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# Identification and Prioritization of Lean Human Resource Management Components: A Study in the Oil Industry of Iraq and Iran

## ABSTRACT

The purpose of this study is to identify the components of lean human resources in the Ministry of Oil of Iraq and to provide a detailed review of the various dimensions and components of lean human resources that influence the improvement of human resource efficiency and effectiveness. This research is based on an interpretive philosophy, follows an inductive approach, and utilizes a qualitative methodology. In the qualitative phase, a systematic review approach and qualitative content analysis method were employed. The population under study for identifying lean human resource components is the Iraqi oil industry. The keywords used for the search included “lean personnel,” “lean employees,” “lean leadership,” “lean human resource principles,” “lean methods or techniques or tools,” as well as combined searches such as “human resources” and “lean” or “human resource management methods” and “manufacturing companies.” The strategy recommended by Tranfield et al. (2003) was adopted, which generally includes three major stages: planning the review, conducting the review, and reporting the review. The time frame for the reviewed studies spans from 1980 to 2024. Moreover, to conduct the systematic review, this study followed the three-stage review framework of Tranfield et al. (2003). The results indicate that emphasis on training and development, teamwork, competence and expertise, creative innovation, job concepts, cultural values, influential roles, structures and methods, communication and interactions, positive behavior and attitudes, human resources and empowerment, integrated management systems, monitoring and evaluation, and support and backing contribute to the improvement of organizational performance.

**Keywords:** Lean, Human Resources, Lean Human Resources, Systematic Review

## Introduction

## Methods and Materials

This study was conducted using an interpretive philosophy, an inductive approach, and a qualitative method. A systematic review approach and qualitative content analysis method were employed. The study population for identifying lean human resource components consisted of relevant literature available in reputable domestic and international scientific databases. These databases include, among others, the National Library of Iran, IranDoc, the Scientific Information Database of the Academic Jihad (Research Project Database), University Electronic Journals System, Magiran, and NoorMag, as well as international scientific databases such as Springer, Scopus, Elsevier, Emerald, ProQuest, ScienceDirect, and Google Scholar.

To select relevant studies, the following criteria were considered. The time span of the studies ranged from 1980 to 2024, as the concept of “lean” was first introduced in scholarly articles published in 1980. The languages of the publications were limited to Persian and English. The selected studies included journal articles and doctoral dissertations indexed in credible scientific databases.

In the sampling method of the systematic review phase, relevant sources such as journal articles, dissertations, and books in both domestic and international publications were screened. Sources that addressed key dimensions of the literature on lean human resources—such as the evolution of the concept and its relationship with other constructs—were selected. The researcher limited the search to English and Persian journals between 1980 and 2024. The year 1980 was chosen because it marked the publication of the first scientific article addressing the concept of lean human resources. In the preliminary stage, prior to the operational search for articles, several exploratory searches were conducted in databases such as ScienceDirect and Google Scholar to determine appropriate keywords. These initial searches helped identify relevant terms frequently used in articles, which were then selected as the study’s keywords. These included: “lean human resources,” “lean work environment,” “lean HR practices,” “thinking,” “Toyota employees,” “Toyota HR,” “lean employees,” “lean thinking,” “lean leadership,” “lean managerial behavior,” “strategic lean HRM,” and “HR productivity.”

Next, inclusion and exclusion criteria were established for the systematic review based on the research question. The PICOS framework (Population, Interventions, Comparisons, Outcomes, and Study Design) was used to guide the specification of these criteria. Additional criteria, such as credible databases and publication year range, were also incorporated to improve the rigor of the review process.

### Systematic Review Method

This study adopted the strategy recommended by Tranfield et al. (2003) and followed a protocol that clearly delineates each phase of the review. This approach includes three primary stages: (1) review planning; (2) conducting the review; and (3) reporting and dissemination. Thus, a successful systematic review generally includes three major steps: planning the review, executing the review, and reporting the findings. These steps are detailed below.

The first stage involved defining the review methodology, which was developed by a review panel composed of the article’s authors. The protocol included written guidelines on search procedures, screening, data extraction, analysis methods, and specific criteria to reduce potential bias before initiating the review. After development, the protocol was tested during the study and then shared with two to three experts for review and feedback to refine its quality. The inclusion and exclusion criteria, as well as the search terms used to locate articles in the selected databases, were specified in the study’s methodology. Entry and exit criteria were used to help gather data from publications and provide relevant insights (Tranfield et al., 2003). The current study’s inclusion and exclusion criteria are presented in Table 1. Tóth et al. (2016) recommend using citation-based

sources to ensure the diversity of the studies included in the review. Similar to previous systematic reviews, the current review was limited to peer-reviewed academic journal articles and excluded grey literature (e.g., reports, conference papers, theses, etc.). This study reviewed articles from Taylor & Francis, Google Scholar, SpringerLink, Scopus, Elsevier, Emerald Insight, and ScienceDirect. For dissertations, ProQuest and domestic databases such as the Academic Jihad site, NoorMagz, the Comprehensive Humanities Portal, and IranDoc were used. The foreign databases mentioned also comprise most of the records used in systematic literature reviews (SLRs) conducted by Cherrafi et al. (2017) (Reinders et al., 2022). It is important to note that due to the authors' limited access to other academic databases, the scope of the current review was restricted to these selected sources. Following a similar methodology to Promma & Antony (2019) and Antony et al. (2021), only English-language articles were retrieved. According to Shafril et al. (2020), researchers should select the time frame for evaluation based on the level of conceptual maturity. The authors of this study opted for a longer publication window, as the lean HR concept is a mature topic with a substantial body of literature.

**Table 1. Article Inclusion Criteria**

Inclusion Criteria	Exclusion Criteria
Articles published between 1980 and 2024	Any publication before 1980 or after May 2024
Academic journals	Online sites, grey literature (textbooks, doctoral dissertations, conferences, technical reports, master's theses, working papers, etc.)
Full-text access articles	Articles without full-text access
Peer-reviewed articles from Taylor & Francis, Google Scholar, SpringerLink, Scopus, Elsevier, Emerald Insight, ScienceDirect, ProQuest, and domestic sites such as Academic Jihad, NoorMagz, Comprehensive Humanities Portal, and IranDoc	Non-academic databases
Articles related to lean HRM and lean personnel management	Articles focused solely on hard lean production or unrelated lean-hybrid approaches such as lean-agile, lean-resilient, lean-green, or Six Sigma
Articles discussing HR-related components	Other lean production components unrelated to HR practices
Articles related to the production sector	Articles related to the construction and service sectors
Articles in English and Persian	Articles in languages other than English and Persian

In the second stage, or the review execution phase, search strings were constructed using combinations of the keywords identified during the planning stage. The systematic review employed keywords such as “lean,” “lean human resources,” “lean employees,” “lean HR management,” “lean personnel management,” “lean management,” “lean leadership,” “lean recruitment,” “lean retention,” “lean HRM,” “lean work environment,” and “lean methods/techniques/tools.”

An example of a search string is as follows: “lean personnel” OR “lean employees,” “lean leadership” OR “lean HR principles,” “lean methods/techniques/tools,” or combined searches like “human resources” AND “lean” or “HRM methods” AND “manufacturing companies.” A total of 286 academic journal articles were collected during this process. The gathered data were organized into a database using an Excel spreadsheet (Lietz et al., 2020), with columns for article title, author(s), journal name, publisher, publication year, and article type. Duplicate entries were removed, and the remaining articles were reviewed.

To ensure alignment with the study's scope and objectives, abstract evaluation was the first step in the analysis process, used to determine whether a publication was relevant to lean HR practices. The authors independently reviewed the selected publications and simultaneously assessed their compliance with the inclusion criteria. The next stage involved retrieving the full texts of the selected publications, which were then read to identify potential areas for future research related to HR topics. A total of 98 articles were found to meet at least one inclusion criterion after screening. Some articles were excluded at the title screening stage, others after abstract review, and the rest after full-text review.

The next step involved analyzing the selected literature for the systematic review. Based on the inclusion criteria (English and Persian language), initially 98 articles were included, which were later narrowed down to 57 studies directly related to lean human resources. Only 4 of these were conducted within Iran and written in Persian. After examining the components, HR-related elements from each study were extracted and entered into an Excel file. The extracted codes, or components, were categorized using selective coding into broader categories labeled as themes, and convergent themes were grouped under specific components.

## Findings and Results

Based on the final model, various stages were undertaken to reach the model, which are detailed below. Relevant codes were refined. As a result, the findings obtained from the qualitative analysis after extracting the components from the sources are outlined in Table 1.

**Table 1. Initial Codes and Their Sources**

No.	Initial Codes (Identified Primary Components)	Sources
1	Selection of individuals with minimal training needs	(4, 14)
2	Focus on value-creating and self-directed individuals	(1)
3	Spirit of humility and learning	(8, 15, 16, 20)
4	Problem-solving and creativity skills	(2)
5	Multi-skilling and job enlargement	(15, 20)
6	Elimination of unnecessary communication	(9)
7	Creation of rapid feedback loops	(1)
8	Streamlining workflows and reducing redundancy	(7, 12)
9	Flexible roles and work structures	(22)
10	Decentralization and distribution of power	(17, 19, 23)
11	Knowledge-sharing networks and employee participation	(7, 12)
12	Managing critical and value-generating positions	(20)
13	Development of a problem-focused culture	(4, 13, 14, 24)
14	Emphasis on creating customer value	(11)
15	Elimination of non-value-adding activities	(2, 22)
16	Time management	(7, 12, 17, 23)
17	Small group problem solving	(4, 24)
18	5S system	(5, 7, 12, 23)
19	Team learning	(2, 22)
20	Just-in-time training	(1, 21)
21	Coaching development	(5, 7)
22	Broad access to data and information	(11)
23	Defining goals, expected outcomes, and job expectations	(4, 14)
24	Monitoring and identifying performance gaps	(10)
25	Follow-up on implemented actions	(2, 5, 7)
26	Performance-based compensation	(15, 20)
27	Employee voice system	(3, 6, 11, 18)
28	Optimization of labor relations	(20)
29	Monitoring employee expectations	(15)
30	Accountability, transparency, and persuasion of employees	(4, 6, 18, 25)
31	Promotion of empathy and mutual trust	(7, 12, 17, 23)
32	Creation of a safe work environment (psychological, physical, and job safety)	(4, 13, 20, 21, 24)
33	Self-directed and cross-functional work teams	(5, 7, 12)
34	Team-based decision making	(11, 15, 20)

35	Delegation systems and job enrichment	(17, 23)
36	Human resource branding and credibility	(2)

The components of each document, identified in Table 1 as codes for the present study, were categorized into higher-level components using qualitative content analysis, taking into account the indicators of convergence and relevance. In the next step, which is presented in Table 2, the concepts and core components were developed.

**Table 2. Development of Lean Human Resource Categories**

Code No.	Initial Codes (Identified Primary Components)	Category Development (Lean Human Resource Components)	Category ID
1	Selection of individuals with minimal training needs	Problem-solving and learning-oriented human resources	1
	Focus on value-creating and self-directed individuals		
	Spirit of humility and learning		
	Problem-solving and creativity skills		
	Multi-skilling and job enlargement		
6	Elimination of unnecessary communication	Agile structure	2
7	Streamlining workflows and reducing redundancy		
8	Flexible roles and work structures		
9	Decentralization and power distribution	Broad communication and feedback	3
10	Knowledge-sharing networks and employee participation		
11	Creation of rapid feedback loops		
12	Communication with minimal constraints (horizontal–vertical–temporal)		
13	Development of a problem-focused culture	Value engineering	4
14	Emphasis on customer value creation		
15	Elimination of non-value-adding activities		
16	Time management		
17	Small group problem solving	Coaching and employee development	5
18	5S systems and workplace management		
19	Team learning		
20	Just-in-time training		
21	Coaching development		
22	Job rotation and enlargement	Continuous performance monitoring and management	6
23	Setting goals and expected outcomes at all levels		
24	Monitoring and identifying performance gaps		
25	Follow-up on implemented actions		
26	Performance-based compensation	Internal market orientation and value creation	7
27	Employee voice system		
28	Optimization of labor relations		
29	Monitoring employee expectations		
30	Accountability, transparency, and employee persuasion	Employee empowerment and participation	8
31	Promoting empathy and mutual trust		
32	Creating a safe work environment (job–mental–physical)		
33	Self-directed and cross-functional work teams		
34	Team-based decision making		
35	Delegation systems and job enrichment		
36	Human resource branding and credibility		
37	Management of critical and value-generating positions		

Based on the tables, the subsequent section elaborates on each dimension of the model.

The lean human resource model in the Iraqi Ministry of Oil is presented in Figure 1.

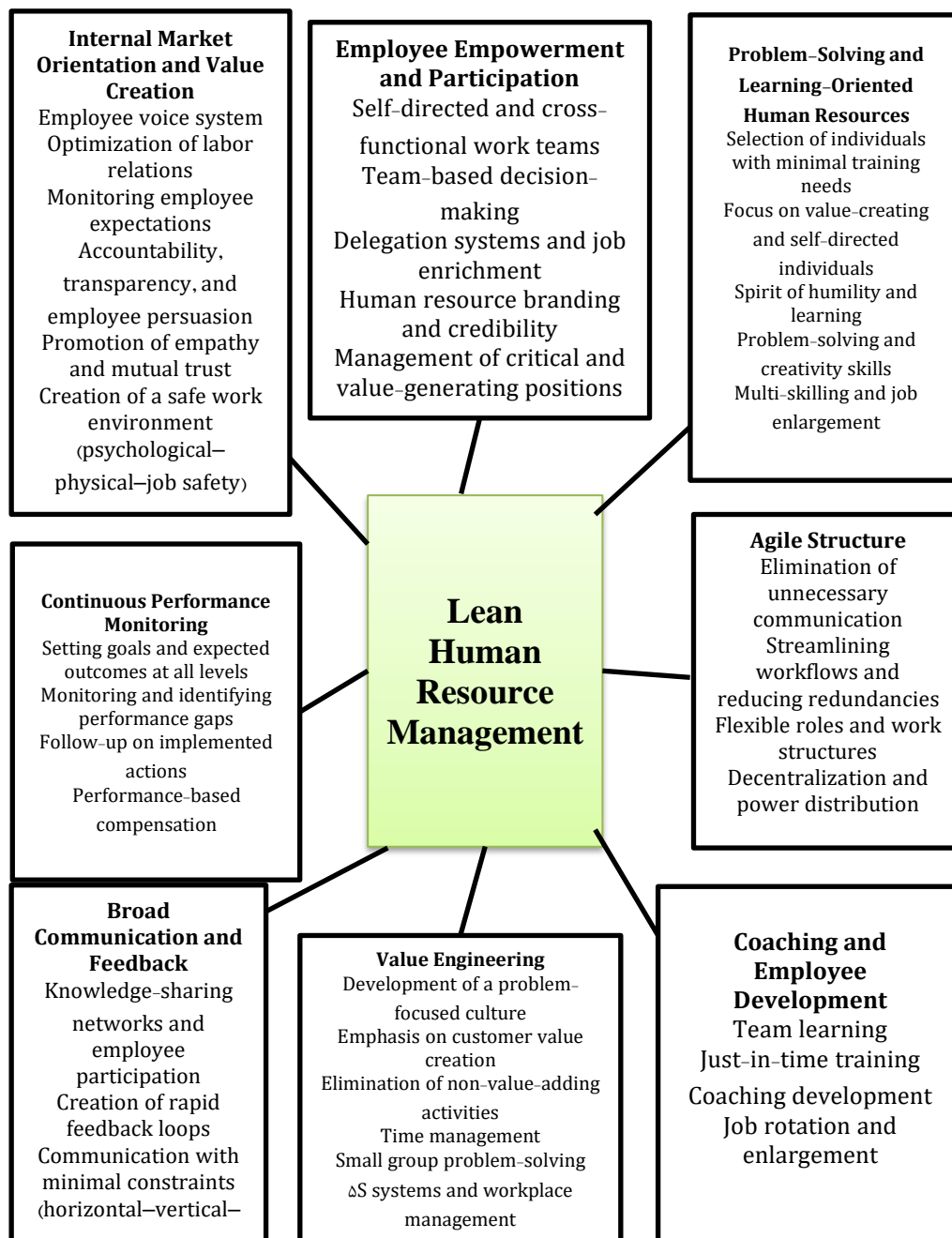


Figure 1. Lean Human Resource Components Model in the Iraqi Ministry of Oil

## Discussion and Conclusion

The aim of this study was to identify and categorize the core components of Lean Human Resource Management (LHRM) applicable to the Ministry of Oil in Iraq through a systematic review of the academic and practitioner literature. Based on the results, 36 initial codes were extracted from relevant sources and categorized into 8 major lean HR components: (1) problem-solving and learning-oriented human resources, (2) agile structure, (3) broad communication and feedback, (4) value engineering, (5) coaching and employee development, (6) continuous performance monitoring, (7) internal market orientation and value creation, and (8) employee empowerment and participation. These components offer a comprehensive and contextualized model for lean HR deployment in a complex public sector setting.

The first category, “problem-solving and learning-oriented human resources,” includes the selection of individuals with minimal training needs, an emphasis on creativity, cross-functional skills, and a growth mindset. This finding is consistent with prior studies that argue lean HR must begin at the recruitment stage by attracting self-directed, value-driven employees who can operate in dynamic environments (1, 2). According to (12), lean leadership capabilities are closely tied to the professional development of such employees, fostering an agile workforce capable of rapid adaptation and continuous learning.

The second category, “agile structure,” highlights the importance of reducing bureaucratic redundancies and fostering flexibility in work design. Practices such as role versatility, decentralization of authority, and minimization of unnecessary communications reflect structural reforms aligned with lean principles (3, 13). (10) emphasizes that such structural shifts are vital during digital transformations to avoid inefficiencies and digital waste. In the oil sector, where hierarchical inertia can hinder performance, adopting agile work structures can streamline operations and increase responsiveness.

The third category, “broad communication and feedback,” encompasses systems for knowledge sharing, horizontal and vertical communication, and fast feedback loops. These systems are critical for identifying performance gaps, learning from errors, and supporting a lean culture (4, 14). In particular, (17) emphasizes the role of feedback in student mental health support systems using Six Sigma, reinforcing the transferability of lean feedback mechanisms to public service institutions. (11) also identified psychological barriers to voice behavior in lean teams, underscoring the importance of safe communication environments.

The fourth component, “value engineering,” includes practices aimed at maximizing value for internal and external stakeholders. Activities such as time management, small-group problem solving, and elimination of non-value-adding tasks reflect a commitment to continuous improvement and customer orientation (8, 20). (21) finds that integrating lean and sustainability management significantly enhances supply chain performance, suggesting a broader implication of value-focused lean practices in public sector efficiency and accountability.

“Coaching and employee development” emerged as the fifth major theme, comprising just-in-time training, mentorship, job rotation, and team learning. These elements are strongly advocated in the lean literature as essential for building workforce agility and long-term capacity (7, 25). According to (5), lean HR 4.0 must leverage technology to enhance continuous learning and prevent talent attrition, especially amid disruptive labor market conditions. In the Iraqi oil context, where specialized skills are vital and hard to replace, fostering internal learning ecosystems is critical.

The sixth dimension, “continuous performance monitoring,” relates to setting measurable goals, identifying performance gaps, and linking rewards to output. This is consistent with (1), who emphasized integrating HR performance indicators with lean operational metrics. (24) also supports the use of structured monitoring through multi-criteria decision-making in lean environments. A robust performance management framework, aligned with strategic goals, enhances accountability and encourages lean behavior across the organization.

“Internal market orientation and value creation” captures the internal branding of HR, responsiveness to employee expectations, and optimization of labor relations. These practices signify a shift from transactional HR to a more strategic, value-driven approach (6, 8). The lean HR model outlined by (2) supports this orientation by emphasizing customer value—both external (service recipients) and internal (employees)—as a central metric of success.

Finally, “employee empowerment and participation” emerged as a critical category, encompassing team-based decision-making, job enrichment, delegation of authority, and the development of self-directed teams. These practices not only align with lean’s participative ethos but also address key motivational and psychological aspects of work (4, 9). (22) also emphasizes the necessity of participative mechanisms in implementing lean systems in highly regulated industries like pharmaceuticals, which parallels the operational complexity of oil ministries.



Importantly, the study also found that lean HR practices must be contextualized to the organizational culture and national governance environment. (23) suggests that lean principles are best adapted through incremental integration rather than wholesale transformation in public healthcare, which has clear implications for public sector oil institutions. Additionally, (19) notes that the circular economy and lean integration must be harmonized with institutional realities for long-term sustainability, underscoring the broader systemic considerations involved.

Overall, this research contributes to the literature by offering a tailored, empirically grounded model of lean HRM applicable to a high-stakes, resource-rich public institution. By synthesizing prior studies and contextual findings, it reinforces the idea that lean HRM, when properly implemented, can substantially enhance performance, adaptability, and strategic alignment in public sector organizations.

This study is not without limitations. First, the research relies on a systematic literature review and qualitative content analysis, meaning it does not empirically test the proposed components in practice. Consequently, the generalizability of the model to all oil ministries, even within Iraq, is limited. Additionally, the reliance on English and Persian sources may have excluded relevant literature published in Arabic or other regional languages. Furthermore, given that the research draws from secondary data, there is potential for bias in source selection and interpretation despite efforts to adhere to established protocols.

Future studies should consider conducting empirical validation of the proposed lean HR components through case studies or surveys in the Iraqi Ministry of Oil or similar institutions in the MENA region. Comparative studies between public and private sector lean HR applications would also be valuable to identify context-specific enablers and barriers. Moreover, exploring the role of digitalization, artificial intelligence, and predictive analytics in advancing lean HR practices—especially in resource-rich but bureaucratically complex environments—would offer meaningful insights into Lean HR 4.0 strategies.

Practitioners in public institutions, particularly within Iraq's oil sector, should prioritize leadership development to foster lean mindsets among mid- and senior-level managers. Introducing pilot projects focused on lean HR practices can help test feasibility and build internal advocacy. Additionally, aligning HR metrics with strategic performance goals, simplifying communication structures, and investing in employee training and empowerment programs can yield long-term gains. Finally, tailoring lean initiatives to local culture and institutional realities is essential for sustainable and scalable transformation.

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## Authors' Contributions

All authors equally contributed to this study.

## Declaration of Interest

The authors of this article declared no conflict of interest.

## Ethical Considerations

All ethical principles were adhered in conducting and writing this article.

## Transparency of Data



In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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