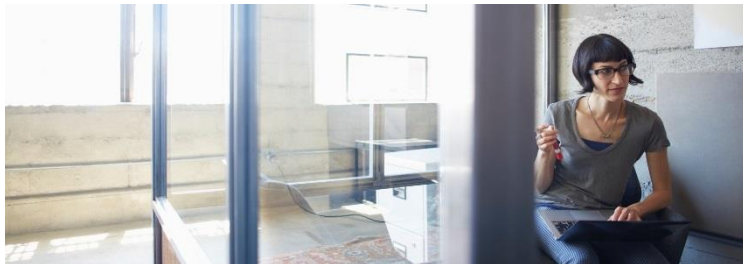inter – ATM / Optimizer

Industry Situation

Challenges

Complexity of the operational process and operational costs of the increasing number of ATMs

- Classical methods are costly, risky and complicated

- Opportunity cost of idle cash in ATMs
- Transportation and cassette preparation costs
- Risky and low service quality

Ideal Solution

Financial institutions are looking for most effective and less risky solutions for their ATM operations:

inter-ATM / Optimizer

- Decreased costs
- Enhanced service quality
- Increased operational efficiency
- Forecasted cash demand

Desired Outcomes

- Providing enhanced service quality level by creating intelligent ATM cash replenishment system
- Decreasing costs by historical data analysis of replenishment processes
- Increasing operational efficiency

- 40%-70% decrease cost of funding
- 15%-40% decrease in cash inventory
- 98%+ cash availability on ATMs network

Intertech – inter-ATM/Optimizer

INTERTECH offers an ATM cash management solution, inter-ATM/Optimizer, enables to minimize the cost of ATM operations while increasing both the service level and operational efficiency

Enhances Service Quality

- Creates intelligent ATMs
- Forecasts and plans to provide the necessary amount of cash any time

Decreases Costs & Increases Efficiency

- Statistical methods and optimization techniques
- Minimizing funding and transportation costs
- Continuous improvement on decision making
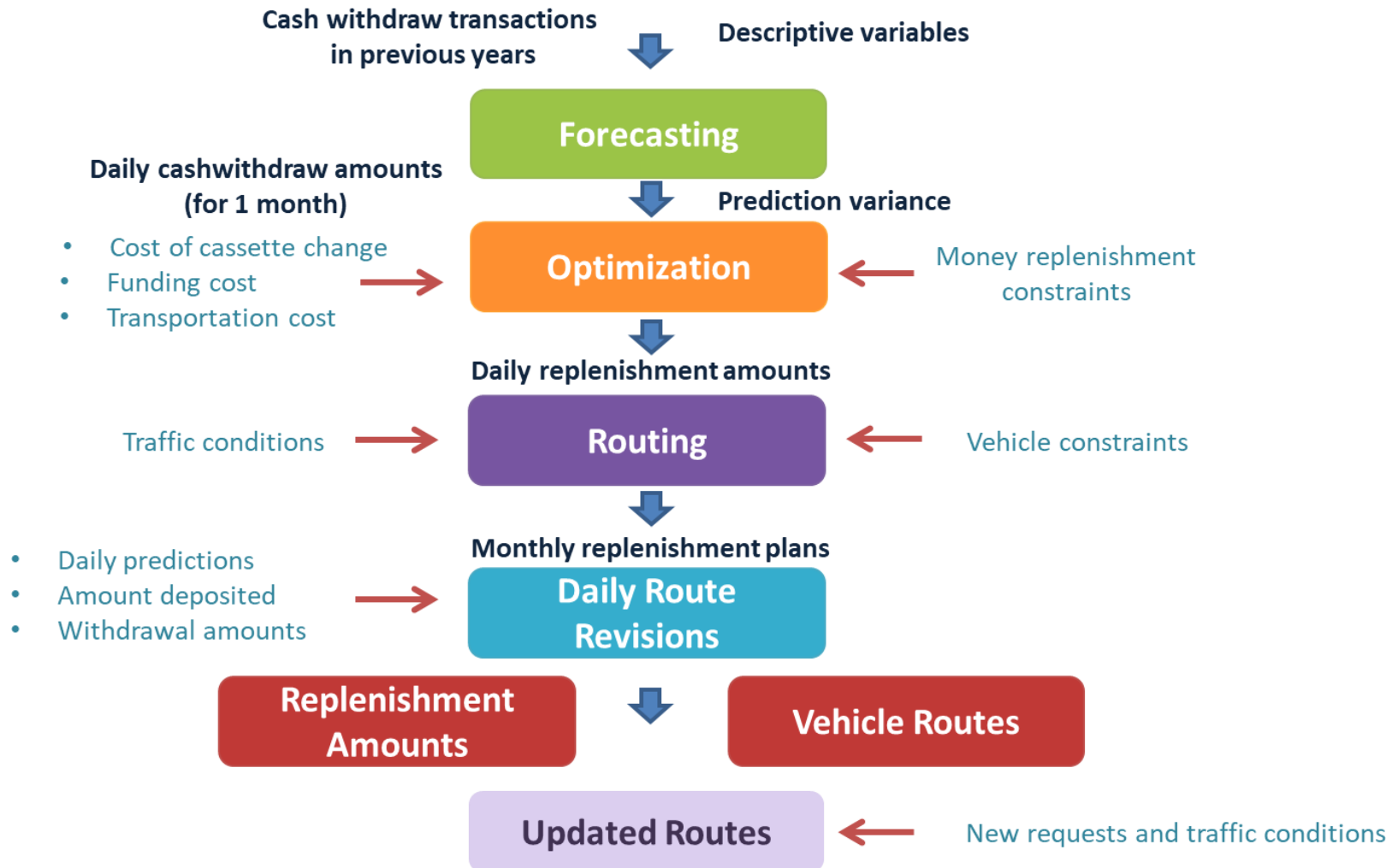- Enables comprehensive network monitoring

Optimization of Replenishment

- Withdrawal estimations by using time series model and metaheuristics
- Optimization of montly replenishment plan

Routing Optimization

- Calculated daily routes by neighbourhood search methods
- Dynamic and flexible for unplanned replenishments

inter-ATM/Optimizer – Process

Cash withdraw transactions in previous years

Descriptive variables

Forecasting

Daily cashwithdraw amounts (for 1 month)
- Cost of cassette change
- Funding cost
- Transportation cost

Prediction variance

Optimization

Money replenishment constraints

Daily replenishment amounts

Traffic conditions

Routing

Vehicle constraints

Monthly replenishment plans

- Daily predictions
- Amount deposited
- Withdrawal amounts

Daily Route Revisions

Replenishment Amounts

Vehicle Routes

Updated Routes

New requests and traffic conditions

Differentiators

- Available on Cloud
- Strong Analytical Optimization Engine
- Parametric Structure
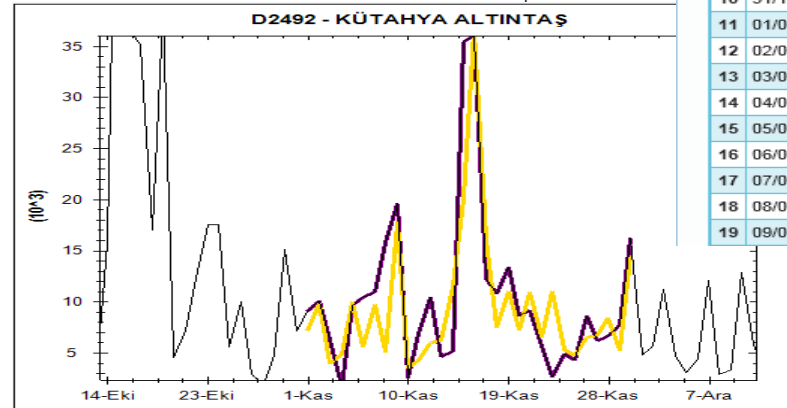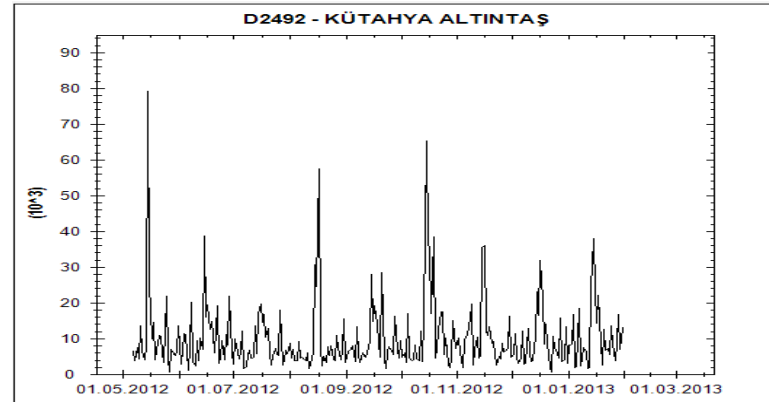- Web – Based User Interface with High Level of Interactions
- Easy to Manage
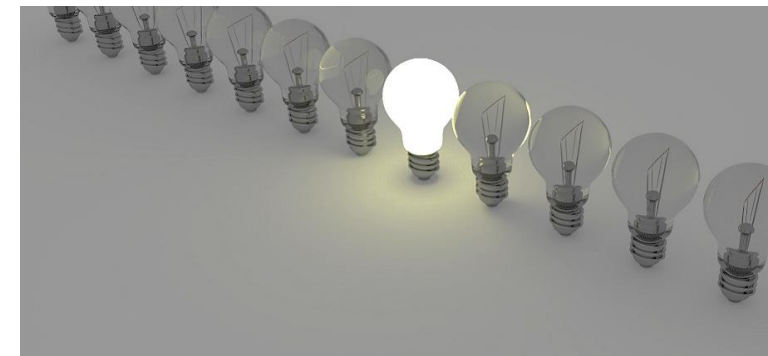
inter-ATM/Optimizer – Forecast Module

Variables of Forecast Model

- Holiday effect
- Special day effect
- Day of month effect
- Day of week effect
- Salary day effect

Forecast Models

- Regression
- Artificial Neural Network
- Metaheuristic Methods

Forecast Results

D2492 – KÜTAHYA ALTINTAŞ ATM'si İçin Tahminler

	Date	Amount
1	22/12/2012	4.400
2	23/12/2012	2.700
3	24/12/2012	7.300
4	25/12/2012	7.300
5	26/12/2012	6.500
6	27/12/2012	6.400
7	28/12/2012	14.500
8	29/12/2012	2.900
9	30/12/2012	2.400
10	31/12/2012	6.800
11	01/01/2013	4.000
12	02/01/2013	5.000
13	03/01/2013	5.100
14	04/01/2013	9.600
15	05/01/2013	1.400
16	06/01/2013	1.300
17	07/01/2013	4.100
18	08/01/2013	3.800
19	09/01/2013	4.500

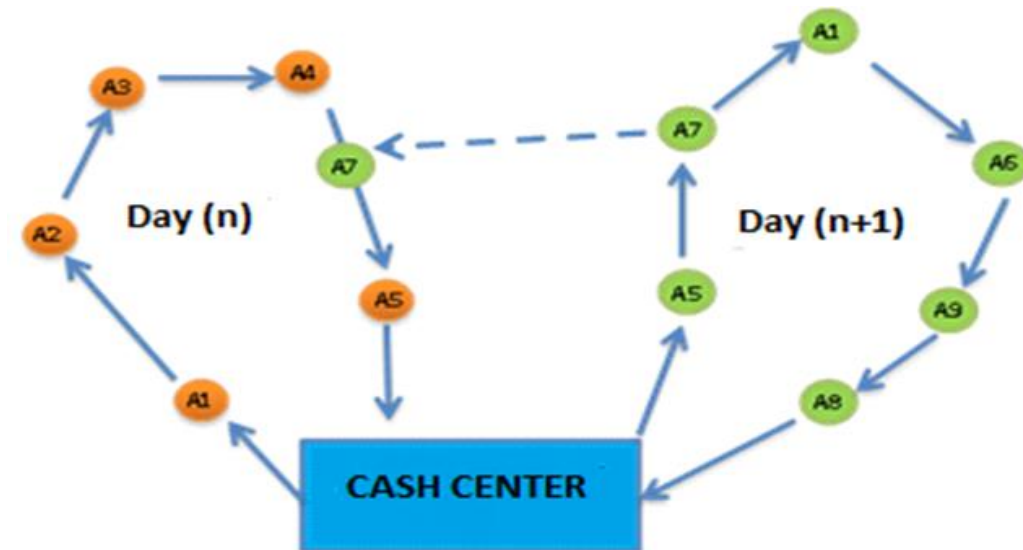# inter-ATM/Optimizer – Optimization Module

Input 1

- Daily forecast of cash withdraw

- ATM service level

- Replenishment zone

- Distance to cash center

- Unplanned replenishment days

- Coefficient of unplanned replenishment

- VIP or not information (In order to identify ATMs in Mediterrenian district which are served as VIP during summer time)

- Coefficient for replenishment of VIP ATMs

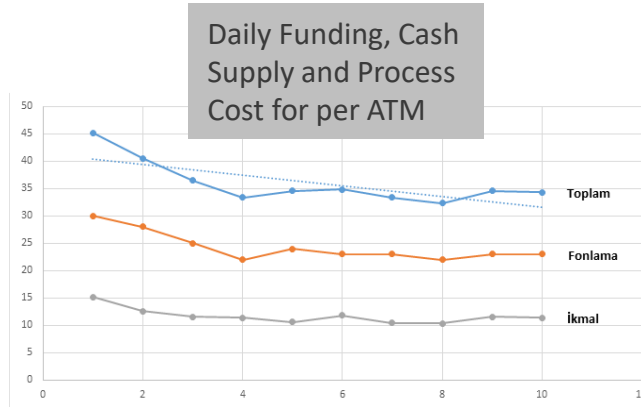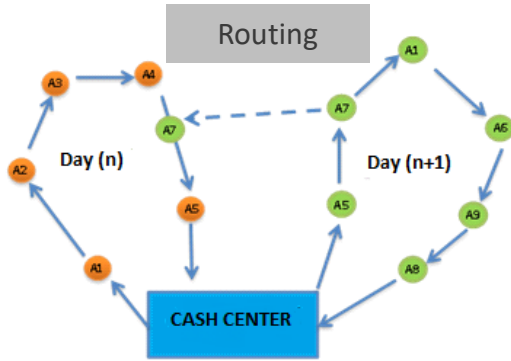- Daily funding cost

- Cassette preparation cost

inter-ATM/Optimizer – Routing Module
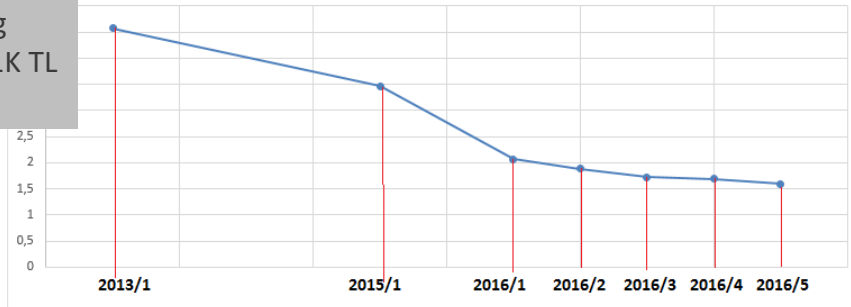
Input 1

- Output of Optimization Module – Monthly Transfer Plans (Transfer Date – Loading Amount)
- Forecasted Cash Withdrawal Amount
- Cash Center Geographical Locations – ATM Relations
- Geographical Locations of ATMs
- Distances of ATMs which are bounded to a Cash Center and distances to each other (Calculated the shortest distance from Google and Bings)
- Over Time Costs
- Constant Cost of one vehicle's Engine Start
- Per Km driven out cost of one vehicle
- Average Velocity of Vehicle
- Money loading time
- Break Times

Customer Success Story

DenizBank
FİNANSAL HİZMETLER GRUBU

Routing

Daily Funding, Cash Supply and Process Cost for per ATM

Montly Funding Cost for Every 1K TL Withdrawn

Win Results: Mid-Sized Bank with 1.400 ATMs

✓ 27.9% decrese in the number of replenishment requests per year

✓ 7.9 mio USD/year cost reduction in ATM operations

✓ 37% decrease in cash inventory

✓ 98.2% cash availability on ATMs network on average