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(54) Title of the Invention: **Methods and apparatus for enabling communication**  
Abstract Title: **Requesting communication (e.g. a call-back) with a call centre via a message from a user device**

(57) A method comprising: receiving a first message from a first device requesting telephonic communication (e.g. a call-back) with a second device (e.g. in call centre), the first message including data associated with a user of the first device; determining one or more contexts from the data of the received first message; and controlling provision of the determined one or more contexts to a user of the second device (e.g. the agent), e.g. providing an acoustic signal from a loudspeaker or providing the one or more context on a display. Aspects of the invention include: the first message is received via a direct messaging service (e.g. SMS, MMS, a web page having public and/or private messaging facility); updating a queue to include the first device using the received first message, the queue indicating the order for initiating telephonic communication with devices. Embodiments include receiving a first message from a first device requesting telephonic communication with a second device, the first message being received via a direct messaging service; and controlling connection of the second device to the first device via a telephonic link using the first message received from the first device.

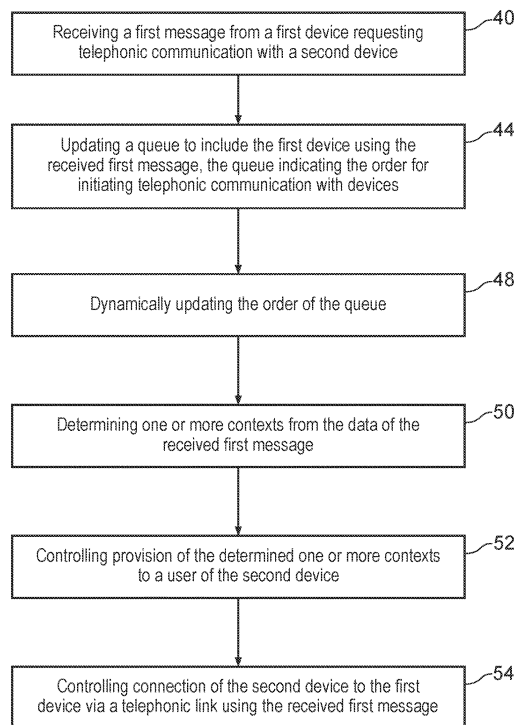


FIG. 2

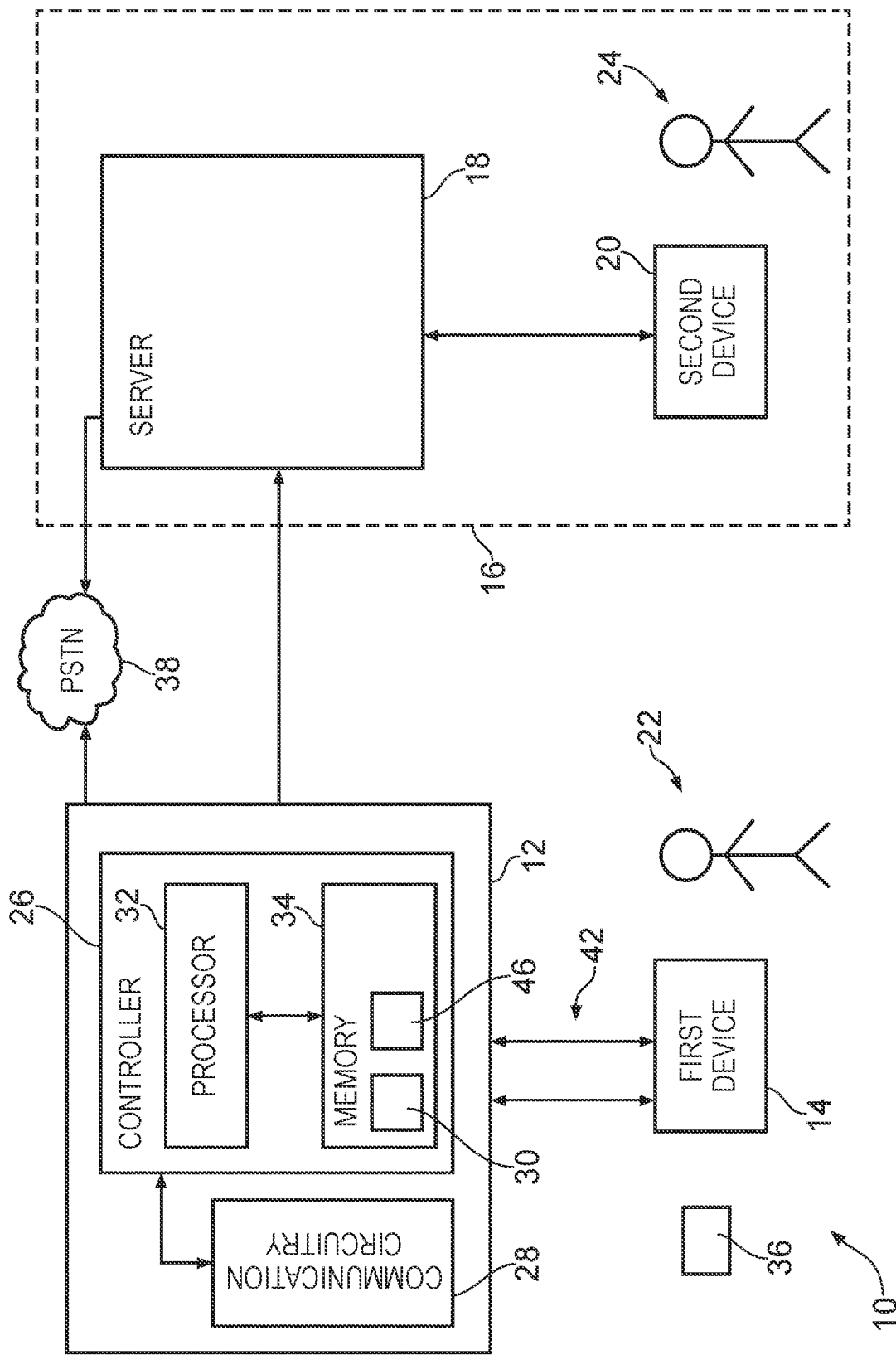


FIG. 1

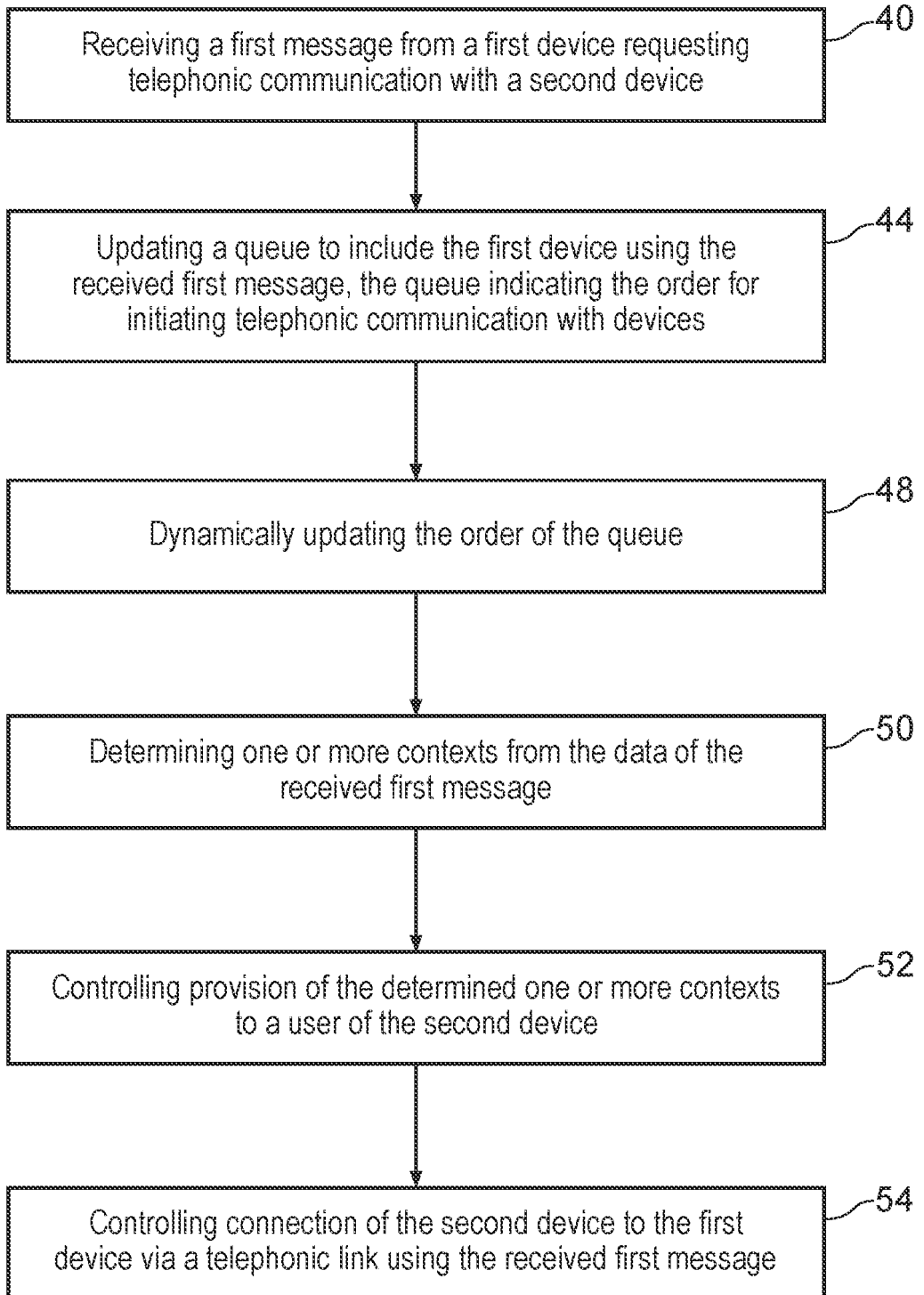


FIG. 2

15 05 15

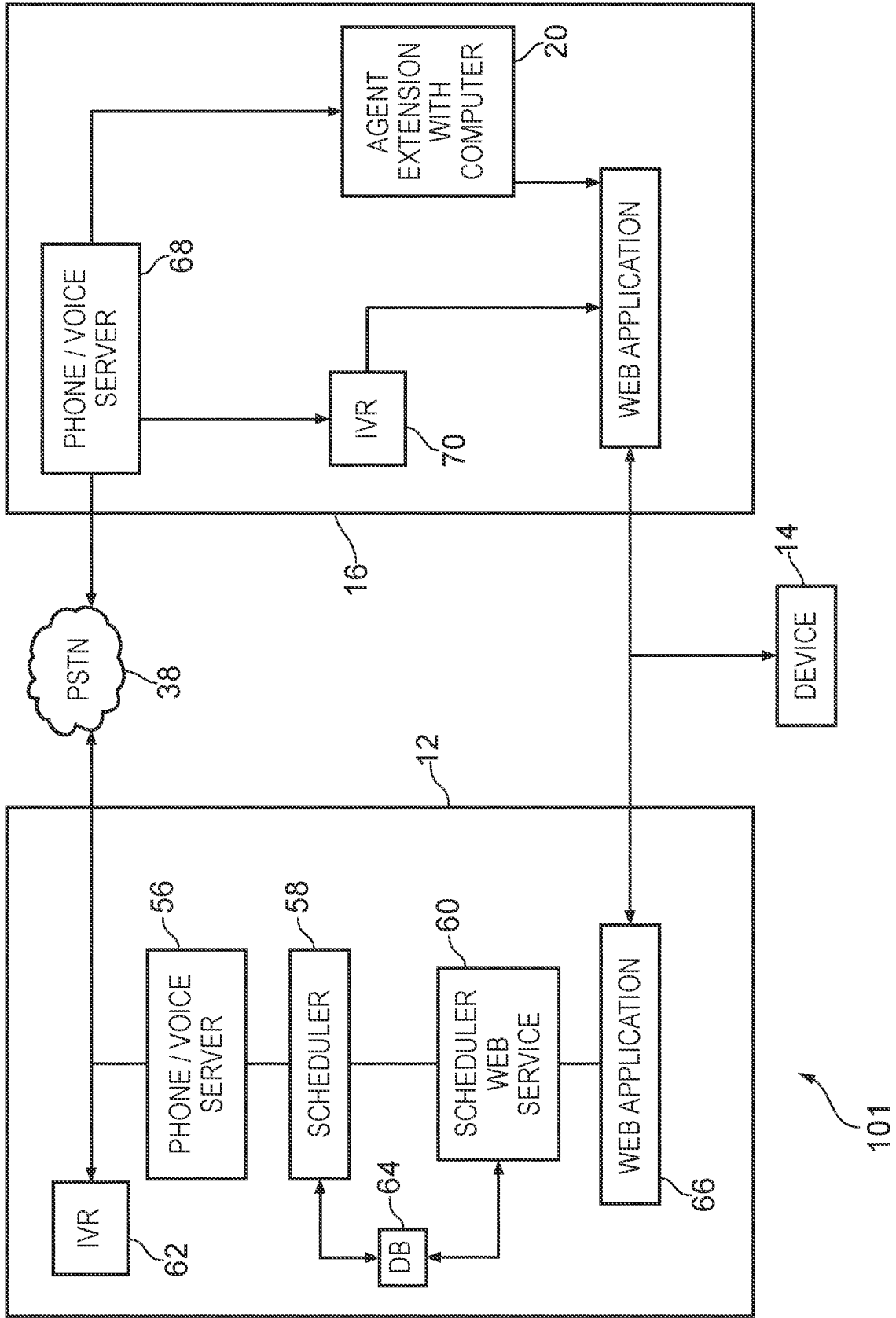


FIG. 3

## TITLE

Methods and apparatus for enabling communication

## 5 TECHNOLOGICAL FIELD

Embodiments of the present invention relate to methods and apparatus for enabling communication. In particular, they relate to methods and apparatus for enabling communication with a call centre.

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## BACKGROUND

Call centres (which may also be known as 'contact centres') are usually established to handle telephone calls for companies. For example, a company may use a call centre to handle enquiries, complaints and/or orders. A call centre may include a server connected to the public switched telephone network (PSTN) and a plurality of devices (such as telephones) for enabling agents to speak with callers who have contacted the call centre. When there are no agents available to immediately speak with a caller, the server may place the caller in a queue until an agent becomes available. However, this may frustrate the caller and damage the reputation of the company.

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## BRIEF SUMMARY

According to various, but not necessarily all, embodiments of the invention there is provided a method comprising: receiving a first message from a first device requesting telephonic communication with a second device, the first message including data associated with a user of the first device; determining one or more contexts from the data of the received first message; and controlling provision of the determined one or more contexts to a user of the second device.

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The data may be embedded in the first message.

The method may further comprise controlling connection of the second device to the first device via a telephonic link using the received first message.

5

The first message may be received via a direct messaging service.

The direct messaging service may be short messaging service (SMS).

10 The method may further comprise updating a queue to include the first device using the received first message, the queue indicating the order for initiating telephonic communication with devices.

15 The method may further comprise dynamically updating the order of the queue to include devices associated with received messages requesting telephonic communication, and to remove devices associated with cancelled or out of date messages requesting telephonic communication.

20 The first message may be received via a first communication channel, and the method may further comprise controlling provision of a second message to the first device via a second communication channel, different to the first communication channel.

25 Controlling provision of the determined one or more contexts to a user of the second device may include controlling the provision of an audio message to the user of the second device.

30 According to various, but not necessarily all, embodiments of the invention there is provided an apparatus comprising: a controller configured to: receive a first message from a first device requesting telephonic communication with a second device, the first message including data associated with a user of the first device; determine one or more contexts from the data of the received

first message; and control provision of the determined one or more contexts to a user of the second device.

The data may be embedded in the first message.

5

The controller may be configured to control connection of the second device to the first device via a telephonic link using the received first message.

The first message may be received via a direct messaging service.

10

The direct messaging service may be a short messaging service (SMS).

The controller may be configured to update a queue to include the first device using the received first message, the queue indicating the order for initiating telephonic communication with devices.

15

The controller may be configured to dynamically update the order of the queue to include devices associated with received messages requesting telephonic communication, and to remove devices associated with cancelled or out of date messages requesting telephonic communication.

20

The first message may be received via a first communication channel, and the controller may be configured to control provision of a second message to the first device via a second communication channel, different to the first communication channel.

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Controlling provision of the determined one or more contexts to a user of the second device may include controlling the provision of an audio message to the user of the second device.

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According to various, but not necessarily all, embodiments of the invention, there is provided a computer program that, when run on a computer, performs the method as described in any of the preceding paragraphs.

5 According to various, but not necessarily all, embodiments of the invention there is provided a non-transitory computer-readable storage medium encoded with instructions that, when performed by a processor, cause performance of the method as described in any of the preceding paragraphs.

10 According to various, but not necessarily all, embodiments of the invention there is provided a method comprising: receiving a first message from a first device requesting telephonic communication with a second device, the first message being received via a direct messaging service; and controlling connection of the second device to the first device via a telephonic link using  
15 the first message received from the first device.

The method may further comprise updating a queue to include the first device using the received first message, the queue indicating the order for initiating telephonic communication with devices.

20

The method may further comprise dynamically updating the order of the queue to include devices associated with received messages requesting telephonic communication, and to remove devices associated with cancelled or out of date messages requesting telephonic communication.

25

The direct messaging service may be short messaging service (SMS). The direct messaging service may be multi-media messaging service (MMS). The direct messaging service may be a web page having a public and/or private messaging facility.

30

The first message may be sent from the first device subsequent to the scanning of a Quick Response (QR) code by the first device.



The first message may be sent from the first device subsequent to the scanning of a bar code by the first device.

5 According to various, but not necessarily all, embodiments of the invention there is provided an apparatus comprising: a controller configured to: receive a first message from a first device requesting telephonic communication with a second device, the first message being received via a direct messaging service; and control connection of the second device to the first device via a  
10 telephonic link using the first message received from the first device.

The controller may be configured to update a queue to include the first device using the received first message, the queue may indicate the order for initiating telephonic communication with devices.

15

The controller may be configured to dynamically update the order of the queue to include devices associated with received messages requesting telephonic communication, and to remove devices associated with cancelled or out of date messages requesting telephonic communication.

20

The direct messaging service may be short messaging service (SMS). The direct messaging service may be multi-media messaging service (MMS). The direct messaging service may be a web page having a public and/or private messaging facility.

25

The first message may be sent from the first device subsequent to the scanning of a Quick Response (QR) code by the first device. The first message may be sent from the first device subsequent to the scanning of a bar code by the first device.

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According to various, but not necessarily all, embodiments of the invention there is provided a computer program that, when run on a computer, performs the method as described in any of the preceding paragraphs.

- 5 According to various, but not necessarily all, embodiments of the invention there is provided a non-transitory computer-readable storage medium encoded with instructions that, when performed by a processor, cause performance of the method as described in any of the preceding paragraphs.

## 10 BRIEF DESCRIPTION

For a better understanding of various examples that are useful for understanding the brief description, reference will now be made by way of example only to the accompanying drawings in which:

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Fig. 1 illustrates a schematic diagram of a communication system according to various embodiments;

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Fig. 2 illustrates a flow diagram of a method for enabling communication according to various embodiments; and

Fig. 3 illustrates a schematic diagram of another communication system according to various embodiments.

## 25 DETAILED DESCRIPTION

Fig. 1 illustrates a schematic diagram of a communication system 10 including an apparatus 12, a first device 14, and a call centre 16 comprising a server 18 and at least one second device 20.

30

By way of an overview, the communication system 10 is configured to enable telephonic communication between the first device 14 and the second device

20. A person 22 may operate the first device 14 to request the call centre 16 to contact them (i.e. they may request a call-back from the call centre 16). The apparatus 12 is arranged to receive the request from the first device 14 and place the first device 14 in a queue. When the first device 14 achieves a predetermined position within the queue (such as the top of the queue), the apparatus 12 controls connection between the second device 20 and the first device 14 via a telephonic link to enable an agent 24 to speak with the person 22.

10 The apparatus 12 (which may also be referred to as a 'server') includes a controller 26 and communication circuitry 28. The implementation of the controller 26 may be as controller circuitry. The controller 26 may be implemented in hardware alone, have certain aspects in software including firmware alone or can be a combination of hardware and software (including  
15 firmware).

As illustrated in Fig. 1, the controller 26 may be implemented using instructions that enable hardware functionality, for example, by using executable computer program instructions in a general-purpose or special-  
20 purpose processor 32 that may be stored on a computer readable storage medium 34 (disk, memory etc) to be executed by such a processor 32.

The processor 32 is configured to read from and write to the memory 34. The processor 32 may also comprise an output interface via which data and/or  
25 commands are output by the processor 32 and an input interface via which data and/or commands are input to the processor 32.

The memory 34 stores a computer program 30 comprising computer program instructions (computer program code) that controls the operation of the  
30 apparatus 12 when loaded into the processor 32. The computer program instructions, of the computer program 30, provide the logic and routines that enables the apparatus 12 to perform the methods illustrated in Fig. 2 and

described in the following paragraphs. The processor 32 by reading the memory 34 is able to load and execute the computer program 30.

5 The apparatus 12 therefore comprises: at least one processor 32; and at least one memory 34 including computer program code 30, the at least one memory 34 and the computer program code 30 configured to, with the at least one processor 32, cause the apparatus 12 at least to perform: the methods illustrated in Fig. 2 and described in the following paragraphs.

10 As illustrated in Fig. 1, the computer program 30 may arrive at the apparatus 12 via any suitable delivery mechanism 36. The delivery mechanism 36 may be, for example, a non-transitory computer-readable storage medium, a computer program product, a memory device, a record medium such as a compact disc read-only memory (CD-ROM) or digital versatile disc (DVD), an  
15 article of manufacture that tangibly embodies the computer program 30. The delivery mechanism 36 may be a signal configured to reliably transfer the computer program 30. The apparatus 12 may propagate or transmit the computer program 30 as a computer data signal.

20 Although the memory 34 is illustrated as a single component/circuitry it may be implemented as one or more separate components/circuitry some or all of which may be integrated/removable and/or may provide permanent/semi-permanent/ dynamic/cached storage.

25 Although the processor 32 is illustrated as a single component/circuitry it may be implemented as one or more separate components/circuitry some or all of which may be integrated/removable. The processor 32 may be a single core or multi-core processor.

30 References to 'computer-readable storage medium', 'computer program product', 'tangibly embodied computer program' etc. or a 'controller', 'computer', 'processor' etc. should be understood to encompass not only

computers having different architectures such as single /multi- processor architectures and sequential (Von Neumann)/parallel architectures but also specialized circuits such as field-programmable gate arrays (FPGA), application specific circuits (ASIC), signal processing devices and other processing circuitry. References to computer program, instructions, code etc. should be understood to encompass software for a programmable processor or firmware such as, for example, the programmable content of a hardware device whether instructions for a processor, or configuration settings for a fixed-function device, gate array or programmable logic device etc.

10

The communication circuitry 28 is arranged to enable the apparatus 12 to communicate with the first device 14 and with the server 18. For example, the communication circuitry 28 may include circuitry that enables a wired and/or a wireless connection to the internet, and circuitry that enables connection to the public switched telephone network 38.

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The first device 14 may be any suitable electronic communication device or combination of electronic communication devices. For example, the first device 14 may include one or more of a mobile cellular telephone, a desktop computer, a laptop computer, a tablet computer and a landline telephone. The user 22 may operate the first device 14 to request telephonic communication with the call centre 16.

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The server 18 may have the same structure as the apparatus 12. In particular, the server 18 may include a controller and communication circuitry as described in the preceding paragraphs. The apparatus 12 and the server 18 are configured to communicate with one another via the internet and via the public switched telephone network.

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The second device 20 may be any suitable electronic communication device or combination of electronic communication devices. For example, the second device 20 may include one or more of a mobile cellular telephone, a

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desktop computer, a laptop computer, a tablet computer and a landline telephone. The agent 24 may operate the second device 20 to speak with the user 22 and handle their call. As previously mentioned, the communication system 10 may comprise a plurality of second devices 20 (not illustrated in Fig. 1 to maintain the clarity of Fig. 1) that may be operated by a plurality of agents 24.

The operation of the communication system 10 is described in the following paragraphs with reference to Figs. 1 and 2.

10

At block 40, the controller 26 receives a first message from the first device 14 requesting telephonic communication with the call centre 16 (i.e. with a second device 20 of the call centre 16). The apparatus 12 is configured to receive the first message via one or more communication channels 42. One example of such a communication channel 42 is a direct messaging service. As used here, a 'direct messaging service' is a service that enables the user 22 of the first device 14 to request telephonic communication without requiring an intervening messaging service to process the request. Examples of a direct messaging service include short messaging service (SMS), multi-media messaging service (MMS), a web page having a public and/or private messaging facility (for example, a social media website such as Facebook, or a messaging website such as WhatsApp).

The first message may (additionally or alternatively) be sent from the first device 14 subsequent to the scanning of a Quick Response (QR) code or a bar code by the first device 14. In some examples, in response to scanning a QR code or a bar code, the first device 14 receives a webpage in which the user 22 may input their data and request telephonic communication. In other examples, scanning a QR code or a bar code, may cause the first message to be sent to apparatus 12 without requiring an intervening webpage (i.e. the QR code or bar code provide a direct messaging service). In more detail, the QR code or the bar code may include data associated with the user 22 and when

30

the QR code or bar code is scanned, the first message is composed using the data in the QR code or bar code.

Another example of such a communication channel 42 is where the apparatus  
5 12 provides a webpage and the user 22 may access the webpage using the  
first device 14 to request telephonic communication with the second device  
20. A further example of a communication channel 42 is where the first  
device 14 stores a software application (which may also be referred to as an  
'app') and the user 22 may operate the software application on the first device  
10 14 to send the first message to the apparatus 12.

The first message includes data associated with the user 22 of the first device  
14. The data may provide information on the identity of the user 22 (for  
example, the data may include an account number of the user 22 or a  
15 customer reference of the user 22). Alternatively or additionally, the data may  
provide information on the activities of the user 22 (for example, the data may  
include information relating to products and/or services the user 22 has  
purchased or wishes to purchase).

20 In some examples, the data is embedded within the first message (i.e. the  
data is part of the first message and not transmitted alongside, or after, the  
first message). It should be appreciated that the format of the data depends  
on the communication channel 42 via which the first message is sent. For  
example, where the first message is an SMS message, the data may include  
25 one or more text keywords. Where the first message is a message received  
from a website or a software application (i.e. an 'app'), the data may include  
hypertext.

At block 40, the controller 26 may also communicate with the server 18 of the  
30 call centre 16 to validate the received first message. For example, the  
controller 26 may communicate with the server 18 to check that the user 22  
has an account stored at the server 18.

At block 44, the controller 26 updates a queue 46 stored in the memory 34 to include the first device 14 using the received first message. The queue 46 provides an order in which the apparatus 12 is to initiate telephonic communication between the call centre 16 and devices requesting telephonic communication with the call centre 16 (such as the first device 14).

At block 48, the controller 26 may dynamically update the order of the queue 46. As used here, the term 'dynamically update' means that the queue may be updated continuously and in real time, or may be updated periodically.

In more detail, the controller 26 may dynamically update the queue 46 to include devices associated with received messages requesting telephonic communication, and to remove devices associated with cancelled or out of date messages requesting telephonic communication. For example, where a device sends a message requesting cancellation of telephonic communication with the call centre 16, the controller 26 may remove that device from the queue 46. By way of another example, where the apparatus 12 fails to establish telephonic communication between the call centre 16 and a device within a predetermined period of time, the controller 26 may dynamically update the queue 46 so that the telephonic communication for the device is rescheduled for a later time, or is removed from the queue 46.

At block 48, the controller 26 may additionally control provision of one or more second messages to the first device 14 via one or more of the communication channels 42. The second message includes information concerning the status of the request for telephonic communication. For example, the second message may include an estimated time in which the user 22 of the first device 14 may expect to receive a telephone call from the call centre 16.

In some examples, the second message is sent on the same communication channel as the communication channel on which the first message is



received. For example, where the first message is received via SMS, the second message may be provided to the first device 14 via SMS. In other examples, the second message may be sent on a different communication channel to the communication channel on which the first message is received.

5 The communication channel for the provision of the second message may be determined from the first message (i.e. the first message includes data for the second communication channel) or may be stored in the memory 34 of the apparatus 12. For example, where the first message is received via a webpage, the second message may be provided to the first device 14 via  
10 SMS (where the user 22 provides a mobile telephone number on the webpage and which is included within the first message, or where the mobile telephone number of the user 22 is stored in the memory 34 of the apparatus 12).

15 When the first device 14 reaches a predetermined position in the queue 46 (e.g. the top of the queue), the controller 26 initiates telephonic communication between the call centre 16 and the first device 14.

In some embodiments, the communication system includes two queues,  
20 namely a first queue 46 at the apparatus 12 and a second queue at the server 18 of the call centre 16. In some examples, the apparatus 12 is arranged to make a call into the server 18 and queue on behalf of the first device 14. The apparatus 12 then controls connection between the second device 20 and the first device 14 when the apparatus 12 reaches an agent 24.

25 At block 50, the controller 26 determines one or more contexts from the data of the received first message. As used here, the term 'context' means information that assists in clarifying the request for telephone communication from the first device 14. The one or more contexts may include the identity of  
30 the user 22 of the first device 14 (e.g. name, age, address, account number and so on), and/or the activities of the user 22 of the first device 14 (e.g. items in the on-line shopping basket of the user 22). In other words, the data may

be analyzed to determine contextual information on the user 22 to assist in explaining why they wish to establish telephonic communication with the call centre 16.

5 It should be appreciated that block 50 may be performed in response to the controller 26 receiving the first message, or may be performed in response to the first device 14 reaching a predetermined position in the queue 46 that initiates telephonic communication, or may be performed at any time between these two instances.

10

By way of an example, where the first message is an SMS message, the controller 26 may determine one or more contexts by analyzing the text to identify keywords (e.g. 'problem', 'help', 'product name', 'service name', and so on). By way of another example, where the first message is a message received from a website or a software application stored on the first device 14 (i.e. an 'app'), the controller 26 may analyze the hypertext to determine contextual information (e.g. name of the user 22, the reason why the user 22 wishes to talk with the call centre 16).

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20 At block 52, the controller 26 controls the provision of the determined one or more contexts to the user 24 of the second device 20 (i.e. the agent 24). For example, the controller 26 may provide a control signal to the second device 20 to cause the second device 20 to provide the one or more contexts via an acoustic signal from a loudspeaker (for example, a 'whisper' to the agent 24 informing them of the context or contexts of the telephone call). By way of another example, the controller 26 may provide a control signal to the second device 20 to cause the second device 20 to provide the one or more contexts on a display (for example, a display of the second device 20 may include text and/or images that inform the agent 24 of the context of the call to the user 22).

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In some examples, when the apparatus 12 delivers a call to the server 18, the call includes a CLI (Caller Line Identification). The controller 26 is configured to define the CLI before initiating the call. The controller 26 maintains a pool of CLIs that are used solely for the purposes of identifying the call, so that the context of the call can be delivered to the second device 20. The controller 26 will 'lease' a particular CLI to that call. A computer program that resides either at the server 18 or at the second device 20 is arranged to communicate with the controller 26 and request the context (e.g. via a web-service call). Once the context has been delivered, the controller 26 may release the leased CLI back into the pool for subsequent allocation.

In further examples, when a call is delivered to the server 18, the call may start with a 'whispered' message to the agent 24. The controller 26 is configured to define the content of that whisper. The controller 26 may use the whisper to deliver to the agent 24 a unique call identifier, so that the context of the call can be delivered to the second device 20. A computer program that resides at the second device 20 enables the agent 24 to enter that identifier and the second device 20 then communicates with the controller 26 and request the context (e.g. via a web-service call).

When a call is delivered to the server 18, it may be delivered over Internet Protocol (IP) networks using the Session Initiation Protocol (SIP). This protocol includes a number of SIP Header fields that can be set by the controller 26 before initiating the call. The SIP Header fields may be used to define the full context of a call, or may be used to provide a unique call identifier, so that the context of the call can be delivered to the agent device 20. A computer program that resides either at the server 18 or at the second device 20 is configured to interrogate the SIP header fields and either extract the context, or use the identifier to communicate to the controller 26 and request the context (e.g. via a web-service call).

At block 54, the controller 26 controls the connection of the second device 20 to the first device 14 via a telephonic link using the received first message. It should be appreciated that blocks 52 and 54 may be performed at the same time so that the agent 24 is informed of the context of the telephone call at the same time as the second device 20 dialing the first device 14. It should also be appreciated that the telephonic link may be via the public switched telephone network, or may be via the internet (e.g. via Voice over Internet Protocol (VoIP)). Furthermore, it should be appreciated that the controller 26 may control the connection of the second device 20 to a different device to the device that sent the first message. For example, where the first device 14 includes a computer and a mobile cellular telephone, the computer may send the first message and the call-back may be received at the mobile cellular telephone.

The blocks illustrated in the Fig. 2 may represent steps in a method and/or sections of code in the computer program 30. The illustration of a particular order to the blocks does not necessarily imply that there is a required or preferred order for the blocks and the order and arrangement of the block may be varied. Furthermore, it may be possible for some blocks to be omitted.

The apparatus 12 may provide several advantages. By providing the agent 24 with the context of the user 22, the apparatus 12 may reduce the time required by the agent 24 to speak with the user 22. This may advantageously increase the efficiency of the call centre 16 and enable the call centre 16 to handle a greater number of calls. Additionally, since the contextual data may be embedded or transmitted with the first message, embodiments of the present invention are efficient since only a single message may be sent from the first device 14 to the apparatus 12 requesting telephonic communication. Additionally, since the first message may be received via direct messaging services such as SMS, the apparatus 12 may advantageously increase the number of communication channels via which the first device 14 may request telephonic communication with the call centre 16.

In the following paragraphs, several examples of how the communication system 10 may operate are described in detail.

#### 5 Example 1

A user 22 may request a personal call-back by sending an SMS to a specified number or short-code. The reason for call can be specified in the text, and if the user's 22 mobile number is known to the apparatus 12 or the call centre 10 16, the caller details are available to the agent. For example, a utility provider includes details on their user's bill: "Text 'Bill' to 66123 and we'll call you back to discuss any questions you have about this bill". The caller 22 texts, and immediately receives a text message reply (the second message described above) 15 "Thanks for requesting a call – we'll call you in approximately 8 minutes – reply 'Cancel' if you no longer wish us to call". After 8 minutes, the caller 22 receives a call, and is immediately connected to an agent 24.

#### Example 2

20 In-queue call-back options are presented for users 22 who have phoned in and prefer not to wait in the call centre queue. For example, a user 22 calls their bank, and is placed in a queue. An in-queue message says "the estimated queue time is 12 minutes – if you'd like us to call you back, press '1' now". The user 22 presses 1, and is asked to confirm they want to be called 25 on the number they are using. After 12 minutes, the user 22 receives a call, and is immediately connected to an agent.

#### Example 3

30 The apparatus 12 controls an outbound SMS campaign giving users 22 the chance to reply or click on unique link to request a personal call-back when an agent 24 is available. The outbound SMS campaign may be performed in

block 40 of Fig. 2 prior to receiving the first message. In other examples, the outbound SMS campaign may be performed in a separate block prior to block 40.

- 5 For example, a wine club wants to encourage dormant users to re-engage. Over a period of weeks, it sends text messages to target users 22 offering a one-off 25% discount on its most popular mixed case. If interested, users 22 are asked to reply by SMS with the word "Call". The user 22 replies by SMS, and immediately receives a text message reply "Thanks for requesting a call –
- 10 we'll call you in approximately 2 minutes". After 2 minutes, the user 22 receives a call, and is immediately connected to an agent 24 who has details about the user 22 and the offer.

#### Example 4

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QR codes which when scanned allow users 22 to request a call-back when an agent 24 is available. For example, a box of breakfast cereal has a QR code with an invitation to "Any questions or issues with this product? Scan this code and we'll call you back". The user 22 scans the code using their mobile phone

20 14, and is taken to a mobile web-page, which requests a phone number and indicates that a call should be received in 5 minutes. The user 22 enters their phone number and clicks the 'call me' button. They then see a countdown, and within 5 minutes, the user 22 receives a call, and is immediately connected to an agent 24.

25

#### Example 5

A Mobile 'App' that allows users 22 to scan an item's bar-code in-store (or elsewhere) to check availability and / or order an item via a phone call. For

30 example, a fashion retailer offers a branded mobile 'app' that includes a 'Scan and order by phone' option. Whilst in store, a user 22 wishes to purchase an item, but their size is out of stock. Using the 'app', the user 22 scans the

same item (in a different size) or scans the shelf barcode, and are advised that a call should be received in 2 minutes. The user 22 may have provided their mobile phone number into the app on a previous occasion or may be requested to provide their mobile phone number. The user 22 clicks the 'call me' button. They then see a countdown, and within 2 minutes, the user 22 receives a call, and is immediately connected to an agent 24 who takes their order, and arranges home delivery.

### Example 6

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Users 22 can request a personal call-back from within any website. Information about the user 22 is available to the agent 24, and additional contextual information may be collected prior to the call being confirmed. For example, a mobile phone network includes a 'Click and We'll Call You' facility within their web-site. A user 22 is logged into the site, and exploring options for upgrading their phone. They need some advice, and click 'Click and We'll Call You' button. They have already logged in, and are asked to confirm that the call should be made to their registered number. The user 22 is presented with a number of options for the reason for the call, and selects the 'Upgrade Enquiry' option. They are advised that a call should be received in 6 minutes. On screen, they see a countdown, with a 'cancel call' option. After 6 minutes, the user 22 receives a call, and is immediately connected to an agent 24 who knows their details, and provides upgrade advice.

### Example 7

A solution for on-line retailers that allows a user 22 to request a personal call-back after adding items to their basket. The solution enables a user 22 to complete a purchase by phone, or if queries or issues arise. Context information relating to the user 22 and the basket is available to the agent 24. For example, an electrical retailer has various options for completing a purchase – including 'Order by Phone'. A user 22 has selected an expensive

item, but is reluctant to enter their credit card details online. They click 'Click and We'll Call You' button. They are asked to enter a phone number. They are advised that a call should be received in 3 minutes. On screen, they see a countdown, with a 'cancel call' option. After 3 minutes, the user 22 receives a call, and is immediately connected to an agent 24 who can see the item(s) in their online basket, and can take card details and arrange delivery.

### Example 8

10 Users 22 can request a personal call-back from within any online mobile app. Information about the user 22 and the reason for the call-back request is available to the agent 24. Additional contextual information may be collected prior to the call being confirmed. For example, an online hotel comparison and booking Company provides a branded mobile app that includes a 'We'll  
15 Call You' option. A user 22 is looking at hotel options via the mobile app, but has a question. Using the app, they click the 'Click and We'll Call You' button. They are advised that a call should be received in 5 minutes. They have already entered their mobile number into the app on a previous occasion. The user 22 clicks the 'call me' button. They then see a countdown, and within 2  
20 minutes, the user 22 receives a call, and is connected to an agent 24 who answers their query and makes the hotel booking on their behalf.

### Example 9

25 Users 22 can request a personal call-back from within a social media website or an 'app' (e.g. a Facebook message or a twitter 'tweet'). For example, an airline provides a number of customer service options from within their Facebook page, including a 'We'll Call You' option. A user 22 is unhappy with a cancelled flight. Via Facebook, they click the 'Click and We'll Call You'  
30 button. They are advised that a call should be received in 10 minutes. They enter their name and mobile number and click the 'call me' button. They then



see a countdown, and within 10 minutes, the user 22 receives a call, and is connected to an agent 24 who assists with their complaint

5 Fig. 3 illustrates a schematic diagram of another communication system 101 according to various embodiments. The communication system 101 is similar to the communication system 10 illustrated in Fig. 1 and where the features are similar, the same reference numerals are used. The communication system 101 includes the apparatus 12, a device 14, a public switched telephone network 38, and a call centre 16. Fig. 3 illustrates one example of  
10 a software architecture for the communication system 101 and it should be appreciated that other software and hardware architectures may be used for the communication system 101.

The apparatus 12 includes a phone/voice server 56, a scheduler 58, a  
15 scheduler web service 60, an interactive voice response system 62, a database 64 and a web application 66. The call centre 16 includes a phone/voice server 68, an interactive voice response system 70, a second device 20 (agent extension with a computer) and a web application 72.

20 The phone/voice server 56 is configured to provide telephony functionality for the apparatus 12. The phone server 56 includes a software application (e.g. a C#.NET or Java application) for running with a telephony API toolkit (e.g. voice elements API toolkit or OZEKI VoIP SIP SDK) to make outbound calls, transfer calls and make conference calls.

25

The scheduler 58 is configured to initiate calls through the phone/voice server 56. The scheduler 58 is configured to process the scheduled call-backs made from the device 14 and may be configured to work in real time. The scheduler 58 may include a software application (e.g. a C#.net application) running as a  
30 task scheduler to send messages to the phone/voice server 56. The scheduler 58 is configured to access the database 64 to perform queries to process call backs and to store data.

The scheduler web service 60 is configured to provide: an interface for clients to integrate; an authentication process for security; a selection of web methods including request call, request call when available, schedule call, cancel call, get available times.

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The interactive voice response (IVR) system 62 may be configured to provide an automated response and may use a session initiate protocol (SIP) server to host the interactive voice response application and to provide standalone functionality independent of telephony infrastructure.

10

The interactive voice response (IVR) system 62 may be configured to update the user 22 of the status of the request for telephonic communication. For example, if the communication is delayed, or cannot be scheduled as originally requested, then outbound IVR (and other communication methods such as SMS) can be used to automatically communicate that delay to the user 22 and /or offer alternative options.

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The database 64 (which may be an SQL database) is configured to store data including real time and historic data.

20

The web application 66 is configured to provide a client interface component that includes a graphic user interface (GUI) to initiate call backs. The web application 66 may integrate with the scheduler web service 60 to make the requests for call-back.

25

The communication system 101 illustrated in Fig. 3 is a hosted environment where the apparatus 12 is located separately from the call centre 16 (i.e. the apparatus 12 provides cloud services to the call centre 16). In other examples, the apparatus 12 may be located within the software/hardware infrastructure of the call centre 16 and may be considered 'on-premise'. In further examples, some components of the apparatus 12 may be located

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separately from the call centre 16 and the remaining components may be located within the software/hardware infrastructure of the call centre 16.

5 Where a structural feature has been described, it may be replaced by means for performing one or more of the functions of the structural feature whether that function or those functions are explicitly or implicitly described.

10 The term 'comprise' is used in this document with an inclusive not an exclusive meaning. That is any reference to X comprising Y indicates that X may comprise only one Y or may comprise more than one Y. If it is intended to use 'comprise' with an exclusive meaning then it will be made clear in the context by referring to "comprising only one.." or by using "consisting".

15 In this brief description, reference has been made to various examples. The description of features or functions in relation to an example indicates that those features or functions are present in that example. The use of the term 'example' or 'for example' or 'may' in the text denotes, whether explicitly stated or not, that such features or functions are present in at least the described example, whether described as an example or not, and that they  
20 can be, but are not necessarily, present in some of or all other examples. Thus 'example', 'for example' or 'may' refers to a particular instance in a class of examples. A property of the instance can be a property of only that instance or a property of the class or a property of a sub-class of the class that includes some but not all of the instances in the class. It is therefore implicitly  
25 disclosed that a features described with reference to one example but not with reference to another example, can where possible be used in that other example but does not necessarily have to be used in that other example.

30 Although embodiments of the present invention have been described in the preceding paragraphs with reference to various examples, it should be appreciated that modifications to the examples given can be made without departing from the scope of the invention as claimed. By way of an example,

embodiments of the present invention may offer alternative context identification interaction options. For example, if a request has been received via SMS, then a two-way SMS discussion between the apparatus 12 and the first device 14 may be initiated to request details of the context of the call (e.g. type of query, account number etc.) so that when the subsequent telephonic communication is initiated it will be delivered to the appropriate agent, and the agent will have call context available. The two way discussion may be used to supplement the contextual data in the first message sent to the apparatus 12.

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In another example, if a request has been received via Social Media Direct Message, then a two-way Social Media Direct Message discussion can be initiated to request details of the context of the call (e.g. type of query, account number etc.) so that when the subsequent telephonic communication is initiated it will be delivered to the appropriate agent, and the agent will have call context available. The two way discussion may be used to supplement the contextual data in the first message sent to the apparatus 12.

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Features described in the preceding description may be used in combinations other than the combinations explicitly described.

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Although functions have been described with reference to certain features, those functions may be performable by other features whether described or not.

30

Although features have been described with reference to certain embodiments, those features may also be present in other embodiments whether described or not.

Whilst endeavoring in the foregoing specification to draw attention to those features of the invention believed to be of particular importance it should be understood that the Applicant claims protection in respect of any patentable

feature or combination of features hereinbefore referred to and/or shown in the drawings whether or not particular emphasis has been placed thereon.

I/we claim:

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## CLAIMS

1. A method comprising:
  - receiving a first message from a first device requesting telephonic  
5 communication with a second device, the first message including data  
associated with a user of the first device;
  - determining one or more contexts from the data of the received first  
message; and
  - controlling provision of the determined one or more contexts to a user  
10 of the second device.
2. A method as claimed in claim 1, wherein the data is embedded in the first  
message.
- 15 3. A method as claimed in claim 1 or 2, further comprising controlling  
connection of the second device to the first device via a telephonic link using  
the received first message.
4. A method as claimed in any of the preceding claims, wherein the first  
20 message is received via a direct messaging service.
5. A method as claimed in claim 4, wherein the direct messaging service is  
short messaging service (SMS).
- 25 6. A method as claimed in any of the preceding claims, further comprising  
updating a queue to include the first device using the received first message,  
the queue indicating the order for initiating telephonic communication with  
devices.
- 30 7. A method as claimed in claim 6, further comprising dynamically updating  
the order of the queue to include devices associated with received messages

requesting telephonic communication, and to remove devices associated with cancelled or out of date messages requesting telephonic communication.

5 8. A method as claimed in any of the preceding claims, wherein the first message is received via a first communication channel, and the method further comprises controlling provision of a second message to the first device via a second communication channel, different to the first communication channel.

10 9. A method as claimed in any of the preceding claims, wherein controlling provision of the determined one or more contexts to a user of the second device includes controlling the provision of an audio message to the user of the second device.

15 10. An apparatus comprising:  
a controller configured to:  
receive a first message from a first device requesting telephonic communication with a second device, the first message including data associated with a user of the first device;  
20 determine one or more contexts from the data of the received first message; and  
control provision of the determined one or more contexts to a user of the second device.

25 11. An apparatus as claimed in claim 10, wherein the data is embedded in the first message.

30 12. An apparatus as claimed in claim 10 or 11, wherein the controller is configured to control connection of the second device to the first device via a telephonic link using the received first message.

13. An apparatus as claimed in any of claims 10 to 12, wherein the first message is received via a direct messaging service.

5 14. An apparatus as claimed in claim 13, wherein the direct messaging service is short messaging service (SMS).

10 15. An apparatus as claimed in any of claims 10 to 14, wherein the controller is configured to update a queue to include the first device using the received first message, the queue indicating the order for initiating telephonic communication with devices.

15 16. An apparatus as claimed in claim 15, wherein the controller is configured to dynamically update the order of the queue to include devices associated with received messages requesting telephonic communication, and to remove devices associated with cancelled or out of date messages requesting telephonic communication.

20 17. An apparatus as claimed in any of claim 10 to 16, wherein the first message is received via a first communication channel, and the controller is configured to control provision of a second message to the first device via a second communication channel, different to the first communication channel.

25 18. An apparatus as claimed in any of claims 10 to 17, wherein controlling provision of the determined one or more contexts to a user of the second device includes controlling the provision of an audio message to the user of the second device.

30 19. A computer program that, when run on a computer, performs the method as claimed in any of claims 1 to 9.



20. A non-transitory computer-readable storage medium encoded with instructions that, when performed by a processor, cause performance of the method of any of claims 1 to 9.

5 21. A method comprising:

receiving a first message from a first device requesting telephonic communication with a second device, the first message being received via a direct messaging service; and

10 controlling connection of the second device to the first device via a telephonic link using the first message received from the first device.

22. A method as claimed in claim 21, further comprising updating a queue to include the first device using the received first message, the queue indicating the order for initiating telephonic communication with devices.

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23. A method as claimed in claim 22, further comprising dynamically updating the order of the queue to include devices associated with received messages requesting telephonic communication, and to remove devices associated with cancelled or out of date messages requesting telephonic communication.

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24. A method as claimed in any of claims 21 to 23, wherein the direct messaging service is short messaging service (SMS).

25 25. A method as claimed in any of claims 21 to 23, wherein the direct messaging service is multi-media messaging service (MMS).

26. A method as claimed in any of claims 21 to 23, wherein the direct messaging service is a web page having a public and/or private messaging facility.

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27. A method as claimed in any of claims 21 to 23, wherein the first message is sent from the first device subsequent to the scanning of a Quick Response (QR) code by the first device.

5 28. A method as claimed in any of claims 21 to 23, wherein the first message is sent from the first device subsequent to the scanning of a bar code by the first device.

29. An apparatus comprising:

10 a controller configured to:

receive a first message from a first device requesting telephonic communication with a second device, the first message being received via a direct messaging service; and

15 control connection of the second device to the first device via a telephonic link using the first message received from the first device.

30. An apparatus as claimed in claim 29, wherein the controller is configured to update a queue to include the first device using the received first message, the queue indicating the order for initiating telephonic communication with  
20 devices.

31. An apparatus as claimed in claim 30, wherein the controller is configured to dynamically update the order of the queue to include devices associated with received messages requesting telephonic communication, and to remove  
25 devices associated with cancelled or out of date messages requesting telephonic communication.

32. An apparatus as claimed in any of claims 29 to 31, wherein the direct messaging service is short messaging service (SMS).

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33. An apparatus as claimed in any of claims 29 to 31, wherein the direct messaging service is multi-media messaging service (MMS).

34. An apparatus as claimed in any of claims 29 to 31, wherein the direct messaging service is a web page having a public and/or private messaging facility.

5

35. An apparatus as claimed in any of claims 29 to 31, wherein the first message is sent from the first device subsequent to the scanning of a Quick Response (QR) code by the first device.

10

36. An apparatus as claimed in any of claims 29 to 31, wherein the first message is sent from the first device subsequent to the scanning of a bar code by the first device.

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37. A computer program that, when run on a computer, performs the method as claimed in any of claims 21 to 28.

38. A non-transitory computer-readable storage medium encoded with instructions that, when performed by a processor, cause performance of the method of any of claims 21 to 28.

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39. A method substantially as hereinbefore described with reference to and/or as shown in the accompanying figures.

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40. An apparatus substantially as hereinbefore described with reference to and/or as shown in the accompanying figures.

30



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**Claims searched:** 1, 10

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**Patents Act 1977: Search Report under Section 17**

**Documents considered to be relevant:**

Category	Relevant to claims	Identity of document and passage or figure of particular relevance
X	1-20	US2013/322615 A1 (ORISTIAN THOMAS M; ORISTIAN MICHAEL P): Whole document relevant, esp paragraphs 0035-0048.
X	1-20	GB2500460 A (NUANCE COMMUNICATIONS INC): Whole document relevant, esp paragraphs 0066-0076
X	-	US2010/226489 A1 (ARKAR SHANTANU; LEPORE MICHAEL P): Whole document relevant.

**Categories:**

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.

**Field of Search:**

Search of GB, EP, WO & US patent documents classified in the following areas of the UKC<sup>X</sup> :

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Worldwide search of patent documents classified in the following areas of the IPC

H04M
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The following online and other databases have been used in the preparation of this search report

EPODOC, WPI
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**International Classification:**

Subclass	Subgroup	Valid From
H04M	0003/523	01/01/2006
H04M	0003/51	01/01/2006