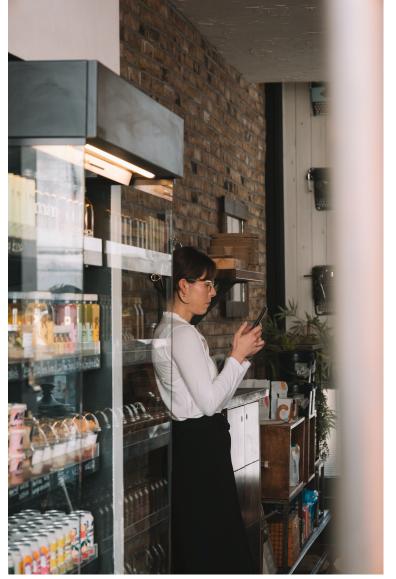
n Nesto

Making Restaurants Smart

Using Machine Learning and Mathematical Optimization



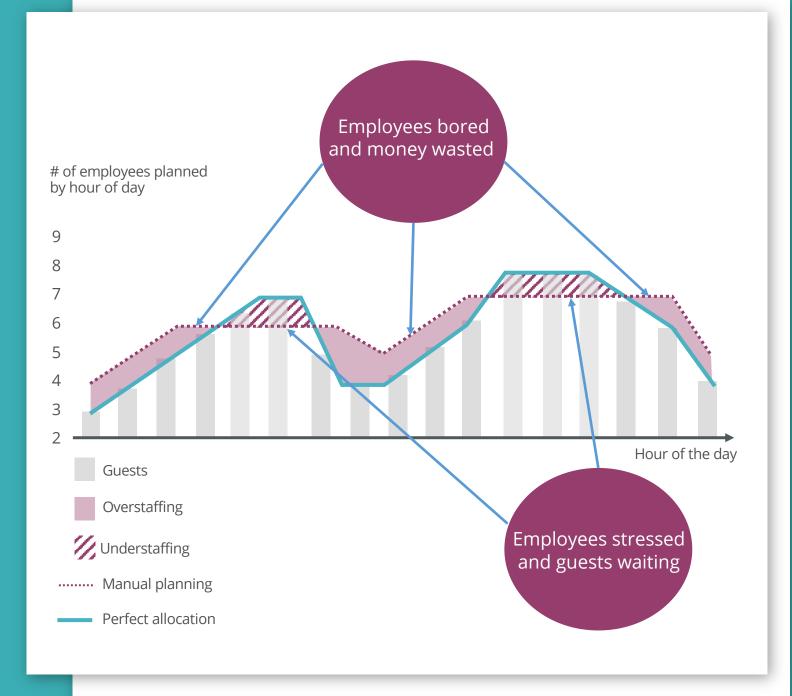




STATUS QUO

Manual labor planning takes forever and leads to non-optimal solutions.

- Guests and employees not satisfied, especially in peak times
- 20-30% profit wasted
- Manager strongly occupied with planning and administration
- Often: unlawful rosters





Workforce planning is challenging but very important for profitability.

Guest experience



- Operation freq.
- Waiting time (direct)



 Staff satisfaction (indirect)

Labor costs Labor cost ratio: 35+% 31,4% 25,6% 2006 2022 2016

Additional challenges



Minimum wage increase



Complexity of labor law



Skilled labor shortage

OUR SOLUTION

Al creates perfect rosters with a single click that fit the forecasted demand and consider employee preferences, laws, skills etc.

Forecast workload

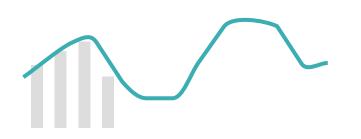
historic data combined with external factors such as weather, traffic, events, corona incidence, brand trend,...

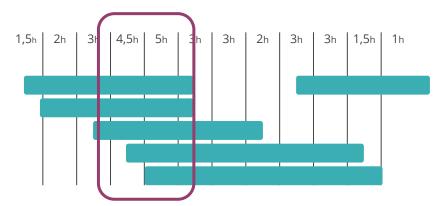
Propose optimal shifts

perfect overlapping during peak and handover times & utilizing break times to avoid overstaffing

Assign employees

considering legal restrictions, absences, staff preferences, contract details, employee skills and experience...









Get a glimpse into our product!

n Nesto

Dashboard

Labor Scheduling

Day Planner

Week Planner

Month Planner

Staff Planner

Beta

Recorded Working Times

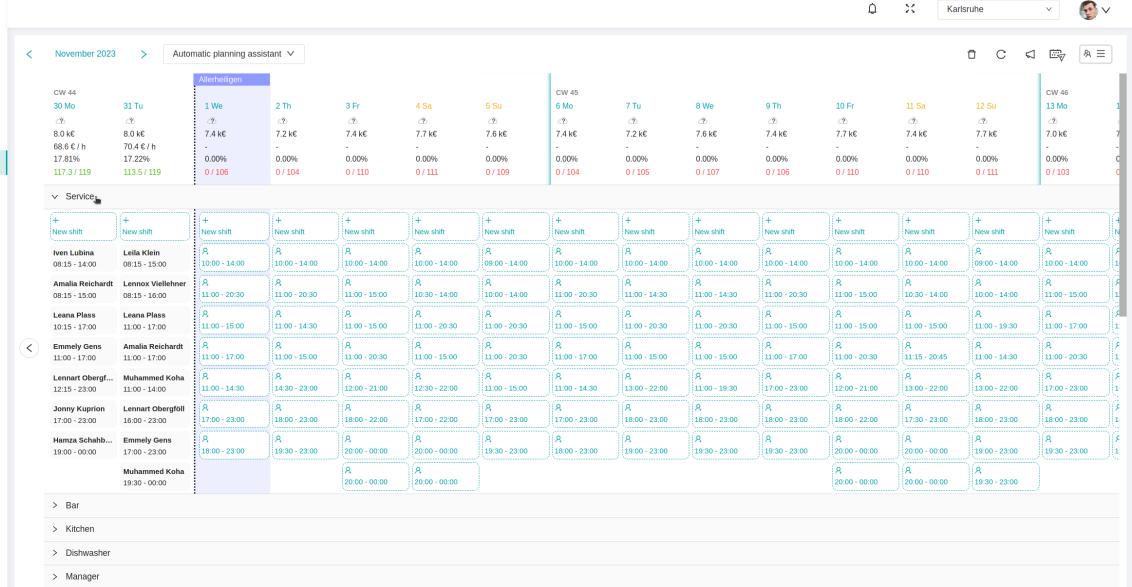
<u>ы</u> Reporting

♠ Employees

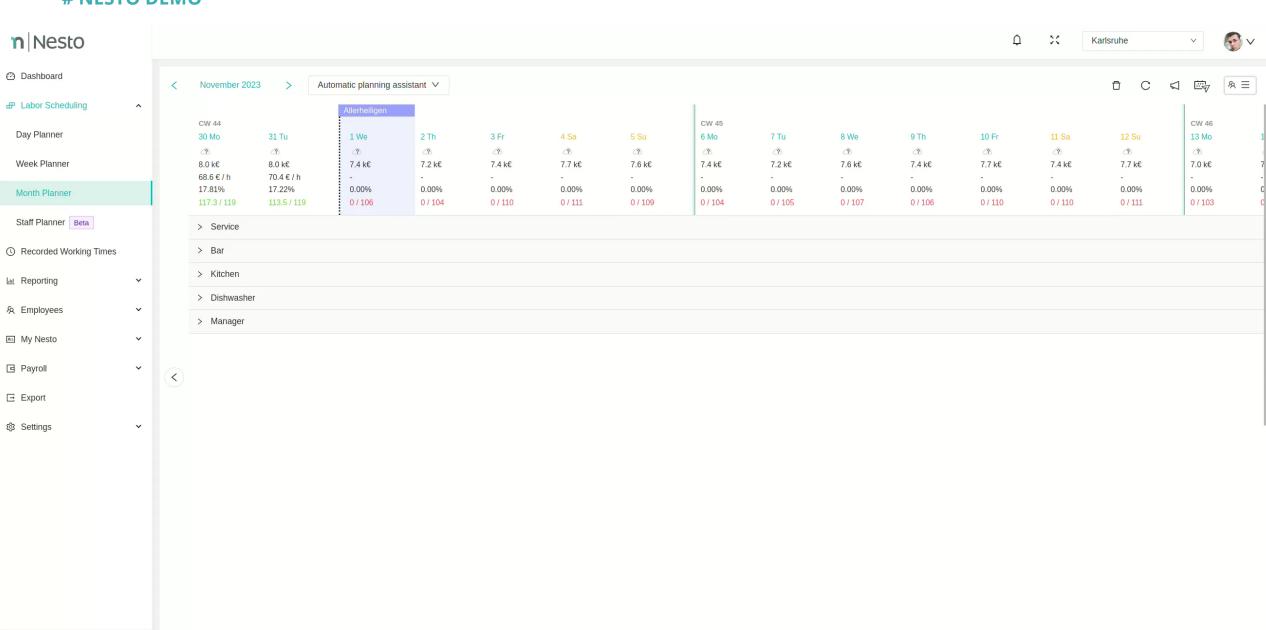
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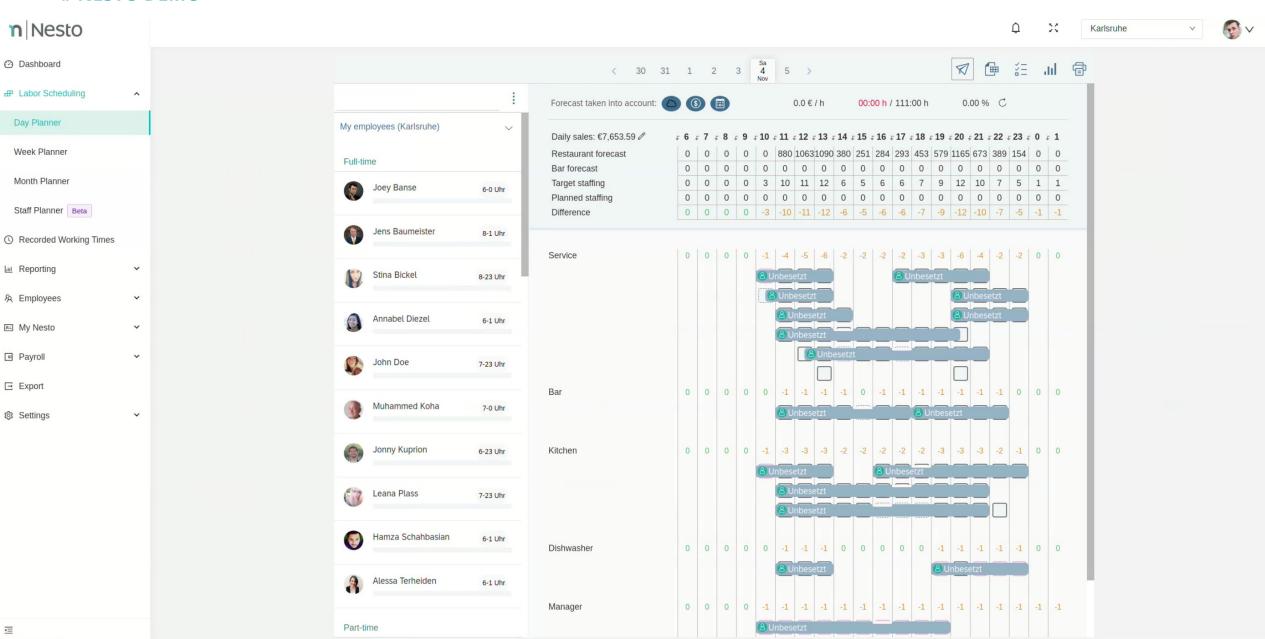
☐ Payroll

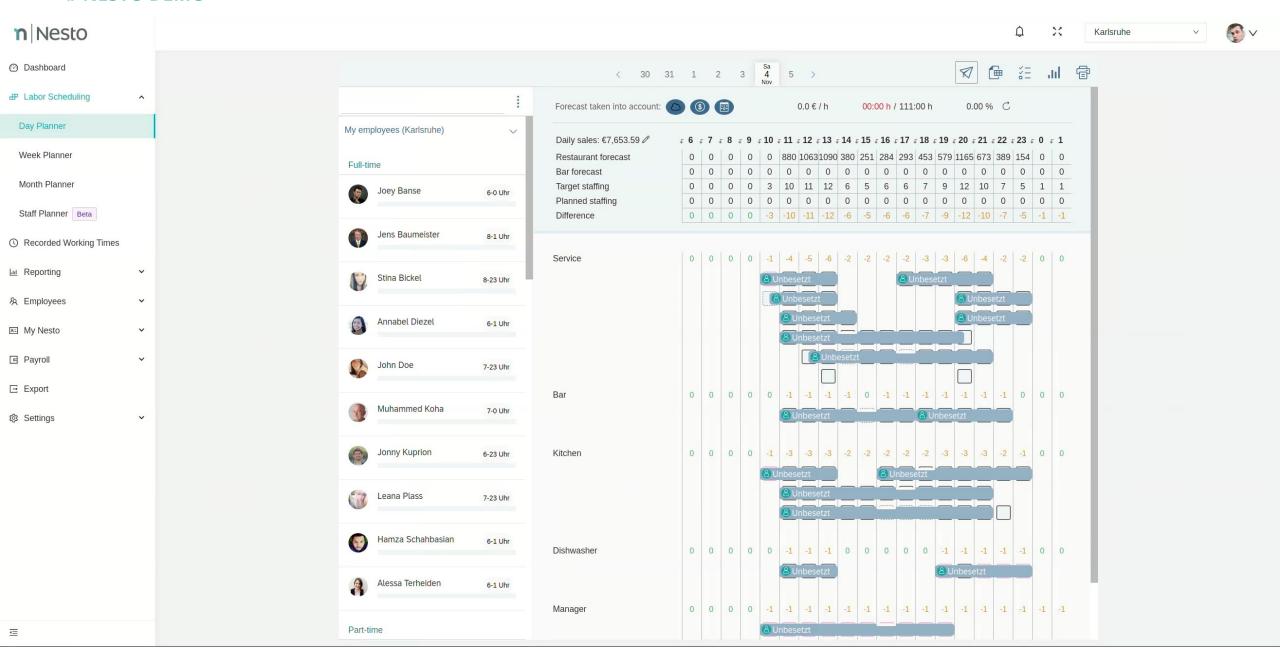
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n Nesto Ω Karlsruhe ~ Dashboard - F & **≡** < November 2023 Automatic planning assistant V C CW 46 CW 45 Day Planner 1 We 2 Th 3 Fr 6 Mo 7 Tu 8 We 9 Th 10 Fr 13 Mo 14 Tu 15 We 16 Th 2 ? 2 2 2 2 ? ? 2 2 2 2 ? 2 2 2 Week Planner 7.4 k€ 7.2 k€ 7.4 k€ 7.7 k€ 7.6 k€ 7.4 k€ 7.2 k€ 7.6 k€ 7.4 k€ 7.7 k€ 7.4 k€ 7.7 k€ 7.0 k€ 7.2 k€ 7.4 k€ 7.4 k€ 74.7 € / h 73.7 € / h 70.0 € / h 71.8 € / h 74.2 € / h 73.9 € / h 72.6 € / h 71.9 € / h 74.4 € / h 75.8 € / h 72.7 € / h 70.7 € / h 74.6 € / h 73.6 € / h 76.9 € / h 71.2 € / h 17.50% 16.97% 16.40% 16.24% 17.14% 16.28% 17.30% 16.20% 16.44% 15.91% 16.39% 17.56% 17.32% 16.89% 16.42% 16.24% Month Planner 99.5 / 103 99.8 / 104 99.5 / 110 101 / 111 105 / 109 99.8 / 104 102.3 / 105 101.8 / 107 100.5 / 106 99.5 / 110 101 / 110 108 / 111 99.8 / 104 99.8 / 105 99.5 / 105 Staff Planner Beta ∨ Service (Recorded Working Times New shift Lill Reporting Tina Hommel Muhammed Ko... Amalia Reichardt Stina Bickel Lilly Schöckel Lennox Vielleh.. Tina Hommel Tina Hommel **Emmely Gens** Lennox Vielleh. Leila Klein Leila Klein Iven Lubina Muhammed Gr. Muhammed Ko.. Muhammed 10:00 - 14:00 10:00 - 14:00 10:00 - 14:00 10:00 - 14:00 09:00 - 14:00 10:00 - 14:00 10:00 - 14:00 10:00 - 14:00 10:00 - 14:00 10:00 - 14:00 10:00 - 14:00 09:00 - 14:00 10:00 - 14:00 10:00 - 14:00 10:00 - 14:00 10:00 - 14:00 & Employees Eleni Prah Lennox Vielleh... Lennart Obergf.. Lennart Obergföll Lennart Obergf.. Muhammed Gr... **Emmely Gens** Muhammed Gr... Leila Klein Eleni Prah Lilly Schöckel Lennox Vielleh Lilly Schöckel Leana Plass Lilly Schöckel Lennox Viell 11:00 - 20:30 11:00 - 20:30 11:00 - 15:00 10:30 - 14:00 10:00 - 14:00 11:00 - 20:30 11:00 - 14:30 11:00 - 14:30 11:00 - 20:30 11:00 - 15:00 10:30 - 14:00 10:00 - 14:00 11:00 - 15:00 11:00 - 16:30 11:00 - 15:00 11:00 - 15:00 My Nesto Leila Klein Eleni Prah Tina Hommel Muhammed Ko.. Lennart Obergf.. Lennart Obergf. Amalia Reichardt Muhammed Gr.. Muhammed Gr. Leana Plass Muhammed Gr... Leila Klein Muhammed Gr... Leana Plass Muhammed Gr.. Lennart Obergf. 11:00 - 20:30 11:00 - 20:30 11:00 - 15:00 11:00 - 15:00 11:00 - 19:30 11:00 - 17:00 11:00 - 19:30 11:00 - 15:00 11:00 - 14:30 11:00 - 15:00 11:00 - 20:30 11:00 - 20:30 11:00 - 15:00 11:00 - 15:00 11:00 - 15:00 11:00 - 15:00 □ Payroll Lennox Viellehner Muhammed Gr. Lilly Schöckel Lilly Schöckel Leana Plass Amalia Reichardt Joey Banse Lennart Obergf. Leana Plass Eleni Prah Lennart Obergf.. Amalia Reichardt Lennart Obergf... Lennart Obe Tina Hommel Joey Banse 11:00 - 17:00 11:00 - 15:00 11:00 - 20:30 11:00 - 15:00 11:00 - 20:30 11:00 - 17:00 11:00 - 15:00 11:00 - 15:00 11:00 - 17:00 11:00 - 20:30 11:15 - 20:45 11:00 - 14:30 11:00 - 20:30 11:30 - 21:00 11:30 - 21:00 11:00 - 20:30 Eleni Prah Eleni Prah Leana Plass Lilly Schöckel Amalia Reichardt Amalia Reichardt Leana Plass Leana Plass Joey Banse **Tina Hommel** Leana Plass Leana Plass **Lennart Obergf** Tina Hommel **Tina Hommel** Eleni Prah 11:00 - 14:30 14:30 - 23:00 12:00 - 21:00 12:00 - 17:00 11:00 - 15:00 11:00 - 14:30 13:00 - 22:00 11:00 - 19:30 17:00 - 23:00 12:00 - 21:00 13:00 - 22:00 13:00 - 22:00 17:00 - 23:00 16:30 - 22:00 15:00 - 23:00 11:00 - 14:30 Settings Amalia Reichardt Lilly Schöckel Lennox Vielleh Leila Klein Leila Klein Muhammed Ko... Muhammed Gr.. Joey Banse Iven Lubina Leila Klein Lilly Schöckel Lilly Schöckel Jonny Kuprion Lennox Vielleh.. Leila Klein Leila Klein 17:00 - 23:00 18:00 - 23:00 18:00 - 22:00 17:00 - 22:00 17:00 - 23:00 17:00 - 23:00 18:00 - 23:00 18:00 - 23:00 18:00 - 23:00 18:00 - 22:00 17:30 - 23:00 18:00 - 23:00 18:00 - 23:00 18:00 - 23:00 18:00 - 23:00 18:00 - 23:00 Muhammed Gre... Lilly Schöckel Lennox Vielleh... Jens Baumeister Eleni Prah Iven Lubina Lilly Schöckel Muhammed Gr... Eleni Prah Muhammed Ko.. Iven Lubina Muhammed Gr... Eleni Prah Eleni Prah Eleni Prah Tina Homme 18:00 - 23:00 19:30 - 23:00 20:00 - 00:00 19:00 - 23:00 20:00 - 00:00 18:00 - 22:00 19:30 - 23:00 18:00 - 23:00 19:00 - 23:00 19:30 - 23:00 19:30 - 23:00 20:00 - 00:00 19:30 - 23:00 19:30 - 23:00 19:30 - 23:00 19:30 - 23:00 Iven Lubina Lennox Vielleh... Titus Müller Muhammed Ko... Tina Hommel 20:00 - 00:00 20:00 - 00:00 20:00 - 00:00 20:00 - 00:00 19:30 - 23:00 Muhammed Ko... 20:00 - 00:00 > Bar > Kitchen > Dishwasher

AI MEETS HUMAN EXPERIENCE

Decision intelligence makes planning optimal and faster.

- ML reduces uncertainty about the future by considering a multitude of features and observations
- Mathematical Optimization creates concrete action recommendations
- Gurobi delivers solutions in very short time
- UI is designed for non-technical users and allows manual adjustments



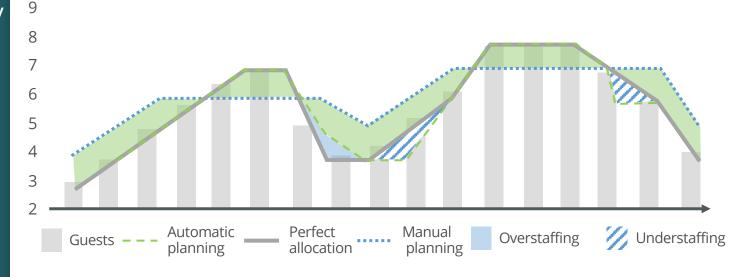








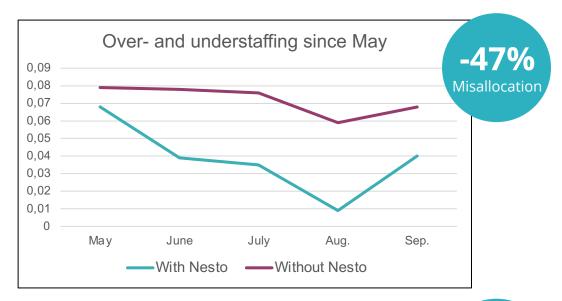
of employees planned by hour of day

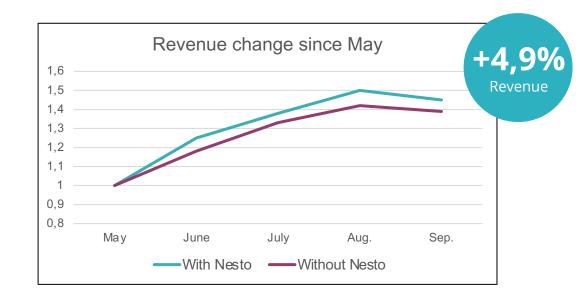


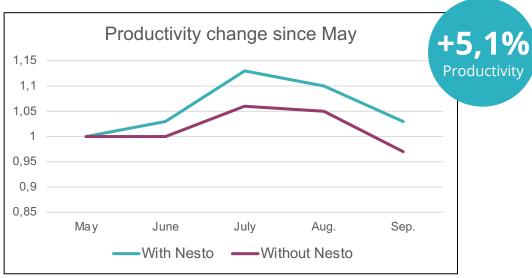
Increased profitability, due to reduced labor cost, and increased revenue in peak times

NESTO IN THE REAL WORLD

KPI improvement based on a real-world example.







Decision intelligence has the potential to increase sales revenues while reducing personnel cost.



n Nesto

Contact details:



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Data Scientist



- kilian.theis@nesto-software.de
- in kilian-theis



Dr. Konstantin GavrasSenior Data Scientist



- ☑ konstantin.gavras@nesto-software.de
- in konstantin-gavras