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Report on the Ethics of Scientific Research

Applied to a Study of Agile Project Management and Project Success in Saudi
Arabia's Giga-Project Sector

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Table of Contents

Table of Contents	2
1. Introduction.....	4
2. The Importance of Research Ethics	4
3. Core Principles of Research Ethics	5
3.1 Scientific honesty	5
3.2 Integrity.....	5
3.3 Objectivity.....	6
3.4 Confidentiality.....	6
3.5 Informed consent	6
4. Ethical Issues in Research	7
4.1 Plagiarism	7
4.2 Data fabrication and falsification	7
4.3 Bias	7
4.4 Violation of privacy.....	8
4.5 Conflict of interest.....	8
5. Rules and Regulations Governing Research Ethics	8
6. Practical Application to the Research Topic	9
6.1 The ethical profile of this study	9
6.2 Data collection and instrument use	10
6.3 Informed consent	10
6.4 Confidentiality and the deductive disclosure problem	11
6.5 Data management and legal compliance	11
6.6 Risks and their mitigation.....	12
6.7 Objectivity and conflicts of interest	12
6.8 Approval before collection	13

7. Conclusion	13
References	14

1. Introduction

Research ethics is the set of norms governing how research is designed, conducted, and reported. Resnik (2018) describes these norms as covering the treatment of human participants, the handling of data, and the obligations a researcher owes to colleagues, funders, and the public. Israel and Hay (2006) approach it differently, treating ethics in social research as a matter of judgement rather than compliance, since the interests of participants, institutions, and the research itself often conflict. Both definitions are used in this report, although the second is more useful in the later sections, where most of the decisions described are judgement calls.

This report sets out the principles, issues, and regulations that govern ethical conduct in academic research, then applies that material to one specific study: an examination of the relationship between agile project management practices and project success in Saudi Arabia's giga-project construction sector. That study will collect data through a self-administered questionnaire distributed to project management professionals working on programmes including NEOM, Red Sea Global, Qiddiya, and Diriyah Gate, following Saunders et al.'s (2019) Research Onion from a positivist philosophy down to a survey data collection method.

Asking working professionals to rate the performance of the projects that employ them is low-risk work compared with medical research. It still raises ethical problems that have to be dealt with. The population is small enough that a few demographic answers can identify a respondent, the questions touch on employer performance, and the researcher moves in the same professional circles as the participants. Section 6 sets out what these conditions require in practice.

2. The Importance of Research Ethics

Research produces claims that other people act on. A study reporting a relationship between agile practices and project success in Saudi giga-projects could feed into procurement criteria, training budgets, and the way contractors structure their delivery teams. If that finding is wrong because the data were fabricated, or because a hostile response was dropped and nobody recorded the deletion, the cost falls on organizations that had no way of checking. Those organizations cannot audit the process behind the number they are acting on. The credibility of a result therefore depends on the ethics of the process that produced it.

Fanelli's (2009) meta-analysis of survey data indicates the scale of the problem. Pooling 18 surveys of researchers, he found that about 2 percent admitted to fabricating or falsifying data at least once, while roughly a third admitted to other questionable practices, such as dropping observations on a hunch or reporting results selectively. The figure for questionable practices is the more useful one for a study like this. Outright fabrication is rare and universally recognized as misconduct, while the grey-zone practices are common and the people committing them often do not see them as misconduct at all.

Ethics also protects participants. A construction project manager who reports that the programme they work on is running over budget has said something that could damage their standing with an employer if it were traced back to them. Steneck (2007) counts the protection of human subjects among the researcher's core responsibilities, and that reasoning holds even where the risk is reputational rather than physical. There is a further consideration: research depends on people agreeing to take part. Every study that mishandles a respondent's data makes the next researcher's job harder, particularly in a sector where the same few hundred professionals form the accessible population for anyone studying it.

3. Core Principles of Research Ethics

3.1 Scientific honesty

Five agile dimensions go into the analysis against project success in this study, and the chance that all five clear significance is not high. A null result on one of them belongs in the results table at the same length as the four that worked, with the original hypothesis left standing beside it. Deleting that row and rewriting H1a through H1e to match whatever the data produced would fail the standard for honest reporting. Resnik (2018) treats honesty as the primary norm from which most other research obligations follow, and it covers the data, the methods used to produce them, and the credit given to prior work. Reporting an unwanted result is the harder option, so the rule for handling one is being written down in advance, before any data exist to argue with.

3.2 Integrity

Section 6.5 of this report commits to destroying the raw dataset once the project has been examined and any corrections are finished. Nobody outside the project will be in a position to check whether that happens. Israel and Hay (2006) place integrity in exactly that gap, describing it as the commitment a researcher keeps when no external body is monitoring

compliance. The commitment will be harder to keep later, when the file is sitting unused on an encrypted drive and a second study is taking shape.

3.3 Objectivity

The hypotheses in this study are all directional. H1a through H1e each predict a positive relationship, which the literature supports, and which also means the researcher has written down the expected answer before collecting a single response. That is an ordinary position for a quantitative study to occupy. The problem comes at the analysis stage, where more than one defensible test is usually available and there is a temptation to keep working through them until one returns a significant result. Steneck (2007) ties objectivity to the disclosure and management of interests, financial and otherwise, that could bias judgement. Fixing the analysis plan before the data arrive is the practical safeguard here, because once the results are visible the choice of test is no longer a neutral decision.

3.4 Confidentiality

Holding to a confidentiality commitment is harder in this sector than the wording of the commitment suggests. A client-side project manager with more than twenty years of experience, working on one named giga-project, has effectively identified themselves. Depending on the programme, that combination of answers describes a handful of people, and sometimes one. Printed in a results table beside that person's rating of how well their own programme is being delivered, those answers can be traced back as easily as a name could. Reporting experience in bands and project affiliation in broad categories is what keeps the commitment intact. Confidentiality and anonymity are often treated as the same thing, although they are not. Anonymous data cannot be linked to a person at all, while confidential data can be linked and will simply not be disclosed in that form. This study is designed to collect anonymous responses, so the linkage never exists in the first place.

3.5 Informed consent

The questionnaire in this study opens with a participant information page, and that page has to be read before the first Likert item is displayed. A respondent who starts answering without seeing it has given a response without giving consent, since consent depends on being told what the research involves, what will happen to the data, and that participation can stop at any point. The Belmont Report set out the reasoning behind this requirement: respect for persons requires that individuals be treated as capable of deciding for

themselves, and that capacity is empty unless they hold the information the decision needs (National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, 1979).

4. Ethical Issues in Research

4.1 Plagiarism

This study builds on an analytical claim that Owen et al. (2006) reached first, that schedule overruns and cost overruns respond differently to agile adoption. Using that reasoning without the citation would leave no matching strings for detection software to find, since nothing would be copied word for word. Crediting it is the writer's responsibility. Reused text is the other exposure. Any material carried over from earlier submissions on this project will be cited as such instead of presented as new writing.

4.2 Data fabrication and falsification

Reaching 150 completed questionnaires from a professional population this narrow is not guaranteed. A shortfall as the submission deadline closes in is where both fabrication and falsification usually start. One option is to fill the gap with plausible response patterns typed straight into the spreadsheet. The other is to recode a dozen low project-success scores upward on the grounds that they look like careless responding, when no exclusion rule was written down before the data were seen. Recoding is the more likely of these problems, and considerably harder to detect after the fact.

4.3 Bias

The sampling method is the biggest source of bias here. Distribution runs through the researcher's own professional network, those contacts are concentrated in organizations that have already moved some way toward agile delivery, and the resulting sample will report higher adoption than the sector as a whole. The correlations under test may survive that skew. Any descriptive claim about how widespread these practices are will not, and the limitations section has to say so rather than leave the reader to work it out.

Bias can also enter through the instrument itself. The agile practices scale being adapted here was validated against software teams, and rewording its items for a construction setting involves interpretation. A wording choice that nudges a respondent toward agreement

counts as bias just as much as a skewed sample does, so the adapted wording will be reviewed against the original instrument before the questionnaire goes live.

4.4 Violation of privacy

Survey platforms log more than the answers they display. Most record the respondent's IP address by default, along with an email address wherever an organizational account is used to reach the form. A questionnaire advertised as anonymous while capturing both fields is misrepresenting itself, and the researcher's intentions for those fields do not change that.

4.5 Conflict of interest

Conflicts in this sector are usually about professional position rather than money. A consulting position tied to agile training or delivery would give a researcher a stake in a positive finding, regardless of what they believe about their own impartiality. Section 6.7 discloses the researcher's own connections on that basis.

5. Rules and Regulations Governing Research Ethics

Ethical review before a study begins is handled by research ethics committees, called institutional review boards in the United States and in much of the literature. A committee assesses a study before data collection starts. It weighs the risks to participants against the value of the knowledge sought, tests whether the consent procedure is adequate, and confirms that the data will be handled as the researcher describes. Israel and Hay (2006) note that the model grew out of biomedical research and does not always transfer cleanly to social research, where the risks are more often reputational or economic than physical. The review still has value in that setting, because it forces the researcher to commit in writing to a data handling plan before any data exist.

Saudi Arabia has its own laws on this. The Law of Ethics of Research on Living Creatures, issued under Royal Decree No. M/59 of 1431H (2010) together with its implementing regulations from the National Committee of Bioethics, governs research involving humans and requires ethics committees to be registered before research begins (Alahmad, 2017). The law reflects both Islamic Shariah principles and international guidance, and its scope centres on human subjects, biological samples, and animals more than on questionnaire studies of professional opinion. For a study of this kind, the university's own ethics committee is the appropriate route.

Saudi data protection law applies to this study as well. The Personal Data Protection Law, issued by Royal Decree M/19 in September 2021 and amended in March 2023, came into force on 14 September 2023 with a one-year transition period, making it fully enforceable from 14 September 2024 under the supervision of the Saudi Data and Artificial Intelligence Authority (Kingdom of Saudi Arabia, 2023). Research collecting personal data from individuals in the Kingdom now operates within a legal regime carrying defined obligations around lawful basis, purpose limitation, and data subject rights. Those obligations are legal as well as ethical.

Disciplinary codes cover the day-to-day detail. The American Psychological Association's Ethical Principles of Psychologists and Code of Conduct sets standards for informed consent, deception, confidentiality, and the reporting of results that are adopted well beyond psychology (APA, 2017). The associated Publication Manual, which this report follows for citation, carries ethical content as well as formatting rules: its provisions on authorship credit, plagiarism, self-plagiarism, and data retention are obligations in their own right (APA, 2020). The Declaration of Helsinki remains the international reference point for voluntary participation and informed consent in research involving human subjects (World Medical Association, 2013).

These requirements overlap and none of them replaces the others. A study can satisfy its ethics committee and still breach data protection law, or comply with both while falling short of the honesty its disciplinary code requires.

6. Practical Application to the Research Topic

6.1 The ethical profile of this study

The study examines whether five agile project management practices, iterative planning, cross-functional collaboration, adaptive scope management, stakeholder collaboration, and continuous improvement, relate to project success in Saudi Arabia's giga-project construction sector. Data will be collected in Final Project 2 through a structured questionnaire administered to project management professionals working on these programmes, with a target of 150 to 200 respondents.

Most of that design keeps the ethical stakes low. Participants are working adults with professional expertise in the subject being studied, so they are not a vulnerable population. The questionnaire collects no biological samples, no medical information, and none of the personal characteristics protected under Saudi law. Nothing is manipulated and nothing is

concealed from participants, and answering takes about ten minutes. What raises the stakes is the subject matter and the size of the population. Respondents are being asked to assess the delivery performance of projects run by their own employers or clients, and the accessible population is small enough to make identification from demographic answers a practical risk. The measures set out below follow from that.

6.2 Data collection and instrument use

The questionnaire adapts two published instruments: the agile practices measures validated by Conforto et al. (2014) and the efficiency and stakeholder success dimensions from Serrador and Pinto (2015). None of the items are newly written, so the original authors have to be credited. Every adapted scale will be cited in the methodology chapter and in the questionnaire documentation, the wording changes made to move items from a software context to a construction context will be stated explicitly, and permission will be sought where a publisher's terms require it. Presenting an adapted scale as an original contribution would be the kind of plagiarism described earlier in this report, and it would also make the study impossible to compare against the work it was drawn from.

Distribution will go through professional and academic networks in the Saudi construction and project management sector, with one route deliberately excluded. Asking a project director to circulate the questionnaire to their own team would probably produce a good response rate, but it would also create a consent problem, because an invitation arriving from a line manager implies that participation is expected. Invitations will therefore go to individuals directly, and to professional groups where the researcher holds no authority over the recipients.

6.3 Informed consent

The questionnaire will open with a participant information page that must be read before any item is displayed. It will state who is conducting the study and under which university and supervisor, what the study is about, that participation is voluntary and unpaid, roughly how long the questionnaire takes, what will be done with the responses, how long the data will be kept and when they will be destroyed, and a contact address for questions. Consent will be recorded through an explicit affirmative action, and no box will be pre-ticked.

The right to withdraw needs to be stated precisely, because a fully anonymous survey cannot support unlimited withdrawal. A participant can abandon the questionnaire at any

point before submitting, and an incomplete response will be discarded without being partially analyzed. Once an anonymous response has been submitted, no identifier exists that would let the researcher find and delete that individual's record. The information page will state this limit instead of promising a general right to withdraw that the design cannot honour.

6.4 Confidentiality and the deductive disclosure problem

The survey will collect no names, no email addresses, no employer names in free-text form, and no IP addresses. Platform-level IP and metadata logging will be disabled before the questionnaire goes live, since it is on by default on most survey tools.

Removing direct identifiers does not settle the problem here. Saudi Arabia's giga-project sector employs a large workforce in total, but the number of senior client-side project managers on any one programme is small. A response recording role, employer type, years of experience, and named project would in some combinations describe exactly one person, and that person will have given an opinion about how well their own programme is being delivered. The design handles this by making the demographic questions less exact. Experience will be collected in bands rather than as an exact figure. Project affiliation will be collected as a category, such as tourism or entertainment giga-project, and never by name. No cell in any reported cross-tabulation will be published where fewer than five respondents fall into it. The named-project variable would cost more in identification risk than it would add to the analysis, so it will not be collected at all.

Free-text comment fields present a related risk, since respondents sometimes identify themselves or their colleagues without being asked to. Any open-text responses will be reviewed and redacted before analysis, and no verbatim quotation will be reproduced in the final report.

6.5 Data management and legal compliance

Responses will be exported from the survey platform and stored in encrypted form on a single password-protected device with an encrypted backup, accessible to the researcher and, where supervision requires it, the project supervisor. No copies will sit in shared drives or personal email. Data will be retained until the project has been examined and any resulting corrections completed, after which the raw dataset will be deleted, with the deletion date stated in advance on the participant information page.

Because respondents will be located in Saudi Arabia, the Personal Data Protection Law applies. The study relies on explicit consent as its lawful basis, and it meets the wider

obligations through data minimization: the less personal data collected, the fewer obligations arise around retention, transfer, and data subject access. The design collects no direct identifiers at all, which is the strongest position available under that law and also the one that best serves the confidentiality commitment described earlier.

6.6 Risks and their mitigation

Participants face a professional risk here. A respondent who rates their programme's schedule and cost performance poorly has recorded a criticism of their employer or client. If that response were traced back to them, the consequences could include damaged standing with a client, an uncomfortable conversation with a manager, or harm to their position in a competitive contracting market. The anonymity measures described earlier are the mitigation, and the information page will describe the risk in these terms instead of claiming that the study carries none.

The programmes themselves are exposed too. Aggregate findings that reflect poorly on a named giga-project could affect how that programme is perceived. Reporting at sector level addresses this, and it matches the research question, which asks about the sector and not about any one development.

Self-reported project success brings a problem of a different kind. Professionals have an interest in describing their own projects as well run, so the measure is vulnerable to social desirability bias. Anonymity is the main defence, since a respondent who cannot be identified has less reason to inflate their answers. It does not remove the limitation, so the discussion chapter has to state it and stop short of treating self-reported scores as objective delivery performance.

6.7 Objectivity and conflicts of interest

The hypotheses predict a positive relationship in every case. That is defensible given what Serrador and Pinto (2015) and Conforto et al. (2014) found, and it is also a standing invitation to confirmation bias. The analysis plan, covering which tests will be run, how missing data will be handled, and what will count as a careless response for exclusion purposes, will be written and fixed before the data are collected. Any deviation from that plan will be reported as a deviation, and not folded into the write-up as though it had been the original intention.

The underlying study argues that the five dimensions may not transfer evenly to construction, and that adaptive scope management in particular may show a weaker

relationship because changing scope on a construction project usually means varying a contract. That prediction is testable, and either answer counts as a result. If four dimensions relate to project success and one does not, that is still a finding, and it will be reported at the same length as the four.

The researcher's professional and academic connections in the Saudi construction sector are what make the population accessible to begin with. That relationship will be disclosed in the methodology chapter. No funding is being received from any giga-project developer, contractor, or consultancy with an interest in the outcome, and any such funding, were it offered later, would be disclosed.

6.8 Approval before collection

No data will be collected until the questionnaire, the participant information page, and the consent wording have been approved by the university's research ethics committee. Approval obtained after a pilot has already run would not cover that pilot, so nothing will be distributed before the committee has responded.

7. Conclusion

Most of what this report has produced is a list of things the study will not do. The named-project variable is not being collected, and the questionnaire will not go out through project directors to their own teams; a few demographic answers identify a person in a population this size, and an invitation from a line manager carries an expectation of taking part. Self-reported performance data is a harder case. It has to stay self-reported, since the anonymity that protects the respondent also removes any means of checking an answer against a schedule or a cost report. These decisions cost the study something in statistical power or explanatory reach, and none of it can be recovered at the write-up stage.

Those trade-offs are what research ethics comes down to in a setting like this, and ethics chapters often read as though nothing had to be given up at all. The Saudi giga-project sector is a small professional world. The people who can answer these questions competently are the same people whose standing is exposed if their answers are traced back, and they will be approached again by whoever studies this sector next. Fanelli's (2009) finding that roughly a third of researchers admit to some questionable practice suggests that most of these failures come from a series of small conveniences that nobody outside the project would ever see, rather than from a deliberate decision to behave badly. Ethics committee review and the obligations under the Personal Data Protection Law are there to catch that pattern early. For

this study the practical consequence is that the participant information page, the demographic bands, and the analysis plan all have to be finished and approved before the first response arrives, since after that point the commitments cannot be made in good faith.

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