the company.

Conducting an objective assessment of post-pandemic phenomenon for different projects
in different sectors is required. Such an assessment will provide unique insights into
stakeholders’ roles in project performance, variations between different sectors and resilience
mechanisms. Ayat et al. (2023) studied closely the performance of construction projects in Pakistan during the pandemic. They noticed severely negative effects on project quality, cost and time due to supply chain disruptions, shortage of resources, price escalations and an increase in legal disputes.

Sami Ur Rehman et al. (2022) did an exploratory study on project performance in the UAE construction industry and demonstrated that the key challenges during the pandemic entailed schedule delays, approvals, inspections and equipment shortages. They have highlighted that the PM sector has shown great flexibility but has not recovered fully. Resource availability, contractual obligations and new standard operating procedures (SOPs) are modifying the way PM works. This requires new forms of risk assessment, mitigation and resilience building, as well as a comprehensive understanding of different stakeholders, to minimise negative impacts in future.

The history of a company carries weight when measuring success factors in PM post-pandemic, as highlighted by Hemadoshini (2021). He showed that improving project performance post-pandemic requires upskilling human resources (HR) and improving flexibility and adaptability in each company. This may vary by sector and understanding these differences in multiple sectors is a good starting point. An external environment with customers presents decides the success factors of a given project. In other words, superior project performance is achieved by understanding the external business environment where key customers are present and by showing an ability to change.

Enhancing the use of technology, creating effective communication and creating a more holistic picture of PM post-pandemic are critical. Shahril and Kamaruding (2022) investigated the Malaysian construction sector during the COVID-19 pandemic and observed that project delays, resource unavailability, financial problems and project cancellations placed the most critical impacts on business. There is a consistent pattern of similar problems across different developing countries, highlighting the need for more robust resilience building.

Alsharef et al. (2021) studied the pandemic’s impacts on the construction industry of the United States and identified eight different factors, including material delays, litigations, increase in local demand and reduction in efficiency. They highlighted these as early impacts and argued that these factors should also be studied after the pandemic to analyse if any changes occurred post-pandemic. Thus, different scholars looking into different countries and sectors are advocating for similar in-depth analyses post-pandemic.

Blair et al. (2022) noted that the pace of change in projects has increased post-pandemic, especially in the public sector. They emphasised that organisations and stakeholders play an important part in delivering projects post-pandemic and are key elements of service delivery. An important part of their findings was to underscore the need to include key stakeholders in the learning process of the project, and companies have a key role in implementing this change. Though their study focusses on UK public sector projects post-pandemic, it carries important takeaways related to project performance and stakeholder value.

There is a need to include more countries for a multi-level approach towards PM, which will help us better understand the positive or negative impacts of flexible PM practices across different countries. Koch and Schermuly (2021) investigated both Germany and the United States to understand how PM interacted with stakeholders during the pandemic. They identified agile PM as a buffering resource in Germany only, whereas USA employees believe the demands of COVID-19 enhanced their exhaustion when using agile PM. This finding shows that despite both being developed countries, the dynamics of PM are different in both. This can be due to different levels of autonomy; delivery mechanisms and project demands in both countries. They considered agile PM as a moderating factor in managing unfinished tasks and pandemic demands. The study underscores the need to understand macro-organisational changes in each company/sector so that employees can perform better during testing times.
A more holistic picture is missing, where we can determine how a comprehensive understanding of stakeholders can improve different stages of project activities and consequently result in better performance. Bushuyev et al. (2020) proposed agile PM to manage stakeholder’s post-pandemic. They attributed inferior PM performance to a lack of information about stakeholders and their actions at different stages of PM. A significant drop in performance was observed during the execution stage of projects, which warrants looking at PM activities in detail.

Kek et al. (2022) investigated the ripple effect of the copper melting project across the globe from Tanzania to Saudi Arabia after the pandemic. They found lack of communication amongst stakeholders and an absence of resilience in all stages of the project to be the main disruptors to optimum performance. They advocated using proper management tools like interactive dashboards, collaborative planning and integrated execution. Though the recommendations broadly point in the right direction, they do not address specific issues arising in PM across different sectors and do not identify uniform policies to mitigate risks post-pandemic.

Sharma et al. (2022) studied 18 critical factors impacting agile PM during the pandemic and highlighted lack of communication, delayed duration of projects and non-availability of skilled labour as key factors hampering the implementation of agile PM. They emphasised that these factors must be validated in developing countries and recommended that additional factors like dynamic environment, expert opinion and cross-sector analysis be added for a more comprehensive analysis. They argued that adaptability towards scepticism and digital development are key to surviving the new normal of post-pandemic PM.

Post pandemic PM performance is affected by cost and schedule overruns especially in GCC countries. This can be due to improper risk management and lack of structured approach to PM. Waheeb et al. (2023) showed how different Gulf companies managed their projects in pandemic and attributed geographical, economic and technological problems as main causes of subpar PM performances.

Müller and Klein (2020) identified four different research themes arising from PM after the pandemic. The approach involves understanding current practices, anticipating required changes and developing new practices and theories. This multi-faceted PM pandemic research sheds light on lessons learnt from the current state of practice so that new values like resilience can be developed. This requires diverse situational contingencies and new theories of collaboration for higher resilience across different industry sectors. The pandemic has exposed the strengths and weaknesses of different contingencies for different companies resulting in deeper reflections and insights for the future. Global experience, especially from developing countries, must be shared so that we are better prepared for future eventualities.

Gaps exist in the literature in terms of understanding the complex interplay of factors affecting PM performance post-pandemic. Either individual factors like sector-wide analysis or the types of stakeholders involved are missing. Collective factors like the status of the project, size of the company and specific PM activities are missing. These gaps limit our understanding of what happened after the pandemic in different sectors across the globe, especially in the developing countries of the Gulf region. Filling these gaps from both theoretical and empirical perspectives is important, as new themes have emerged, more resilience practices are being adopted, different sized companies started using new technologies to manage risks and new theories for collaboration and coordination towards greater resilience have been discussed. A more comprehensive understanding is needed to identify the factors that affected PM performance during the pandemic, impacting the overall resilience of companies, especially in developing countries.
3. Research framework

To address the gaps identified above, a research framework is created to better understand the post-pandemic factors affecting PM performance in given sectors. This framework will enhance our understanding of resilience in the management domain, especially in developing countries. As Koch and Schermuly (2021) highlighted, a company’s size and the country’s perspective matter in PM. Ghandour (2020) also supported this idea, especially when measuring performance in uncertain times. The status of the project, the company’s preparation level and the overall size of the company were also key factors that Alsharef et al. (2021) and Li et al. (2023) highlighted. This framework will be tested against background of developing countries in the GCC region. A large-scale understanding of resilience in PM in GCC countries requires detailed insight into different complex factors. These factors concern the history of the company, sector type, company size and type of customer. The interplay of these factors on the overall performance of PM will be measured.

As shown in Figure 1, the identified factors not only impact overall PM performance but also interact with each other, thus defining the true resilience of PM in each sector. The context here is unique to GCC countries due to their peculiar projects and management practices. The literature discussed above repeatedly reveals the significance of context of gulf countries. Post-pandemic factors in PM are quite complex and require deeper understanding, which can lead to crucial insights. To this end, the following are the key hypotheses arising from the research framework.

H1. The size of the company in each operating sector impacts its post-pandemic PM performance.

This proposition, which connects the size of the company and its sector with its post-pandemic performance, has been amply highlighted in the literature. Kek et al. (2022) and Hemadoshini (2021) emphasised how different companies have shown variable levels of project performance post-pandemic and how this can significantly impact our understanding of future projects. Therefore, the interplay between a given sector and the size of a company operating in that sector has far-reaching consequences on project performance. This raises questions regarding other key matters, e.g. do the history of the company and the type of customer it is dealing with for the project have any effect on the performance of the project? On this note, the next hypothesis is below.

H2. Company history and customer type impact a company’s post-pandemic PM performance.

Factors affecting PM performance in the pandemic.

Figure 1.
Factors affecting project management performance post-pandemic

Source(s): Authors own
Ayat et al. (2023) and Sami Ur Rehman et al. (2022) highlighted how different stakeholders, like internal and external customers, play an important role in PM performance. This was observed across different countries and sectors. It reveals that superior performance is linked to customer types and that it is worth exploring links to company history as well.

4. Data and methods
A questionnaire was developed and administered to project managers in Saudi Arabia working in various firms with adequate operational decision-making authority. The questionnaire aimed to provide insights into the impacts of COVID-19 in Saudi Arabia on recovery and future direction in PM. The questionnaire consists of 21 items and is divided into two sections: 10 items related to the demographics of participating firms and 11 mostly Likert scale type items measuring impact, recovery and future direction for PM following COVID-19. PM performance in handling COVID-19, its recovery and future management were measured at a 5-point Likert scale: Far above standard, above standard, meet standard, below standard and far below standard.

Participants were provided with an electronic copy of the questionnaire and were given enough time to complete it (self-answered). The completed questionnaires were collected and safely stored. Data were uploaded and saved into an appropriately designed Excel spreadsheet. Data were processed following best practice for raw data management to identify any inaccuracies or incompleteness before the statistical analyses. Responses to all items in the questionnaire were checked and compared against the possible minimum and maximum values of each variable and items with implausible values were flagged. A similar process was applied to demographic variables to identify any potential anomalies by running general frequency analyses.

Descriptive statistical analyses were performed on the data for the study’s participants. Continuous variables were summarised using mean and standard deviation (SD), median and inter quartile range (IQR) and proportions were used for nominal and ordinal variables. The outcome of interest: Good PM performance in handling COVID-19 was indicated by either far above or above standards. This variable was analysed and compared by company-related factors (sector/industry, length of service in firm (years) and the number of employees). Comparisons were made using the chi-square test or ANOVA. A log-linear regression model was utilised to examine the independent effect of supply and demand side factors on employees’ perception of integration. The model controlled for the sector, length of service and number of employees. Statistical significance was considered at $p < 0.05$. All statistical analyses were performed using IBM SPSS 29.0.

5. Results
A total of 285 of 300 participants in different companies completed the questionnaire (95%). The content validity of the questionnaire items measuring the impact of COVID-19, recovery and future direction of PM was established by two experts who examined the appropriateness of the content, after making necessary modifications to items, to ensure they were comprehensive, accurately assessed and measured attitudes. In addition, the reliability of the questionnaire was examined using Cronbach’s alpha ($\alpha$), which is a measure of internal consistency, indicating how closely related a set of items is as a group. The Cronbach’s $\alpha$ value was 0.72, indicating an acceptable level of internal consistency.

Table 1 shows descriptive statistics for demographic and company-related characteristics. One hundred and thirty-three respondents reported above standard/far above standard PM performance (46.7%). The majority of the companies’ headquarters were located inside Saudi Arabia (82%). The distribution across sectors was as follows: retail 26.0%, accountancy/banking/finance 34 11.9%, property/construction 10.9%, business
consulting/management 10.2%, information technology 8.1%, engineering/manufacturing 7.7% and other 25.3%. Most companies (65.0%) have been operating for more than 10 years, and their target group includes both consumers and businesses (58.2%). About 90% of the companies are classified as large.

Table 2 shows descriptive statistics for PM impact, challenges and preparedness during COVID-19. About 67% of respondents reported moderate or severe impacts of COVID-19. Activities impacted include planning (29%), scheduling (32%) and controlling (26%). PM preparedness was reported by only 35% of respondents and about 70% indicated that their companies faced challenges related to delaying or losing projects. Only 33% of respondents reported that their companies’ projects fully recovered.

Table 3 shows comparisons of PM performance by demographic/company-related characteristics, as well as COVID-19 PM factors. A significantly higher percentage of above-standard PM performance was observed for companies in the engineering/manufacturing sector, for companies operating for more than 30 years and for those classified as multinational. The percentage of above-standard PM performance was also significantly higher for companies experiencing only a mild impact of COVID-19 (48.4%), with an impact on controlling projects (41.9%), as well as for companies reporting PM preparedness (46.5%).
Table 4 shows results from logistic regression analysis. The logistic regression equation of the final model in Table 4 is as follows:

\[
\ln \left( \frac{\hat{p}}{1 - \hat{p}} \right) = -0.20 - 0.32 \times \text{Sector}_{\text{ABF}} - 1.66 \times \text{Sector}_{\text{PC}} - 0.16 \times \text{Sector}_{\text{BCN}} \\
- 1.62 \times \text{Sector}_{\text{IT}} - 0.68 \times \text{Sector}_{\text{EM}} - 0.21 \times \text{Sector}_{\text{Other}} \\
- 1.10 \times \text{CompanySizeSmall} + 0.60 \times \text{CurrentProjectsSituation}_{\text{Recovered}} \\
+ 1.3 \times \text{PMPreparedness}_{\text{Prepared}}
\]

Where \( \hat{p} \) is the expected probability that the outcome (PM performance being above or far above standard) is present. In the above regression equation, the outcome is the expected log of the odds that the outcome is present and is expressed in terms of the regression coefficients of the independent variables. Those variables are as follows:

1. Sector_{ABF} – binary indicator for the sector – accounting, banking and finance
2. Sector_{PC} – binary indicator for the sector – property and construction
3. Sector_{BCN} – binary indicator for the sector – business, consulting and management
4. Sector_{IT} – binary indicator for the sector – information technology
5. Sector_{EM} – binary indicator for the sector – engineering and manufacturing

Table 2. Project management impact, challenges and preparedness during COVID-19

<table>
<thead>
<tr>
<th>Factor</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>COVID-19 impact level n (%)</td>
<td></td>
</tr>
<tr>
<td>Mild</td>
<td>93 (32.6%)</td>
</tr>
<tr>
<td>Moderate</td>
<td>106 (37.2%)</td>
</tr>
<tr>
<td>Severe</td>
<td>86 (30.2%)</td>
</tr>
<tr>
<td>PM activity impacted n (%)</td>
<td></td>
</tr>
<tr>
<td>Planning</td>
<td>83 (29.1%)</td>
</tr>
<tr>
<td>Scheduling</td>
<td>92 (32.3%)</td>
</tr>
<tr>
<td>Controlling</td>
<td>74 (26.0%)</td>
</tr>
<tr>
<td>Other</td>
<td>36 (12.6%)</td>
</tr>
<tr>
<td>PM preparedness n (%)</td>
<td></td>
</tr>
<tr>
<td>No planning</td>
<td>77 (27.1%)</td>
</tr>
<tr>
<td>Limited planning</td>
<td>107 (37.5%)</td>
</tr>
<tr>
<td>Prepared</td>
<td>101 (35.4%)</td>
</tr>
<tr>
<td>Challenges n (%)</td>
<td></td>
</tr>
<tr>
<td>Delayed projects</td>
<td>152 (53.3%)</td>
</tr>
<tr>
<td>Losing projects</td>
<td>46 (16.1%)</td>
</tr>
<tr>
<td>Lack of flexibility</td>
<td>37 (13.0%)</td>
</tr>
<tr>
<td>Other</td>
<td>50 (17.5%)</td>
</tr>
<tr>
<td>Current projects situation n (%)</td>
<td></td>
</tr>
<tr>
<td>Not recovered</td>
<td>191 (67.0%)</td>
</tr>
<tr>
<td>Recovered</td>
<td>94 (33.0%)</td>
</tr>
</tbody>
</table>

Note(s): Number of respondents = 285
Source(s): Table by authors
The results from logistic regression analysis showed that a higher likelihood of above-standard or far above-standard PM performance was significantly related to the retail sector, medium-size or multinational firms, PM preparedness and those firms with recovered projects ($p < 0.05$ for all odds ratios) as shown in Figure 2 below. Target group, company history, PM activity impacted and COVID-19 impact level did not independently predict PM performance (not shown).

### Table 3.
Project management performance by company-related characteristics and COVID-19 factors

<table>
<thead>
<tr>
<th>Factor</th>
<th>N</th>
<th>Above-standard performance</th>
<th>%</th>
<th>$p$-value*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Demographic and company-related characteristics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sector</td>
<td></td>
<td></td>
<td></td>
<td>0.14</td>
</tr>
<tr>
<td>Retail</td>
<td>74</td>
<td>22</td>
<td>29.7%</td>
<td></td>
</tr>
<tr>
<td>Accountancy/Banking/Finance</td>
<td>34</td>
<td>12</td>
<td>35.3%</td>
<td></td>
</tr>
<tr>
<td>Property/Construction</td>
<td>31</td>
<td>9</td>
<td>29.0%</td>
<td></td>
</tr>
<tr>
<td>Business Consulting/Management</td>
<td>29</td>
<td>6</td>
<td>20.7%</td>
<td></td>
</tr>
<tr>
<td>Information Technology</td>
<td>23</td>
<td>7</td>
<td>30.4%</td>
<td></td>
</tr>
<tr>
<td>Engineering/Manufacturing</td>
<td>22</td>
<td>13</td>
<td>59.1%</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>72</td>
<td>25</td>
<td>34.7%</td>
<td></td>
</tr>
<tr>
<td>Company history</td>
<td></td>
<td></td>
<td></td>
<td>0.087</td>
</tr>
<tr>
<td>1–5 years</td>
<td>53</td>
<td>17</td>
<td>32.1%</td>
<td></td>
</tr>
<tr>
<td>6–10 years</td>
<td>46</td>
<td>16</td>
<td>34.8%</td>
<td></td>
</tr>
<tr>
<td>11–30 years</td>
<td>101</td>
<td>25</td>
<td>24.8%</td>
<td></td>
</tr>
<tr>
<td>More than 30 years</td>
<td>85</td>
<td>36</td>
<td>42.4%</td>
<td></td>
</tr>
<tr>
<td>Company size</td>
<td></td>
<td></td>
<td></td>
<td>0.025</td>
</tr>
<tr>
<td>Small</td>
<td>27</td>
<td>6</td>
<td>22.2%</td>
<td></td>
</tr>
<tr>
<td>Medium</td>
<td>138</td>
<td>38</td>
<td>27.5%</td>
<td></td>
</tr>
<tr>
<td>Multinational</td>
<td>120</td>
<td>50</td>
<td>41.7%</td>
<td></td>
</tr>
<tr>
<td><strong>COVID-19 and project management (PM) factors</strong></td>
<td></td>
<td></td>
<td></td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>COVID-19 impact level</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mild</td>
<td>93</td>
<td>45</td>
<td>48.4%</td>
<td></td>
</tr>
<tr>
<td>Moderate</td>
<td>106</td>
<td>25</td>
<td>23.6%</td>
<td></td>
</tr>
<tr>
<td>Severe</td>
<td>86</td>
<td>24</td>
<td>27.9%</td>
<td></td>
</tr>
<tr>
<td>PM activity impacted</td>
<td></td>
<td></td>
<td></td>
<td>0.023</td>
</tr>
<tr>
<td>Planning</td>
<td>83</td>
<td>22</td>
<td>26.5%</td>
<td></td>
</tr>
<tr>
<td>Scheduling</td>
<td>92</td>
<td>24</td>
<td>26.1%</td>
<td></td>
</tr>
<tr>
<td>Controlling</td>
<td>74</td>
<td>31</td>
<td>41.9%</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>36</td>
<td>17</td>
<td>47.2%</td>
<td></td>
</tr>
<tr>
<td>PM preparedness</td>
<td></td>
<td></td>
<td></td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Not prepared</td>
<td>184</td>
<td>47</td>
<td>25.5%</td>
<td></td>
</tr>
<tr>
<td>Prepared</td>
<td>101</td>
<td>47</td>
<td>46.5%</td>
<td></td>
</tr>
<tr>
<td>Challenges</td>
<td></td>
<td></td>
<td></td>
<td>0.017</td>
</tr>
<tr>
<td>Delayed projects</td>
<td>152</td>
<td>45</td>
<td>29.6%</td>
<td></td>
</tr>
<tr>
<td>Losing projects</td>
<td>46</td>
<td>12</td>
<td>26.1%</td>
<td></td>
</tr>
<tr>
<td>Lack of flexibility</td>
<td>37</td>
<td>11</td>
<td>29.7%</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>50</td>
<td>26</td>
<td>52.0%</td>
<td></td>
</tr>
</tbody>
</table>

*Based on the chi-square test or $t$-test/Mann–Whitney U test

**Source(s):** Table by authors

(6) Sector$_{Other}$ – binary indicator for the sector – other
(7) Compant$_{Small}$ – binary indicator for company size – small
(9) CurrentProjectsSituation$_{Recovered}$ – binary indicator for PM preparedness – prepared.
6. Discussion
As most of the companies (82%) were based in Saudi Arabia, the findings and their context are strongly linked with this region. Most of the respondents belong to retail, which is one of the largest sectors in the region, thus making this research generalisable. Another unique attribute of this dataset is its strong focus on both B2B and B2C, along with the fact that most companies are medium to large companies with the majority of the respondents having five or more years of experience. All the respondents acknowledge that the pandemic severely impacted their PM

<table>
<thead>
<tr>
<th>Factor</th>
<th>Percent</th>
<th>OR</th>
<th>95% CI</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sector</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retail</td>
<td>26.0%</td>
<td>1.00</td>
<td>Ref.</td>
<td></td>
</tr>
<tr>
<td>Accountancy/Banking/Finance</td>
<td>11.9%</td>
<td>0.73</td>
<td>(0.29,1.82)</td>
<td>0.49</td>
</tr>
<tr>
<td>Property/Construction</td>
<td>10.9%</td>
<td>0.19</td>
<td>(0.06,0.56)</td>
<td>0.003</td>
</tr>
<tr>
<td>Business Consulting/Management</td>
<td>10.2%</td>
<td>0.85</td>
<td>(0.33,2.24)</td>
<td>0.75</td>
</tr>
<tr>
<td>Information Technology</td>
<td>8.1%</td>
<td>0.20</td>
<td>(0.06,0.62)</td>
<td>0.005</td>
</tr>
<tr>
<td>Engineering/Manufacturing</td>
<td>7.7%</td>
<td>0.51</td>
<td>(0.18,1.45)</td>
<td>0.20</td>
</tr>
<tr>
<td>Other</td>
<td>25.3%</td>
<td>0.81</td>
<td>(0.4,1.63)</td>
<td>0.56</td>
</tr>
</tbody>
</table>

Company size
Small                          | 9.5%    | 0.33   | (0.12,0.94)       | 0.037   |
Medium/Multinational           | 90.5%   | 1.00   | Ref.              |         |

PM preparedness
Not prepared                   | 64.6%   | 1.00   | Ref.              |         |
Prepared                       | 35.4%   | 3.87   | (2.16,6.94)       | <0.001  |

Current projects situation
Not recovered                  | 67.0%   | 1.00   | Ref.              |         |
Recovered                      | 33.0%   | 1.82   | (1.03,3.23)       | 0.040   |

Note(s): Number of respondents = 285. *OR: Odds ratio, CI: Confidence interval
Source(s): Table by authors

Figure 2. Odds ratio of above standard PM by sector using the logistic regression model in Table 4

Table 4. Multivariate logistic regression model for PM performance
activities and highlighted challenges they faced around resilience. But an interesting angle was revealed when only 35% of them claimed to have been prepared. Thus, whilst acknowledging the pandemic’s impact, they also agree that their preparedness level for such a rare event is sub-par. Another key takeaway from these results is that most companies (70%) reported that the greatest challenge they faced during the pandemic was the loss of the project itself. This shows the level of uncertainty in this context, especially in the PM arena.

Despite reporting that they fear losing the whole project, companies report that they have not yet fully recovered. Sixty-seven percent of companies still have not recovered from the effects of the pandemic, which is an interesting outcome. The pandemic has not increased resilience in PM at companies, rather, they are still struggling in the aftermath of the pandemic. This is especially true in the planning and scheduling phases of PM, which are the early stages. So, challenges arose quite early on for businesses when executing PM activities during the pandemic. Resilience planning must therefore be adopted early as this will improve the overall management of projects, especially in the GCC region, which is strongly dependent on skilled labour and raw materials from the rest of the world.

The retail sector seems to stand out as compared to construction or services in this region in terms of higher PM performance during the pandemic. The retail sector has seemed to cope well despite shelf-life challenges, skilled manpower issues and raw material shortages. These sector-wide observations applied to both medium and large companies. The findings align with our earlier hypothesis (H1), which suggests that the size of the company and the type of the sector in which it operates affect the performance of projects post-pandemic. Whereas the history of a company, whether its work is B2B or B2C and the specific type of PM activity seem to play no part in above-average performance of PM in each sector. This negates our H2 hypothesis drafted earlier. These are interesting observations across the sector and in the GCC region, as typically companies are reluctant to share this information. The findings also highlight key intervention areas towards building PM resilience in companies across sectors.

This empirical work has strong implications for managers, as they are in the post-pandemic phase and resilience is high on their agenda. They need to understand the key factors which are affecting different stages of PM within different sectors. A common better performance bias appears in the IT and construction sector as they are mostly known to use PM. Despite comprising 60% of the sample, they seem to lag retail in the resilience of their PM practices. This may be unique for the GCC region; therefore, it is also important to conduct a region-wide analysis of post-pandemic PM performance.

7. Practical and theoretical implications
The implications of this research are quite far-reaching. Knowing that the company history, type of customer (B2B or B2C) and specific project activity have no impact on above standard PM performance in each sector of the GCC region, especially Saudi Arabia, is interesting. The findings will guide practitioners to focus on other important factors that significantly impact project performance. These factors include the size of the company (the larger the size the greater the resilience and hence superior PM performance), the relevant sector of the region and the planning and scheduling phases. These are the most important factors to be considered in post-pandemic resilience planning, as evidenced by Ghandour (2020) and Li et al. (2023). Similarly, the most adverse effects include project delays, inaccurate forecasting, managing manpower and regulatory delays. Construction, retail, IT and engineering stood out as the most resilient sectors, whereas banking, manufacturing and consulting appear to be lacking in this regard. Thus, from a policy point of view, more focus should be directed towards these sectors.

New theoretical constructs can be developed in PM resilience literature. This includes understanding the interplay of company size and operating sector to manage increased risks
in the post post-pandemic era. This complex interaction must be studied against the dynamics of developing countries and in the specific context of a given business sector. This will bring to light new areas of collaboration based on different stages of project activities and relevant types of customers (Müller and Klein, 2020). This is important, as new information is emerging post-pandemic, which has the potential to reconfigure already established relationships like a company’s history and size concerning its customers in different stages of PM.

8. Conclusion
Resilience in PM is a key consideration for all project managers post-pandemic. They need to understand how different sectors are coping, which PM activities are affected, the level of impact and how these factors relate to their level of preparedness. This is especially true for the GCC region where there is a dearth of studies in the area of post-pandemic PM. This study shows that most companies are now reporting mild to moderate effects on their PM activities, for which they were not prepared earlier. The study also reveals that companies are the most resilient in the retail sector. These impacts are not linked with a company’s history or type of customer it is serving. Similarly, planning and scheduling are the activities most affected post-pandemic, highlighting challenges for the initial stages of PM. Another interesting finding was that medium- and large-sized companies are reporting above-average performance in their PM, with their biggest challenge being a lack of flexibility and delayed projects in the post-pandemic era.

9. Future areas of research and limitations
As PM evolves and new ways of managing projects are coming to light post-pandemic, it is important to learn key lessons from this rare event and generate new insights, practices and resilience goals. Doing so includes understanding risk management, recognising best practices and integrating new processes into existing ones. Developing countries should be at the forefront of this debate as accessing relevant information in this context is a key hurdle, particularly in the GCC region. Given the scale of companies (285) included in this research, replication studies should be performed in Asia and Africa to validate the key factors affecting the above-average performance of companies in the PM field.

A possible limitation of this research is that agile PM was not specifically considered. Agile PM is based on a philosophy of change, so any new practices that emerge or new ways of managing risk can be better understood. Also, other important sectors could be considered, like oil and gas, mining and the services sector. Considering other sectors would add more depth and quality to this analysis, opening avenues of broader resilience practices and coordination and collaboration to mitigate the pandemic’s effects and would create new theories of risk and leadership.

References


Corresponding author
Sheraz Alam Malik can be contacted at: sheraz.alam.malik@gmail.com

For instructions on how to order reprints of this article, please visit our website: www.emeraldgrouppublishing.com/licensing/reprints.htm
Or contact us for further details: permissions@emeraldinsight.com