LMS Analytics Strategy and Predictive Performance Reporting for Rychtenshane Community Housing Group

Prepared By :

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Executive Summary:

Learning & Compliance Performance Insights

Key Strengths

- **High Engagement in Mandatory Courses:** Mandatory courses show stronger engagement (80% completion) compared to regular courses (78%), despite being significantly more in volume (1,709 vs. 291).
- **Trafford Branch Leads in performance:** Trafford leads in both course completion (418 courses) and lowest overdue rate, indicating strong compliance culture and learning engagement.
- **Strong Role-Based Performance:** Network Technicians lead in performance (85% completion, 15% overdue), with Maintenance Technical and Support roles showing highest skill scores.
- **Finance Course Excellence:** Finance category boasts the highest completion (87%) and lowest overdue (13%), with a strong average skill score (3.07) and performance score (80.71), showcasing domain strength.
- **Q4 Shows Consistent Performance**: Despite other quarters having higher course completions, Q4 has the lowest average overdue courses (93**)**, suggesting improved end-of-year learning accountability and completion urgency.

Key Weaknesses

- **Rocky Start in 2025 and Q1 Overdue:** 2025 shows a weaker LMS engagement trend, especially in Q1. This disrupts the usual trend where Q2 typically performs best, and signals a need for a year-start compliance push.
- **Compliance Courses Lag:** Compliance has the lowest completion rate (77%) and highest overdue (23%). Payroll compliance is a critical weak spot (73% completion, 27% overdue).
- **Skill Gaps Persist in High-Demand Roles:** Despite high learning hours, IT roles show the highest skill gaps (e.g., IT Support Officer: 118), and System Analysts record the lowest average score (78) and skill score (2.92).
- **Wythenshawe Central Underperformance:** This location shows lowest course completion, highest overdue, lowest skill score (2.98), and least time spent learning—requiring immediate intervention.
- **Disparity in Course Allocation Across Teams:** Facilities team has significantly fewer courses assigned (276) and lowest LMS hours (349), yet show high completion and lower skill gaps, indicating inconsistent expectations across teams.
- **Underutilization of Mobile and Screen Readers:** Desktop is dominant (919 hrs) vs. mobile (782 hrs). Screen reader usage, though beneficial, is underused in essential training areas (e.g., cybersecurity, onboarding).

Insight Narratives: Trends, Risks, and Opportunities Derived from the Dashboard

This section summarizes the analytical observations from our Power BI dashboard, built on enriched LMS data. The narratives are categorized under three main pillars: Trends, Risks, and Opportunities.

1. Trends

- **Overall Training Engagement:**
  With 2000 total courses taken and an 80% overall completion rate, the organization demonstrates strong engagement with mandatory training. IT and Facilities departments lead with over 82% course completion, indicating well-established compliance habits in technical teams.
- **Quarterly Completion Patterns:**
  From 2018 to 2024, completions have generally trended upward, peaking in Q1 2024 (101 completions). However, a sharp decline is seen in 2025, with completions dropping to 12 by Q1 highlighting a sudden disruption in training participation.
- **Role-Based Completion Patterns:**
  The highest-performing roles (Network Technician, Facilities Manager, Cleaner,) maintain 83–85% completion, while Payroll Specialist, Maintenance Technicians, and Plumbers show the lowest engagement (~78–80%). This suggests a need for more targeted interventions for field-based roles.
- **Location-Wise Uniformity:**
  Completion rates are consistent across sites (mostly at 80%), with the Trafford Branch slightly outperforming others (81%).
- **Role and Team-Specific Skill Distribution:**
  Most roles and teams maintain average skill scores close to 3.0–3.1. Notably, Maintenance Technicians (3.13), Support Specialists (3.10) and Payroll Specialists (3.08) show relatively higher skill levels, while Electricians (2.90) and System Analyst (2.92) lag slightly.
- **Course Quality Variation:**
  Courses such as “Health & Safety” (3.30) and “Customer Service” (3.09) receive higher skill ratings, suggesting they are more impactful. On the other hand, “Safeguarding Adults” (2.80) and “Cleaning” (2.89) appear to have less perceived or actual skill improvement.
- **Skill Gap Centralization in IT and Compliance:**
  IT has the highest skill gap count (309 gaps in Team), followed by Compliance and Systems Training(413 in category). This indicates that technical and regulatory domains face greater challenges in knowledge retention or application.
- **Balanced Engagement Across Devices**
  Engagement is spread fairly evenly across Desktop (35.87%), Tablet (32.48%), and Mobile (31.66%), demonstrating flexibility in how employees access learning.

- **Steady Average Engagement Time**
  The average learner engagement sits at ~75 minutes per course and ~77 days between enrollment and last access, suggesting long but spaced learning durations, possibly due to work interruptions or part-time learning culture.
- **Accessibility and Inclusion**
  21% of users rely on screen readers, and they demonstrate higher average scores (81.08 vs. 79.88) and stronger feedback ratings. This reflects positively on the inclusiveness and usability of the LMS platform for visually impaired users.
- **Stable Yet Seasonal Completion Patterns**
  Training completions steadily increased from 2018 to 2024, with visible seasonal dips and surges (notably Q2 drops and Q4 peaks). Forecasting predicts a modest rebound after a sharp drop in early 2025, suggesting cyclical fluctuations may persist into 2026–2027.

2. Risks

- **2025 Training Drop-Off:**
  The sharp decline in course completions in Q1 and Q2 2025 is concerning. Despite historical engagement, only 12 completions occurred in Q1 possibly due to policy changes or workloads. This drop poses risks to compliance and performance continuity.
- **Overdue Course Backlog:**
  Roughly 20% of assigned courses remain overdue. Which may erode completion momentum and compromise team readiness.
- **Delayed Completion Time:**
  The average time to complete a course stands at 32 days a relatively long window. Prolonged completion cycles might indicate scheduling conflicts or insufficient training prioritization.
- **Disengagement Among Certain Roles:**
  Lower course completion among certain field roles (e.g., Payroll Specialist, Finance Analyst) indicates uneven motivation or access issues. Without intervention, this could widen future skill gaps.
- **Underperformance in Specific Roles and Courses:**
  Roles like Electricians and Systems Analysts show low average scores (2.90–2.92). Similarly, courses like “Data Protection” and “Cybersecurity Essentials” show relatively poor performance, despite their regulatory importance.
- **Under-engaged Roles**
  Facilities Managers spent only 80 hours total, significantly less than peers. This under-engagement could lead to skill depreciation and lower compliance.
- **Lag in Systematic Feedback or Monitoring**
  Enrollment vs. last access indicates a long tail of extended inactivity, suggesting courses often remain open far beyond their intended engagement periods.

3. Opportunities

- **Early Warning System:**
  Monitoring overdue percentages and sudden quarterly dips can serve as early indicators of organizational disengagement. Alerts or automated nudges can help mitigate emerging training gaps.
- **Targeted Coaching for Bottom Roles:**
  Custom strategies such as hands-on workshops, role-specific microlearning, or supervisor nudges could uplift low-performing roles, especially among field teams.
- **Faster Time-to-Completion Campaigns:**
  Streamlining access, setting micro-deadlines, or incentivizing early completion can reduce the 36-day average training time and boost responsiveness.
- **Expand High-Performance Practices:**
  Teams and roles with the highest completion rates (e.g., IT Support, Facilities) could serve as case studies to replicate their strategies across other teams.
- **Dashboard-Driven Planning:**
  Continued use of dashboards enables real-time insights and proactive training management, supporting strategic HR planning and performance interventions.
- **Focus Learning on Low-Performing Courses & Roles:**
  Low-score courses can be revised using engaging formats (e.g., scenario-based learning, gamification). Underperforming roles could benefit from mentorship, job aids, or blended learning.
- **Location-Based Optimization:**
  Civic Centre Hub shows the highest average skill score (3.06); their training practices could be audited and adapted to raise scores across other sites.
- **Location-Based Optimization:**
  Civic Centre Hub shows the highest average skill score, their training practices could be audited and adapted to raise scores across other sites.
- **Mobile-First Enhancements**
  Given that ~32% of users prefer mobile, optimizing training modules for mobile-first learning (bite-sized content, offline access) could increase completion rates and reduce overdue percentages.

Course Optimization Using Forecast and Regression Models

Use forecasting outputs to plan course delivery around seasonal dips and adjust curriculum based on regression insights, possibly refining course length, pacing, or interactivity to drive performance improvement.

Advanced Analytics

This section provides a comprehensive statistical analysis of training patterns and their potential impact on employee performance. The key components analyzed include forecasting training completions, regression analysis of performance scores, and ANOVA tests to compare skill differences across teams.

1. Forecasting: Predict Training Completions

In this section, we aimed to analyze historical training completion trends and build forecasting models to predict future completions. Accurate forecasting supports proactive training resource allocation and organizational planning.

1.1. Quarterly Forecast (Next Quarter – SARIMA)

We first modelled the number of quarterly training completions using a Seasonal ARIMA (SARIMA) model, trained on historical completions from 2018 to mid-2025. The goal was to predict the number of courses expected to be completed in Q3 2025.

- Model Used: SARIMA
- Forecasted Quarter: Q3 2025 (2025-09-30)
- Predicted Completions: 27.46

This result is visualized below, where the SARIMA forecast is compared against historical quarterly completions:

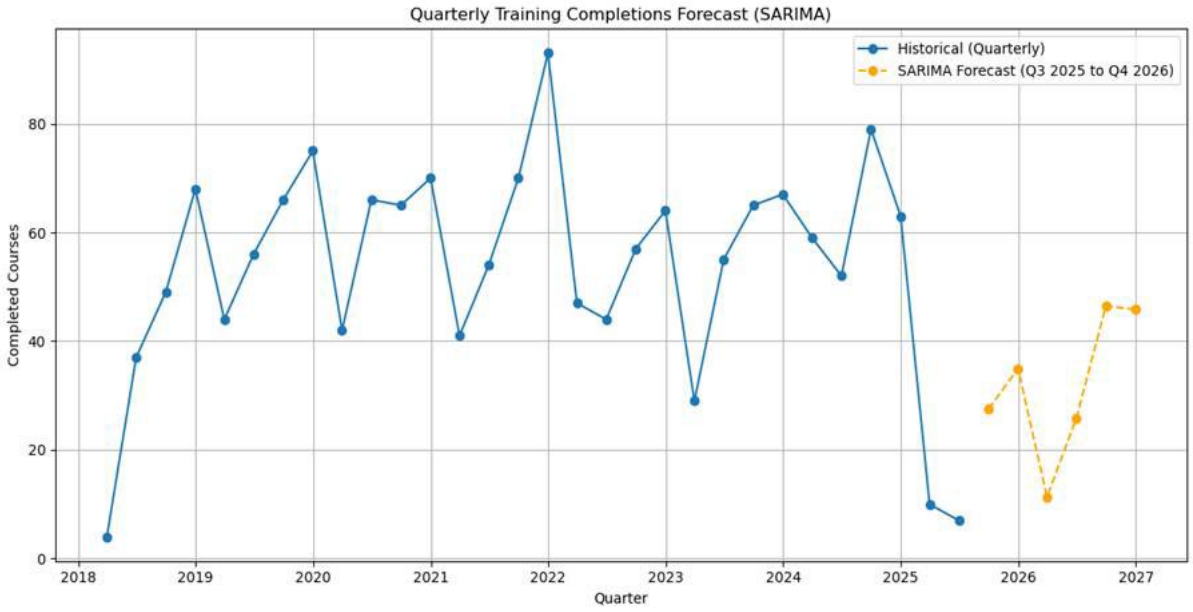

```
SARIMA Forecast for Next Quarter: 2025-09-30    27.46
Freq: Q-DEC, dtype: float64
```

1.2. Multi-Quarter Forecast (Q3 2025 to Q4 2026 – SARIMA)

Next, we extended the SARIMA model to forecast completions for the next six quarters (Q3 2025 through Q4 2026). This helped us understand how completions might trend beyond the immediate quarter.

Quarter	Forecasted Completions
2025-09-30	27.46
2025-12-31	34.97
2026-03-31	11.35
2026-06-30	25.79
2026-09-30	46.44
2026-12-31	45.83

This extended forecast is visualized in the graph below:

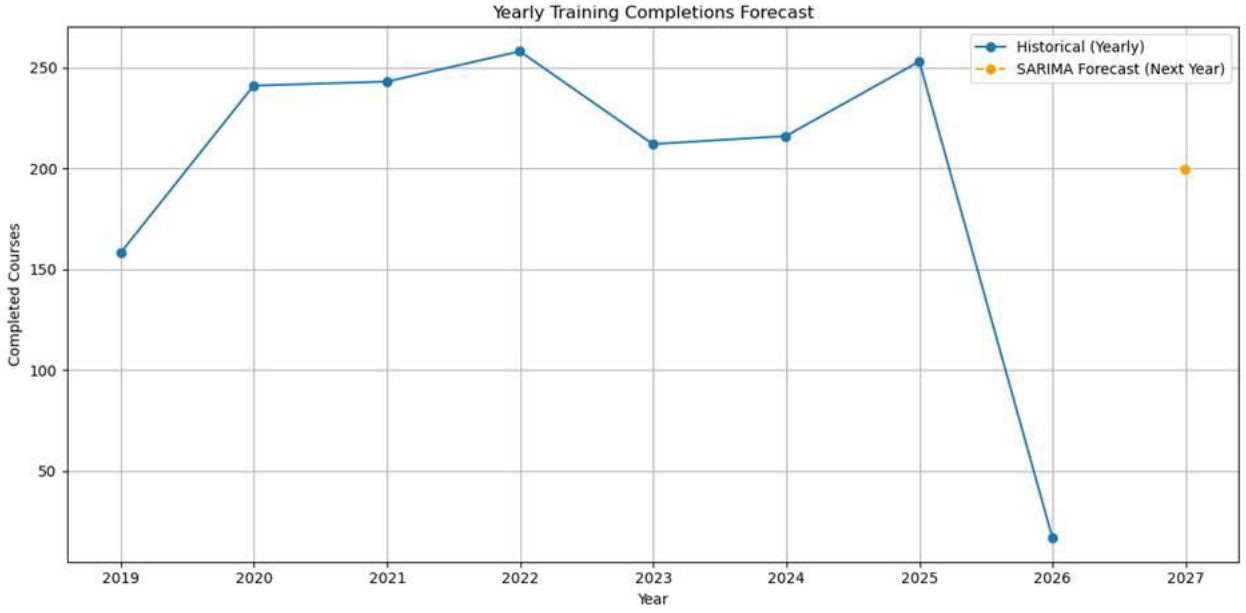


1.3. Yearly Forecast (Next Year – SARIMA)

To capture longer-term trends, we also aggregated historical completions by year and trained a SARIMA model on this yearly series. The objective was to predict the total number of training completions expected in 2026.

Predicted Completions for 2026 = 199.57

This forecast is visualized below:



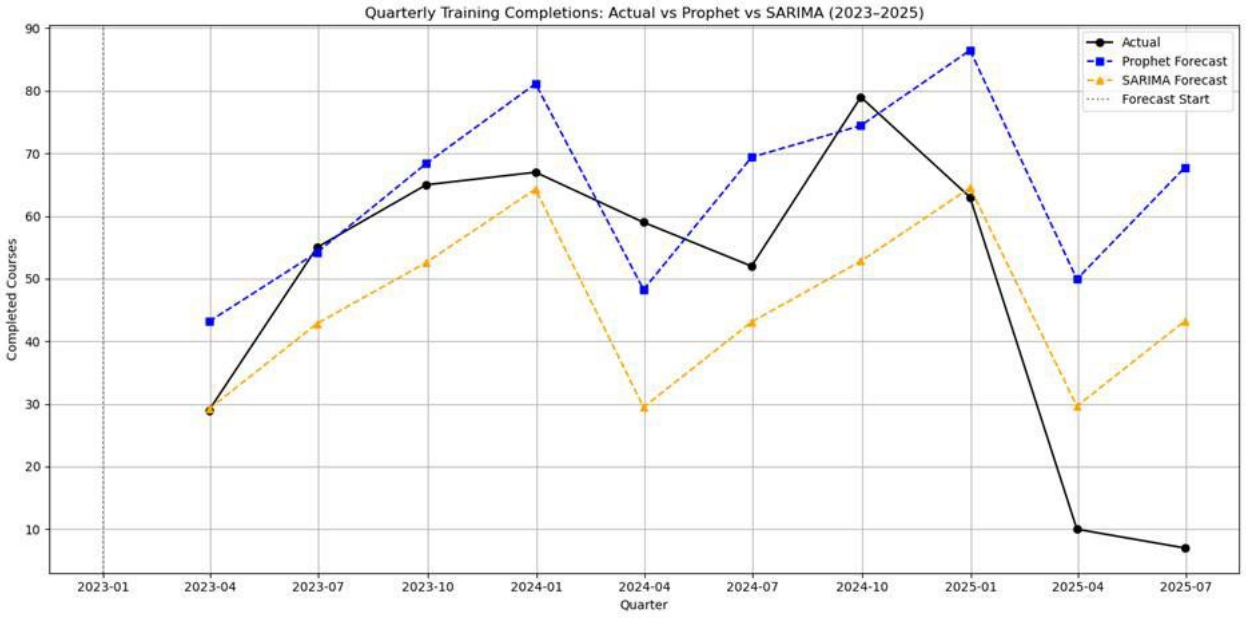

```
SARIMA Forecast for Next Year:
2026-12-31    199.75
Freq: A-DEC, dtype: float64
```

1.4. Model Comparison: SARIMA vs Prophet vs Actual

In addition to SARIMA, we implemented Facebook's Prophet model on the same quarterly dataset to compare predictive performance. The forecasts were benchmarked against actual training completions from Q1 2023 to Q2 2025.

```
...
    Forecast Comparison (2023-2025):
         Quarter  Actual  Prophet  SARIMA
    0 2023-03-31      29     43.1    29.2
    1 2023-06-30      55     54.2    42.8
    2 2023-09-30      65     68.4    52.6
    3 2023-12-31      67     81.1    64.3
    4 2024-03-31      59     48.3    29.5
    5 2024-06-30      52     69.4    43.1
    6 2024-09-30      79     74.4    52.8
    7 2024-12-31      63     86.5    64.5
    8 2025-03-31      10     49.9    29.7
    9 2025-06-30       7     67.8    43.3
```

The visual comparison of all three series is shown below:



1.5 Interpretation

The SARIMA model produced strong short-term forecasts, particularly aligning closely with actual completions in earlier quarters such as Q1 and Q3 of 2023. Notably, SARIMA handled the sharp decline in training completions during 2025 better than Prophet, making it more accurate during periods of unexpected downturn.

On the other hand, the Prophet model demonstrated greater flexibility in capturing overall growth trends but consistently overestimated completions throughout 2024 and 2025. It failed to anticipate the steep drop to just 10 and 7 completions in early and mid-2025, resulting in significantly larger forecast errors than SARIMA during those periods.

Training completion rates are highly seasonal, with clear fluctuations across quarters peaking mid-year and declining sharply in 2025.

Sudden dips in completions (e.g., Q1 and Q2 of 2025) indicating that external organizational or policy shifts (e.g., budget constraints, onboarding cycles, or system changes) may have influenced participation.

2- Regression Analysis: Impact of Training Time and Frequency on Performance Scores

2.1 Objective

his analysis investigates how two key training variables training duration and course frequency influence overall employee performance. By fitting a linear regression model, we aim to quantify the relationship between:

- **DurationMinutes**: Total time (in minutes) an employee spent on completed training.
- **CourseFrequency**: Number of completed courses by an employee.

We conducted the regression using two approaches:

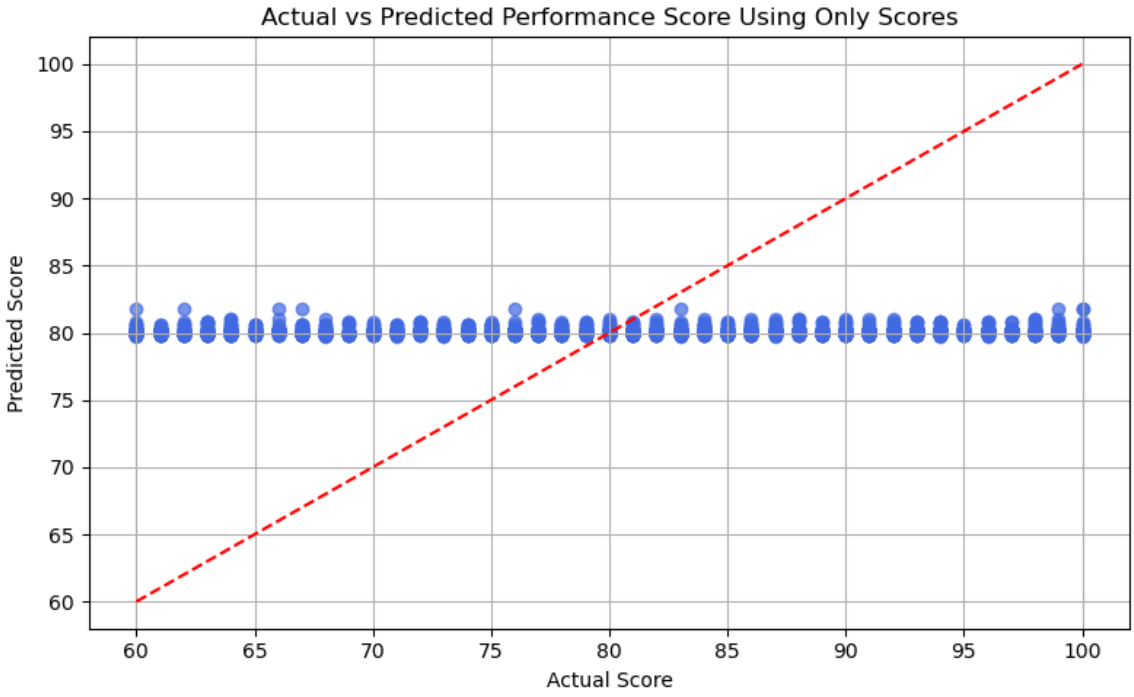
- Another using the raw performance score.

One using the combined average of skill assessment scores (communication, technical efficiency, teamwork).

2.2 Model Results

A. Regression Using Raw Performance Score (0–100 Scale)

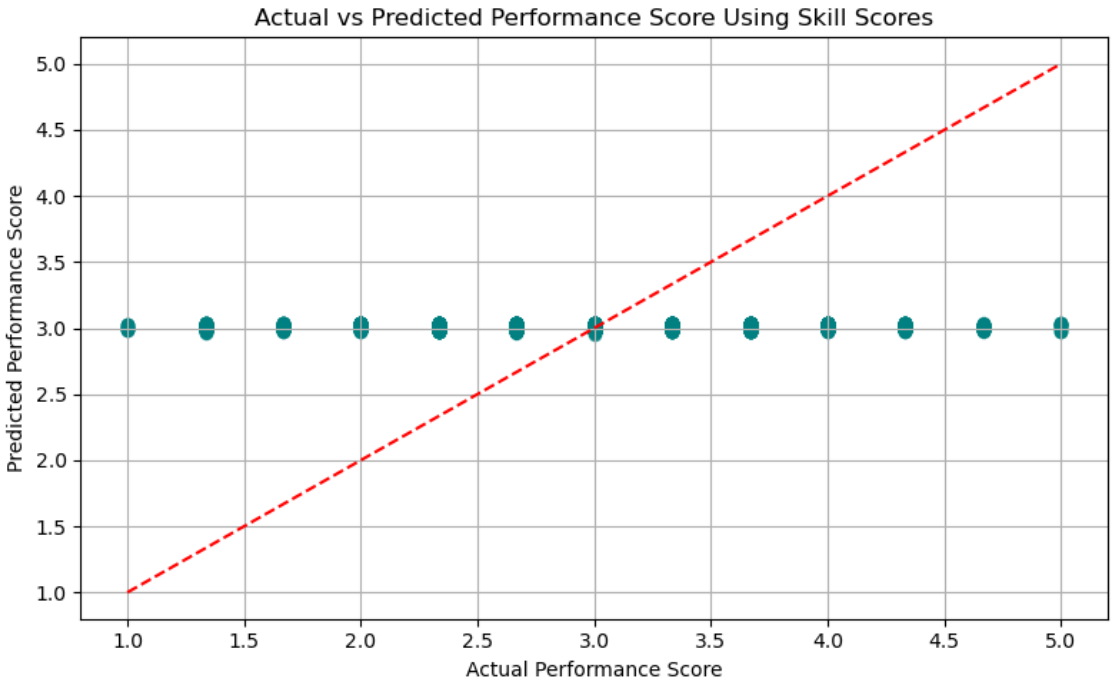
```
Linear Regression Results
Intercept              : 79.55
DurationMinutes Coef   : -0.0001
CourseFrequency Coef   : 0.2553
```



B. Regression Using Combined Skill Score (0–5 Scale)

(average of: Communication, Technical Efficiency, Teamwork)

```
Linear Regression Results (Trained on Full Data)
Intercept               : 2.97
DurationMinutes Coef    : 0.0007
CourseFrequency Coef    : -0.0041
```



2.3 Interpretation

DurationMinutes

- In the skill-based model, additional time was associated with slightly better performance (positive coefficient: 0.0007).
- In contrast, the raw score model yielded a small negative coefficient (-0.0001), suggesting that longer durations might not always lead to better scores.

Insight

Time alone doesn't guarantee improved performance. It may reflect difficulties, distractions, or inefficiencies in training.
E.g., users spending longer might be struggling or multitasking.

CourseFrequency

- The raw score model showed a stronger positive association (0.2553), indicating that completing more courses clearly contributes to higher performance.
- The skill-based model, however, showed a slightly negative effect (-0.0041), hinting at diminishing returns on skill metrics for high-volume course-takers.

Insight

Repetition helps boost scores, but improvement in skill application may require deeper or more targeted learning formats.

2.4 Conclusion & Recommendations

The regression analysis confirms that both training duration and course frequency positively influence performance, though the effect sizes are modest. Course frequency appears to be a more meaningful predictor than total duration, hinting that variety or repetition of learning may matter more than total time investment. From a policy perspective: 1- Encourage structured multi-course training paths rather than isolated long-duration courses. 2- Monitor and optimize training hours to ensure time spent translates into measurable performance gains.

3- ANOVA Analysis: Evaluating Performance Score Variability Across Teams

To investigate whether employee performance significantly differs across organizational teams, we conducted a one-way Analysis of Variance (ANOVA). This method tests if the mean performance scores across multiple groups (teams) vary in a statistically meaningful way.

3.1 Objective

Determine whether performance score disparities exist across departments, suggesting potential differences in training effectiveness or team-level dynamics.

In methodology, each employee's average performance score was calculated as the mean of:

- SkillScore_Communication
- SkillScore_TechEfficiency
- SkillScore_Teamwork

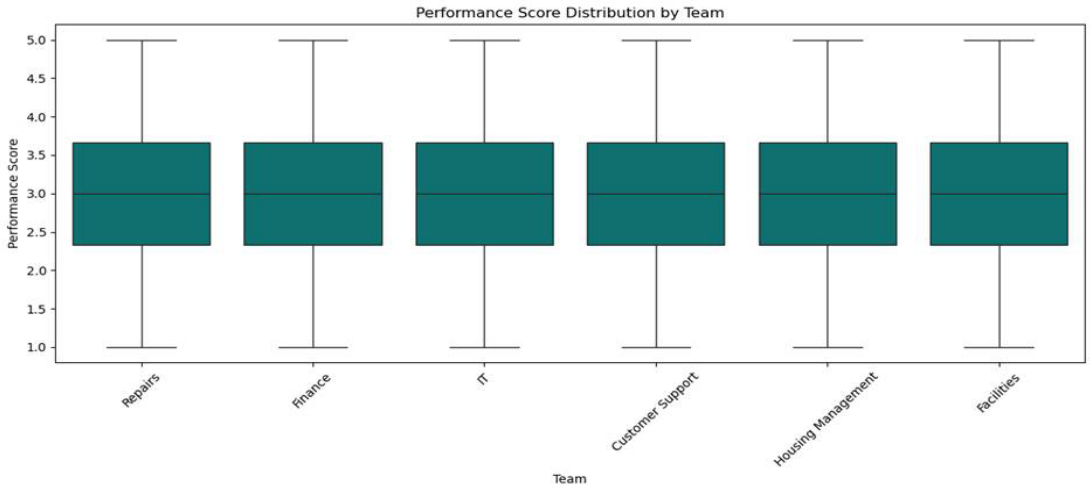
3.2 Results

Skill Area	F-statistic	P-value	Conclusion
Communication	1.31	0.2554	No significant difference across teams
Technical Efficiency	0.18	0.9688	No significant difference across teams
Teamwork	0.33	0.8974	No significant difference across teams
Overall Performance	0.79	0.5560	No significant difference across teams

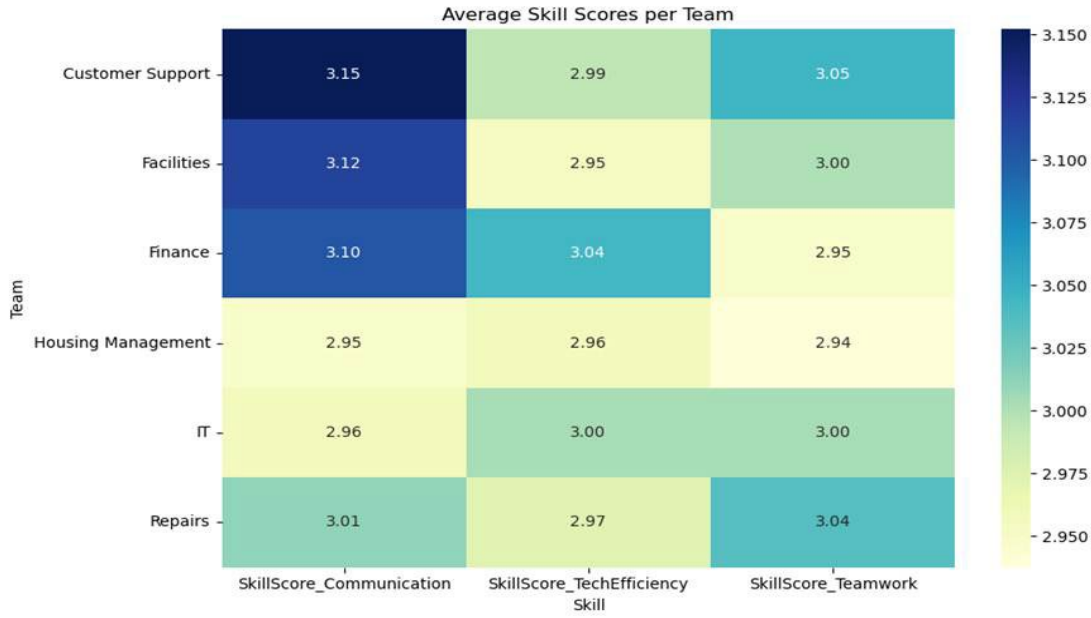
```
ANOVA Results:
F-statistic: 0.7911
P-value: 0.5560
Conclusion: No significant difference in performance scores between teams.
```

3.3 Visual Insights

- The boxplot as shown in figure illustrates the performance score distribution by team, showing consistent median scores and interquartile ranges across all departments.



- The heatmap (Figure below) displays the average skill scores per team. While some variations are visible (e.g., slightly higher communication scores in Customer Support), these differences were not statistically significant.



3.4 Interpretation

The p-values for all skill areas and overall performance scores were above the 0.05 threshold, indicating no statistically significant difference in performance scores between teams. This suggests a consistent training and skill development experience across departments, with no team outperforming or underperforming significantly on average.

3.5 Conclusion

Based on the ANOVA results, we conclude that employee performance in terms of communication, technical efficiency, and teamwork is uniform across teams. This reinforces the notion that the training program offers a balanced impact regardless of departmental assignment.

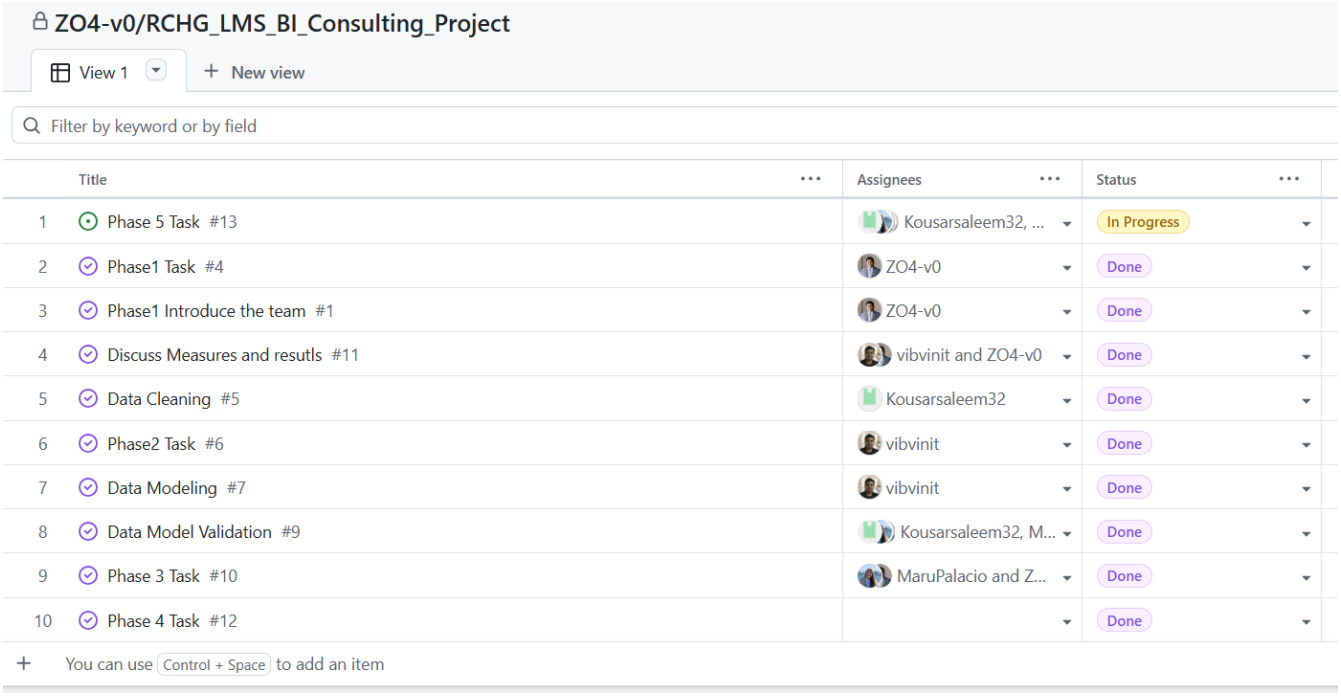
Team Collaboration & Project Reflection

Team Roles & Division of work, Strengths, Weakness

Team Members	Responsibilities	Responsibility Reason	Strengths	Weakness
Joefer Cosio	Project Organizer, Power BI Reporting, Github Submission	Expertise, Interest	Excel, Power BI, Leadership skills	Python
Kousar Saleem	Data Cleaning and Statistical Analysis, Report Creation	Expertise, Interest	Excel, SQL, Python	Power BI
Mariel Palacio	Statistical Analysis, Github Readme	Expertise, Interest	Python	SQL
Vineet Khurana	Data Modelling, Report Creation	Expertise, Interest	Excel, Power BI	Python

Workflow methodology

- We used ***Kanban Methodology*** and created a project on Github to share and track the tasks. We also created an excel worksheet to track the tasks.



Phase	Category	Checkbox	Target Date	Date Completed	Index	TASK	Output
PHASE 1	Define	☑	23-Jul	23-Jul	1	Team Introduction & Setup	Vineet , Mariel , Kousar , Joe
PHASE 1	Define	☑	23-Jul	23-Jul	2	Define The problem	RCHG Wants to Launch LMS to centralize learning efforts and leverage data driven insights to improve staff training , compliance , and performanc
PHASE 1	Define	☑	23-Jul	23-Jul	3	Understand the project	Deliver analytical solution for RCHG using the LMS data. That answer the 7 Business Questions and proving by Statistical Techniques.
PHASE 1	Define	☑	23-Jul	23-Jul	4	Identify Key Business Questions	Identified 21 Key Questions Refer to [Table] Business Questions
PHASE 1	Define	☑	23-Jul	23-Jul	5	Define the Success Criteria	Identified 6 Success Criteria
PHASE 1	Define	☑	23-Jul	23-Jul	6	Set-up and Requirements	Identified tools to complete the project
PHASE 1	Define	☑	23-Jul	23-Jul	7	Upload Dataset	GITHUB LINK
PHASE 1	Define	☑	23-Jul	23-Jul	8	Understand the data	3 Dataset , 22x2001 , 3x19 , 4x958
PHASE 1	Define	☑	23-Jul	23-Jul	9	Data Cleaning	Perfrom Data cleaning Steps
PHASE 1	Define	☑	23-Jul	23-Jul	10	Upload Clean Dataset for the team	GITHUB LINK
PHASE 2	Model	☑	24-Jul	24-Jul	1	Determine Data Architecture	Snowflake schema for efficient and eliminate redundancy
PHASE 2	Model	☑	24-Jul	24-Jul	2	Design dimension table and fact table	Data Modeling
PHASE 2	Model	☑	24-Jul	24-Jul	3	Import Data and Manage Relationship	Done in PowerBi GITHUB LINK
PHASE 2	Model	☑	24-Jul	24-Jul	4	Data Model Validation	Done in PowerBi GITHUB LINK
PHASE 3	Analysis	☑	25-Jul	25-Jul	1	Statistical Analysis	Done in PowerBi GITHUB LINK
PHASE 3	Analysis	☑	25-Jul	25-Jul	2	Business Question Analysis	Done in PowerBi GITHUB LINK
PHASE 3	Visualization	☑	25-Jul	26-Jul	3	Power BI Data Model Setup	Done in PowerBi GITHUB LINK
PHASE 3	Visualization	☑	25-Jul	26-Jul	4	Dashboard Development	Done in PowerBi GITHUB LINK
PHASE 3	Visualization	☑	26-Jul	27-Jul	5	Dashboard Testing & Validation	Done in PowerBi GITHUB LINK
PHASE 4	Insights	☑	26-Jul	27-Jul	1	Key Findings	Done By Vineet
PHASE 4	Insights	☑	28-Jul	27-Jul	2	Business Analysis	Done By Vineet
PHASE 4	Insights	☑	28-Jul	27-Jul	3	Recommendations	Done By Vineet
PHASE 5	Documentation	☑	28-Jul	28-Jul	1	Technical Documentation	Done By Vineet
PHASE 5	Documentation	☑	28-Jul	29-Jul	2	Business Report Writing	Done by Kousar
PHASE 5	Documentation	☑	28-Jul	29-Jul	3	README & Repository Documentaion	Done by Kousar
PHASE 5	Documentation	☑	28-Jul	29-Jul	4	Team Collaboration Reflection	Done By Vineet
PHASE 5	Documentation	☑	28-Jul	30-Jul	5	Final Review	Done By All
PHASE 5	Documentation	☑	28-Jul	30-Jul	6	Submission	Done By All
PHASE 5	Documentation	☑	28-Jul	30-Jul	7	Linkedin Posting	Done By All

Collaboration tools

- Slack

(Screenshot of few conversations)

Joe Cosio 12:57 AM

New Page : Engagement Dashboard :
Business Question
Device usage breakdown
Time spent on courses by role
Time spent on courses by location
Access trends (LastAccessDate vs. EnrollmentDate)

1. Bar chart to show time spent by roles in hours highlighting role with highest time spent and role with lowest time spent
2. donut chart show breakdown of device usage count and percentage of total
3. column chart show total timespent by location

4. Im having trouble understanding the "Access trends (LastAccessDate vs. EnrollmentDate)" seems so vague. so what i did is show a histogram distribution of "engagement" Lastaccess - enrollment dates
split by completion status to show the overall distribution

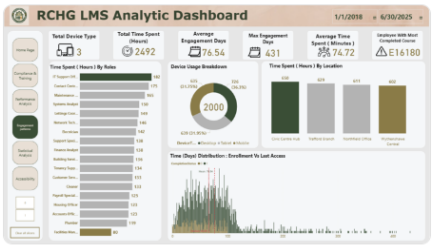
Insights ; Average engagement in days is 76.54days
Majority of courses final access happens early <100days
completed course mostly happen within first 2 months (60days)
200+days are considered outliers , tailing distribution

added also 6 cards

1. total device type
2. total time spent (hours)
3. average engagement days
4. Max engagement day
5. average time spent in courses (minutes)
6. employee with most completed course = E16180 = 10 completed course

(edited)

image.png



Tomorrow i will compile the statistical analysis done by Mariel and Kousar. and will try to replicate in powerBI (if i cant i will paste as pictures (screenshot))

by monday i will continue the last page accesibility. then we can proceed with complete inisghts and analysis and documentation

Please feel free to provide inputs , comments or any modification.
Open to any suggestions or recommendations

Sharing the powerBI file

Binary

01 **RCHG_LMS_PowerBI_Report_Updated.pbix**
Binary

Kousar Saleem 4:37 PM
Great Job @Joe Cosio and @Vineet Thanks.🙂

Hi Team,
I wanted to share the progress on Statistical Insights .

1. Forecasting: Predict Training Completions
Initially, I used SARIMA to forecast quarterly training completions. However, after reviewing Mariel's work with Prophet, I thought it would be beneficial to compare both models, especially if we plan to finalize one method for reporting or deployment.
Attached is the comparison between actual completions and both models:
From the graphs and error analysis, SARIMA seems to track the earlier fluctuations more accurately (especially 2023–2024), while Prophet tends to overshoot some values. Still, we can discuss this in tomorrow's meeting and decide which approach aligns better with our use case.

2. Regression: Modeling Impact of Training Time and Frequency on Performance Scores
I explored this from two perspectives:
Approach A – Individual Skill Scores
Using:
SkillScore_Communication, SkillScore_TechEfficiency and SkillScore_Teamwork
The Regression Output I got is:
Intercept : 2.97
DurationMinutes Coef: 0.0007
CourseFrequency Coef: -0.0041
Approach B – Combined Normalized Score
I created a single performance score by averaging the three skill scores and a normalized course score (scaled to 1–5).
Regression Output:
Intercept : 3.14
DurationMinutes Coef: 0.0005
CourseFrequency Coef: 0.0147
Approach B reflects a cleaner and more interpretable trend (i.e., both training time and frequency positively correlate with overall performance). We can decide which to present as our main result or include both for comparison.

3. ANOVA: Skill Score Differences Across Teams
Lastly, I ran ANOVA tests to assess whether there are statistically significant differences in skill scores between teams. My results match Mariel's findings:
ANOVA Summary:
F-statistic: 0.7911
P-value: 0.5560
Conclusion: No significant difference in performance scores between teams.
This supports the idea that team assignment doesn't introduce bias into training outcomes.

Following up on our analysis, I've created the full README for the Statistical Insights section.
The draft README is complete except for the plots. Once we all confirm the preferred results and visualizations I'll:
- Upload the corresponding plots to GitHub
- Link the images directly in the README so it's fully self-contained

Please have a look at the analysis details, and let's finalize the versions we want to go with.

2 files

image.png
PNG

readme.md
Markdown (raw)

1

Mariel Palacio 7:00 AM

Hi team,

I completely agree with Kousar's analysis in all three areas.

1. Forecasting:

I'm not very comfortable with SARIMA, but I do recognize that Prophet tends to overshoot in some cases. However, I chose Prophet for this task because I believe it captures the overall trend well.

Thank you, Kousar, for the comparison, it's very helpful!

I've also added my latest prediction graphs, where we can clearly see the trends in course completions and their seasonality.

2. Regression:

I think Approach B is a great idea. Since the goal is to develop more skilled employees, using an averaged and normalized score seems more meaningful and representative.

3. ANOVA:

Just to add to Kousar's point. I think it would be interesting to present this analysis as a guiding question:

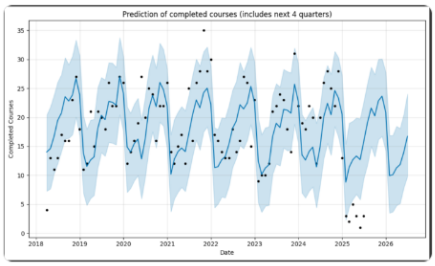
Is RCHG aiming for course results to be unbiased by team assignment, or seeking to address more competitive teams?

That could help them define where to focus their efforts moving forward/

Also, since there's no significant difference across teams, maybe we can try grouping the results by employee roles instead.

This might reveal more meaningful patterns and help us create cleaner visuals and a more focused narrative.

Screenshot 2025-07-27 225950.png



Vineet 11:43 AM

@Kousar Saleem @Mariel Palacio

1. Forecasting: Predict Training Completions - From the comparison, it seems SARIMA is more closer to accurate value than PROPHET

2. **Regression:** I think and ***please correct me here*** the task is to see the training time and frequency impact on performance score which is the score field. We don't have to look at skillscore here but just the score values.

3. **ANOVA -** We can state the null hypothesis that there is performance disparities within departments. Alternate hypothesis would become there is no performance disparities within department. We can conclude that we reject the null hypothesis. (edited)

@Joe Cosio Please update us on the BI report and let us know if you want me to work on the presentation. @Kousar Saleem we can work on the presentation together if you would like.

@Joe Cosio Below are few suggestions on BI report you shared:

1. I suggest we put the slicer on the top left just before the date so its more visible and accessible. We can use dropdown as it will make report more efficient
2. I also feel that the visualization title is a bit long, there's scope to reduce the length but i leave it to your judgement
3. Compliance & training> Count of total course &% completed course by role - Not all roles are there in the visualization
4. Performance analysis > Avg score & course frequency by course - The figures show in the chart is for the skill gap. We need to change the visualization Title
5. Performance Analysis - We need to add review frequency as per the requirement in the task
6. I suggest instead of showing employeeid, we should show employee name.
7. Engagement patterns > I think your approach to enrolment vs last access is spot on

(edited)

Challenges Faced

- **Time Zone and Availability Constraints:** Coordinating across different time zones and aligning with everyone's availability posed a challenge in making timely decisions and finalizing tasks. To overcome this, we leveraged collaboration tools such as Slack and Microsoft Excel to delegate responsibilities, maintain visibility on task progress, and ensure asynchronous communication was effective.
- **Dataset Quality and Alignment:** The initial dataset provided had inconsistencies and, upon cleaning, did not yield meaningful insights. This issue was promptly raised, and a revised dataset was shared, which resolved the misalignment and allowed the team to proceed with analysis.

Lessons Learned

- **Adaptability:** Working in a team often requires flexibility—not only in terms of schedules but also in adapting to different viewpoints. Balancing individual contributions with team consensus was key to driving the project forward.
- **Communication:** Establishing clear communication channels and selecting the right tools is critical, especially when working remotely or across different time zones. Proactive updates and regular check-ins significantly improved collaboration and clarity.
- **Leverage on Team Strengths:** Each team member brought unique skills and perspectives. Recognizing and utilizing these strengths helped us divide tasks more efficiently and deliver higher-quality results.
- **Improving technical skills:** The project provided a valuable opportunity to enhance technical capabilities, particularly in statistical analysis and data interpretation, which contributed to both personal and team growth.

Strategic Recommendations

1. Address Compliance Category Gaps Proactively

- Prioritize Payroll Compliance and Finance team compliance performance with dedicated refreshers, tracked deadlines, and automated follow-ups.
- Consider segmenting compliance training by risk/criticality level to better align content with learner relevance.

2. Boost Q1 and Start-of-Year Learning Engagement

- Launch quarterly campaigns or learning challenges to combat Q1 inertia and avoid backloading completions into Q4.
- Include manager-level nudges or KPI integration to foster accountability early in the year.

3. Strengthen Underperforming Roles and Locations

- Deploy focused training interventions for Wythenshawe Central and System Analysts, including skill-specific mentoring or diagnostics.
- Apply best practices from Trafford and Network Technicians as internal benchmarks.

4. Standardize Training Load Across Teams

- Conduct a course load audit to ensure equitable and role-appropriate distribution across teams like Facilities, Repairs, and Customer Support.

5. Enhance Learning Accessibility & Mobility

- Optimize LMS design for mobile responsiveness and screen reader integration, especially in high-risk or onboarding courses.
- Track accessibility usage trends and promote tools to employees needing additional learning support.

6. Implement Role-Based Learning Pathways

- Develop structured learning journeys tailored to each role or department, especially those with high skill gaps (e.g., IT Support, System Analyst, Repairs)

7. Introduce Learning Accountability Dashboards

- Develop manager-level dashboards that display their team's course completion rates, overdue status, skill scores, and time spent on LMS.
- Incorporate learning metrics into monthly team reviews and performance discussions. Recognize top performers and flag underperformance early.

KPIs

Below are the recommended KPIs:

- Completion Rate by team / by employee
- Overdue Rate by team / by employee /
- Avg Completion Time(days) by employee
- Learning Hours by team / by employee
- Skill Gap by team
- Performance score by team / by employee
- Skillscore by team/ by employee
- Course Feedback Rating

Below are suggested key drivers to make this success:

- Define and track the KPIs every Quarter.
- Let manager drive the KPI performance
- Build a dashboard for manager to track performance
- Make this a part of performance review and one of the promotion criteria.

Growth Opportunity

By leveraging high-performing areas and applying focused strategies to underperforming quarters, roles, and categories, the company can build a more consistent, accessible, and high-impact learning culture. A quarterly pulse check, improved training design, and role-specific engagement plans will enable sustainable compliance growth and skills development.
