American Journal of Economics and Business Management

Vol. 9 Issue 10 | **pp.** 1430-1441 | **ISSN:** 2576-5973
Available online @ https://www.globalresearchnetwork.us/index.php/ajebm

Article

Lean Management Tools for Optimizing Employee Performance and Strengthening Work Motivation in Industrial Enterprises: Evidence from a Textile Enterprise in Namangan, Uzbekistan

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Abstract: Employee turnover, absenteeism and weak engagement are among the most persistent constraints on the productivity of labor-intensive industrial enterprises in Uzbekistan, yet the lean management literature rarely links the "human side" of lean to company-level personnel data from the region. This study examines how lean tools can be used to optimize employee performance and raise work motivation at NT Holding Home Textile LLC, a vertically integrated textile enterprise in Namangan. The analysis combines the enterprise HR records for 2021–2025 and 2026 (headcount, attrition, attendance), a survey of 50 weaving-mill workers and 18 middle managers (April–May 2026), descriptive statistics and a document-based design of an intervention model. The HR data show that headcount fell from 1,039 (January 2025) to 537 (December 2025), a net decline of 502 employees (48.3%), while the average absenteeism rate stood at 6.3% and no formal kaizen proposal system existed. Workers rate general job satisfaction at 2.8/5 and pay fairness at 2.4/5; 44% consider leaving, yet 76% would submit improvement ideas if a kaizen system existed and 88% would work harder if rewarded. On this basis, a three-layer integrated model is proposed: (1) cross-training and job rotation, (2) participation through kaizen circles and visual management, and (3) a redesigned 80/20 pay system with kaizen and multi-skill bonuses. Under the programme targets, an indicative annual net effect of UZS 10.3–11.1 billion is estimated. The findings are descriptive and indicative, given the single-enterprise design and short time series; they provide a practical basis for lean-based personnel policy in the textile industry of Uzbekistan.

Keywords: lean management; kaizen; employee motivation; staff turnover; cross-training; job design; textile industry; Uzbekistan.

Citation: Umarjon X. Lean Management Tools for Optimizing Employee Performance and Strengthening Work Motivation in Industrial Enterprises: Evidence from a Textile Enterprise in Namangan, Uzbekistan. American Journal of Economics and Business Management 2026, 9(10), 1430-1441.

Received: 10th JuL 2026
Revised: 11th Aug 2026
Accepted: 11th Sep 2026
Published: 31 th Oct 2026

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1. Introduction

Labor-intensive manufacturing remains the backbone of industrial employment in Uzbekistan, and the textile and garment sector is one of its largest components. The national development strategy for 2022–2026 explicitly ties industrial growth to productivity, modernization and human capital [1]. In practice, however, many enterprises compete on installed capacity rather than on the quality of work organization, and they lose a large part of their advantage through the instability of their workforce: experienced operators leave, newly hired staff need months to reach standard output, and the remaining employees carry an intensified workload.

Lean management, which originated in the Toyota Production System [2] and was generalized as a set of five principles by Womack and Jones [3], is usually presented as a technical toolkit for eliminating waste (*muda*), overburden (*muri*) and unevenness (*mura*). Yet its founding logic is explicitly human: Liker [4] places "respect for people" and continuous improvement on equal footing, and Imai [5] defines kaizen as an everyday, bottom-up activity of ordinary employees. Empirical work confirms that the "soft" practices of lean (training, teamwork, participation, supportive leadership) are decisive for whether lean tools survive beyond the pilot stage [6, 7]. For an enterprise with high attrition, the question is therefore not only *which lean tool to introduce*, but *how to design work, participation and rewards so that employees stay, learn and contribute ideas*.

Despite this, systematic evidence on lean-based personnel policy in Uzbek industrial enterprises is scarce. Existing local studies concentrate on technical waste reduction and energy efficiency, while the interaction between job design, pay and employee voice is rarely examined with enterprise-level HR data. This study addresses that gap. Its objectives are: (i) to diagnose the state of workforce stability, attendance and motivation at a representative textile enterprise using HR records and primary survey data; (ii) to ground the choice of motivational and performance-optimization methods in established theory; (iii) to propose and cost an integrated, lean-based model for optimizing employee performance; and (iv) to state clearly what the available evidence can and cannot support.

Review of literature on the subject

Work-design theory provides the first pillar. Hackman and Oldham [8] showed that skill variety, task identity, task significance, autonomy and feedback produce "critical psychological states" that raise internal motivation and lower absenteeism and turnover; a later meta-analysis of 259 studies confirmed that motivational work characteristics are strongly related to satisfaction and performance [9]. Self-determination theory adds that sustained motivation depends on satisfying the needs for competence, autonomy and relatedness [10, 11]. Both streams imply that monotonous, narrowly specialized work with no voice (typical of weaving and printing lines) undermines motivation, and that rotation, enrichment and team problem-solving can restore it.

The second pillar is the retention literature. Turnover research distinguishes the "push" of dissatisfaction and weak embeddedness from the "pull" of external alternatives [12, 13], and shows that the cost of replacing an employee (recruitment, training, lost output) is routinely underestimated [14, 15]. Meta-analytic evidence links business-unit employee engagement to productivity, customer outcomes and lower turnover [16], and Gallup's global surveys continue to report low engagement among industrial workers [17]. The job demands–resources model explains the mechanism relevant here: when attrition shrinks headcount, the remaining employees face higher demands with fewer resources, which raises exhaustion and absence [18].

The third pillar is lean itself. Reviews show that lean has evolved from a shop-floor toolkit to an enterprise-wide system [19] and that the bundle of people-related practices (cross-functional training, employee involvement, supplier and customer links) is what distinguishes high-performing implementations [20]. Pay design matters as well: Lawler [21] argues that pay should reward skills and contribution to the system rather than only individual output, and Pfeffer [22] stresses that high-commitment practices pay off only when job security, training and rewards are aligned. Finally, the balanced scorecard [23] provides a way of tying such practices to measurable results.

Taken together, these sources suggest that lean-based optimization of employee performance should operate on three levels simultaneously: the competence of employees (what they can do), their participation (what they are allowed to change), and their incentives (what they gain from doing it). This is the logic of the model developed below.

2. Materials and Methods

Research design. The study is a single-case, mixed-methods investigation combining (a) secondary analysis of the enterprise's HR records, (b) two cross-sectional surveys, (c) descriptive statistical analysis, and (d) constructive design and costing of an intervention model. The case, NT Holding Home Textile LLC (Namangan), was selected because it is a large, vertically integrated textile producer (weaving, printing, sewing) whose management granted access to personnel data. Its structure as of 20 May 2026 is summarized in Table 1.

Data sources. HR data comprise the 2025 annual report (headcount at the beginning and end of the year, number of leavers, overall attendance and average absenteeism rate), the monthly headcount series for 2025 and January–May 2026, the headcount by unit and gender on 20 May 2026, and the 2021–2025 annual series of attrition, absenteeism and output per employee compiled by the HR department [24]. Primary data come from an anonymous, voluntary paper questionnaire administered on 10–15 April 2026 to 50 weaving-mill workers (1–5 scale items and yes/no items) and from a questionnaire for 18 middle managers (May 2026) [25]. The weaving mill was chosen because it is the largest unit (37.2% of staff) and the one with the highest absenteeism.

Indicators and definitions. *Workforce attrition rate* is measured as in the HR annual report: (headcount in January − headcount in December) / headcount in January. It is therefore a *net* measure of headcount loss; because the enterprise also hired during 2025 (headcount rose in July, September and November), the gross separation rate is at least as high. *Absenteeism* is the average share of scheduled working time lost to unexcused absence, as reported by HR; the *overall attendance* index is the HR annual attendance figure. *Output per employee* is annual revenue divided by average headcount (UZS million). *Cross-training level* is the share of workers qualified for at least two operations.

Analysis. Descriptive statistics (means, shares, percentage changes, coefficient of variation) are used throughout. Because the annual series contain only five observations (2021–2025), Pearson coefficients are reported for orientation only; with $df = 3$, they cannot support causal inference and are affected by common time trends. The proposed model is derived by mapping the diagnosed problems onto the work-design, self-determination, retention and lean literature (Table 2), and its economic effect is estimated by a transparent scenario calculation based on the replacement-cost method [14, 15], with a sensitivity case. Percentages are rounded to one decimal; monetary values are in Uzbekistani soums (UZS).

Limitations. The study covers one enterprise; the surveys use convenience samples that are not representative of the sector; and the two HR sheets for 2026 differ in scope (751 employees in May according to the monthly comparison versus 709 on 20 May in the unit-level sheet). Findings are accordingly presented as a diagnostic and a design proposal, not as a test of causal effects.

3. Results and Discussion

3.1. Theoretical grounding of the methods

Table 2 maps the principal motivational problems of labor-intensive production to the theories that explain them and to the lean instruments that follow from the theory. The mapping serves as the selection criterion for the methods used in the model: a tool is included only if it addresses a mechanism identified in the literature and a problem observed in the data.

Table 1. Workforce structure of NT Holding Home Textile LLC as of 20 May 2026

Unit	Employees	Share, %	Foreign nationals	Main operation
Weaving mill	264	37.2	78	Weaving
Printing mill	128	18.1	24	Textile printing

Unit	Employees	Share, %	Foreign nationals	Main operation
Sewing mill	111	15.7	2	Garment sewing
Other units (management, warehouses, repair, security, transport, etc.)	206	29.1	1	Support
Total	**709**	**100.0**	**105 (14.8%)**	**—**

Source: HR Department of NT Holding Home Textile LLC [24]. Men 486 (68.5%), women 223 (31.5%).

Production units employ 70.9% of staff, and nearly one in seven employees is a foreign national, concentrated in weaving and printing. These are precisely the units in which repetitive, paced work is the norm and in which the work-design arguments of Hackman and Oldham are most relevant.

Table 2. Theoretical grounding of the performance-optimization methods

Theoretical lens	Mechanism	Lean instrument	Problem addressed
Job characteristics [8, 9]	Skill variety, autonomy and feedback raise internal motivation	Job rotation, cross-training, job enrichment, visual boards	Monotony, absenteeism
Self-determination [10, 11]	Competence, autonomy and relatedness	Skills matrix, kaizen circles, team stand-ups	Low sense of competence and voice
Lean / kaizen [4, 5, 6]	Respect for people; bottom-up improvement	Suggestion system, 5S, gemba walks	No improvement culture
Turnover and retention [12, 13, 14]	Embeddedness, fit and perceived fairness	Career steps via multi-skill grades	Attrition, replacement cost
Job demands–resources [18]	Demands exceed resources when staff leave	Load balancing by rotation; standard work	Overload of remaining staff
Pay for contribution [21, 22]	Rewards signal what the firm values	80/20 pay, kaizen and multi-skill bonuses	Perceived pay unfairness
Balanced scorecard, PDCA [23]	Measure what is managed	Monthly KPI review	No feedback loop

Source: compiled by the author from the literature cited.

3.2. Diagnosis: workforce stability and attendance

The HR annual report records 1,039 employees at the beginning of 2025 and 537 at the end, i.e., 502 fewer (−48.3%). Table 3 and Figure 1 show that the decline was not a single event: headcount dropped in 8 of 11 month-to-month transitions and reached its minimum of 514 in October. The mean monthly headcount was 690.6 and the coefficient of variation 21.7%, which indicates a highly unstable staffing base for a production system that requires standard, trained crews.

Table 3. Monthly headcount, 2025 and 2026

Month	2025	2026	Change 2026 vs 2025, %
January	1,039	729	−43
February	877	798	−10
March	768	821	+6
April	731	762	+4

Month	2025	2026	Change 2026 vs 2025, %
May	674	751	+10
June	621	—	—
July	700	—	—
August	622	—	—
September	640	—	—
October	514	—	—
November	564	—	—
December	537	—	—
Mean, January–May	**817.8**	**772.2**	**–5.6**

Source: HR Department [24]; mean values and percentage for the last row calculated by the author.

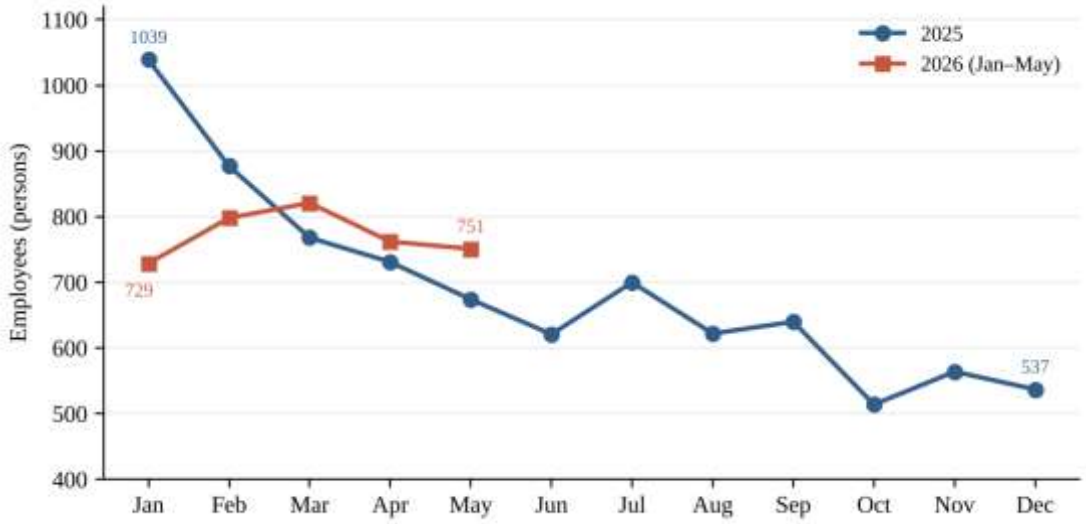

Figure 1. Monthly headcount of NT Holding Home Textile LLC, 2025 and January–May 2026

The January 2026 value (729) is 192 above the December 2025 level (537), which means that the enterprise rebuilt a large part of its workforce through mass hiring in a single month. Hiring on this scale replaces headcount but not experience: new entrants must again be trained, and, if the work design and rewards are unchanged, the cycle of attrition is likely to repeat. The 2026 figures through May (729–821 employees) are on average 5.6% below the corresponding months of 2025, so the stabilization is only partial.

Attendance data point in the same direction. The HR report gives an overall annual attendance index of 75.6% and an average absenteeism rate of 6.3%, with the weaving mill showing the highest and the administration and railway units the lowest absence. The two indicators are defined on different bases (annual attendance index versus average share of time lost) and are therefore reported separately here rather than combined.

Table 4. Workforce indicators of the enterprise, 2021–2025

Indicator	2021	2022	2023	2024	2025
Workforce attrition rate, %	22.0	25.0	28.0	31.0	48.3
Absenteeism rate, %	4.8	5.2	5.8	6.1	6.3
Output per employee, UZS million	15	17	19	21	22

Indicator	2021	2022	2023	2024	2025
Formal kaizen proposals	0	0	0	0	0
Value-added time share, %	—	—	—	—	40

Source: HR Department records and author's calculations [24]. Value-added time share (40% against an estimated optimum of about 65% for the process) is the author's estimate from process observation.

Table 4 shows an unbroken deterioration of stability: attrition more than doubled between 2021 and 2025 and absenteeism rose by 1.5 percentage points, while output per employee grew from 15 to 22 million UZS (+46.7%). The last trend must be read carefully. In 2025 revenue per employee rose while headcount halved, which is more consistent with load intensification on the remaining staff than with a genuine productivity gain; according to the job demands–resources logic this is a precondition for further exhaustion and absence [18]. The Pearson correlation between absenteeism and output per employee over the five years is $r = 0.994$ ($p = 0.0005$), between attrition and output per employee $r = 0.845$ ($p = 0.072$), and between attrition and absenteeism $r = 0.818$ ($p = 0.091$). With $n = 5$, all three mainly reflect common upward trends and must not be interpreted as causal; what they do establish is that the three indicators moved together, and that no countervailing improvement mechanism, such as a suggestion system, was operating.

3.3. Diagnosis: motivation, voice and pay

Table 5 reports the worker survey. General job satisfaction (2.8/5) and pay fairness (2.4/5) are the lowest-rated items, and the full use of knowledge and skills is also rated low (2.6/5). At the same time, employees respond strongly to the factors that lean practices manipulate: they believe that 5S would raise efficiency (4.1), they would make more suggestions under an incentive (4.3), and they rate the effect of a rude supervisory style on performance at 4.5, which underlines the "respect for people" dimension.

Table 5. Weaving-mill workers' assessment of work and motivation ($n = 50$; mean score, 1–5)

Item	Mean score	Interpretation
General job satisfaction	2.8	Unsatisfactory
Fairness of pay	2.4	Low
Relationship with supervisor	3.1	Medium
Working environment and conditions	3.0	Medium
Use of own knowledge and skills	2.6	Low
Freedom to report problems to supervisor	2.9	Medium
Belief that 5S would raise efficiency	4.1	High
Would suggest more ideas if rewarded	4.3	High
Supervisor's rude behavior affects results	4.5	Very high

Source: author's survey, April 2026 [25].

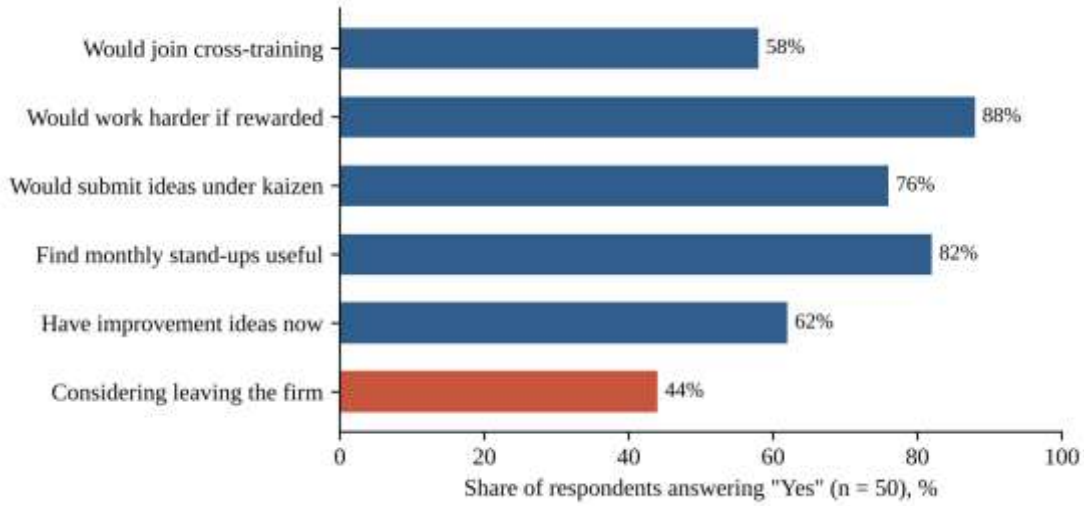

Figure 2. Attitudes of weaving-mill workers toward lean elements (n = 50)

Figure 2 shows that the potential for participation is large: 62% report that they already have improvement ideas, 76% would submit them under a kaizen system, 82% consider monthly stand-up meetings useful, 58% would join a cross-training programme and 88% say they would work harder if rewarded. Against this, 44% are considering moving to another employer. In the open-ended part, 76% named pay as the main problem, 58% the absence of career growth and 48% monotony; only 36% knew the 5S method. The picture is that of a workforce that is dissatisfied but not disengaged: its energy is not used because the enterprise offers neither channels for ideas nor rewards for them.

Table 6. Middle managers' view of the improvement culture (n = 18)

Question	Answer	n	%
Improvement proposals per department per year	None (no suggestion system)	14	78
	1–2, informal	3	17
	3–5	1	5
Do employees fear making suggestions?	Yes, often	11	61
	Sometimes	5	28
	No, they speak freely	2	11
Is there a formal suggestion system?	No	16	89
	Exists but does not work	2	11
Would a kaizen / suggestion system be useful?	Yes, very useful	15	83
	Perhaps useful	3	17

Source: author's survey, May 2026 [25].

Managers corroborate the diagnosis from the other side (Table 6): 78% report no proposals at all, 89% state that no formal system exists, 61% say employees often fear making suggestions, and all 18 consider a kaizen system at least potentially useful. This combination (willing employees, receptive managers, no mechanism) matches the observation in the lean literature that implementation fails less from lack of tools than from missing communication and management support [6]. It also means that the first step of the programme can be organizational rather than capital-intensive.

3.4. An integrated model for optimizing employee performance

On the basis of the diagnosis and Table 2, a three-layer model is proposed (Figure 3 shows the logic; Table 7 specifies the instruments). Layer 1 builds *competence and flexibility*: a skills matrix identifies who can perform which operation, and cross-training and job rotation extend each worker's repertoire, which reduces monotony, enables load balancing

when absence occurs and provides a visible career ladder through multi-skill grades. Layer 2 builds *participation*: kaizen circles of five to eight workers meet regularly to solve problems in their own area; visual boards display plan, actual output and open problems; 5S and short monthly stand-ups create the routine in which suggestions are heard and answered within a fixed period. Layer 3 builds *incentives*: the pay system is redesigned so that a variable part rewards quality, accepted kaizen proposals and certified additional skills. A balanced-scorecard-based monthly review with PDCA cycles closes the loop [23].

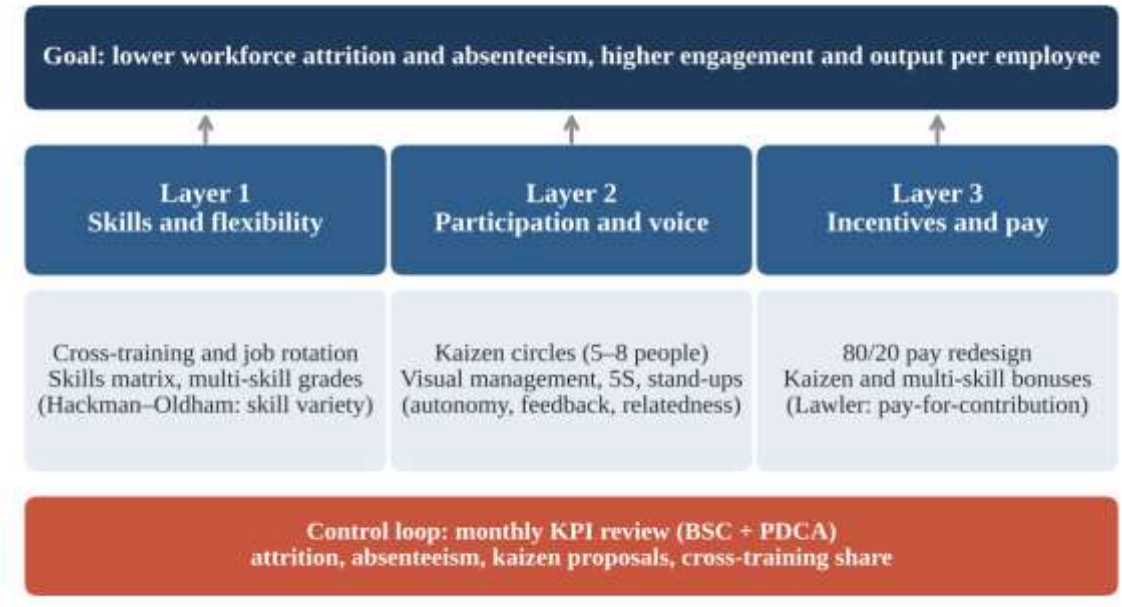

Figure 3. Three-layer integrated model for optimizing employee performance

Table 7. Instruments, indicators and responsibilities of the model

Layer	Instruments	Target indicators	Owner	Start
1. Skills and flexibility	Skills matrix; cross-training in 2–3 operations; scheduled job rotation; multi-skill grades	Cross-training share; absenteeism cover rate; absenteeism	Production managers, HR	Months 1–12
2. Participation and voice	Kaizen circles; visual management boards; 5S; monthly stand-ups; suggestion register with response deadline	Proposals per employee; share of implemented proposals; value-added time	Line managers, lean coordinator	Months 1–18
3. Incentives and pay	80/20 pay structure; kaizen bonus; multi-skill bonus; recognition	Pay-fairness score; attrition rate	Director, HR, finance	Months 12–27
Control loop	BSC dashboard; PDCA review; annual repeat survey	All of the above	Director	Continuous

Source: developed by the author.

The programme is staged over 36 months (2026–2028): diagnostics and a 5S/stand-up pilot in the weaving mill; kaizen circles and cross-training; pay redesign and extension to the printing and sewing mills; and finally institutionalization in standards, job descriptions and the scorecard. Piloting in the weaving mill is deliberate: it combines the largest headcount with the strongest dissatisfaction, and the survey indicates the clearest willingness to participate.

Pay redesign. The survey identifies pay as the main complaint and rates its fairness at 2.4/5. Following Lawler's pay-for-contribution logic [21], the proposal keeps 80% of pay as a stable base, graded by the skills matrix, and makes 20% variable, conditional on team

quality results, accepted and implemented kaizen proposals, and certified multi-skill competence (Table 8). The split inside the variable part is a design parameter to be calibrated in the pilot; it must be introduced without reducing the take-home pay of the existing base level, otherwise the instrument itself would trigger exits.

Table 8. Proposed pay structure

Component	Current situation (diagnosis)	Proposal	Purpose
Base pay (80%)	Pay perceived as unfair (2.4/5); 76% name pay as the main problem	Grade-based pay linked to the skills matrix; transparent grade criteria	Fairness, career steps
Quality / output bonus (part of 20%)	No link between team results and pay	Team bonus on quality and plan fulfilment, paid monthly	Collective responsibility
Kaizen bonus (part of 20%)	No suggestion system; 0 proposals	Fixed award for each accepted and implemented proposal	Voice, improvement
Multi-skill bonus (part of 20%)	Cross-training level below 10%	Premium after certification in an additional operation	Flexibility, retention

Source: developed by the author on the basis of the survey and the literature.

3.5. Expected results and economic assessment

Programme targets for month 36 are set against the 2025 baseline (Table 9). The central target is a reduction of the attrition rate from 48.3% to 15%; absenteeism is to fall toward 3%, the value-added time share to rise from 40% toward 65%, and output per employee to rise by about one third (from 22 to roughly 30 million UZS). These targets are objectives of the programme, not forecasts; they are consistent in direction with reported effects of rotation and enrichment on satisfaction and absenteeism, but their magnitude in this enterprise can only be established by the pilot.

Table 9. Baseline and target indicators of the programme

Indicator	Baseline (2025)	Target (month 36)	Direction
Workforce attrition rate, %	48.3	15	−33.3 pp
Absenteeism rate, %	6.3	≈3	−3.3 pp
Value-added time share, %	40	≈65	+25 pp
Output per employee, UZS million	22	≈30 (+36%)	+8
Formal kaizen proposals	0	5+ (system operating)	from zero
Pay-fairness score (1–5)	2.4	to be re-surveyed	—

Source: HR data [24]; targets set by the author.

The economic estimate uses the replacement-cost method. With a monthly wage of about UZS 3.5 million and 7.5 months of cumulative cost of recruitment, training and reduced output per leaver, the cost of replacing one employee is 26.25 million UZS; this is within the range typically discussed in the HRM literature, which expresses replacement cost as several months of pay [14, 15]. If the number of leavers falls from 502 (48.3% of 1,039) to 156 (15%), 346 separations are avoided and the saving is 9,083 million UZS per year. Adding effects of lower absenteeism, higher output and fewer quality defects gives total annual benefits of 11,008–11,588 million UZS and, after running costs, a net annual effect of 10,308–11,088 million UZS from the second year. Against estimated implementation costs of 600 million UZS, the midpoint net effect (10,698 million UZS) corresponds to a return of 17.8 times (Table 10).

Table 10. Indicative annual economic effect of the programme, UZS million

Item	Calculation	Value
Replacement cost per leaver	3.5 × 7.5 months	26.25
Avoided separations (502 → 156)	502 − 156	346
Saving from lower attrition	346 × 26.25	9,083
Total annual benefits (incl. absenteeism, output, quality)	—	11,008 – 11,588
Net annual effect (from year 2)	—	10,308 – 11,088
Implementation cost (programme)	—	600
Return on investment (midpoint net effect / cost)	**10,698 / 600**	**17.8×**
Sensitivity: only half of avoided separations (173)	173 × 26.25	4,541

Source: author's calculations on the basis of HR data [24].

The result is large relative to cost mainly because the baseline attrition is very high; it is therefore also sensitive to the assumed replacement cost and to how much of the attrition reduction is achieved. In the conservative case in which only half of the targeted reduction materializes, the saving from lower attrition alone is still about 4.5 billion UZS per year. The estimate also treats the 48.3% net decline as the number of separations, which understates actual separations if the enterprise hired during the year; refining the calculation with gross separation data from the HR information system is the first task of the pilot.

3.6. Discussion

Three points follow from the evidence. First, the enterprise's problem is not a shortage of motivation in the workforce but the absence of organizational mechanisms through which motivation can be expressed and rewarded. This matches the "soft lean" argument that cultural and participatory practices, rather than the tools alone, determine the success of lean [6, 7], and it explains why a technically oriented programme (5S, VSM) would probably fail to hold without Layers 2 and 3. Second, the apparent rise in output per employee should not be read as a success of management: when headcount halves, higher output per head can reflect overload, and unless demands are rebalanced, the same mechanism that produced the attrition will continue. Cross-training and rotation address this directly by enabling the redistribution of work. Third, pay is the central grievance, and kaizen alone would be perceived as extra work without extra reward; the 80/20 design, with variable pay tied to behaviors the enterprise wants, is the necessary link between participation and retention [21].

The study's limits must be restated. The results come from one enterprise and two small, non-random surveys; the five-point annual series supports description but not inference; the economic effect is a scenario based on programme targets; and the HR sheets for 2026 are not fully reconciled in scope. The findings should therefore be tested by the pilot design in the weaving mill, with a comparison group (for example, the printing mill in the first year) and a repeat of the survey after twelve months. In the broader context, the results apply most directly to other labor-intensive textile and garment enterprises in Namangan and in the Fergana Valley with similar workforce profiles.

4. Conclusion

The analysis of HR records and survey data at NT Holding Home Textile LLC shows an unstable and under-engaged workforce: headcount fell by 48.3% during 2025, absenteeism averaged 6.3%, no formal system for employee suggestions existed, and workers rated job satisfaction at 2.8/5 and pay fairness at 2.4/5. At the same time, the survey reveals a large untapped potential: 76% of workers would submit ideas under a kaizen system, 88% would work harder if rewarded, and all 18 managers regard such a system as useful.

A three-layer model integrating cross-training and job rotation, kaizen circles with visual management, and an 80/20 pay system with kaizen and multi-skill bonuses, controlled by a monthly scorecard, is proposed as a way to convert this potential into stability and productivity. Under the programme targets, the indicative net annual effect is 10.3–11.1 billion UZS, and a conservative scenario retains a substantial saving. These results are indicative, since they rely on one enterprise, small surveys and short series.

Practical implications are that enterprises should (i) measure gross separations, absence and proposals monthly; (ii) begin with low-cost organizational steps (stand-ups, suggestion register, skills matrix) before capital-intensive lean tools; and (iii) tie pay to skills and improvement without reducing base earnings. Further research should evaluate the pilot with a comparison group, extend the sample to other textile enterprises of the region, and test the relationships between lean practices, motivation and attrition on multi-enterprise panel data.

Author Contributions: conceptualization, methodology, data collection, analysis and writing, U.X.; supervision, [supervisor's name]. Funding: this research received no external funding. Data Availability Statement: the aggregated data are available from the author on reasonable request; the enterprise's HR records are used with the permission of its management. Conflicts of Interest: the author declares no conflict of interest.

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