



HackMTY 2025 – Pick & Pack of the Future
Pillar: *Smart Execution*

Employee Efficiency

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gategroup

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Employee Efficiency

1. Understanding the Context

In airline catering, the packing process plays a central role in ensuring that every flight receives the correct combination of food, beverages, and service items. It involves assembling drawers and trolleys according to airline specifications, where every component must be placed in a defined position and sequence. Accuracy, timing, and consistency are critical, as each flight follows a unique service plan that dictates the exact setup required onboard.

Packing may look simple from the outside, but it requires significant coordination, speed, and attention to detail. Employees must memorize product locations, follow changing layouts, and ensure uniformity across multiple flights and service classes. A single drawer can contain more than a dozen individual components, and each mistake such as placing the wrong item or missing one can disrupt service onboard and cause waste or customer dissatisfaction.

Because the work is repetitive and often performed under time pressure, maintaining accuracy and motivation can be challenging. New employees typically need several days or even weeks to reach the required speed and precision. Experienced staff tend to perform faster, but fatigue, distractions, or unclear layouts can still lead to errors. As a result, the overall output per shift can vary widely depending on who is working, how tasks are organized, and how clear the instructions are.

The packing area operates much like an assembly line. Employees move continuously between stations, preparing drawers and trolleys that must be completed before each flight's loading deadline. Any delay or quality issue in this step can create a chain reaction that impacts downstream processes such as dispatch or loading. To meet strict departure times, teams must balance both speed and accuracy, producing consistent results without compromising quality.

Supervisors often rely on observation and manual tracking to estimate productivity and identify bottlenecks. However, it is difficult to monitor individual performance in real time or to understand how layout complexity, product changes, or training levels affect efficiency. Without clear data, it becomes hard to pinpoint what slows down packing, where errors occur, or how best to support employees in improving their performance.

Improving employee efficiency in the packing process therefore means more than just working faster. It is about finding ways to make the job easier, more consistent, and less

mentally exhausting. By supporting employees with the right tools, guidance, and feedback, catering units can ensure that drawers are packed correctly the first time, minimize rework, and keep operations running smoothly even under constant time pressure.

2. The Current Challenge

Packing drawers and trolleys for airline catering is a repetitive and time-sensitive process that relies heavily on human performance. Each flight requires its own set of layouts, menus, and service configurations, meaning employees must constantly adapt to variations in product type, positioning, and quantity. Even small differences between airlines or service classes can significantly increase complexity and cognitive load.

Today, most catering units depend on manual methods to manage this process. Employees follow printed packing plans, visual layout sheets, or on-screen templates that show how each drawer should look. They collect products from shelves or bins and place them in the correct compartments while ensuring that nothing is missing or misplaced. The accuracy of the final result depends almost entirely on individual focus and experience.

While some employees can complete drawers quickly and accurately, others take longer or require frequent verification. New hires often struggle to reach expected speed levels during their initial weeks, and even experienced staff can slow down when faced with frequent menu changes, unclear layouts, or missing products. Supervisors must walk around to check progress, identify delays, and provide support when errors occur. This constant monitoring consumes valuable time and often happens only after inefficiencies have already developed.

The repetitive nature of packing also contributes to fatigue and reduced motivation over long shifts. Employees perform hundreds of similar motions every day, such as reaching, sorting, and placing items. Physical tiredness and mental monotony can gradually lower concentration, leading to small but frequent mistakes. Over time, these inconsistencies result in quality issues, rework, and variable output between shifts or teams.

Some facilities have tried to address this by introducing visual aids, productivity targets, or bonus systems to encourage faster performance. However, these measures do not always tackle the root causes of inefficiency. Without real-time insights into how long each drawer takes to complete or which steps create delays, it is difficult to identify training needs, optimize workstation design, or balance workloads across employees.

The absence of consistent data on employee performance means that most improvements are based on observation or intuition. Supervisors can see when a station is slow but not necessarily understand why. Are instructions unclear? Is the layout too complex? Is the employee new or simply overloaded? Without objective measurement,

there is no reliable way to compare efficiency across shifts or identify best practices that could be replicated.

In summary, the current process relies on human effort, visual memory, and manual supervision. It lacks standardized performance metrics, real-time feedback, and automated support to guide employees toward consistent, high-quality output. As a result, productivity and accuracy fluctuate from person to person and from shift to shift, limiting the overall efficiency of the packing operation.

3. Your Mission

Your challenge is to rethink how the packing process can be supported and optimized so that employees can work faster, more accurately, and with less physical and mental strain. The goal is to make the packing environment smarter, where each employee can maintain consistent performance regardless of experience level or shift conditions.

You are invited to design an innovative solution that helps measure, guide, or enhance employee efficiency during the packing of drawers and trolleys. This can include digital tools, sensors, ergonomic improvements, visual guidance systems, or real-time feedback solutions that support workers in achieving the right balance between speed and accuracy.

Imagine a solution that observes, assists, or predicts performance in real time. For example, it could provide instant feedback on the quality of packing, highlight the next product to pick using light or projection cues, or display the correct layout digitally as the employee works. It could track how long each drawer takes to complete, suggest ways to rearrange workstations for better ergonomics and flow, or help supervisors identify when an employee is overloaded, fatigued, or struggling with a specific layout so that adjustments can be made before delays occur.

Your concept can address either the human, digital, or physical aspects of the process, or ideally a combination of all three. It can focus on individual performance improvement, teamwork coordination, or workstation optimization. What matters most is that your idea enables employees to perform their tasks with greater consistency and less effort while maintaining high quality standards.

In scope:

- Measuring or visualizing individual or team performance during packing
- Providing real-time feedback, visual cues, or assistance to improve speed and accuracy (e.g., pick-to-light, projection, AR overlays)
- Designing intelligent workstations that adapt to the user's pace or workload

- Using data, sensors, or computer vision to identify inefficiencies and guide improvements
- Supporting training and onboarding with digital aids that accelerate skill development

Out of scope:

- Redesigning flight menus, catering specifications, or product packaging
- Changing the organizational structure or labor model of catering units

You do not need to design a full enterprise system. A prototype, interface mock-up, or data-driven concept is sufficient if it demonstrates how technology or process design can enhance employee efficiency on the packing floor. Focus on solutions that can realistically fit within a busy operational environment where employees handle many products in a short amount of time.

The key objective is to show how your solution can help people work smarter, not just harder. Whether through real-time data visualization, ergonomic improvement, or assistive guidance technologies, your idea should make the packing process more intuitive, consistent, and efficient for everyone involved.

4. Inspiration and Example Ideas

There are many ways to improve how employees perform packing tasks, from digital guidance systems to intelligent workstations and data-driven performance tools. The most effective ideas combine technology, ergonomics, and user experience to help employees complete their tasks faster, more accurately, and with less stress. Below are a few examples to inspire your thinking. You can use them as references, adapt them, or develop something entirely different.

a. Pick-to-Light or Pick-by-Projection System

An interactive workstation where lights or projected indicators guide employees step by step through the packing process. Each compartment lights up or highlights the correct product position, confirming once the right item is placed. This reduces search time, prevents misplaced items, and helps new employees reach full speed more quickly.

b. Smart Packing Assistant with Real-Time Feedback

A digital screen or tablet connected to sensors or cameras that track progress and confirm accuracy in real time. The system could show the next drawer to pack, monitor completion time, and automatically detect missing or misplaced items.

Employees would receive gentle visual or audio alerts when errors occur, improving consistency without slowing down operations.

c. Performance Visualization Dashboard

A visual dashboard that displays productivity and accuracy metrics for individuals or teams. It could track how many drawers each employee completes per hour, average error rate, and overall line efficiency. Supervisors could use this data to identify training needs, balance workloads, or recognize high performers.

d. Adaptive Workstation Design

A modular or height-adjustable packing station equipped with ergonomic aids such as adjustable shelving, sensor-based product bins, or automated product feeders. These improvements reduce unnecessary movements and physical strain, helping employees maintain their speed and precision throughout the shift.

e. AI-Driven Efficiency Coach

A data-driven tool that learns from historical packing data to identify optimal patterns and suggest process improvements. It could predict when an employee is likely to slow down, recommend rotation schedules to avoid fatigue, or optimize drawer assignment to match skill levels and layout complexity.

f. Augmented Reality (AR) Training or Guidance

An AR headset or overlay that shows visual instructions directly in the employee's field of view. This could guide packing order, highlight product placement zones, and validate completion automatically. The same technology could also be used for onboarding and skill development, helping new employees reach proficiency faster.

g. Collaborative Support Tools

Digital tools that enhance communication and teamwork within the packing line. For example, shared visual boards could display which flights are on priority, which drawers need verification, or which areas require support. These tools promote coordination and help supervisors manage shifts more efficiently.

A strong idea does not have to rely on complex automation. Even simple but well-designed digital or ergonomic aids can make a measurable difference in a fast-paced environment. The key is to focus on usability, simplicity, and real-world impact, creating a solution that helps employees stay confident, consistent, and efficient while keeping the process smooth and error-free.

5. Supporting Mock Data

To help you design and test your ideas, you will receive a simplified dataset that simulates real performance data from the packing process within an airline catering unit. This dataset reflects how employee efficiency could be measured, analyzed, and visualized based on speed, accuracy, and consistency while packing drawers and trolleys.

Each row in the dataset represents a single completed packing activity performed by an employee. It includes key details such as the employee ID, flight number, packing specification, start and end time, total duration, and quality result verified through internal checks. The data allows you to explore how digital tools could identify bottlenecks, visualize performance trends, or predict where inefficiencies are likely to occur.

You can use this dataset to create dashboards, visual feedback tools, or AI-driven models that simulate real-time tracking of packing performance. For instance, you could build a dashboard showing how long each task takes to complete, compare employee performance across shifts, or identify when packing times start exceeding a defined threshold. You could also model alert systems that detect rework patterns or predict fatigue based on duration and error frequency.

Using the dataset is optional. You may also focus your concept on process design, smart workstations, or guided systems such as pick-to-light or AR-based assistance, without necessarily relying on data analytics. The goal is to help employees perform packing tasks more efficiently, accurately, and consistently, regardless of experience level.

Below is the structure of the mock dataset:

Column	Description
Record_ID	Unique identifier for each packing task. Example: PKG001, PKG002.
Employee_ID	Unique identifier for the employee who performed the task. Example: EMP005.
Flight_Number	The flight for which the drawer or trolley was packed. Example: LX721.
Spec_ID	Reference to the drawer or trolley layout used for packing. Example: SPEC_A01.
Start_Time	Timestamp when the task began, formatted as YYYY-MM-DD HH:MM:SS.

End_Time	Timestamp when the task was completed, formatted as YYYY-MM-DD HH:MM:SS.
Duration_Seconds	Total time spent on the packing task.
Accuracy_Score	Quality check result, such as Pass, Minor Error, or Rework Required.
Items_Packed	Number of individual items included in the drawer or trolley.
Rework_Flag	Indicates whether the drawer required rework (Yes/No).
Supervisor_Notes	Optional remarks or observations made after verification. Example: "Layout confusion" or "Improved speed."

This dataset captures realistic operational conditions where packing times, performance, and accuracy vary depending on layout complexity, employee experience, and product availability. It reflects natural variations across employees, shifts, and specifications to simulate real-world scenarios.

Remember that this mock data represents only a small portion of what a real catering unit manages daily. In practice, hundreds of employees may work simultaneously across multiple lines and shifts, handling thousands of drawers per day. Your solution should consider this scale and dynamic pace while remaining practical, intuitive, and supportive for employees working under time pressure.

6. What Makes a Great Solution

Judges will evaluate your project based on several key dimensions that combine creativity with real operational value. A great solution does not have to be fully automated or complex. It should clearly demonstrate how technology or process design can make the packing work faster, easier, and more consistent for employees.

a. Innovation

How original and creative is your solution? Does it introduce new ways to support employees in the packing process through visual aids, automation, or intelligent feedback? Innovative ideas could include using light guidance, real-time analytics, or adaptive interfaces that reduce errors and speed up packing. Judges will value approaches that rethink traditional manual work while remaining practical.

b. Feasibility

Can your idea realistically work in an airline catering environment? Packing areas have limited space, strict hygiene requirements, and high throughput. The best solutions are those that can be implemented with minimal disruption and deliver measurable benefits even in busy, time-sensitive operations.

c. Efficiency

Does your concept make the process faster or reduce the amount of manual checking and supervision needed? Great solutions help employees complete tasks more smoothly and consistently by minimizing repetitive steps, simplifying decisions, or optimizing task flow. The focus is on making every second count without increasing pressure or stress.

d. Sustainability

How does your solution contribute to a more sustainable operation? Improving efficiency not only saves time but also reduces errors, waste, and unnecessary rework. A sustainable design considers long-term usability, durability of technology, and positive impact on employee wellbeing.

e. User Experience

Is your solution intuitive and supportive for employees working in fast-paced conditions? A strong design should require little training, provide clear visual feedback, and help employees stay confident and motivated. Whether using displays, sensors, or ergonomic aids, the system should enhance human performance rather than replace it.

A great solution is one that combines innovation, feasibility, and real impact on people's daily work. Even a simple tool that helps employees pack more accurately, get feedback instantly, or reduce physical strain can make a big difference across multiple shifts and facilities. The key is to show how your idea could realistically fit into existing workflows and improve the overall efficiency, quality, and experience of the packing process.

7. Real-World Impact

Imagine your solution being used daily in airline catering facilities around the world. Hundreds of employees work on packing drawers and trolleys across multiple shifts, each one contributing to the timely departure of dozens of flights. Even a small improvement in speed, consistency, or accuracy can generate a significant operational impact when multiplied across the entire network.

A successful solution could allow employees to work with clearer guidance and less effort, reducing the cognitive load of remembering complex layouts or sequences. Real-time visual aids could highlight the next item to pick, confirm correct placement, or immediately alert the employee when something is missing. This would help minimize packing errors, improve overall quality, and reduce the time supervisors spend on rework and inspections.

At the same time, better visibility into performance could enable managers to plan workloads more effectively, balance assignments, and identify where additional training or support is needed. Insights from digital tools could reveal which layouts take longer, which employees might be overloaded, and where bottlenecks occur during peak hours. This data could be used to optimize shift planning, improve training programs, and design more ergonomic workstations.

By combining data, feedback, and user-centered design, the overall work experience becomes more rewarding for employees. Tasks become clearer, less repetitive, and more predictable, which helps maintain motivation and reduce fatigue. Over time, catering units could achieve higher throughput with fewer errors, lower rework rates, and a safer, more sustainable working environment.

Beyond airline catering, these types of solutions could also apply to other industries where people perform repetitive, time-sensitive packing or assembly tasks, such as food production, logistics, or retail operations. Any environment where humans and standardized processes meet can benefit from technologies that make work more intuitive, guided, and efficient.

By developing a creative and realistic approach to employee efficiency, you are helping shape the future of smart catering operations where people and technology work together seamlessly to deliver quality, precision, and reliability at scale.

8. Tip for Participants

You do not need to be an expert in airline catering to understand this challenge. You can think of it as an optimization problem in a fast-paced assembly environment, where employees must balance speed, accuracy, and quality under constant time pressure. The goal is to make this work easier, smarter, and more consistent through supportive tools and design.

Focus on understanding the core issue: employees perform repetitive manual tasks that require attention to detail, memory, and coordination. Mistakes or delays can affect the entire production flow. Your solution should therefore help people work more confidently and efficiently, whether through digital guidance, automated feedback, or ergonomic improvements.

Try to visualize the environment where your concept would be used. Employees stand at packing stations, follow layout instructions, and handle a wide variety of products. The workspace can be dynamic and sometimes noisy, with supervisors coordinating multiple lines at once. A great solution will fit naturally into this setting and require minimal additional training to use.

You can take inspiration from technologies used in other industries, such as pick-to-light systems in logistics, projection-based guidance in manufacturing, or wearable devices that provide feedback through lights or vibration. Even simple visual cues or progress indicators can make a large difference in helping employees stay focused and consistent.

Above all, focus on usability and impact. A small improvement in how employees receive guidance, get feedback, or organize their work can lead to big gains in efficiency, quality, and motivation. Think creatively about how people and technology can complement each other to make the packing process smoother, safer, and more rewarding for everyone involved.