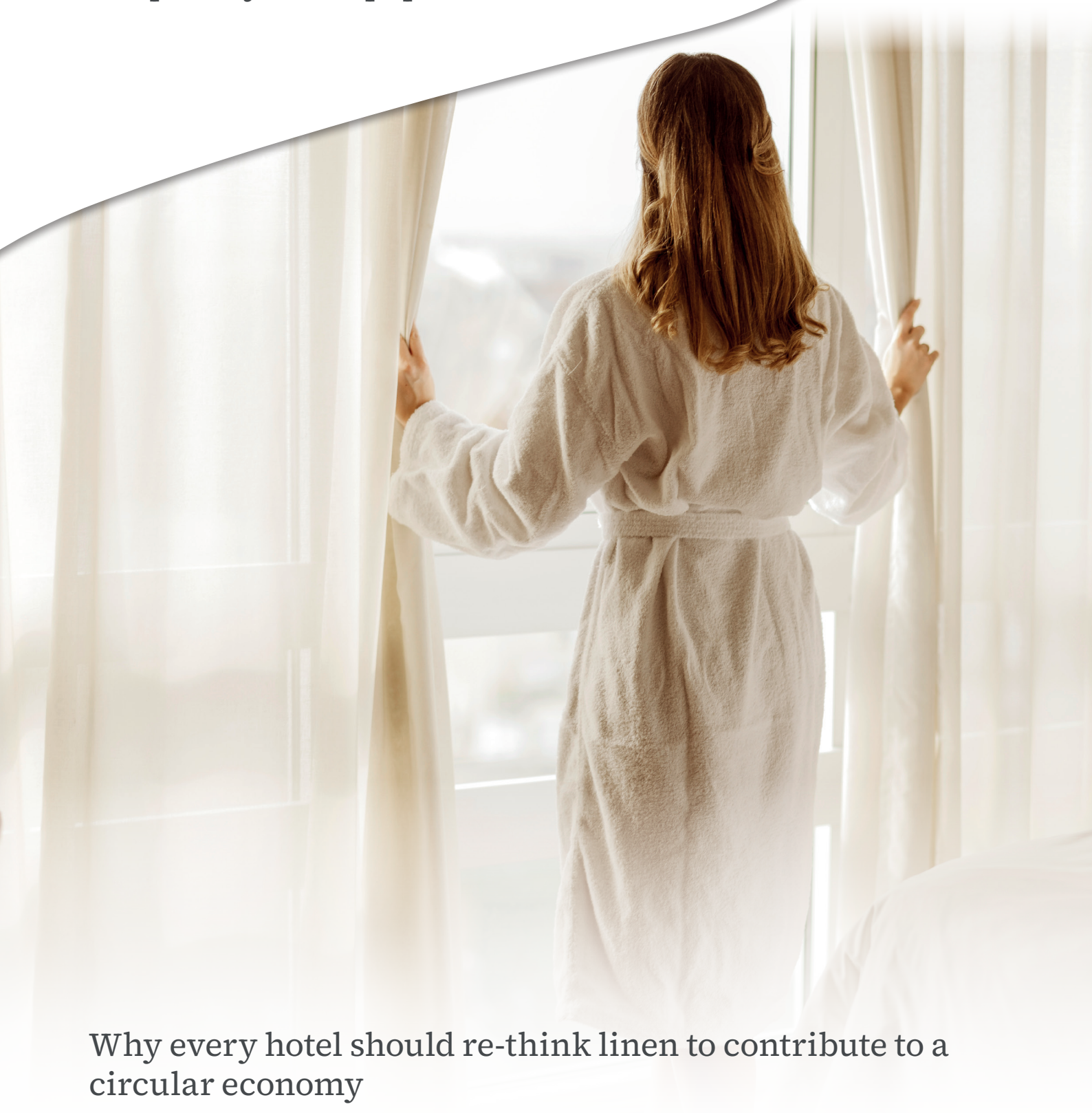




Beyond the Stay

Hospitality Whitepaper



Why every hotel should re-think linen to contribute to a circular economy

Why every hotel should re-think linen

Hospitality is built on experiences. But the thriving future of hospitality is built on decisions. As a hotelier, how many decisions do you make in a single day? Not big ones, but every day decisions that shape far more than we think.

Hospitality is evolving beyond the guest stay. Leading hotels are increasingly expected to deliver value not only through service and experience, but also through responsible and sustainable resource use and positive social impact.

Sustainable hospitality reduces impact. Transformative hospitality shapes a thriving future through everyday operations. It lives in how you run your hotel. Whether it be laundry rooms, kitchens or housekeeping carts, transformative **decisions focus on** how responsibly you buy, how you operate, how you care for assets and how you deal with what remains.

Real sustainability performance is shaped by **hundreds of operational decisions** made every day by procurement, housekeeping, laundry and other hotel teams.

We invite you to re-think linen.

This whitepaper explores how everyday decisions create circular and socially responsible solutions that can help hospitality organizations translate sustainability ambitions into tangible action.

By integrating practical initiatives into daily operations, hotels can extend linen life by reducing waste and providing linen with a second life while supporting social inclusion to strengthen their environmental, social and governance (ESG) performance without adding operational complexity.

Beyond compliance, these approaches create lasting value for guests, employees and communities alike.



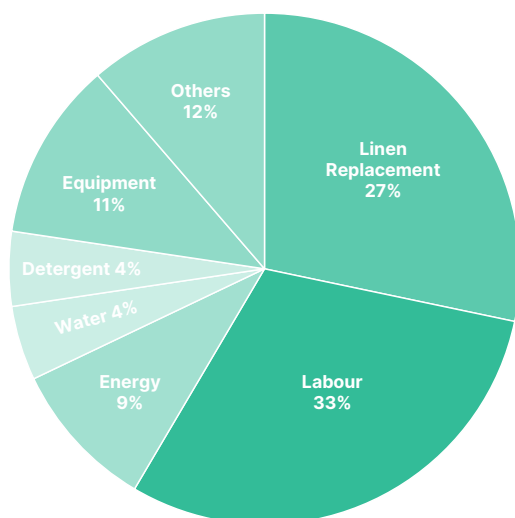
Linen: the most underestimated hotel asset

Linen is one of the very few hotel assets **every guest touches - every night, in every room**. It plays a central role in how guests **perceive cleanliness, comfort, and quality**. Linen can contribute to **up to 20% of a guests' overall satisfaction** during their stay¹.



At the same time, linen is one of the **most intensively used assets** in a hotel. Most properties operate with a **3-par linen stock** (three full linen sets per room) rotating continuously between the guest room, laundry and storage. This results in linen being washed continuously, consuming **large amounts of water, energy and chemistry**, while also **representing a recurring capital investment**.

Under commercial hotel laundry conditions, bed linen typically only lasts **100 to 150 wash cycles**, often requiring replacement within **12 to 24 months**, depending on linen quality, occupancy and wash process. As a result, **linen replacement alone accounts for nearly one-third of total laundry operating costs**, making it the **second largest cost driver** after labor.



BIGGEST SAVING OPPORTUNITY WITH LINEN

The process of buying and selecting good quality linen is usually overlooked. Despite this significant operational and financial impact, linen is often managed as a **commodity** rather than as a **strategic asset**. **Linen is not just an asset - it is a mirror of how a hotel is run**. This is where leadership makes the difference.

¹ Based on internal research conducted by Diversey Linen Consulting, including hospitality client data analysis and field observations, 2019.

² Based on research by the Institute for Textile Research Utrecht Netherlands, including hospitality data analysis and field observations 2019.

³ Based on internal research conducted by Diversey Linen Consulting, including hospitality client data analysis and field observations, 2019.

Linen as a lifecycle system

A white linen sheet may look neutral, but it has already travelled further than most guests ever will. It already carries a history. Every hotel already has a linen lifecycle, which starts long before it reaches a guest room and continues long after it leaves service. This lifecycle includes **raw material sourcing, manufacturing, daily use, maintenance, replacement, and end of life.**



In a world shaped by climate pressure, water scarcity, and rising resource constraints, accidental lifecycles are becoming an operational risk. Cotton textile production is water and resource intensive. As climate change accelerates, many European regions, especially key tourism destinations, are facing growing **water stress and resource scarcity**. This makes premature linen replacement not only a cost issue, but also a climate and sustainability issue.

In short, premature replacement means more cotton grown, more water consumed, more energy used, more chemical use, more waste created, and more capital tied up in avoidable spending.

Case study - the impact of cotton on water resources

To understand the scale of impact, the table below shows the water footprint of supplying **100% cotton bed sheets** for one hotel with 300 rooms and across a hotel chain of 20 hotels with 300 rooms per hotel⁴.

	Water consumed to grow cotton & produce cotton linen (Liters)	Equivalent to Olympic-size swimming pool 2,500 m ³ (Number of pools)	Equivalent to average daily consumption in Asia (95 Liter) ⁵ (Number of people)
One hotel with 300 rooms	3,400,000	1.5	35,800
Hotel chain of 20 hotels with 300 rooms per hotel	68,400,000	27.4	720,000

**+30%
linen lifespan**

**= 1,000,000
liters of water saved.
Per hotel. Every year.**

By contrast, an intentional linen lifecycle is designed around performance, longevity and guest experience. **Extending linen lifetime by around 30% can save approximately 1 million liters of water per hotel**, while reducing replacement costs and lowering environmental impact across the value chain⁶. Linen is no longer just a housekeeping item. It is part of a hotel's climate resilience strategy. This is where operational leadership becomes visible. The opportunity is already in your hotel. **The question is, will you manage it by default or by design?**

⁴ Metabolic Textile Life Cycle Study 2017, Olympic -size swimming pool: 50m L x 25m W x 2m

⁵ Source: Food and Agriculture Organization of the United Nations

⁶ The full case study with complete supporting information is included on page 4.

Linen purchasing: why cotton is a strategic risk topic

Cotton textiles play a major role in the hospitality industry and not every hotelier is aware that some of the most **impactful sustainability decisions** in hospitality are made **before a product reaches the hotel**. **Every white linen sheet carries history**.



Every piece of hotel linen starts with **cotton cultivation** and although cotton is a natural fibre, its production carries significant environmental, social and labour-related risks. Cotton is highly water-intensive and often grown in regions facing **water stress**, while the **climate crisis** (heat, drought, pests and disease) makes supply increasingly volatile. At the same time, many cotton farmers face low and unstable incomes, and the use of agrochemicals can threaten **freshwater resources and local communities**. Across the supply chain, standards can vary widely, including risks related to **unsafe working conditions** and documented cases of **child and forced labor**. For hotels, cotton sourcing directly connects human rights, environmental protection and long-term supply resilience, making it a strategic ESG and reputational consideration, not just a procurement detail.

The environmental impact of cotton lifecycle

An overview of water and energy consumption, as well as CO₂ emissions, from seed cultivation to the manufacturing of hotel linens for guest use⁷.

	Growing in the field	Manufacturing process	Using in hotels	Landfill
Water consumption	High	Medium	Medium	Unknown
Energy consumption	Low	Low	High	Unknown
CO ₂ emissions	Low	Medium	High	Unknown

From responsible sourcing to responsible purchasing

Responsible sourcing means applying recognized frameworks that reduce risk and improve practices at farm level. Standards such as **Fairtrade Certified Cotton** support fair income and working conditions, while initiatives like **Better Cotton Initiative**, **Cotton made in Africa**, **GOTS**, **OEKO-TEX®** and others promote improved water stewardship, responsible for pesticide use and stronger labour practices. These frameworks help hotels integrate verified sourcing practices into procurement decisions, while supporting ESG priorities. This turns linen procurement into a leadership decision using purchasing power to drive measurable environmental and social improvement upstream.

From purchase to performance

Choosing the right linen

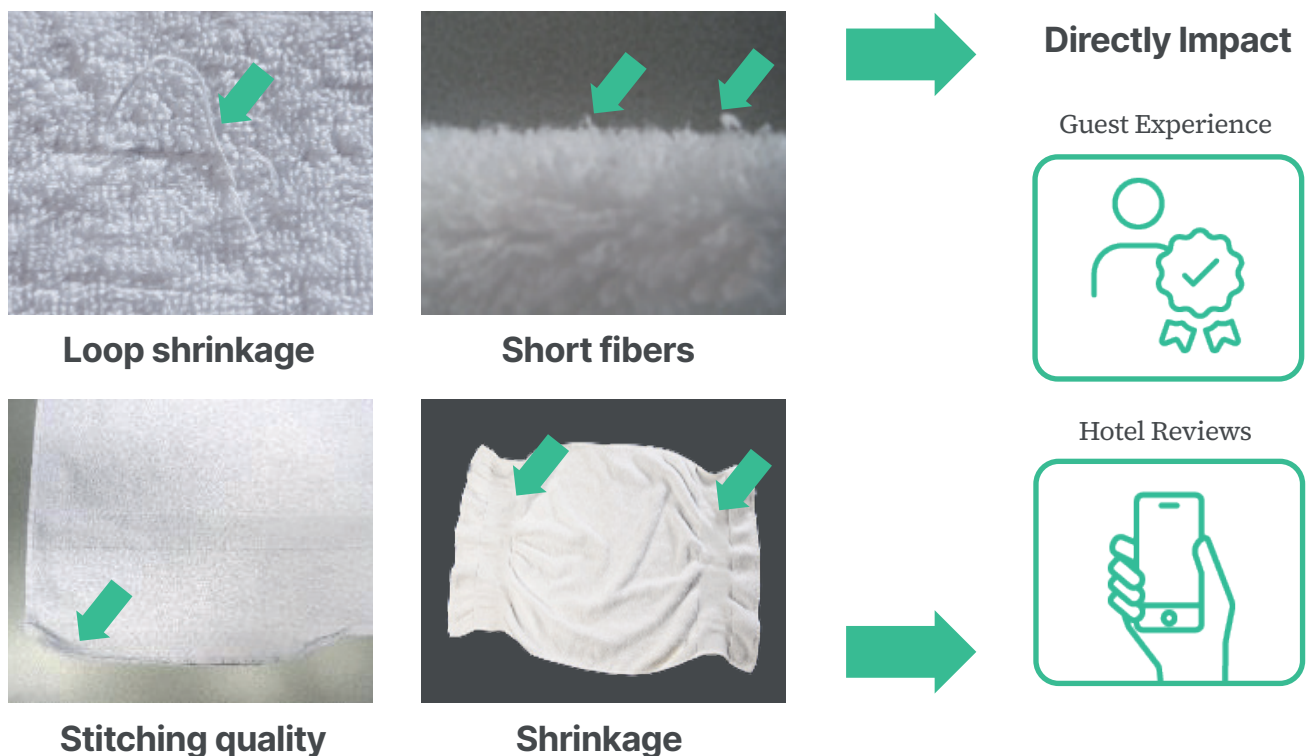
Responsible sourcing is an essential first step, but it does not protect value if linen is replaced prematurely. Not all hotel linen is designed to withstand the same operational demands, and the true differences between linens only emerge over time in durability, consistency and usable lifetime.

When this performance gap is overlooked, hotels face higher replacement cycles, rising capital costs and unnecessary environmental impact. Studies show that one third of laundry operating costs come from linen replacement⁸.

Quality issues typically become visible only after linen enters service. The root causes often lie in differences in fibre quality, yarn spinning, fabric construction and finishing processes. **These factors are rarely assessed in standard procurement comparisons.** Common signs of underperforming linen include:

- Loop slippage in towels, reducing softness and absorbency
- Short fibres that lead to lint creation, faster wear and a rougher texture
- Poor stitching quality causing hems to fail
- Excessive shrinkage affecting fit, appearance and usability

These issues do more than shorten linen life - they also affect guest perception of comfort and cleanliness.



⁸ Based on internal research conducted by Diversey Linen Consulting, including hospitality client data analysis and field observations, 2019.

Objective linen benchmarking

This is where objective linen benchmarking becomes critical. Once linen suppliers have been shortlisted, hotels need to move beyond paper specifications and validate performance based on facts rather than assumptions. Supplier claims may appear similar, but they do not always translate into the same durability, replacement rates or guest-facing quality in daily use.

Common hotel procurement standards

- Physical dimensions
- Weight per square meter
- Color
- Thread count
- Composition (cotton/poly)
- Relationship quality

* Aligned with international ISO/EN textile standards and OEKO-TEX® certification.

The gap

Purchasing linen based **on production specifications**; without taking into account quantifiable aspects of **Guest Experience** and **Linen Life**.

Through specification review, test-and-measure methodologies and structured supplier comparison, hotels can evaluate linen on an apples-to-apples basis before committing to large purchasing volumes. Linen benchmarking allows procurement teams to verify:

- Fabric and fibre quality
- Construction and stitching durability
- Resistance to shrinkage and wear
- Expected lifetime performance in real laundry conditions.
- Reduce laundry linen replacement cost

By assessing linen under real-life laundry conditions, hotels gain insight into realistic lifetime expectations, replacement frequency, total cost of ownership and operational, as well as environmental impact over time. Testing linen life including strength, loop stability, shrinkage resistance and stitching durability closes the gap between purchasing decisions and real operational performance.

Procurement choices should be based on how linen performs after hundreds of wash cycles, not just how it looks when new.

In practice, extending linen lifetime by around 30% reduces replacement volumes and delivers immediate operational savings⁹.



It also lowers environmental footprint by reducing demand for new textiles, cutting raw material extraction, manufacturing impact, water and energy use, chemical consumption and textile waste, while preserving guest comfort and quality perception. In many cases, the financial return of such improvements far outweighs the initial investment.

For this reason, many hotels complement responsible sourcing with expert linen assessment and lifecycle guidance verifier by a [linen consultant](#). By aligning purchasing decisions, textile selection and laundry processes from the start, hotels reduce capital expenditure, avoid frequent par stock replacement and ensure consistent linen quality across room, bath, F&B and staff linen.

Because the most sustainable linen is the linen you don't have to replace prematurely.

⁹ Metabolic Textile Life Cycle Study 2017, Data360.org average water use per person per day in Asia, Olympic-size swimming pool: 50m L x 25m W x 2m D

Protecting linen in use

Daily laundry operations drive the largest environmental impact



The largest share of linen's environmental footprint is created after purchase, **during day-to-day hotel operations**, especially through **repeated laundering**. Wash temperature, mechanical action, chemistry, dosing accuracy and stain management all determine not only resource consumption, but also how quickly fibers degrade and linen must be replaced. When these elements work together, hotels extend linen lifetime while reducing water, energy and chemical consumption at scale. Fewer premature replacements also mean lower textile demand, less embedded water and carbon, and reduced waste.

This is why modern hospitality is shifting from seeing “**laundry as a back-of-house routine**” to recognizing it as a **ESG lever** and **operational performance driver** improving guest experience, lowering costs, reducing risk and delivering measurable ESG-impact at the same time. By treating linen as a strategic asset and managing the laundry processes accordingly, hotels can dramatically extend textile lifetime and save **millions of liters of water per hotel**.

Because sustainability in hospitality is not driven by promises, but by everyday operational decisions like choosing linen that lasts longer, feels better and uses fewer resources over its lifetime.

From laundry room to data: making laundry performance visible

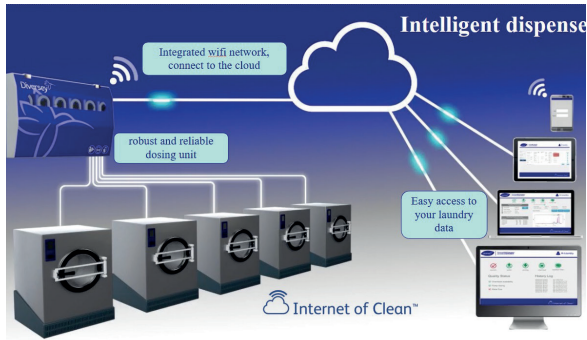


Traditionally, laundry performance was judged by visual results, is the linen white and clean or not. Today, leading hotels go further by measuring how that cleanliness is achieved, and at what environmental cost. Water use, energy demand, chemical consumption and rewash rates are now key sustainability indicators alongside hygiene and quality.

Laundry sits at the intersection of two growing ESG pressures - carbon reduction and water stewardship. Heating water is one of the most energy-intensive steps in hotel laundry and a direct contributor to carbon emissions.

At the same time, many hotels operate in regions already facing water stress, where inefficient washing, overdosing and rewash cycles silently increase pressure on local water resources. Making these factors visible transforms laundry from a hidden utility into a measurable driver of climate impact reduction and responsible water management.

Connecting reliable dosing and monitoring platforms, such as **IntelliLinen™**, bring transparency into daily operations by combining accurate dispensing with real-time monitoring and performance insights, anytime, anywhere. These systems turn process data into actionable intelligence, helping hotels to:



- Reduce water and energy overconsumption
- Prevent chemical overdosing
- Lower rewash rates caused by inconsistent results
- Improve wash quality consistency across shift and teams
- Identify site-specific inefficiencies

Instead of relying on assumptions, sustainability improvements become trackable operational results. Across international hospitality sites, data-driven optimization has delivered measurable reductions in resource use and operational costs.

These results demonstrate how turning data into laundry insights helps identify efficiency and cost-saving opportunities across every site. By turning data into insight, hotels gain control over one of the most resource-intensive parts of their operation, protecting linen quality while reducing environmental impact at the same time.

Case Study Minoa Palace Resort & Spa

“The challenge is to have clean linen and be cost-efficient and environmentally friendly. We need to monitor our business and improve the way we operate to be more efficient with our laundry.”

- Christos Giasiklis, General Manager at the Minoa Palace Resort & Spa.



IntelliLinen™ has helped revolutionize the way Minoa Palace Resort & Spa handle their laundry operations. By tracking and acting quickly to minimize problems in real-time, the resort greatly reduces their impact on the environment. With improved statistics, it's been effortless to adjust and increase the overall laundry efficiency:

- In depth washer productivity data
- Reduces rewash
- Maximize water and chemical usage for large wash volumes
- Improved sustainability strategy, reduced environmental impacts
- Prompt attention to problems
- Excellent wash quality enhances the resort's brand image

[Download the Full Story](#)

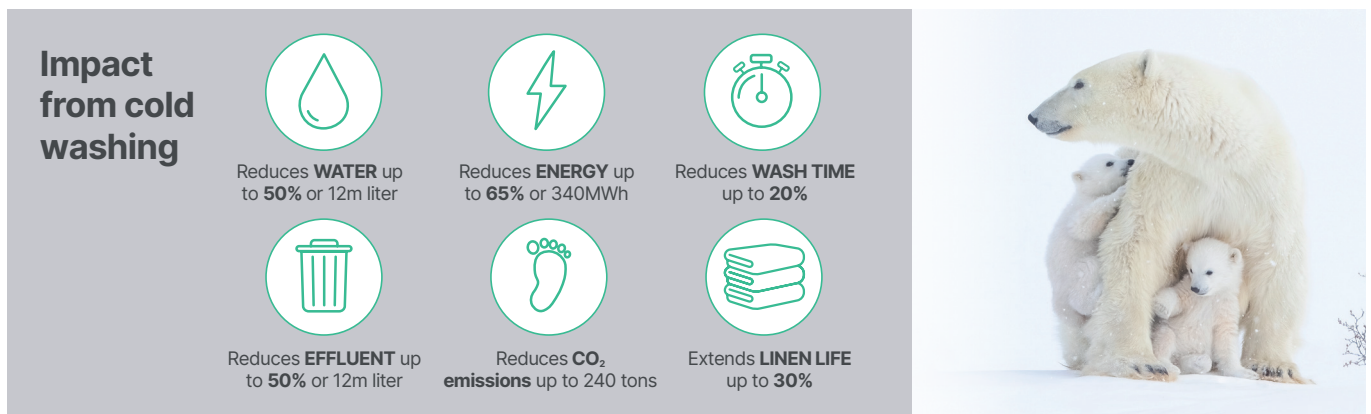
The shift to low and cold temperature washing

A breakthrough in reducing laundry's environmental footprint is the transition to cold and low-temperature wash programs. Historically, high temperatures were used as a safety margin for hygiene. Today, with the right chemistry, process control, and mechanical action, hotels can achieve excellent hygiene and stain removal at significantly lower temperatures.

Low temperature wash programs help hotels:

- Cut energy demand linked to water heating
- Lower carbon emissions from laundry operations
- Reduce fiber stress, extending linen lifetime
- Maintain hygiene standards and guest expectations

Solutions such as **Clax® Polar** and **Clax® Advanced** low temperature programs are designed specifically to deliver strong cleaning performance under cooler conditions, without compromising hygiene or quality. When combined with connected dosing and monitoring, cold washing becomes not just a technical change, but a strategic sustainability upgrade.



Protecting linen means extending its life

Protecting linen “in use” goes far beyond clean results and removing stains. It means designing a smarter laundry system that actively prevents premature wear, while also reducing environmental impact. It is about choosing recognized, third-party verified eco-certified systems and combining them with smart process control to extend linen lifetime, reducing operational costs, and lower environmental impact across the laundry operation.

Solutions such as Clax® Pur-Eco, certified according to the EU Ecolabel standard, help hotels combine high performance with reduced environmental burden. These certifications recognize products that meet strict criteria on chemical composition, aquatic safety and overall environmental impact. When used within a well-controlled laundry process, eco-certified products support key performance factors that protect both linen and resources:

Key factors include:

- Accurate dosing to avoid fiber damage from chemical overuse
- Optimized wash formulas tailored to soil level and textile type
- Rewash prevention through consistent first-time wash quality
- Controlled mechanical action and temperature profiles
- Targeted stain removal programs instead of aggressive blanket washing

How you care for assets

Safe systems, training and processes that protect people and assets

Linen management is inseparable from the people who handle it every day. Laundry and housekeeping teams work under time pressure, often in environments with heat, chemicals and heavy loads. Small process failures like incorrect dosing, rushed sorting or poor handling can quickly lead to damaged linen, rewash, waste and higher costs.

Operational leadership shows in the systems behind the scenes:

- Safe and automated dosing systems that reduce manual chemical handling
- Clear operating standards and visual guidance
- Ongoing training in correct loading, sorting and stain treatment
- Ergonomic equipment and workflows that reduce physical strain
- Preventive maintenance routines that protect both machines and textiles

When teams are supported with the right tools, knowledge and safe processes, they protect linen better and deliver more consistent, higher-quality results. Well-cared-for teams care better for assets. For hotel managers, daily laundry operations are not just a technical function. They are one of the most powerful levers for reducing environmental impact, controlling operating costs and protecting the assets that shape guest experience.

UPCYCLE: how you deal with what remains

Transforming hotel linens into opportunities

Each year, a typical 400-room hotel generates two to three metric tons of used linens, including bedsheets, pillowcases, towels, tablecloths and uniforms. These textiles represent more than just waste: they contain embedded value in the form of raw materials, water, energy and labor invested throughout their lifecycle¹⁰.



Even with the best buying and operational decisions, every piece of linen eventually reaches the end of its usable life. In hospitality, this is not an exception, it is a predictable and recurring outcome of daily operations. **And the volumes are significant.**

Traditionally, end-of-life linens are treated as a disposal problem. Most textiles are **incinerated or sent to landfill**, releasing emissions and permanently losing the material value that has already been created. This approach turns a long lifecycle into a short ending and increases both environmental impact and reputational risk, particularly as guests and stakeholders increasingly expect transparent circular practices and supporting **sustainable development goals**.



¹⁰ Source: Research by Linens For Life™, Diversey, a Solenis Company (2011).

Linens For Life™, circular end-of-life linen management.



A program designed to repurpose hotel linen that is no longer suitable for guest use but remains durable enough to be transformed into practical items such as simple clothing, tote bags or reusable products.

Rather than sending discarded linen to landfill or incineration, the program enables responsible repurposing while creating additional shared value.

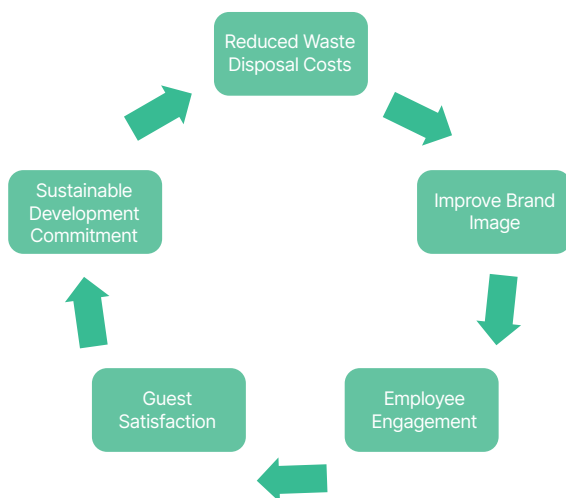
Women like Elena, who migrated in search of safety and opportunity, now transform donated hotel linen into new, useful products in a safe and respectful working environment.

Having left behind a situation marked by violence and exploitation, Elena was determined to rebuild her life and create stability for her family.

Through this work, she earns a fair income, builds valuable skills and regains independence, strengthening her ability to support herself and those who depend on her.

What once served your guests, can help build a new future for someone else. By participating in Linens for Life™, your hotel helps turn what remains into dignity, resilience and lasting impact.

End-of-life is where circular hospitality becomes real and where leadership becomes visible.



Beyond the environmental benefit of reducing textile waste, circular linen solutions can also generate meaningful social impact. Through partnerships with local charities, NGOs and community organizations, **Linens For Life™** provides sewing training and donated equipment to people in vulnerable situations including refugees, disaster survivors, and women escaping trafficking, exploitation or domestic abuse.

Participants develop practical skills and gain an opportunity to generate income by producing and selling repurposed items, contributing to economic independence and long-term resilience. At the heart of such programs is collaboration and **creating shared value**. Hotels contribute by donating used linen, while local organizations provide the training, support and community infrastructure needed to turn textiles into opportunity. By integrating circular economy principles into hospitality operations, hotels can reduce waste streams while helping build livelihoods where it matters most.

Ultimately, a **linen lifecycle strategy** is incomplete without end-of-life responsibility. Because sustainability in hospitality is not only shaped by what hotels buy and how efficiently they operate, but also by what they do with what remains.

Proof point: Rixos Hotels Türkiye

One operational decision scaled across a portfolio = measurable impact

Facts:

Rixos Hotels Türkiye x Linens For Life™ (2024)

Women artisans: 35

Products created: 44,000+

Materials: bed sheets / towels / textiles

SDG links: SDG 12, SDG 5, SDG 8



Rixos Hotels transformed Linens For Life™ from a single initiative into a scalable, multi property model.

Rixos Hotels Türkiye demonstrate how a single operational decision can create an ESG impact on a portfolio scale. Through Linens For Life™, end-of-life hotel textiles are repurposed instead of incinerated or landfilled generating measurable environmental benefits, while creating dignified work opportunities for women in vulnerable situations.

In 2024, Rixos partnered with Diversey to give used sheets, towels and textiles a second life. **35 women artisans** from Istanbul, Ankara and Hatay transformed donated linen into **44,000+ handmade sustainable products**, extending material value beyond the guest stay and reducing textile waste.

What makes this model powerful is its **simplicity and scalability** - how a hotel manages end-of-life linen can be embedded into daily operations and replicated across multiple properties. This is not a **donation model**, **it is regenerative hospitality**, delivered through everyday decisions, with clear ESG contribution and strong alignment to the SDGs.

Operational leadership starts today

A linen lifecycle strategy is not built through one policy document or one sustainability pledge. It is built through the decisions your teams make every day through procurement, housekeeping, laundry, and sustainability.

When linen is managed intentionally, hotels reduce costs, lower risk, and strengthen ESG credibility without compromising guest experience. The biggest impact does not come from perfection, but from clarity - clear ownership, measurable routines, and shared accountability across departments.

For hotel leaders, the next step is simple: start with the questions that make performance visible.

- **General Managers:** Do we know our linen replacement rate and what drives premature loss?
- **Procurement:** Are our suppliers transparent on cotton sourcing, audits and realistic lifetime expectations?
- **Operations & Laundry:** Are our wash temperatures, dosing and rewash rates optimized for hygiene and fabric protection?
- **Sustainability Leads:** Can we map linen decisions to ESG priorities, SDGs and reporting requirements?

Because true hospitality leadership goes beyond the guest experience. It starts behind the scenes before the stay and continues long after it ends.

Diversey, A Solenis Company can help hotel managers lower operational costs, improve efficiency and reach sustainability targets. Please get in touch with us to learn more about our laundry solutions. Together we can make a big difference for your business and the environment.

Increase linen lifetime by 30%

Diversey™ Consulting

Clax®

Linens For Life™



Guarantee
guest experience



Ensure
linen hygiene



Extend
linen lifetime



Reduce carbon footprint
- energy & water



Support
Creating Shared Value Programs (CSV)



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