Fig. 1

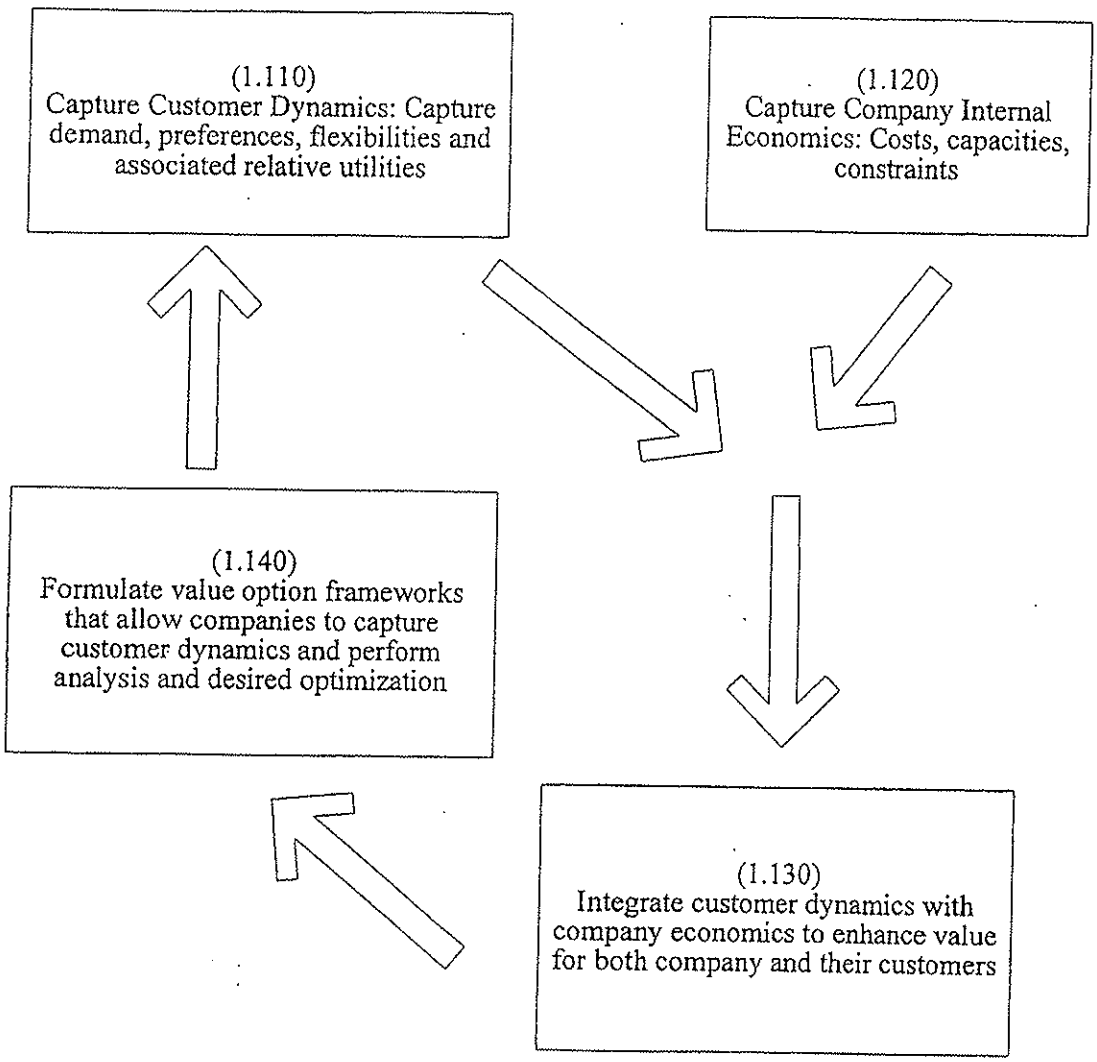

(1.110)
Capture Customer Dynamics: Capture demand, preferences, flexibilities and associated relative utilities
(1.120)
Capture Company Internal Economics: Costs, capacities, constraints
(1.140)
Formulate value option frameworks that allow companies to capture customer dynamics and perform analysis and desired optimization
(1.130)
Integrate customer dynamics with company economics to enhance value for both company and their customers

Fig. 2

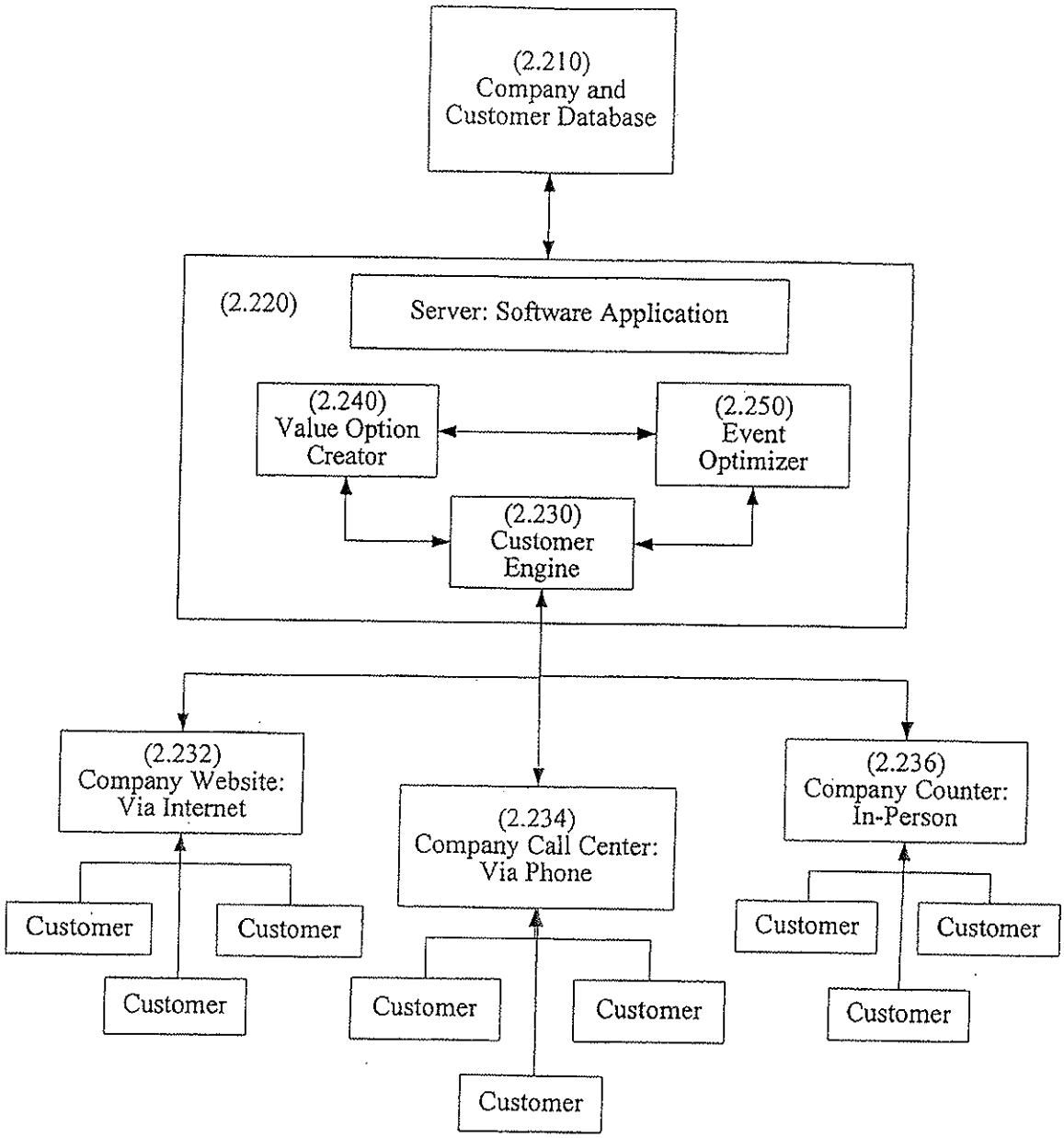

(2.210)
Company and
Customer Database
(2.220)
Server: Software Application
(2.240)
Value Option
Creator
(2.250)
Event
Optimizer
(2.230)
Customer
Engine
(2.232)
Company Website:
Via Internet
(2.234)
Company Call Center:
Via Phone
(2.236)
Company Counter:
In-Person
Customer
Customer
Customer
Customer
Customer
Customer
Customer
Customer
Customer
Customer

Fig. 3

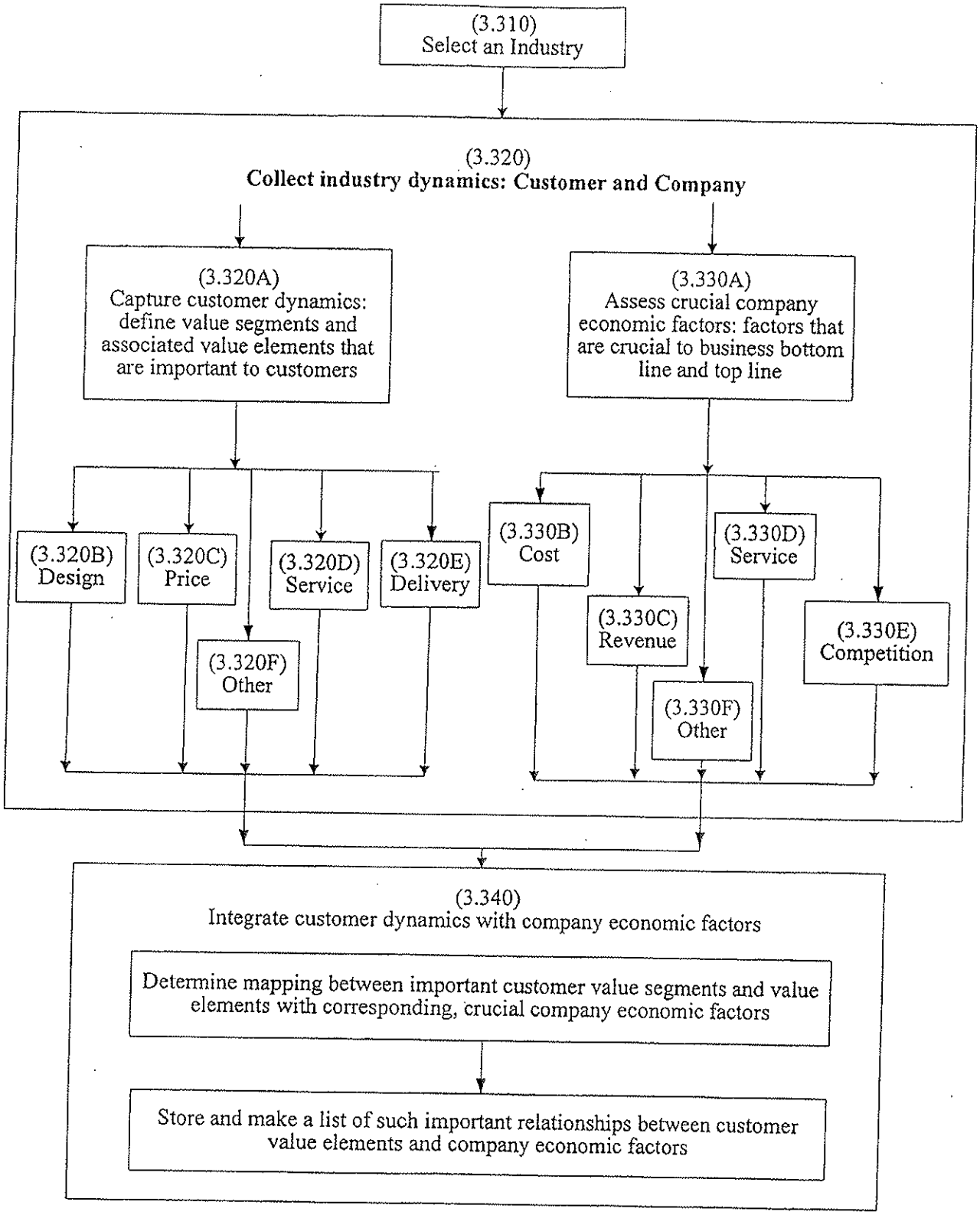

(3.310)
Select an Industry
(3.320)
Collect industry dynamics: Customer and Company
(3.320A)
Capture customer dynamics: define value segments and associated value elements that are important to customers
(3.330A)
Assess crucial company economic factors: factors that are crucial to business bottom line and top line
(3.320B) Design
(3.320C) Price
(3.320D) Service
(3.320E) Delivery
(3.320F) Other
(3.330B) Cost
(3.330C) Revenue
(3.330D) Service
(3.330E) Competition
(3.330F) Other
(3.340)
Integrate customer dynamics with company economic factors
Determine mapping between important customer value segments and value elements with corresponding, crucial company economic factors
Store and make a list of such important relationships between customer value elements and company economic factors

Fig. 4

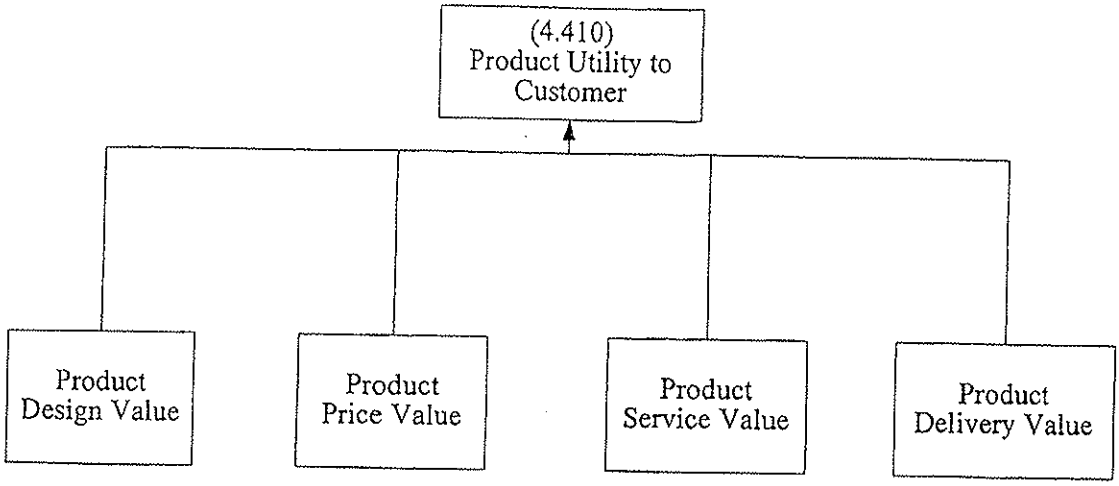

(4.410)
Product Utility to Customer
Product Design Value
Product Price Value
Product Service Value
Product Delivery Value

Fig. 5

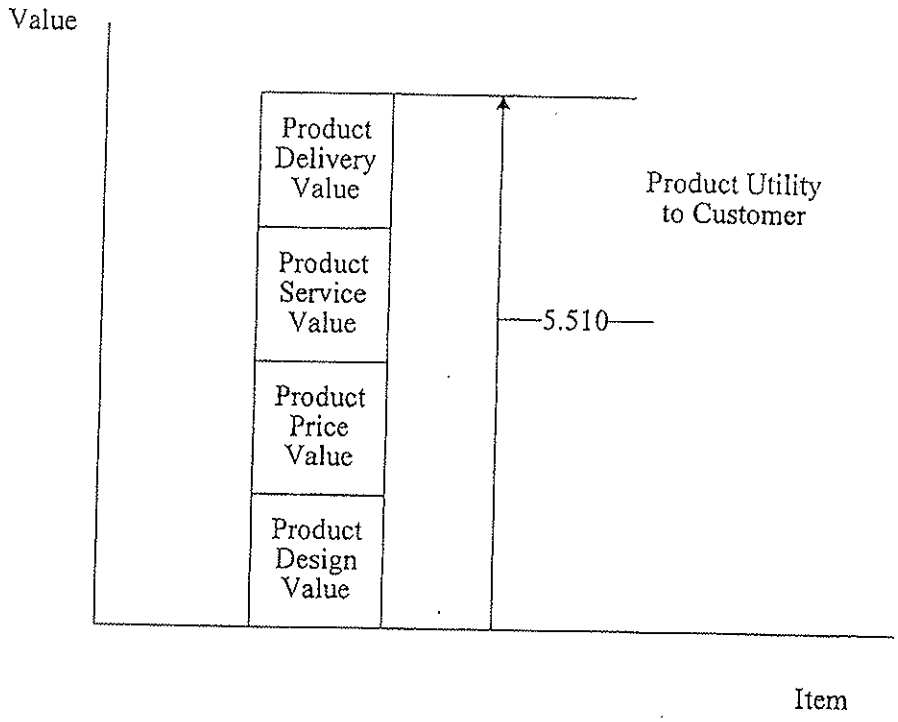

Value
Product Delivery Value
Product Service Value
Product Price Value
Product Design Value
Product Utility to Customer
5.510
Item

Fig. 6

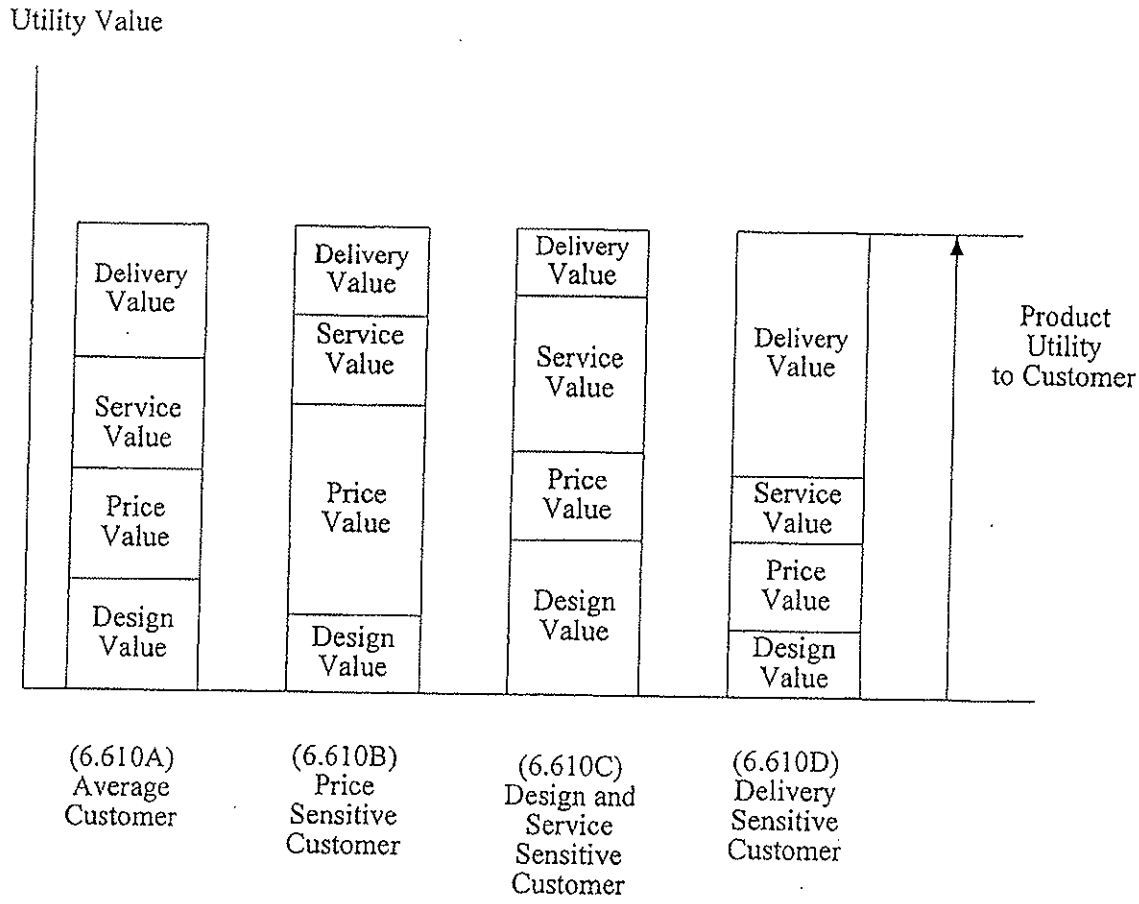
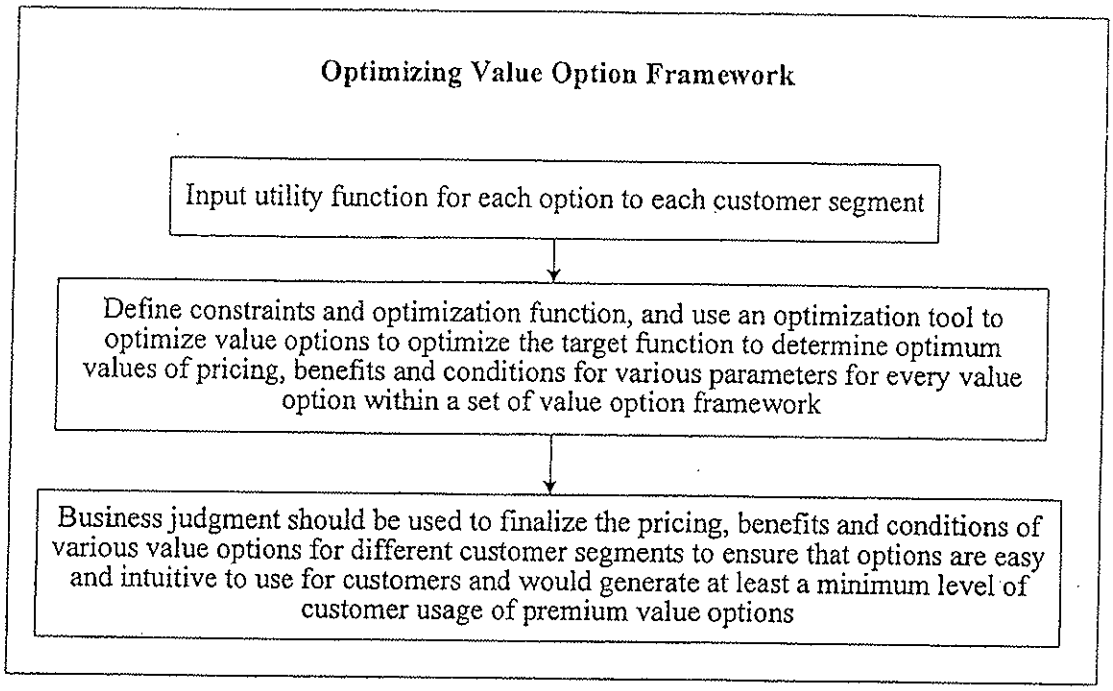

Utility Value
Delivery Value
Service Value
Price Value
Design Value
Delivery Value
Service Value
Price Value
Design Value
Delivery Value
Service Value
Price Value
Design Value
Delivery Value
Service Value
Price Value
Design Value
Product Utility to Customer
(6.610A) Average Customer
(6.610B) Price Sensitive Customer
(6.610C) Design and Service Sensitive Customer
(6.610D) Delivery Sensitive Customer

Fig. 7



The system is now ready to be deployed to generate real world interactions with the customers

Fig. 8

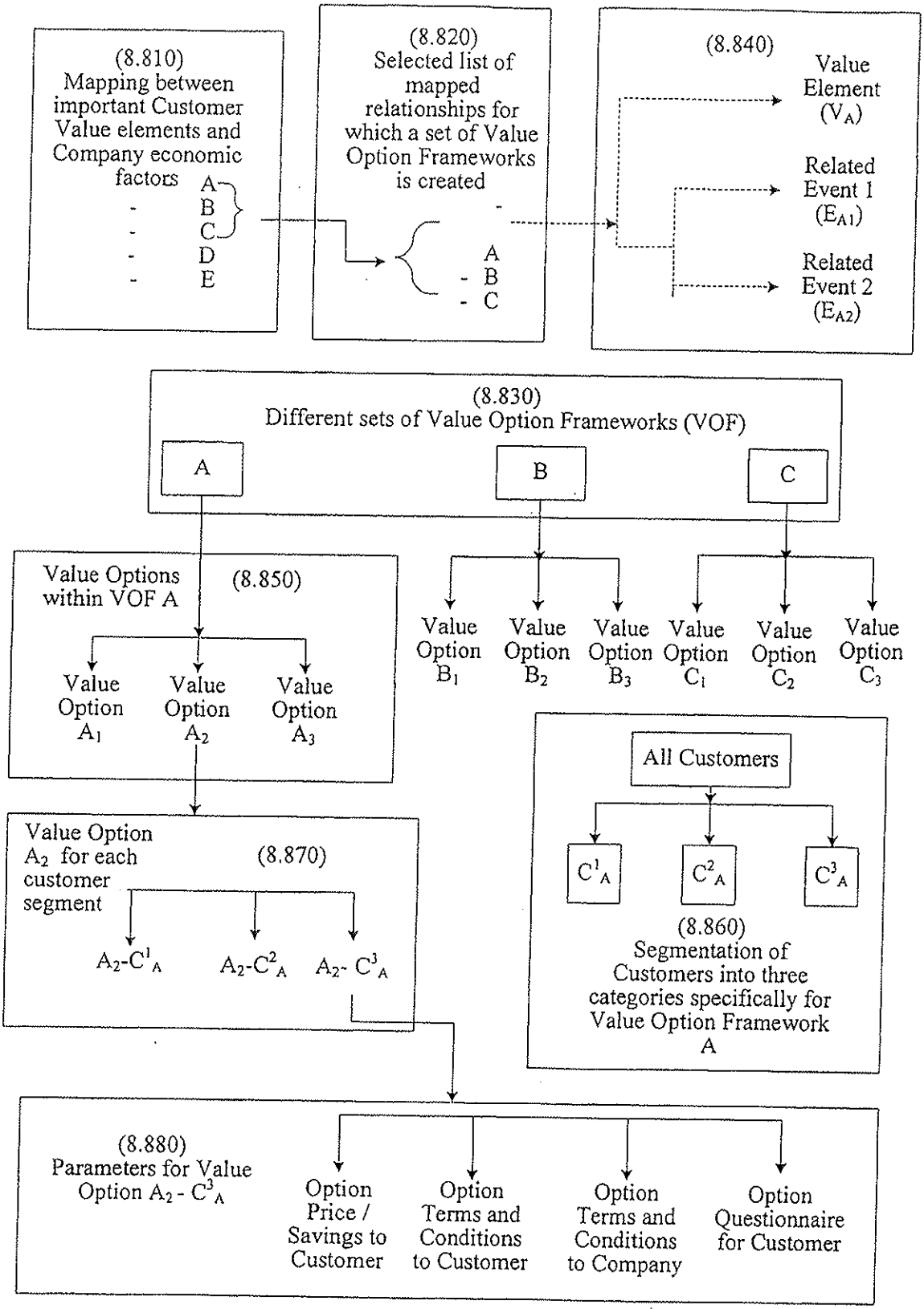

(8.810)
Mapping between important Customer Value elements and Company economic factors
A
B
C
D
E
(8.820)
Selected list of mapped relationships for which a set of Value Option Frameworks is created
A
B
C
(8.840)
Value Element (V_A)
Related Event 1 (E_{A1})
Related Event 2 (E_{A2})
(8.830)
Different sets of Value Option Frameworks (VOF)
A
B
C
Value Options within VOF A
(8.850)
Value Option A_1
Value Option A_2
Value Option A_3
Value Option B_1
Value Option B_2
Value Option B_3
Value Option C_1
Value Option C_2
Value Option C_3
All Customers
C^1_A
C^2_A
C^3_A
(8.860)
Segmentation of Customers into three categories specifically for Value Option Framework A
Value Option A_2 for each customer segment
(8.870)
A_2-C^1_A
A_2-C^2_A
A_2- C^3_A
(8.880)
Parameters for Value Option A_2 - C^3_A
Option Price / Savings to Customer
Option Terms and Conditions to Customer
Option Terms and Conditions to Company
Option Questionnaire for Customer

Fig. 9

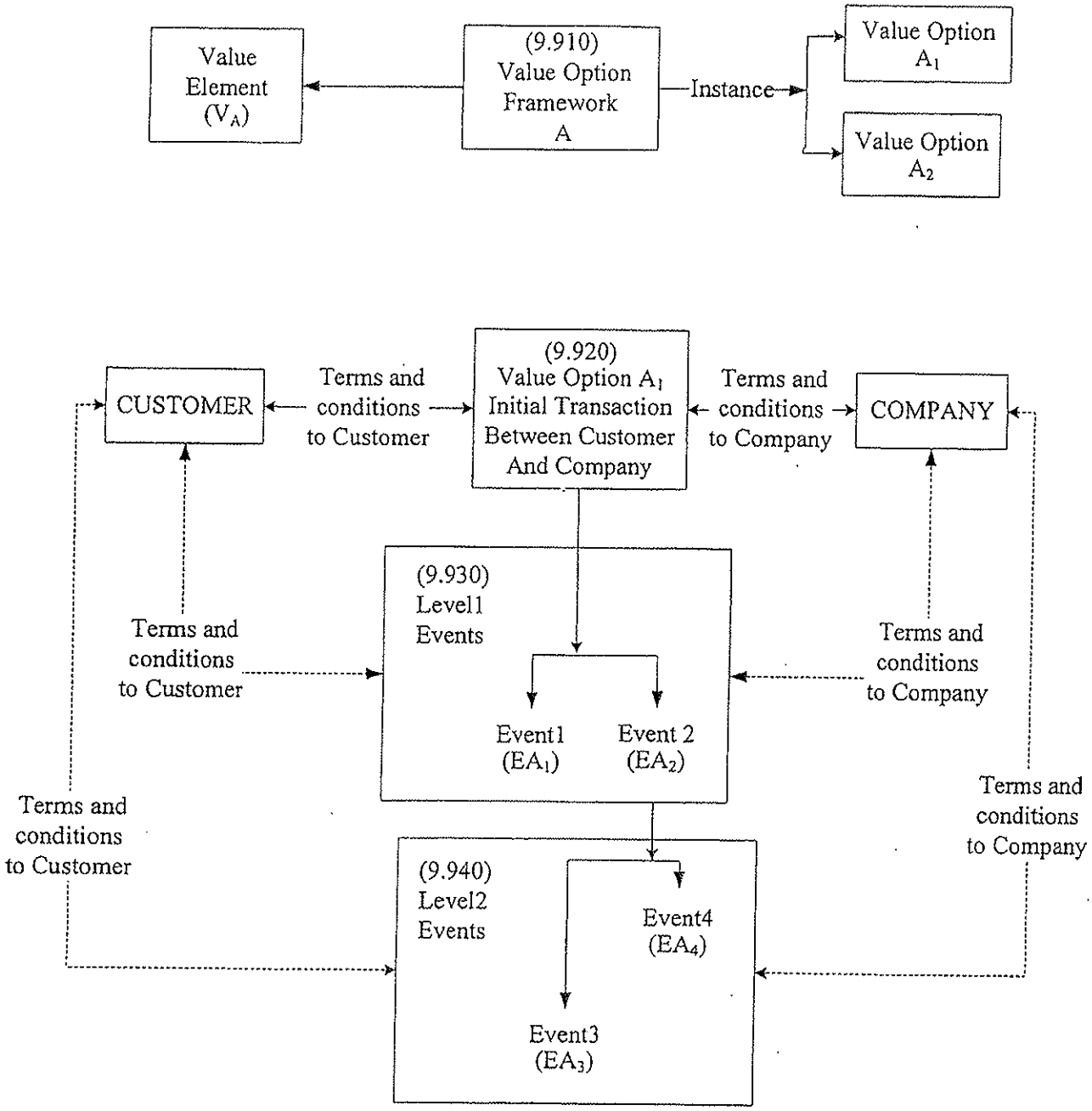

Value Element (V_A)
(9.910) Value Option Framework A
Instance
Value Option A_1
Value Option A_2
CUSTOMER
Terms and conditions to Customer
(9.920) Value Option A_1 Initial Transaction Between Customer And Company
Terms and conditions to Company
COMPANY
(9.930) Level1 Events
Event1 (EA_1)
Event 2 (EA_2)
Terms and conditions to Customer
Terms and conditions to Company
Terms and conditions to Customer
Terms and conditions to Company
(9.940) Level2 Events
Event4 (EA_4)
Event3 (EA_3)

Fig. 10

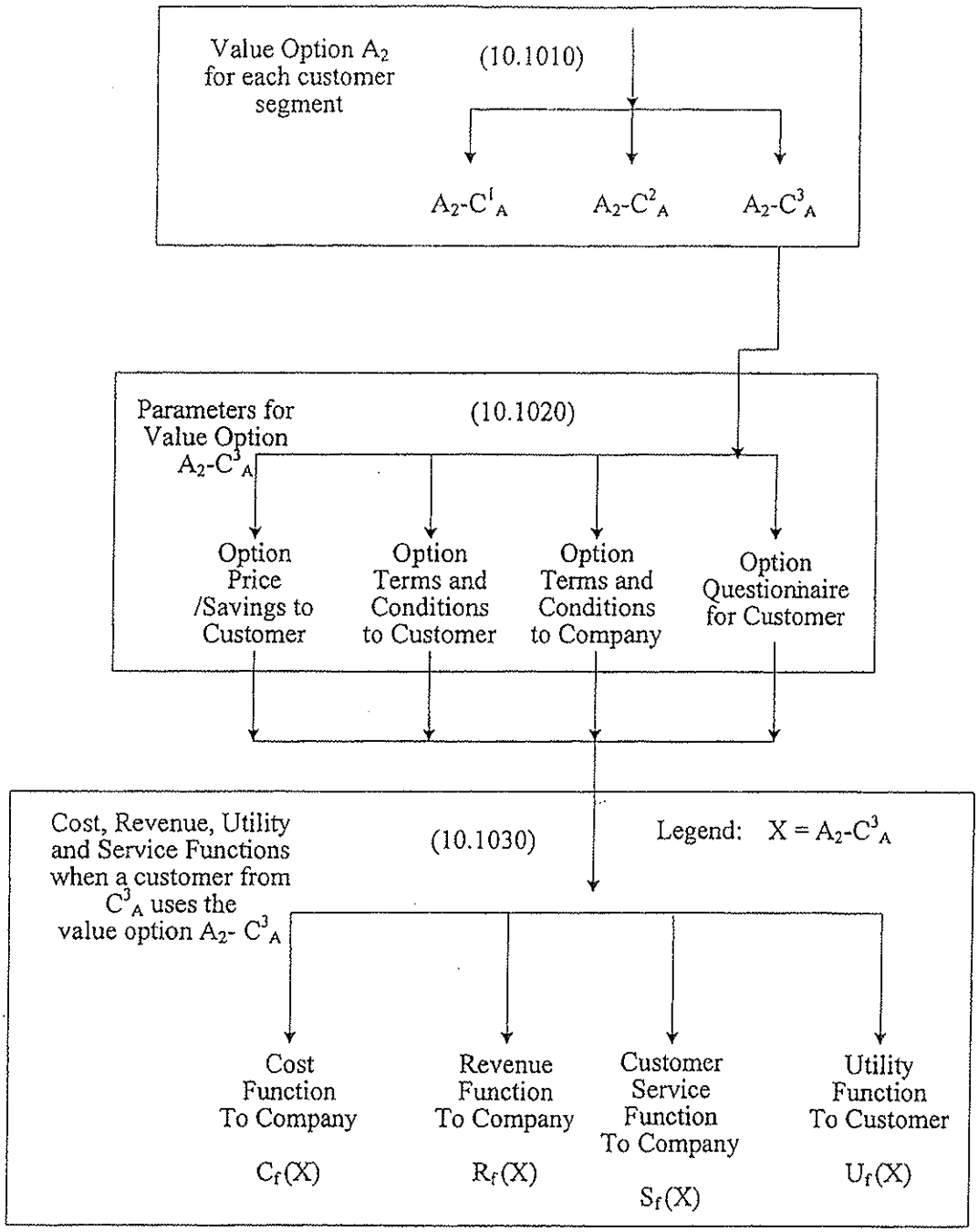

Value Option A_2 for each customer segment
(10.1010)
A_2-C^1_A
A_2-C^2_A
A_2-C^3_A
Parameters for Value Option A_2-C^3_A
(10.1020)
Option Price /Savings to Customer
Option Terms and Conditions to Customer
Option Terms and Conditions to Company
Option Questionnaire for Customer
Cost, Revenue, Utility and Service Functions when a customer from C^3_A uses the value option A_2- C^3_A
(10.1030)
Legend: $X = A_2$-C^3_A
Cost Function To Company
$C_f(X)$
Revenue Function To Company
$R_f(X)$
Customer Service Function To Company
$S_f(X)$
Utility Function To Customer
$U_f(X)$

Fig. 11

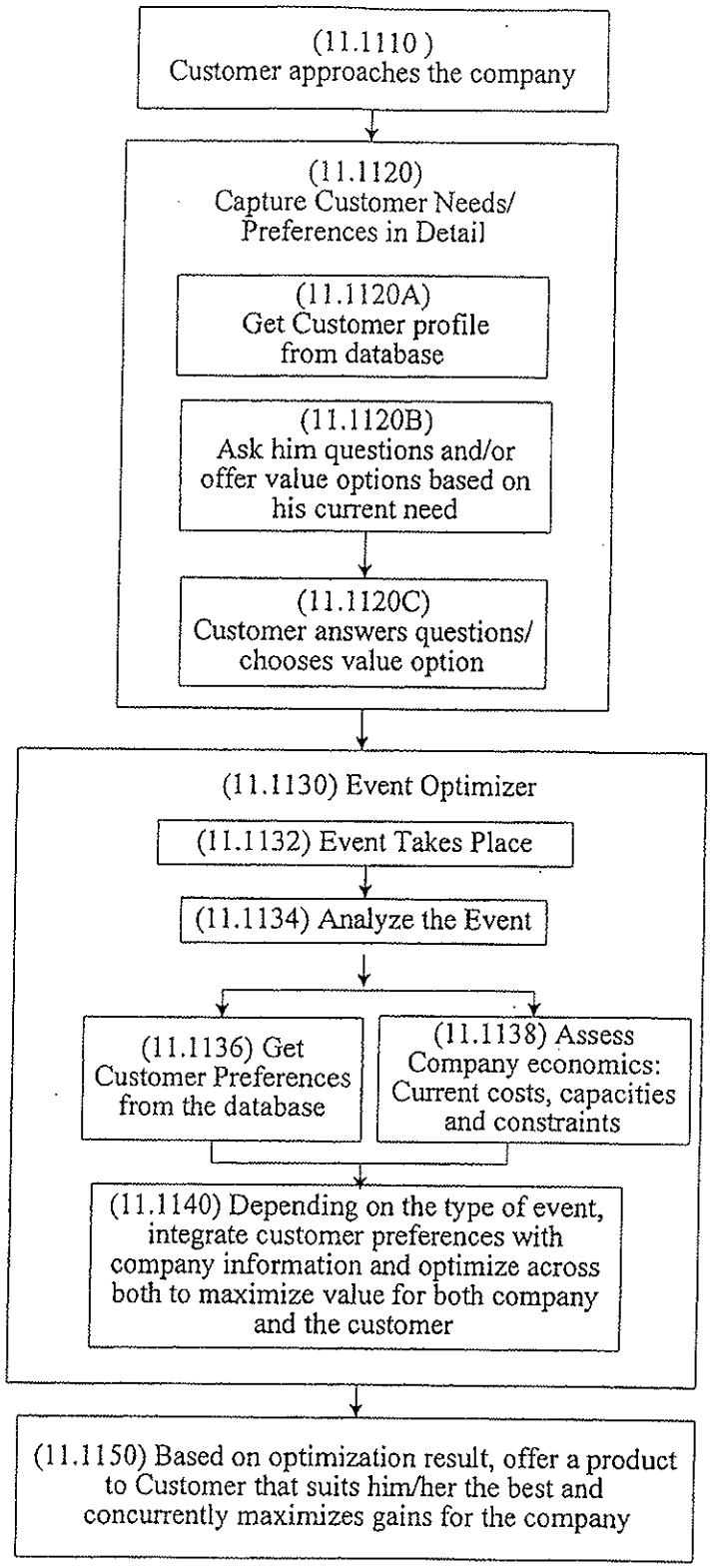

(11.1110)
Customer approaches the company
(11.1120)
Capture Customer Needs/
Preferences in Detail
(11.1120A)
Get Customer profile
from database
(11.1120B)
Ask him questions and/or
offer value options based on
his current need
(11.1120C)
Customer answers questions/
chooses value option
(11.1130) Event Optimizer
(11.1132) Event Takes Place
(11.1134) Analyze the Event
(11.1136) Get
Customer Preferences
from the database
(11.1138) Assess
Company economics:
Current costs, capacities
and constraints
(11.1140) Depending on the type of event,
integrate customer preferences with
company information and optimize across
both to maximize value for both company
and the customer
(11.1150) Based on optimization result, offer a product
to Customer that suits him/her the best and
concurrently maximizes gains for the company

Fig. 12

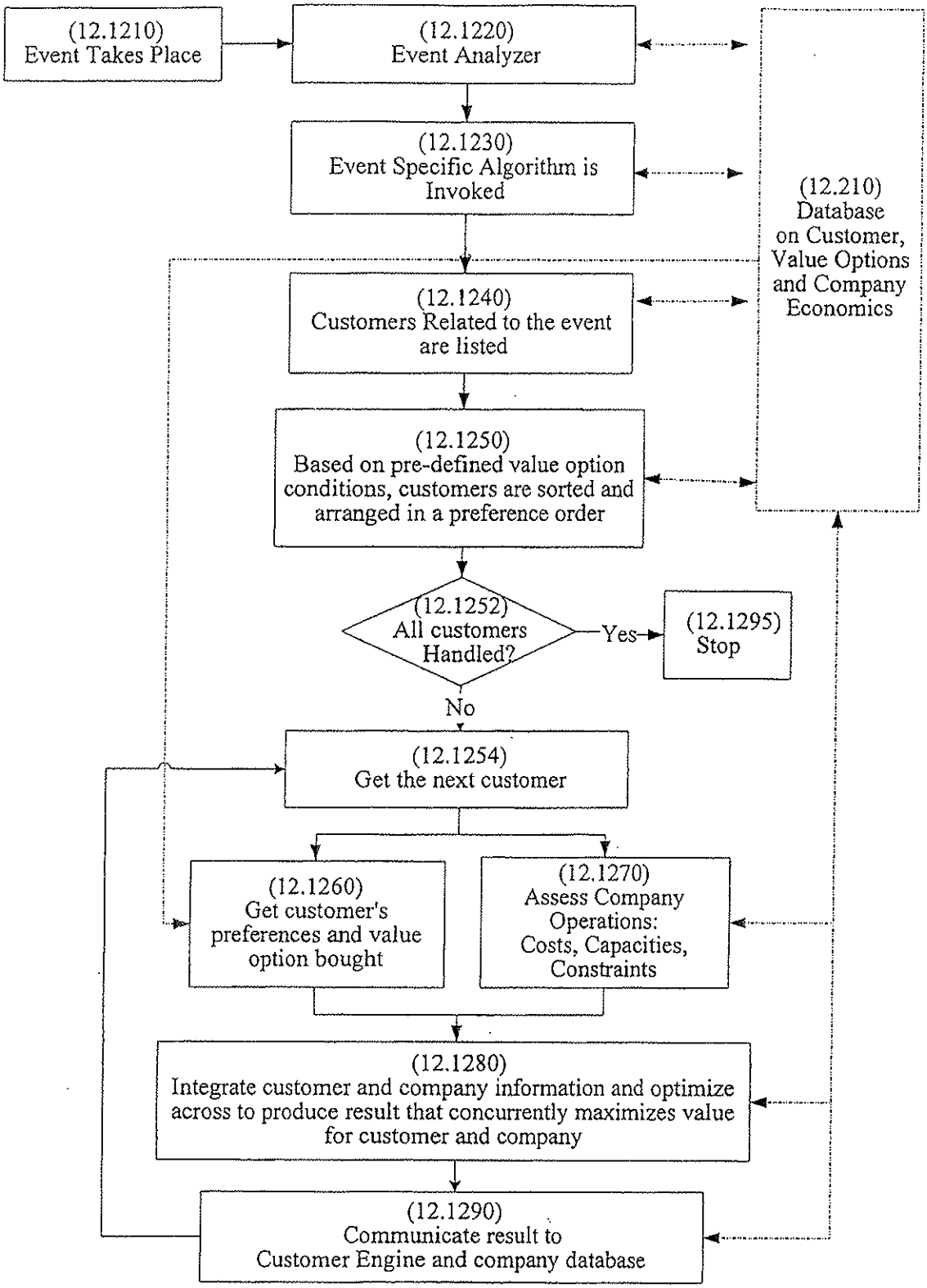

(12.1210)
Event Takes Place
(12.1220)
Event Analyzer
(12.1230)
Event Specific Algorithm is Invoked
(12.210)
Database on Customer, Value Options and Company Economics
(12.1240)
Customers Related to the event are listed
(12.1250)
Based on pre-defined value option conditions, customers are sorted and arranged in a preference order
(12.1252)
All customers Handled?
Yes
(12.1295)
Stop
No
(12.1254)
Get the next customer
(12.1260)
Get customer's preferences and value option bought
(12.1270)
Assess Company Operations: Costs, Capacities, Constraints
(12.1280)
Integrate customer and company information and optimize across to produce result that concurrently maximizes value for customer and company
(12.1290)
Communicate result to Customer Engine and company database

Fig. 13

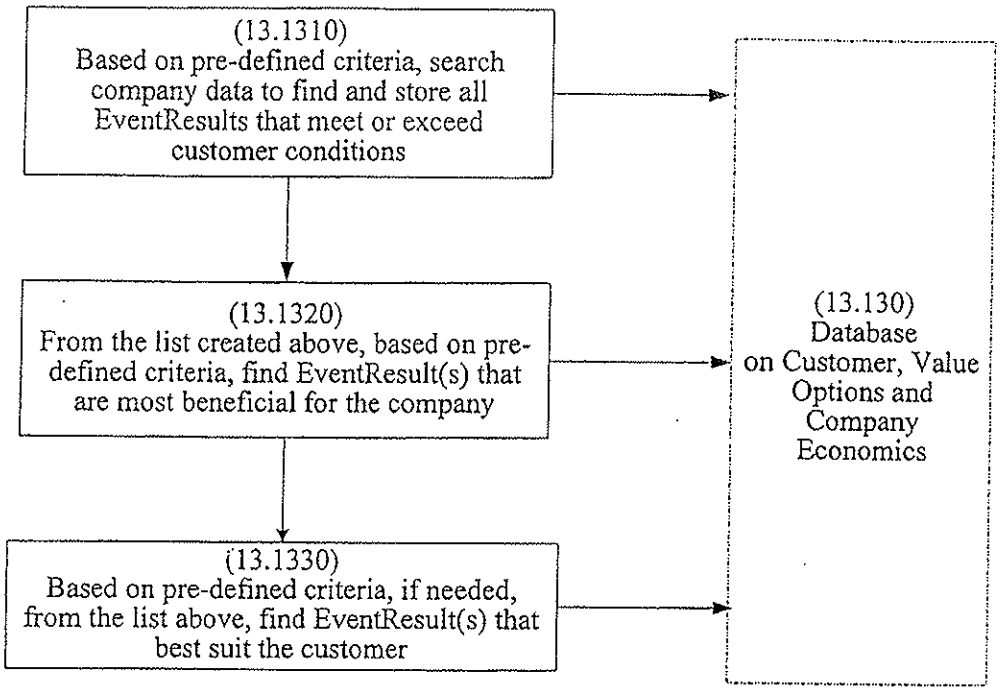

(13.1310)
Based on pre-defined criteria, search company data to find and store all EventResults that meet or exceed customer conditions
(13.1320)
From the list created above, based on pre-defined criteria, find EventResult(s) that are most beneficial for the company
(13.1330)
Based on pre-defined criteria, if needed, from the list above, find EventResult(s) that best suit the customer
(13.130)
Database
on Customer, Value Options and Company Economics

Fig. 13A

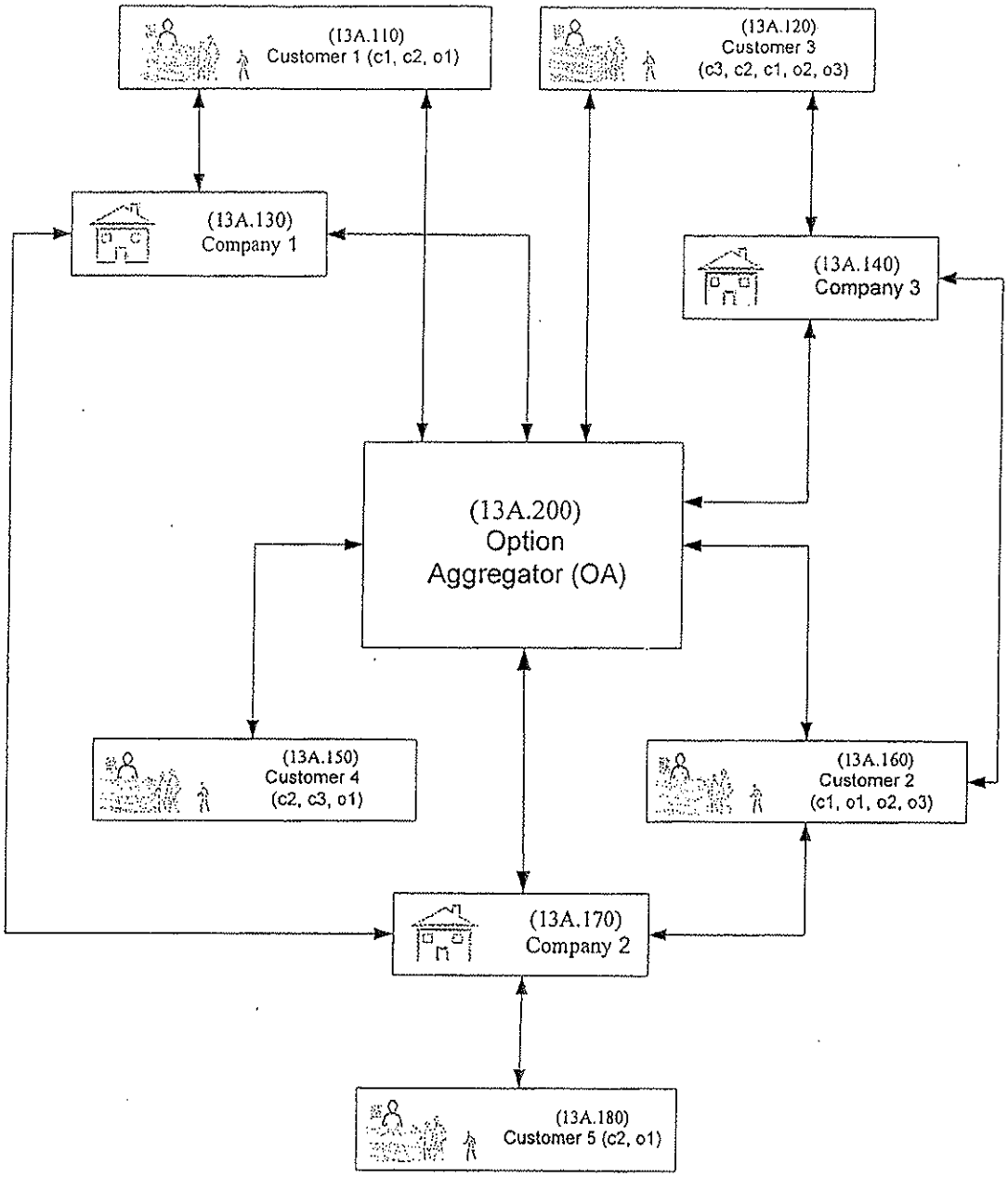

(13A.110)
Customer 1 (c1, c2, o1)
(13A.120)
Customer 3
(c3, c2, c1, o2, o3)
(13A.130)
Company 1
(13A.140)
Company 3
(13A.200)
Option
Aggregator (OA)
(13A.150)
Customer 4
(c2, c3, o1)
(13A.160)
Customer 2
(c1, o1, o2, o3)
(13A.170)
Company 2
(13A.180)
Customer 5 (c2, o1)

Fig. 13B

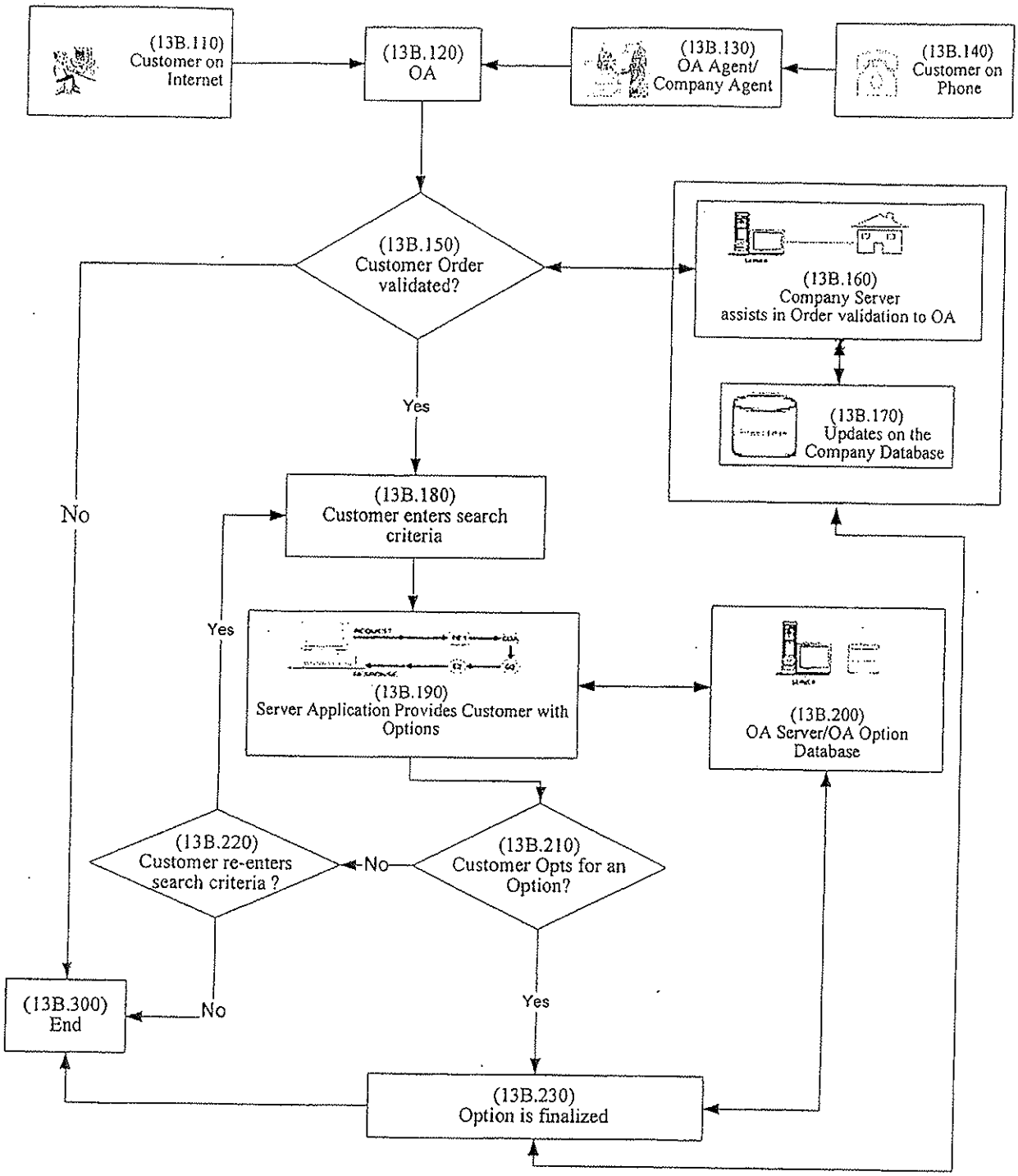

(13B.110) Customer on Internet
(13B.120) OA
(13B.130) OA Agent/ Company Agent
(13B.140) Customer on Phone
(13B.150) Customer Order validated?
(13B.160) Company Server assists in Order validation to OA
(13B.170) Updates on the Company Database
Yes
No
(13B.180) Customer enters search criteria
Yes
(13B.190) Server Application Provides Customer with Options
(13B.200) OA Server/OA Option Database
(13B.220) Customer re-enters search criteria ?
No
(13B.210) Customer Opts for an Option?
(13B.300) End
No
Yes
(13B.230) Option is finalized

Fig. 13C

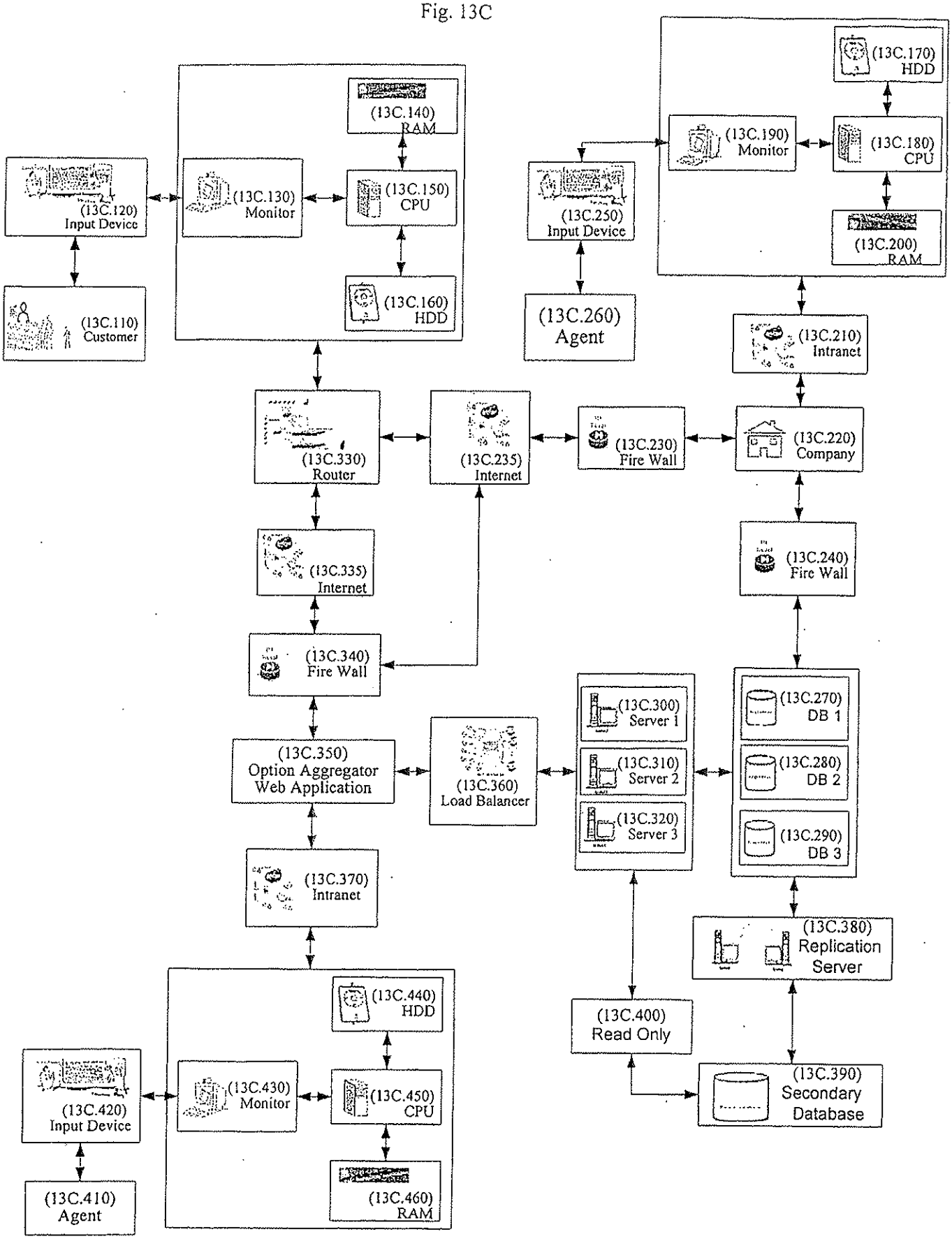

(13C.110) Customer
(13C.120) Input Device
(13C.130) Monitor
(13C.140) RAM
(13C.150) CPU
(13C.160) HDD
(13C.170) HDD
(13C.180) CPU
(13C.190) Monitor
(13C.200) RAM
(13C.210) Intranet
(13C.220) Company
(13C.230) Fire Wall
(13C.235) Internet
(13C.240) Fire Wall
(13C.250) Input Device
(13C.260) Agent
(13C.270) DB 1
(13C.280) DB 2
(13C.290) DB 3
(13C.300) Server 1
(13C.310) Server 2
(13C.320) Server 3
(13C.330) Router
(13C.335) Internet
(13C.340) Fire Wall
(13C.350) Option Aggregator Web Application
(13C.360) Load Balancer
(13C.370) Intranet
(13C.380) Replication Server
(13C.390) Secondary Database
(13C.400) Read Only
(13C.410) Agent
(13C.420) Input Device
(13C.430) Monitor
(13C.440) HDD
(13C.450) CPU
(13C.460) RAM

Fig. 13D

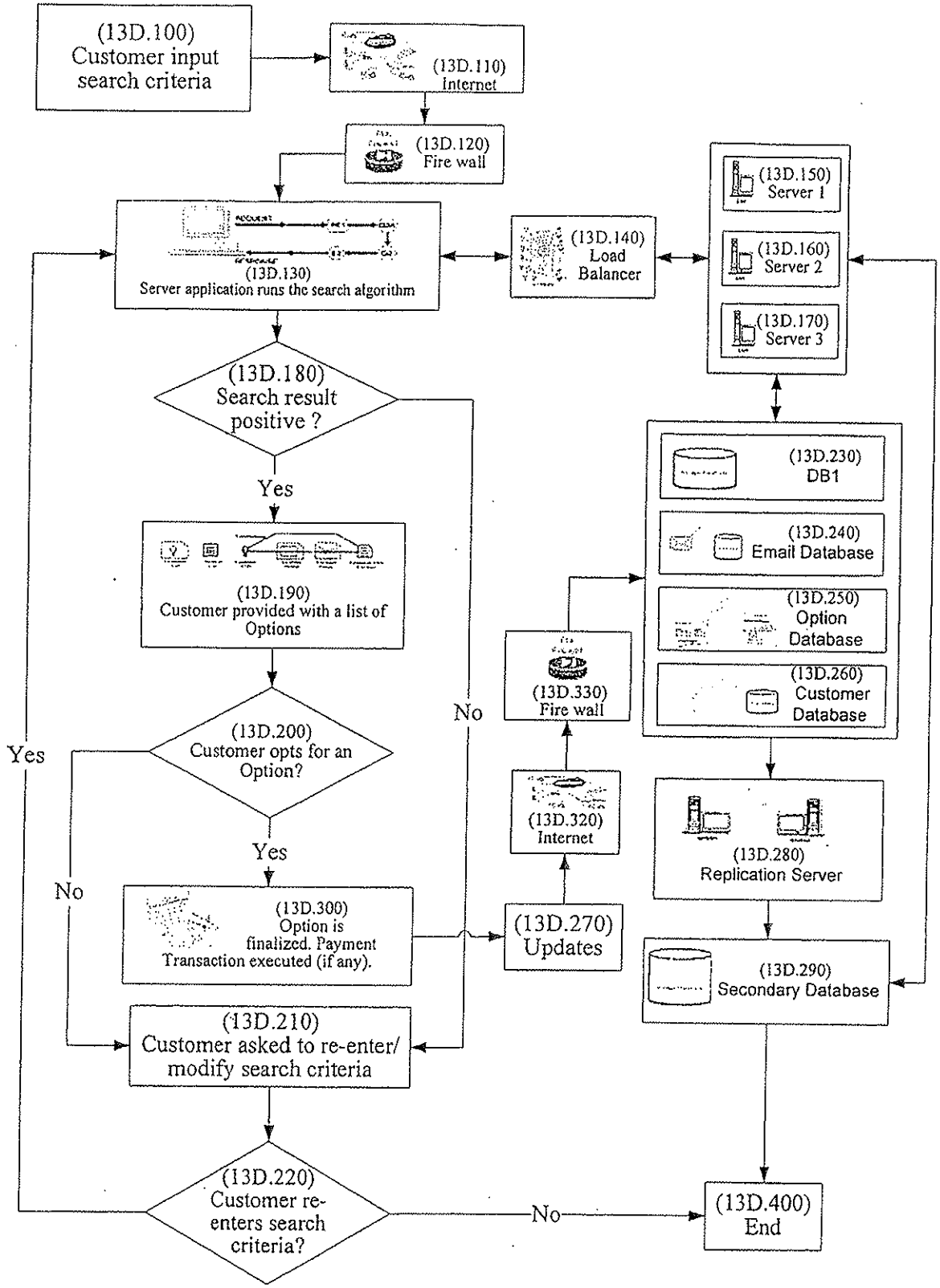

(13D.100) Customer input search criteria
(13D.110) Internet
(13D.120) Fire wall
(13D.130) Server application runs the search algorithm
(13D.140) Load Balancer
(13D.150) Server 1
(13D.160) Server 2
(13D.170) Server 3
(13D.180) Search result positive ?
Yes
No
(13D.190) Customer provided with a list of Options
(13D.200) Customer opts for an Option?
Yes
No
(13D.210) Customer asked to re-enter/ modify search criteria
(13D.220) Customer re-enters search criteria?
Yes
No
(13D.230) DB1
(13D.240) Email Database
(13D.250) Option Database
(13D.260) Customer Database
(13D.280) Replication Server
(13D.290) Secondary Database
(13D.300) Option is finalized. Payment Transaction executed (if any).
(13D.320) Internet
(13D.330) Fire wall
(13D.270) Updates
(13D.400) End

Fig. 13E

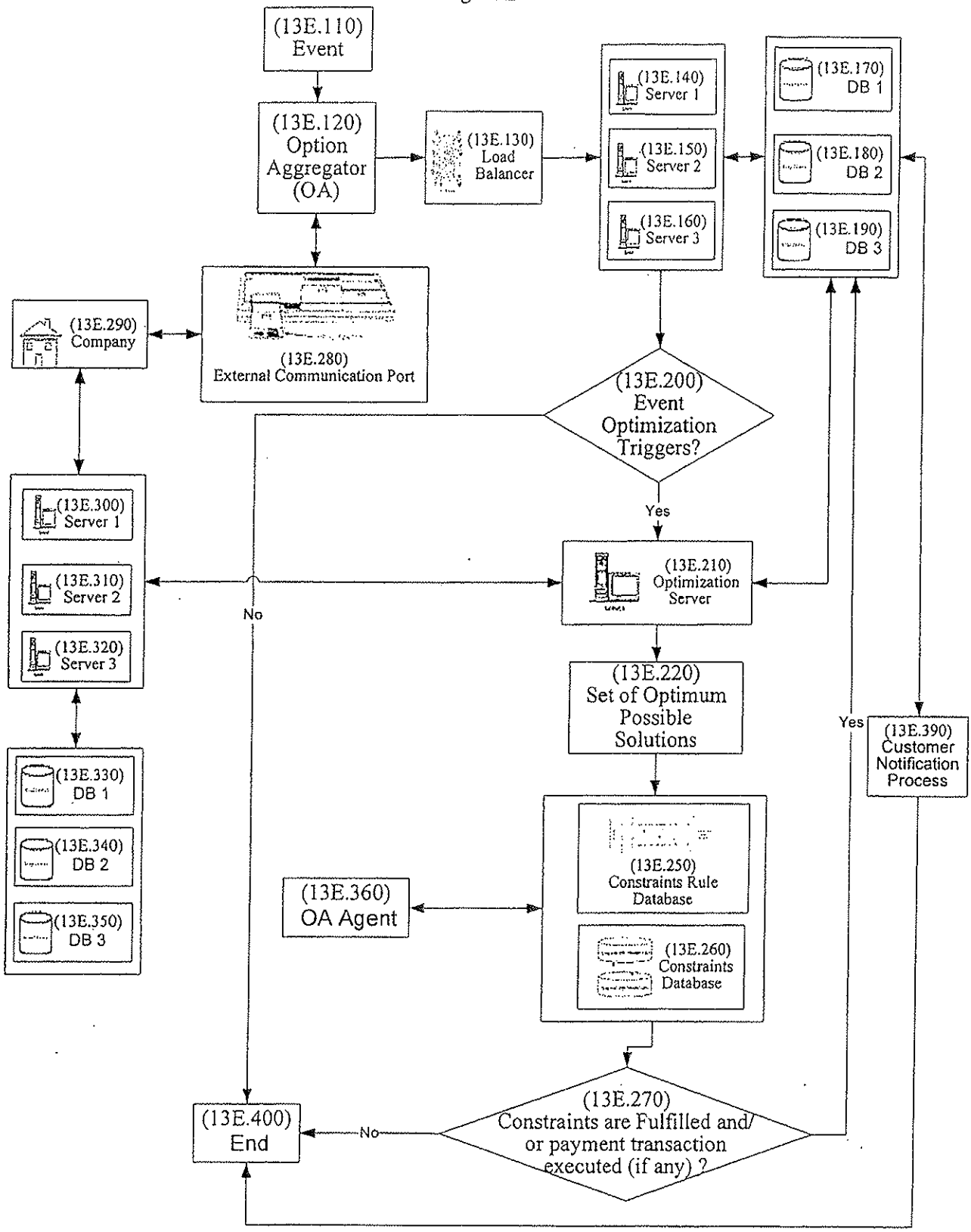

(13E.110) Event
(13E.120) Option Aggregator (OA)
(13E.130) Load Balancer
(13E.140) Server 1
(13E.150) Server 2
(13E.160) Server 3
(13E.170) DB 1
(13E.180) DB 2
(13E.190) DB 3
(13E.280) External Communication Port
(13E.290) Company
(13E.200) Event Optimization Triggers?
Yes
No
(13E.210) Optimization Server
(13E.300) Server 1
(13E.310) Server 2
(13E.320) Server 3
(13E.330) DB 1
(13E.340) DB 2
(13E.350) DB 3
(13E.220) Set of Optimum Possible Solutions
(13E.250) Constraints Rule Database
(13E.260) Constraints Database
(13E.360) OA Agent
(13E.270) Constraints are Fulfilled and/ or payment transaction executed (if any) ?
Yes
No
(13E.390) Customer Notification Process
(13E.400) End

Fig. 14

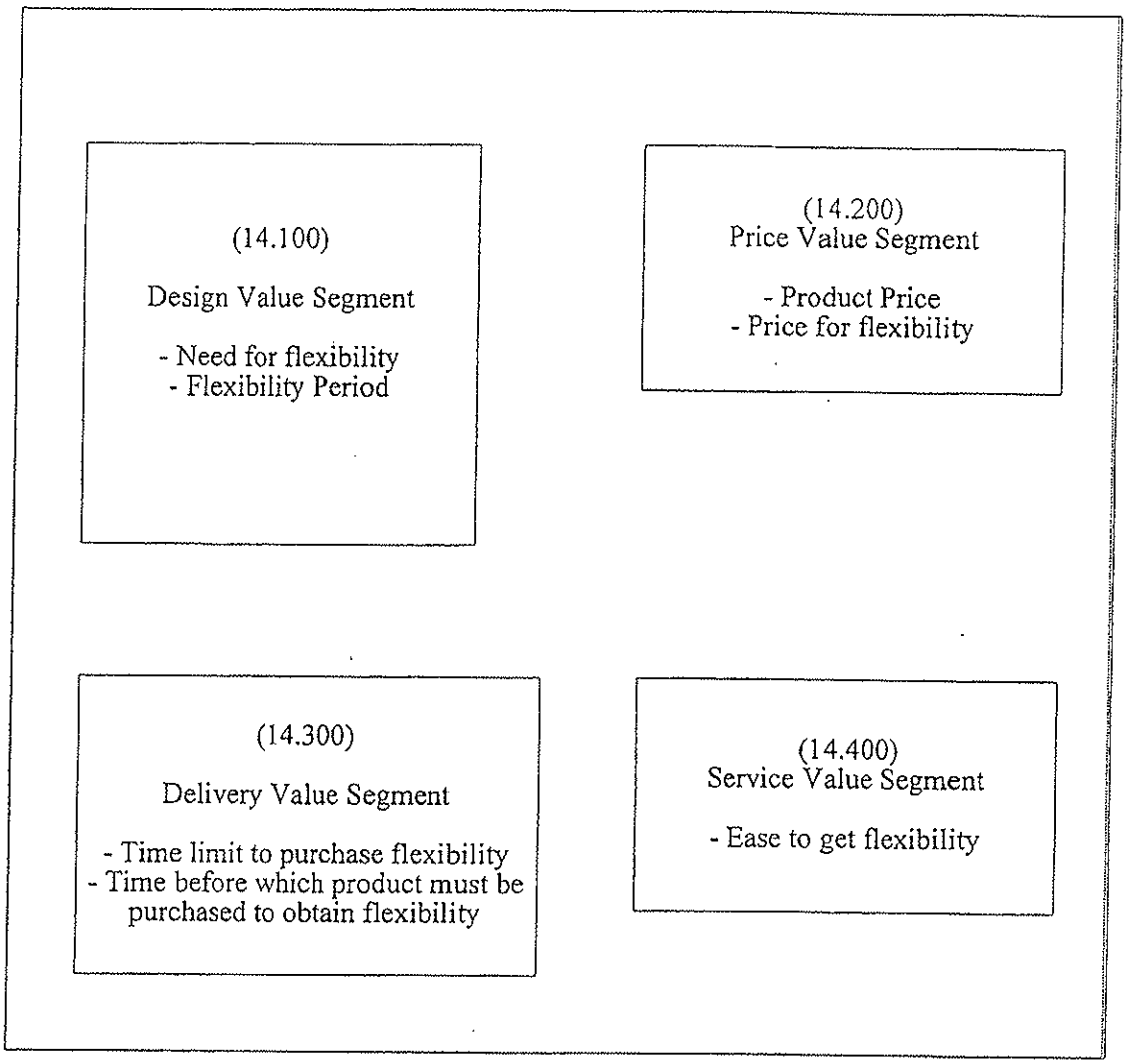

(14.100)
Design Value Segment
- Need for flexibility
- Flexibility Period
(14.200)
Price Value Segment
- Product Price
- Price for flexibility
(14.300)
Delivery Value Segment
- Time limit to purchase flexibility
- Time before which product must be purchased to obtain flexibility
(14.400)
Service Value Segment
- Ease to get flexibility

Fig. 15

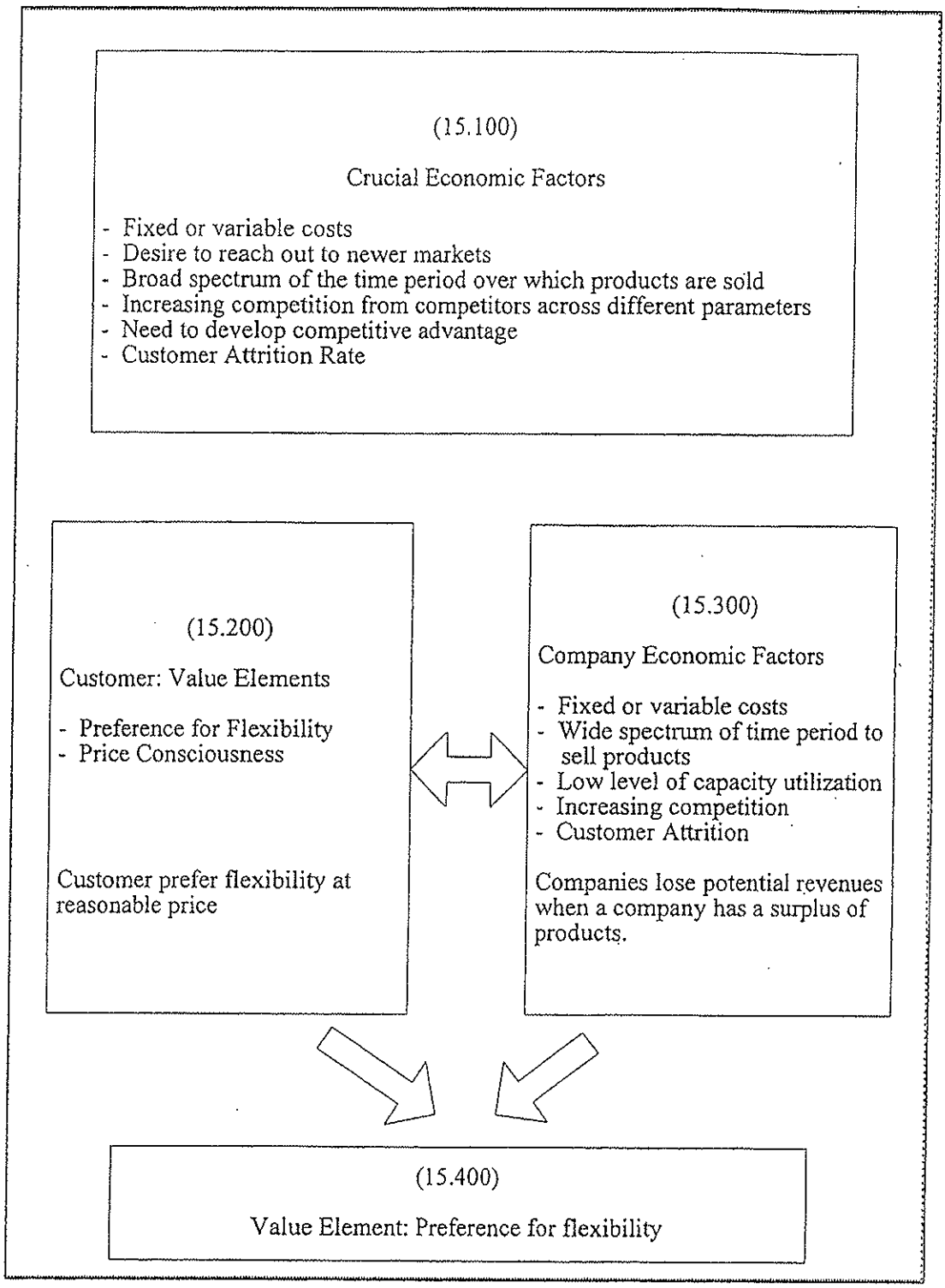

(15.100)
Crucial Economic Factors
- Fixed or variable costs
- Desire to reach out to newer markets
- Broad spectrum of the time period over which products are sold
- Increasing competition from competitors across different parameters
- Need to develop competitive advantage
- Customer Attrition Rate
(15.200)
Customer: Value Elements
- Preference for Flexibility
- Price Consciousness
Customer prefer flexibility at reasonable price
(15.300)
Company Economic Factors
- Fixed or variable costs
- Wide spectrum of time period to sell products
- Low level of capacity utilization
- Increasing competition
- Customer Attrition
Companies lose potential revenues when a company has a surplus of products.
(15.400)
Value Element: Preference for flexibility

Fig. 16

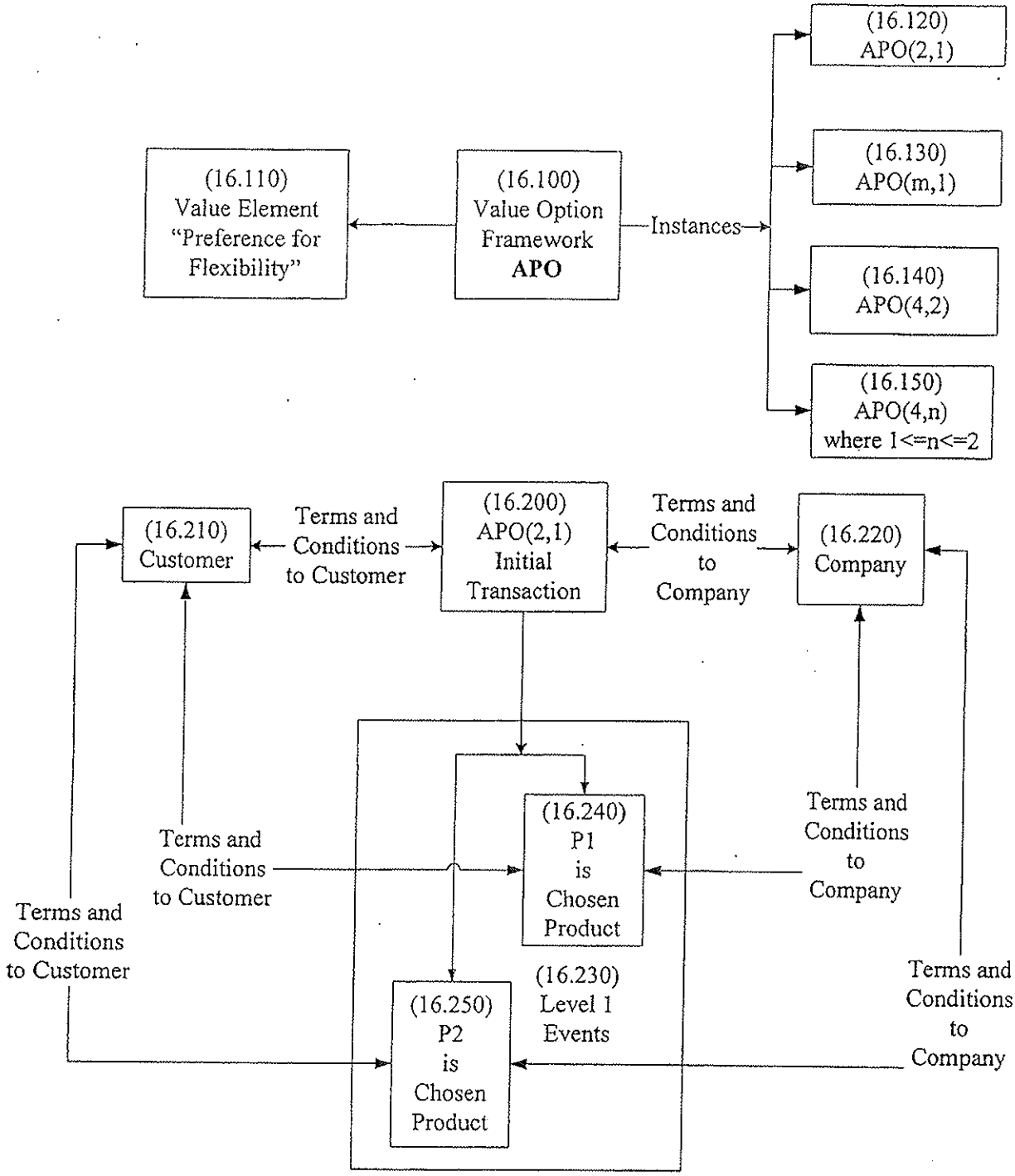
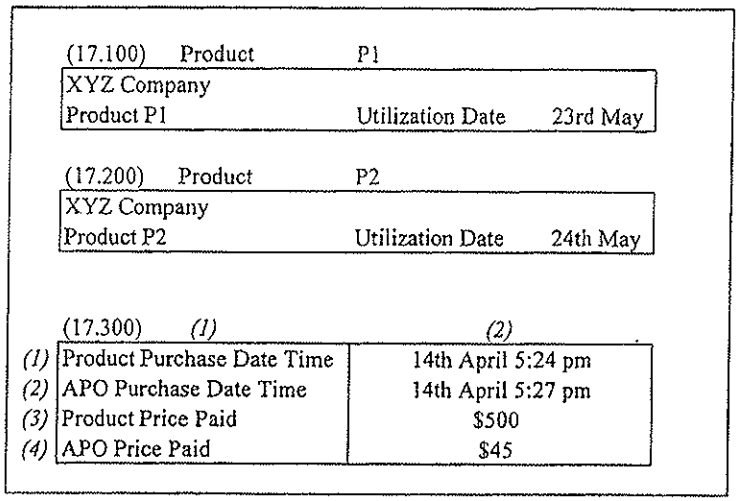

(16.110)
Value Element
"Preference for
Flexibility"
(16.100)
Value Option
Framework
APO
Instances
(16.120)
APO(2,1)
(16.130)
APO(m,1)
(16.140)
APO(4,2)
(16.150)
APO(4,n)
where 1<=n<=2
(16.210)
Customer
Terms and
Conditions
to Customer
(16.200)
APO(2,1)
Initial
Transaction
Terms and
Conditions
to
Company
(16.220)
Company
Terms and
Conditions
to Customer
(16.240)
P1
is
Chosen
Product
Terms and
Conditions
to
Company
Terms and
Conditions
to Customer
(16.230)
Level 1
Events
(16.250)
P2
is
Chosen
Product
Terms and
Conditions
to
Company

Fig. 17



(17.100) Product P1

XYZ Company		
Product P1	Utilization Date	23rd May

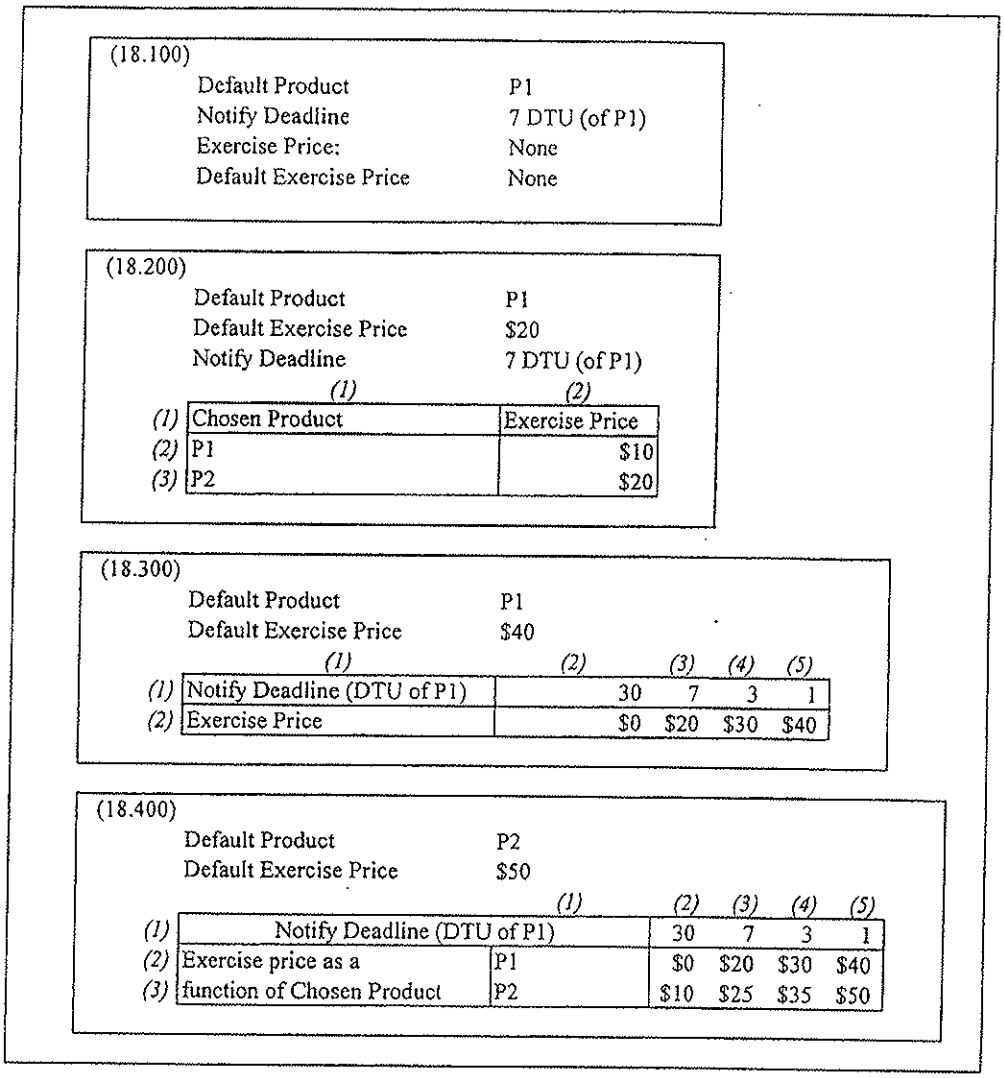
(17.200) Product P2

XYZ Company		
Product P2	Utilization Date	24th May

(17.300)

	(1)	(2)
(1)	Product Purchase Date Time	14th April 5:24 pm
(2)	APO Purchase Date Time	14th April 5:27 pm
(3)	Product Price Paid	$500
(4)	APO Price Paid	$45

Fig. 18



(18.100)

Default Product	P1
Notify Deadline	7 DTU (of P1)
Exercise Price:	None
Default Exercise Price	None

(18.200)

Default Product	P1
Default Exercise Price	$20
Notify Deadline	7 DTU (of P1)

	(1)	(2)
(1)	Chosen Product	Exercise Price
(2)	P1	$10
(3)	P2	$20

(18.300)

Default Product	P1
Default Exercise Price	$40

	(1)	(2)	(3)	(4)	(5)
(1)	Notify Deadline (DTU of P1)	30	7	3	1
(2)	Exercise Price	$0	$20	$30	$40

(18.400)

Default Product	P2
Default Exercise Price	$50

	(1)		(2)	(3)	(4)	(5)
(1)	Notify Deadline (DTU of P1)		30	7	3	1
(2)	Exercise price as a	P1	$0	$20	$30	$40
(3)	function of Chosen Product	P2	$10	$25	$35	$50

Fig. 19

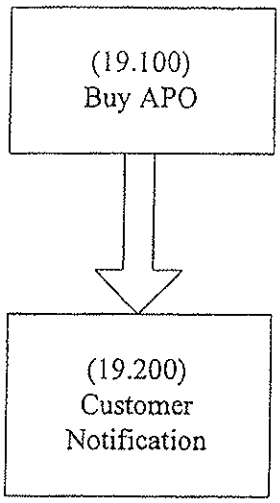


Fig. 20

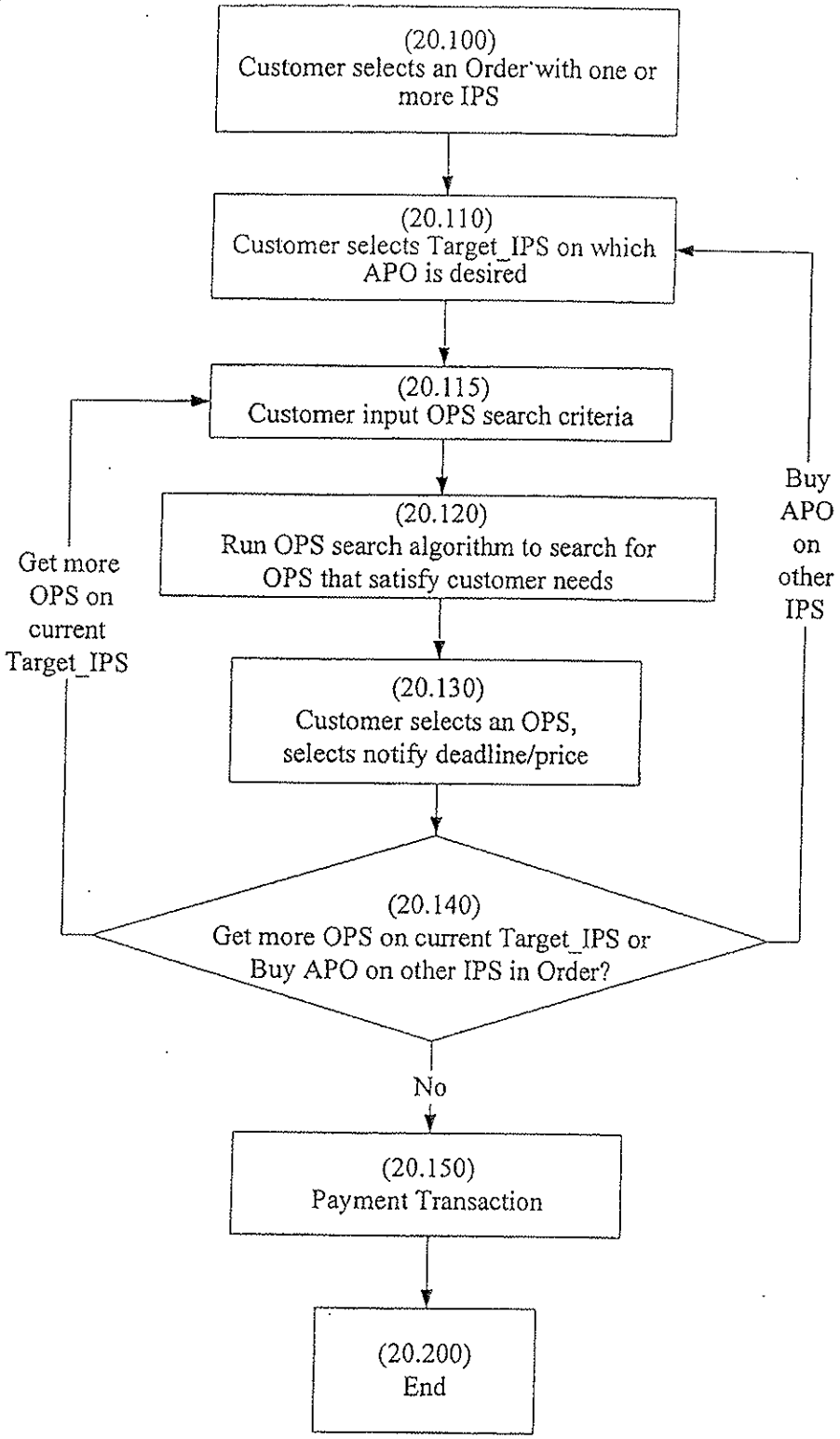

(20.100)
Customer selects an Order with one or more IPS
(20.110)
Customer selects Target_IPS on which APO is desired
(20.115)
Customer input OPS search criteria
(20.120)
Run OPS search algorithm to search for OPS that satisfy customer needs
(20.130)
Customer selects an OPS, selects notify deadline/price
(20.140)
Get more OPS on current Target_IPS or Buy APO on other IPS in Order?
Get more OPS on current Target_IPS
Buy APO on other IPS
No
(20.150)
Payment Transaction
(20.200)
End

Fig. 21

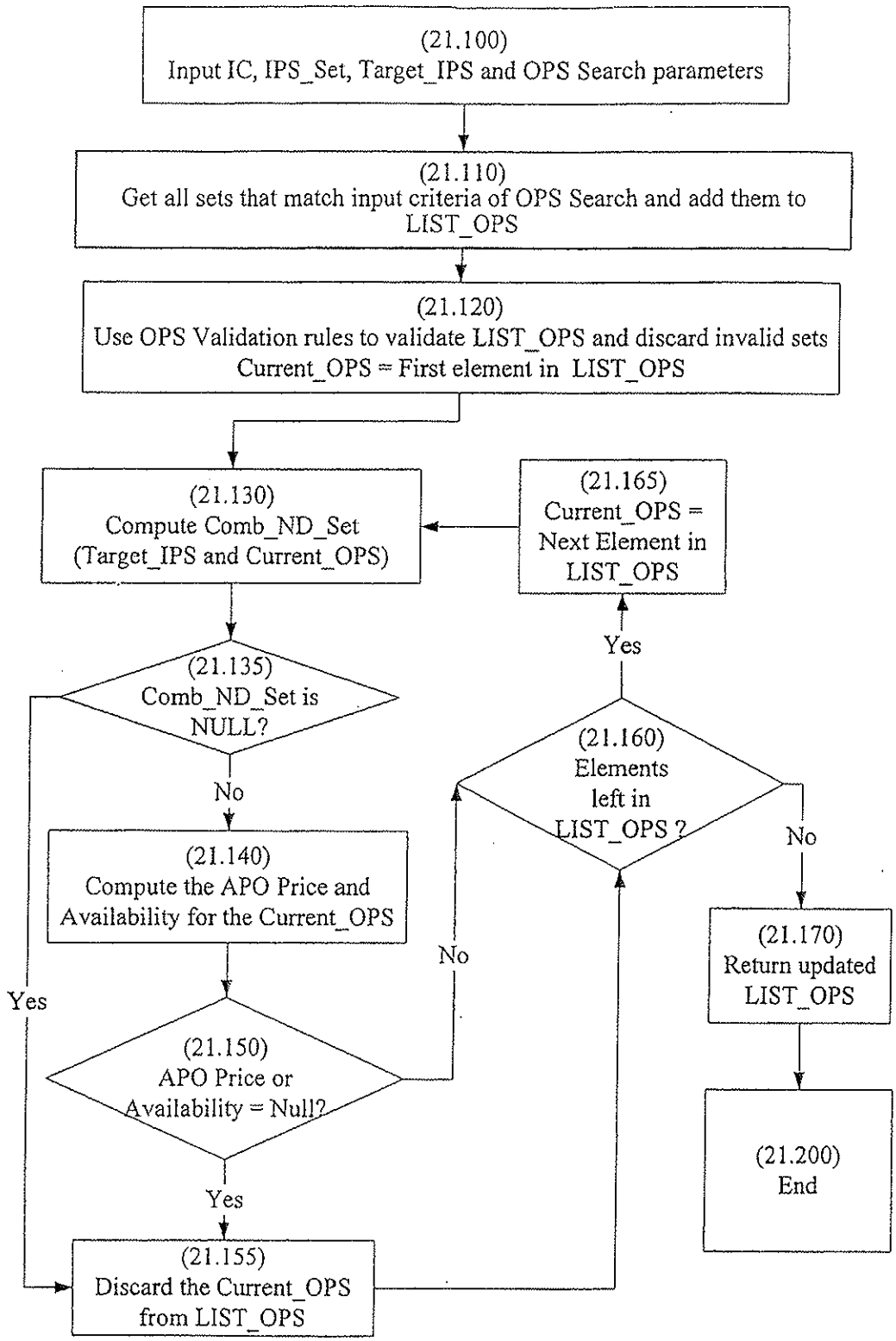

(21.100)
Input IC, IPS_Set, Target_IPS and OPS Search parameters
(21.110)
Get all sets that match input criteria of OPS Search and add them to LIST_OPS
(21.120)
Use OPS Validation rules to validate LIST_OPS and discard invalid sets
Current_OPS = First element in LIST_OPS
(21.130)
Compute Comb_ND_Set (Target_IPS and Current_OPS)
(21.135)
Comb_ND_Set is NULL?
No
Yes
(21.140)
Compute the APO Price and Availability for the Current_OPS
(21.150)
APO Price or Availability = Null?
No
Yes
(21.155)
Discard the Current_OPS from LIST_OPS
(21.165)
Current_OPS = Next Element in LIST_OPS
Yes
(21.160)
Elements left in LIST_OPS ?
No
(21.170)
Return updated LIST_OPS
(21.200)
End

Fig. 22

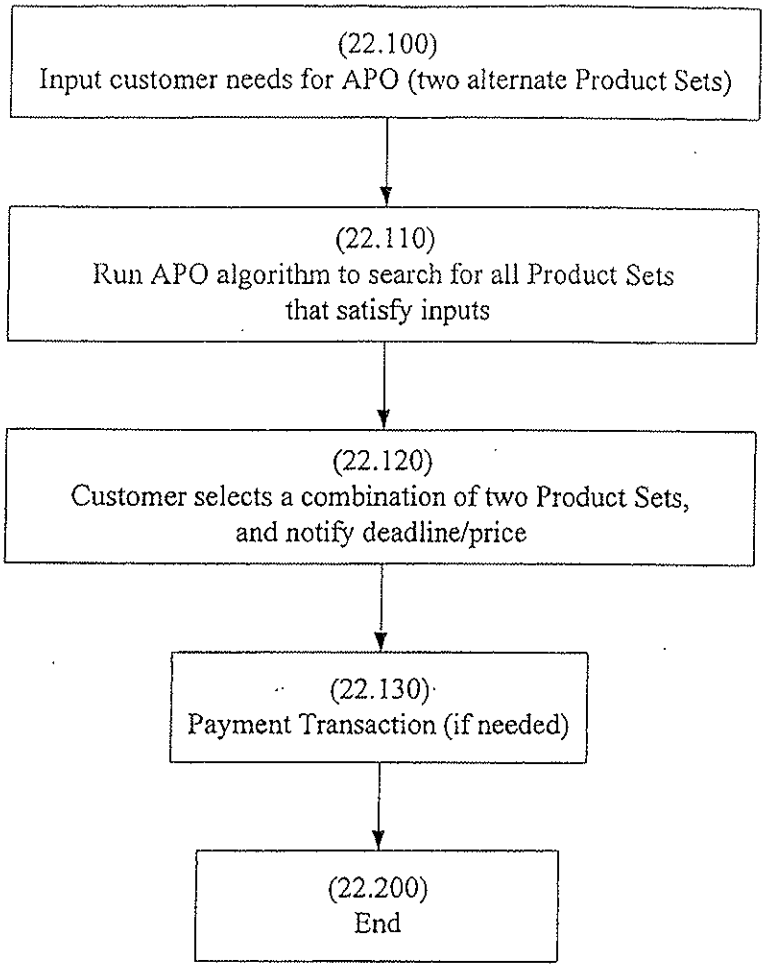

(22.100)
Input customer needs for APO (two alternate Product Sets)
(22.110)
Run APO algorithm to search for all Product Sets that satisfy inputs
(22.120)
Customer selects a combination of two Product Sets, and notify deadline/price
(22.130)
Payment Transaction (if needed)
(22.200)
End

Fig. 23

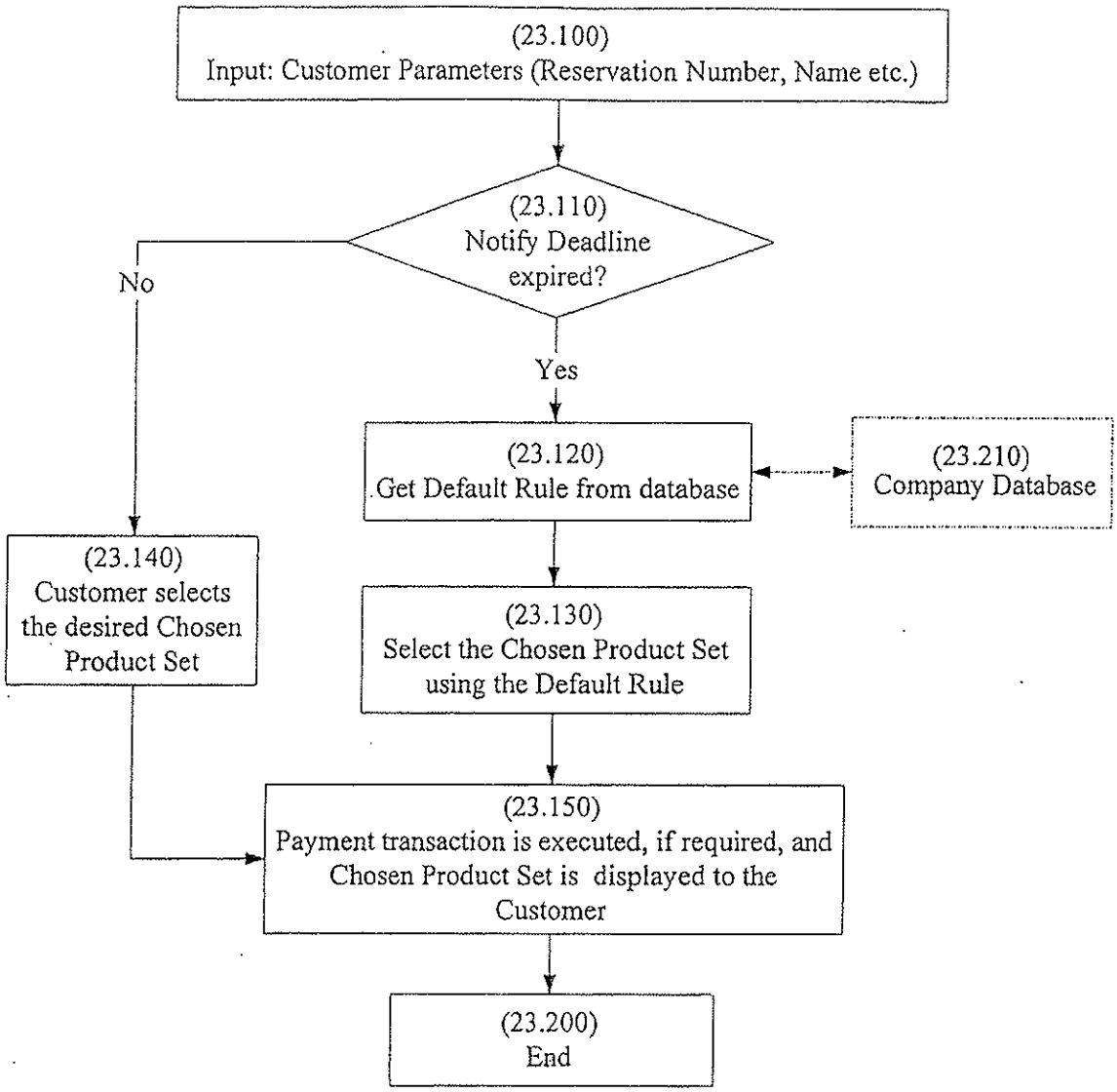

(23.100)
Input: Customer Parameters (Reservation Number, Name etc.)
(23.110)
Notify Deadline expired?
No
Yes
(23.120)
Get Default Rule from database
(23.210)
Company Database
(23.140)
Customer selects the desired Chosen Product Set
(23.130)
Select the Chosen Product Set using the Default Rule
(23.150)
Payment transaction is executed, if required, and Chosen Product Set is displayed to the Customer
(23.200)
End

Fig. 24

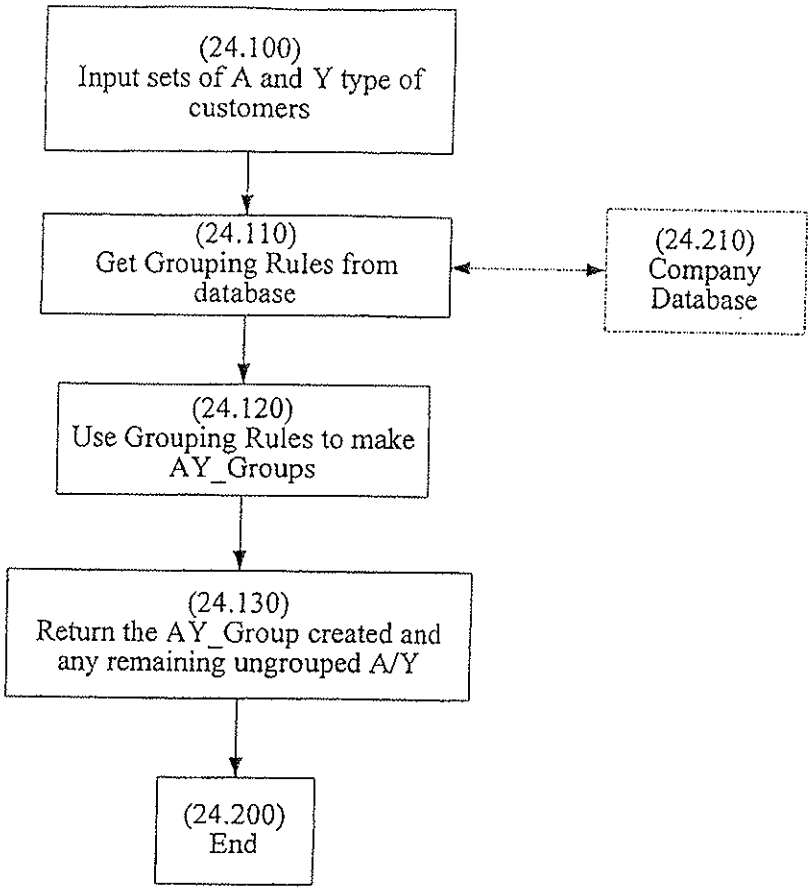

(24.100)
Input sets of A and Y type of customers
(24.110)
Get Grouping Rules from database
(24.210)
Company Database
(24.120)
Use Grouping Rules to make AY_Groups
(24.130)
Return the AY_Group created and any remaining ungrouped A/Y
(24.200)
End

Fig. 25

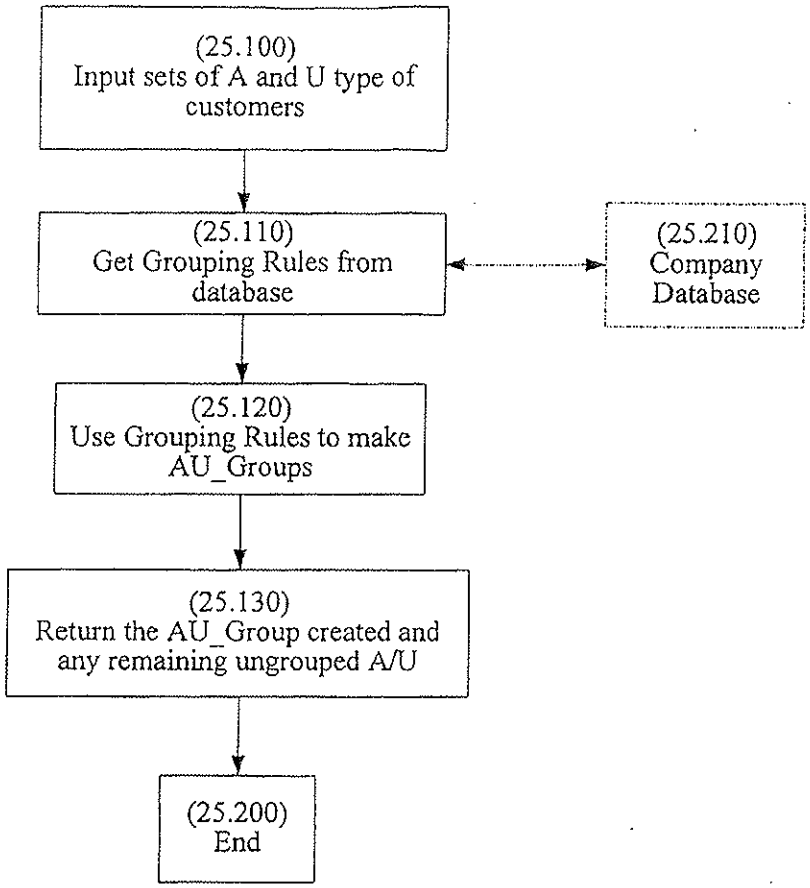

(25.100)
Input sets of A and U type of customers
(25.110)
Get Grouping Rules from database
(25.210)
Company Database
(25.120)
Use Grouping Rules to make AU_Groups
(25.130)
Return the AU_Group created and any remaining ungrouped A/U
(25.200)
End

Fig. 26

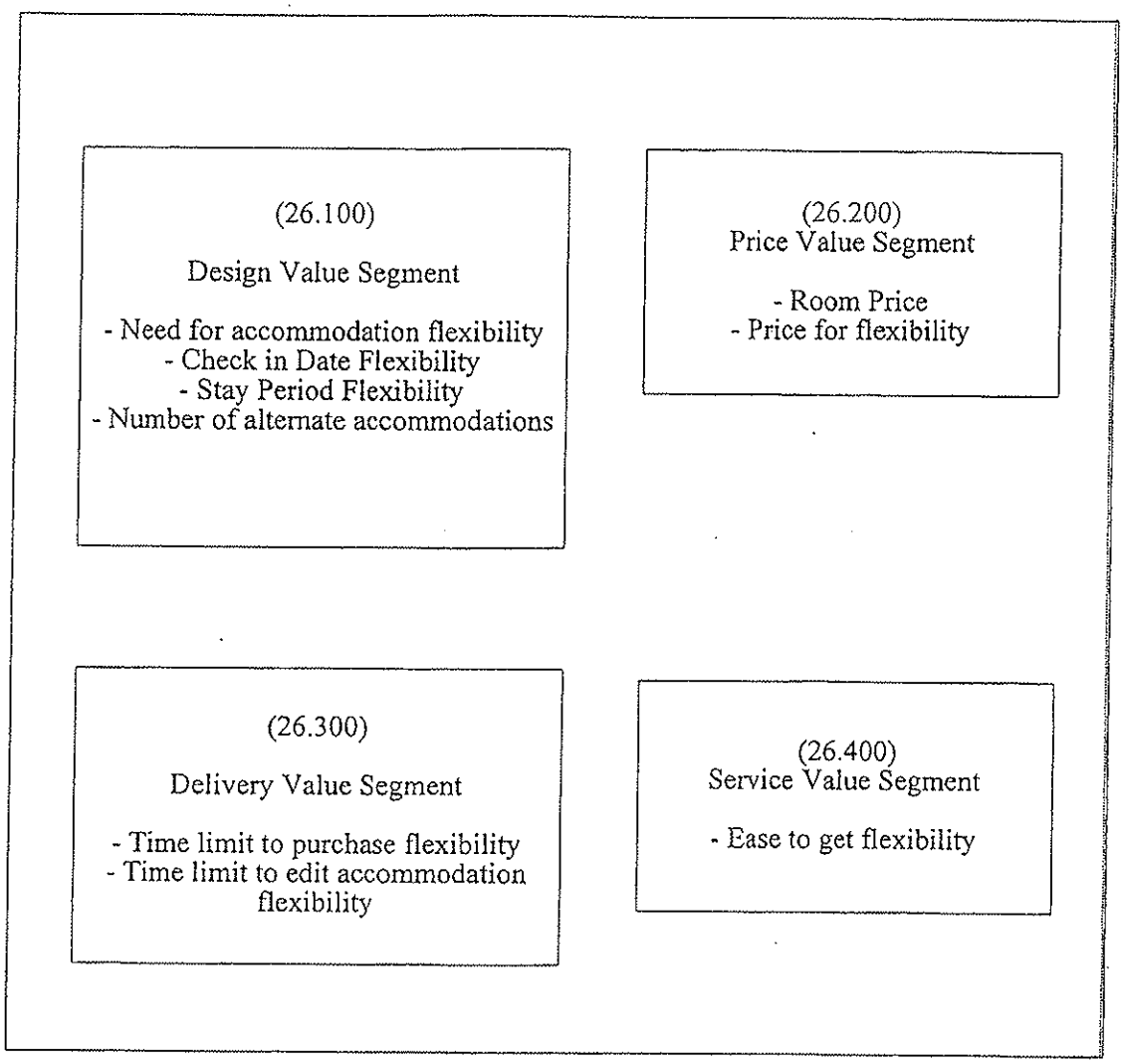

(26.100)
Design Value Segment
- Need for accommodation flexibility
- Check in Date Flexibility
- Stay Period Flexibility
- Number of alternate accommodations
(26.200)
Price Value Segment
- Room Price
- Price for flexibility
(26.300)
Delivery Value Segment
- Time limit to purchase flexibility
- Time limit to edit accommodation flexibility
(26.400)
Service Value Segment
- Ease to get flexibility

Fig. 27

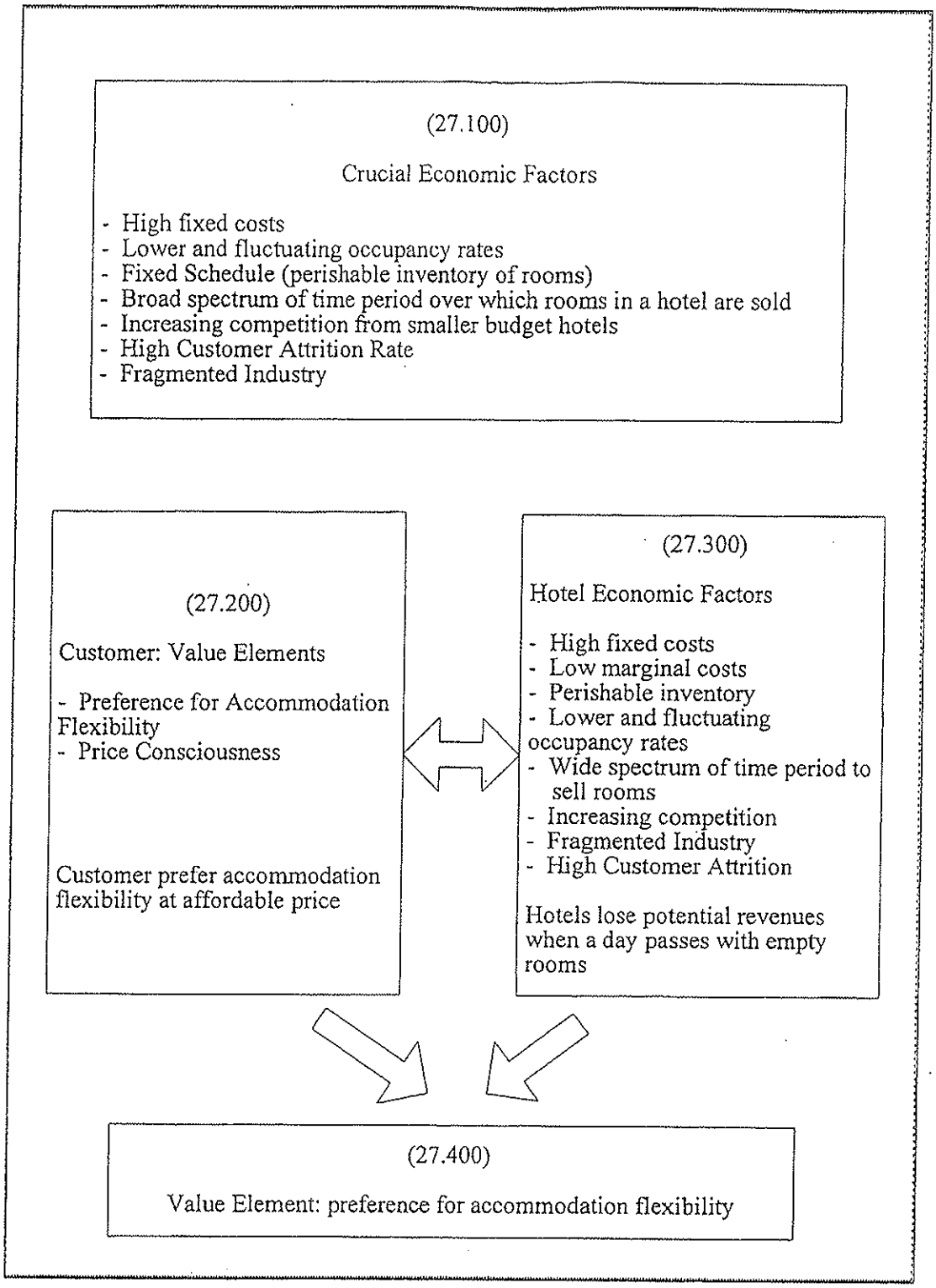

(27.100)
Crucial Economic Factors
- High fixed costs
- Lower and fluctuating occupancy rates
- Fixed Schedule (perishable inventory of rooms)
- Broad spectrum of time period over which rooms in a hotel are sold
- Increasing competition from smaller budget hotels
- High Customer Attrition Rate
- Fragmented Industry
(27.200)
Customer: Value Elements
- Preference for Accommodation Flexibility
- Price Consciousness
Customer prefer accommodation flexibility at affordable price
(27.300)
Hotel Economic Factors
- High fixed costs
- Low marginal costs
- Perishable inventory
- Lower and fluctuating occupancy rates
- Wide spectrum of time period to sell rooms
- Increasing competition
- Fragmented Industry
- High Customer Attrition
Hotels lose potential revenues when a day passes with empty rooms
(27.400)
Value Element: preference for accommodation flexibility

Fig. 28

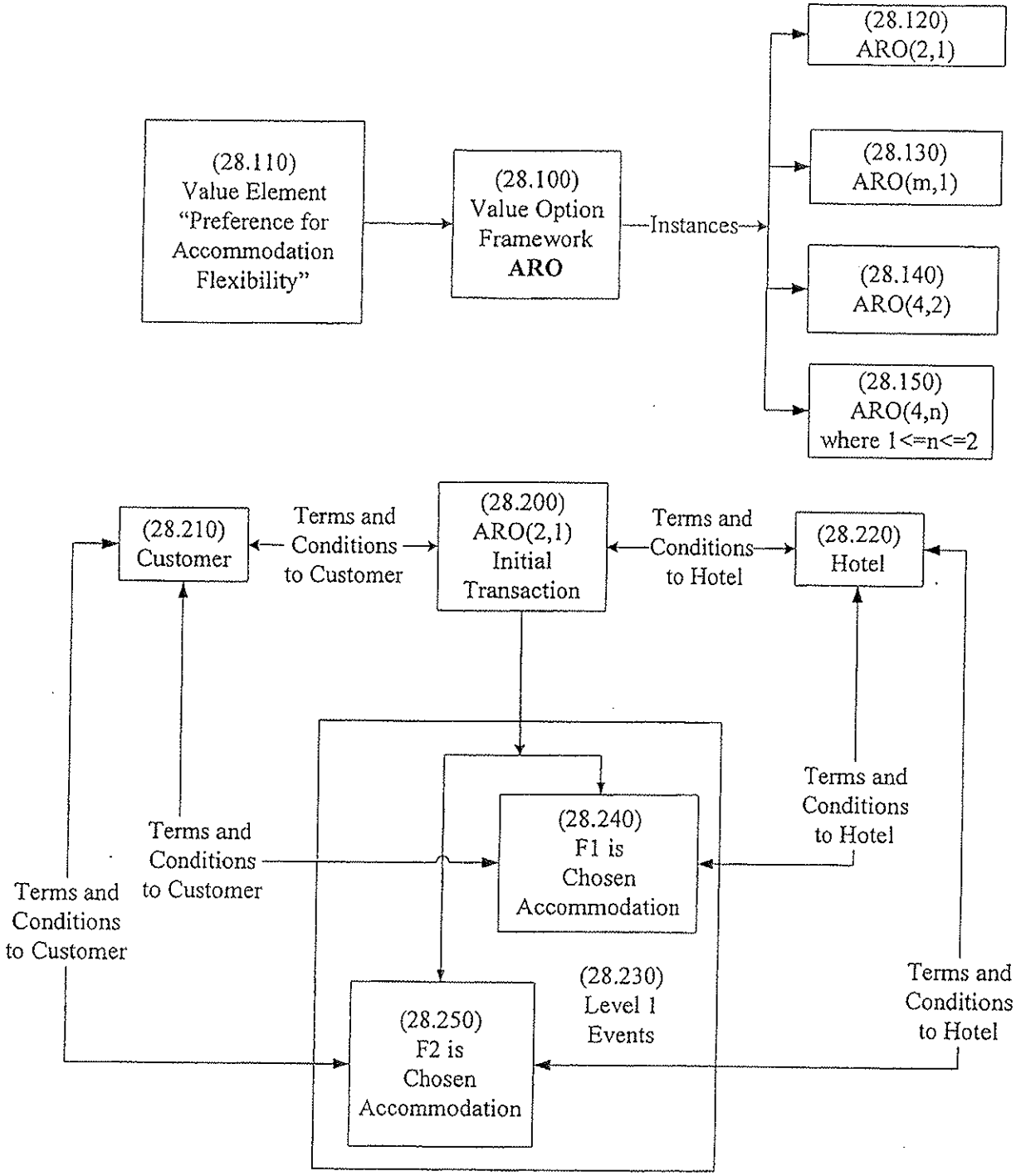
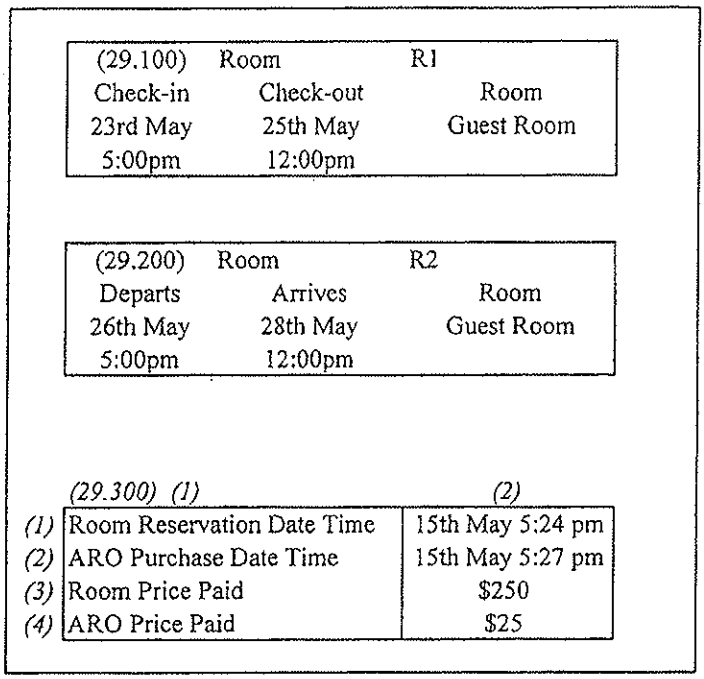

(28.110)
Value Element
"Preference for
Accommodation
Flexibility"
(28.100)
Value Option
Framework
ARO
Instances
(28.120)
ARO(2,1)
(28.130)
ARO(m,1)
(28.140)
ARO(4,2)
(28.150)
ARO(4,n)
where 1<=n<=2
(28.210)
Customer
Terms and
Conditions
to Customer
(28.200)
ARO(2,1)
Initial
Transaction
Terms and
Conditions
to Hotel
(28.220)
Hotel
Terms and
Conditions
to Customer
Terms and
Conditions
to Customer
(28.240)
F1 is
Chosen
Accommodation
Terms and
Conditions
to Hotel
(28.230)
Level 1
Events
(28.250)
F2 is
Chosen
Accommodation
Terms and
Conditions
to Hotel

Fig. 29

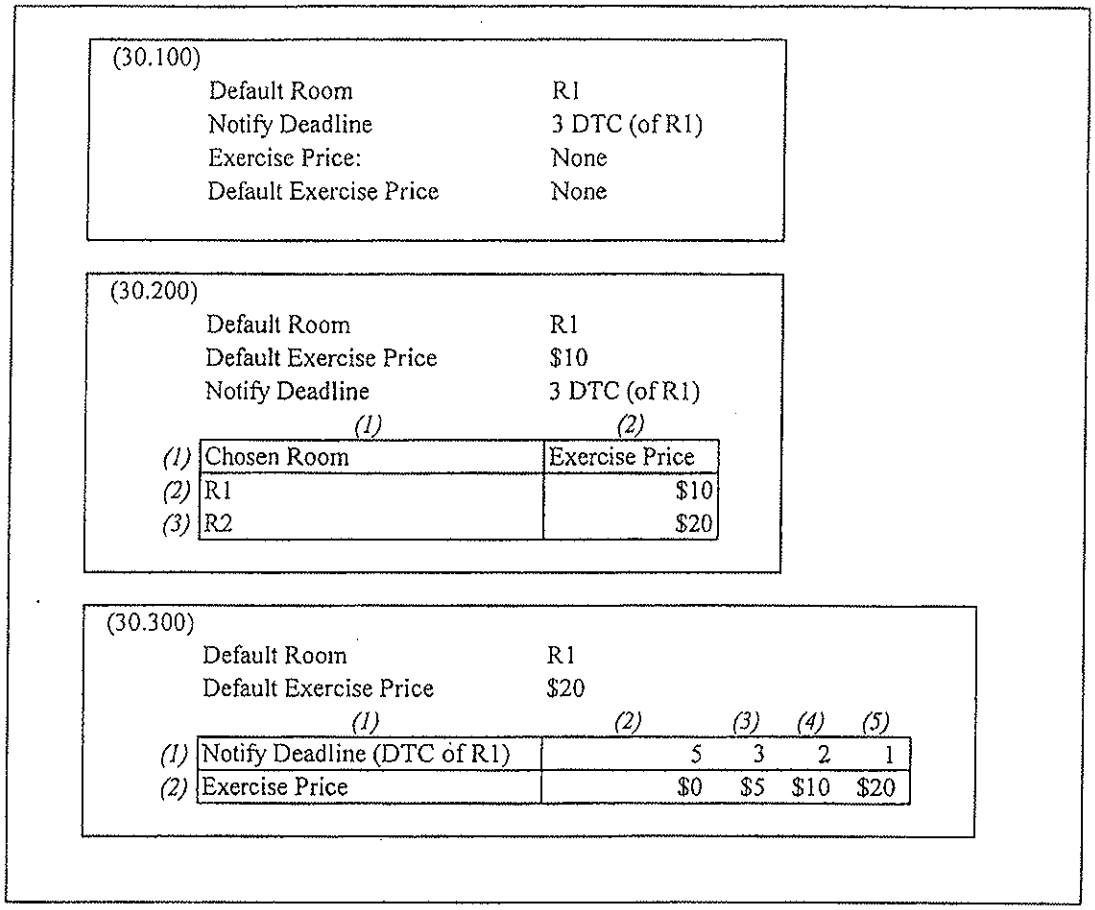


(29.100)	Room	R1
Check-in	Check-out	Room
23rd May	25th May	Guest Room
5:00pm	12:00pm	

(29.200)	Room	R2
Departs	Arrives	Room
26th May	28th May	Guest Room
5:00pm	12:00pm	

(29.300)	*(1)*	*(2)*
(1)	Room Reservation Date Time	15th May 5:24 pm
(2)	ARO Purchase Date Time	15th May 5:27 pm
(3)	Room Price Paid	$250
(4)	ARO Price Paid	$25

Fig. 30



(30.100)

Default Room	R1
Notify Deadline	3 DTC (of R1)
Exercise Price:	None
Default Exercise Price	None

(30.200)

Default Room	R1
Default Exercise Price	$10
Notify Deadline	3 DTC (of R1)

	(1)	(2)
(1)	Chosen Room	Exercise Price
(2)	R1	$10
(3)	R2	$20

(30.300)

Default Room	R1
Default Exercise Price	$20

	(1)	(2)	(3)	(4)	(5)
(1)	Notify Deadline (DTC of R1)	5	3	2	1
(2)	Exercise Price	$0	$5	$10	$20

Fig. 31

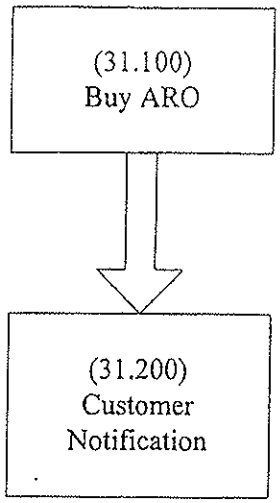


Fig. 32

Room Product (32.100)

Original Reservation

XYZ Resort		
T square		
New York City		
		Original
Check-in	Thu, Dec 7	**Special Preferences**
Check-out	Sun, Dec 10	Non-Smoking
Room Description	Guest Room	Meeting Room

(32.200)

ARO Reservation

XYZ Resort		
T square		
New York City		
		ARO
Check-in	Thu, Dec 7	**Special Preferences**
Check-out	Sun, Dec 10	Non-Smoking
Room Description	Guest Room	Saturday Night Show

Fig. 33

Room Set (33.100)

Original Reservation

XYZ Resort
T square
New York City

Check-in	Thu, Dec 7	**Special Preferences**
Check-out	Sun, Dec 10	Smoking
Room Description	Guest Room	Saturday Night Show

(33.200)

ARO Reservation

XYZ Resort
Near airport
New York City

Check-in	Fri, Dec 8	**Special Preferences**
Check-out	Mon, Dec 11	Non-Smoking
Room Description	Business Suite	Meeting Room

Fig. 34

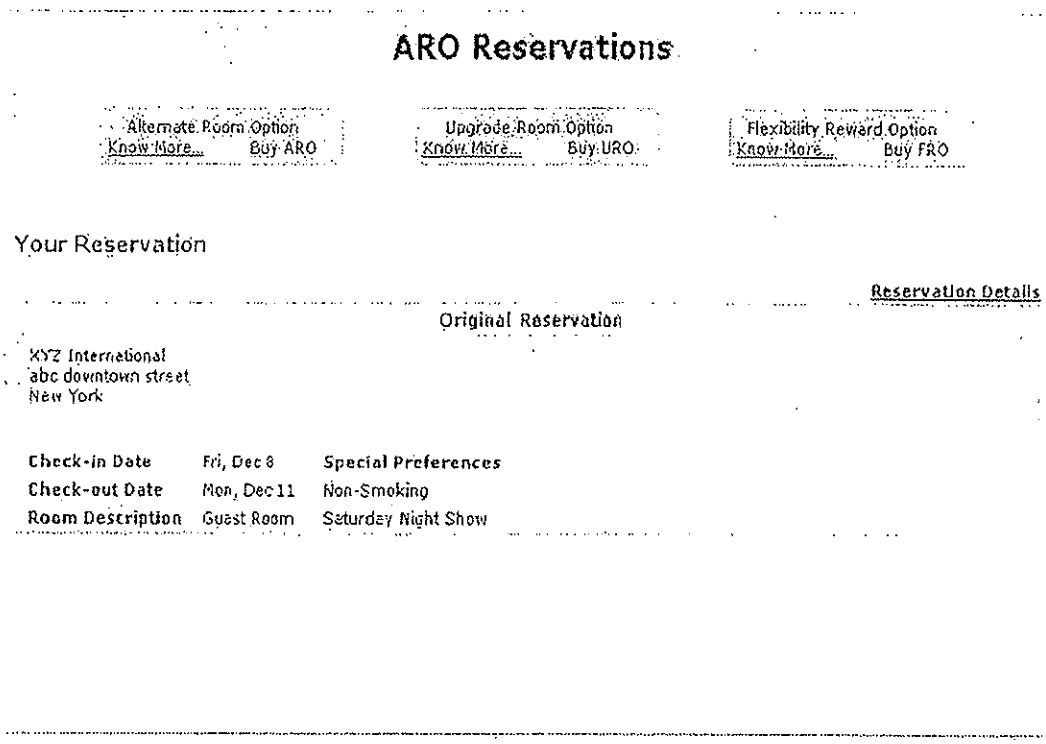

ARO Reservations
Alternate Room Option
Know More...
Buy ARO
Upgrade Room Option
Know More...
Buy URO
Flexibility Reward Option
Know More...
Buy FRO
Your Reservation
Reservation Details
Original Reservation
XYZ International
abc downtown street
New York
Check-in Date
Fri, Dec 8
Check-out Date
Mon, Dec 11
Room Description
Guest Room
Special Preferences
Non-Smoking
Saturday Night Show

Fig. 35

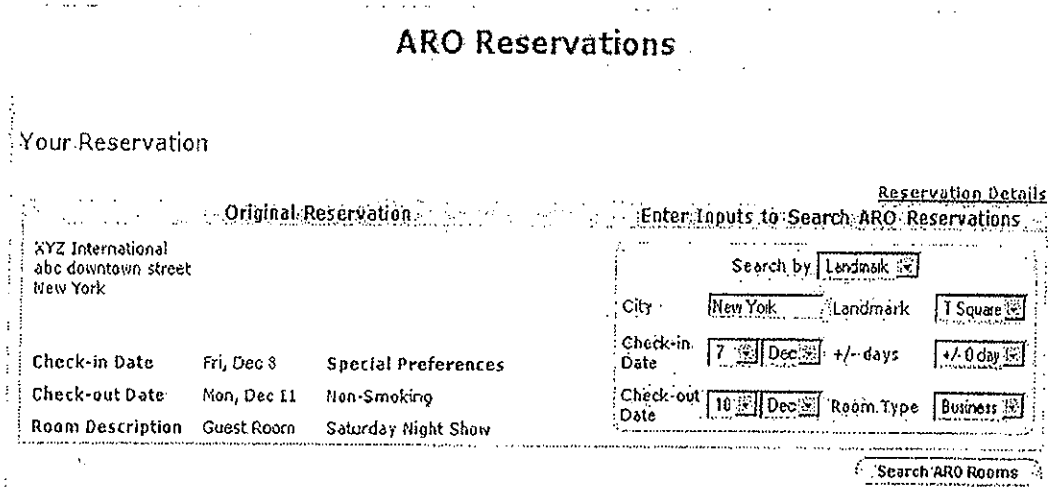

ARO Reservations
Your Reservation
Reservation Details
Original Reservation
Enter Inputs to Search ARO Reservations
XYZ International
abc downtown street
New York
Check-in Date
Fri, Dec 8
Special Preferences
Check-out Date
Mon, Dec 11
Non-Smoking
Room Description
Guest Room
Saturday Night Show
Search by
Landmark
City
New York
Landmark
T Square
Check-in Date
7
Dec
+/- days
+/- 0 day
Check-out Date
10
Dec
Room Type
Business
Search ARO Rooms

Fig. 36

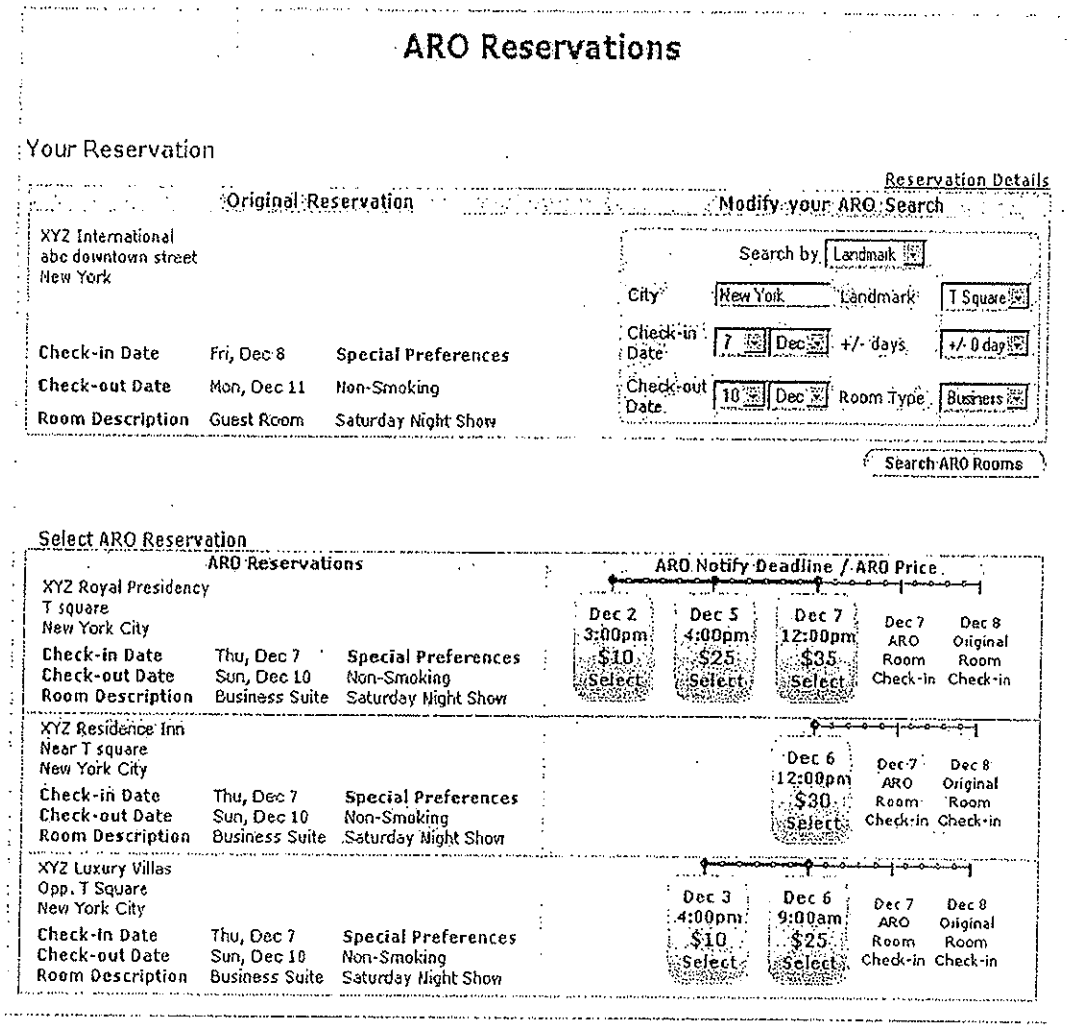

ARO Reservations
Your Reservation
Reservation Details
Original Reservation
XYZ International
abc downtown street
New York
Check-in Date Fri, Dec 8
Check-out Date Mon, Dec 11
Room Description Guest Room
Special Preferences
Non-Smoking
Saturday Night Show
Modify your ARO Search
Search by Landmark
City New York
Landmark T Square
Check-in Date 7 Dec +/- days +/- 0 day
Check-out Date 10 Dec Room Type Business
Search ARO Rooms
Select ARO Reservation
ARO Reservations
ARO Notify Deadline / ARO Price
XYZ Royal Presidency
T square
New York City
Check-in Date Thu, Dec 7
Check-out Date Sun, Dec 10
Room Description Business Suite
Special Preferences
Non-Smoking
Saturday Night Show
Dec 2 3:00pm $10 Select
Dec 5 4:00pm $25 Select
Dec 7 12:00pm $35 Select
Dec 7 ARO Room Check-in
Dec 8 Original Room Check-in
XYZ Residence Inn
Near T square
New York City
Check-in Date Thu, Dec 7
Check-out Date Sun, Dec 10
Room Description Business Suite
Special Preferences
Non-Smoking
Saturday Night Show
Dec 6 12:00pm $30 Select
Dec 7 ARO Room Check-in
Dec 8 Original Room Check-in
XYZ Luxury Villas
Opp. T Square
New York City
Check-in Date Thu, Dec 7
Check-out Date Sun, Dec 10
Room Description Business Suite
Special Preferences
Non-Smoking
Saturday Night Show
Dec 3 4:00pm $10 Select
Dec 6 9:00am $25 Select
Dec 7 ARO Room Check-in
Dec 8 Original Room Check-in

Fig. 37

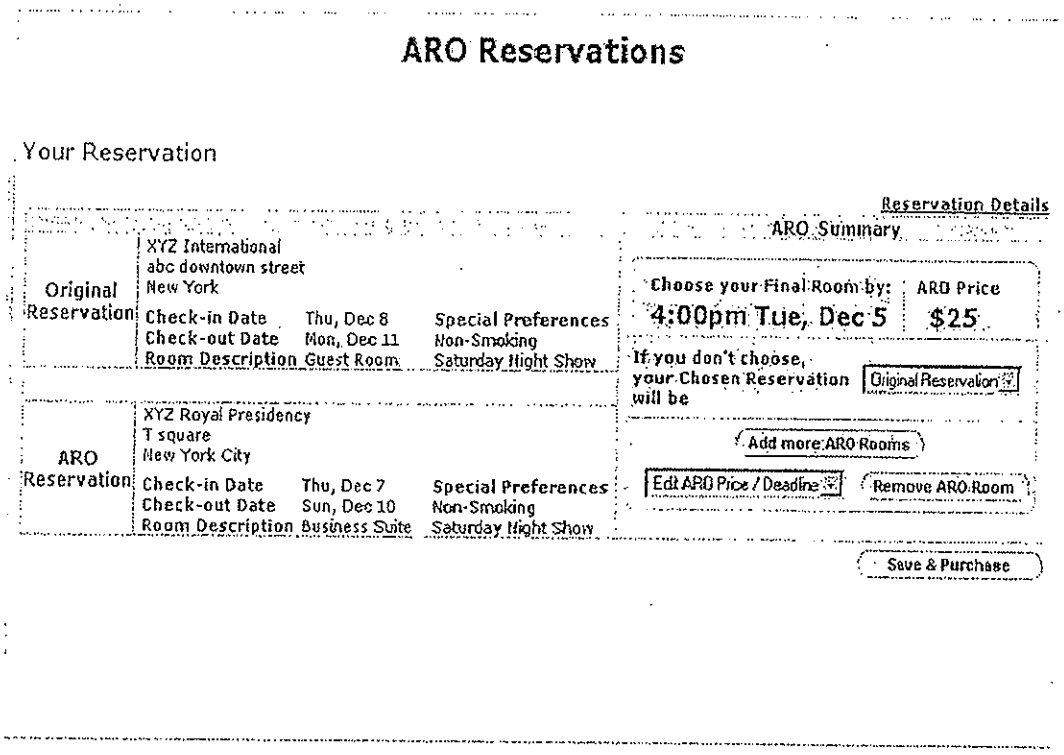

ARO Reservations
Your Reservation
Reservation Details
Original Reservation
XYZ International
abc downtown street
New York
Check-in Date Thu, Dec 8
Check-out Date Mon, Dec 11
Room Description Guest Room
Special Preferences
Non-Smoking
Saturday Night Show
ARO Reservation
XYZ Royal Presidency
T square
New York City
Check-in Date Thu, Dec 7
Check-out Date Sun, Dec 10
Room Description Business Suite
Special Preferences
Non-Smoking
Saturday Night Show
ARO Summary
Choose your Final Room by:
4:00pm Tue, Dec 5
ARO Price
$25
If you don't choose, your Chosen Reservation will be
Original Reservation
Add more ARO Rooms
Edit ARO Price / Deadline
Remove ARO Room
Save & Purchase

Fig. 38

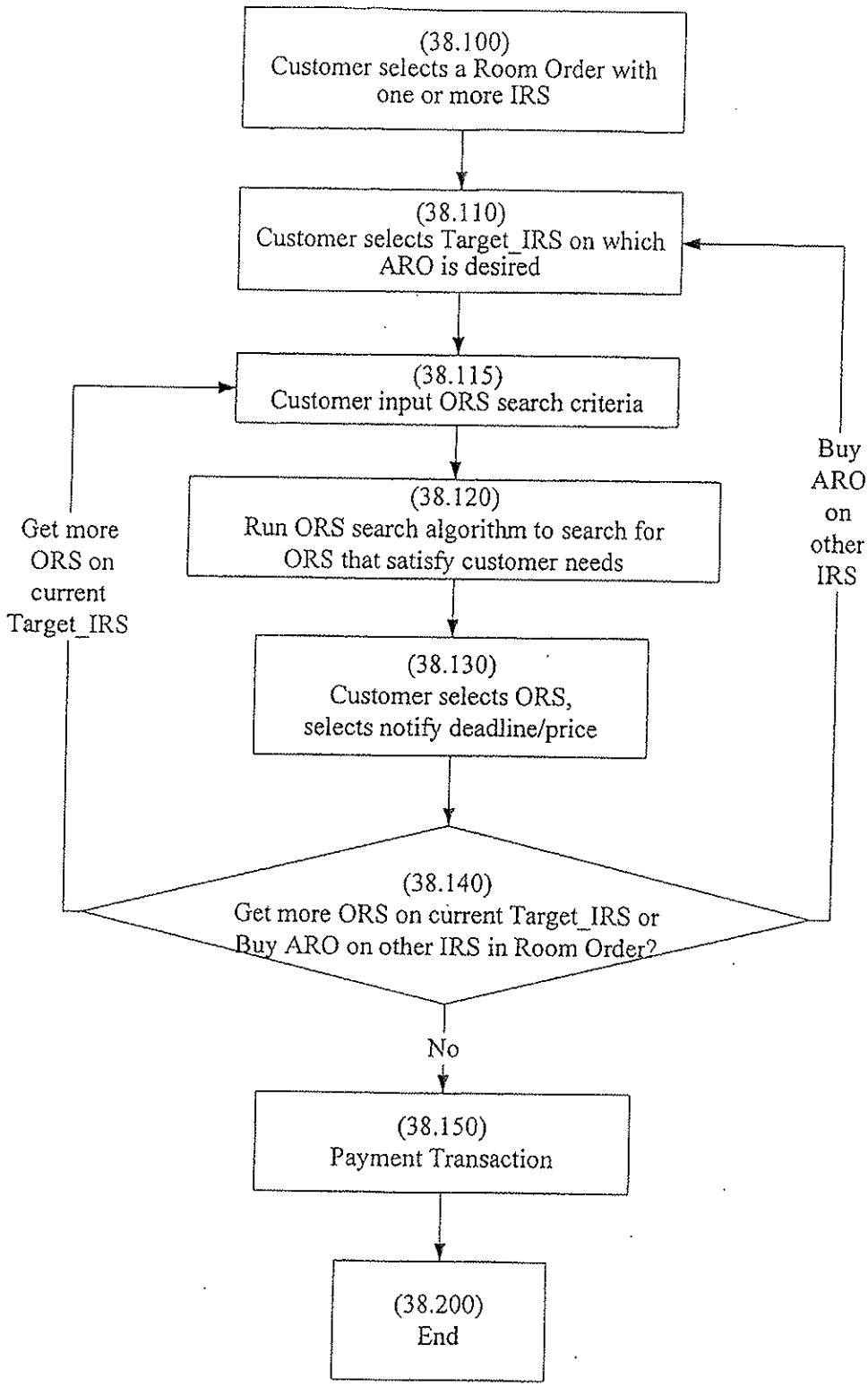

(38.100)
Customer selects a Room Order with one or more IRS
(38.110)
Customer selects Target_IRS on which ARO is desired
(38.115)
Customer input ORS search criteria
(38.120)
Run ORS search algorithm to search for ORS that satisfy customer needs
(38.130)
Customer selects ORS, selects notify deadline/price
(38.140)
Get more ORS on current Target_IRS or Buy ARO on other IRS in Room Order?
Get more ORS on current Target_IRS
Buy ARO on other IRS
No
(38.150)
Payment Transaction
(38.200)
End

Fig. 39

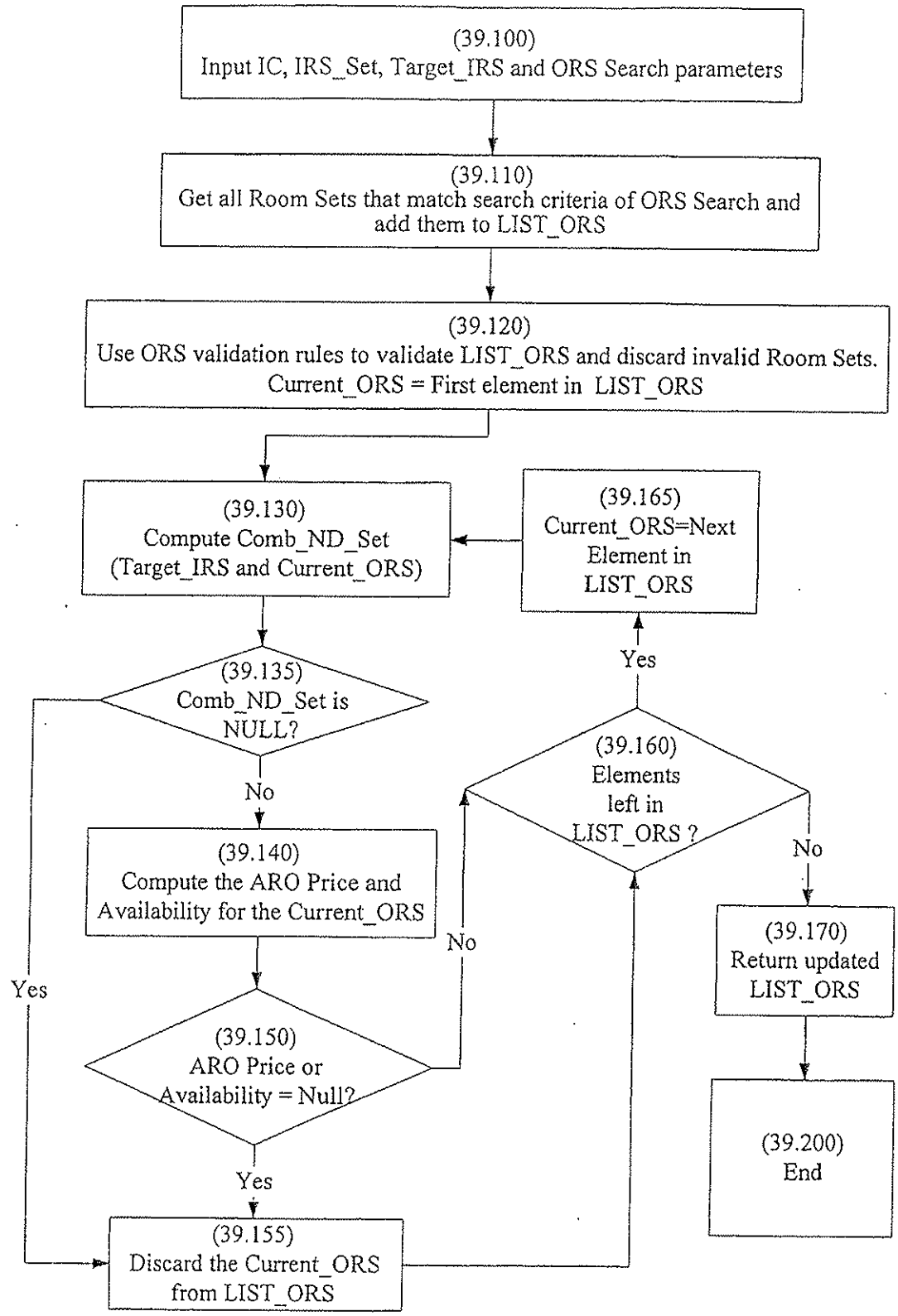

(39.100)
Input IC, IRS_Set, Target_IRS and ORS Search parameters
(39.110)
Get all Room Sets that match search criteria of ORS Search and add them to LIST_ORS
(39.120)
Use ORS validation rules to validate LIST_ORS and discard invalid Room Sets.
Current_ORS = First element in LIST_ORS
(39.130)
Compute Comb_ND_Set (Target_IRS and Current_ORS)
(39.165)
Current_ORS=Next Element in LIST_ORS
(39.135)
Comb_ND_Set is NULL?
Yes
No
(39.140)
Compute the ARO Price and Availability for the Current_ORS
(39.160)
Elements left in LIST_ORS ?
No
Yes
(39.150)
ARO Price or Availability = Null?
No
Yes
(39.170)
Return updated LIST_ORS
(39.155)
Discard the Current_ORS from LIST_ORS
(39.200)
End

Fig. 40

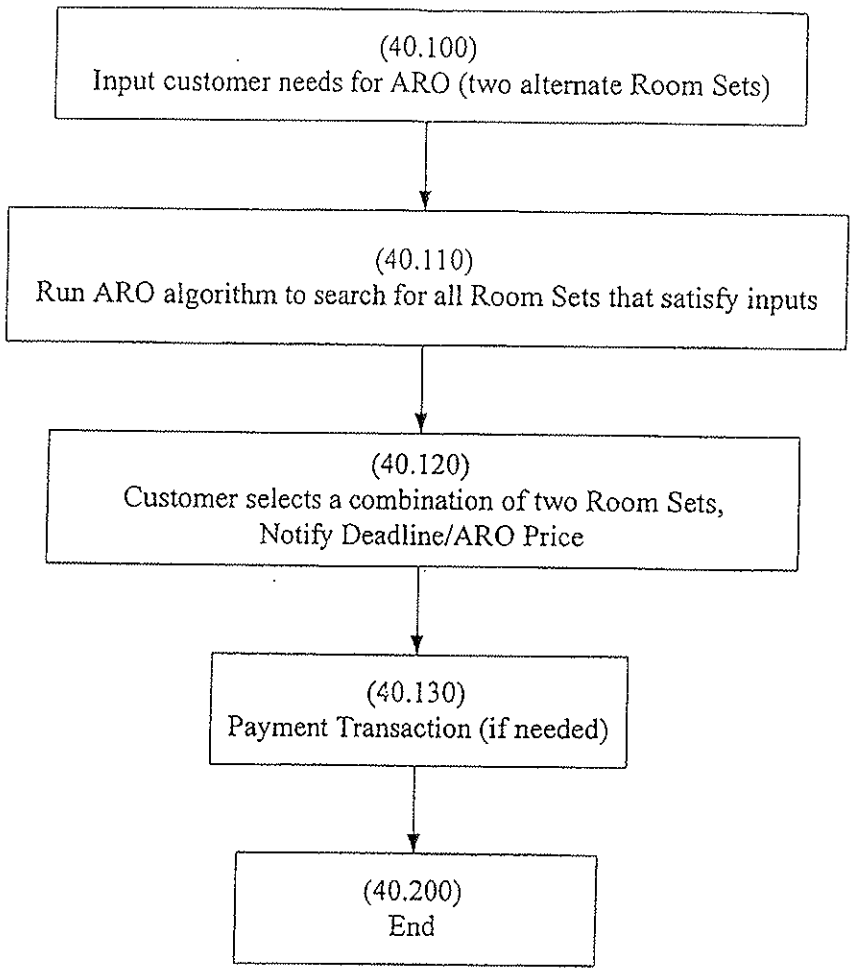

(40.100)
Input customer needs for ARO (two alternate Room Sets)
(40.110)
Run ARO algorithm to search for all Room Sets that satisfy inputs
(40.120)
Customer selects a combination of two Room Sets,
Notify Deadline/ARO Price
(40.130)
Payment Transaction (if needed)
(40.200)
End

Fig. 41

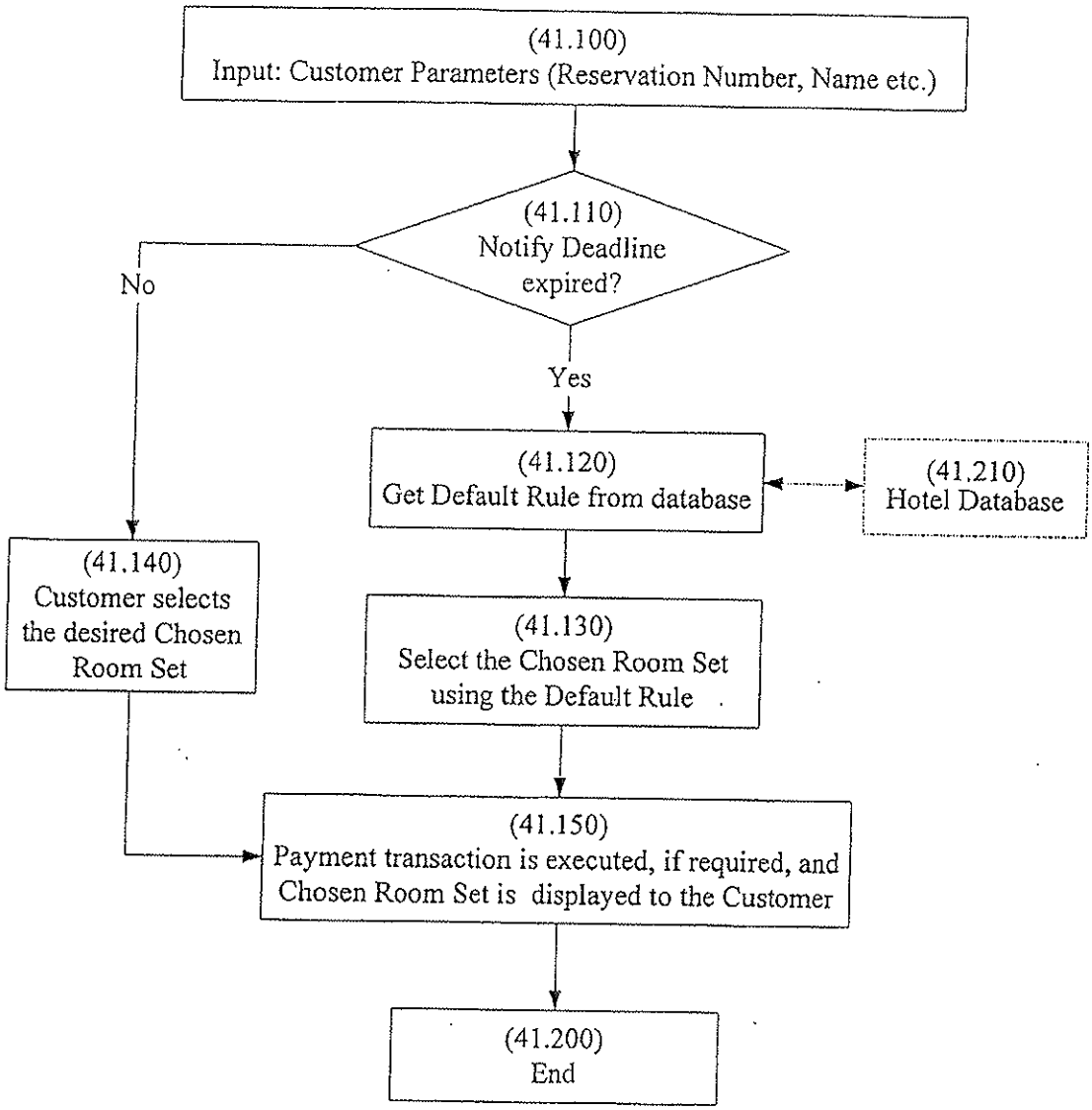

(41.100)
Input: Customer Parameters (Reservation Number, Name etc.)
(41.110)
Notify Deadline expired?
No
Yes
(41.120)
Get Default Rule from database
(41.210)
Hotel Database
(41.140)
Customer selects the desired Chosen Room Set
(41.130)
Select the Chosen Room Set using the Default Rule
(41.150)
Payment transaction is executed, if required, and Chosen Room Set is displayed to the Customer
(41.200)
End

Fig. 42

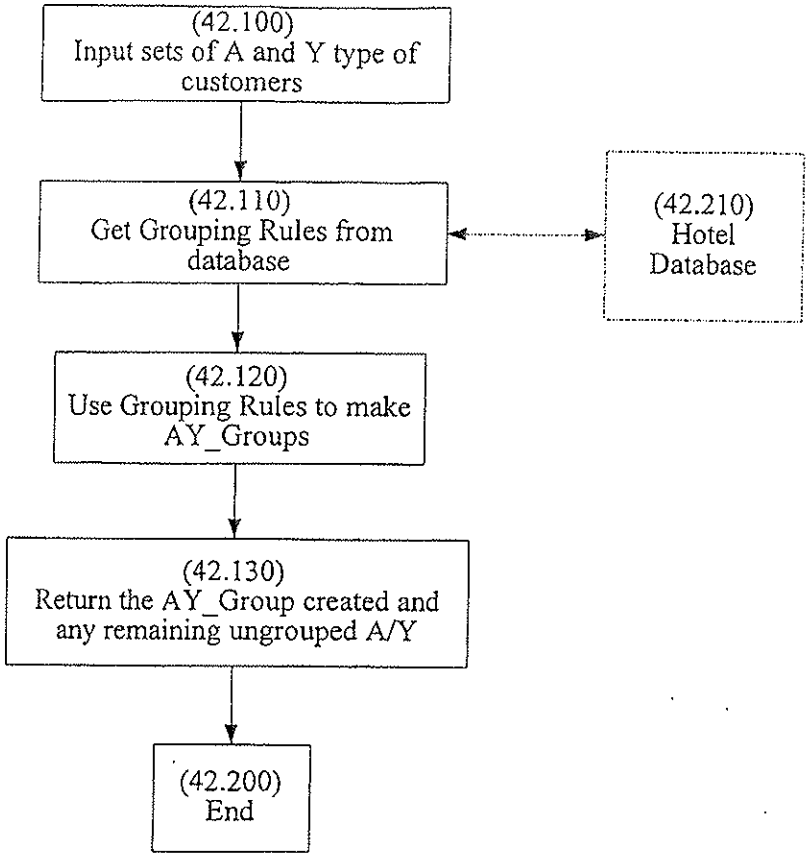

(42.100)
Input sets of A and Y type of customers
(42.110)
Get Grouping Rules from database
(42.210)
Hotel Database
(42.120)
Use Grouping Rules to make AY_Groups
(42.130)
Return the AY_Group created and any remaining ungrouped A/Y
(42.200)
End

Fig. 43

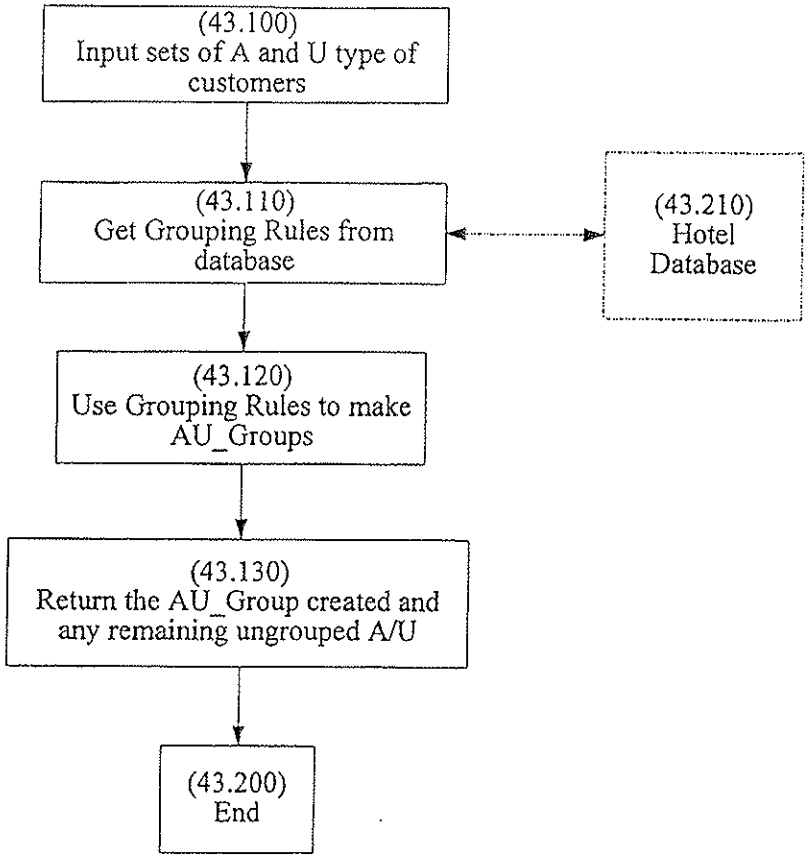

(43.100)
Input sets of A and U type of customers
(43.110)
Get Grouping Rules from database
(43.210)
Hotel Database
(43.120)
Use Grouping Rules to make AU_Groups
(43.130)
Return the AU_Group created and any remaining ungrouped A/U
(43.200)
End

Fig. 76

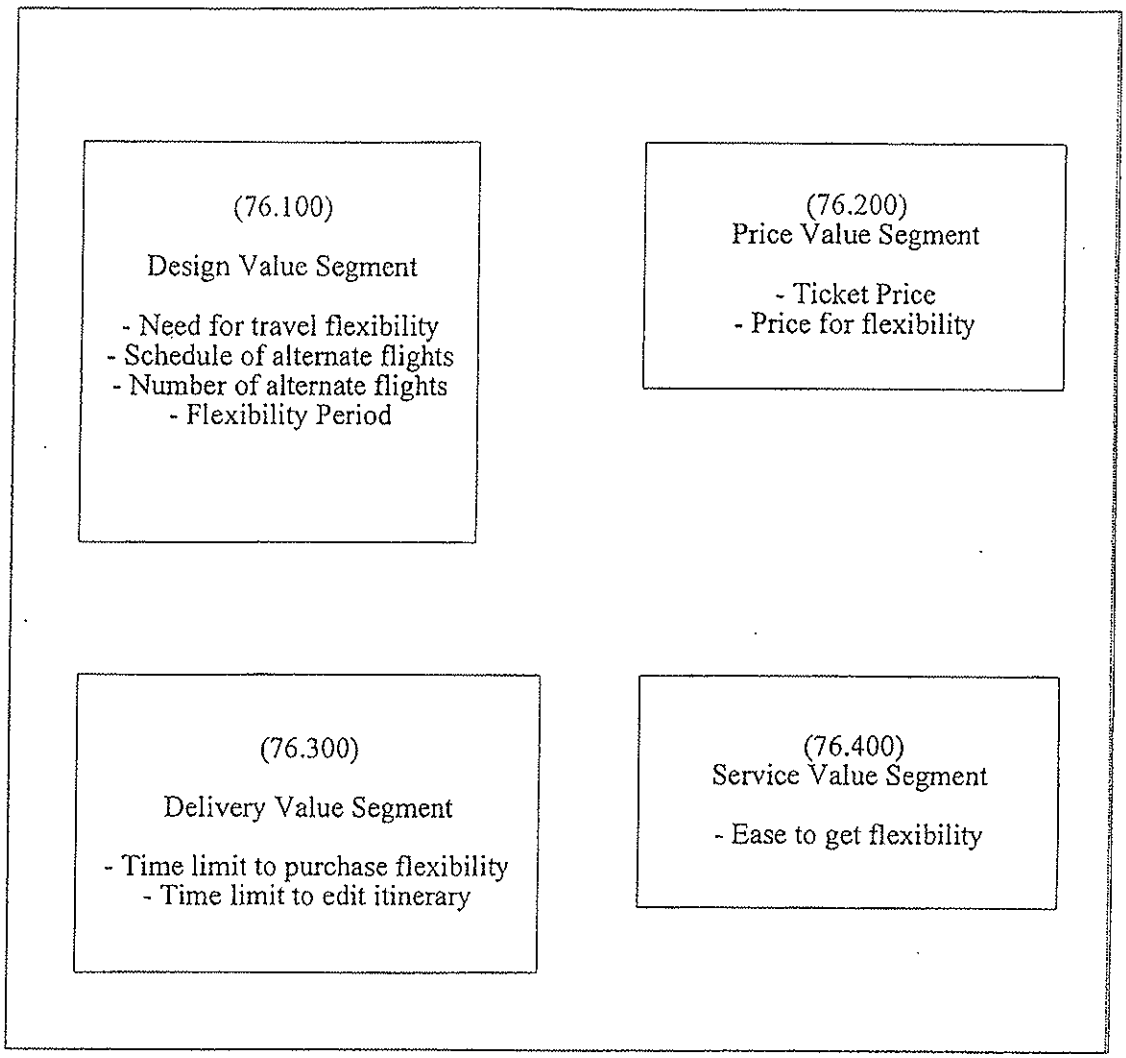

(76.100)
Design Value Segment
- Need for travel flexibility
- Schedule of alternate flights
- Number of alternate flights
- Flexibility Period
(76.200)
Price Value Segment
- Ticket Price
- Price for flexibility
(76.300)
Delivery Value Segment
- Time limit to purchase flexibility
- Time limit to edit itinerary
(76.400)
Service Value Segment
- Ease to get flexibility

Fig. 77

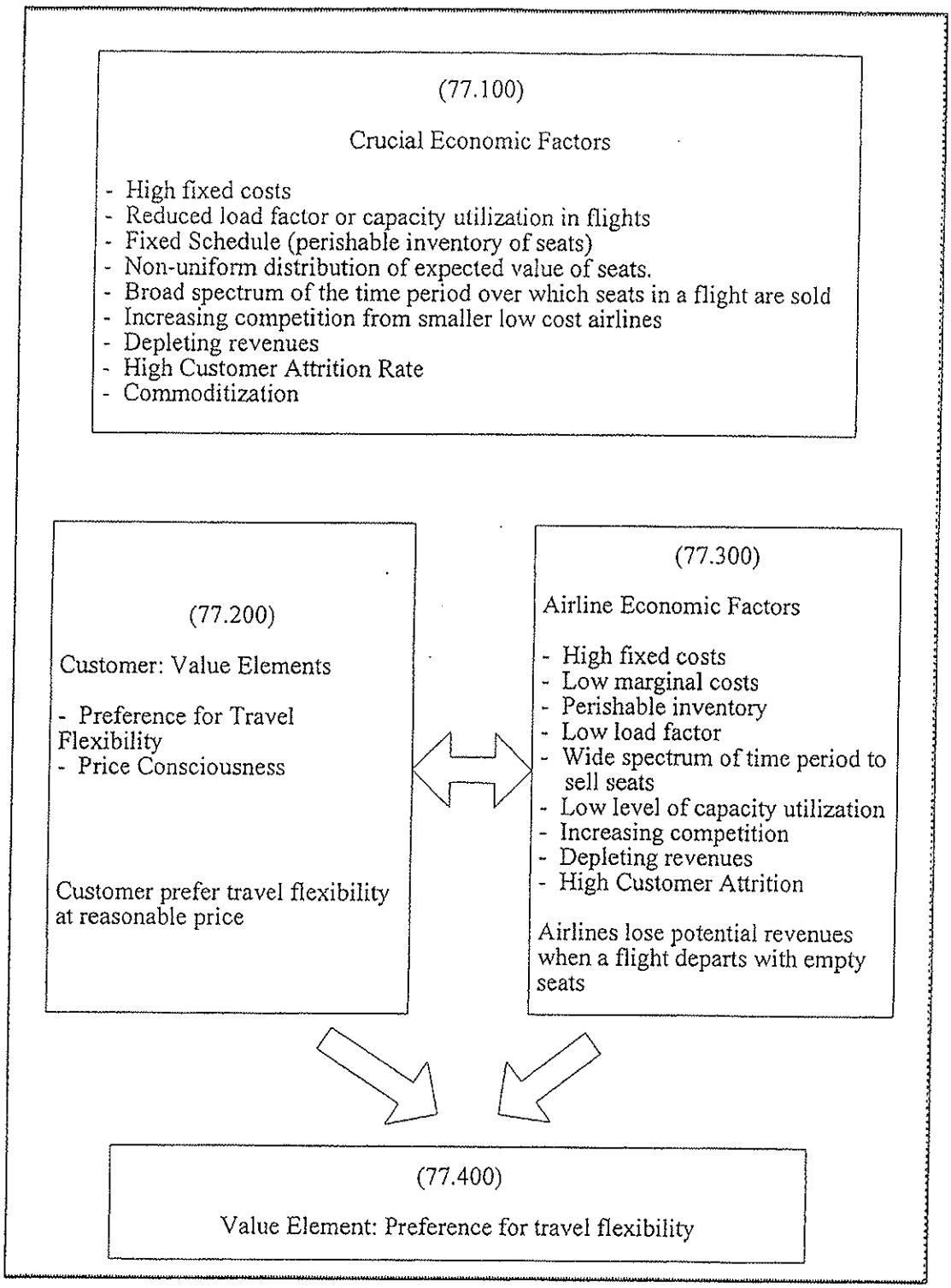

(77.100)
Crucial Economic Factors
- High fixed costs
- Reduced load factor or capacity utilization in flights
- Fixed Schedule (perishable inventory of seats)
- Non-uniform distribution of expected value of seats.
- Broad spectrum of the time period over which seats in a flight are sold
- Increasing competition from smaller low cost airlines
- Depleting revenues
- High Customer Attrition Rate
- Commoditization
(77.200)
Customer: Value Elements
- Preference for Travel Flexibility
- Price Consciousness
Customer prefer travel flexibility at reasonable price
(77.300)
Airline Economic Factors
- High fixed costs
- Low marginal costs
- Perishable inventory
- Low load factor
- Wide spectrum of time period to sell seats
- Low level of capacity utilization
- Increasing competition
- Depleting revenues
- High Customer Attrition
Airlines lose potential revenues when a flight departs with empty seats
(77.400)
Value Element: Preference for travel flexibility

Fig. 78

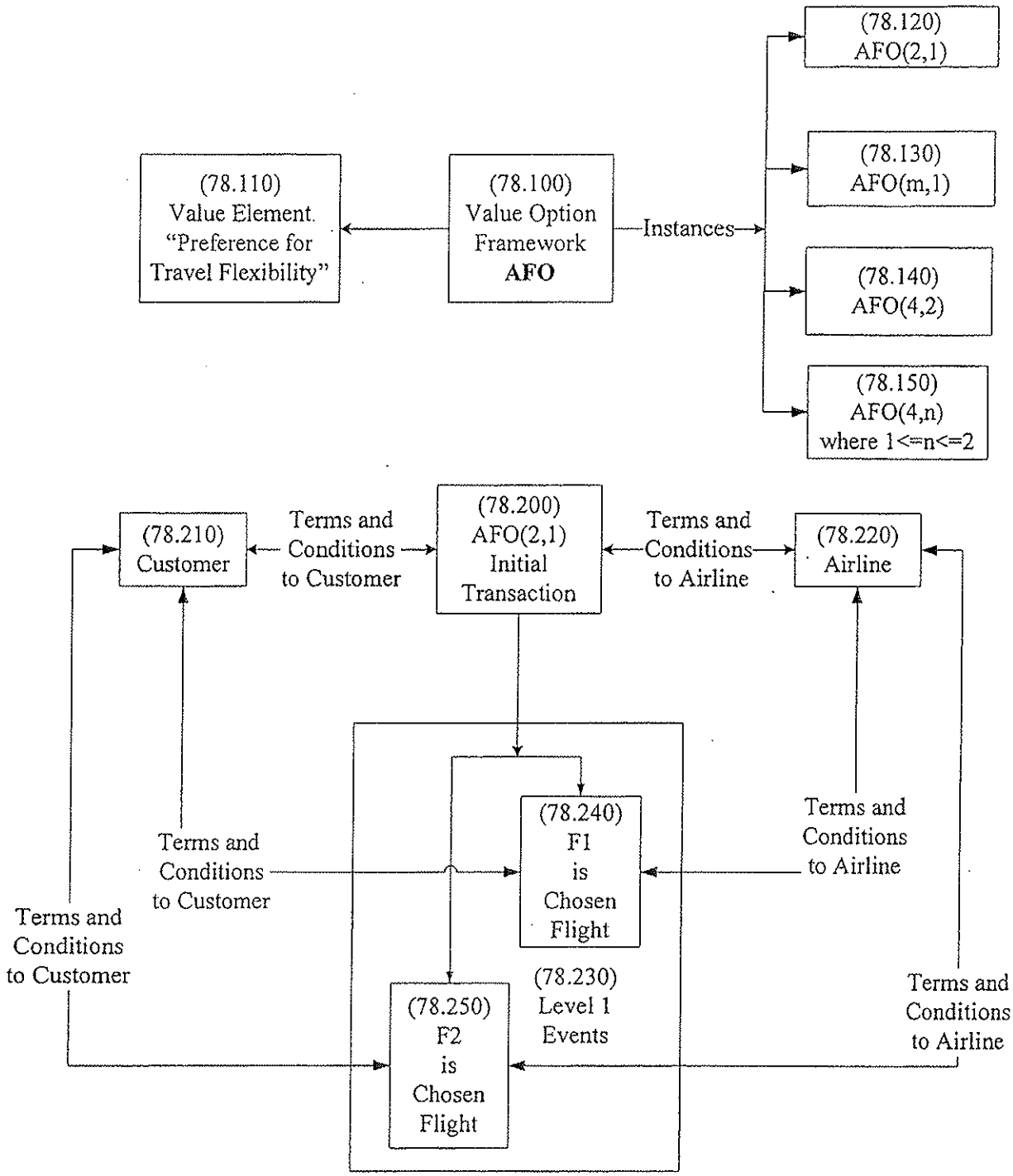
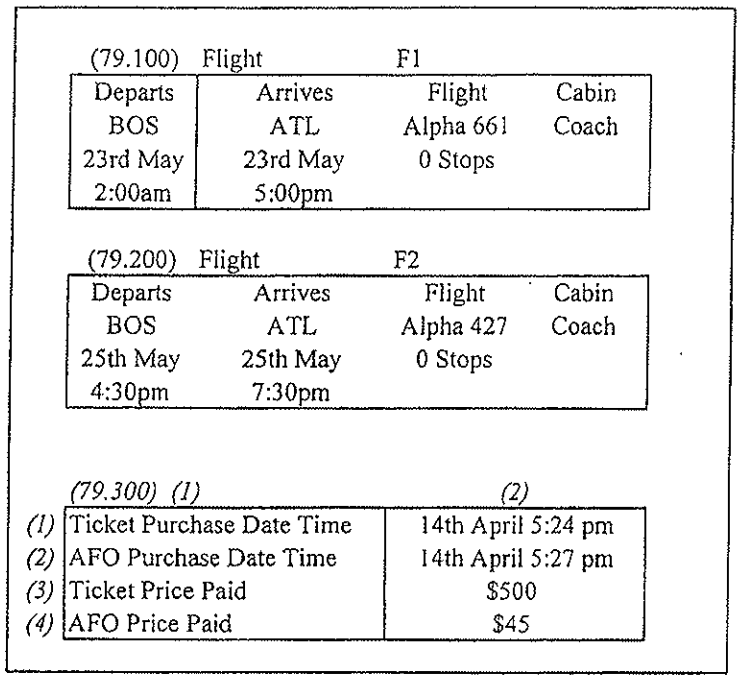

(78.110)
Value Element.
"Preference for
Travel Flexibility"
(78.100)
Value Option
Framework
AFO
Instances
(78.120)
AFO(2,1)
(78.130)
AFO(m,1)
(78.140)
AFO(4,2)
(78.150)
AFO(4,n)
where 1<=n<=2
(78.210)
Customer
Terms and
Conditions
to Customer
(78.200)
AFO(2,1)
Initial
Transaction
Terms and
Conditions
to Airline
(78.220)
Airline
Terms and
Conditions
to Customer
Terms and
Conditions
to Customer
(78.240)
F1
is
Chosen
Flight
Terms and
Conditions
to Airline
(78.230)
Level 1
Events
(78.250)
F2
is
Chosen
Flight
Terms and
Conditions
to Airline

Fig. 79



(79.100) Flight F1

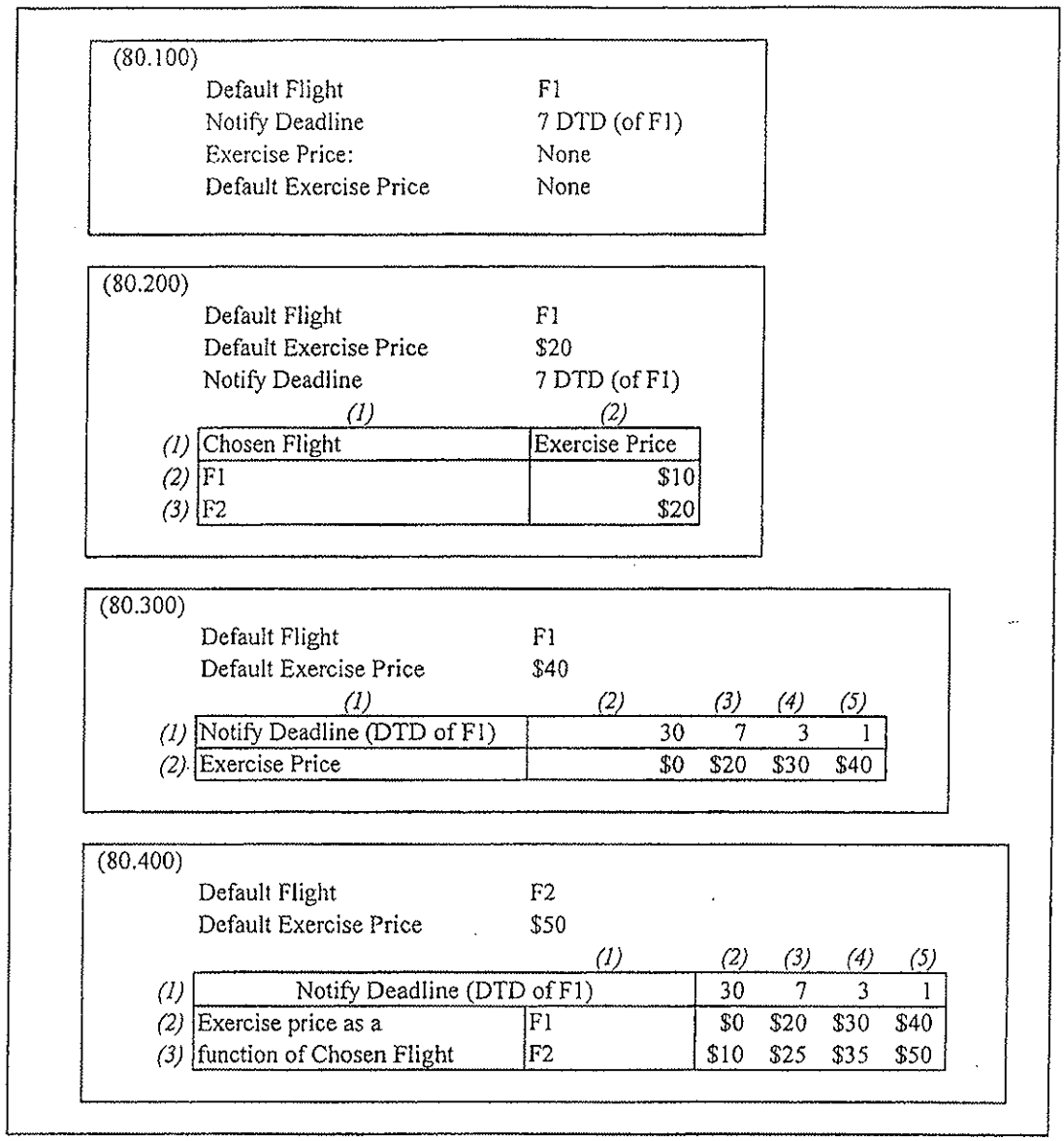
Departs	Arrives	Flight	Cabin
BOS	ATL	Alpha 661	Coach
23rd May	23rd May	0 Stops	
2:00am	5:00pm		

(79.200) Flight F2

Departs	Arrives	Flight	Cabin
BOS	ATL	Alpha 427	Coach
25th May	25th May	0 Stops	
4:30pm	7:30pm		

(79.300)	(1)	(2)
(1)	Ticket Purchase Date Time	14th April 5:24 pm
(2)	AFO Purchase Date Time	14th April 5:27 pm
(3)	Ticket Price Paid	$500
(4)	AFO Price Paid	$45

Fig. 80



(80.100)

Default Flight	F1
Notify Deadline	7 DTD (of F1)
Exercise Price:	None
Default Exercise Price	None

(80.200)

Default Flight	F1
Default Exercise Price	$20
Notify Deadline	7 DTD (of F1)

	(1) Chosen Flight	(2) Exercise Price
(1)	F1	$10
(2)	F2	$20

(80.300)

Default Flight	F1
Default Exercise Price	$40

	(1)	(2)	(3)	(4)	(5)
(1)	Notify Deadline (DTD of F1)	30	7	3	1
(2)	Exercise Price	$0	$20	$30	$40

(80.400)

Default Flight	F2
Default Exercise Price	$50

	(1)		(2)	(3)	(4)	(5)
(1)	Notify Deadline (DTD of F1)		30	7	3	1
(2)	Exercise price as a	F1	$0	$20	$30	$40
(3)	function of Chosen Flight	F2	$10	$25	$35	$50

Fig. 81

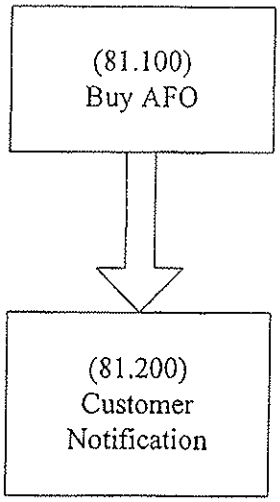


Fig. 82

AFO Itinerary 1 (82.100)

Onward journey

Flight	Departs	Arrives
Alpha993 Coach(U)	BOS 02 May 8:55am	ATL 02 May 11:57am
Alpha998 Coach(U)	ATL 02 May 1:00pm	LAX 02 May 3:07pm

Return journey

Flight	Departs	Arrives
Alpha893 Coach(U)	LAX 06 May 8:55am	BOS 06 May 12:15pm

AFO Itinerary 2 (82.200)

Onward journey

Flight	Departs	Arrives
Alpha963 Coach(U)	BOS 04 May 8:55am	ATL 04 May 11:57am
Alpha969 Coach(U)	ATL 04 May 2:00pm	LAX 04 May 4:07pm

Return journey

Flight	Departs	Arrives
Alpha793 Coach(U)	LAX 07 May 9:55am	BOS 07 May 1:15pm

Fig. 83

Onward journey (83.100)

(A13.110) Initial Flight Segment	Flight	Departs	Arrives
	Alpha567 Coach(U)	BOS 02 May 8:55am	ATL 02 May 11:57am
	Alpha678 Coach(U)	ATL 02 May 1:00pm	LAX 02 May 3:07pm

(A13.120) Option Flight Segment	Flight	Departs	Arrives
	Alpha123 Coach(U)	BOS 03 May 8:55am	LAX 03 May 12:07pm

Return journey (83.200)

(A13.210) Initial Flight Segment	Flight	Departs	Arrives
	Alpha233 Coach(U)	LAX 06 May 8:55am	BOS 06 May 6:15pm

Fig. 84

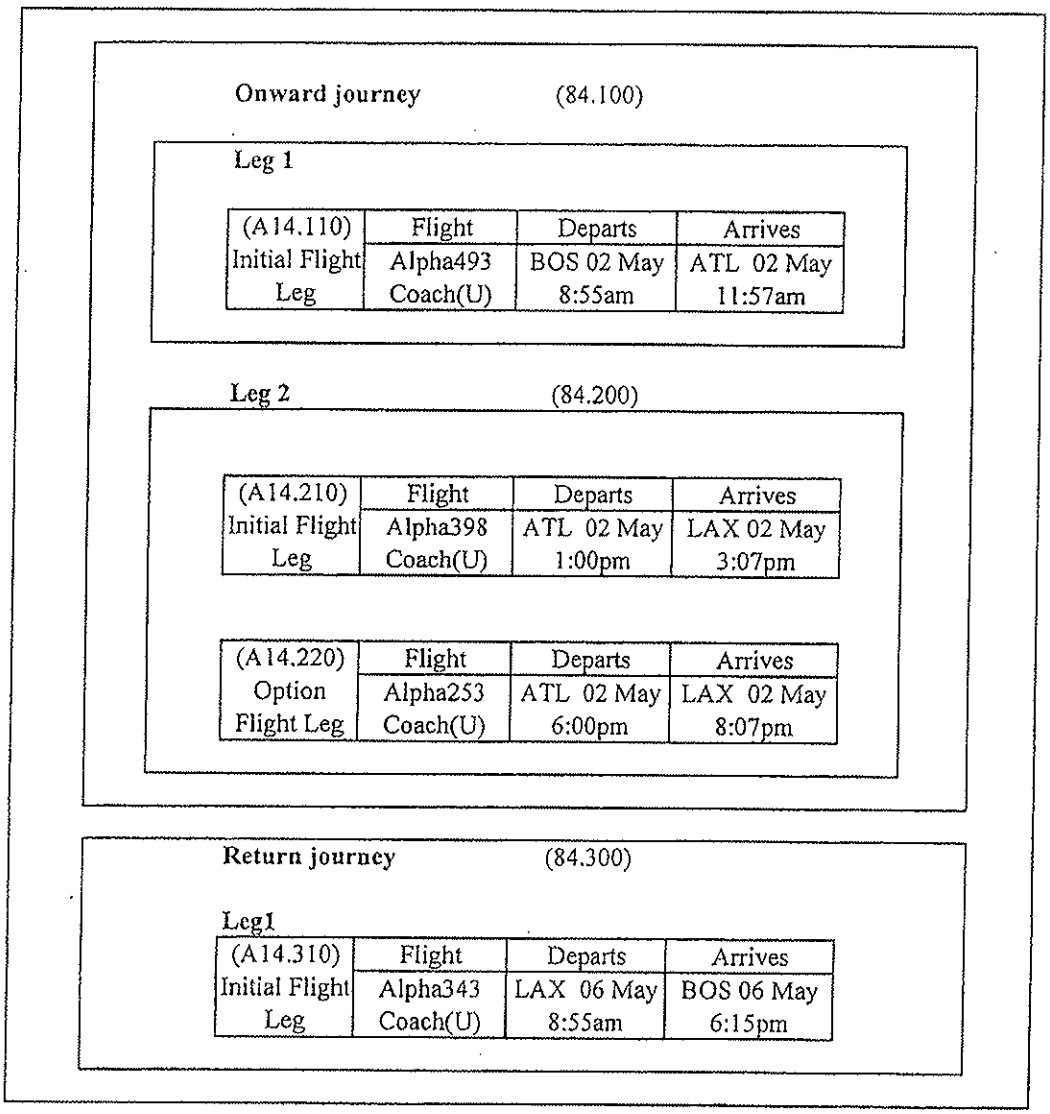

Onward journey (84.100)
Leg 1
(A14.110) Initial Flight Leg
Flight Alpha493 Coach(U)
Departs BOS 02 May 8:55am
Arrives ATL 02 May 11:57am
Leg 2 (84.200)
(A14.210) Initial Flight Leg
Flight Alpha398 Coach(U)
Departs ATL 02 May 1:00pm
Arrives LAX 02 May 3:07pm
(A14.220) Option Flight Leg
Flight Alpha253 Coach(U)
Departs ATL 02 May 6:00pm
Arrives LAX 02 May 8:07pm
Return journey (84.300)
Leg1
(A14.310) Initial Flight Leg
Flight Alpha343 Coach(U)
Departs LAX 06 May 8:55am
Arrives BOS 06 May 6:15pm

Fig. 85

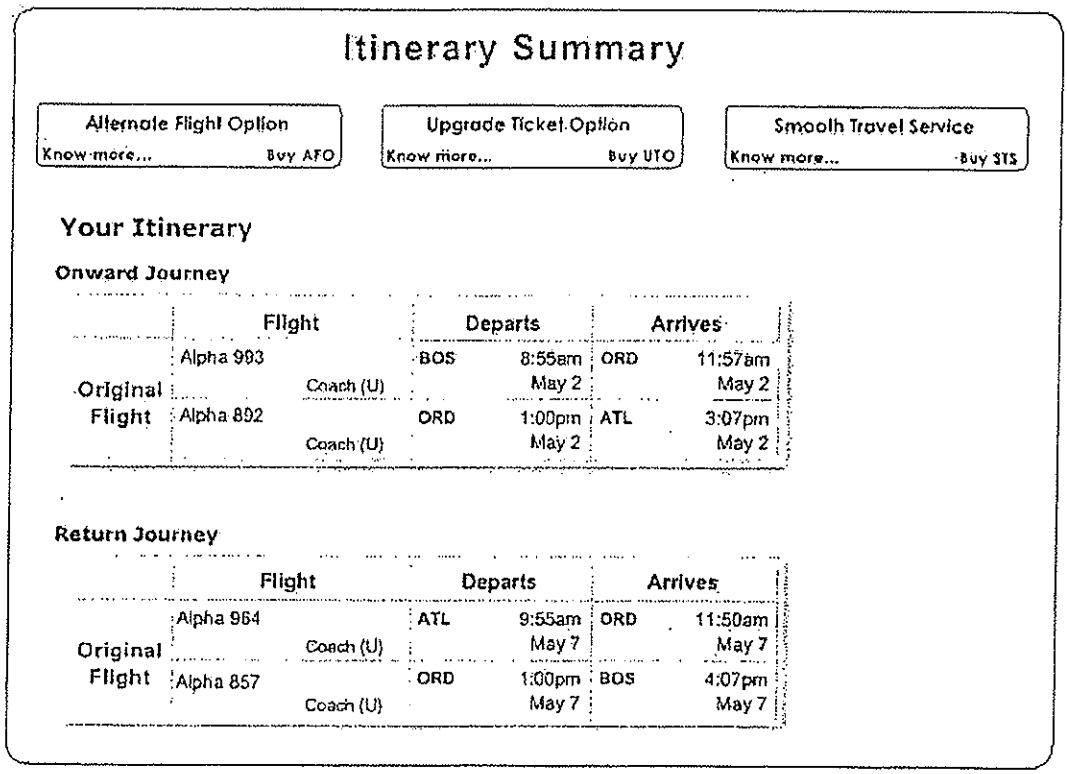

Itinerary Summary
Alternate Flight Option
Know more... Buy AFO
Upgrade Ticket Option
Know more... Buy UTO
Smooth Travel Service
Know more... Buy STS
Your Itinerary
Onward Journey
Flight
Departs
Arrives
Original Flight
Alpha 993
Coach (U)
BOS 8:55am May 2
ORD 11:57am May 2
Alpha 892
Coach (U)
ORD 1:00pm May 2
ATL 3:07pm May 2
Return Journey
Flight
Departs
Arrives
Original Flight
Alpha 964
Coach (U)
ATL 9:55am May 7
ORD 11:50am May 7
Alpha 857
Coach (U)
ORD 1:00pm May 7
BOS 4:07pm May 7

Fig. 86

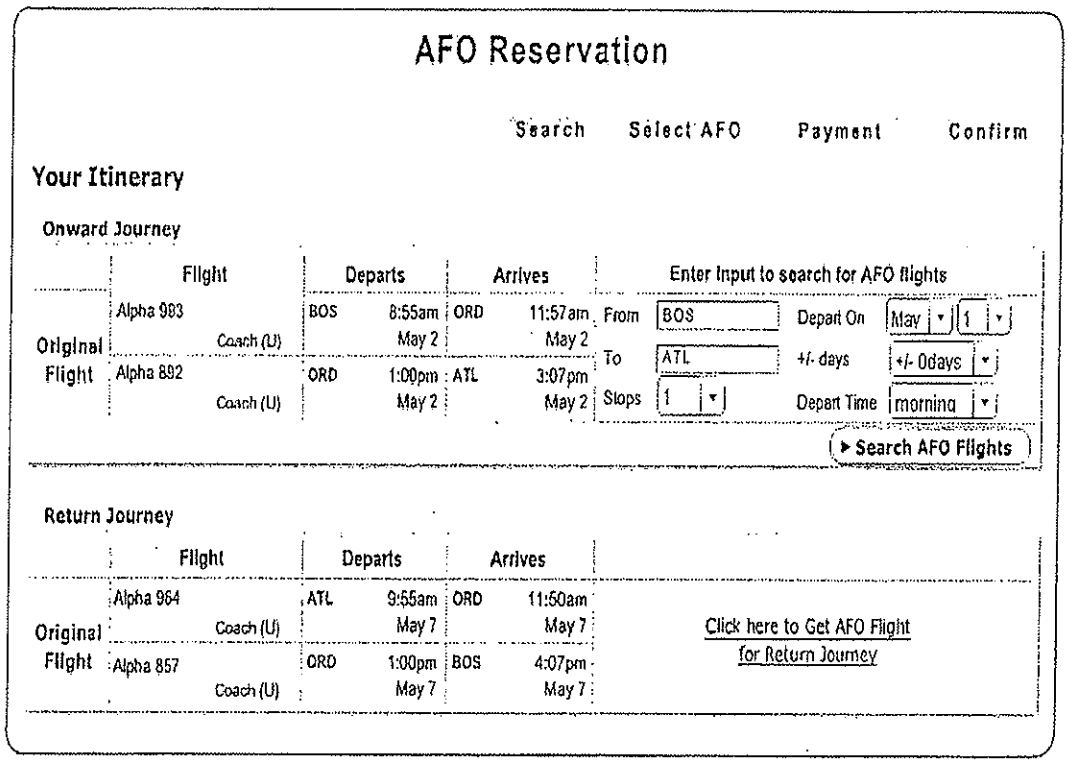

AFO Reservation
Search
Select AFO
Payment
Confirm
Your Itinerary
Onward Journey
Flight
Departs
Arrives
Enter Input to search for AFO flights
Original Flight
Alpha 983
Coach (U)
BOS 8:55am May 2
ORD 11:57am May 2
Alpha 892
Coach (U)
ORD 1:00pm May 2
ATL 3:07pm May 2
From BOS
To ATL
Stops 1
Depart On May 1
+/- days +/- 0days
Depart Time morning
Search AFO Flights
Return Journey
Flight
Departs
Arrives
Original Flight
Alpha 964
Coach (U)
ATL 9:55am May 7
ORD 11:50am May 7
Alpha 857
Coach (U)
ORD 1:00pm May 7
BOS 4:07pm May 7
Click here to Get AFO Flight for Return Journey

Fig. 87

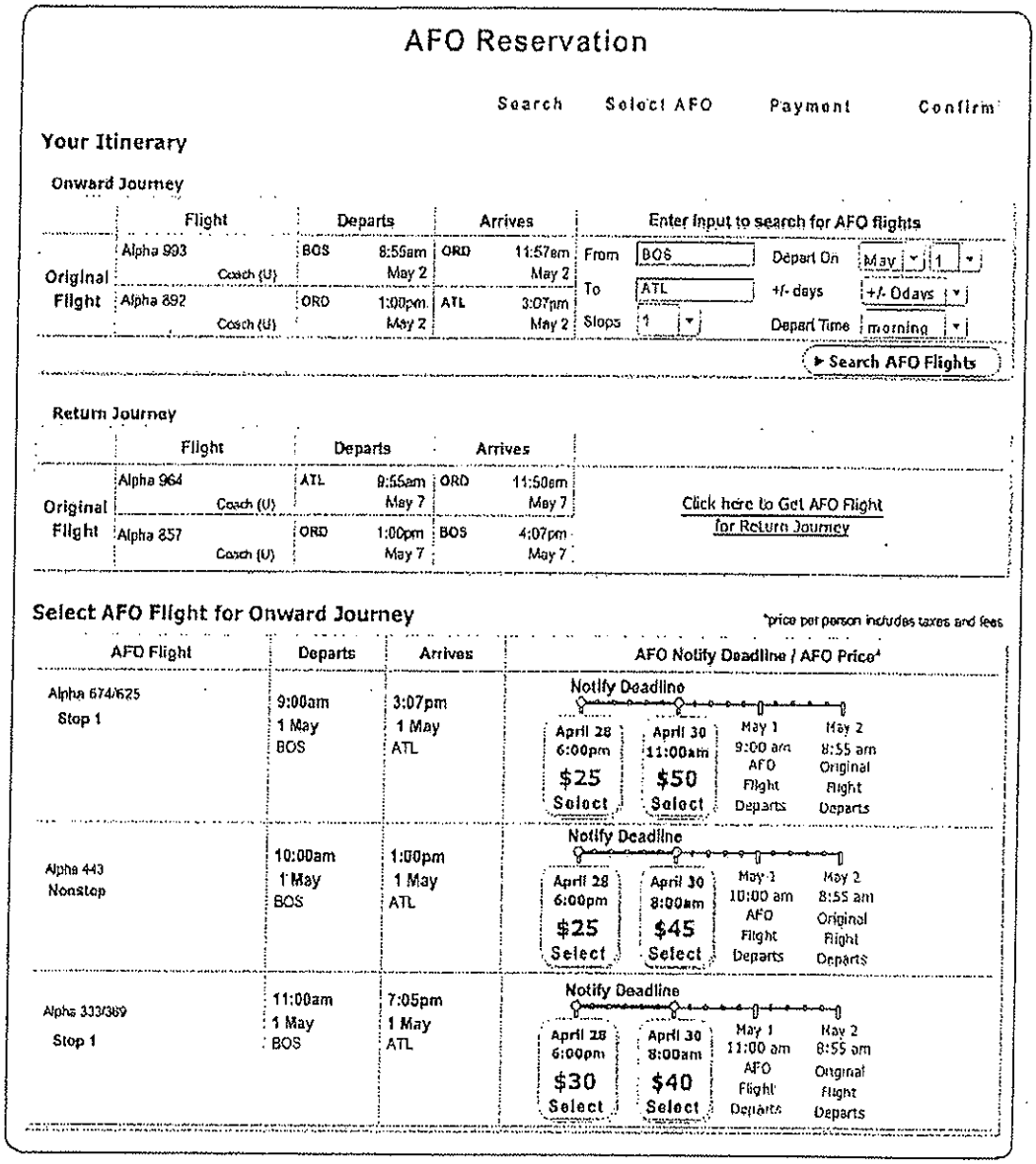

AFO Reservation
Search
Select AFO
Payment
Confirm
Your Itinerary
Onward Journey
Flight
Departs
Arrives
Original Flight
Alpha 993 Coach (U)
BOS 8:55am May 2
ORD 11:57am May 2
Alpha 892 Coach (U)
ORD 1:00pm May 2
ATL 3:07pm May 2
Enter input to search for AFO flights
From BOS
To ATL
Stops 1
Depart On May 1
+/- days +/- 0days
Depart Time morning
Search AFO Flights
Return Journey
Flight
Departs
Arrives
Original Flight
Alpha 964 Coach (U)
ATL 9:55am May 7
ORD 11:50am May 7
Alpha 857 Coach (U)
ORD 1:00pm May 7
BOS 4:07pm May 7
Click here to Get AFO Flight for Return Journey
Select AFO Flight for Onward Journey
*price per person includes taxes and fees
AFO Flight
Departs
Arrives
AFO Notify Deadline / AFO Price*
Alpha 674/625 Stop 1
9:00am 1 May BOS
3:07pm 1 May ATL
Notify Deadline
April 28 6:00pm $25 Select
April 30 11:00am $50 Select
May 1 9:00 am AFO Flight Departs
May 2 8:55 am Original Flight Departs
Alpha 443 Nonstop
10:00am 1 May BOS
1:00pm 1 May ATL
Notify Deadline
April 28 6:00pm $25 Select
April 30 8:00am $45 Select
May 1 10:00 am AFO Flight Departs
May 2 8:55 am Original Flight Departs
Alpha 333/389 Stop 1
11:00am 1 May BOS
7:05pm 1 May ATL
Notify Deadline
April 28 6:00pm $30 Select
April 30 8:00am $40 Select
May 1 11:00 am AFO Flight Departs
May 2 8:55 am Original Flight Departs

Fig. 88

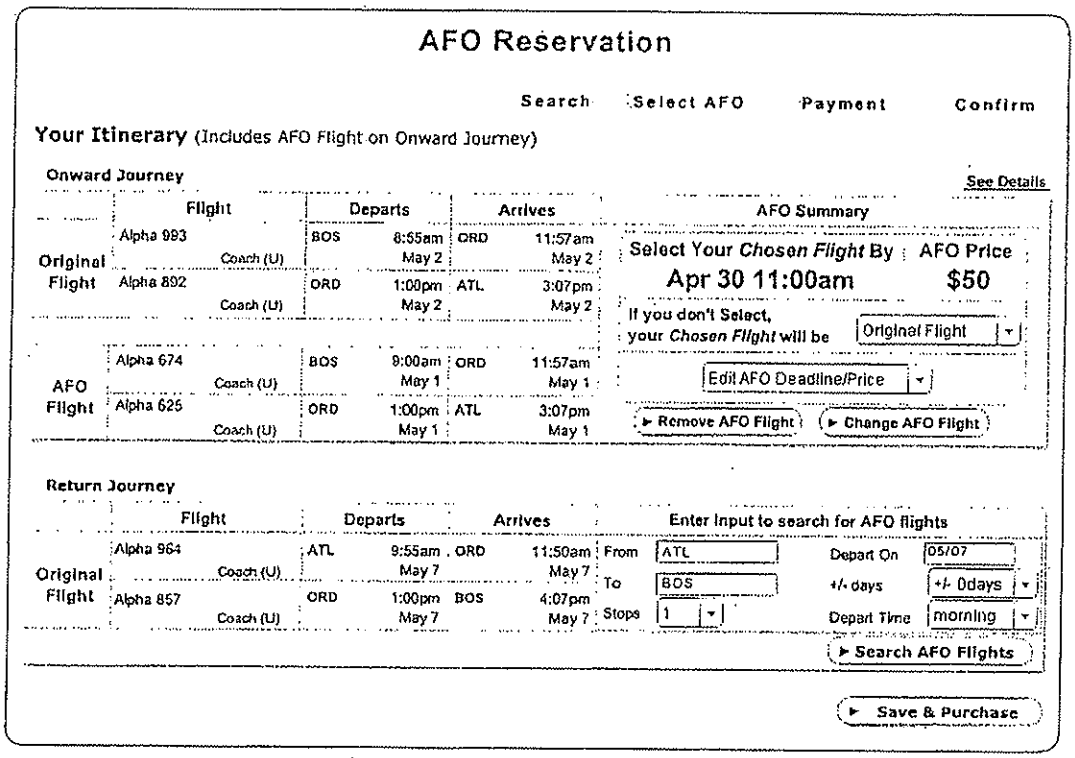

AFO Reservation
Search
Select AFO
Payment
Confirm
Your Itinerary (Includes AFO Flight on Onward Journey)
Onward Journey
See Details
Flight
Departs
Arrives
AFO Summary
Original Flight
Alpha 993
Coach (U)
BOS 8:55am May 2
ORD 11:57am May 2
Alpha 892
Coach (U)
ORD 1:00pm May 2
ATL 3:07pm May 2
Select Your Chosen Flight By
AFO Price
Apr 30 11:00am
$50
If you don't Select, your Chosen Flight will be
Original Flight
AFO Flight
Alpha 674
Coach (U)
BOS 9:00am May 1
ORD 11:57am May 1
Alpha 625
Coach (U)
ORD 1:00pm May 1
ATL 3:07pm May 1
Edit AFO Deadline/Price
Remove AFO Flight
Change AFO Flight
Return Journey
Flight
Departs
Arrives
Enter Input to search for AFO flights
Original Flight
Alpha 964
Coach (U)
ATL 9:55am May 7
ORD 11:50am May 7
Alpha 857
Coach (U)
ORD 1:00pm May 7
BOS 4:07pm May 7
From
ATL
To
BOS
Stops
1
Depart On
05/07
+/- days
+/- 0days
Depart Time
morning
Search AFO Flights
Save & Purchase

Fig. 89

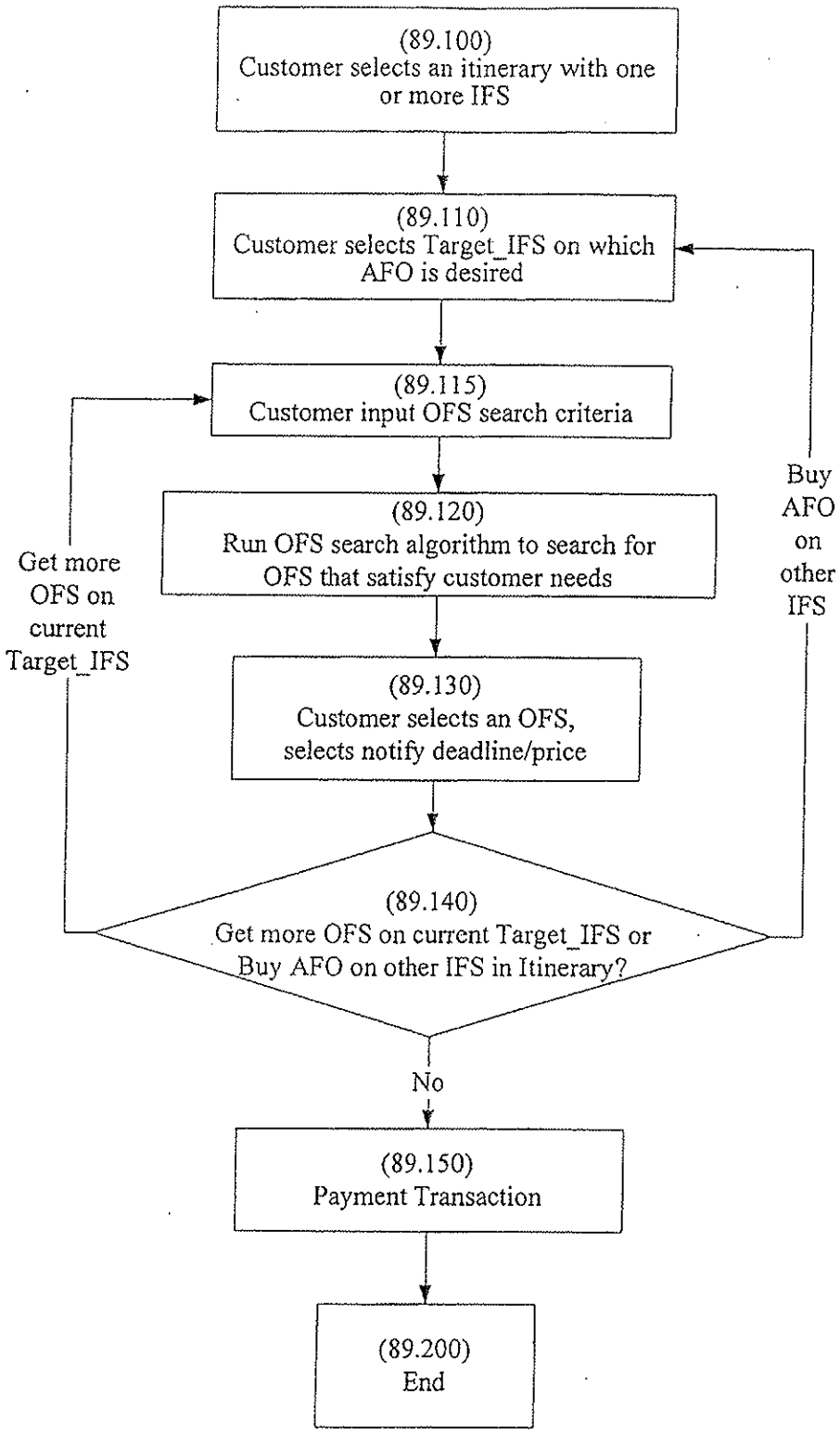

(89.100)
Customer selects an itinerary with one or more IFS
(89.110)
Customer selects Target_IFS on which AFO is desired
(89.115)
Customer input OFS search criteria
(89.120)
Run OFS search algorithm to search for OFS that satisfy customer needs
(89.130)
Customer selects an OFS, selects notify deadline/price
(89.140)
Get more OFS on current Target_IFS or Buy AFO on other IFS in Itinerary?
Get more OFS on current Target_IFS
Buy AFO on other IFS
No
(89.150)
Payment Transaction
(89.200)
End

Fig. 90

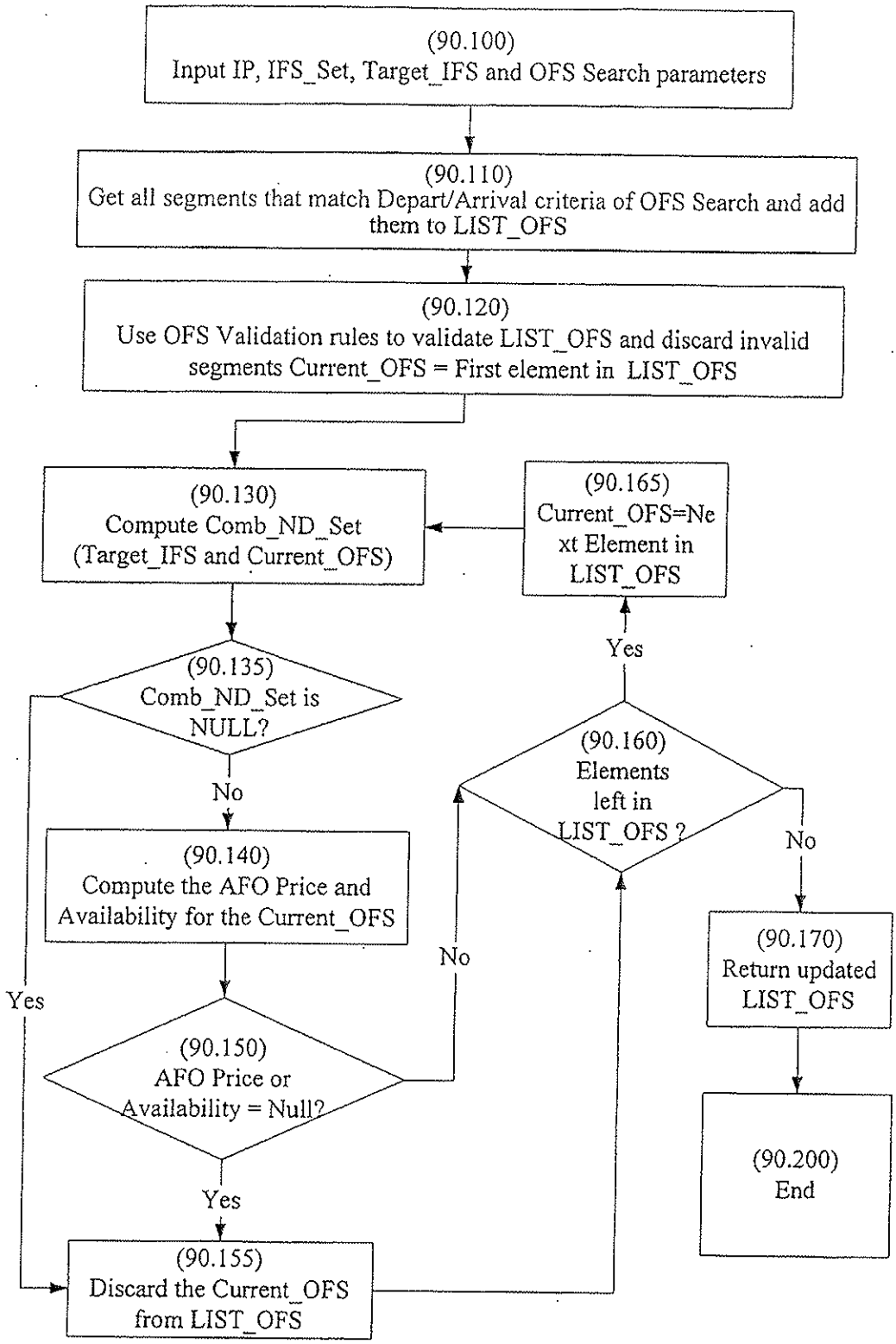

(90.100)
Input IP, IFS_Set, Target_IFS and OFS Search parameters
(90.110)
Get all segments that match Depart/Arrival criteria of OFS Search and add them to LIST_OFS
(90.120)
Use OFS Validation rules to validate LIST_OFS and discard invalid segments Current_OFS = First element in LIST_OFS
(90.130)
Compute Comb_ND_Set (Target_IFS and Current_OFS)
(90.165)
Current_OFS=Next Element in LIST_OFS
(90.135)
Comb_ND_Set is NULL?
Yes
No
(90.140)
Compute the AFO Price and Availability for the Current_OFS
(90.160)
Elements left in LIST_OFS ?
No
Yes
(90.150)
AFO Price or Availability = Null?
No
Yes
(90.155)
Discard the Current_OFS from LIST_OFS
(90.170)
Return updated LIST_OFS
(90.200)
End

Fig. 91

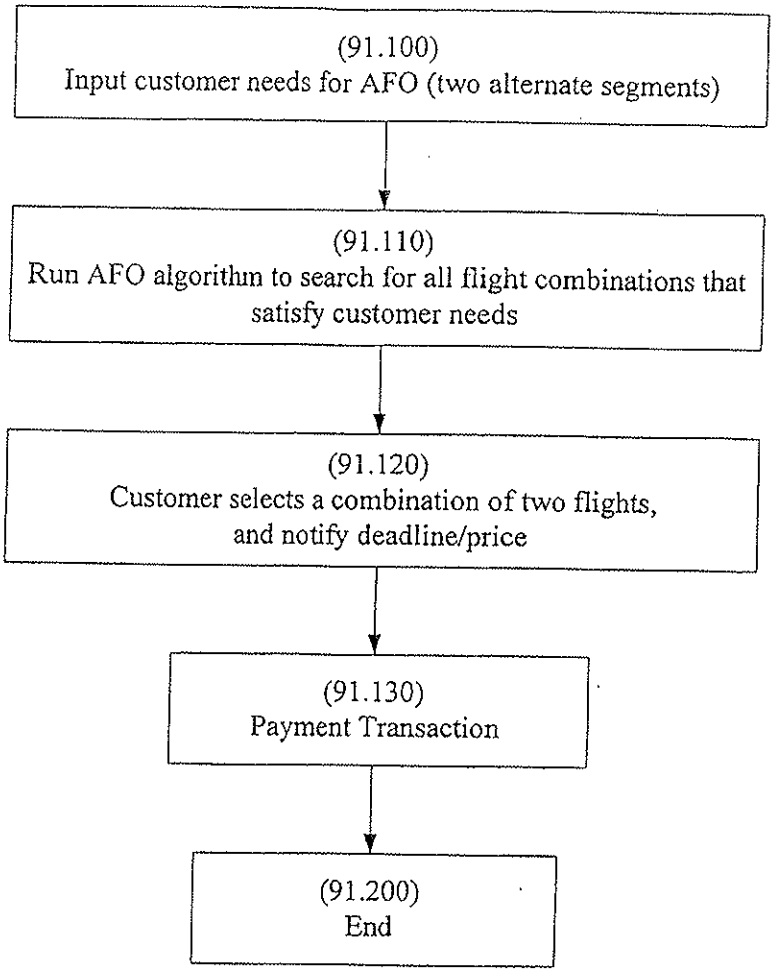

(91.100)
Input customer needs for AFO (two alternate segments)
(91.110)
Run AFO algorithm to search for all flight combinations that satisfy customer needs
(91.120)
Customer selects a combination of two flights, and notify deadline/price
(91.130)
Payment Transaction
(91.200)
End

Fig. 92

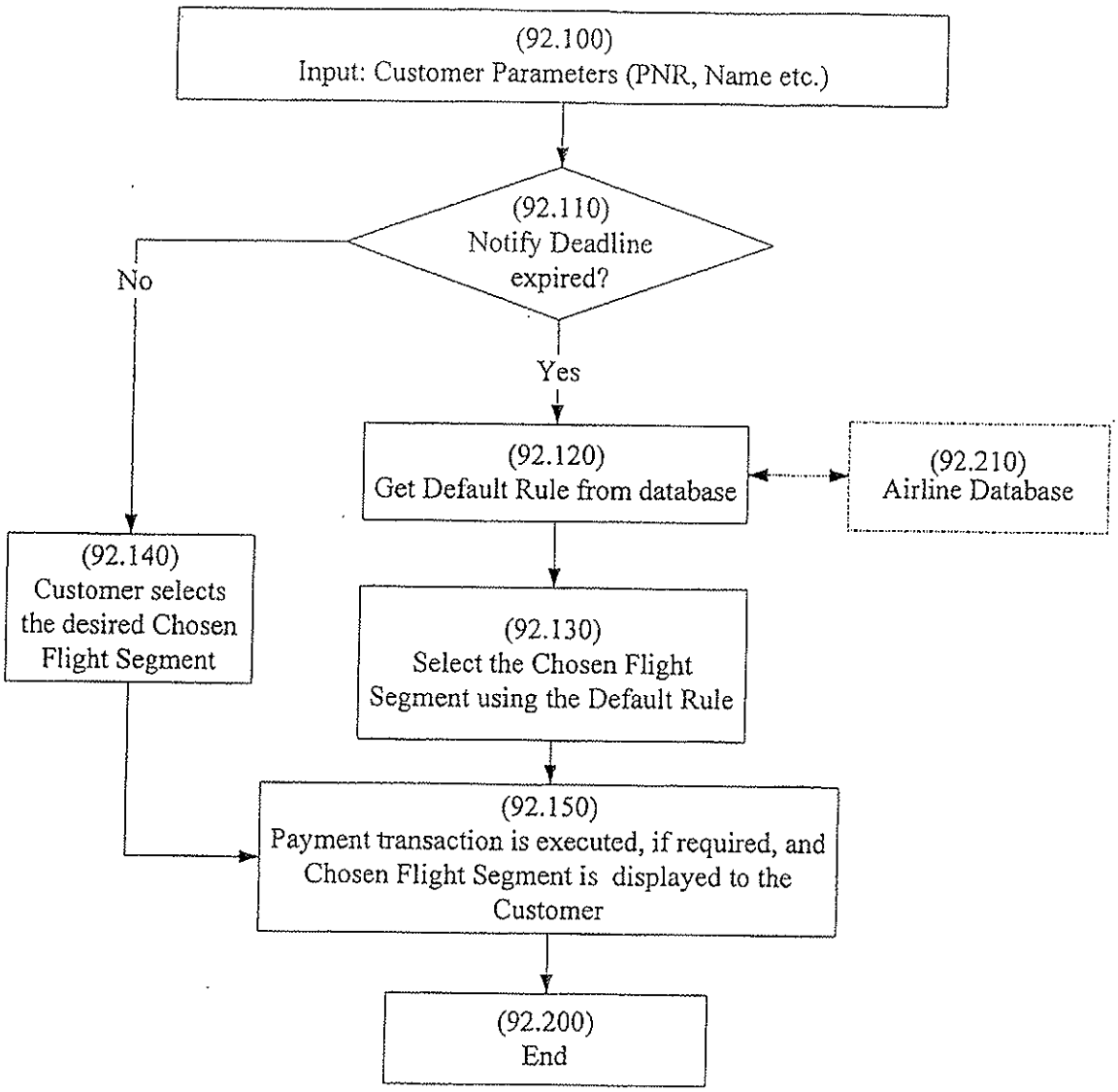

(92.100)
Input: Customer Parameters (PNR, Name etc.)
(92.110)
Notify Deadline expired?
No
Yes
(92.120)
Get Default Rule from database
(92.210)
Airline Database
(92.140)
Customer selects the desired Chosen Flight Segment
(92.130)
Select the Chosen Flight Segment using the Default Rule
(92.150)
Payment transaction is executed, if required, and Chosen Flight Segment is displayed to the Customer
(92.200)
End

Fig. 93

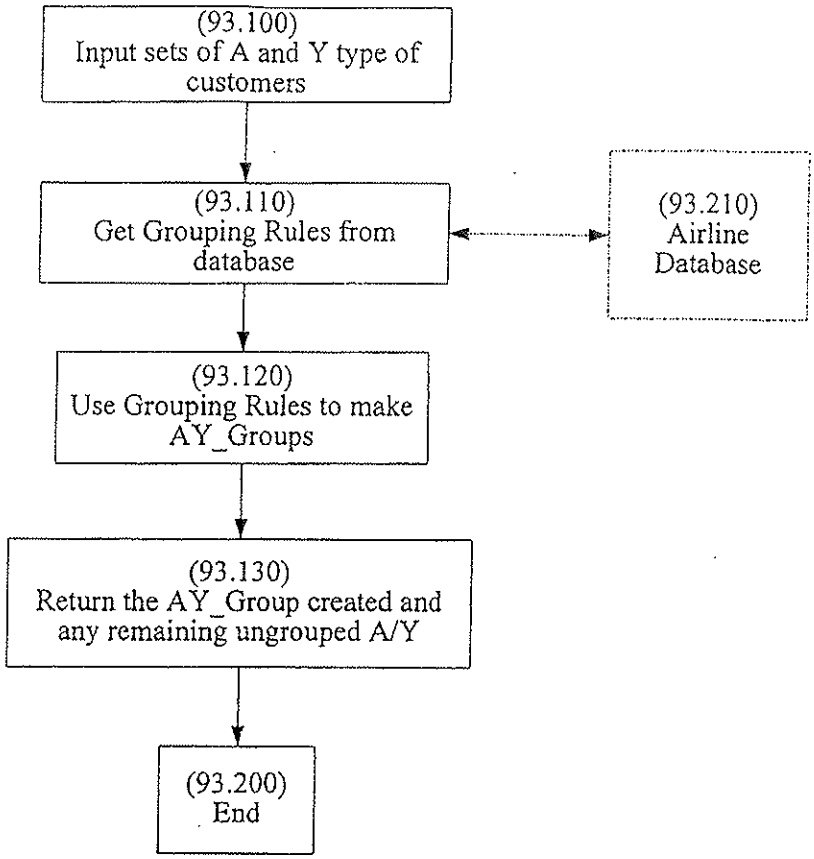
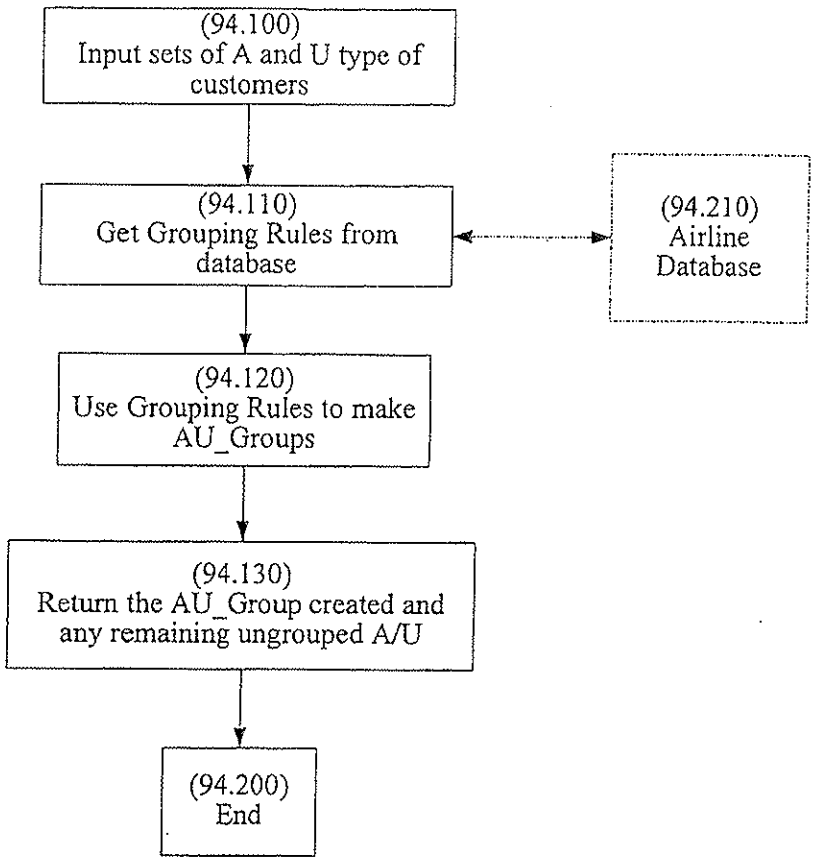

(93.100)
Input sets of A and Y type of customers
(93.110)
Get Grouping Rules from database
(93.210)
Airline Database
(93.120)
Use Grouping Rules to make AY_Groups
(93.130)
Return the AY_Group created and any remaining ungrouped A/Y
(93.200)
End

Fig. 94


(94.100)
Input sets of A and U type of customers
(94.110)
Get Grouping Rules from database
(94.210)
Airline Database
(94.120)
Use Grouping Rules to make AU_Groups
(94.130)
Return the AU_Group created and any remaining ungrouped A/U
(94.200)
End