

What can OR contribute to codeshare planning ?

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Agenda

Driving Forces behind Codeshares

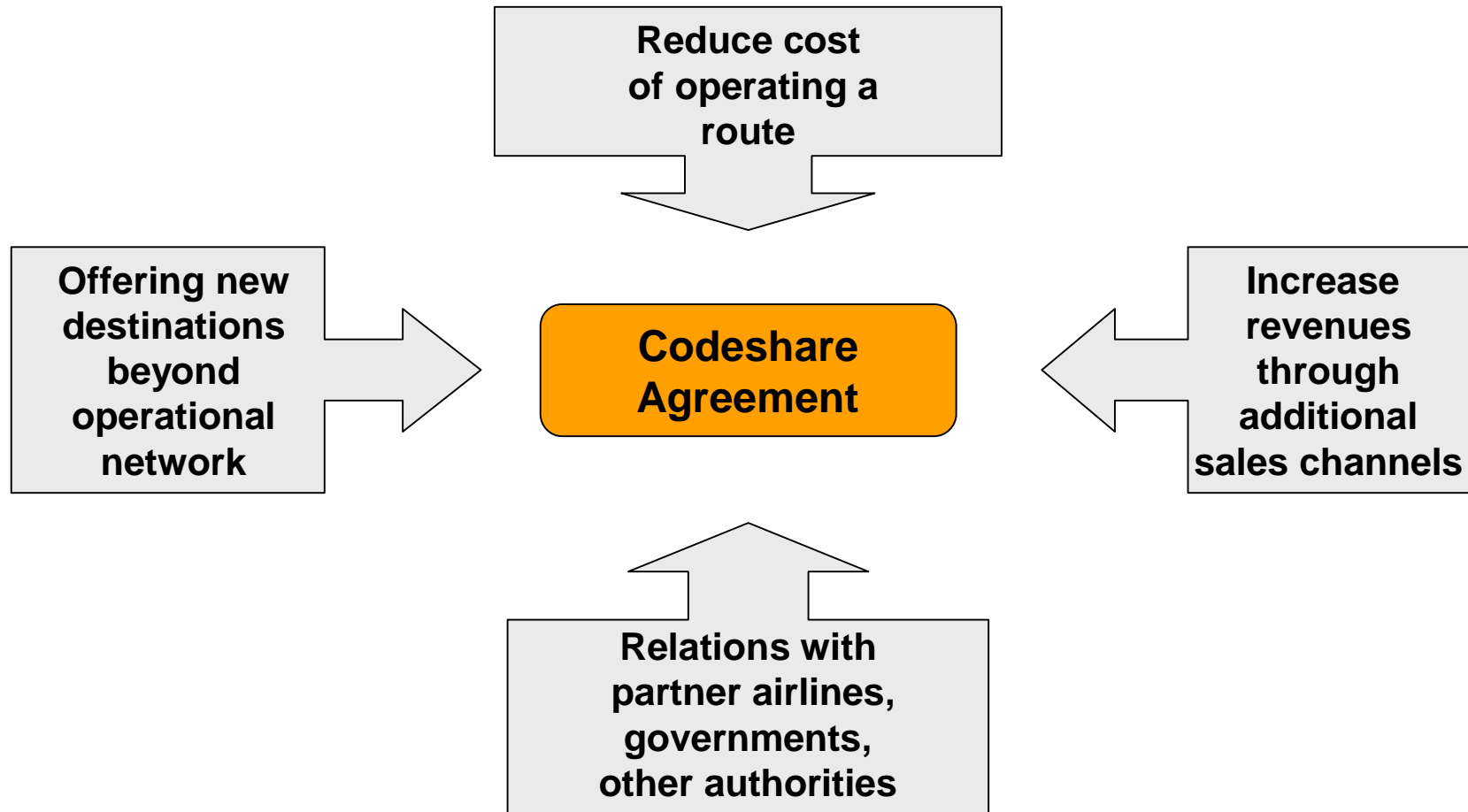
Codeshares in Airline Network Planning

Evaluation and Optimization of Codesharing Scenarios

Summary and Outlook



Codeshares are an established means to increase revenues and save costs in air transportation.





The codesharing situation of an airline is determined by the choice of operational partners and the nature of the agreements.

| Type of agreement

- | Joint Venture, Block Seats, Free Sale, etc.**
- | Seat swap**
- | Return of x seats possible up to y days before flight event**

| Partner

- | Regional partners**
- | Neighborhood traffic**
- | Trunk routes**
- | Beyond codeshares**





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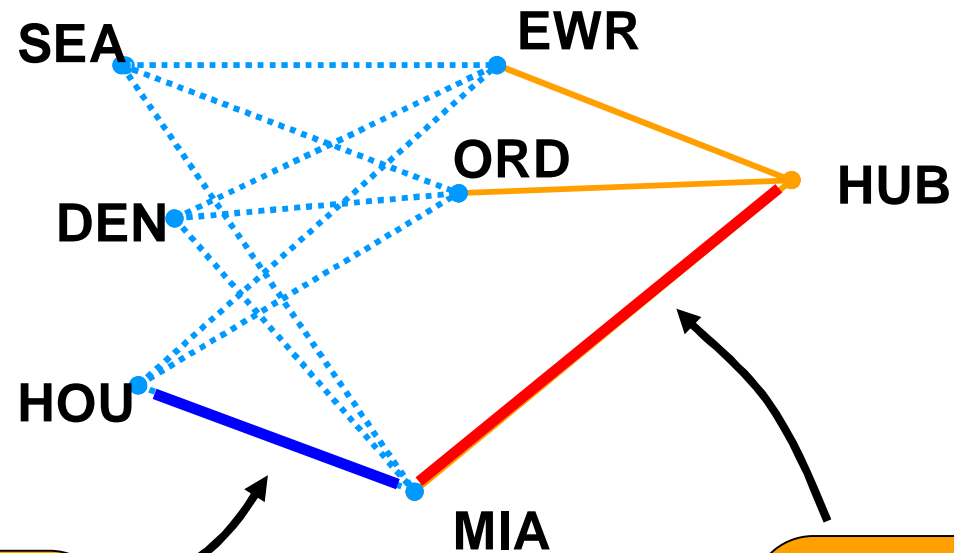
May 20th, 2005
Chart 5

What can OR contribute to codeshare planning ?



Lufthansa Systems
Moving Your Business Ahead

From the point of view of network planning two types of codeshares can be distinguished.



Network Extension

| serve new markets

| codeshare on domestic or regional flights

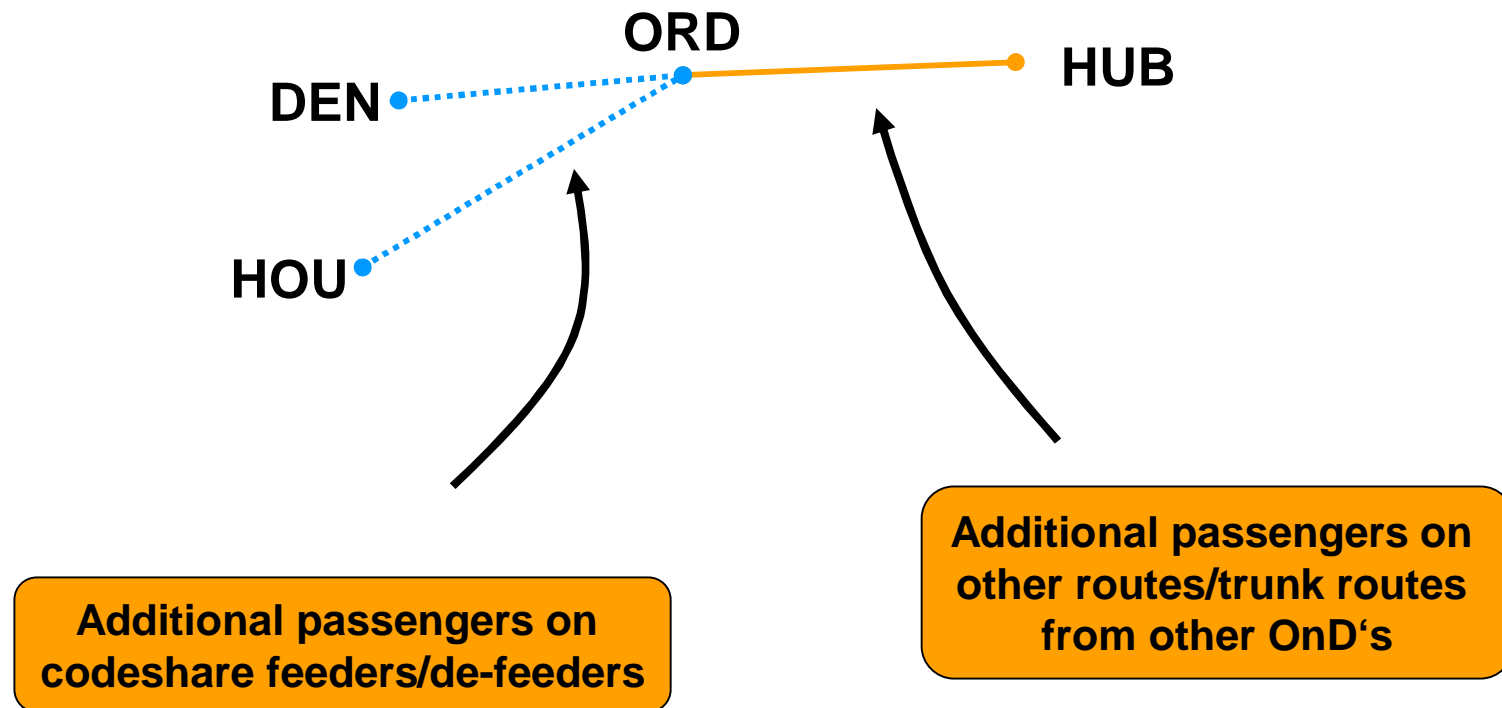
Network Integration

| make or buy decision

| codeshare on international flights



The economics of codesharing includes demand increase on codeshare flights and trunk routes.





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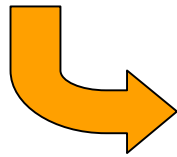
Summary and Outlook



The evaluation of codeshare scenarios includes several successive steps.

Identification of codeshare opportunities

- | routes/OnD's
- | timings
- | partners



Network analysis

- | Connectivity
- | Competition
- | Cannibalization
- | Demand

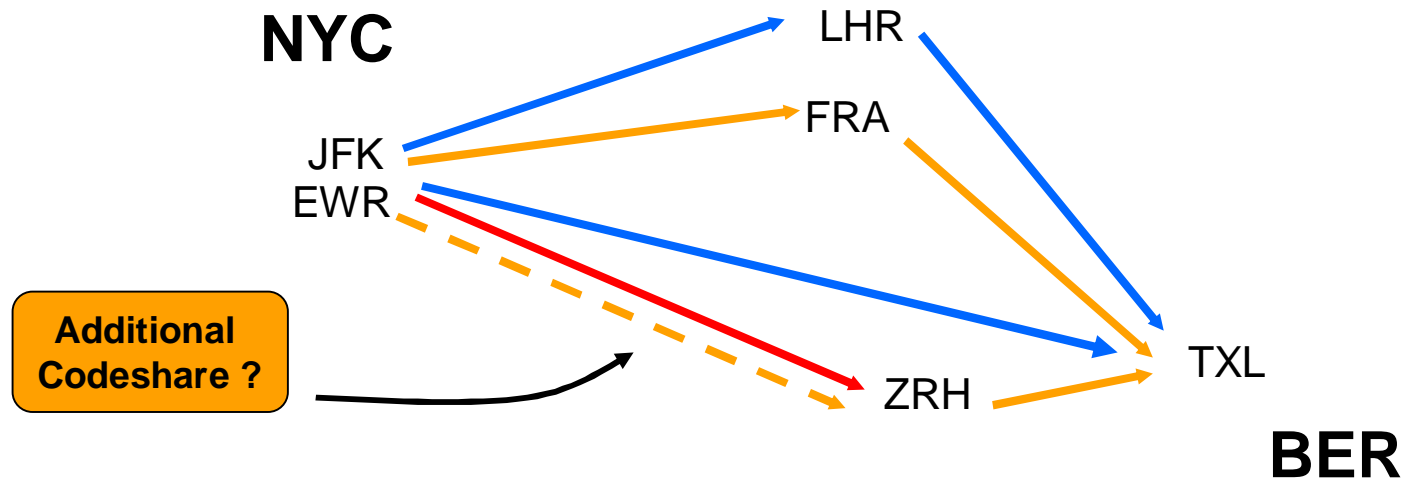


Commercial Evaluation

- | Increase in Network Revenue
- | Increase in Passengers/SLF



A full evaluation of codeshare potential must include network effects.



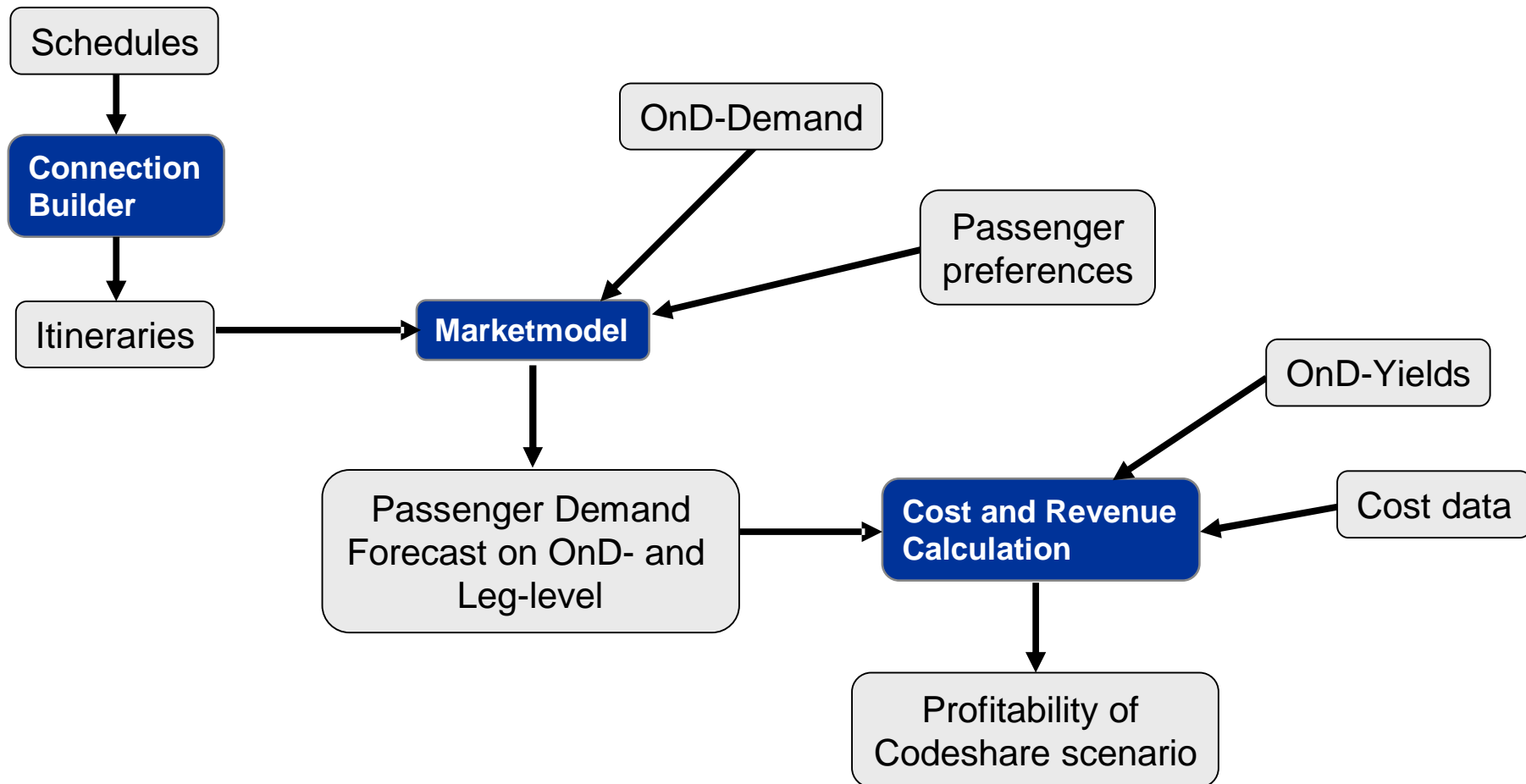
Connectivity

Impact on own network

Impact of competitors' networks



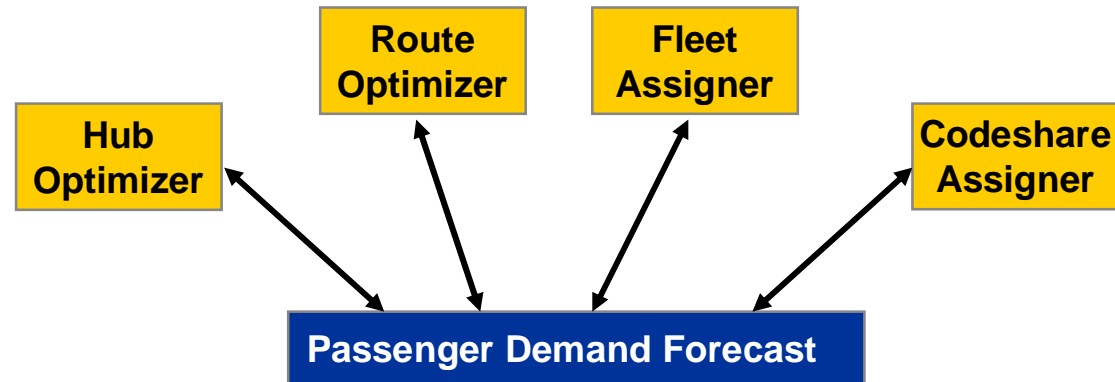
For the passenger demand forecasting part, established OnD-based forecasting technology can be used.



Marketshare Models in Scheduling and Strategic Planning

Goal function for Optimizers, such as ...

- Timing Optimization
- Fleet Assignment
- Codeshare Assignment

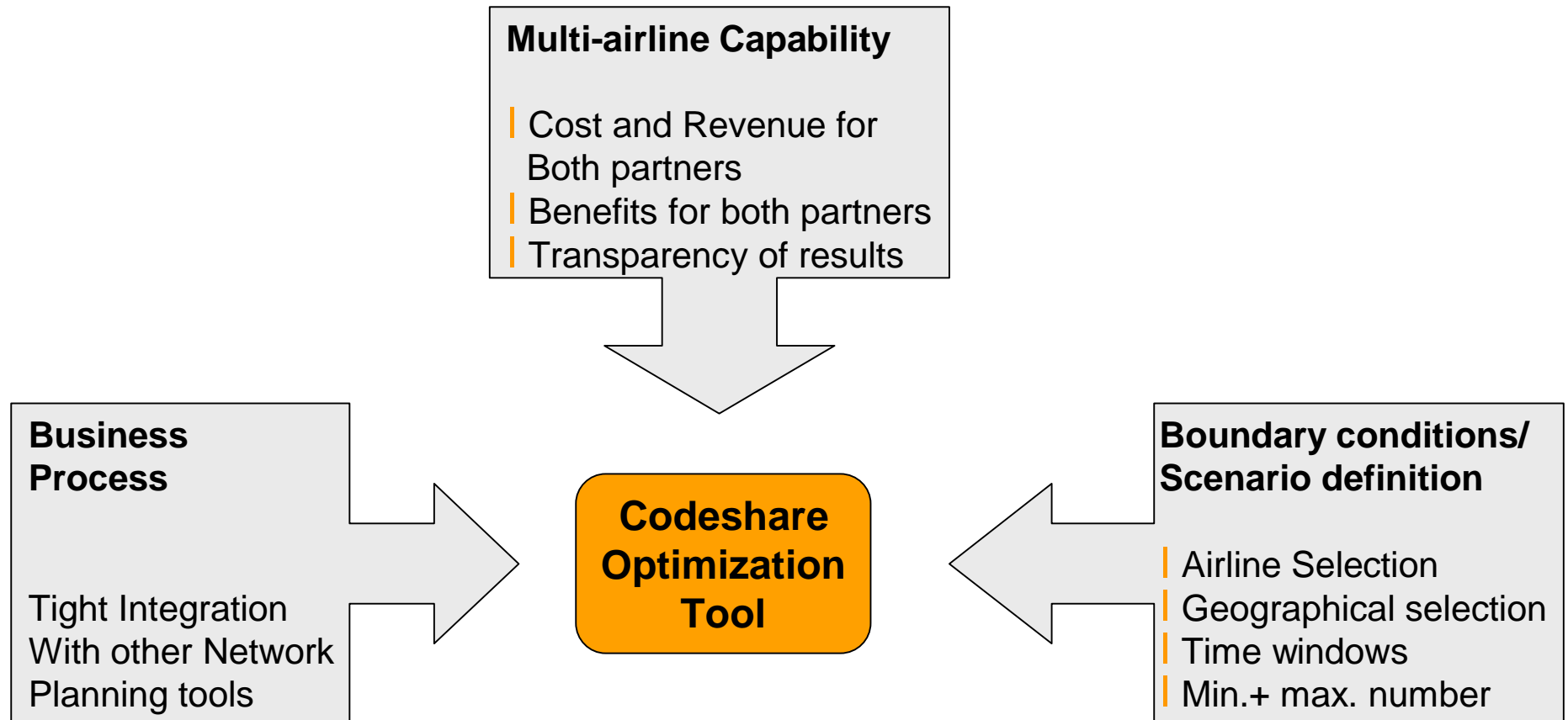


Why:

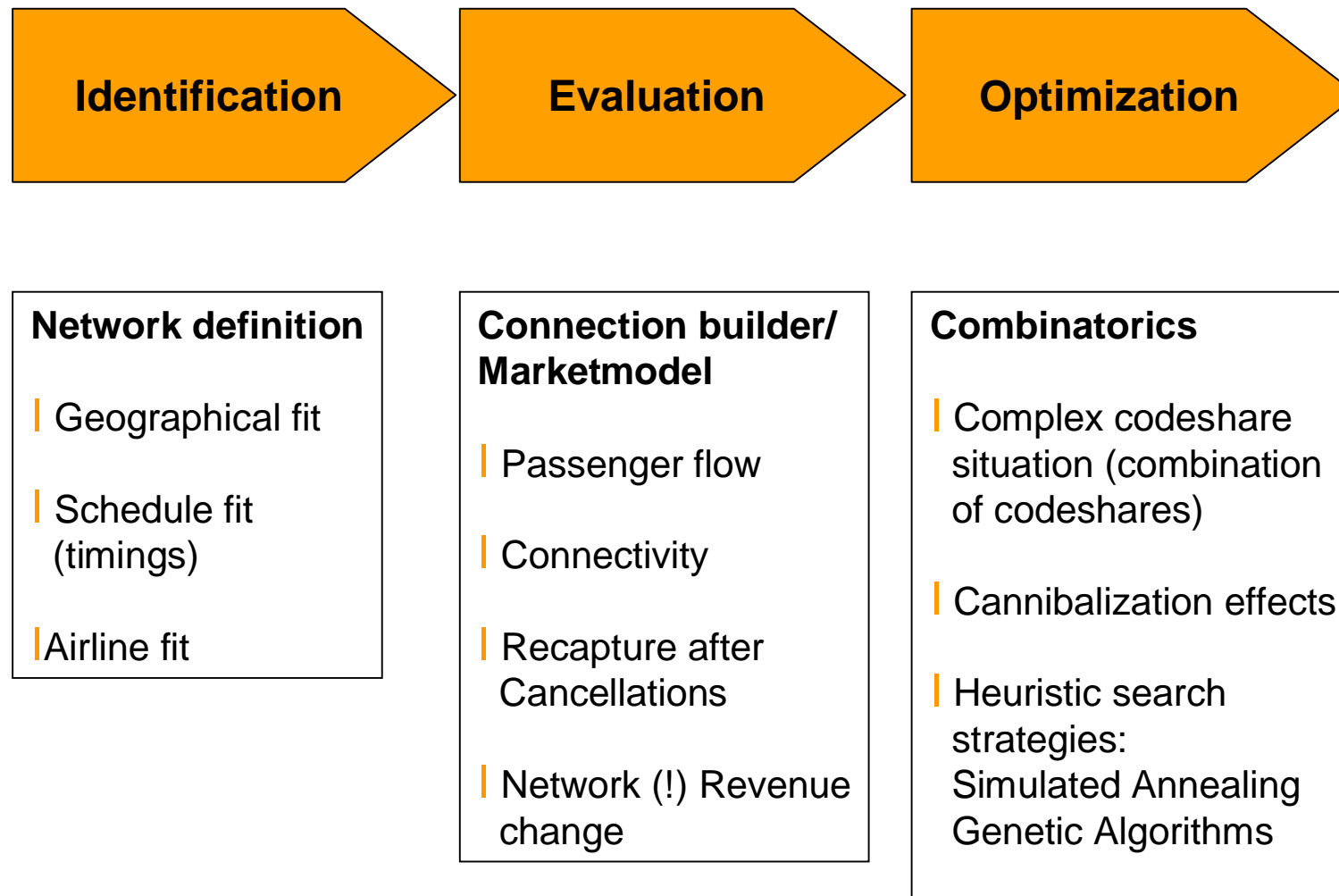
- One model throughout the company!*
- Consistent evaluation for e.g., re-fleeting and re-timing scenarios!
- Save calibration and data preparation efforts



Requirements for Practical Application of Codeshare Optimization



Structure of Codeshare Optimization Tool





Airline Definition

Network Definition

Result Section

Codeshare Assigner

File Help

Leg Filter

Operational airlines: KL, NW

Origin: AMS City

Destination: US Country

Departure time window: 00:00 - 24:00 Ignore Time Window

Flight number range: 100 - 200 Ignore Flight-Number Range

Codeshare airlines

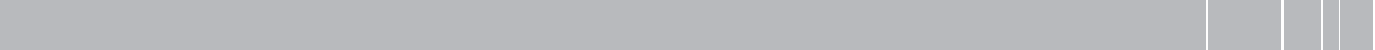
Nonoperational airlines: KL, NW

Results

Scenarios	Routina	Flight	DayPattern	Non-Op	Revenue	Revenue Inc	Profit	Profit Inc
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Apply to schedule

Calculate Exit





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Summary and Outlook

| Codesharing is an integral part of network management

à Codeshare effects must be evaluated from a network perspective

| OR methods for codeshare optimization support *stable* and *profitable* partnerships between both codeshare partners

| Integration of codeshare management with other business processes

à tight system integration with other network management tools is a key factor for a successful application of codeshare optimization

