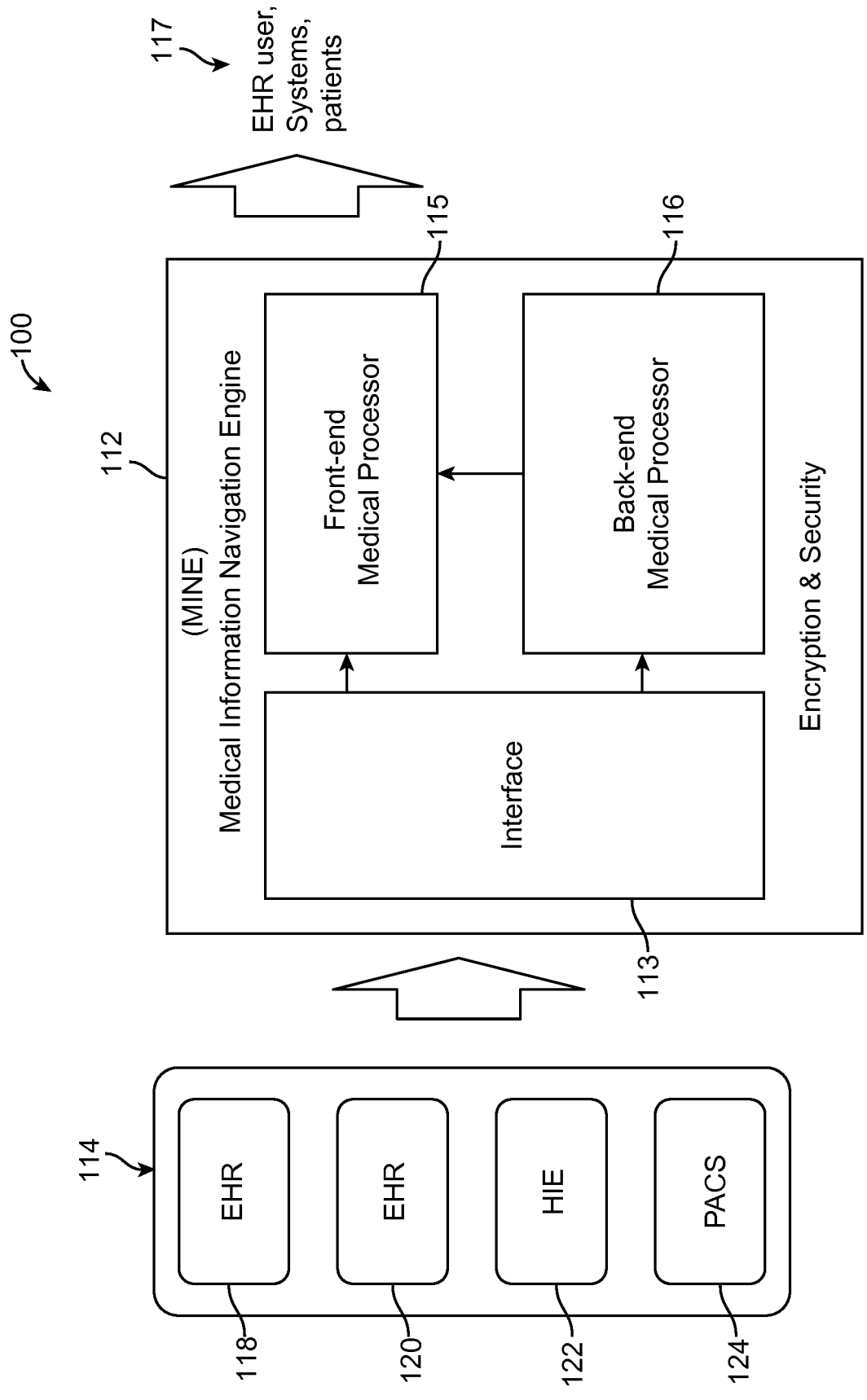

100
112
(MINE)
Medical Information Navigation Engine
Front-end
Medical Processor
Back-end
Medical Processor
Interface
Encryption & Security
115
116
113
117
EHR user,
Systems,
patients
114
EHR
EHR
HIE
PACS
118
120
122
124

FIG. 1

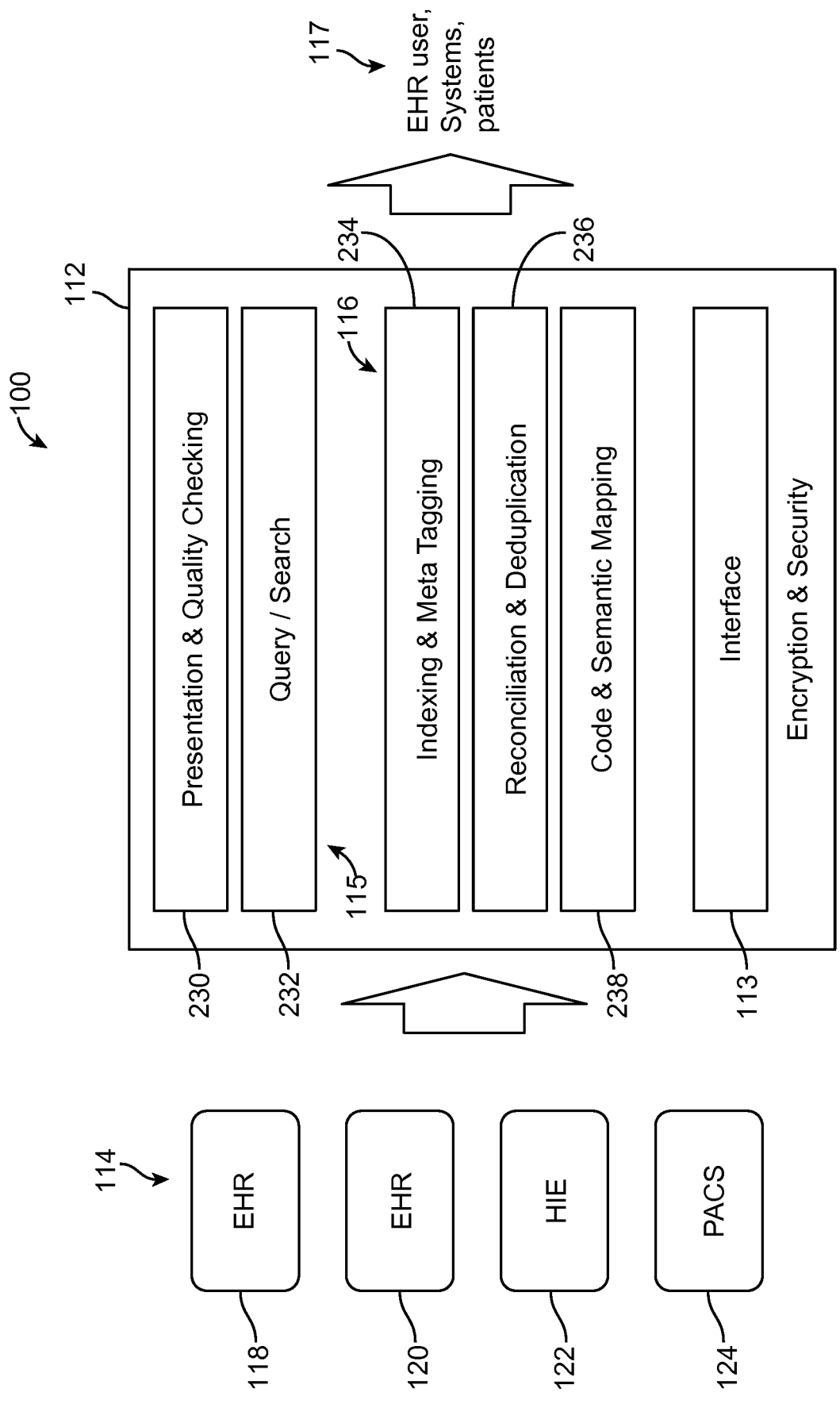

100
112
117
EHR user, Systems, patients
234
236
116
115
Presentation & Quality Checking
Query / Search
Indexing & Meta Tagging
Reconciliation & Deduplication
Code & Semantic Mapping
Interface
Encryption & Security
230
232
238
113
114
EHR
EHR
HIE
PACS
118
120
122
124

FIG. 2

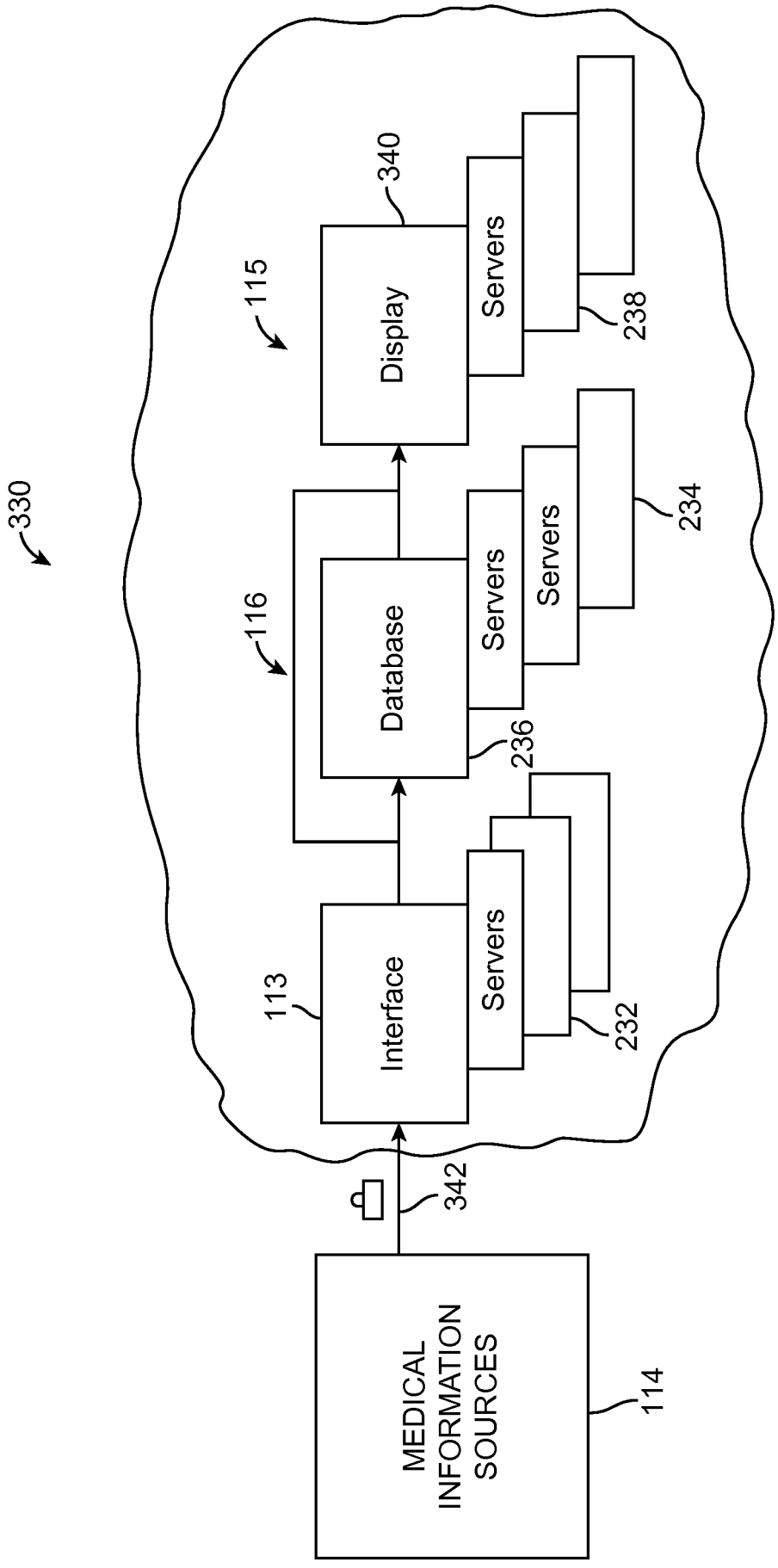

330
MEDICAL INFORMATION SOURCES
114
342
113
Interface
Servers
232
116
Database
Servers
Servers
234
236
115
Display
Servers
238
340

FIG. 3

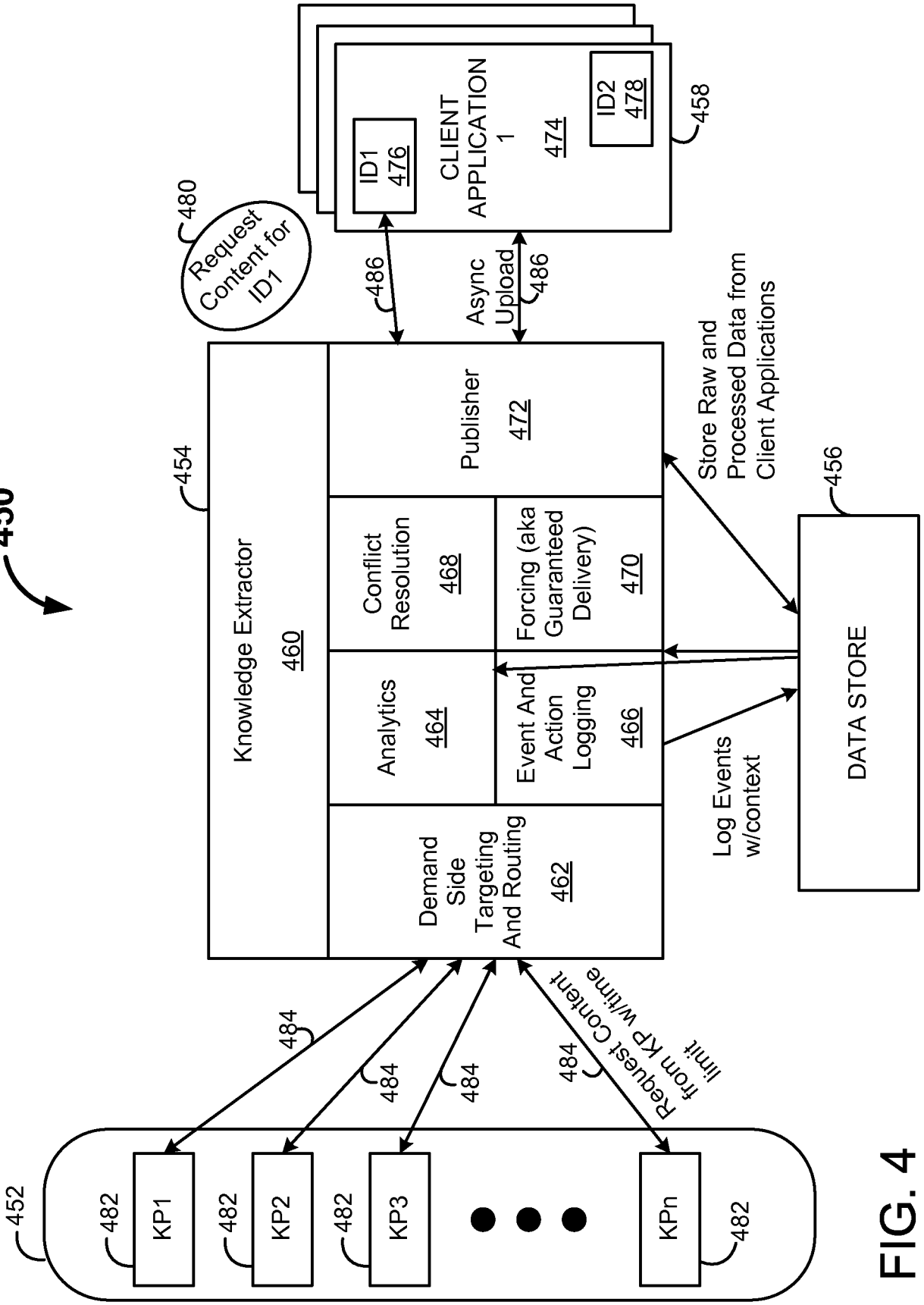

450
452
482
KP1
KP2
KP3
KPn
484
Request Content from KP w/time limit
454
Knowledge Extractor
460
Demand Side Targeting And Routing
462
Analytics
464
Event And Action Logging
466
Conflict Resolution
468
Forcing (aka Guaranteed Delivery)
470
Publisher
472
480
Request Content for ID1
486
Async Upload
CLIENT APPLICATION 1
474
ID1
476
ID2
478
458
Store Raw and Processed Data from Client Applications
Log Events w/context
456
DATA STORE

FIG. 4

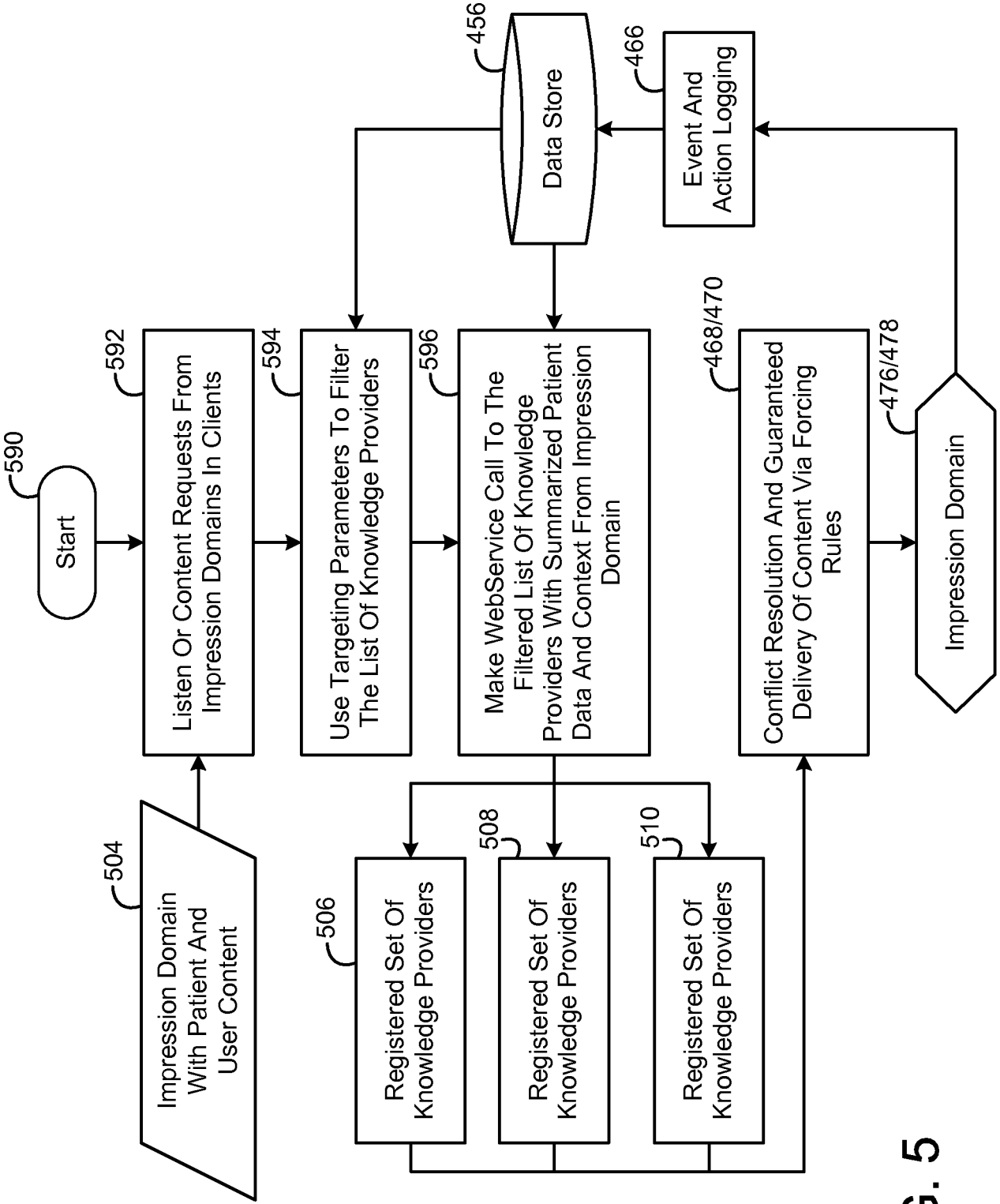

590
Start
592
Listen Or Content Requests From Impression Domains In Clients
594
Use Targeting Parameters To Filter The List Of Knowledge Providers
596
Make WebService Call To The Filtered List Of Knowledge Providers With Summarized Patient Data And Context From Impression Domain
468/470
Conflict Resolution And Guaranteed Delivery Of Content Via Forcing Rules
476/478
Impression Domain
456
Data Store
466
Event And Action Logging
504
Impression Domain With Patient And User Content
506
Registered Set Of Knowledge Providers
508
Registered Set Of Knowledge Providers
510
Registered Set Of Knowledge Providers

FIG. 5

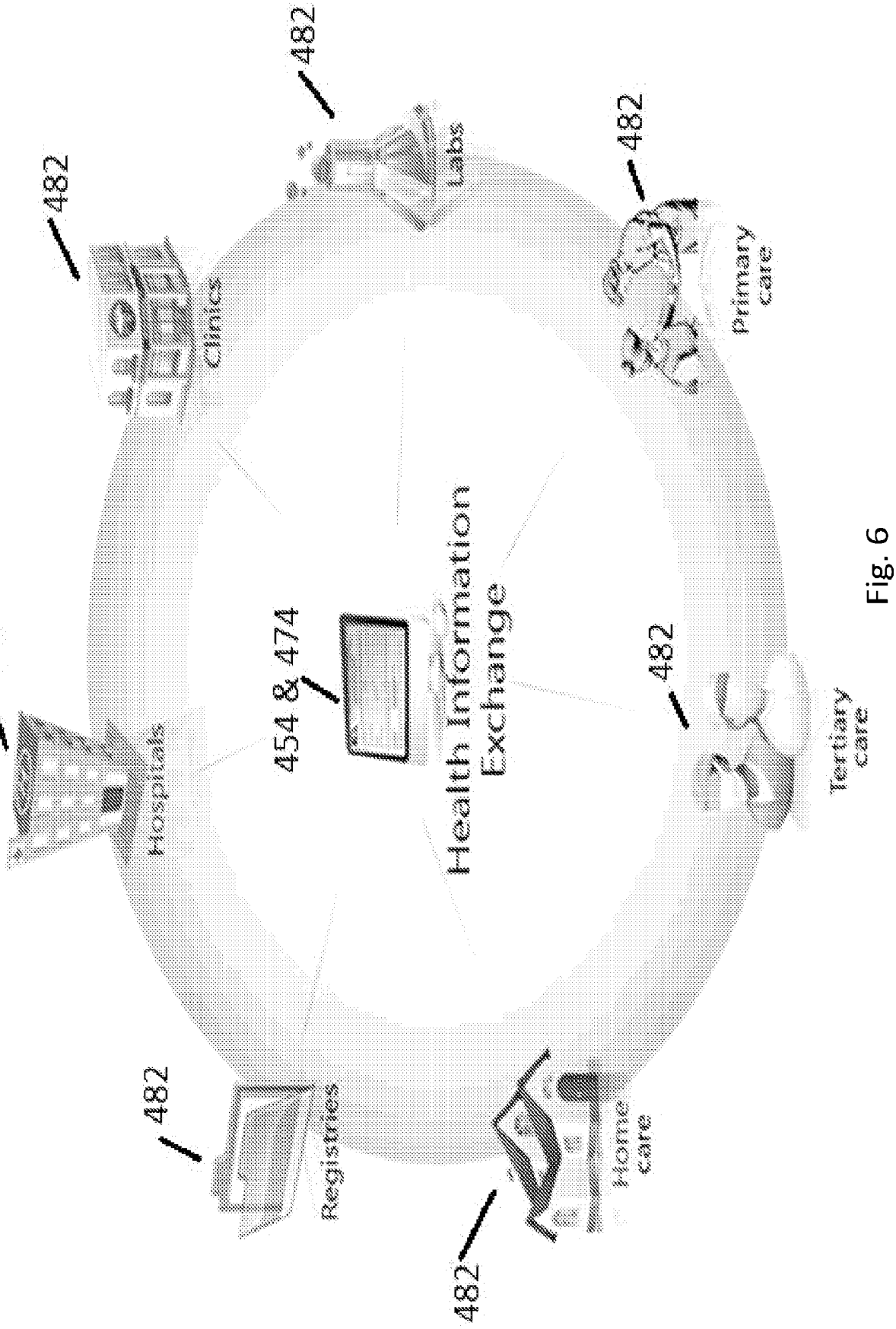
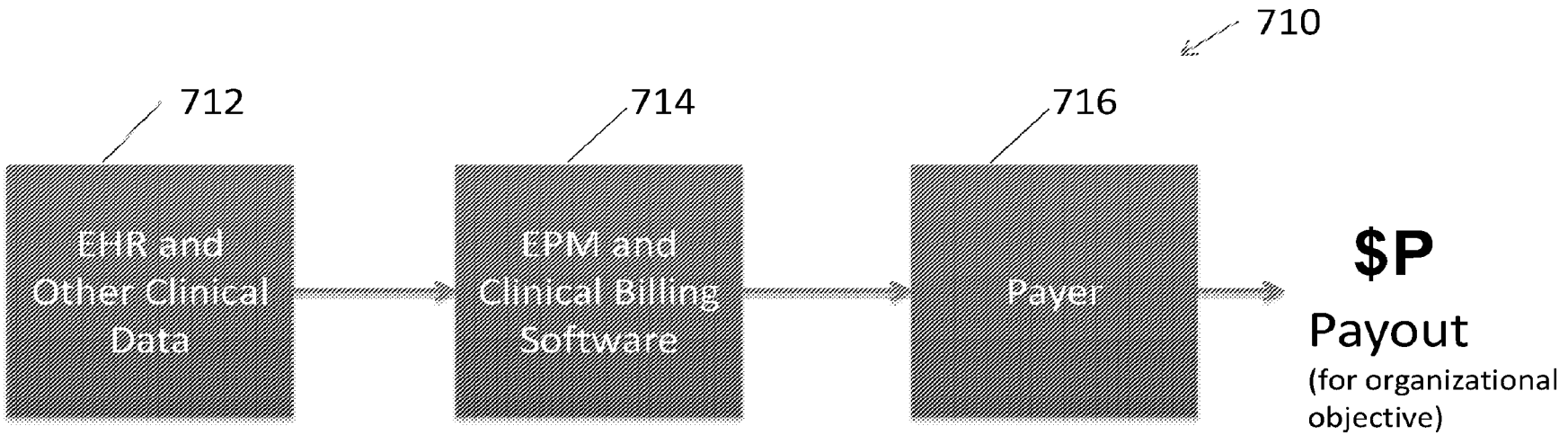

482
Labs
482
Clinics
482
Primary care
454 & 474
Health Information Exchange
482
Hospitals
482
Tertiary care
482
Registries
482
Home care

Fig. 6

Model for the Healthcare Reimbursements



(organizational objective)

Eq. (1) $$P = I \square \left[E_i ; E_a \right]$$

Patient encounter vector

Where

- P is the provider reimbursement
- I is the intelligence of the system
- E_i is the Efficiency of Access to Information
- E_a is the Efficiency of Action

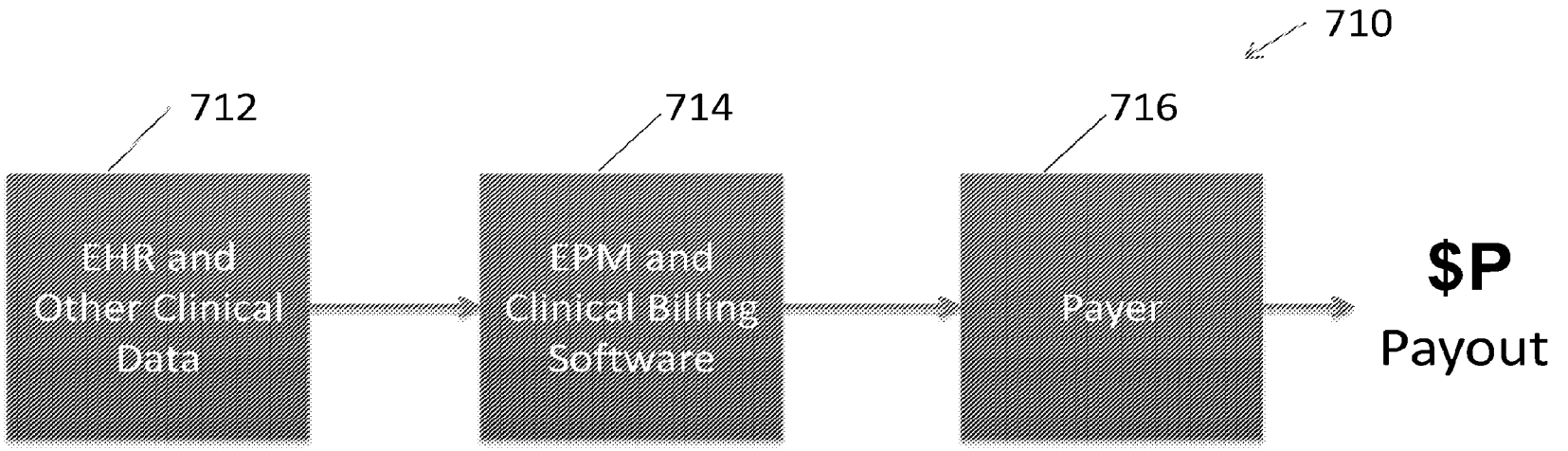
Fig. 7

APIXIO

SUBSTITUTE SHEET (RULE 26)

SUBSTITUTE SHEET (RULE 26)

Model for the Healthcare Reimbursements



$$P = I * \left[E_i^{E_i}; E_a \right] \qquad \text{Eq. (1)}$$

Using codes as the unit of information, we can represent E_i as

E_i=[Cclinical;C_{claims};$C_{adjudicated}$]

Using transfer probabilities across systems, we can represent E_a as

E_a=[$T_{clinical->claims}$;$T_{claims \rightarrow adjudicated}$;$P_{adjudicated}$]

Fig. 8

APIXIO

Apixio enables **peak value** for an organizational objective
Peak Value
Efficiency
(ease of data retrieval And action)
Leverage the Narrative
Semantic Interoperability
Data Integration
EMR
Intelligence (I)
(What to do with the data)
In-line decision support
APIXIO
Payment
Apixio drives peak value via efficiency and intelligence

Fig. 9

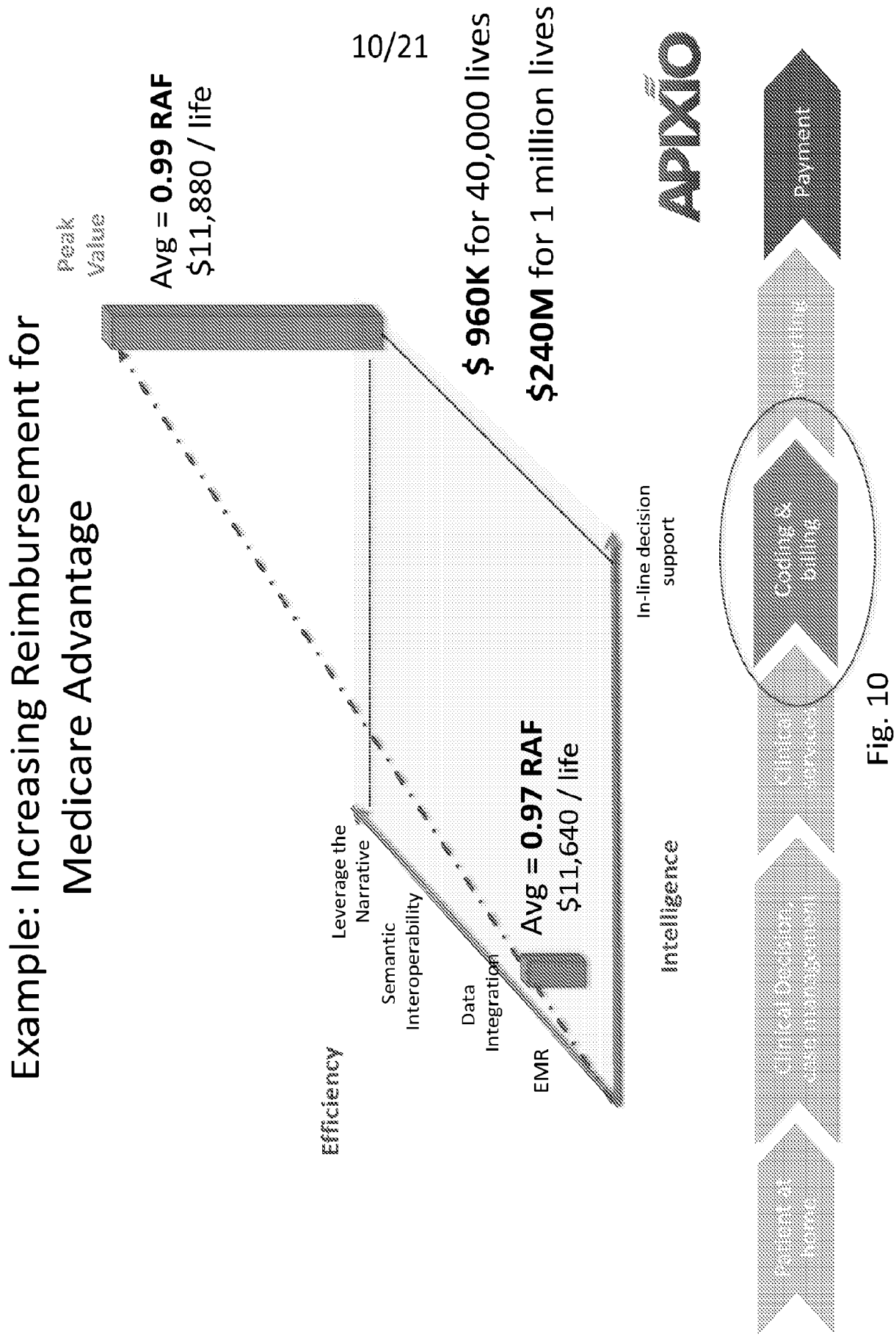

Example: Increasing Reimbursement for Medicare Advantage
10/21
Peak Value
Avg = 0.99 RAF
$11,880 / life
$ 960K for 40,000 lives
$240M for 1 million lives
APIXIO
Efficiency
Leverage the Narrative
Semantic Interoperability
Data Integration
EMR
Avg = 0.97 RAF
$11,640 / life
In-line decision support
Intelligence
Payment

Fig. 10

Is your organization reaching the healthcare value summit?
APIXIO
Peak Value
Perfect Chart
Armies of Nurses or coders
Value (goal/cost)
Efficiency (Ease of data retrieval and action)
Intelligence (I) (What to do with the data)

Fig. 11

APIXIO
Use of Apixio data mining & retrieval to make actionable data missing from the coded layer
Joan Sample
mi
Search
Coded Data
Free Text
Scanned Documents
EHR #1
Problems
Acute bronchitis
Chronic gastric ulcer without mention of hemorrhage or perforation, without mention of obstruction
Coronary atherosclerosis of unspecified type of vessel, native or graft
Need for prophylactic vaccination and inoculation, influenza
Pure hypercholesterolemia
Unspecified chronic bronchitis

Fig. 12

Joan Sample
mi
Search
Coded Data
Free Text
Scanned Documents
EHR #1
5. dyspnea Onset: Week(s) ago. The patient describes it as 3. It lasts for problem is stable. Relevant medical history includes hypertension.
APIXIO

Fig. 13

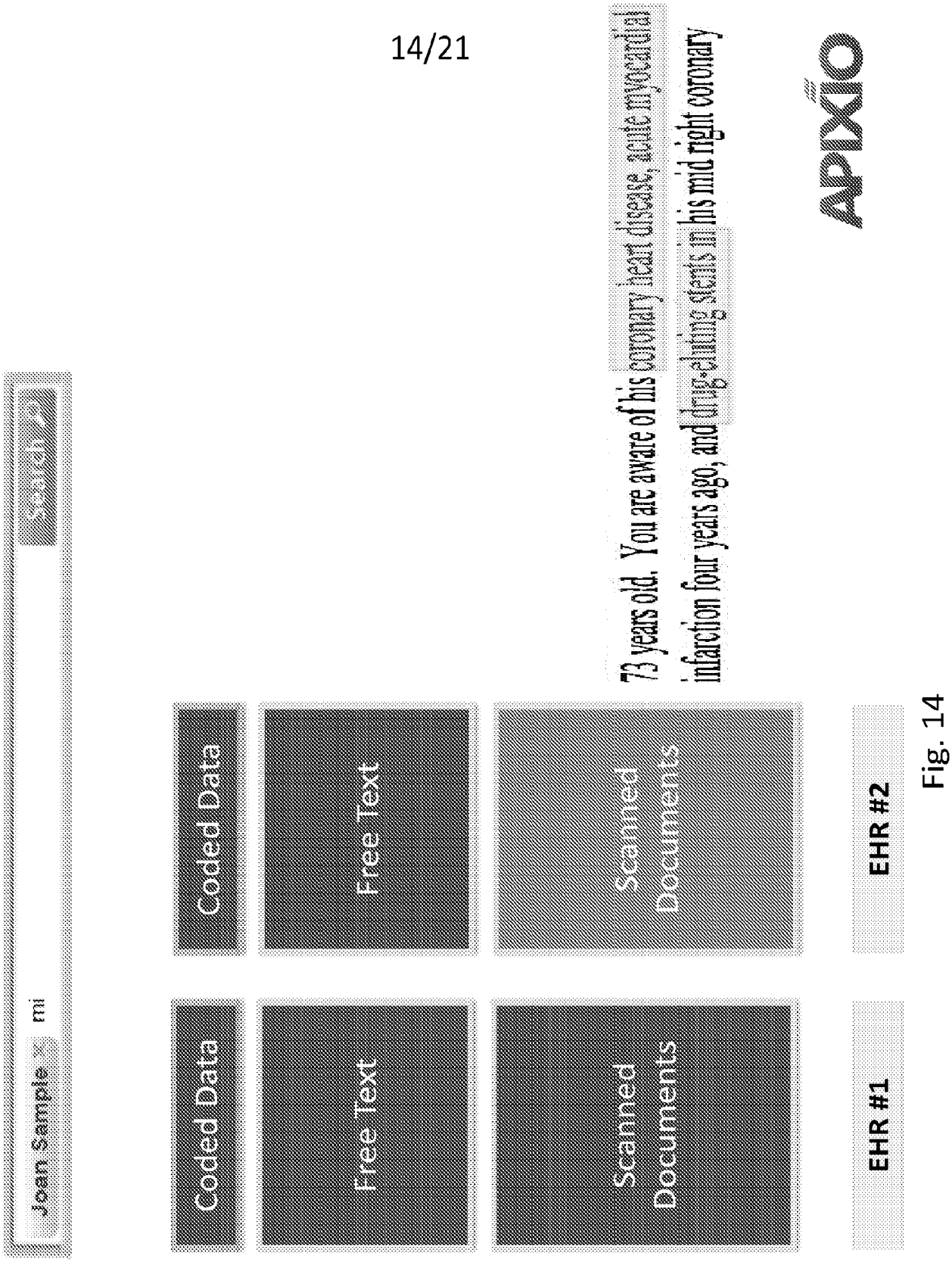

Joan Sample
mi
Search
Coded Data
Free Text
Scanned Documents
EHR #1
Coded Data
Free Text
Scanned Documents
EHR #2
73 years old. You are aware of his coronary heart disease, acute myocardial infarction four years ago, and drug-eluting stents in his mid right coronary
APIXIO

Fig. 14

Joan Sample
mi
Search
Coded Data
Free Text
Scanned Documents
Other Provider EHR
High cholesterol
Coronary Heart Disease, unspecified
Chronic Gastric Ulcer
Chronic Bronchitis, unspecified
+ Hypertension
Key clinical info NOT in the Coded data
+ Myocardial Infarction
+ Drug Eluting Stent in mid Right Coronary Artery
= Higher severity patient
APIXIO

Fig. 15

Joan Sample
dm
Coded Data
Free Text
Scanned Documents
Problems
Abdominal aneurysm without mention of rupture
Chronic rhinitis
Diabetes mellitus without mention of complication, type II or unspecified type, not stated as uncontrolled
Chronic kidney disease, unspecified
Coronary atherosclerosis of unspecified type of vessel, native or graft
Epistaxis
Esophageal reflux
Generalized hyperhidrosis
APIXIO

Fig. 16

APIXIO
Joan Sample
dm
Search
Coded Data
Free Text
Scanned Documents
5. (DM (Diabetes Mellitus) (250.00), Controlled.
Comments: borderline, diet only.
Comments: A1c 5.9 5/09.

Fig. 17

Joan Sample
dm
Search
Coded Data
Free Text
Scanned Documents
• Diabetes Mellitus, Type 2
• No current medications to treat diabetes
+ past history of normal A1c values
+ comments about borderline diabetes
= ?? Diabetes
APIXIO

Fig. 18

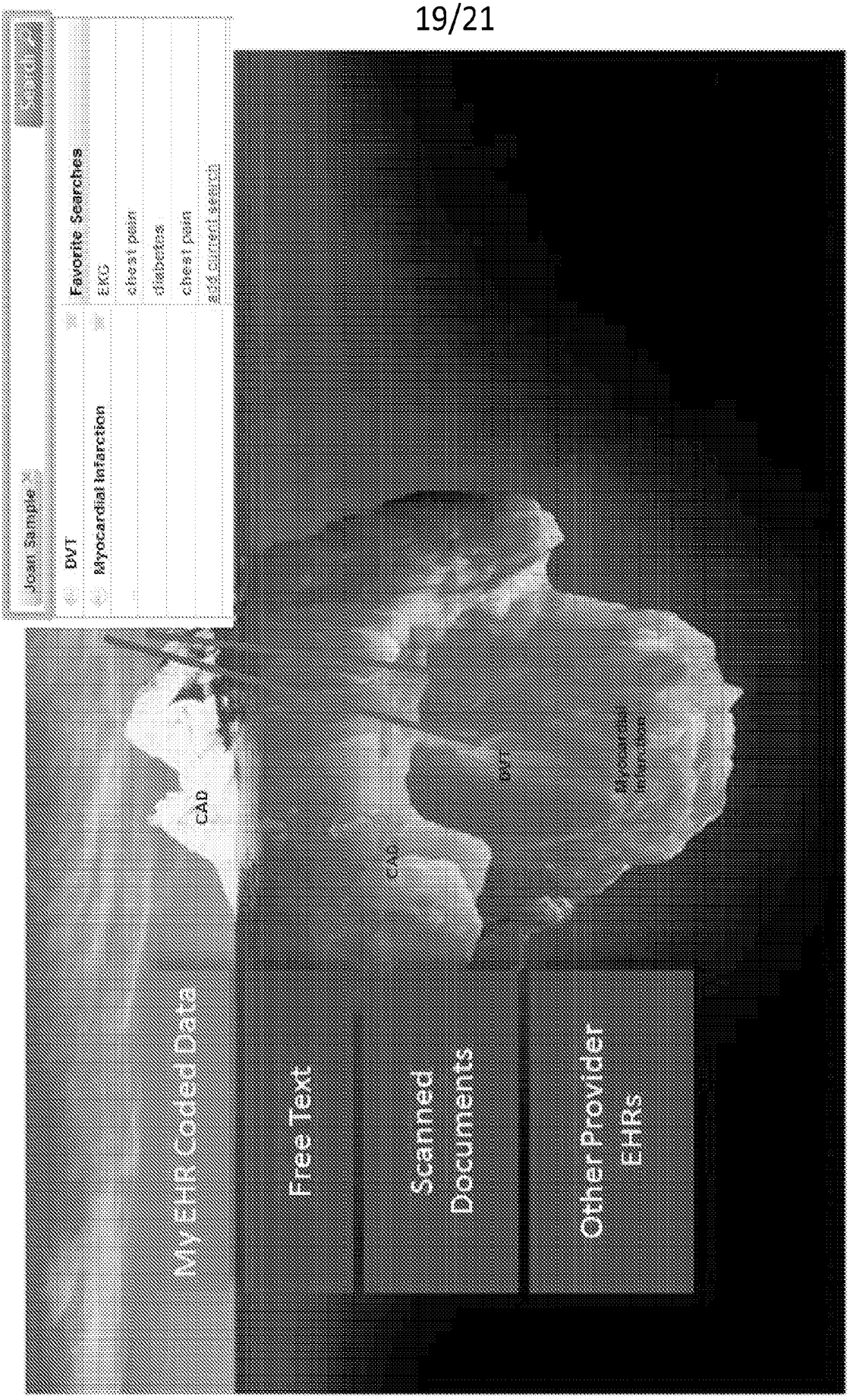

Joan Sample
DVT
Myocardial Infarction
Favorite Searches
EKG
chest pain
diabetes
chest pain
add current search
My EHR Coded Data
CAD
Free Text
CAD
DVT
Scanned Documents
Other Provider EHRs

Fig. 19

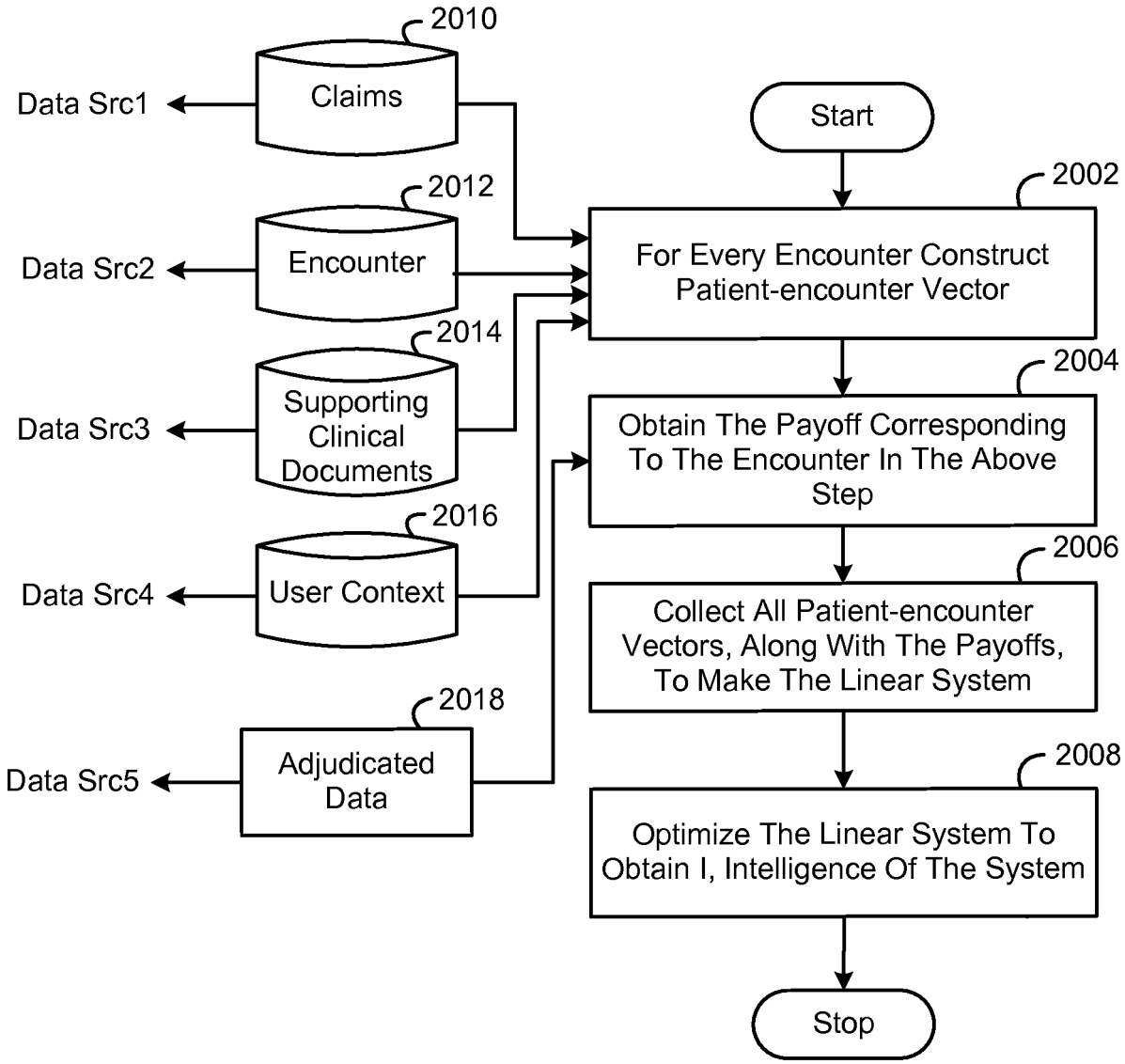

2010
Claims
Data Src1
2012
Encounter
Data Src2
2014
Supporting Clinical Documents
Data Src3
2016
User Context
Data Src4
2018
Adjudicated Data
Data Src5
Start
2002
For Every Encounter Construct Patient-encounter Vector
2004
Obtain The Payoff Corresponding To The Encounter In The Above Step
2006
Collect All Patient-encounter Vectors, Along With The Payoffs, To Make The Linear System
2008
Optimize The Linear System To Obtain I, Intelligence Of The System
Stop

FIG. 20

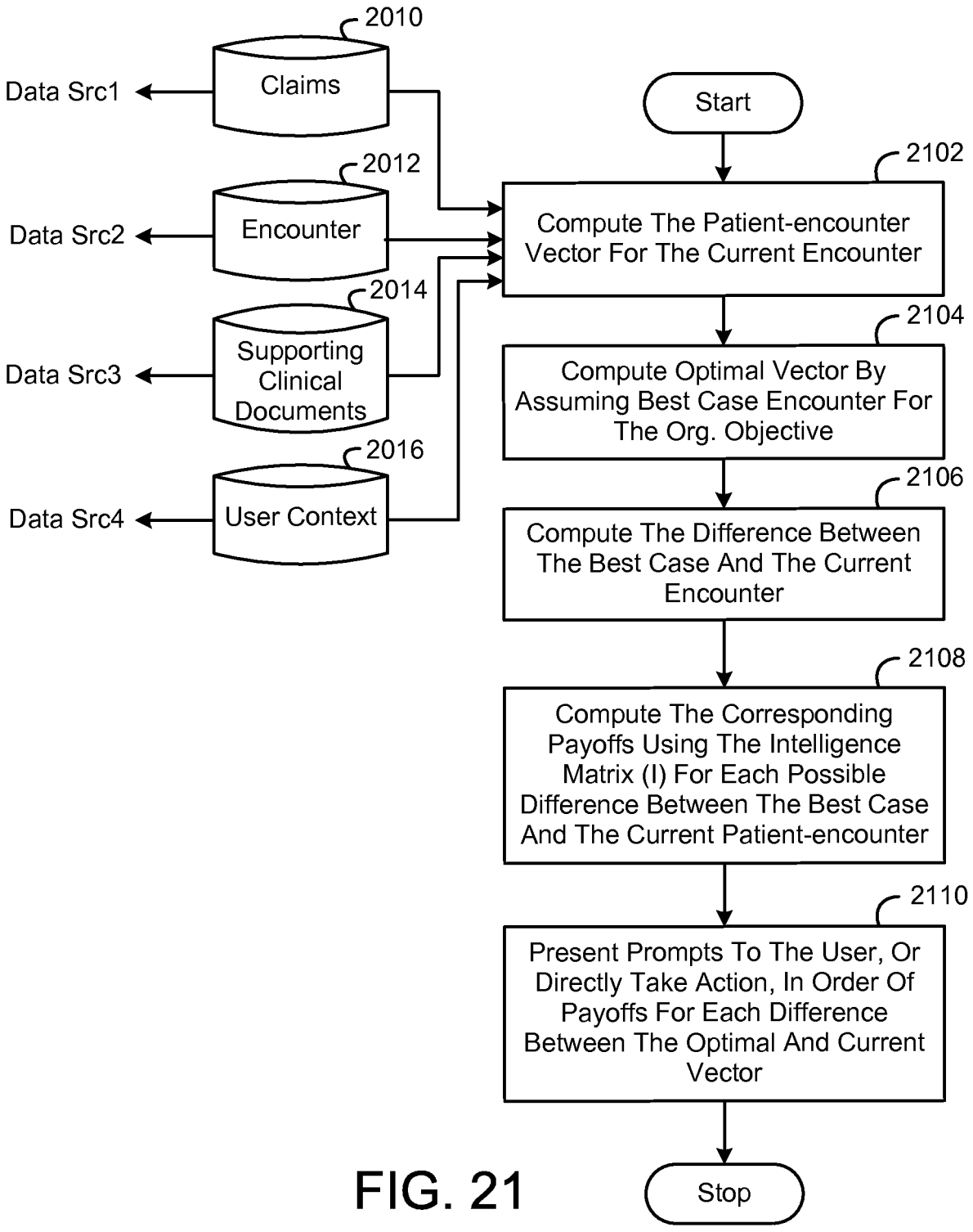

2010
Claims
Data Src1
2012
Encounter
Data Src2
2014
Supporting Clinical Documents
Data Src3
2016
User Context
Data Src4
Start
2102
Compute The Patient-encounter Vector For The Current Encounter
2104
Compute Optimal Vector By Assuming Best Case Encounter For The Org. Objective
2106
Compute The Difference Between The Best Case And The Current Encounter
2108
Compute The Corresponding Payoffs Using The Intelligence Matrix (I) For Each Possible Difference Between The Best Case And The Current Patient-encounter
2110
Present Prompts To The User, Or Directly Take Action, In Order Of Payoffs For Each Difference Between The Optimal And Current Vector
Stop

FIG. 21