Requirements Engineering Practices Model to Incorporate 'Power' Human Value

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Abstract

Integrating human values into software development, particularly in Requirements Engineering (RE), is essential for ensuring systems' alignment with stakeholder concerns, yet this area has not received due attention in research. To bridge this gap,this study presents a model based on Schwartz's value framework, focusing on incorporating the human value of 'Power' into the RE process. This model addresses five sub-values: preserving public image, social power, social recognition, authority, and wealth.

Leveraging two focus-group sessions, the model integrates the sub-values of Power using 53 RE practices, 48 identified through a literature review and five from a survey with practitioners. These practices operationalize the sub-values ensuring that critical aspects like public image, recognition, and authority are addressed within the RE process.

Preliminary evaluations by an expert panel indicate that the model is comprehensive, practical, and effective. Further validation through real-world testing will assess its impact on RE practices and outcomes.

Keywords

Human Values, Power, Requirements Engineering, Practices, Model

1. Introduction

The integration of human values into software systems is increasingly recognized as essential. However, Software Engineering (SE) has been slower to adopt this compared to fields such as human-computer interaction (HCI) [1]. Human values are defined as:

"human values are desirable, trans-situational goals, varying in importance, that serve as guiding principles in people's lives" [2–4].

According to Schwartz's theory, human values are standards used to judge the appropriateness of attitudes, traits, or virtues. So human values are *"guiding principles of what people consider important in life"*. In SE context, human values represent software characteristics considered essential for the stakeholders [5]. Ten basic human values defined in Schwartz's theory are, i) Power, ii) Achievement, iii) Hedonism, iv) Stimulation, v) Self- Direction, vi), Universalism vii) Benevolence, viii) Conformity, ix) Tradition, and x) Security [4]. These basic human values are differentiated based on linked goals, motivations, value items, or sub-values such as authority, wealth, pleasure, equality, and politeness, which are 58 in total [1, 3]. In SE, these values represent critical software characteristics valued by stakeholders [5].

Requirements Engineering (RE) is one of the most human-centric activities in SE, involving the critical tasks of discovering, documenting, and maintaining system requirements [6]. As the most crucial phase of the software development life cycle, the success of a project heavily depends on the effectiveness of the RE process [7, 8]. There is no standard RE process that fits the context of all organizations [10]. This process varies depending on the type of system to be developed, the culture of the organization, and the expertise of the practitioners involved in the RE process [9, 11].

Figure 1 shows common inputs and outputs of the RE process [9].

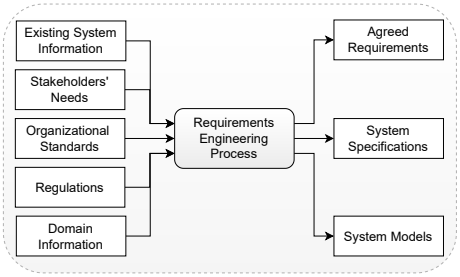

Figure 1: Inputs and outputs of the Requirements Engineering process

As can be observed from the figure, the needs of stakeholders are one of the significant inputs of the RE process that, together with the other inputs, necessitates the incorporation of human values in the RE process. Therefore, integrating human values into software development is vital to satisfy stakeholder needs. However, developing methodological approaches that allow systematic integration of human values throughout the software development life cycle is an open challenge [12].

Ignoring these values can lead to severe economic and reputational damage, as seen in the Volkswagen emissions scandal and the Cambridge Analytica case [1]. In SE research, limited attention has been given to addressing human values, especially, SE research has not thoroughly investigated all of the values in Schwartz's model, and only a limited number of human values have been investigated e.g., security and privacy [13, 14]. In a literature survey conducted on papers published between 2015 and 2018, the authors revealed that out of 1350 retrieved papers, only 216 (16%) were directly relevant to human values [14].

The demand for software that accounts for human values, such as social justice, privacy, and equality, is increasing. For example, following a strong objection from its employees, Google had to pledge that its AI will no longer be used

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in military equipment that violates international norms or goes against human rights [15].

It is clear from the RE literature that understanding user beliefs and values is vital to the success of software development. The London Ambulance service is an example of system failure caused partly by an inadequate understanding of ambulance crews' motivations, values of self-esteem and autonomy, and the emotional reaction to lack of involvement in the requirements process, leading to technology failure [20]. Incorporating human values into software development is crucial, but various challenges make it difficult. One of the biggest challenges is the lack of techniques to integrate these values into the development process [16–18]. This fact highlights the need for SE research to focus on finding ways to incorporate human values into software development. Taking human values into account during software development can increase technology acceptance and reduce negative social implications. However, critical human values often get ignored during requirements analysis and specification [19]. Detweiler and Harbers explain this ignorance as *"thinking about values is not a common practice in RE"* [21]. However, to address human values in software, it is necessary to capture them in the requirements during the RE activities [5].

This study proposes a RE practices-based model to enrich the RE process with 'Power' human value, one of the ten basic human values according to Schwartz's theory [1, 2]. The motivation for suggesting the model to incorporate 'Power' human value into the RE process is based on the verity that 'Power' provides Requirements Engineers and Project Managers essential control and authority over the people and resources that are involved in the RE process, as mentioned by Schwartz [4] "Power refers to social status, prestige, and control or dominance over the people and resources." 'Power' human value is subdivided into five sub-values that are: i) Preserving public image, ii) Social power, iii) Social recognition, iv) Authority, and v) Wealth [3]. The proposed model recommends RE practices to incorporate 'Power' sub-values into the RE process.

The rest of the paper is organized as follows: related work is presented in Section 2, research methodology is described in Section 3, whereas formulation of the RE model with Power values is explained in Section 4, and how the model was evaluated is discussed in Section 5. Study limitations are outlined in Section 6, and the paper is concluded in Section 7. Future work is outlined in Section 8 and the availability of survey date is listed in Section 9.

2. Related Work

This section reviews the integration of human values into RE, covering methods, empirical investigations, and literature reviews.

Methods for Integrating Human Values: Several methods have been proposed for embedding human values in RE. Detweiler and Harbers [21] introduced value story workshops to help engineers and stakeholders identify and prioritize values, finding these workshops produced user stories that better reflected values compared to traditional methods. With the help of 14 experts, Harbers et al. [22] further studied the effectiveness of value story workshops concerning the adequacy of values and usability for developers. The authors revealed that values are better incorporated in user stories obtained in a value story workshop than the user stories obtained in a regular requirement elicitation workshop. Proynova et al. [25] suggested a value elicitation approach to complement existing RE techniques, though it lacks empirical validation. Duboc et al. [23] emphasized addressing power dynamics in RE, advocating for broader stakeholder engagement to align system goals. Lopes and Forster [27] proposed a method to reduce human errors in RE through an expert system based on human error theories.

Empirical Investigations: Empirical studies have explored the impact of human values on RE. Perera et al. [5] surveyed 56 practitioners and concluded that explicitly considering human values could enhance feature alignment and connection with stakeholders. Alsanoosy et al. [26] studied the influence of power distance on RE, finding that this cultural dimension affects collaboration differently across cultures, impacting aspects such as decision-making and trust.

Literature Reviews: Hidellaarachchi et al. [6] conducted a systematic review of 74 studies, finding that communication is the most studied human aspect in RE and suggesting that a broader analysis of human aspects could enhance understanding. Alsanoosy et al. [24] reviewed the impact of culture on RE, identifying 16 cultural traits and emphasizing the dominance of power and the need for more empirical research.

Summary: From the related work discussion, it can be observed that various authors investigated human values in the RE, and most agreed on the significance of human values in the RE process. The authors highlighted that considering human values in RE is a less researched area [24]. Existing RE paradigms need more guidance on human values, especially considering soft issues compared to quality aspects, which is rare in the existing RE practices [5]. Among the human values, communication [6] and Power [23, 24, 26] are significant as both impact the RE process. Considering the significance of Power value, a model has been proposed to incorporate the sub-values of Power in the RE process. From the perspective of the study focus, this study extends the work of Duboc et al. [23] and Alsanoosy et al. [26] by proposing a model that integrates the sub-values of Power into RE practices, providing new practical insights into the operationalization of Power in RE.

3. Research Methodology

Figure 2 presents the steps followed to formulate and evaluate the RE model incorporating the sub-values of Power. These steps are described in the following.

Step 1 - Literature review to identify RE practices:

A literature review was conducted to identify RE practices for incorporating the sub-values of Power into the RE process. For the literature review, studies where the authors discussed any aspect of the RE process and RE practices were selected.

Relevant literature was selected using the snowballing technique following guidelines provided by C. Wohlin[28]. Thirty-seven studies are included, which are listed in references [35–71].

Before data extraction, the authors read the selected studies, and after the first round of reading, relevant practices for RE were identified. Color coding was used to highlight relevant RE practices. After completing the color codes, appropriate labels (where needed) were assigned. Data extraction was performed jointly by the first and second authors.

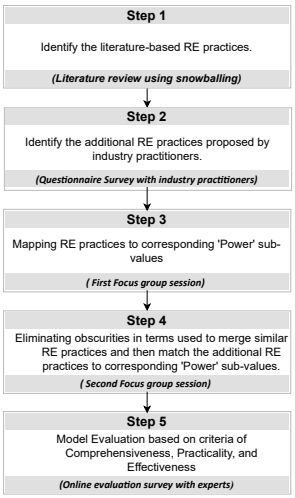

Figure 2: Formulation and evaluation of RE model with Power sub-values.

To ensure the accuracy and consistency of the data extracted from the literature, the first and second authors reviewed each other's data extraction. Problems were discussed and jointly resolved. Finally, the third author performed a random check of the extracted data.

Step 2 - First questionnaire survey to identify additional RE practices: A questionnaire-based survey was performed to identify additional RE practices to incorporate the sub-values of Power into the RE process. Guidelines provided by Kitchenham & Pfleeger [31] have been used to design and conduct the survey.

The questionnaire consisted of two parts. The first part aimed to collect data about the respondents' background (i.e., experience, job nature, and respective companies). The second part was meant for data collection of additional RE practices, it listed the sub-values of Power and respective RE perspectives. Respondents were requested to recommend the RE practices for incorporating respective sub-values of Power into the RE process. With the help of five fellow researchers, two pilot studies have also been conducted to assess the quality of the questionnaire. The recommendations for improvement have been accommodated before launching the survey.

Using the convenience sampling method, the questionnaire was distributed to 105 professionals. The survey respondents are analysts, architects, project managers, quality assurance managers, requirements engineers, and team leaders with at least three years of industry experience. The questionnaire was distributed and collected using a Drop-off/Pick-up method [32]. The reason for choosing Drop-off/Pick-up is that there are more chances of getting a higher response rate through this method [33]. In this case, seventy-four respondents (70.48%) returned the filled questionnaires, of which four were discarded because of ambiguous responses.

Step 3 & 4 - Focus group sessions to map RE practices: To integrate Power sub-values into RE practices, two focus group sessions were conducted inspired by the approach followed in [29] and following the guidelines provided in [30]. Three experts participated in these sessions: two requirements engineers with four and eight years of experience, and a system analyst with eleven years of experience.

In the first session, literature-based RE practices were mapped to Power sub-values, creating a foundational framework for value integration. The second focus group was held after an industry survey, allowing to refine the framework. During this session, terminology was clarified, similar practices were merged, and additional RE practices were aligned with the relevant Power sub-values. This discussion addressed ambiguities and ensured a comprehensive alignment of concepts.

Together, these sessions resulted in a structured, value-driven RE framework based on Power sub-values.

Step 5 - Model evaluation through second questionnaire survey: Based on the criteria of Comprehensiveness, Practicality, and Effectiveness, an expert panel of SE academic researchers evaluated the proposed model through an online survey, since the evaluation through experts is common in SE research [34].

The proposed model, a link to the online survey questionnaire, and related information were emailed to the experts. The questionnaire consists of two parts. The first part aims to collect data about the experts' background and the second part is meant for the evaluation of the model. A pilot study has also been conducted to assess the quality of the questionnaire and the recommendations have been accommodated before launching the evaluation.

Using the convenience sampling method, ten experienced academic researchers with at least ten years of experience were invited to evaluate the model. However, three of them showed their willingness to participate in the evaluation. One of the reasons for the low response to the model's evaluation was the topic's newness.

4. Model Formulation

The purpose of the proposed model is to facilitate the incorporation of 'Power' sub-values [1, 3] into the RE process. From the RE perspective, these sub-values can be clarified as follows:

RE-Pers1 - Incorporating *"Preserving public image (PSV1)"*, implies that the RE process must have a good general impression to all the stakeholders, and further, the RE process must have the capacity to meet the legitimate expectations of all the stakeholders.

RE-Pers2 - Incorporating *"Social power (PSV2)"* means that the RE process must provide and/or support mechanisms, rules, and ways for carrying out all the required activities to achieve objectives.

RE-Pers3 - Incorporating *"Social recognition (PSV3)"* means that all the stakeholders must be ready to follow mechanisms and rules provided and/or supported by the RE process. Further, all the stakeholders must be encouraged to carry out all the associated RE process activities.

RE-Pers4 - Incorporating *"Authority (PSV4)"* requires that the RE process must have the capacity to ensure the smooth and continuous conduction of all the required activities. Further, the RE process must be able to control all the resources.

RE-Pers5 - Incorporating *"Wealth (PSV5)"* means that the RE process must possess all the necessary resources to carry out required activities. Furthermore, the RE process must provide the mechanisms to utilize the resources as and when required.

Table 1
RE practices-based model to incorporate the sub-values of Power into the RE process

Sr.#	Power Sub-value	RE Perspective	RE Practice to incorporate Sub-value
1	PSV1: Preserving public image	RE process' good general impression to all the stakeholders and capacity to meet expectations of all the stakeholders.	PIL1, PIL2, ..., PIL9, PIP1
2	PSV2: Social power	RE process must provide and/or support mechanisms, rules, and ways for carrying out all the required RE activities.	PIL10, PIL11, ..., PIL20, PIP2, PIP3
3	PSV3: Social recognition	Stakeholders must follow mechanisms and rules provided and/or supported by RE process, they must be encouraged to carry out all the required RE activities.	PIL21, PIL22, ..., PIL27, PIL4
4	PSV4: Authority	The RE process capacity to ensure smooth conduction of all the required activities and to control all needed resources.	PIL28, PIL29, ..., PIL35, PIL13, PIL17, PIP4
5	PSV5: Wealth	RE process must possess all the required resources and must provide mechanisms to utilize the resources.	PIL36, PIL37, ..., PIL48, PIL9, PIP5

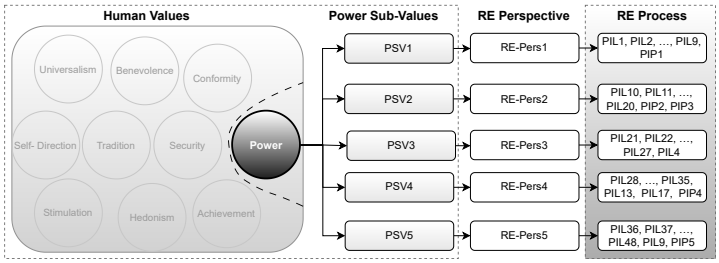

Figure 3: Requirement Engineering Model Incorporating Power Sub-Values

Considering these perceptions, Table 1 presents the proposed RE practices-based model to incorporate the sub-values of Power into the RE process. PSV1, PSV2, PSV3, PSV4, and PSV5 represent the five sub-values of Power. The graphical representation of the proposed model is presented in Figure 3. To incorporate the sub-values of Power into the RE process, 48 relevant RE practices have been explored from the literature. Such practices have been represented by PIL1, PIL2, ..., and PIL48 in Tables 2 to 6. Five additional RE practices have been discovered through the questionnaire survey with industry practitioners. Such RE practices have been denoted by PIP1, PIP2, ..., and PIP5 and are presented in Tables 2 (PIP1), 3 (PIP2, PIP3), 5 (PIP4) & 6 (PIP5). The RE practices in the case of each sub-value are presented in the succeeding paragraphs.

RE practices to incorporate PSV1 – Preserving public image: The RE practices to integrate 'preserving public image' sub-value into the RE process are given in Table 2. The 10 RE practices have been recommended for this purpose. Out of 10 RE practices, nine have been explored from the literature, and the industry practitioners have recommended only one. The practices focus on identifying and involving stakeholders, knowing stakeholders' objectives, informing stakeholders about changes in requirements, and building consensus among the stakeholders. Various measures have also been suggested, like using scales to measure average time for meeting expectations, specifying requirements quantitatively, appointing a communication channel for each unit, and using an awareness support system.

RE practices to incorporate PSV2 – Social power: The RE practices incorporating 'social power' sub-value have been presented in Table 3. There are 13 RE practices to integrate this sub-value into the RE process. The 11 practices have been extracted from the literature, whereas practitioners have suggested 2. The practices emphasize organizing face-to-face meetings frequently, defining roles, conflict resolution, reviewing progress, and encouraging communication. According to recommended practices mak-

Table 2
RE practices to incorporate Power sub-value 'Preserving public image'

Identifiers	RE Practices
PIL1	Identifying system stakeholders and assessing their needs [35].
PIL2	Involving actual system users in the RE process [36].
PIL3	Aligning client and vendor objectives through negotiation [37].
PIL4	Building stakeholder consensus on operating terms, meetings attendance, and honoring commitments and deadlines [38].
PIL5	Using a scale to measure the average time to meet expectations [39].
PIL6	Specifying requirements quantitatively wherever suitable [35].
PIL7	Establishing a communication channel, using group elicitation techniques, and preparing a combined requirements document, when multiple stakeholders are involved [40, 41].
PIL8	Informing relevant stakeholders about changes in requirements by using available communication channels and autogenerated notifications [42].
PIL9	Using an awareness support system to allow stakeholders to access necessary information about requirements (e.g., requirements descriptions, priorities, dependencies, team responsibilities, open issues, meetings information, change requests, etc.) [43].
PIP1	If it is impossible to agree on common working standards and processes fully, then agree on as many common working standards and processes as possible **[Proposed]**.

Table 3
RE practices to incorporate Power sub-value 'Social power'

Identifiers	RE Practices
PIL10	Facilitating socialization between stakeholders from the start of the project (e.g., face-to-face meetings to build interpersonal relationships) [44, 45].
PIL11	Defining each team member's role and specifying who should communicate with whom [46, 47].
PIL12	Planning for conflicts identification & resolution [35].
PIL13	Regularly reviewing and communicating progress on mutually agreed upon artefacts [48].
PIL14	Facilitating frequent communication among stakeholders [49].
PIL15	Encouraging communication in the native language of the client [50].
PIL16	Arranging meetings and ensuring facilitating participants by all means (e.g., preparing agenda, timely informing participants, timely exchange of supporting documents, and ensuring the availability of resources) [44].
PIL17	Ensuring overlaps in the team's activities to help members understand each other's responsibilities [51].
PIL18	Assessing the ability to work 'around the clock'[52].
PIL19	Using appropriate approaches to achieve time zone proximity (e.g., flextime, overtime, telework, etc.) [53].
PIL20	Appointing one team member that works after the normal working timings and responses to inquiries [54].
PIP2	Fostering use of social media as communication means **[Proposed]**.
PIP3	Estimating and adapting the Float or Slack Time in the schedule if possible **[Proposed]**.

Table 4
RE practices to incorporate Power sub-value 'Social recognition'

Identifiers	RE Practices
PIL21	Starting with informal discussions to encourage timid stakeholders [55].
PIL22	Deciding and using a standard language for communication [56].
PIL4	Building stakeholder consensus on operating terms, attendance of meetings, and honoring commitments and deadlines [38].
PIL23	Enabling online collaboration using requirements visualization tools and social visualization techniques [57].
PIL24	Delineating the processes, tools, and policies to be followed [58].
PIL25	Defining and using requirements specification glossary and notations [56].
PIL26	Adapting and understanding the culture of other stakeholders, for instance, knowing about the traditions, beliefs, ethos, and native language [50].
PIL27	Persuading stakeholders, revealing issues, or providing information will have positive rather than negative consequences [52].

ing overlapped-work teams, 'around the clock' working capacity, flextime, overtime, telework, long working hours, and unrestricted working hours improve 'social power'.

RE practices to incorporate PSV3 – Social recognition: Table 4 provides 8 RE practices suggested for 'social recognition'. The practices concentrate on informal discussions, using standard communication language, enabling online collaboration, persuading stakeholders to reveal issues, and building consensus. Spelling out processes, policies, glossaries, and notations is pivotal to integrating 'social recognition' into the RE process. Another crucial factor for this purpose is understanding and adopting stakeholders' cultures as much as possible.

RE practices to incorporate PSV4 – Authority: Eleven RE practices for having 'authority' are given in Table 5. Ten practices have been taken from the literature, and industry professionals have proposed one. This is evident from Table 5 that RE practices to exercise 'authority' suggest comprehended RE processes, agreed-upon responsibilities, authoritative leadership, well-defined organizational structure, written agreements, applying metrics, and reviewing progress. Conflict resolution and sharing information only with related people are also vital to have 'authority'.

RE practices to incorporate PSV5 – Wealth: Table 6 presents the 15 RE practices that exhibit the Power value 'wealth'. Of these 15 RE practices, 14 have been explored from the literature, and industry practitioners have proposed one. The practices for demonstration of 'wealth' recommend acquiring appropriate communication infrastructure, awareness support system, requirements management system, translation services, cultural liaisons, synchronous communication recording system, and 'proximity development centers' in case of distributed software development. The capabilities to benefit from experienced practitioners, data dictionaries, multi-disciplinary teams, validation checklists, and simulations also demonstrate 'wealth' sub-values.

Table 5
RE practices to incorporate Power sub-value 'Authority'

Identifiers	RE Practices
PIL28	Having clearly delineated and comprehended requirements engineering processes [59].
PIL29	Having clearly defined and agreed responsibilities for individuals and groups [59].
PIL30	Selecting authoritative leadership at project and team levels [59].
PIL31	Forming a well-defined organizational structure with clear communication responsibilities [48].
PIL32	Reaching written and properly documented agreements [60].
PIL33	Designing metrics to measure performance [38].
PIL13	Reviewing and communicating progress on mutually agreed upon artefacts regularly [48].
PIL34	Enhancing the progress tracking/visibility by increasing the number of RE deliverables [38].
PIL17	Organizing teams in a way that their work overlaps so that team members understand each other's responsibilities [51].
PIL35	Plan for conflicts identification & resolution [35].
PIP4	Sharing requirements related information only with concerned stakeholders **[Proposed]**.

Table 6
RE practices to incorporate Power sub-value 'Wealth'

Identifiers	RE Practices
PIL36	Establishing the proper infrastructure to facilitate communication and ensuring that it works properly [61].
PIL9	Using an awareness support system to enable stakeholders to access essential information (e.g., requirements descriptions, priorities, dependencies, team responsibilities, open issues, meetings information, change requests, etc.) [43].
PIL37	Using a Requirements Management System that allows to control and track changes, navigate and retrieve requirements, interface to accept external documents, manage requirements versions, support requirements analysis, and restrict rights [62].
PIL38	Utilizing translation services: i). Use of human translator [55, 63]. ii). Using real-time machine translation services [63].
PIL39	Appointing cultural liaisons [48, 61, 64] or Proxies (individuals familiar with the culture of client and vendor) [65].
PIL40	Keeping experienced practitioners in the team and those practitioners should bridge the awareness gap [66].
PIL41	Equipping remote practitioners' rooms with the electronic message "drop-in", remote calling and artifacts sharing facilities [67].
PIL42	Establishing the Change Control Board (CCB) [59] and including new requirements by following proper requirements change management process (change evaluation and propagation mechanism) [68, 69].
PIL43	Using a data dictionary [35].
PIL44	Using multi-disciplinary teams for reviewing requirements [35].
PIL45	Defining the checklists for validation of requirements [35].
PIL46	Using prototype to animate the requirements [35].
PIL47	In the case of distributed software development, establishing 'proximity development center' in the region having no or a little time zone difference from the region of client [70].
PIL48	Introducing appropriate requirements traceability mechanism across requirement, design, and implementation phases [71].
PIP5	Providing mechanisms to record synchronous communication through telephone calls, Skype, and videoconferencing **[Proposed]**.

5. Model Evaluation

Three senior software engineering researchers, E1, E2, and E3 evaluated the proposed model based on Comprehensiveness, Practicality, and Effectiveness criteria. E1 is an associate professor with 13 years of experience, E2 a professor with 17 years of experience, and E3 an assistant professor with 11 years of experience, all actively involved in requirements engineering research. It is evident from the literature that several studies employ a few experts for evaluation [72, 73].

Comprehensiveness means that the model contains all the 'Power' sub-values and necessary RE practices to incorporate sub-values into the RE process. Practicality means that 'Power' sub-values have been clearly defined, and recommended sets of RE practices can be easily adapted. Effectiveness means in the case of each 'Power' sub-value, the recommended set of RE practices is useful enough for incorporating 'Power' sub-values into the RE process, and the proposed model is useful enough for incorporating 'Power' sub-values into the RE process. This study employs a seven-point Likert scale to evaluate the three criteria: i). Agree Strongly (1), ii). Agree Moderately (2), iii). Agree Slightly (3), iv). Neither Agree nor Disagree (4), v). Disagree Slightly (5), vi). Disagree Moderately (6), vii). Disagree Strongly (7). Table 7 presents the evaluation results. Table 8 shows pairwise values of the Kappa coefficient employed to assess the level of agreement among the three experts. This proves the attainment of three defined criteria as the value of Kappa Coefficient equal to or greater than 0.60 is acceptable [74].

6. Study limitations

The formulation of the RE practice model followed a rigorous approach. However, the evaluation of the proposed model was not as rigorous as desired, as only three experts evaluated it. Furthermore, to measure its impact on RE practice, the model needs to be evaluated in the industry.

Table 7
Results of evaluation form expert panel

Criterion	Evaluation Emphasis	E1	E2	E3
Comprehensiveness	Totality of sub-values	1	2	1
	Totality of RE practices	2	2	2
Practicality	Description of sub-values	2	2	2
	Adaptation of RE practices	2	2	3
Effectiveness	Utility of RE practices	1	1	1
	Utility of model	2	2	2

Table 8
Pairwise values of Kappa Coefficient

Various Pairs of Experts	Value of Kappa coefficient
For Expert1 and Expert2	1.00
For Expert1 and Expert3	0.70
For Expert2 and Expert3	0.70

7. Conclusions

This study investigated the possibility of integrating 'Power' human value into the RE process. According to Schwartz's theory, Power is divided into five sub-values, including i) public image presentation, ii) social power, iii) authority, iv) wealth, and v) social identity.

Based on 53 RE practices, this study presented a model incorporating the sub-values of Power into the RE process. Of the 53 RE practices, 48 were discovered from the literature, and five additional RE practices were identified through the questionnaire survey. Mapping of Power sub-values in the RE process was carried out in two focus group sessions.

Academic experts evaluated the proposed model and according to the evaluation results, the model is comprehensive, practical, and effective in incorporating the Power sub-values into the RE process. Therefore, it contributes to an effective RE process and overcomes various problems that may occur due to neglecting Power human values in the RE process.

8. Future work

The authors plan to evaluate the model in industry and refine it based on the feedback results of actual use. Further, the model will be refined in future work by considering the software process models, project size, or software type.

9. Data Availability

The survey questionnaires and responses to first survey questionnaire are available at [75].

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