Cleaning Protocols for Railway Service

UIC Workshop within the Customer Experience Management Platform (CEMP) and Commuter and Regional Train Services (CRTS) Framework. Conclusions

January 2026

Cleaning Protocols for Railway Service Conclusions. UIC Workshop within the Customer Experience Management Platform (CEMP) and Commuter and Regional Train Services (CRTS) Framework.

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This report is based on presentations and discussions held during the UIC CEMP–CRTS Workshop on Cleaning Protocols for Railway Services (January 2026). The following organisations and speakers contributed to the workshop:

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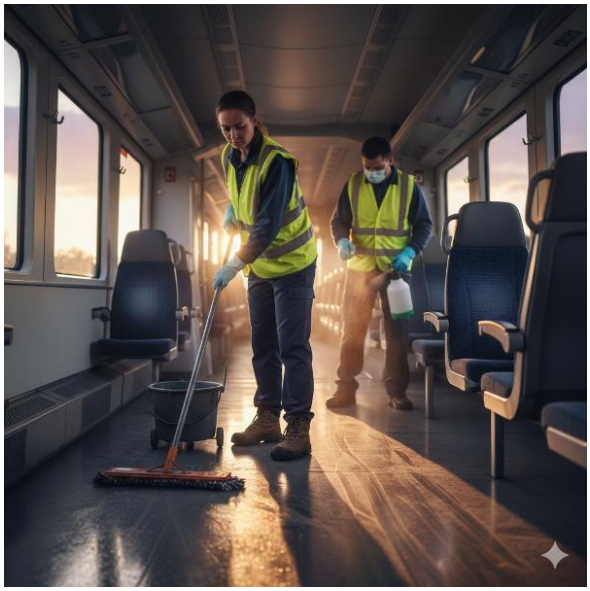
1 INTRODUCTION

1.1 Purpose and origin of the report

This report consolidates the key insights, practices and lessons learned from the **UIC workshop "Cleaning Protocols for Railway Services"**, jointly organised by the **Customer Experience Management Platform (CEMP)** and **Commuter and Regional Train Services (CRTS)** working groups.



The workshop brought together railway undertakings, station managers, service providers and international experts to exchange operational experience and explore current and emerging approaches to cleaning across **on-board services, stations and rolling stock maintenance**. The richness of the discussions, case studies and operational feedback highlighted the need to capture and structure this collective knowledge in a shared reference document for UIC members.

Rather than documenting the workshop proceedings or individual presentations, this report adopts a **thematic and synthesis-based approach**, translating the contributions into a coherent set of observations, good practices and emerging trends applicable across different railway contexts.

1.2 Scope and intended audience

The scope of this report covers cleaning as an **operational and customer-experience function** within railway systems, with particular attention to **commuter and regional rail services**, where high passenger volumes, short dwell times (limited stopping time at stations) and tight operational margins impose specific constraints.

The report addresses:

- on-board cleaning practices, including routine, targeted and on-demand interventions,
- station cleaning and waste management in high-traffic environments,
- rolling stock cleaning and structured deep-cleaning cycles,
- performance monitoring, organisation and coordination aspects,
- and the balance between cost efficiency and customer experience.

The intended audience includes railway undertakings, infrastructure and station managers, service providers, and UIC working groups seeking a **practical, experience-based reference** to support decision-making, benchmarking and further harmonisation of approaches.

1.3 Methodological approach

The content of this report is primarily based on:

- presentations delivered during the workshop,
- discussions and questions raised by participants,
- and additional insights captured through the workshop transcript.

Specific examples and insights from individual workshop contributions are integrated within the relevant thematic chapters, in order to illustrate operational approaches without structuring the document by presentation or speaker.

1.4 Positioning of the report

This document is **not a standard, specification or contractual guideline**. It does not define mandatory requirements, quantitative thresholds or timelines for implementation. Instead, it aims to:

- highlight converging practices and shared challenges,

- identify operational principles that have proven effective in different contexts,
- and support informed discussions within the UIC community.

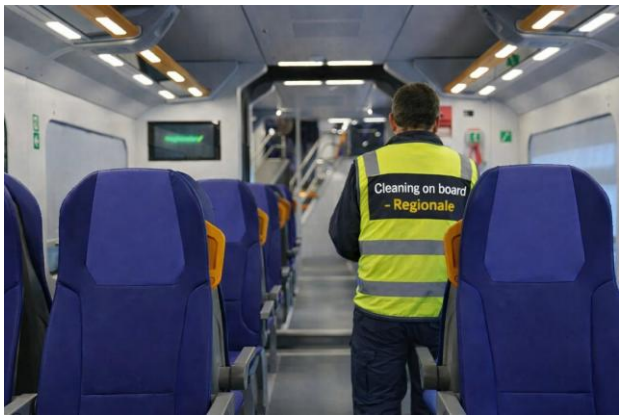
Where performance indicators, cleaning frequencies or organisational models are mentioned, they are presented as **illustrative examples** drawn from operational experience, not as prescriptive benchmarks.

The report may also serve as a foundation for future work within UIC, including deeper benchmarking exercises or potential harmonisation initiatives, without pre-empting any formal standardisation process.

2 WHY CLEANING MATTERS: CUSTOMER EXPERIENCE AND OPERATIONAL PERFORMANCE

2.1 Cleanliness as an immediate quality signal

One of the strongest and most consistent messages emerging from the workshop was that cleanliness acts as an immediate and non-verbal quality signal for passengers. Unlike punctuality or information quality, which may only be assessed over time, cleanliness is perceived instantly and shapes expectations from the very first contact with the railway system.



Operators highlighted that passengers subconsciously use cleanliness as a proxy for broader system performance. A clean environment suggests control, professionalism and attention to detail, while visible deficiencies, such as litter, dirty toilets or neglected surfaces, are quickly interpreted as signs of organisational weakness. This mechanism explains why cleanliness has a disproportionate influence on overall satisfaction compared to the actual effort or cost required to deliver it.

Importantly, this perception is holistic. Passengers do not compartmentalise cleanliness by asset or responsibility; they perceive a single cleanliness standard across stations and trains. As a result, weaknesses at any point of the journey can undermine the perceived quality of the entire service.

Beyond hygiene and comfort, cleanliness acts as a clear statement of quality, signalling control, care and professionalism to passengers.

2.2 Cleanliness in high-frequency and commuter rail contexts

The workshop placed particular emphasis on commuter and regional rail services, where operational constraints amplify the importance of cleaning. High passenger turnover, dense peak flows and short turnaround times limit the opportunities for recovery once cleanliness deteriorates.

In these environments, cleaning must deliver visible results within very limited operational windows. Several operators demonstrated that frequent, light-touch interventions, particularly on board during service or short station stops, can be more effective for maintaining perceived cleanliness than less frequent but more intensive actions. The presence of visible cleaning activity itself was repeatedly mentioned as a positive signal for passengers, reinforcing the perception that the service is actively managed.

The discussions also highlighted that commuter rail passengers tend to be highly sensitive to changes in cleanliness over time. Regular users quickly detect degradation patterns, making consistency a critical factor. This explains why cleaning strategies in high-frequency services often prioritise stability and predictability over maximum intensity.

2.3 Relationship between cleanliness, safety perception and social order

Beyond hygiene and comfort, the workshop revealed a strong and recurrent link between cleanliness and perceived safety, particularly in stations and on-board environments outside peak hours. Multiple contributors noted that disorder, such as waste accumulation, graffiti or poorly maintained spaces, can contribute to a feeling of insecurity, even in the absence of objective safety issues.

Conversely, well-maintained environments were shown to support a sense of social order and reassurance. This effect extends to exterior train appearance, where graffiti or heavy soiling can negatively influence passengers before they even board the train. Operators stressed that rapid intervention, especially for graffiti removal, plays a preventive role by discouraging further vandalism and reinforcing a sense of control.

These insights confirm that cleaning is not merely a technical or aesthetic activity, but a contributor to social safety and public confidence, closely linked to the railway's role as a trusted public service.

2.4 Measurable impact on customer satisfaction and performance indicators

Several presentations provided evidence that cleaning performance is measurable and strongly correlated with customer satisfaction indicators. Operators shared experiences where targeted cleaning interventions, particularly during service, resulted in observable improvements in satisfaction scores related not only to cleanliness, but also to comfort, safety perception and overall service quality.

The workshop also showed that different aspects of cleaning do not carry equal weight in passenger perception. Toilets, waste management and high-touch areas were repeatedly identified as having a disproportionate impact on satisfaction compared to less visible elements. This reinforces the need for prioritisation based on impact, rather than uniform treatment of all assets.

The availability of customer feedback, audits and operational KPIs was highlighted as essential for understanding where cleaning effort delivers the greatest value, and for avoiding decisions based solely on cost or tradition.

2.5 Cleaning, cost efficiency and delayed effects on customer experience

A recurring theme throughout the discussions was the tension between cost efficiency and customer experience. Cleaning was frequently described as an area where short-term cost savings can be achieved without immediately affecting service delivery, since trains continue to operate even when cleaning effort is reduced.

However, workshop experience showed that the negative effects on customer perception often emerge with a delay. Reduced cleaning frequency or coverage may initially go unnoticed, but over time leads to cumulative degradation, declining satisfaction and increased complaints. Once trust is lost, restoring perceived quality typically requires significantly higher effort and cost.

This time-lag effect underscores the importance of viewing cleaning as a preventive investment rather than a purely variable cost, and of assessing efficiency measures through their long-term impact on customer experience and brand reputation.

2.6 Implications for a system-wide operational approach

Taken together, the workshop contributions demonstrate that cleanliness must be treated as a system-wide operational function. Its effectiveness depends not only on individual tasks, but on

coordination across trains, stations, organisational boundaries and service providers.

Optimisation strategies, such as waste prevention on board, need-based cleaning or targeted deployment of cleaning personnel and resources, only deliver their full benefit when the entire system is aligned. This includes asset design, station equipment, governance arrangements and shared performance objectives.

Several cases showed that visible and timely cleaning interventions also positively influence passengers' perception of safety, particularly in high-density and short-turnaround services.

Recognising cleanliness as both a customer experience driver and an operational performance lever provides the foundation for the chapters that follow, which explore how railway organisations structure cleaning strategies, adapt them to different service contexts, monitor outcomes and manage interfaces to achieve consistent and sustainable results.

3 A JOURNEY-BASED PERSPECTIVE ON CLEANING

3.1 Rationale for a journey-based approach

A key conclusion of the workshop was that cleaning cannot be effectively addressed through isolated assets or organisational silos. Passengers experience rail travel as a continuous journey, and their perception of cleanliness is shaped by the accumulation of impressions from multiple environments rather than by individual cleaning actions.

Adopting a journey-based perspective allows cleaning strategies to be aligned with how passengers actually experience the railway system. It shifts the focus from "where cleaning is performed" to "when and how cleanliness is perceived", highlighting critical moments where deficiencies have a disproportionate impact on customer experience.

This perspective is fully aligned with the UIC Customer Experience Management Platform (CEMP) Methodology and was repeatedly reflected in workshop discussions, particularly when addressing interfaces between stations, trains and operational handovers.

3.2 Stations as the starting point of perceived cleanliness

Stations play a decisive role in forming the first cleanliness impression. Workshop contributions consistently showed that passengers begin evaluating service quality upon arrival at the station, before boarding a train.

Cleaning challenges in stations are strongly influenced by:

- passenger density and flow patterns,
- Passenger dwell time in the station (time spent waiting before boarding) and waiting behaviour,
- station size, layout and material choices.

Presentations highlighted that platforms, concourses and waiting areas must be considered together, as passengers move seamlessly between them. Waste management, toilet cleanliness and the rapid handling of visible disorder were identified as particularly critical, especially during peak periods.

Several contributors stressed that station cleanliness is closely linked to perceived safety and comfort. Well-maintained and orderly station environments reinforce a sense of control and reliability, while visible neglect can quickly undermine confidence, even if on-board conditions are satisfactory.

3.3 Interfaces between stations and trains

The transition from station to train represents a critical interface in the passenger journey. Cleaning strategies that perform well in isolation can fail if this interface is not properly managed.

Workshop discussions highlighted several interface-related challenges, including:

- misalignment between station cleaning schedules and train arrival/departure patterns,
- inconsistent waste management strategies between trains and stations,
- and unclear allocation of responsibilities between railway undertakings and station managers.

Examples shared during the workshop demonstrated that certain optimisation strategies, such as encouraging waste removal at stations to reduce on-board cleaning effort, are only effective if station infrastructure and cleaning capacity are designed to absorb the additional load. This reinforced the need for coordinated planning rather than local optimisation.

3.4 On-board environments and in-journey perception

Once on board, passengers' perception of cleanliness is shaped by a limited number of highly visible and high-impact elements. Workshop contributions consistently identified toilets, waste bins, seating areas and high-touch surfaces as critical drivers of perceived cleanliness.

In high-frequency and commuter services, where journeys are short and turnover is high, the emphasis shifts towards maintaining order and freshness, rather than achieving perfect cleanliness at every moment. Frequent, light-touch interventions and visible cleaning activity were shown to be particularly effective in sustaining passenger confidence.

Several operators highlighted that on-board cleanliness cannot be fully decoupled from the preceding and following journey stages. Passengers boarding a clean train from a poorly maintained station, or vice versa, tend to perceive the experience as inconsistent, reinforcing the importance of a holistic approach.

3.5 Operational handovers and turnaround points

Turnarounds, depot entries and intermediate service points represent hidden but decisive moments in the cleanliness journey. While often invisible to passengers, these handovers determine the baseline condition of trains entering service.

Workshop examples showed that cleaning effectiveness at these points depends on:

- precise timing and access to rolling stock,
- clear prioritisation of tasks,
- and coordination with circulation and maintenance planning.

Participants highlighted that insufficient alignment at handover points can lead to cascading effects, where minor cleanliness issues accumulate across multiple services. Conversely, well-structured turnaround and depot-based cleaning programmes

were shown to stabilise cleanliness levels across the network.

3.6 Implications for integrated cleaning strategies

The journey-based perspective emphasises that cleaning performance is not determined by isolated excellence, but by consistency across the entire travel chain. Effective strategies therefore require:

- alignment between station and on-board cleaning,
- coordinated waste management approaches,
- and shared understanding of critical journey moments.

The workshop demonstrated that adopting this perspective enables railway organisations to better prioritise resources, identify high-impact interventions and avoid contradictory optimisation measures. This integrated view provides a foundation for the subsequent chapters, which examine how cleaning strategies are adapted to service types and operational contexts.

4 CLEANING STRATEGIES BY SERVICE TYPE

4.1 Why service typology matters for cleaning

One of the clearest conclusions of the workshop was that cleaning strategies cannot be uniform across all railway services. Differences in service frequency, passenger density, journey duration and operational margins fundamentally shape both cleaning needs and feasible interventions.

Attempts to apply identical cleaning standards or processes across all service types were consistently identified as inefficient and, in some cases, counterproductive. Instead, workshop contributors emphasised the importance of adapting cleaning models to the operational reality of each service type, while maintaining a coherent quality perception for passengers.

4.2 Commuter and suburban rail services

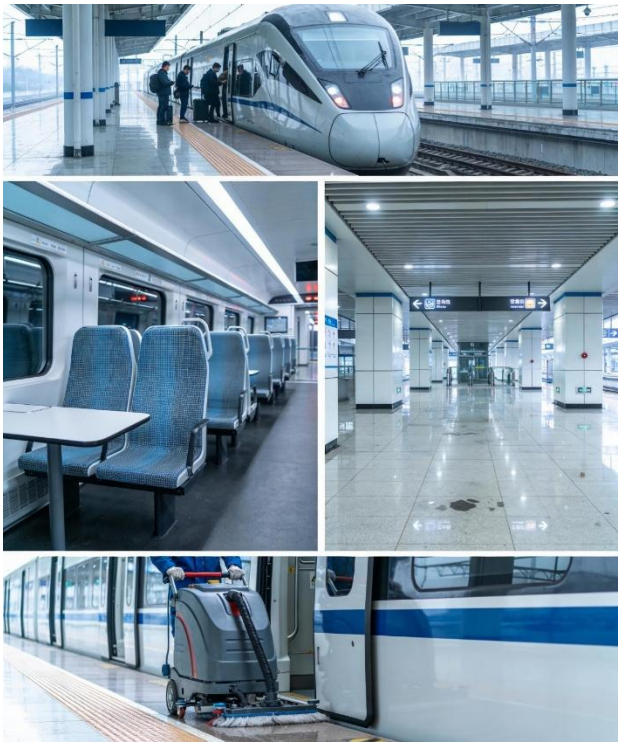
Commuter and suburban services present the most demanding conditions for cleaning operations. High passenger turnover, intense peak flows and very short turnaround times limit access to rolling stock and reduce opportunities for corrective actions.

Workshop examples showed that, in these contexts, effective cleaning strategies focus on:

- high-frequency, light-touch interventions during service or short station stops, aimed at maintaining order and visual cleanliness,
- prioritisation of high-impact elements, such as waste accumulation, toilets and high-touch surfaces,

and visible cleaning presence, which reassures passengers even when time and scope are limited.

Several operators highlighted that consistency is more important than depth in commuter services. Passengers using the service daily quickly detect deterioration patterns, making stability and predictability essential to maintaining trust.



4.3 Regional rail services

Regional services operate under different constraints, combining longer journeys with a wide variety of station environments and, in some cases, limited access to cleaning facilities along the route.

The workshop highlighted that regional cleaning strategies often rely on a combination of structured cleaning cycles and targeted on-board

interventions. Daily or frequent light cleaning is complemented by intermediate and deep-cleaning programmes, aligned with rolling stock circulation and depot access.

Examples shared during the workshop illustrated how travelling cleaners or on-board teams can play a key role on long regional routes, addressing cleanliness issues that cannot be resolved at stations. At the same time, the importance of clearly defined cleaning standards and performance monitoring was emphasised, particularly where services are delivered under public service contracts.

4.4 Long-distance and high-speed services

Long-distance and high-speed services typically offer greater access to rolling stock between services and operate with lower passenger turnover per journey. This allows for more structured and intensive cleaning interventions.

Workshop contributions showed that cleaning strategies in these services place greater emphasis on:

- planned deep-cleaning cycles, often linked to maintenance schedules,
- higher expectations for interior finish and comfort,
- and strong control of toilets, seating and premium areas.

While operational constraints are less acute than in commuter services, contributors stressed that passenger expectations are correspondingly higher. Any deviation from expected cleanliness standards is therefore highly visible and can strongly affect perceived service quality.

4.5 Managing mixed fleets and overlapping service patterns

Several workshop participants highlighted the complexity of managing cleaning strategies for fleets operating across multiple service types. Trains may alternate between commuter, regional or longer-distance services, exposing them to varying cleanliness demands within short timeframes.

Effective approaches shared during the workshop included:

- flexible cleaning programmes that adapt to the next planned service,
- prioritisation rules based on passenger density and journey length,
- and the use of digital tools to assess train condition and trigger interventions accordingly.

These examples reinforced the need for adaptive, need-based cleaning models rather than rigid, timetable-driven approaches.

4.6 Common principles across service types

Despite the differences between service categories, the workshop identified several principles that apply across all contexts:

- cleaning effort should be prioritised based on impact on passenger perception,
- strategies must be aligned with real operational constraints,
- and consistency over time is critical to sustaining trust.

The chapter confirms that recognising service typology is not about lowering standards for certain services, but about delivering the right level of cleanliness, at the right time, in the right place, across diverse operational environments.

5 ON-BOARD CLEANING PRACTICES

5.1 The central role of on-board cleaning in passenger perception

Workshop contributions consistently confirmed that on-board cleanliness is one of the most influential elements of the passenger experience. Once passengers enter the train, their perception of cleanliness is shaped immediately by visible order, absence of waste, and the condition of key areas such as seating, floors and toilets.

Unlike other service attributes, on-board cleanliness is assessed continuously throughout the journey. Even minor issues, such as overflowing bins, unpleasant odours or visibly dirty surfaces, can disproportionately affect comfort and satisfaction, particularly in high-density services. As a result, on-board cleaning plays a decisive role in maintaining trust and perceived service quality.

5.2 Differentiating levels of on-board cleaning

The workshop highlighted the importance of distinguishing between different levels of on-board cleaning, each serving a specific purpose within the overall strategy. Operators described multi-layered models combining:

Light or control cleaning, focused on maintaining order, removing waste and addressing visible issues during service or at short stops.

Daily or routine cleaning, typically performed at depots or terminals, covering interior areas and basic toilet servicing.

Intermediate and deep-cleaning cycles, addressing accumulated dirt, stains and wear that cannot be managed through daily interventions alone.

This layered approach allows operators to maintain consistent cleanliness over time while optimising the use of limited operational windows.

5.3 On-board cleaning under tight operational constraints

In commuter and regional services, short turnaround times and dense timetables significantly constrain access to rolling stock. Workshop examples demonstrated that, under these conditions, frequent, targeted interventions are more effective than infrequent intensive actions.

Several operators showed that light on-board cleaning performed during service, by dedicated staff or multi-skilled crews, can stabilise cleanliness levels and prevent rapid deterioration. The visibility of these interventions was repeatedly identified as a positive factor, reassuring passengers that cleanliness is actively managed, even when full cleaning is not possible.

5.4 Toilets and waste management as critical drivers

Toilets and waste management emerged as high-impact elements with a disproportionate influence on perceived cleanliness. Workshop discussions highlighted that toilet availability, odour control and waste tank servicing are often more important to passengers than the overall depth of interior cleaning.

Similarly, the number, location and emptying frequency of on-board waste bins directly affect litter accumulation and passenger behaviour. Operators noted that poorly designed or insufficient waste management systems increase cleaning effort and reduce effectiveness, while well-

integrated solutions support both cleanliness and staff safety.

5.5 On-demand and incident-driven cleaning

The workshop showcased several examples of on-demand on-board cleaning, designed to respond rapidly to incidents such as soiling, vandalism or unexpected waste accumulation. These models rely on clear procedures, fast communication channels and well-defined roles between train staff, control centres and cleaning teams.

Experience shared during the workshop showed that formalising these processes, rather than relying on ad hoc decisions, significantly improves reliability and reduces the impact of incidents on service quality and punctuality.

The ability to resolve cleanliness incidents without impacting punctuality reinforces not only service quality but also perceived operational reliability.

5.6 The role of data and digital tools in on-board cleaning

Digital tools were identified as key enablers for more effective on-board cleaning. Examples presented during the workshop included mobile applications for reporting cleanliness issues, automatic identification of train units and prioritisation of interventions based on condition rather than fixed schedules.

These tools support a shift towards need-based cleaning, allowing operators to allocate resources more efficiently and address issues before they escalate. Participants emphasised that simplicity and ease of use are critical to ensure adoption by staff and integration into daily operations.

5.7 Key lessons for effective on-board cleaning

The workshop confirmed that successful on-board cleaning strategies:

- prioritise high-impact areas and moments,
- combine layered cleaning levels adapted to operational constraints,
- integrate waste and toilet management into the core strategy,
- and rely on clear procedures, visibility and data-driven decision-making.

These lessons underline that on-board cleaning is not an isolated activity, but a central component of a system-wide approach to cleanliness, closely linked to station environments, turnaround processes and organisational coordination.

6 STATION CLEANING AND WASTE MANAGEMENT

6.1 Stations as high-impact environments

Workshop discussions consistently highlighted stations as some of the most complex and visible environments to manage from a cleaning perspective. Unlike on-board environments, stations are open systems, exposed to continuous passenger flows, external influences and shared responsibilities between multiple actors.

Within stations, elements such as toilets, waiting areas and vertical circulation spaces often play a disproportionate role in shaping first impressions and perceptions of cleanliness.

Stations strongly shape the first and last impressions of the rail journey. Their cleanliness directly affects perceived service quality, comfort and safety, often independently of on-board conditions. Several contributors noted that passengers tend to generalise their station experience to the entire railway service, making station cleanliness a critical component of overall customer experience.

6.2 Diversity of station types and differentiated service levels

A recurring theme in the workshop was the heterogeneity of stations within a single network. Large interchange hubs, medium-sized commuter stations and small local stops face very different cleaning challenges in terms of passenger density, dwell time and available infrastructure.

Effective station cleaning strategies therefore rely on differentiated service levels, adapted to station type and usage patterns. Workshop examples illustrated how zoning, prioritisation of high-traffic areas and tailored cleaning frequencies help maintain acceptable cleanliness levels without applying uniform, and often inefficient, solutions across all stations.

This differentiation was also identified as a key enabler for cost control, allowing resources to be concentrated where they have the greatest impact on passenger perception.

6.3 Waste management as a core element of station cleanliness

Waste management emerged as one of the most critical and operationally sensitive aspects of station cleanliness. Contributors emphasised that waste accumulation is often the most visible and fastest-degrading element of station environments, particularly during peak periods.

As with on-board toilets, station toilets are often perceived as a hygiene reference point, with failures having an immediate and disproportionate impact on overall station cleanliness perception.

Key factors identified during the workshop included:

- location and sizing of waste bins in relation to passenger flows,
- emptying frequency and responsiveness during peak demand,
- and prevention of overflow situations that rapidly undermine perceived cleanliness.

Several presentations highlighted that waste management cannot be treated independently from on-board strategies. Initiatives aimed at reducing on-board waste, for example, require sufficient capacity and appropriate design of station waste facilities to avoid transferring the problem rather than solving it.

6.4 Graffiti management and exterior station appearance

Graffiti and vandalism were repeatedly identified as high-impact issues in station environments. Workshop examples demonstrated that graffiti affects not only visual cleanliness, but also perceptions of safety, care and social order.

Effective approaches shared during the workshop combined:

- rapid removal to prevent recurrence,
- coordination between cleaning, security and asset management,
- and use of data and reporting tools to track incidents and prioritise interventions.

Participants stressed that delayed or inconsistent responses to graffiti can lead to escalation, higher long-term costs and deterioration of station image.

6.5 Organisational interfaces and responsibility sharing

Station cleaning is often characterised by complex governance arrangements, involving railway undertakings, infrastructure managers, station managers and external service providers. Workshop discussions highlighted that unclear allocation of responsibilities frequently leads to gaps, overlaps or inefficiencies.

Examples shared during the workshop illustrated the importance of:

- clearly defined roles and interfaces,
- coordination mechanisms between actors,
- and shared objectives linked to passenger experience.

In several cases, conflicts of objectives were identified, particularly where cost, aesthetics or space considerations limited the implementation of cleaning or waste management solutions. Addressing these conflicts requires a system-wide perspective rather than isolated optimisation.

6.6 Design and maintainability considerations

The workshop also underlined the importance of addressing cleaning and waste management at the design stage of station infrastructure. Material choices, layout decisions and equipment selection were shown to have a lasting impact on cleaning effort, effectiveness and cost.

Contributors noted that stations designed with maintainability in mind, through durable materials, accessible surfaces and well-integrated waste facilities, enable more efficient cleaning operations and more consistent cleanliness outcomes over time.

6.7 Key lessons for station cleaning strategies

The discussions confirmed that effective station cleaning and waste management depend on:

- differentiation by station type and usage,
- proactive waste and graffiti management,
- clear governance and coordination between stakeholders,
- and integration of cleaning considerations into station design and operation.

These lessons reinforce the need to view station cleanliness as a shared operational responsibility and a critical contributor to customer experience, closely linked to on-board cleaning strategies and overall system performance.

7 ROLLING STOCK CLEANING AND DEEP-CLEAN CYCLES

7.1 The role of depot-based cleaning in overall cleanliness performance

While passengers rarely see depot-based cleaning activities, workshop discussions confirmed that these processes play a decisive role in stabilising cleanliness levels across the network. Depot cleaning establishes the baseline condition of rolling stock entering service and compensates for the inevitable limitations of in-service and turnaround cleaning.

Participants highlighted that insufficient or poorly aligned depot cleaning leads to cumulative degradation over time, where minor issues that cannot be addressed during daily operations gradually become visible to passengers. Conversely, well-structured depot programmes were shown to support consistency and reduce pressure on on-board and station-based cleaning activities.

7.2 Structuring deep-cleaning cycles

A key theme emerging from the workshop was the importance of structured deep-cleaning cycles, distinct from routine or daily cleaning. Operators described multi-level approaches in which deep-cleaning interventions address accumulated dirt, wear and hygiene issues that cannot be resolved through frequent light cleaning.

Deep-cleaning cycles typically include:

- intensive interior cleaning of floors, seating and panels,
- treatment of stains and persistent soiling,
- comprehensive toilet servicing,
- and, where applicable, exterior washing beyond routine cycles.

Workshop examples showed that the frequency and scope of deep-cleaning vary significantly depending on service type, fleet usage and operational constraints, reinforcing the need for adaptable rather than uniform approaches.

7.3 Alignment with rolling stock circulation and maintenance

Effective rolling stock cleaning cannot be planned independently from circulation and maintenance. Workshop contributors repeatedly emphasised that deep-cleaning programmes must be aligned with rolling stock availability, depot access windows and maintenance planning.

Several operators demonstrated that integrating cleaning and maintenance planning improves efficiency by:

- reducing redundant movements,
- minimising downtime,
- and ensuring that deep-cleaning interventions are performed when trains are already unavailable for service.

This alignment also enables better prioritisation, ensuring that rolling stock entering high-demand services receives appropriate cleaning attention.

7.4 Managing constraints in regional and commuter fleets

The workshop highlighted particular challenges for regional and commuter fleets, where rolling stock may have limited depot access and high daily utilisation. In these contexts, deep-cleaning opportunities are scarce and must be carefully planned.

Examples shared during the workshop illustrated how operators manage these constraints by:

- staggering deep-clean cycles across the fleet,
- combining partial deep-cleaning tasks with routine maintenance,
- and using condition-based assessments to prioritise vehicles most in need of intervention.

These approaches reduce the risk of uniform deterioration and support more efficient use of limited resources.

7.5 Exterior cleaning and rolling stock appearance

Exterior train appearance was repeatedly identified as a key contributor to perceived cleanliness and brand image. While exterior cleaning is often treated separately from interior deep-cleaning, workshop discussions showed that both elements are closely linked in passenger perception.

Operators shared experiences with exterior washing cycles adapted to service type, environmental conditions and graffiti exposure. In some cases, structured exterior cleaning frequencies were presented as a visible commitment to quality, reinforcing passenger trust even when interior cleaning is less immediately apparent.

Beyond immediate cleanliness outcomes, several cases highlighted the role of cleaning in preserving rolling stock condition and supporting long-term value retention.

The workshop also highlighted the operational challenges associated with exterior cleaning, including weather dependency, infrastructure availability and coordination with graffiti removal activities.

7.6 Contribution of depot cleaning to system-wide efficiency

Beyond its impact on cleanliness, depot-based cleaning was shown to support broader operational efficiency. By addressing issues that cannot be resolved during service, deep-cleaning reduces the need for ad hoc interventions, improves the effectiveness of on-board cleaning and supports more predictable performance.

Participants stressed that depot cleaning should therefore be considered an integral component of the cleaning system, not a residual activity. Its role in maintaining long-term asset condition and supporting customer experience reinforces the need for strategic planning and coordination.

7.7 Key lessons for rolling stock cleaning strategies

The workshop confirmed that effective rolling stock cleaning relies on:

- clearly defined deep-cleaning cycles distinct from routine cleaning,
- alignment with circulation and maintenance planning,
- adaptive approaches for high-utilisation fleets,
- and integration of exterior appearance into overall cleanliness strategies.

These lessons highlight the importance of viewing depot-based cleaning as a stabilising force within the wider cleaning system, supporting consistency, efficiency and sustained customer trust.

8 PERFORMANCE MONITORING AND KPIS

8.1 Why performance monitoring is essential for cleaning

A consistent message throughout the workshop was that effective cleaning strategies cannot rely solely on procedures or contractual arrangements; they require systematic performance monitoring. Without objective indicators and structured feedback mechanisms, it becomes difficult to prioritise effort, manage suppliers, justify investment decisions or detect early signs of deterioration.

Participants highlighted that cleaning performance is often evaluated implicitly, through complaints or visible failures, rather than through proactive monitoring. The workshop demonstrated that moving towards structured KPIs and audits enables operators to shift from reactive correction to preventive and stabilising management.

8.2 Linking cleaning performance to customer experience

Several presentations showed that cleaning performance can be directly linked to customer satisfaction indicators. Operators shared evidence that targeted improvements in cleaning, particularly on-board, resulted in measurable gains in customer perception, extending beyond cleanliness itself to comfort, safety perception and overall service quality.

Workshop discussions emphasised that not all cleaning aspects carry equal weight in passenger perception. Toilets, waste accumulation, odours and visible disorder were repeatedly identified as having a disproportionate impact. Effective KPI frameworks therefore focus on what matters most to passengers, rather than attempting to measure every cleaning activity with equal intensity.

8.3 Families of KPIs used in practice

Workshop contributions showed that cleaning performance is typically monitored through a limited set of complementary indicators, combining operational control, quality assessment and customer perception. Rather than relying on a single metric, operators tend to use KPI families,

each addressing a specific dimension of cleanliness performance.

The following sections present illustrative examples of KPIs used in practice, grouped by thematic area. These indicators are provided for reference and benchmarking purposes only and do not constitute recommended thresholds or mandatory requirements.

8.4 On-board interior cleanliness KPIs

Indicators related to on-board cleanliness focus on maintaining order, visual cleanliness and passenger comfort under constrained operational conditions.

Examples discussed during the workshop include:

- Percentage of services departing with interior cleaning completed, based on planned daily or control-cleaning scope.
- Audit score for interior cleanliness, covering seating areas, floors and high-touch surfaces, assessed through periodic inspections.
- Number of cleanliness-related incidents per 100,000 journeys, used to identify recurring issues.
- Customer satisfaction index related to on-board cleanliness, tracked through regular surveys.
- Response time for on-demand on-board cleaning, measured from report to intervention.

These indicators support prioritisation of high-impact interventions and early detection of degradation patterns.

8.5 Toilet availability and servicing KPIs

Toilets were consistently identified as having a disproportionate impact on perceived cleanliness and comfort. As a result, several operators monitor toilet performance separately from general interior cleaning.

Illustrative KPIs include:

- Percentage of toilets available at service departure, used as a baseline reliability indicator.
- Number of toilet-related incidents per operating day, including failures, blockages or hygiene issues.
- Compliance with planned waste tank servicing cycles, ensuring preventive maintenance.
- Customer satisfaction related to toilet cleanliness and availability, tracked independently from overall cleanliness.
- Average time to resolve toilet-related incidents during service.

These indicators help focus resources on one of the most sensitive elements of the passenger experience.

8.6 Waste management KPIs (on-board and stations)

Waste accumulation was highlighted as a fast-degrading factor affecting both trains and stations. KPIs in this area aim to monitor both capacity and responsiveness.

Examples include:

- Overflow incidents per station or per service, used to detect insufficient bin capacity or emptying frequency.
- Average bin emptying interval during peak and off-peak periods.
- Audit score for waste-related cleanliness, covering bins, surrounding areas and visible litter.
- Percentage of services with waste bins emptied according to plan.
- Customer feedback related to waste and litter, monitored through surveys or complaint analysis.

These indicators are particularly useful when implementing waste prevention or redistribution strategies.

8.7 Station cleanliness KPIs

Station KPIs typically reflect the diversity of station types and focus on high-traffic and high-visibility areas.

Illustrative examples include:

- Cleanliness audit scores by station category (e.g. major hubs, medium stations, local stops).
- Frequency of cleaning interventions per station zone, such as platforms, concourses and waiting areas.
- Number of cleanliness-related complaints per station, normalised by passenger volume.

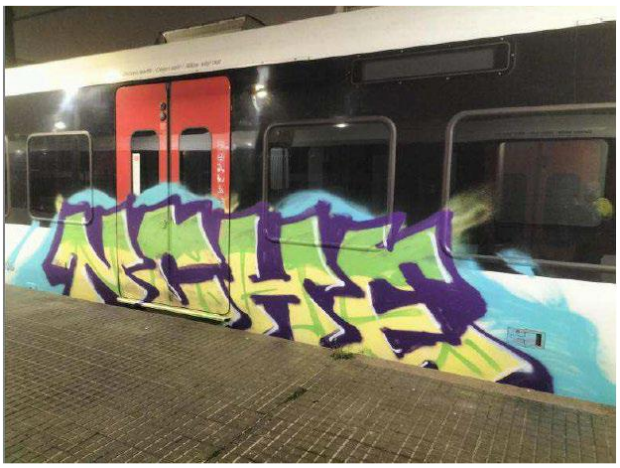
- Perceived cleanliness and safety index for stations, derived from customer surveys.
- Time to restore acceptable cleanliness levels after peak periods or incidents.

These indicators support differentiated service levels and targeted resource allocation.

8.8 Exterior appearance and graffiti KPIs

Exterior appearance was shown to influence passenger perception before boarding and to be closely linked to safety perception.

Some operators reported the use of exterior vinyl wrapping as a mitigation measure against graffiti, facilitating faster removal, reducing damage to original surfaces and supporting more predictable exterior appearance over time.



KPIs used in practice include:

- Average time to remove graffiti, from detection to completion.
- Surface area affected by graffiti per period, used for trend analysis.
- Percentage of rolling stock with exterior wash completed within planned cycle.
- Customer perception of exterior cleanliness, tracked through surveys.
- Repeat graffiti incidence rate, used to assess effectiveness of preventive measures.

These indicators help balance appearance, cost and operational availability.

8.9 Supplier and workforce performance KPIs

Where cleaning services are outsourced, operators rely on performance indicators to ensure alignment with objectives and service quality.

Examples include:

- Compliance with contractual cleaning scope, assessed through audits.
- Corrective actions closed within agreed timeframe.
- Staff availability and coverage rate, particularly during peak periods.
- Health and safety incidents related to cleaning activities.
- Training completion rate for cleaning staff.

Such indicators support governance, transparency and continuous improvement rather than purely punitive control.

8.10 Using KPIs as management tools

Workshop participants stressed that KPIs should support decision-making and prioritisation, not act as objectives in isolation. Effective use of indicators requires:

- combination of operational data and customer perception,
- and periodic review to ensure continued relevance.

Overly complex or rigid KPI frameworks were identified as a risk, potentially diverting attention from actual cleanliness outcomes.

8.11 Key lessons on KPIs and monitoring

The workshop confirmed effective performance monitoring:

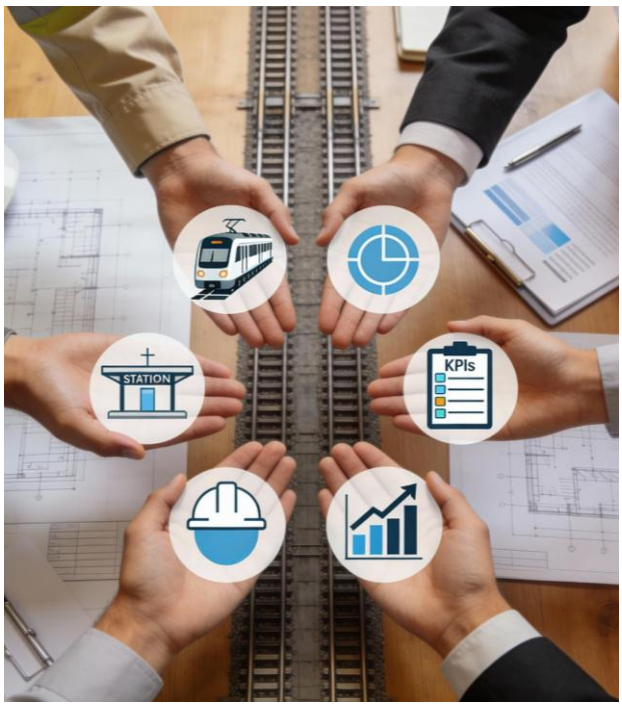
- focuses on high-impact elements,
- combines audits, operational metrics and customer feedback,
- supports need-based and adaptive cleaning strategies,
- and enables informed trade-offs between cost, quality and customer experience.

Used appropriately, KPIs provide a powerful foundation for consistent, efficient and credible cleaning performance across railway systems.

9 ORGANISATION, GOVERNANCE AND INTERFACES

9.1 Cleaning as a cross-functional responsibility

A central conclusion of the workshop was that cleaning performance is shaped as much by organisational and governance arrangements as by operational procedures. Cleaning activities cut across multiple functions, operations, maintenance, customer experience, safety and asset management, and are often delivered through a combination of internal teams and external service providers.



Participants repeatedly highlighted that treating cleaning as a peripheral or purely outsourced activity creates fragmentation, weak accountability and inconsistent outcomes. Conversely, organisations that position cleaning as a core operational function, with clear ownership and interfaces, are better able to sustain quality and respond to evolving constraints.

The workshop also highlighted contrasts between highly regulated environments, where cleaning standards are contractually fixed, and more flexible models that allow operators to adapt cleaning strategies dynamically.

9.2 Allocation of roles and responsibilities

Workshop discussions revealed significant diversity in how responsibilities for cleaning are allocated across railway undertakings, infrastructure managers and station managers. In many cases, on-board cleaning, station cleaning and exterior or graffiti management fall under different contractual and organisational arrangements.

Several contributors noted that lack of clarity at these interfaces can lead to:

- gaps in coverage, where tasks fall between organisational boundaries,
- overlaps or duplication of effort,
- and difficulty in resolving issues that affect passenger perception but do not align neatly with contractual scopes.

Clear definition of roles, escalation paths and coordination mechanisms was identified as a prerequisite for effective system-wide cleanliness management.

9.3 Interfaces between railway undertakings and station managers

The interface between railway undertakings and station or infrastructure managers emerged as a particularly sensitive area. Workshop examples highlighted that optimisation strategies in one domain can create unintended consequences in another.

For example, approaches aimed at reducing on-board cleaning effort through waste prevention require sufficient waste capacity and servicing at stations. Where station managers prioritise cost, aesthetics or space constraints, conflicts of objectives may arise, limiting the effectiveness of such strategies.

Participants emphasised that addressing these tensions requires shared objectives linked to customer experience, rather than isolated optimisation based on individual budgets or responsibilities.

9.4 Regulatory and contractual frameworks (PSO and similar models)

In regional and commuter rail services delivered under Public Service Obligation (PSO) or similar contractual frameworks, cleaning performance is strongly shaped by regulatory requirements.

These frameworks can define minimum cleaning standards, performance indicators and penalty mechanisms, providing clarity and consistency of expectations.

PSO frameworks were also presented as a mechanism to ensure homogeneous cleaning standards across large regional networks, reducing variability between lines and territories.

By embedding cleaning requirements within PSO contracts, public authorities can play an active role in aligning service quality expectations with passenger needs and public policy objectives.

At the same time, they may limit operational flexibility compared to more adaptive or fully need-based models. Workshop contributions illustrated how operators work within these constraints by structuring cleaning cycles, deploying targeted on-board services and using audits and customer feedback to continuously adjust performance while complying with contractual obligations.

9.5 Managing outsourced cleaning services

Outsourcing was identified as a common model for delivering cleaning services, particularly for stations and on-board activities. Workshop discussions showed that the effectiveness of outsourcing depends less on the contractual model itself and more on how it is governed.

Key success factors highlighted included:

- clear and realistic service specifications,
- performance monitoring frameworks aligned with passenger perception,
- regular dialogue between operators and service providers,
- and mechanisms for continuous improvement rather than purely punitive control.

Participants warned that overly rigid contracts or excessive reliance on penalties can undermine flexibility and responsiveness, particularly in high-variability environments such as commuter rail services.

9.6 Workforce organisation and safety considerations

The organisation of cleaning workforces was also identified as a critical governance issue. Workshop examples highlighted the physical demands and safety risks associated with certain cleaning tasks, particularly waste handling, toilet servicing and exterior cleaning.

Several contributors noted that decisions related to waste bin design, cleaning frequencies or task sequencing can have a significant impact on staff safety and productivity. Integrating workforce considerations into cleaning strategy design was therefore seen as essential for sustainable operations.

Several cases highlighted that effective cleaning strategies also contribute to better working conditions for staff, reinforcing safety, ergonomics and pride in the workplace alongside customer-facing benefits.

9.7 Coordination mechanisms and information flows

Effective governance relies on robust coordination mechanisms and information flows between actors. Workshop participants highlighted the role of:

- shared reporting tools,
- clear incident escalation procedures,
- and regular cross-functional reviews of cleaning performance.

Digital platforms supporting real-time reporting and visibility across teams were shown to improve responsiveness and reduce ambiguity, particularly in complex organisational environments involving multiple stakeholders.

9.8 Key lessons for organisational and governance models

The workshop confirmed that effective cleaning governance depends on:

- recognising cleaning as a cross-functional operational responsibility,
- clearly defining roles and interfaces between organisations,
- aligning objectives around customer experience rather than local optimisation,
- while regulatory and contractual frameworks may limit operational flexibility, they can also provide stability, consistency and clarity of expectations across regional services,
- and supporting coordination through appropriate governance structures and tools.

These lessons remark that organisational design and governance are critical enablers of cleaning performance, shaping how operational strategies, KPIs and resources translate into consistent and credible outcomes for passengers.

10 COST EFFICIENCY AND OPTIMISATION STRATEGIES

10.1 Cleaning as a strategic cost item

Workshop discussions made clear that cleaning represents a significant and recurring operational cost, particularly in high-frequency commuter and regional rail services. At the same time, it is often perceived as an area where short-term savings can be achieved with limited immediate operational consequences, since trains continue to run even when cleaning effort is reduced.

However, contributors consistently highlighted that this apparent flexibility can be misleading. Cleaning-related cost decisions frequently have delayed and cumulative effects on customer experience, brand perception and long-term asset condition, making recovery more costly once deterioration becomes visible.

This dual nature positions cleaning as a strategic cost item that requires careful optimisation rather than simple reduction.

10.2 Balancing efficiency and customer experience

A central theme of the workshop was the need to balance cost efficiency with customer experience outcomes. Operators shared experiences where cost-driven reductions in cleaning frequency or coverage initially went unnoticed, but eventually led to declining satisfaction scores, increased complaints and reputational impact.

The workshop demonstrated that effective cost management focuses on optimising where and when cleaning effort is applied, rather than reducing overall activity. This includes prioritising high-impact elements, aligning cleaning intensity with service demand and avoiding uniform approaches that dilute resources.

Several contributors emphasised that linking cleaning budgets to customer experience KPIs supports more informed decision-making and helps justify sustained investment where it delivers measurable value.

10.3 Targeted and need-based optimisation strategies

Participants presented a range of optimisation strategies aimed at improving efficiency without compromising perceived cleanliness. These included:

- differentiated cleaning frequencies by service type, operational context (during service or in depot) and station category,
- layered cleaning models combining light-touch and deep-cleaning interventions,
- and condition-based approaches triggered by actual cleanliness status rather than fixed schedules.

Digital tools were highlighted as key enablers for these strategies, allowing operators to allocate resources dynamically and respond to emerging needs. Workshop examples showed that such approaches can improve both efficiency and consistency, provided they are supported by reliable data and clear operational processes.

10.4 Waste prevention and system-level optimisation

Waste prevention emerged as a particularly illustrative example of system-level optimisation. Strategies aimed at reducing waste accumulation on board, such as encouraging passengers to dispose of rubbish at stations, can significantly reduce on-board cleaning effort and improve staff exposure to manual waste handling in constrained environments.

However, workshop discussions demonstrated that these strategies only succeed when the entire system moves together. Insufficient waste capacity or servicing at stations can negate the benefits and create new cleanliness issues. Participants highlighted that addressing such conflicts requires coordination between railway undertakings, station managers and service providers, and alignment of objectives beyond individual cost centres.

10.5 Sustainability considerations

Sustainability was increasingly referenced in relation to cleaning practices, particularly regarding waste segregation, recycling and use of cleaning products. Workshop contributors noted that sustainability objectives must be carefully integrated into operational realities to avoid unintended consequences.

Where recycling or waste separation is implemented, clarity of signage, passenger understanding and operational feasibility were identified as critical success factors. Poorly designed schemes can increase contamination, cleaning effort and overall costs, undermining both sustainability and cleanliness objectives.

Participants also highlighted the importance of durable materials, maintainable designs and long-term asset protection as indirect but significant contributors to sustainable cleaning practices.

10.6 Long-term value versus short-term savings

A recurring conclusion of the workshop was that cleaning optimisation should be assessed through a long-term value lens rather than short-term cost reduction. Preventive cleaning, consistent appearance and rapid response to issues such as graffiti were shown to protect brand value, ºreduce

escalation and support stable customer satisfaction over time.

This perspective reinforces the need for governance and performance frameworks that recognise the delayed effects of cleaning decisions and support sustainable optimisation strategies aligned with both operational efficiency and customer experience.

10.7 Key lessons for cost-efficient and sustainable cleaning

The workshop confirmed that cost-efficient and sustainable cleaning strategies rely on:

- prioritisation based on customer impact,
- need-based and differentiated approaches,
- system-wide coordination for waste and resource management,
- and evaluation of decisions through their long-term effects on customer experience and asset condition.

These lessons show that efficiency, sustainability and quality are not competing objectives, but interconnected dimensions that must be addressed together within a coherent cleaning strategy.

Some cases provided concrete evidence that sustained investment in cleaning correlates directly with customer satisfaction trends, supporting the business case for cleaning as value creation rather than cost only.

11 INNOVATION AND EMERGING PRACTICES

11.1 From reactive cleaning to proactive management

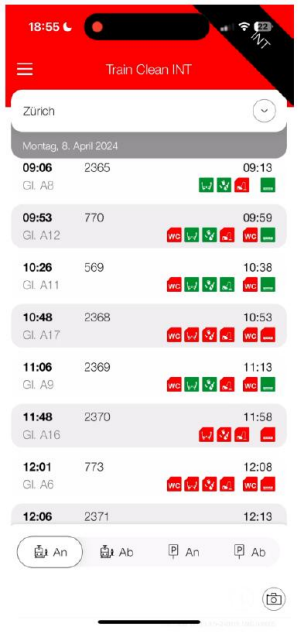
One of the most significant shifts highlighted during the workshop is the transition from reactive cleaning models to more proactive and anticipatory approaches. Traditional cleaning strategies often rely on fixed schedules and corrective actions triggered by complaints or visible failures. In contrast, emerging practices aim to detect issues earlier, prioritise interventions dynamically and prevent deterioration before it becomes perceptible to passengers.

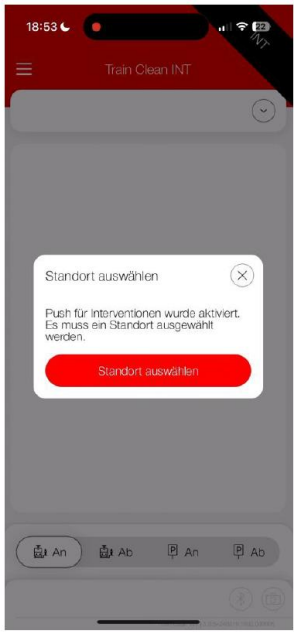
This evolution reflects a broader trend in railway operations towards condition-based and data-informed decision-making, where cleaning is increasingly managed as a performance-driven system rather than a static service.

11.2 Digital reporting and real-time visibility

Several workshop contributions demonstrated the growing role of digital reporting tools in modern cleaning operations. Mobile applications used by staff or control centres enable cleanliness issues to be reported in real time, often with photographic evidence and automatic identification of rolling stock or station location.

Some operators are extending reporting capabilities beyond cleaning staff, enabling a wider range of frontline employees to act as sensors for cleanliness issues through simple digital tools.





These tools improve responsiveness by:

- shortening the time between detection and intervention,
- enabling prioritisation based on severity and impact,
- and providing a shared operational picture across cleaning teams, operators and service providers.

Participants noted that such tools are particularly effective when they are simple, intuitive and well-

integrated into daily workflows, avoiding duplication with other operational systems.

11.3 Need-based and condition-driven cleaning models

Innovation in cleaning is increasingly associated with need-based approaches, where interventions are triggered by actual condition rather than predefined cycles. Workshop examples illustrated how indicators such as mileage, passenger load, service type or incident reports can be combined to determine when and where cleaning effort is most needed.

These models allow operators to:

- allocate resources more efficiently,
- adapt to variability in demand and usage,
- and reduce unnecessary interventions without compromising perceived cleanliness.

Participants emphasised that condition-driven cleaning requires reliable data and clear decision rules but offers significant potential for improving both efficiency and consistency.

11.4 Integration of cleaning and other operational systems

Emerging practices also include stronger integration between cleaning and other operational functions. Workshop discussions highlighted examples where cleaning workflows are coordinated with circulation planning, maintenance activities or incident management processes.

This integration reduces fragmentation and supports more effective use of limited access windows, particularly in high-utilisation fleets. It also facilitates prioritisation, ensuring that trains or station areas entering high-demand service receive appropriate attention.

11.5 Innovation in waste management and prevention

Waste management was identified as an area of active innovation, particularly in relation to waste prevention strategies. Approaches aimed at reducing waste generation on board, through passenger behaviour, bin design or operational policies, can significantly lower cleaning effort and reduce operational constraints related to waste handling..

However, the workshop clearly showed that such innovations only succeed when supported by system-wide alignment, including sufficient waste capacity and servicing at stations. Emerging practices therefore focus not only on technical solutions, but also on organisational coordination and passenger communication.

11.6 Materials, design and maintainability innovations

Several contributors highlighted innovations related to materials and design choices that support easier and more durable cleaning. These include surface finishes resistant to staining or graffiti, layouts that reduce dirt traps, and equipment designed for safer and faster cleaning operations.

While often less visible than digital tools, these design-related innovations were recognised as having a long-term impact on cleaning efficiency, costs and consistency, particularly when integrated early in rolling stock or station design processes.

11.7 Human-centred innovation and workforce enablement

Innovation was not limited to technology. Workshop discussions also addressed human-centred approaches, including training, task design and empowerment of cleaning staff. Providing frontline teams with clearer information, better tools and safer working conditions was shown to improve both performance and engagement.

Participants stressed that successful innovation depends on acceptance and adoption by the workforce, and that involving cleaning staff in the design and refinement of new practices increases their effectiveness and sustainability.

11.8 Emerging trends and future directions

Taken together, the workshop contributions point towards several emerging trends in railway cleaning:

- increased use of digital and data-driven tools,
- wider adoption of condition-based and adaptive cleaning models,
- stronger integration with broader operational systems,
- and greater attention to system-level optimisation and sustainability.

These trends suggest that innovation in cleaning is not about isolated technologies, but about reconfiguring how cleaning is planned, delivered and governed. As passenger expectations continue to evolve and operational constraints intensify, these emerging practices are likely to play an increasingly important role in delivering consistent, efficient and credible cleanliness outcomes across railway systems.

12 CONCLUSIONS AND NEXT STEPS

12.1 Key conclusions from the workshop and the report

The workshop and the resulting synthesis confirm that cleanliness is a strategic component of railway service quality, with direct implications for customer experience, operational performance and brand credibility. Far from being a secondary or purely support activity, cleaning acts as a visible and immediate indicator of system control, professionalism and care.

Across different railway contexts, several converging conclusions emerged:

- Passengers perceive cleanliness holistically, across stations, trains and exterior appearance, rather than by individual assets or responsibilities.
- Consistency over time is more critical than isolated excellence; small and repeated degradations quickly undermine trust.
- Cleaning performance is inseparable from operational realities, particularly in commuter and regional rail services with high passenger volumes and tight turnaround constraints.
- Decisions related to cleaning costs, frequencies or scope often have delayed effects on customer satisfaction, making preventive and stabilising approaches more effective than reactive corrections.
- Beyond hygiene and compliance, cleanliness emerges as a clear statement of quality, signalling control, care and professionalism across the railway system.
- Several cases demonstrated that intelligent prioritisation delivers better value for money than uniform cost reductions, with delayed impacts on customer experience when cleaning is treated as an easy saving lever.
- Visible cleaning interventions were shown to play a reassurance role beyond their technical effect, reinforcing passenger trust and perceived safety.
- Cleaning performance is subject to operational limits related to access, weather conditions, workforce availability and material characteristics, which must be considered when defining expectations and KPIs.

These conclusions reinforce the need to approach cleaning as an integrated operational system, rather than as a collection of independent tasks.

The workshop confirmed that sustainable cleaning performance can only be achieved through system-wide coordination between railway undertakings, station managers and service providers.

12.2 Shared challenges identified

Despite differences in organisational models and network characteristics, the workshop revealed a

set of shared challenges faced by many railway organisations:

- balancing cost efficiency with sustained customer experience outcomes,
- managing interfaces between railway undertakings, station managers and service providers,
- maintaining cleanliness under increasing operational pressure and passenger expectations,
- and translating performance monitoring and KPIs into actionable management decisions.

The recurrence of these challenges across different case studies highlights the value of collective learning and experience-sharing within the UIC framework.

12.3 Value of emerging practices and innovation

The report also shows that innovation in cleaning is already taking place across the sector. Digital reporting tools, need-based cleaning models, differentiated service strategies and system-level waste prevention approaches demonstrate tangible potential to improve both efficiency and consistency.

Importantly, these innovations are not limited to technology. Organisational coordination, workforce enablement and design-for-maintainability emerged as equally critical enablers. Successful innovation was consistently associated with simplicity, usability and alignment with operational realities.

12.4 Implications for railway organisations

For railway undertakings and infrastructure or station managers, the findings of this report suggest several practical implications:

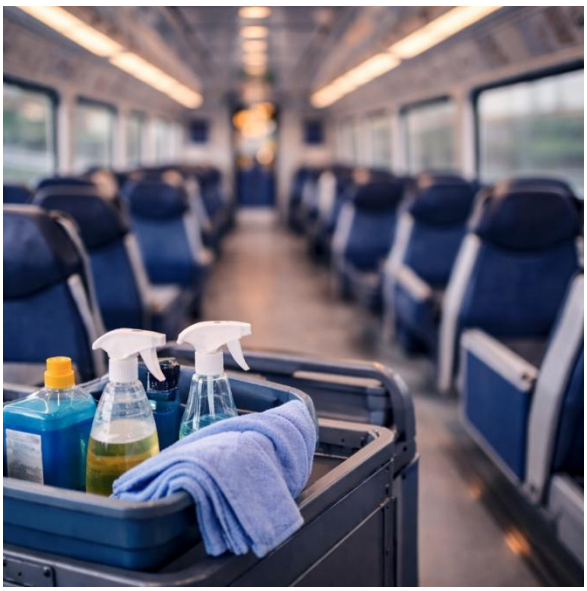
- cleaning strategies should be explicitly linked to customer experience objectives and performance indicators,
- optimisation efforts should prioritise high-impact elements rather than uniform reductions,
- and governance arrangements should support coordination across organisational and contractual boundaries.

The workshop provided specific evidence that sustained investment in cleaning correlates with stable or improving customer satisfaction, supporting a long-term value perspective.

Adopting a journey-based and system-wide perspective enables more effective prioritisation of resources and helps avoid contradictory optimisation measures.

12.5 Next steps within the UIC framework

This report provides a consolidated reference capturing current practices, challenges and emerging trends in railway cleaning, based on direct operational experience shared within the UIC community. It is intended to support benchmarking, internal reflection and informed dialogue among members.



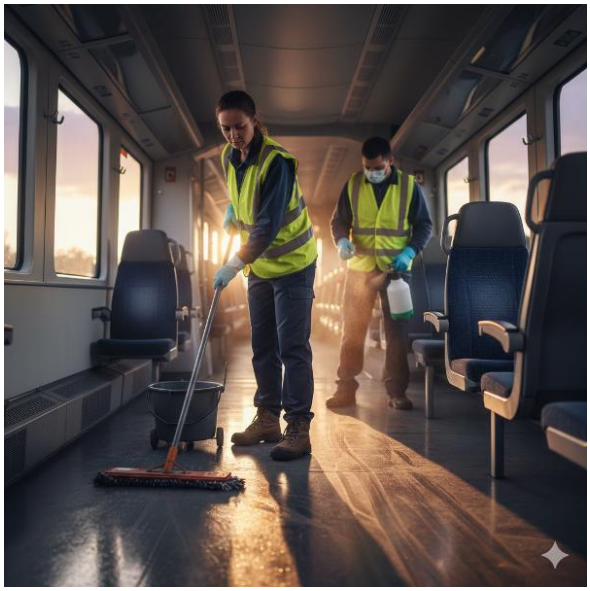
Possible next steps may include:

- deeper thematic benchmarking on specific aspects such as KPIs, digital tools or waste management,
- further experience-sharing workshops focused on targeted operational challenges,
- or exploration of opportunities for greater harmonisation of approaches, where appropriate.

Without pre-empting any formal standardisation process, the report establishes a common knowledge base that can inform future work under both the CEMP and CRTS umbrellas.

12.6 Closing remark

The workshop demonstrated that, while cleaning practices may differ in form, many underlying principles are shared. Strengthening dialogue, transparency and mutual understanding across the railway sector remains essential to delivering consistent, efficient and credible cleanliness outcomes that support passenger trust and long-term system performance.



To know more about UIC Customer Experience Platform do not hesitate to consult

CEMP website

UIC Committee on Commuter and Regional Train Services (CRTS), please visit:

https://uic.org/passenger/commuter-and-regional-train-services-training/