

a SIM card to a request from an application programming interface (API) to authenticate a transaction, in which;

a request is sent to an identity application server (IAS) holding a database of user module ID information associated with a USSD dedicated computer;

the IAS transmits the request as a class 2 SMS message to the SIM card;

the SIM card causes the request to be displayed on the user module;

when a response is entered, the user module encrypts the response and associated data and transmits the encrypted data, via the USSD computer to an OTA gateway to the IAS; and

the IAS decrypts the data and transmits the response to the API.

- 6 Proposed amendments to the claims were presented at the Hearing. These have not been formally received by the IPO but for completeness they will also be considered below.

The law and its interpretation

- 7 Section 1(1) of the Act states that:

A patent may be granted only for an invention in respect of which the following conditions are satisfied, that is to say –

....

(b) it involves an inventive step;

....

- 8 Section 3 of the Act goes on to state that:

An invention shall be taken to involve an inventive step if it is not obvious to a person skilled in the art, having regard to any matter which forms part of the state of the art by virtue only of section 2(2) above (and disregarding section 2(3) above).

- 9 Section 2(2) of the Act states:

The state of the art in the case of an invention shall be taken to comprise all matter (whether a product, a process, information about either, or anything else) which has at any time before the priority date of that invention been made available to the public (whether in the United Kingdom or elsewhere) by written or oral description, by use or in any other way.

10 In addition to statute, the courts have long used the so called *Windsurfing* test to assess issues of inventive step. This test was reformulated by the Court of Appeal in *Pozzoli*¹. Paragraph 23 of this decision lays out the test as:

(1) (a) Identify the notional "person skilled in the art"

(b) Identify the relevant common general knowledge of that person;

(2) Identify the inventive concept of the claim in question or if that cannot readily be done, construe it;

(3) Identify what, if any, differences exist between the matter cited as forming part of the "state of the art" and the inventive concept of the claim or the claim as construed;

(4) Viewed without any knowledge of the alleged invention as claimed, do those differences constitute steps which would have been obvious to the person skilled in the art or do they require any degree of invention?

11 I will now consider each step of this test in turn.

The 'person skilled in the art' and their relevant common general knowledge

12 I consider the person skilled in the art to be a telecommunications engineer with knowledge of mobile telecommunications networks and their protocols including security and authentication techniques. In particular they would have knowledge of the range of data transmission channels available for communication with mobile phones and the security issues associated with each option. At the hearing, Mr McNeight agreed with this assessment.

13 Also, I believe that such a person's common general knowledge would extend to the existence of USSD as a well-known protocol that can be used in authentication systems. It is also common general knowledge to encrypt data sent via USSD. Furthermore, the skilled person would appreciate that more than one type of channel can be used in the same authentication system. Mr McNeight accepted these points, as far as they go.

Identify the inventive concept of the claim

14 I do not consider there to be any major issues with the construction of claim 1. It relates to a system for authenticating a response to a request, wherein a request is sent from an application programming interface (API) to an identity server (IAS), the IAS then sends a class 2 SMS message to a SIM card of a user module, the user module encrypts the users response to the SMS message and sends it via a USSD channel to a dedicated USSD computer which forwards the still-encrypted data to an

¹ *Pozzoli Spa v BDMO SA & Anor* [2007] EWCA Civ 588.

OTA gateway and then to the IAS, the IAS decrypts the data and transmits the response to the API.

- 15 I note that claim 1 also refers to a UDDI network within the cellular radio network. However, I cannot see what part the UDDI network plays in the current invention and at the hearing Mr McNeight acknowledged that it was not considered a key feature. Indeed at the date of filing, I believe that UDDI networks were a commonly occurring feature of many cellular radio networks. As such the UDDI reference appears to be superfluous for construing the claim and I shall henceforth ignore it.
- 16 I also note that claim 1 appears at odds with figure 1 of the specification. Specifically, claim 1 details that the response is transmitted via the USSD computer to the OTA gateway then to the IAS. Whereas figure 1 shows the response being transmitted via the OTA to the USSD computer and then to the IAS. After discussing this issue with Mr McNeight at the hearing I am content to accept that the former is the intended order. In any case I do not consider that construing the claim in the latter fashion would change my decision.
- 17 Finally, I have construed the term “associated with a USSD dedicated computer” to mean that the IAS is operably connected to a computational device which can use the USSD protocol, such that signals can be sent between the IAS and said device.

What differences exist between the state of the art and the inventive concept of the claim?

- 18 I consider the closest state of the art to be GB2499360, an earlier patent by the same applicants. Mr McNeight agreed with this assessment. Claim 1 of GB2499360, as originally filed, reads:

A secure ID authentication system for authenticating over a cellular radio network that has a UDDI network a response from a user module comprising a SIM card to a request from an application programming interface (API) to authenticate a transaction, in which;

a request is sent to an identity application server (IDS) holding a database of user module ID information;

the IDS transmits the request as a class 2 SMS message to the SIM card;

the SIM card causes the request to be displayed on the user module;

when a response is entered, the user module encrypts the response and associated data and transmits the encrypted data over the UDDI network to an OTA gateway to the IAS; and

the IAS decrypts the data and transmits the response to the API.

- 19 I note that this claim was amended to change the two instances of the acronym IDS to IAS before publication.

- 20 Mr McNeight identified three key differences between GB2499360 and the invention of the current application. Namely:
- i. The use of a USSD protocol rather than the UDDI network to return the encrypted response to the OTA gateway;
 - ii. The addition of an associated USSD computer to provide the USSD channel;
 - iii. The fact that data is encrypted in the cell phone and that encrypted data is sent from the USSD computer to the IAS contrary to the expectation that the USSD computer should decrypt the data.
- 21 I am happy to agree with Mr McNeight's first two points, namely that the use of the USSD protocol and the addition of an associated USSD computer are clear differences. However, I think that the latter difference necessarily follows from the former. That is, once the choice has been made to use the USSD protocol it is inevitable that a device capable of communicating using said protocol must be present and connected to the IAS. Thus if the choice of USSD is obvious, the association of a USSD computer (as I have construed it) is an implicit and necessary feature and thus equally obvious. In short, I would combine Mr McNeight's first two differences and summarise them as "the use of a USSD protocol (and associated necessary hardware) rather than a UDDI network to return a response".
- 22 I do not agree though with Mr McNeight's third point. GB2499360 clearly discloses that the response encrypted at the user module is not decrypted until it reaches the IAS. Thus the skilled person reading GB2499360 would appreciate that the chosen channel (UDDI in this case) may merely be used to convey the encrypted data to the IAS. Additionally, the choice of a USSD channel in the current application does not invalidate this approach. The skilled person would know that USSD channels have been used to transmit encrypted data.
- 23 Thus it is my view that the difference between the state of the art and the inventive concept of the current claims is simply "the use of a USSD protocol (and associated hardware) rather than a UDDI network to return a response". The key question is thus is this difference obvious?

Do those differences constitute steps which would have been obvious to persons skilled in the art or do they require any degree of invention?

- 24 Mr McNeight put forward two arguments that the differences are not obvious. The first was that the applicants themselves did not include USSD in GB2499360 which is their own application. He argued that the applicants are experts in the art and since the use of USSD did not occur to them at the date of their earlier application it cannot be said to have been obvious. Secondly, he argued that USSD is primarily a two-way protocol and thus the notional skilled person would not consider it for providing one-way transmission.
- 25 With respect to the first point, I do not consider it necessary to speculate on why the applicants did not think of using USSD any earlier than they actually did. I believe

that there is a danger of conflating novelty and inventive step with this argument. If I were to follow this line of reasoning any invention which was new would automatically be inventive and this cannot have been the intention of the legislators when they drew up the Act.

- 26 Turning now to the second argument, I believe it is useful to consider the full disclosure of GB2499360. This teaches that the security of the system relies, at least in part, on the use of different protocols for transmission to and from the user module. From reading GB2499360 the skilled person would already be aware of a two-way UDDI network being used for one-way communication. I thus believe that consideration of USSD would be no different from consideration of UDDI from a technical standpoint.
- 27 Having considered Mr McNeight's arguments though I am still left with the question of whether or not it would be obvious to replace the UDDI channel disclosed in GB2499360 with a USSD channel performing exactly the same function. I believe that the skilled person would have been aware that communication protocols other than UDDI were available, with USSD being one well known alternative. Furthermore, as discussed above, the skilled person would have appreciated that USSD ought to work just as well as UDDI in the system of GB2499360 from a technical standpoint. In short, USSD was an obvious variant to try with every expectation that it would work successfully. I am thus forced to conclude that this difference would have been obvious to persons skilled in the art.

Proposed amendments

- 28 Proposed amendments to the claims were presented at the Hearing. While these have not been formally received by the IPO I will now consider them for the sake of completeness. The proposed amendments only relate to claim 1, which if amended would read (proposed changes underlined for ease of reference):

A secure ID authentication system for authenticating over a cellular radio network that has a Universal Description, Discovery and Integration (UDDI) network a response from a user module comprising a Subscriber Identity Module (SIM) card to a request from an application programming interface (API) to authenticate a transaction, in which;

a request is sent from the API to an identity application server (IAS) holding a database of user module ID information associated with an Unstructured Supplementary Service Data (USSD) dedicated computer;

the IAS transmits the request as a class 2 Short Message Service (SMS) message to the user module containing the SIM card;

the SIM card causes the request to be displayed on the user module;

when a response is entered, the user module encrypts the response and associated data and transmits the encrypted data, via the USSD computer to an Over The Air (OTA) gateway to the IAS; and

the IAS decrypts the data and transmits the response to the API.

- 29 Construing this claim, I conclude that the proposed changes are merely clarifications of various features already present. I can see no new technical limitations. The inventive concept remains unchanged and thus the proposed claim is obvious for the reasons set out above in respect of claim 1 as filed.

Decision

- 30 I have found that the invention as defined in the claims (and the proposed amended claims) lacks an inventive step as required by section 1(1) of the Act. I have considered the specification carefully and can see nothing which could reasonably be expected to form the basis of a valid claim. I therefore refuse this application under section 18(3).

Appeal

- 31 Any appeal must be lodged within 28 days.

Dr. Stephen Brown

Deputy Director, acting for the Comptroller