

Quantifying the Benefit of Advanced Traveler Information Systems (ATIS)

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Problem: Quantifying Benefits of ATIS Has Proven Difficult

- Contradictory results obtained from ATIS evaluation efforts:
 - Survey research consistently finds that ATIS users perceive time savings

Smart Trek, WA 2000 Trailmaster, AZ 2000 SmarTraveler, DC 2000

- BUT, controlled field tests consistently find marginal to no reduction in observed in-vehicle travel time

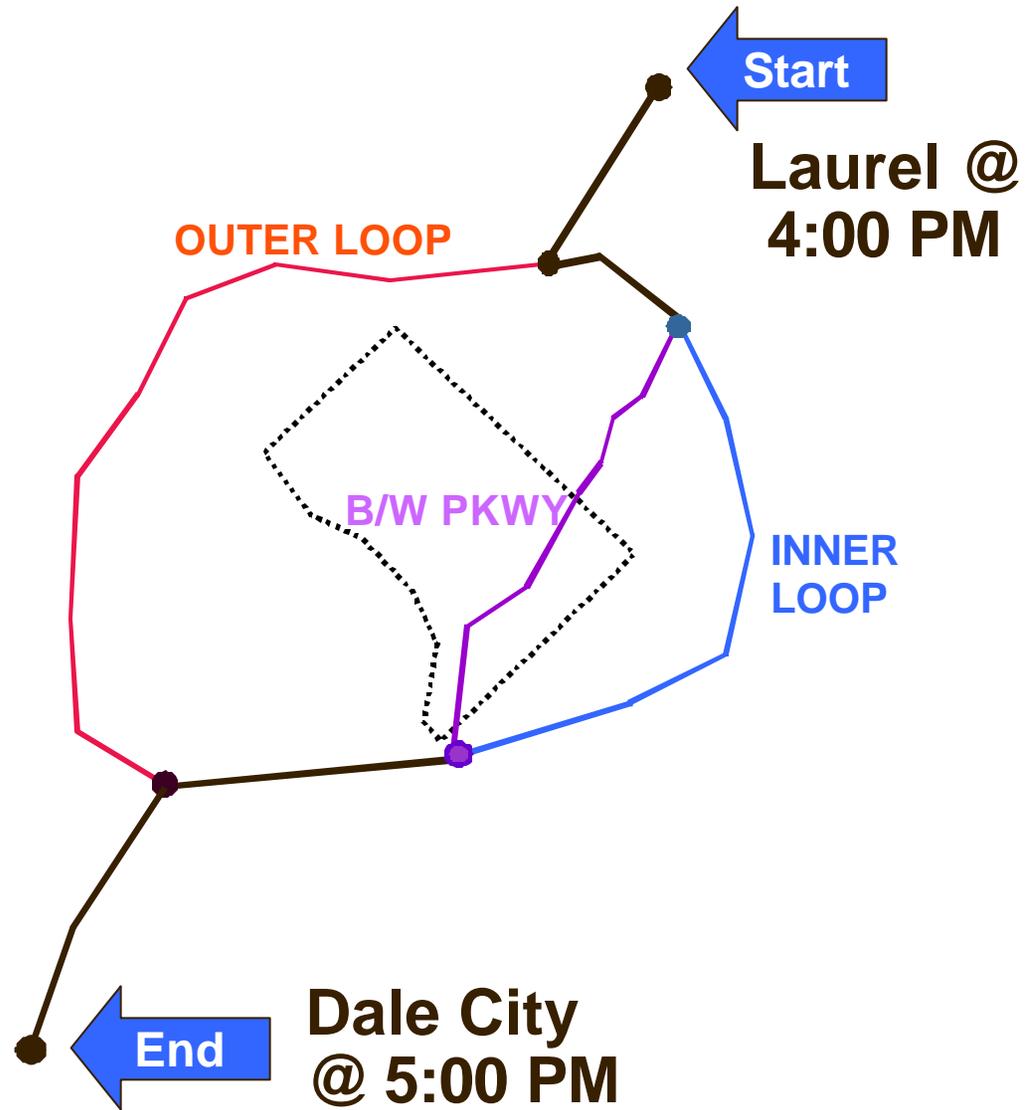
Pathfinder, CA 1993 TravTek, FL 1995 ADVANCE, IL 1996

“Re-Enacting” Commutes via Simulation

Travel Times

<u>Day</u>	<u>Outer Loop</u>	<u>Inner Loop</u>	<u>B/W Pkwy</u>
1	➡ 56	61!	★ 52
2	➡ 48	54	59
3	77!	63!	➡ 61!

- ➡ ATIS Pre-Trip Pick
- ! Late Arrival
- ★ Optimal Choice



Commuter Behaviors Simulated

**Afraid of
Being Late**



**Scaredy
Commuter
(No ATIS Use)**



**Macho
Commuter
(No ATIS Use)**

**Doesn't
Want to
be Early**

**Consults Website
Pre-Trip,
May Alter
Route Or Timing**



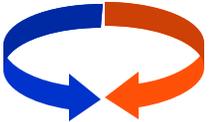
**ATIS
Commuter**

Compared Against....

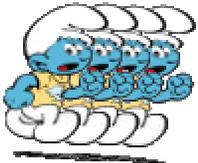
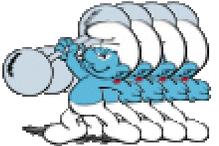
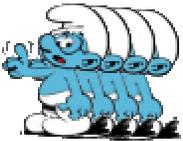


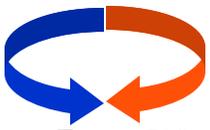
Optimal

**Perfect "20/20
Hindsight"
Congestion
Prediction**

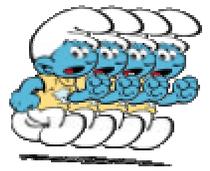
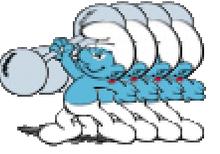
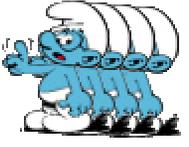
Laurel
 Sept. 1999

Dale City
 1029 Trials
Commuters

ATIS Commuters Are On-Time More Frequently

	On-Time Reliability	Just-In-Time Reliability*
 Scaredy Commuters	90%	45%
 Macho Commuters	78%	54%
 ATIS Commuters	92%	62%
 Optimal	100%	100%

Sept. 1999
Laurel

Dale City
 1029 Trials
Commuters

ATIS Commuters Save Time But Not Much In-Vehicle Time

	Travel Time (min)	PM Travel Budget (min)	Days Late (%)
 Scaredy Commuters	62.1	83.5	10%
 Macho Commuters	63.1	77.9	22%
 ATIS Commuters	62.2	73.9	8%
 Optimal	61.3	64.4	0%

Note: Percentages in the original image indicate the percentage reduction in travel time relative to the Macho Commuters baseline (63.1 min). For example, ATIS Commuters save 2% (63.1 - 62.2) and the Optimal scenario saves 3% (63.1 - 61.3).

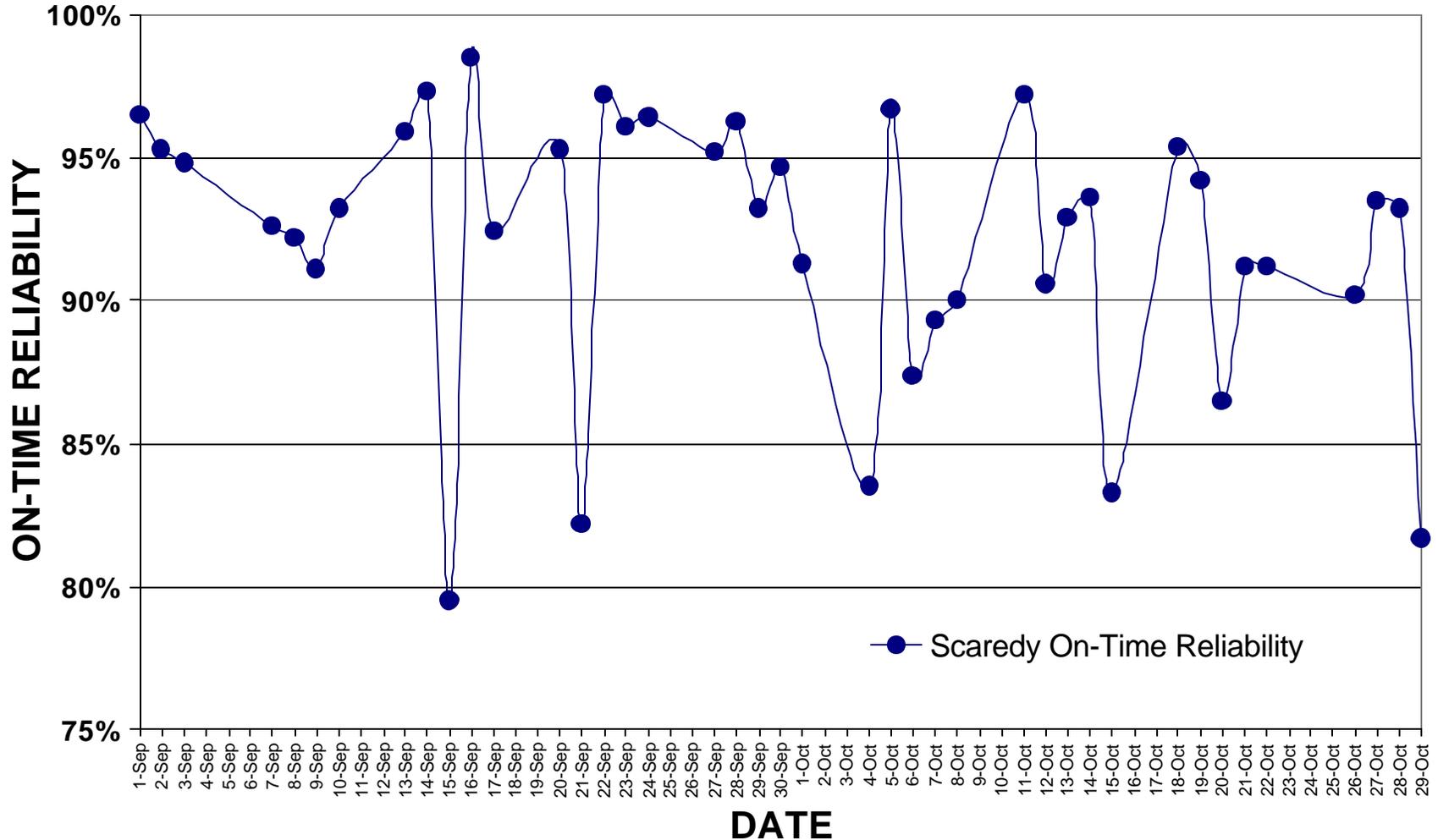
All O-Ds



DC Network

Sept.-Oct. 1999
3.1 Million Trials

Approach Can Be Used To Track Changes in Travel Reliability



All O-Ds

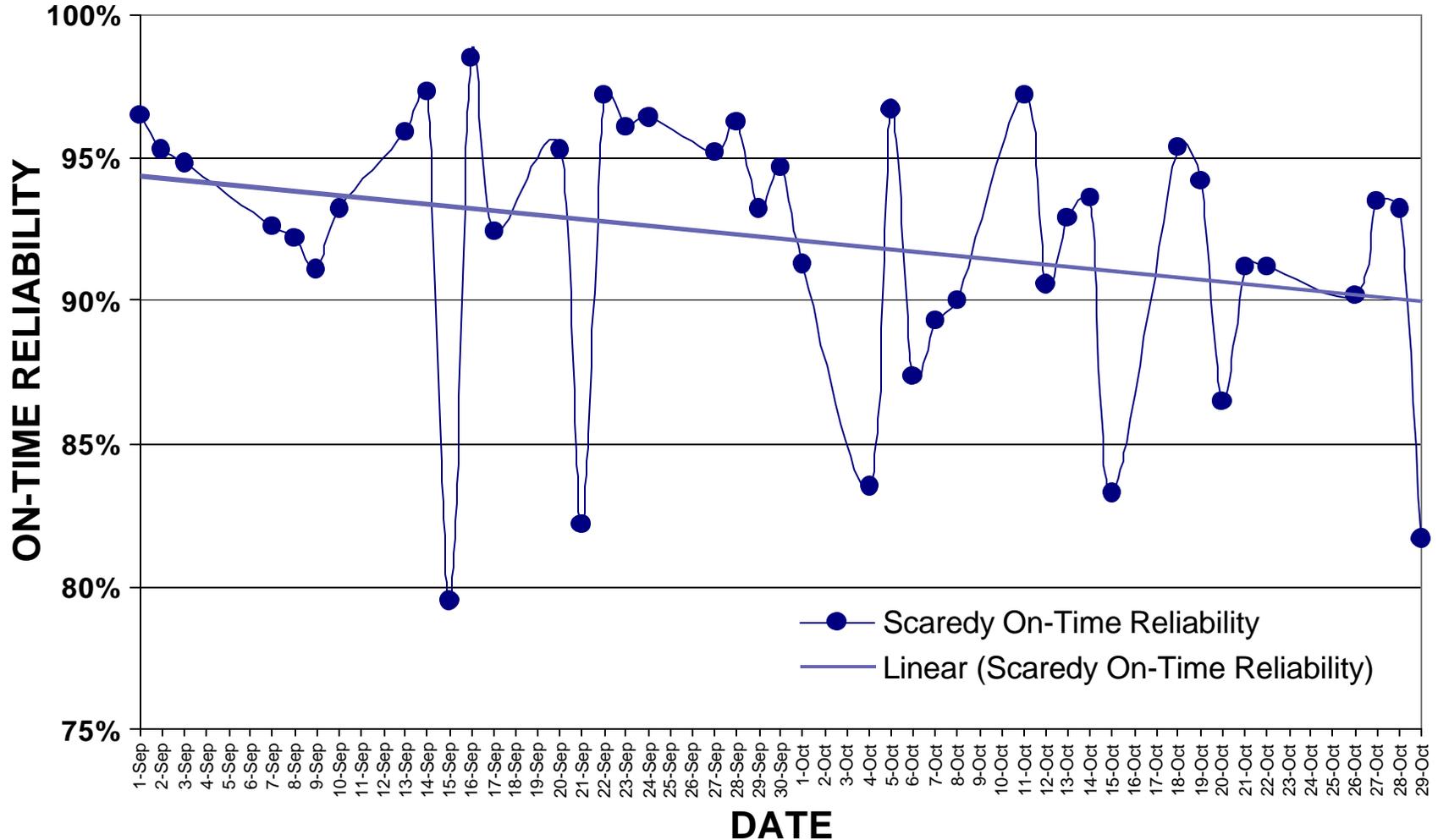


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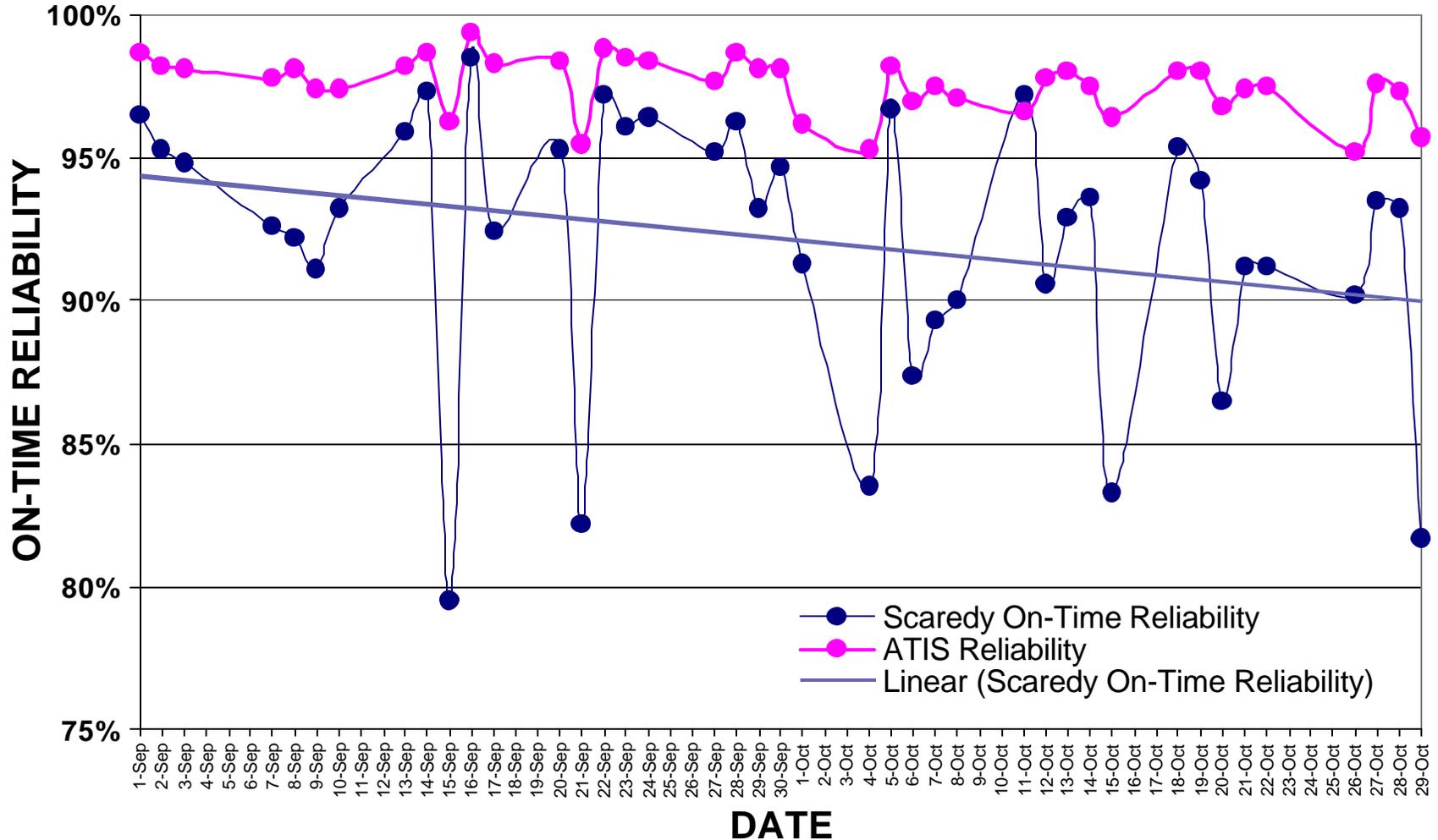
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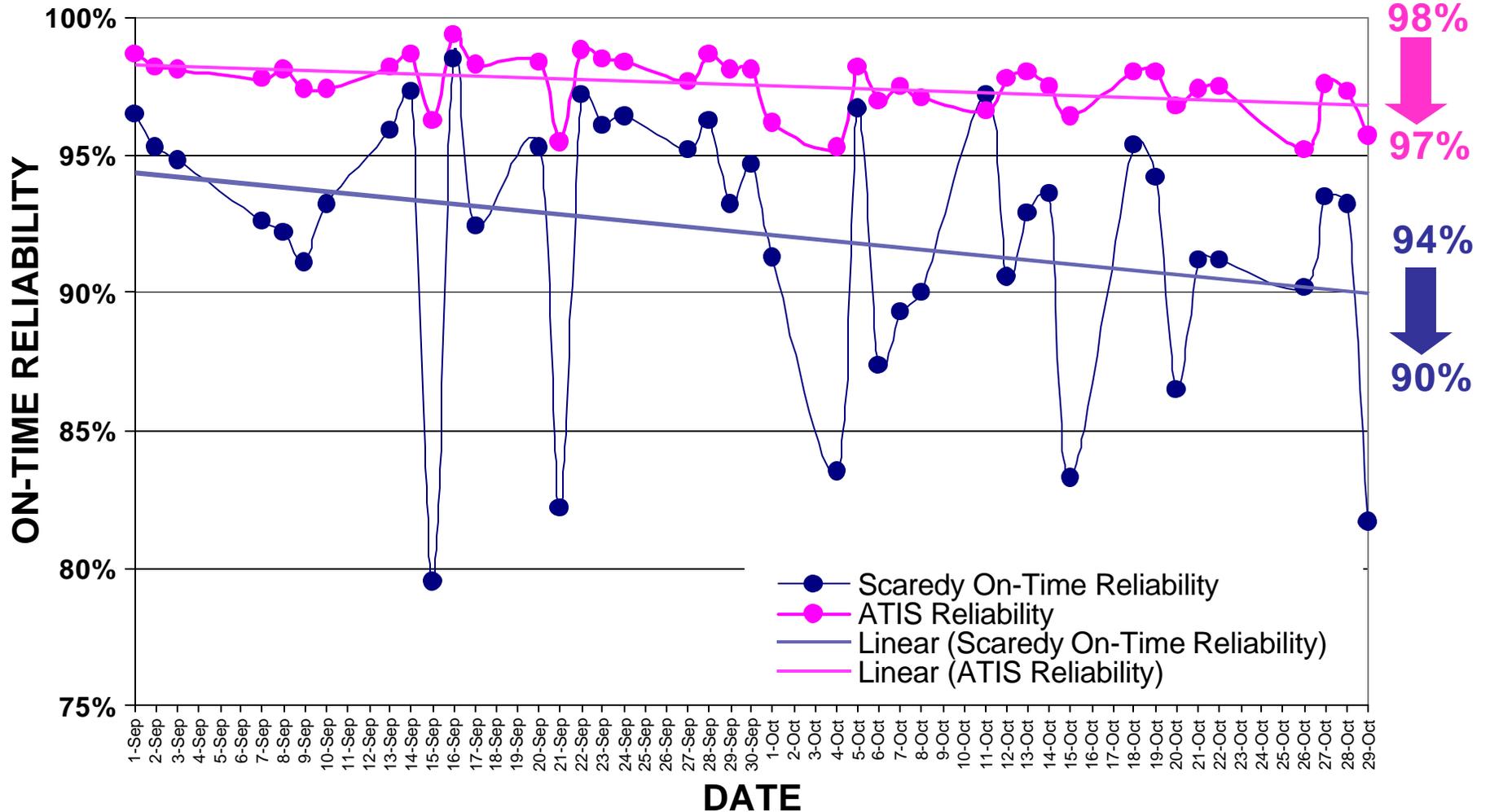
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All O-Ds

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Approach Can Be Used To Track Changes in Travel Reliability



Conclusion: ATIS Yields Time Management Benefits

- **No conflict** between survey and empirical research
 - ATIS users *correctly perceive* that they save time
 - Field studies *correctly measured* only small changes in in-vehicle travel times
- When travel behavior focused on *travel time reliability*
 - ATIS users save time in terms of *total travel budget*
 - In-vehicle travel time not always minimized
- *Annual time savings can be significant and highly valued*
 - 80+ hours per year for some long commutes (DC)
 - predictable travel helps to reduce *commuter stress*