



(51) International Patent Classification:

G06Q 10/10 (2012.01) G06F 15/00 (2006.01)

(21) International Application Number:

PCT/IN2016/000192

(22) International Filing Date:

19 July 2016 (19.07.2016)

(25) Filing Language:

English

(26) Publication Language:

English

(71) Applicant: MINACS PRIVATE LIMITED [IN/IN]; 3rd Floor, Millennium Towers, ITPL Road, Brookefields, Bengaluru, Karnataka 560 037 (IN).

(72) Inventors: RINGH, Rajeev; RG210, Purva Riviera, Old Airport Road, Marathahalli, Bengaluru 560 037, Karnataka (IN). SAHA, Kaushik; #104, Sri Balaji Residency,

2nd Main, Maithri Layout, Whitefield, Channasandra Main Road, Near Hopefarm Signal, Bengaluru 560 066, Karnataka (IN). SUNTHE, Annasaheb Kashinath; G-1, Suraksha Residency, #48, 4th Cross, K R Layout, 6th Phase, J P Nagar, Bengaluru 560 102, Karnataka (IN).

(74) Agent: MR. DEV ROBINSON; Shardul Amarchand Mangaldas & Co., 216, Amarchand Towers, Okhla Industrial Estate, Phase III, New Delhi-110 020 (IN).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE,

(54) Title: SYSTEM AND METHOD FOR EFFICIENTLY PROCESSING TRANSACTIONS BY AUTOMATING RESOURCE ALLOCATION

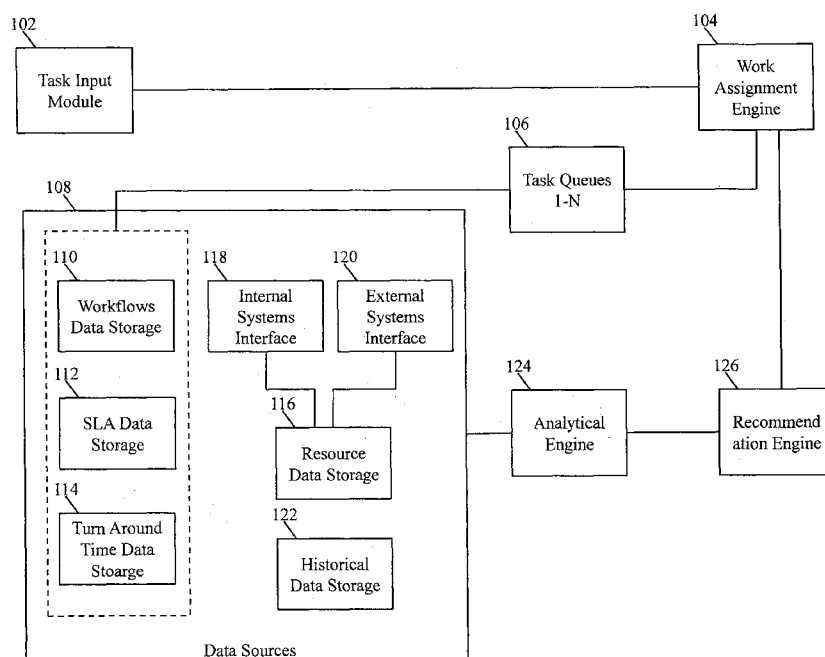


FIG. 1

(57) Abstract: A system, computer-implemented method and computer program product for processing transactions by automating resource allocation is provided. The system comprises a task input module configured to receive one or more requests for processing of transactions of enterprises. The system further comprises a work assignment engine configured to classify and assign a priority value to each of the one or more received requests. Furthermore, the system comprises task queues configured to queue the one or more classified requests based on the assigned priority value, identify workflows corresponding to each of the one or more classified requests and fetch data corresponding to the identified workflows from data sources. In addition, the system comprises an analytical engine configured to analyse the fetched data using pre-stored algorithms and pre-stored rules. Also, the system comprises a recommendation engine configured to determine options for allocating the one or more resources for processing of the transactions.

SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ,
UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*
- *of inventorship (Rule 4.17(iv))*

Published:

- *with international search report (Art. 21(3))*
-

System and Method for Efficiently Processing Transactions by Automating Resource Allocation

Field of the invention

5

[0001] The present invention relates generally to resource allocation. More particularly, the present invention provides a system and method for efficiently processing transactions by automating resource allocation.

Background of the invention

10

15

[0002] Enterprises such as financial institutions and insurance companies need to process numerous transactions on a daily basis. It is of paramount importance that enterprises adhere to Service Level Agreements (SLAs) and agreed Turn Around Time (TAT) while processing the transactions. In order to achieve this, enterprise must efficiently allocate work amongst the available resources.

20

25

30

[0003] Conventionally, various systems and methods exist for processing transactions by automating resource allocation. For example, systems and methods exist that automatically allocate resources to meet desired SLAs for processing transactions. The existing systems and methods take into consideration information related to resources such as availability, skill set, experience, time efficiency etc. However, the existing systems and methods suffer from several disadvantages. The above-mentioned systems and methods do not analyze the information associated with resources for providing multiple options to stakeholders for allocating resources based on different criteria. Further, the existing systems and methods do not monitor and analyze processing of transaction at every stage of processing and therefore are unable to re-allocate resources to meet dynamic scenarios. Furthermore, the existing systems and methods do not source information from external systems that impact transaction processing.

[0004] In light of the abovementioned disadvantages, there is a need for a system and method for efficiently processing transactions by automating resource allocation.

Further, there is a need for a system and method that analyzes information related to one or more resources and provides multiple options for resource allocation based on different criteria. Furthermore, there is a need for a system and method that monitors and analyzes processing of transaction at every stage of processing and re-allocates resources to meet dynamic scenarios. In addition, there is a need for a system and method that sources information from external systems that impact transaction processing for efficient resource allocation.

Summary of the invention

[0005] A system, computer-implemented method and computer program product for processing transactions by automating resource allocation is provided. The system comprises a task input module configured to receive one or more requests for processing of one or more transactions of one or more enterprises. The system further comprises a work assignment engine configured to classify and assign a priority value to each of the one or more received requests, wherein the one or more received requests are classified based on type of the one or more received requests. Furthermore, the system comprises one or more task queues configured to queue the one or more classified requests based on the priority value assigned to each of the one or more classified requests, identify one or more workflows corresponding to each of the one or more classified requests and fetch data corresponding to the identified one or more workflows from one or more data sources. In addition, the system comprises an analytical engine configured to analyse the fetched data using one or more pre-stored algorithms and one or more pre-stored rules. Also, the system comprises a recommendation engine configured to determine one or more options for allocating the one or more resources for processing of the one or more transactions, wherein the one or more options are determined based on one or more criteria.

[0006] In an embodiment of the present invention, the one or more enterprises comprise banks, non-banking financial companies, financial institutions, Micro, Small and Medium Enterprises (MSMEs), Small and Medium-sized Enterprises (SMEs), trade finance companies, insurance companies and brokerage firms. In an embodiment of the present invention, the type of the one or more requests received by

the banks comprise request for opening an account, request for issuing new chequebook, request for issuing new passbook, request for loan and request for closing an account. In an embodiment of the present invention, the priority value is assigned to each of the one or more classified requests based on one or more factors comprising Service Level Agreement (SLA) between parties, relationship of enterprise with customer, sector of operation, location of operation, type of request, credit worthiness of the customer, commission received by the enterprise and availability of the one or more resources.

[0007] In an embodiment of the present invention, the one or more workflows comprise information related to sequence of events and resources for processing the one or more transactions. In an embodiment of the present invention, the one or more workflows are configured by one or more users based on one or more operational factors of an enterprise comprising schedule, cost, efficiency, skills, customer priorities and any other operating factor. In an embodiment of the present invention, the one or more criteria for determining the one or more options comprise cost, schedule, efficiency, skills, customer priorities, transaction type, service level agreement, transaction commission and any other criteria.

[0008] In an embodiment of the present invention, the work assignment engine is further configured to assign the one or more received requests to the one or more resources based on the determined one or more options, track and monitor processing of the one or more transactions corresponding to the one or more assigned requests and re-assign the one or more assigned requests in case of delay in processing of the one or more transactions corresponding to the one or more assigned requests.

[0009] The computer-implemented method for processing transactions by automating resource allocation, via program instructions stored in a memory and executed by a processor, comprises receiving one or more requests for processing of one or more transactions of one or more enterprises. The computer-implemented method further comprises classifying and assigning a priority value to the one or more received requests, wherein the one or more received requests are classified based on type of the

one or more received requests. Furthermore, the computer-implemented method comprises queueing the one or more classified requests based on the priority value assigned to each of the one or more classified requests. In addition, the computer-implemented method comprises identifying one or more workflows corresponding to each of the one or more classified requests. Also, the computer-implemented method comprises fetching data corresponding to the identified one or more workflows from one or more data sources. Further, the computer-implemented method comprises analysing the fetched data from the one or more data sources using one or more pre-stored algorithms and one or more pre-stored rules. Furthermore, the computer-implemented method comprises determining one or more options for allocating the one or more resources for processing of the one or more transactions, wherein the one or more options are determined based on one or more criteria.

[0010] The computer program product for processing transactions by automating resource allocation comprises a non-transitory computer-readable medium having computer-readable program code stored thereon, the computer-readable program code comprising instructions that when executed by a processor, cause the processor to receive one or more requests for processing of one or more transactions of one or more enterprises. The processor further classifies and assigns a priority value to the one or more received requests, wherein the one or more received requests are classified based on type of the one or more received requests. Furthermore, the processor queues the one or more classified requests based on the priority value assigned to each of the one or more classified requests. In addition, the processor identifies one or more workflows corresponding to each of the one or more classified requests. Also, the processor fetches data corresponding to the identified one or more workflows from one or more data sources. The processor further analyses the fetched data from the one or more data sources using one or more pre-stored algorithms and one or more pre-stored rules. Furthermore, the processor determines one or more options for allocating the one or more resources for processing of the one or more transactions, wherein the one or more options are determined based on one or more criteria.

Brief description of the accompanying drawings

[0011] The present invention is described by way of embodiments illustrated in the accompanying drawings wherein:

5

[0012] FIG. 1 is a block diagram illustrating a system for efficiently processing transactions by automating resource allocation, in accordance with an embodiment of the present invention;

10 [0013] FIG. 2 is a flowchart illustrating a workflow corresponding to a request for Letter of Credit (LC), in accordance with an exemplary embodiment of the present invention;

[0014] FIG. 3 is a flowchart illustrating a method for efficiently processing
15 transactions by automating resource allocation, in accordance with an embodiment of the present invention; and

[0015] FIG. 4 illustrates an exemplary computer system in which various
embodiments of the present invention may be implemented.

20

Detailed description of the invention

[0016] A system and method for efficiently processing transactions by automating resource allocation is described herein. The invention provides for a system and
25 method that analyzes information related to one or more resources and provides multiple options for resource allocation based on different criteria. The invention further provides for a system and method that monitors and analyzes processing of transaction at every stage of processing and re-allocates resources to meet dynamic scenarios. Furthermore, the invention provides for a system and method that sources
30 information from external systems that impact transaction processing for efficient resource allocation.

[0017] The following disclosure is provided in order to enable a person having ordinary skill in the art to practice the invention. Exemplary embodiments are provided only for illustrative purposes and various modifications will be readily apparent to persons skilled in the art. The general principles defined herein may be applied to other embodiments and applications without departing from the spirit and scope of the invention. Also, the terminology and phraseology used is for the purpose of describing exemplary embodiments and should not be considered limiting. Thus, the present invention is to be accorded the widest scope encompassing numerous alternatives, modifications and equivalents consistent with the principles and features disclosed. For purpose of clarity, details relating to technical material that is known in the technical fields related to the invention have not been described in detail so as not to unnecessarily obscure the present invention.

[0018] The present invention would now be discussed in context of embodiments as illustrated in the accompanying drawings.

[0019] FIG. 1 is a block diagram illustrating a system 100 for efficiently processing transactions by automating resource allocation, in accordance with an embodiment of the present invention. The system 100 comprises a task input module 102, a work assignment engine 104, one or more task queues 106, data sources 108, an analytical engine 124 and a recommendation engine 126.

[0020] The task input module 102 is configured to receive one or more requests for processing of one or more transactions corresponding to one or more enterprises. In an embodiment of the present invention, the one or more enterprises include, but not limited to, banks, non-banking financial companies, financial institutions, Micro, Small and Medium Enterprises (MSMEs), Small and Medium-sized Enterprises (SMEs), trade finance companies, insurance companies and brokerage firms. In an embodiment of the present invention, type of the one or more requests received by a financial institution such as a bank include, but not limited to, request for opening an account, request for issuing new cheque/pass book, request for loan, request for closing an account and the like. In an embodiment of the present invention, types of requests received by an insurance company include, but not limited to, a request for

new insurance policy, a request for processing of an insurance claim, a request for change of nominee and the like. The one or more received requests are forwarded to the work assignment engine 104.

- 5 [0021] The work assignment engine 104 classify and assigns a priority value to the one or more received requests using one or more pre-defined dynamic rules. In an embodiment of the present invention, the one or more received requests are classified based on the type of the one or more received requests. Further, the priority value is assigned to each of the one or more classified requests based on one or more factors
- 10 such as, but not limited to, SLA between parties, relationship of the enterprise with customer, sector of operation, location of operation, type of request, credit worthiness of the customer, commission received by the enterprise and availability of the resources. Further, the work assignment engine 104 communicates with one or more enterprise systems to seek information related to availability of one or more resources.
- 15 The work assignment engine 104 then forwards the one or more classified requests to the one or more task queues corresponding to the type of request/transaction.

- [0022] The one or more task queues 106 are configured to queue the one or more classified requests based on the assigned priority value. Further, the one or more task
- 20 queues 106 communicate with the one or more data sources 108 to fetch data corresponding to the one or more classified requests based on the transaction type.

- [0023] The one or more data sources 108 comprise workflows data storage 110, a Service Level Agreement (SLA) data storage 112, a Turn Around Time (TAT) data
- 25 storage 114, a resource data storage 116, an internal systems interface 118, an external systems interface 120 and an historical data storage 122.

- [0024] The workflows data storage 110 is configured to store one or more workflows for processing of the one or more transactions corresponding to the one or more
- 30 classified requests. The one or more workflows comprise information related to sequence of events and resources for processing the one or more transactions. Further,

the one or more workflows are configured by one or more users based on the needs and operational factors of the one or more enterprises including, but not limited to, schedule, cost, efficiency, skills, customer priorities and other operating factors. In an embodiment of the present invention, the one or more task queues 106 communicate
5 with the workflows data storage 110 to identify the workflow associated with each of the one or more classified requests. The information related to the identified workflow is then forwarded to the analytical engine 124 for further processing. FIG. 2 is a flowchart illustrating a workflow corresponding to a request for Letter of Credit (LC) and its approval, in accordance with an exemplary embodiment of the present
10 invention.

[0025] The SLA data storage 112 is configured to store SLA data associated with the one or more workflows. In an embodiment of the present invention, the SLA data comprises information related to timelines for executing entire workflows and each
15 event of the workflows. The SLA data storage 112 forwards the SLA data associated with the identified workflow to the analytical engine 124.

[0026] The TAT data storage 114 is configured to store TAT data associated with processing of past transactions. The TAT data associated with processing of the past
20 transactions include, but not limited, overall time taken to complete entire workflows and time taken by each of the one or more resources at each event of the workflows corresponding to the past transactions. The TAT data associated with the identified workflow is forwarded to the analytical engine 124.

[0027] The resource data storage 116 is configured to store data related to the one or more resources required for processing of transaction corresponding to the identified workflow. The one or more resources comprise human resources and system
25 resources. The data related to the human resources include, but not limited to, domain knowledge, skill set, experience and cost of the human resources. In an embodiment of the present invention, the data related to the human resources is sourced from a
30 human resource management system of the enterprise and stored in the resource data storage 116. The data related to system resources comprise information related to

systems involved in the processing of the one or more transactions. The systems involved in the processing of the one or more transactions include internal systems of the enterprise and external systems. The resource data storage 116 communicates with the internal systems of the enterprise via the internal systems interface 118. The internal systems include, but not limited to, human resource management system, customer information databases, enterprise hardware components such as, but not limited to, printers, scanners and facsimile machines and the like. The resource data storage 116 communicates with the external systems of the enterprise via the external systems interface 120. In an embodiment of the present invention, the external systems involved in the processing of the one or more transactions for a financial institution comprise, but not limited to, Anti-Money Laundering (AML) transaction monitoring systems, Office of Foreign Assets Control (OFAC) system, credit agencies and fraud and risk analysis systems. The resource data corresponding to the identified workflow is also forwarded to the analytical engine 124 for further processing.

[0028] The historical data storage 122 is configured to store historical data corresponding to past recommendations and transactions from the recommendation engine 126. The historical data include, but not limited to, past recommendations and related contextual information. The contextual information related to the past recommendations comprise information such as, but not limited to, transaction type, volume, time and resources utilized for processing, customer type and transaction priority. The historical data corresponding to the identified workflow is forwarded along with the data from other data sources to the analytical engine 124.

[0029] The analytical engine 124 is configured to analyze the data corresponding to the identified workflow received from the one or more data sources 108 using one or more pre-stored algorithms and one or more pre-stored rules. The analytical engine 124 analyzes the defined SLA and historical TAT corresponding to the identified workflow, resource competency, resource cost, resource experience and past recommendations along with their contextual information and applies the one or more pre-stored algorithms and the one or more pre-stored rules. The analyzed data is forwarded to the recommendation engine 126.

[0030] The recommendation engine 126 provides one or more options for efficient allocation of the one or more requests to the one or more resources by further processing the analyzed data from the analytical engine 124. The recommendation engine 126 is configured to process the analyzed data, received from the analytical engine 124, and check the identified workflow to determine any deviations/logic associated with the identified workflow for recommending the one or more resources. In an embodiment of the present invention, the recommendation engine 126 utilizes the analyzed data and the configuration data associated with the identified workflow such as, but not limited to, resource costing, resource skills, schedule, operation priorities, financial transaction type and the like to determine the one or more options for efficiently allocating the one or more requests. The recommendation engine 126 uses various algorithms such as, but not limited to, critical path method, assignment algorithms and linear and dynamic programming models during processing to determine the one or more options for allocating the one or more requests to the one or more resources.

[0031] In an embodiment of the present invention, the one or more options are determined by the recommendation engine 126 based on one or more criteria. Further, the one or more criteria are selected based on results generated by executing the critical path algorithm. In an embodiment of the present invention, the recommendation engine 126 provides options to the one or more users to define the one or more criteria in the form of one or more dynamic rules. The one or more criteria include, but not limited to, cost, schedule, efficiency, skills, customer priorities, transaction type, defined SLA, transaction commission and any other criteria. In an embodiment of the present invention, the recommendation engine 126 determines the most cost efficient option for processing the transaction corresponding to a request. In another embodiment of the present invention, the recommendation engine 126 determines the most time efficient option for processing the transaction. In yet another embodiment of the present invention, the recommendation engine 126 recommends the best available resource for processing the transaction based on the skills of the resource for a particular request.

[0032] Once the one or more options for allocating the one or more requests are determined, the one or more received requests are assigned to the one or more resources based on the one or more determined options via the work assignment engine 104. Further, the work assignment engine 104 continuously tracks and monitors processing of the one or more transactions corresponding to the one or more assigned requests to ensure adhering to the SLAs. Furthermore, the work assignment engine 104 and the recommendation engine 126 also facilitate re-assigning the one or more assigned requests in case of delay in processing at any stage of the one or more transactions corresponding to the one or more assigned requests. In an embodiment of the present invention, the one or more assigned requests are re-assigned to the next best available resource.

[0033] FIG. 3 is a flowchart illustrating a method for efficiently processing transactions by automating resource allocation, in accordance with an embodiment of the present invention.

[0034] At step 302, one or more requests for processing of one or more transactions of one or more enterprises are received. In an embodiment of the present invention, the one or more enterprises include, but not limited to, banks, non-banking financial companies, financial institutions, Micro, Small and Medium Enterprises (MSMEs), Small and Medium-sized Enterprises (SMEs), trade finance companies, insurance companies and brokerage firms. In an embodiment of the present invention, type of one or more requests received by a financial institution such as a bank include, but not limited to, request for opening an account, request for issuing new cheque/pass book, request for loan, request for closing an account and the like. In an embodiment of the present invention, type of requests received by an insurance company include, but not limited to, request for new insurance policy, request for processing of an insurance claim, request for change of nominee and the like.

[0035] At step 304, the one or more received requests are classified and assigned a priority value using one or more pre-defined dynamic rules. In an embodiment of the present invention, the one or more received requests are classified based on the type

of the one or more received requests. Further, the priority value is assigned to each of the one or more classified requests based on one or more factors such as, but not limited to, SLA between parties, relationship of the enterprise with customer, sector of operation, location of operation, type of request, credit worthiness of the customer, commission received by the enterprise and availability of the resources.

10

[0036] At step 306, each of the one or more classified requests are queued to corresponding task queues based on the type and the priority value assigned to each of the one or more classified requests.

[0037] At step 308, data corresponding to the one or more classified requests is fetched, based on their transaction type, from one or more data sources.

15

[0038] In an embodiment of the present invention, the one or more data sources include, but not limited to, workflows data storage, Service Level Agreement (SLA) data storage, Turn Around Time (TAT) data storage, resource data storage, and historical data storage. The workflows data storage is configured to store one or more workflows for processing of the one or more transactions corresponding to the one or more classified requests. The one or more workflows comprise information related to sequence of events and required resources for processing the one or more transactions. Further, the one or more workflows are configured by one or more users based on the needs and operational factors of the one or more enterprises including, but not limited to, schedule, cost, efficiency, skills, customer priorities and any other operating factor.

25

[0039] In an embodiment of the present invention, the one or more task queues communicate with the workflows data storage to identify the one or more workflows associated with each of the one or more classified requests. The one or more task queues then fetch data corresponding to the identified one or more workflows from other components of the one or more data sources.

30

[0040] The SLA data storage is configured to store SLA data associated with the one or more workflows. In an embodiment of the present invention, the SLA data comprises information related to timelines for executing entire workflows and each event of the workflows.

5

[0041] The TAT data storage is configured to store TAT data associated with processing of past transactions. The TAT data associated with processing of the past transactions include, but not limited, overall time taken to complete entire workflows and time taken by each of the one or more resources at each event of the workflows corresponding to the past transactions.

10

[0042] The resource data storage is configured to store data related to the one or more resources required for processing of transaction corresponding to the identified workflow. The one or more resources comprise human resources and system resources of the enterprise. The data related to the human resources include, but not limited to, domain knowledge, skill set, experience and cost of the human resources. The data related to system resources comprise information related to systems involved in the processing of the one or more transactions. The systems involved in the processing of the one or more transactions include internal systems of the enterprise and external systems. The internal systems of the enterprise include, but not limited to, human resource management system, customer information databases, enterprise hardware components such as, but not limited to, printers, scanners and facsimile machines and the like. In an exemplary embodiment of the present invention, the external systems involved in the processing of the one or more transactions for a financial institution comprise, but not limited to, Anti-Money Laundering (AML) transaction monitoring systems, Office of Foreign Assets Control (OFAC) system, credit agencies and fraud and risk analysis systems.

15

20

25

[0043] The historical data storage is configured to store historical data corresponding to past recommendations and transactions. The historical data include, but not limited to, past recommendations and related contextual information. The contextual information related to the past recommendations comprise information such as, but

30

not limited to, transaction type, volume, time and resources utilized for processing, customer type and transaction priority.

5 [0044] Once data associated with the one or more identified workflows corresponding to each of the one or more classified requests is fetched from the one or more data sources, the control is transferred to step 310.

10 [0045] At step 310, the fetched data corresponding to the one or more classified requests is analyzed and processed to determine one or more options for efficient allocation of the one or more classified requests to the one or more resources. In an embodiment of the present invention, the fetched data is analyzed using one or more pre-stored algorithms and one or more pre-stored rules. The analyzed data is then processed to determine one or more options for efficient allocation of the one or more requests to the one or more resources for processing. In an embodiment of the present
15 invention, the configuration data such as, but not limited to, resource costing, resource skills, schedule, operation priorities, financial transaction type and the like associated with the identified workflow is used to determine the one or more options for efficiently allocating the one or more requests. Various algorithms such as, but not limited to, critical path method, assignment algorithms linear and dynamic
20 programming models are also used to determine the one or more options for allocating the one or more requests to the one or more resources.

[0046] In an embodiment of the present invention, the one or more options are determined based on one or more criteria. Further, the one or more criteria are
25 selected based on results generated by executing the critical path algorithm. In an embodiment of the present invention, the one or more users define the one or more criteria in the form of one or more dynamic rules. The one or more criteria include, but not limited to, cost, schedule, efficiency, skills, customer priorities, transaction type, defined SLA and transaction commission.

30

[0047] Once the one or more options for allocating the one or more requests are determined, the one or more requests are assigned to the one or more resources based on the one or more determined options. Further, processing of the one or more transactions corresponding to the one or more assigned requests is continuously tracked and monitored to ensure adhering to the SLAs. Furthermore, the one or more assigned requests are re-assigned in case of delay in processing of the one or more transactions corresponding to the one or more assigned requests.

[0048] FIG. 4 illustrates an exemplary computer system in which various embodiments of the present invention may be implemented.

[0049] The computer system 402 comprises a processor 404 and a memory 406. The processor 404 executes program instructions and may be a real processor. The processor 404 may also be a virtual processor. The computer system 402 is not intended to suggest any limitation as to scope of use or functionality of described embodiments. For example, the computer system 402 may include, but not limited to, a general-purpose computer, a programmed microprocessor, a micro-controller, a peripheral integrated circuit element, and other devices or arrangements of devices that are capable of implementing the steps that constitute the method of the present invention. In an embodiment of the present invention, the memory 406 may store software for implementing various embodiments of the present invention. The computer system 402 may have additional components. For example, the computer system 402 includes one or more communication channels 408, one or more input devices 410, one or more output devices 412, and storage 414. An interconnection mechanism (not shown) such as a bus, controller, or network, interconnects the components of the computer system 402. In various embodiments of the present invention, operating system software (not shown) provides an operating environment for various softwares executing in the computer system 402, and manages different functionalities of the components of the computer system 402.

[0050] The communication channel(s) 408 allow communication over a communication medium to various other computing entities. The communication medium provides information such as program instructions, or other data in a

communication media. The communication media includes, but not limited to, wired or wireless methodologies implemented with an electrical, optical, RF, infrared, acoustic, microwave, bluetooth or other transmission media.

5 [0051] The input device(s) 410 may include, but not limited to, a keyboard, mouse, pen, joystick, trackball, a voice device, a scanning device, or any another device that is capable of providing input to the computer system 402. In an embodiment of the present invention, the input device(s) 410 may be a sound card or similar device that accepts audio input in analog or digital form. The output device(s) 412 may include,
10 but not limited to, a user interface on CRT or LCD, printer, speaker, CD/DVD writer, or any other device that provides output from the computer system 402.

[0052] The storage 414 may include, but not limited to, magnetic disks, magnetic tapes, CD-ROMs, CD-RWs, DVDs, flash drives or any other medium which can be
15 used to store information and can be accessed by the computer system 402. In various embodiments of the present invention, the storage 414 contains program instructions for implementing the described embodiments.

[0053] The present invention may suitably be embodied as a computer program
20 product for use with the computer system 402. The method described herein is typically implemented as a computer program product, comprising a set of program instructions which is executed by the computer system 402 or any other similar device. The set of program instructions may be a series of computer readable codes stored on a tangible medium, such as a computer readable storage medium (storage
25 414), for example, diskette, CD-ROM, ROM, flash drives or hard disk, or transmittable to the computer system 402, via a modem or other interface device, over either a tangible medium, including but not limited to optical or analogue communications channel(s) 408. The implementation of the invention as a computer program product may be in an intangible form using wireless techniques, including
30 but not limited to microwave, infrared, bluetooth or other transmission techniques. These instructions can be preloaded into a system or recorded on a storage medium such as a CD-ROM, or made available for downloading over a network such as the

internet or a mobile telephone network. The series of computer readable instructions may embody all or part of the functionality previously described herein.

5 [0054] The present invention may be implemented in numerous ways including as an apparatus, method, or a computer program product such as a computer readable storage medium or a computer network wherein programming instructions are communicated from a remote location.

10 [0055] While the exemplary embodiments of the present invention are described and illustrated herein, it will be appreciated that they are merely illustrative. It will be understood by those skilled in the art that various modifications in form and detail may be made therein without departing from or offending the spirit and scope of the invention as defined by the appended claims.

15

20

25

30

Claims:

1. A system for processing transactions by automating resource allocation, the system comprising:

5

a task input module configured to receive one or more requests for processing of one or more transactions of one or more enterprises;

10

a work assignment engine configured to classify and assign a priority value to each of the one or more received requests, wherein the one or more received requests are classified based on type of the one or more received requests;

one or more task queues configured to:

15

queue the one or more classified requests based on the priority value assigned to each of the one or more classified requests;

identify one or more workflows corresponding to each of the one or more classified requests; and

fetch data corresponding to the identified one or more workflows from one or more data sources;

20

an analytical engine configured to analyse the fetched data using one or more pre-stored algorithms and one or more pre-stored rules; and

25

a recommendation engine configured to determine one or more options for allocating the one or more resources for processing of the one or more transactions, wherein the one or more options are determined based on one or more criteria.

30

2. The system of claim 1, wherein the one or more enterprises comprise banks, non-banking financial companies, financial institutions, Micro, Small and Medium Enterprises (MSMEs), Small and Medium-sized Enterprises (SMEs), trade finance companies, insurance companies and brokerage firms.

3. The system of claim 2, wherein the type of the one or more requests received by the banks comprise request for opening an account, request for issuing new chequebook, request for issuing new passbook, request for loan and request for closing an account.

5

4. The system of claim 1, wherein the priority value is assigned to each of the one or more classified requests based on one or more factors comprising Service Level Agreement (SLA) between parties, relationship of enterprise with customer, sector of operation, location of operation, type of request, credit worthiness of the customer, commission received by the enterprise and availability of the one or more resources.

10

5. The system of claim 1, wherein the one or more workflows comprise information related to sequence of events and resources for processing the one or more transactions.

15

6. The system of claim 1, wherein the one or more workflows are configured by one or more users based on one or more operational factors of an enterprise comprising schedule, cost, efficiency, skills, customer priorities and any other operating factor.

20

7. The system of claim 1, wherein the one or more criteria for determining the one or more options comprise cost, schedule, efficiency, skills, customer priorities, transaction type, service level agreement, transaction commission and any other criteria.

25

8. The system of claim 1, wherein the work assignment engine is further configured to:

assign the one or more received requests to the one or more resources based on the determined one or more options;
track and monitor processing of the one or more transactions corresponding to the one or more assigned requests; and

30

re-assign the one or more assigned requests in case of delay in processing of the one or more transactions corresponding to the one or more assigned requests.

- 5 9. A computer-implemented method for processing transactions by automating resource allocation, via program instructions stored in a memory and executed by a processor, the computer-implemented method comprising:

10 receiving one or more requests for processing of one or more transactions of one or more enterprises;

classifying and assigning a priority value to the one or more received requests, wherein the one or more received requests are classified based on type of the one or more received requests;

15

queueing the one or more classified requests based on the priority value assigned to each of the one or more classified requests;

20 identifying one or more workflows corresponding to each of the one or more classified requests;

fetching data corresponding to the identified one or more workflows from one or more data sources;

25 analysing the fetched data from the one or more data sources using one or more pre-stored algorithms and one or more pre-stored rules; and

30 determining one or more options for allocating the one or more resources for processing of the one or more transactions, wherein the one or more options are determined based on one or more criteria.

10. The computer-implemented method of claim 9, wherein the one or more enterprises comprise banks, non-banking financial companies, financial institutions,

Micro, Small and Medium Enterprises (MSMEs), Small and Medium-sized Enterprises (SMEs), trade finance companies, insurance companies and brokerage firms.

5 11. The computer-implemented method of claim 10, wherein the type of the one or more requests received by the banks comprise request for opening an account, request for issuing new chequebook, request for issuing new passbook, request for loan and request for closing an account.

10 12. The computer-implemented method of claim 9, wherein the priority value is assigned to each of the one or more classified requests based on one or more factors comprising Service Level Agreement (SLA) between parties, relationship of enterprise with customer, sector of operation, location of operation, type of request, credit worthiness of the customer, commission received by the enterprise and
15 availability of the one or more resources.

13. The computer-implemented method of claim 9, wherein the one or more workflows comprise information related to sequence of events and resources for processing the one or more transactions.

20

14. The computer-implemented method of claim 9, wherein the one or more workflows are configured by one or more users based on one or more operational factors of an enterprise comprising schedule, cost, efficiency, skills, customer priorities and any other operating factor.

25

15. The computer-implemented method of claim 9, wherein the one or more criteria for determining the one or more options comprise cost, schedule, efficiency, skills, customer priorities, transaction type, service level agreement, transaction commission and any other criteria.

30

16. The computer-implemented method of claim 9 further comprising:
assigning the one or more received requests to the one or more resources
based on the determined one or more options;

tracking and monitoring processing of the one or more transactions corresponding to the one or more assigned requests; and
re-assigning the one or more assigned requests in case of delay in processing of the one or more transactions corresponding to the one or more assigned requests.

17. A computer program product for processing transactions by automating resource allocation, the computer program product comprising:

10 a non-transitory computer-readable medium having computer-readable program code stored thereon, the computer-readable program code comprising instructions that when executed by a processor, cause the processor to:

15 receive one or more requests for processing of one or more transactions of one or more enterprises;

classify and assign a priority value to the one or more received requests, wherein the one or more received requests are classified based on type of the one or more received requests;

20 queue the one or more classified requests based on the priority value assigned to each of the one or more classified requests;

25 identify one or more workflows corresponding to each of the one or more classified requests;

fetch data corresponding to the identified one or more workflows from one or more data sources;

30 analyse the fetched data from the one or more data sources using one or more pre-stored algorithms and one or more pre-stored rules; and

determine one or more options for allocating the one or more resources for processing of the one or more transactions, wherein the one or more options are determined based on one or more criteria.

5

10

15

20

25

30

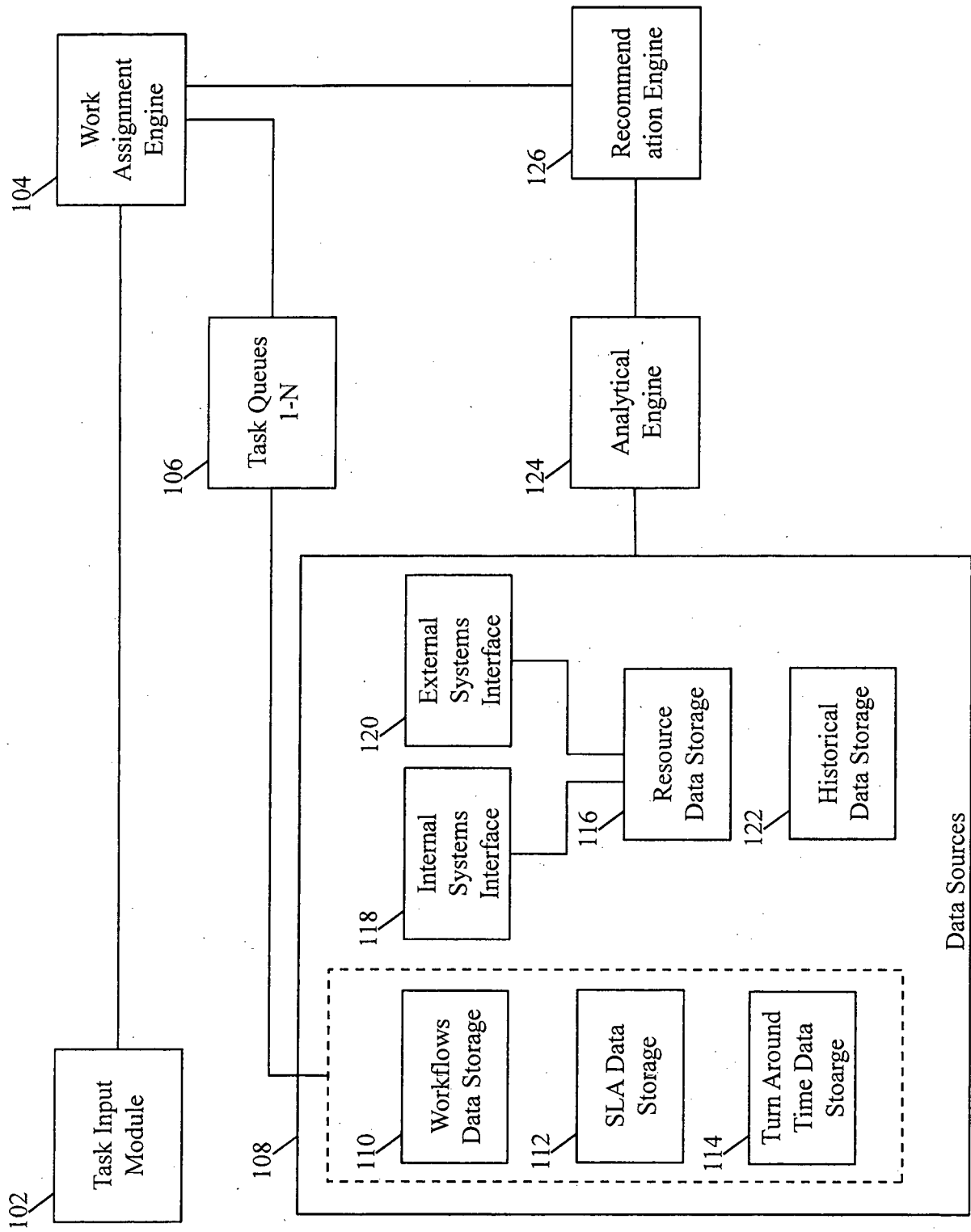


FIG. 1

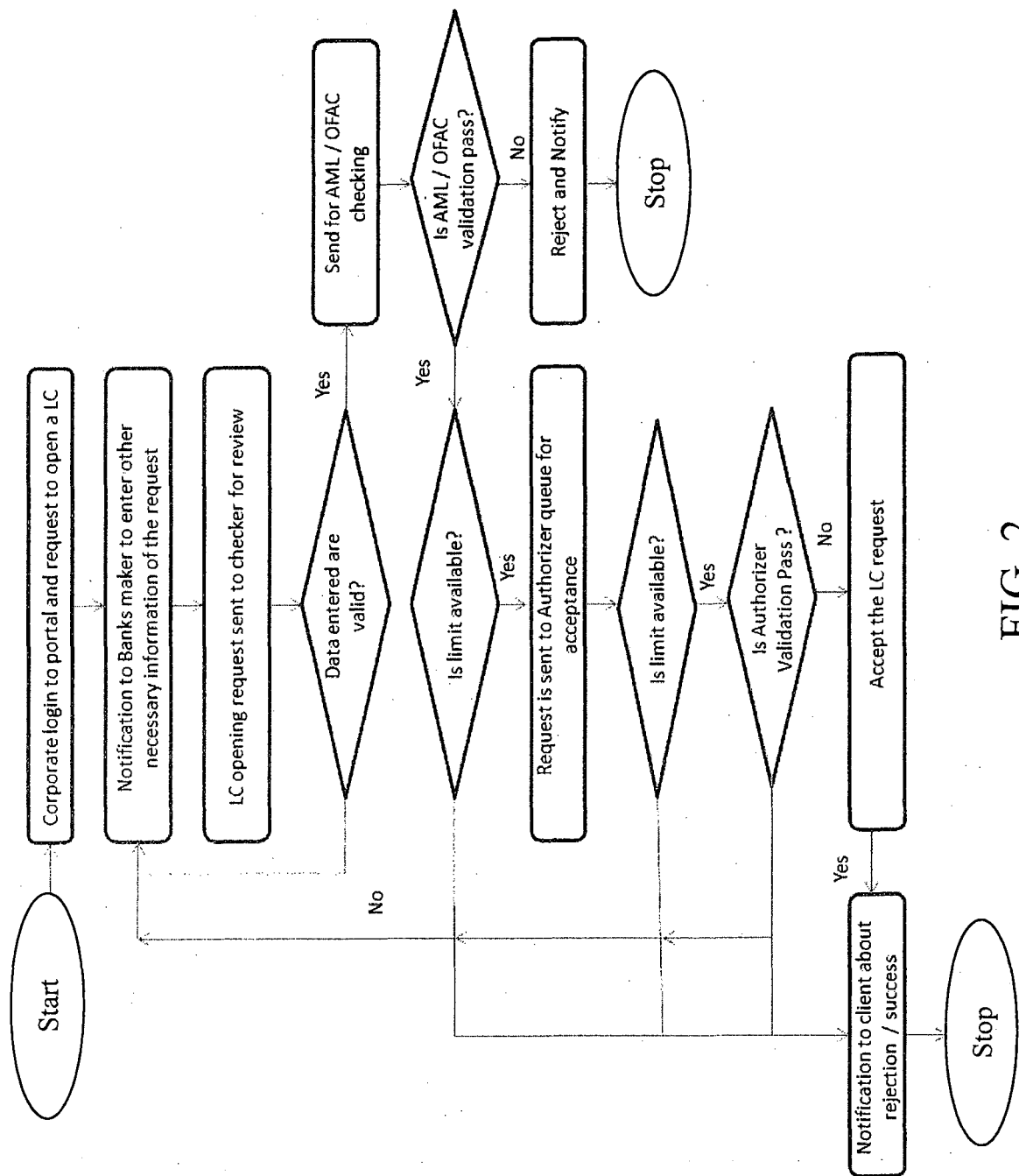


FIG. 2

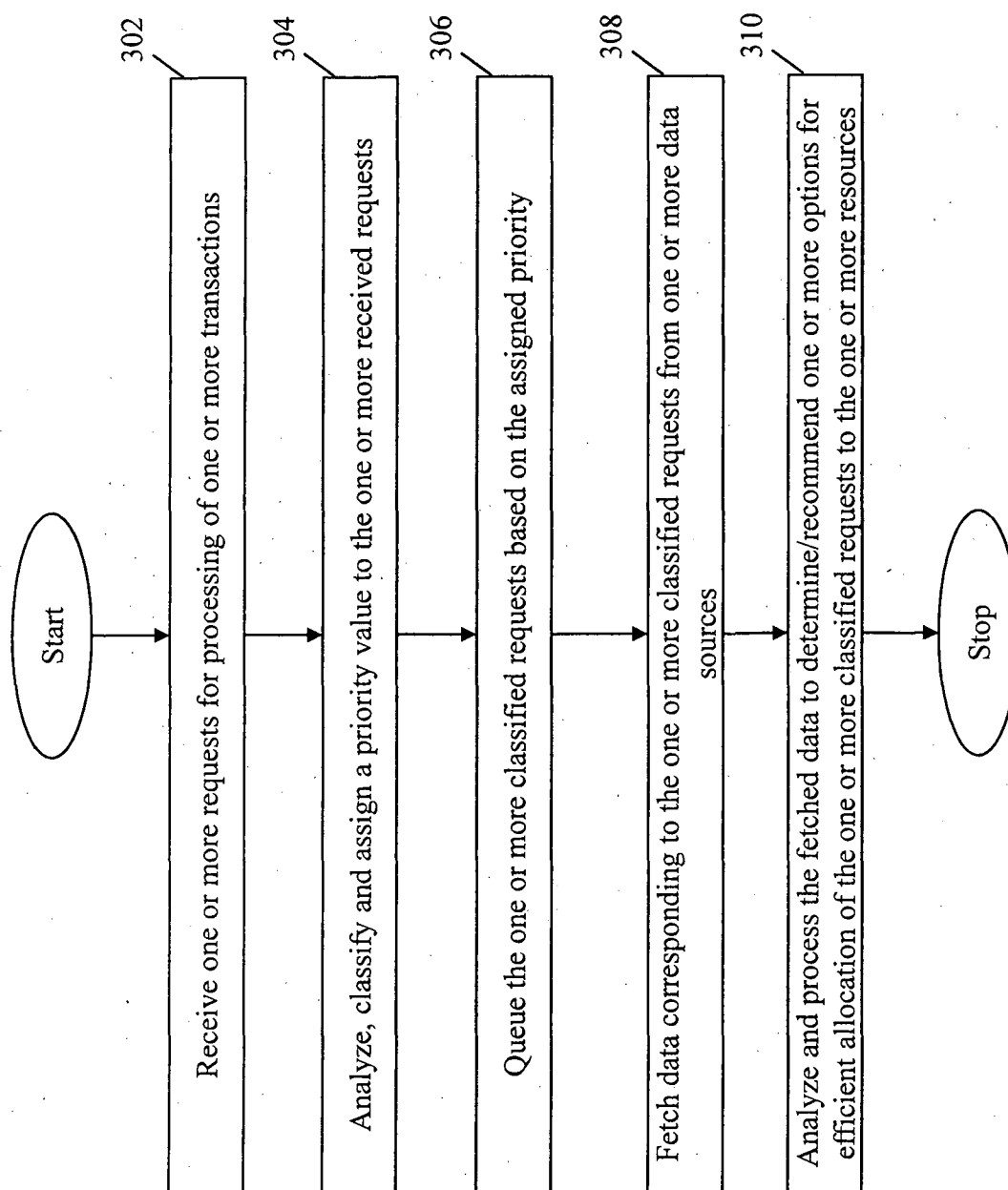


FIG. 3

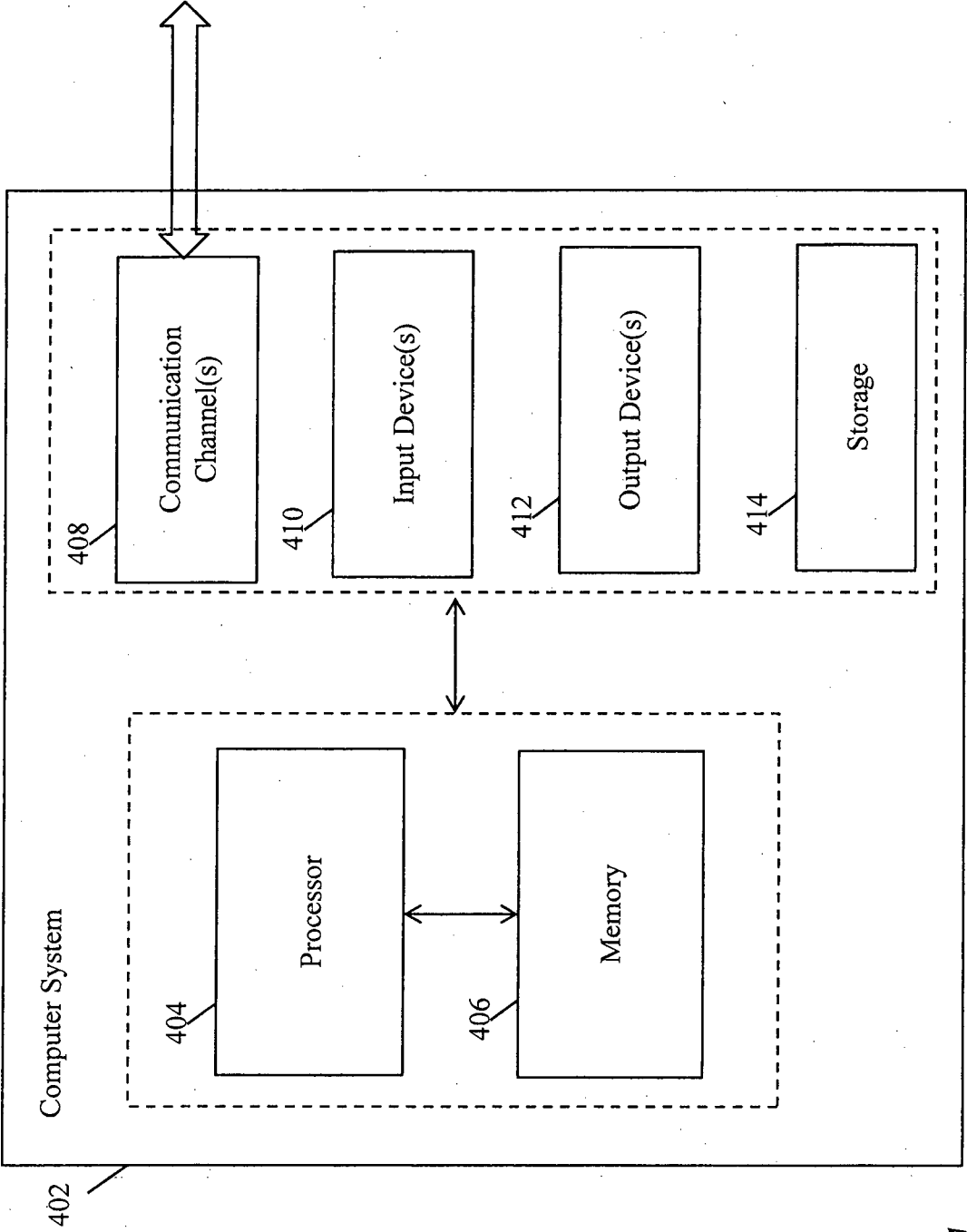


FIG. 4

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IN2016/000192

A. CLASSIFICATION OF SUBJECT MATTER

G06Q 10/10 (2012.01) G06F 15/00 (2006.01)

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPODOC, WPIAP: IPC/CPC G06F, G06Q & Keywords (resource, agent, allocation, assign, hold, queue, call, request, task, work, sla, kpi, algorithm, customer, bank, centre, contact) and like terms.

Google Patents, Google: Keywords (automatic resource allocation transaction processing, dynamic resource allocation transaction processing, call centre dynamic resource allocation, call centre dynamic resource allocation sla priority request type, customer contact centre dynamic resource allocation priority request type, call centre resource allocation prioritisation) and like terms.

Espacenet, Google Scholar, Google & IP Australia internal databases: Applicant/Inventor name search.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
	Documents are listed in the continuation of Box C	



Further documents are listed in the continuation of Box C



See patent family annex

* "A"	Special categories of cited documents: document defining the general state of the art which is not considered to be of particular relevance	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E"	earlier application or patent but published on or after the international filing date	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O"	document referring to an oral disclosure, use, exhibition or other means	"&"	document member of the same patent family
"P"	document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search
21 October 2016

Date of mailing of the international search report
21 October 2016

Name and mailing address of the ISA/AU

AUSTRALIAN PATENT OFFICE
PO BOX 200, WODEN ACT 2606, AUSTRALIA
Email address: pct@ipaustalia.gov.au

Authorised officer

MD Reza-E Rabbi
AUSTRALIAN PATENT OFFICE
(ISO 9001 Quality Certified Service)
Telephone No. 0262833141

INTERNATIONAL SEARCH REPORT		International application No.
C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		PCT/IN2016/000192
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 7936867 B1 (HILL et al.) 03 May 2011 Abstract, lines 48 to 54 column 4, lines 22 to 30 column 6, lines 37 to 48 column 6, line 51 column 10 to line 54 column 11 ; figs 1, 2,7.	1-17
X	US 8527317 B2 (HADDAD) 03 September 2013 The whole document.	1-17
X	US 7068775 B1 (LEE) 27 June 2006 The whole document.	1-17
A	US 6870926 B2 (SHAMBAUGH et al.) 22 March 2005 The whole document.	1-17

Form PCT/ISA/210 (fifth sheet) (July 2009)

INTERNATIONAL SEARCH REPORT Information on patent family members		International application No. PCT/IN2016/000192	
This Annex lists known patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.			
Patent Document/s Cited in Search Report		Patent Family Member/s	
Publication Number	Publication Date	Publication Number	Publication Date
US 7936867 B1	03 May 2011	US 7936867 B1	03 May 2011
US 8527317 B2	03 September 2013	US 2012226518 A1	06 Sep 2012
		US 8527317 B2	03 Sep 2013
		CN 102654909 A	05 Sep 2012
		CN 102654909 B	18 Nov 2015
		US 2013332224 A1	12 Dec 2013
US 7068775 B1	27 June 2006	US 7068775 B1	27 Jun 2006
US 6870926 B2	22 March 2005	US 2003086557 A1	08 May 2003
		US 6870926 B2	22 Mar 2005
End of Annex			
<div> <p>Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001.</p> <p>Form PCT/ISA/210 (Family Annex)(July 2009)</p> </div>			