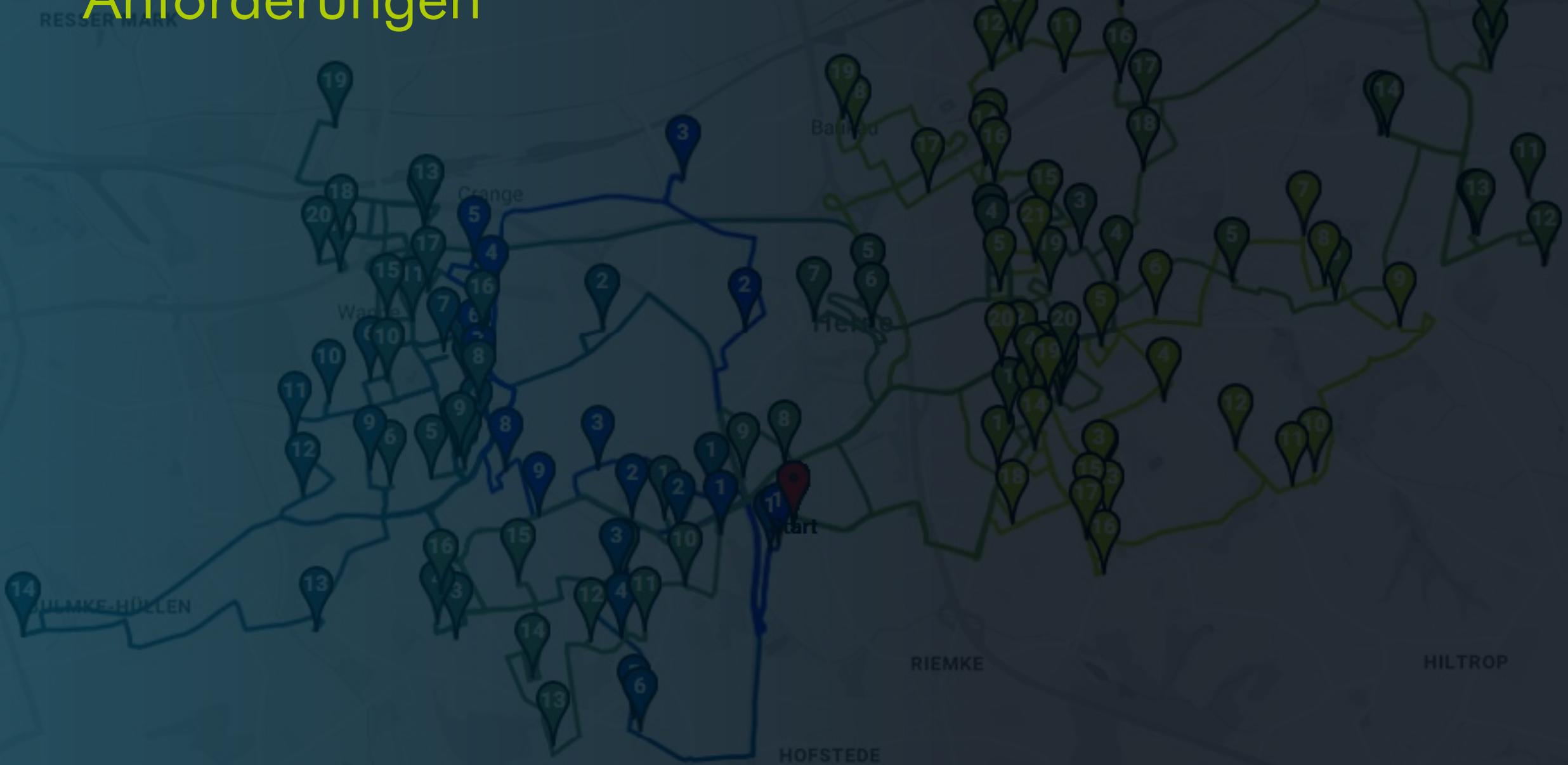




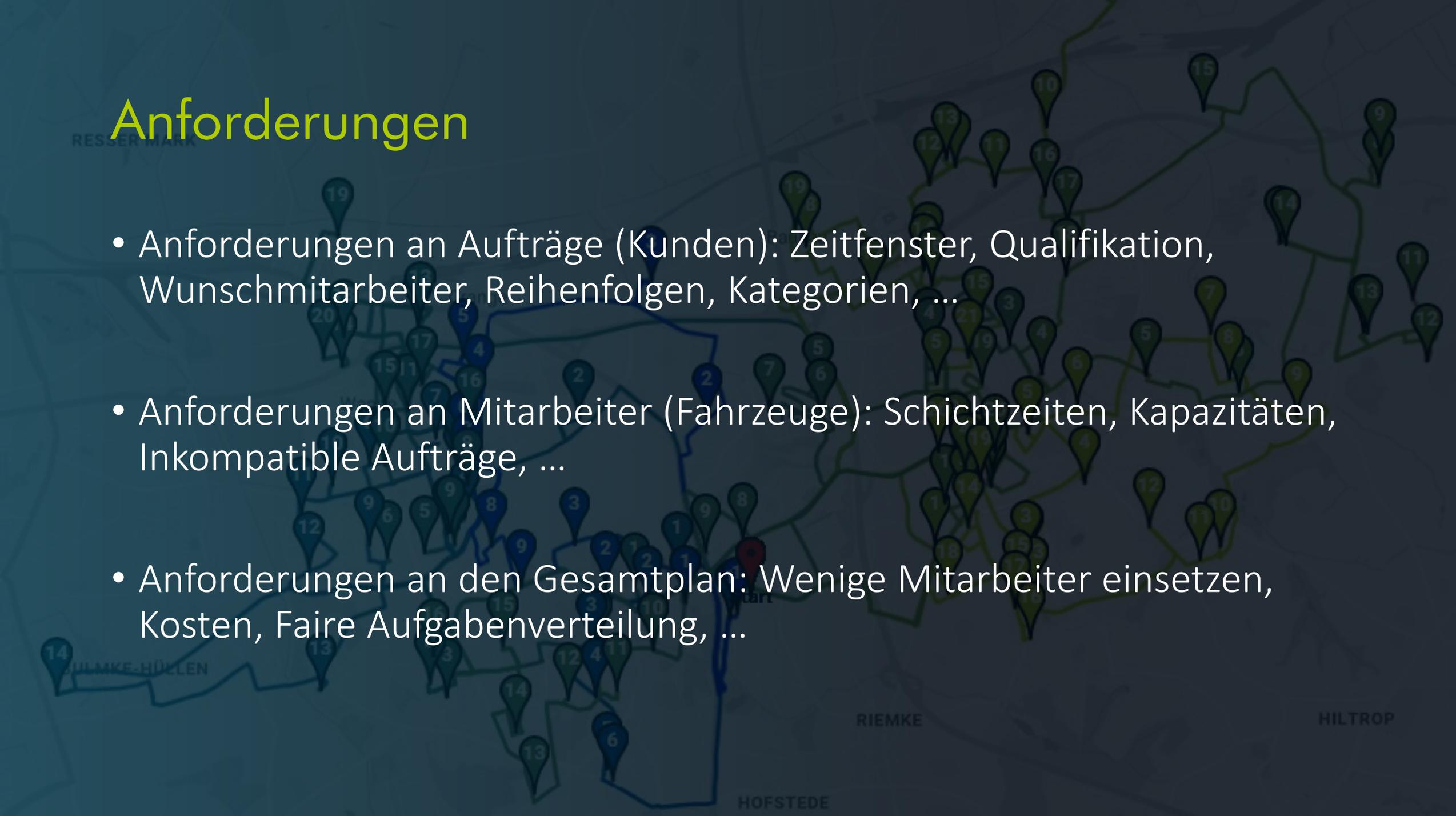
*MAKING FLEETS MORE PROFITABLE AND OUR
CITIES MORE LIVABLE*

- WITH UNIQUE ALGORITHMS AND ARTIFICIAL INTELLIGENCE -

Anforderungen



Anforderungen

The background of the slide is a dark map with numerous numbered location pins (1-20) scattered across it. Several routes are drawn in light blue and green lines, connecting some of the pins. The map includes labels for various regions: 'RESSER MARK' in the top left, 'RIEMKE' in the bottom center, 'HILTRUP' in the bottom right, and 'HOFSTEDE' in the bottom center. A red pin is visible near the center of the map.

- Anforderungen an Aufträge (Kunden): Zeitfenster, Qualifikation, Wunschmitarbeiter, Reihenfolgen, Kategorien, ...
- Anforderungen an Mitarbeiter (Fahrzeuge): Schichtzeiten, Kapazitäten, Inkompatible Aufträge, ...
- Anforderungen an den Gesamtplan: Wenige Mitarbeiter einsetzen, Kosten, Faire Aufgabenverteilung, ...

Anforderungen

- Aufträge:

33 Restriktionen

- Mitarbeiter

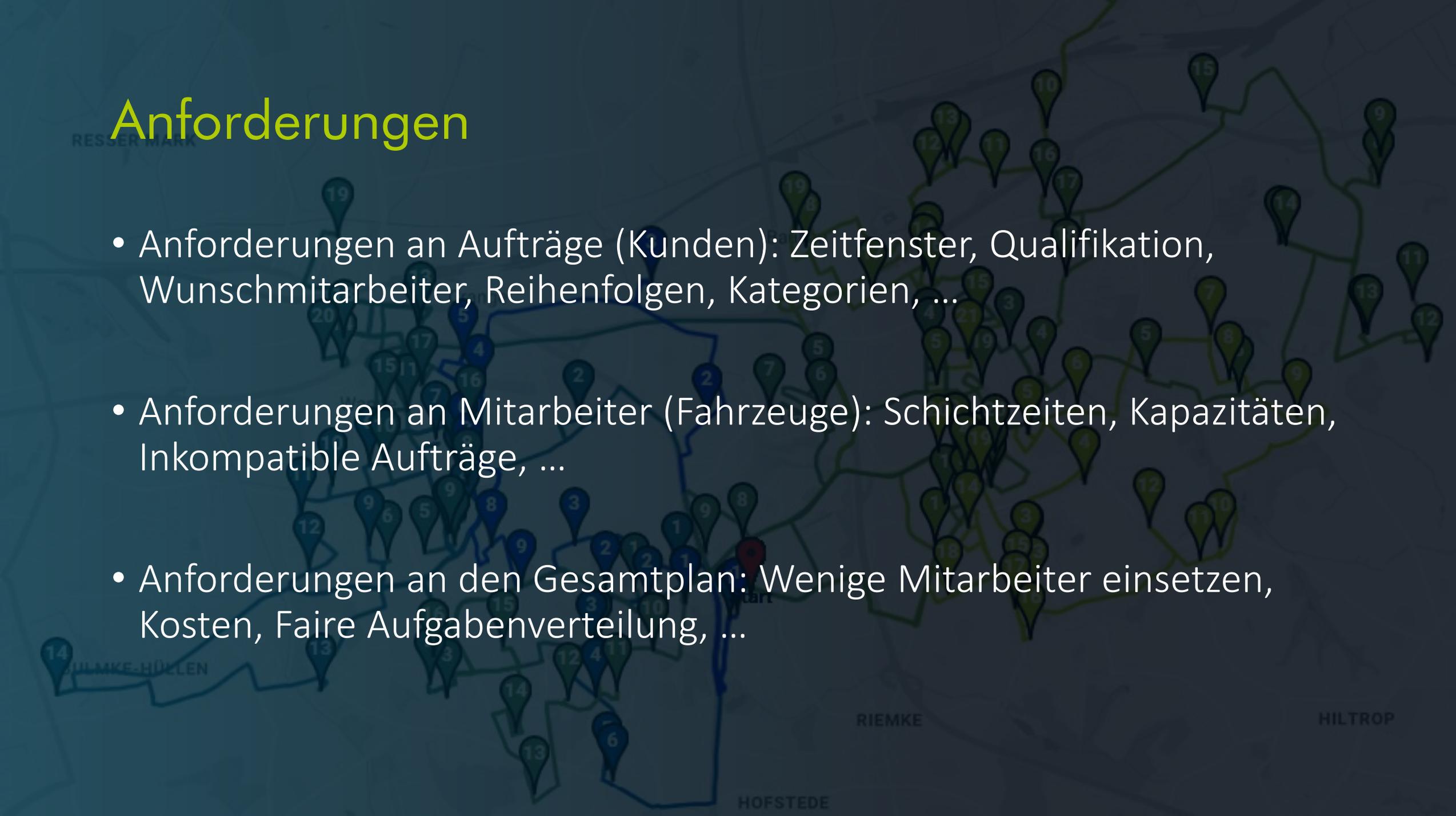
37 Restriktionen

- Plan:

22 Restriktionen

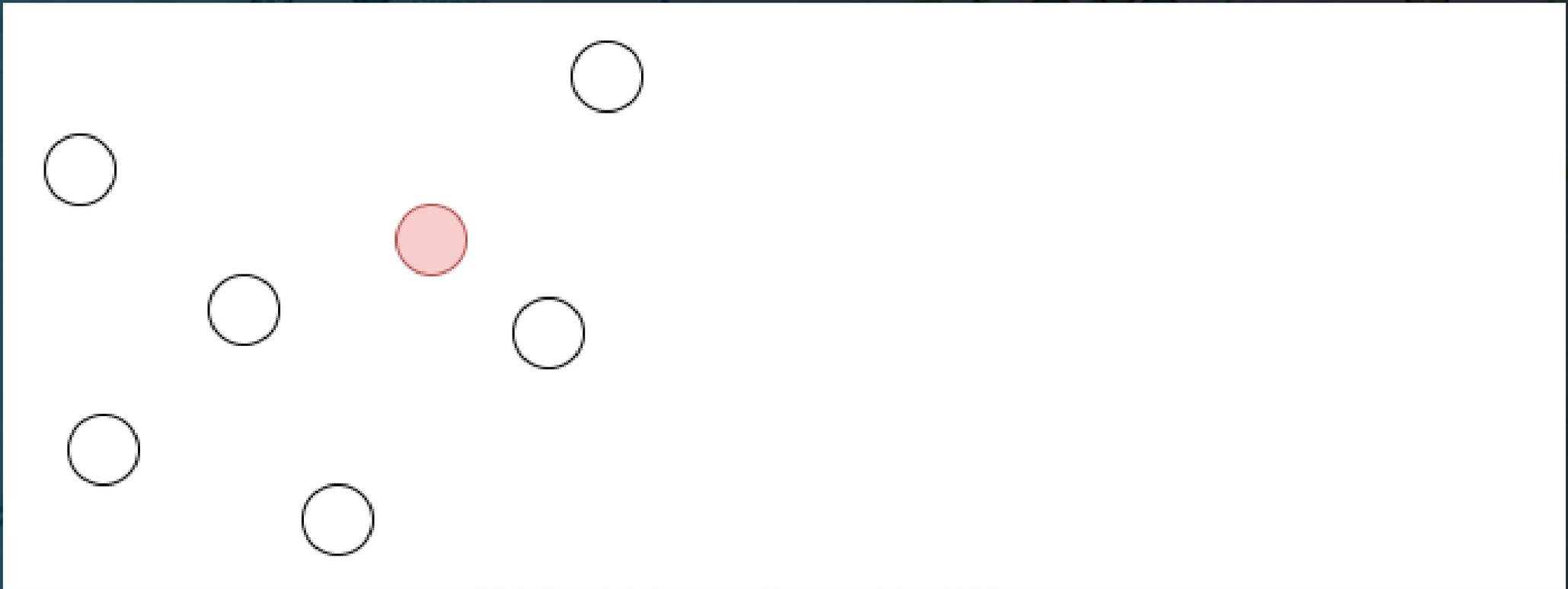


Anforderungen

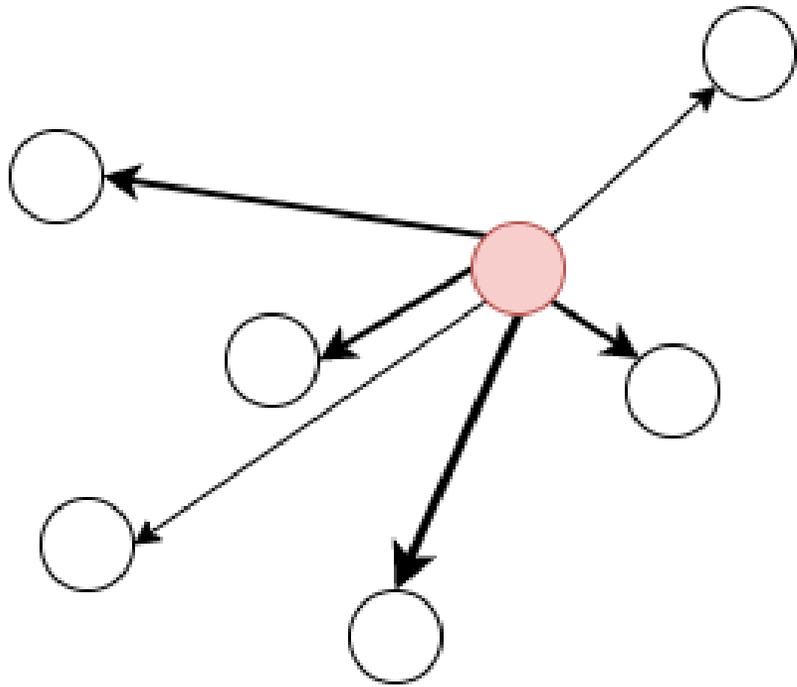
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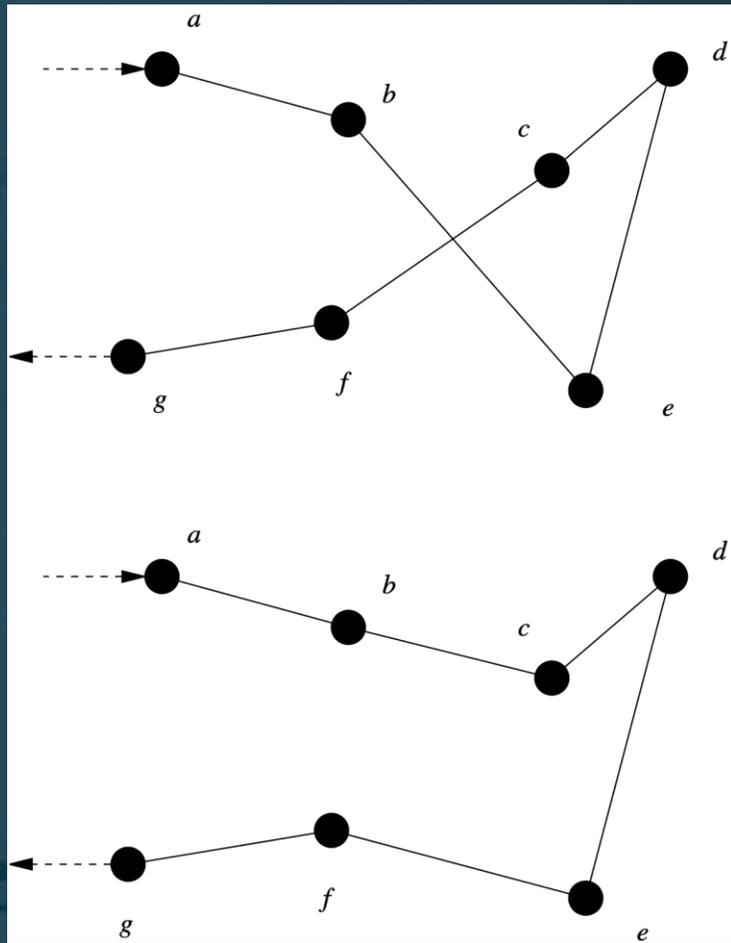
Lösungsideen I



Lösungsideen I



Lösungsideen II



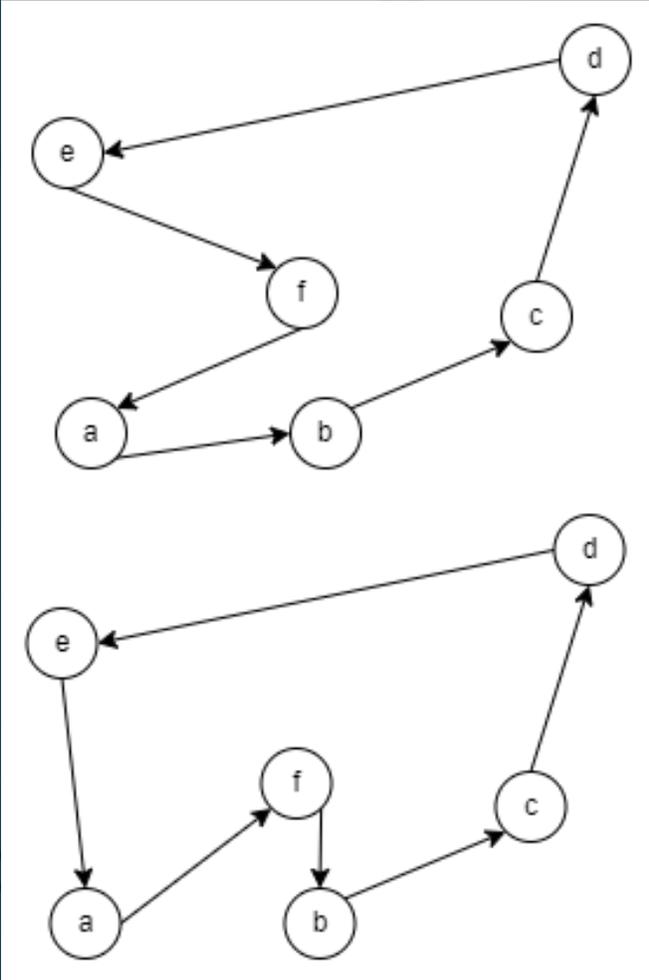
[a b e d c f g]

2-OPT

[a b c d e f g]

<https://en.wikipedia.org/wiki/2-opt>

Lösungsideen II



[a b c d e f]

Relocate

[a f b c d e]

Lösung ?

Initiale Lösung



2-OPT Heuristik



Exchange-Heuristik



Ameisenalgorithmus



Relocate-Heuristik





*AUTOMATE & OPTIMIZE YOUR PLANNING
CHALLENGES WITH US*



WINNER
2019



TOP LOGISTIC
START-UPS 2020



WINNER
2020/21