Communication device with improved service characteristics. Secure storage part-unit for use with the communication device. Furthermore, procedure for the preparation of locating applications and data content on the communication device or on the secure storage part-unit allocated to it, for the operation of the located applications. For reading the data content and for changing the controlling partner allocated to the secure storage part-unit of the communication device.
Communication device with improved service characteristics, secure storage part-unit for use with the communication device and procedures for utilising them

The invention relates to a communication device with improved service characteristics, which comprises a house, a central unit situated inside the house, a display part-unit connected with the central unit, a data input part-unit, a connection establishing part-unit and a central storage part-unit, and the house is equipped with a signal-transmitting case suitable for accommodating the secure storage part-unit, and the central unit is connected to the signal-transmitting case via a data channel.

The invention also relates to a secure storage part-unit with or without its own running environment for use with the communication device, which secure storage part-unit has a memory area for receiving and storing applications and data content, where the memory area contains memory zones to be allocated to separate applications and data contents, and an administration zone for receiving and storing a control application monitoring the lifecycle of the individual memory zones and/or the applications collaborating with them, and the individual applications are connected to each other via the administration zone or directly.

The invention also relates to an application for the preparation of locating applications and/or data content on the communication device or on the secure storage part-unit with its own running environment allocated to it.

The invention also relates to a procedure for activating applications or reading data content located on the communication device or in the secure storage part-unit with its own running environment.
Furthermore the invention relates to the operation of applications or the regulation of data content located on the communication device or in the secure storage part-unit with its own running environment allocated to it.

The invention also relates to a procedure for changing the controlling partner allocated to the secure storage part-unit of the communication device.

As wireless communication and mobile telephones are becoming widely used, devices providing their owners with further services beside the telephone function are also becoming increasingly popular. Similar possibilities are also available in personal computer environments that can be now operated as devices suitable for communication themselves. These multifunctional devices ensure the possibility of establishing data link, e.g.: wireless internet use, and, through such data links, also the possibility of realising bank transactions, cash-free purchases, ordering travel and other tickets, or viewing information provided by broadcasting companies.

Furthermore so-called "chip-cards" are also known, on which applications are located containing different computer technology programs. By inserting these chip-cards into a communication device and running the applications located on the card different services can be performed. For example it becomes possible to establish communication with banks, realise transactions or carry out convenient electronic correspondence on the communication device.

Publication document no. US 2007/0110014 describes a set of equipment suitable for performing Internet service related to such portable communication device.

However, the general disadvantage of such communication devices having a updateable or removable memory area for locating such applications and the related secure storage chip-card part-units is that normally only one external secure storage chip-card part-unit can be inserted in the communication device, and even if it is possible to insert several cards, they only operate independently from each other. On the individual secure storage chip-card part-units that can be inserted into the communication device there is basically one single application, and even in the case of several applications the individual
applications are controlled by the same service provider. The applications on the card cannot be updated after the card has been issued, their content is static and unchangeable.

A further disadvantage is that in the case of the inserted secure storage part-unit it is not possible to handle or to harmonise the operation of the different applications located on the communication device.

In general it can be said that according to the state-of-the-art technology, in the case of communication devices the applications recommended by different service providers but developed more or less with respect to the same area of use cannot be handled appropriately in the same communication device after the issue.

With the devices and procedures according to the invention our aim was to overcome the above deficiencies of the known solutions, and to elaborate versions that make it possible to locate applications or data contents basically providing the same services in the same communication device even on several secure storage areas or running environments - whether on external, that is removable secure storage part-units or internal memory areas integrated in the communication device (central storage area, or embedded chip and/or SIM card provided by the mobile service provider) - in a secure way, enabling easy handling, selection and running of certain applications and data contents so that they cannot damage each other's data in any way, but they are able to collaborate with each other in the interest of ensuring an appropriate standard at which the service selected by the user is performed.

The idea behind the invention is based on the recognition that if the structural elements - known in themselves - or certain parts of the structural elements of the communication device or secure storage part-unit with its own running environment are supplemented with suitably chosen novel parts suitable for determining and assessing the relevant parameters of the applications and/or data content located on the communication device, on the secure storage part-unit and on the individual memory areas, sharing them with each other and forwarding them through an external channel too, then as a result of the favourable location of the data relating to the individual applications and data content it becomes possible to determine the system environment of the applications and the data content in the case of the given hardware device, by this enabling the individual service providers or controlling partners to decide even in the case of remote access whether it is possible or not to locate
an application and/or data content on the communication device and on the secure storage part-unit, that is on the hardware elements, and if it is possible, then to decide how it can be handled and managed, and in this way the task can be solved.

The idea behind the invention also relates to that due to the location and special connection of the novel structural elements and due to the procedures that can be realised as a result of them, with the help of the solution even after the individual secure storage part-units have been issued, it is possible to install new applications and data content on them dynamically, and the applications of the memory areas - independently from the physical position of the given memory area - can be easily managed suitting the user's demands, and in this way the task can be solved.

In accordance with the set aim the communication device with improved service characteristics according to the invention, - which comprises a house, a central unit situated inside the house, a display part-unit connected with the central unit, a data input part-unit, a connection establishing part-unit and a central storage part-unit, and the house is equipped with a signal-transmitting case suitable for accommodating the secure storage part-unit, and the central unit is connected to the signal-transmitting case via a data channel, —is constructed in such a way that the central unit is supplemented with a database-handling part-unit suitable for receiving parameters relating to the individual applications and/or data contents stored on the communication device and/or on the secure storage part-unit allocated to it, and/or with a sequence-setting part-unit and/or a selecting part-unit, where the database-handling part-unit and/or sequence-setting part-unit and/or selecting part-unit is connected to the signal-transmitting case and/or to the central storage part-unit with a connection suitable for parallel data transmission, and via a connection establishing part-unit the selecting part-unit is connected to a receiver suitable for receiving the signals of an external communication unit and/or with a central unit suitable for establishing remote communication connection.

Also in accordance with the set aim, the secure storage part unit with or without its own running environment for use with the communication device according to the invention, - which has a memory area for receiving and storing applications and data contents, where the memory area contains memory zones to be allocated to separate applications and data
contents, and an administration zone for receiving and storing a control application monitoring the lifecycle of the individual memory zones and/or the applications collaborating with them, and the individual applications are connected to each other via the administration zone or directly, - is constructed in such a way that the memory area is supplemented with a database-handling component suitable for receiving data contents and the parameters of the applications running on the communication device and/or on the secure storage part-unit allocated to it, and/or with a sequence-setting component and/or a selecting component, and the database-handling component and/or sequence-setting component and/or selecting component is connected to one or more memory zones and/or administration zone and/or database-handling components.

The communication device according to the invention can be further characterised by that the house has two or more signal-transmitting cases, there are secure storage part-units located in the individual signal-transmitting cases, and in this way, via the data channels each one of the secure storage part-units is connected to the database-handling part-unit and/or sequence-setting part-unit and/or selecting part-unit.

In the case of another realisation of the communication device the house has two or more signal-transmitting cases, there are secure storage part-units located in the individual signal-transmitting cases, and the database-handling component and/or sequence-setting component and/or selecting component located on the memory area of one of the secure storage part-units is connected to one or more memory zones and/or administration zones located on further secure storage part-units, and/or contains information relating to the applications or data contents located in them.

Also in accordance with the aim of the invention, the procedure according to the invention for the preparation of locating applications and/or data content on the communication device or on the secure storage part-unit with its own running environment allocated to it is based on the principle that a control application is located in the communication device and/or secure storage part-unit allocated to it, and before locating the given application or data content, with the help of the control application data is collected from the communication device and/or its central storage part-unit and/or at least one of its secure storage part-units, on the basis of the data collected the information
content of the communication device and/or central storage part-unit and/or secure storage part-unit needed for the location of the given application or data content is determined, and then the information content determined is forwarded to the party realising the location of the given application or data content.

A further feature of this procedure according to the invention may be that the information content needed for the location of the given application or data content is forwarded to the party realising the location of the given application via a communication network and/or a traditional or wireless communication channel.

In the case of a further realisation of the procedure the information content needed for the location of the given application or data content contains the technical data of the communication device and/or central storage part-unit and/or at least one secure storage part-unit, and or the data of other applications or data content already stored.

Also in accordance with the set aim, the other procedure according to the invention for activating applications or reading data content located on the communication device or in the secure storage part-unit with its own running environment allocated to it is based on the principle that the applications or data content located in the central storage part-unit and/or secure storage part-unit of the communication device are sorted in the database-handling part-unit and/or database-handling component with the help of a sequence-setting part-unit and/or sequence-setting component, put in order of preference, and the information and orders are allocated to the applications or data content on the basis of the relating order of preference.

A further feature of the given invention may be that the individual applications or data content located in the central storage part-unit of the communication device and/or at least one secure storage part-unit with its own running environment allocated to the communication device are sorted in the central unit or in the given secure storage part-unit and put in order of preference therein.

In the case of another realisation of the procedure, the individual applications or data content located in the central storage part-unit of the communication device and/or at least one secure storage part-unit with its own running environment allocated to the
communication device are sorted jointly, a joint order of preference is set up, and then on the basis of the result of the joint order of preference the earlier order of preference maintained in the database-handling part-unit of the central unit and/or in the database-handling component of the secure storage part-unit is changed.

From the aspect of the procedure it may be favourable, if the individual applications and/or data content located in the central storage part-unit of the communication device and/or at least one secure storage part-unit with its own running environment allocated to the communication device are recorded in the database-handling part-unit and/or database-handling component allocated to the given storage part-unit, and then the registered applications or data content is arranged in a uniform structure in the database-handling part-unit and/or database-handling component. Furthermore, in the database-handling part-unit and/or database-handling component containing the applications or data content arranged in a uniform structure the sequence setting part-unit or sequence setting component is used for arranging the applications or data content in a uniform structure.

In the case of a further realisation of the procedure according to the invention the use of the set order of preference is subjected to a given condition, and in the case that the condition is fulfilled, the order of preference is changed at least partly.

In the case of another different version of the procedure, in order to activate a given application or read some data content needed for the realisation of a service, the signals of an external communication device are forwarded to the communication device, where they are received with the help of a receiver, and the received signals are forwarded to the selecting part-unit or selecting component via the connection establishing part-unit, and the data sent by the external communication device is directed to the application or data content determined with the help of the selecting part-unit or selecting component.

In the case of a further realisation of the procedure according to the invention in order to activate a given application or read some data content needed for the realisation of a service, the signals of an external communication device are forwarded to the communication device, where they are received with the help of a receiver, and the received signals are forwarded to the selecting part-unit or selecting component via the connection establishing part-unit, on the basis of the received signals the determined
application or data content is identified, the data needed to access the determined application or data content is returned to the external communication device, and access to the given determined application or data content is initiated on the basis of this data.

In the case of another different version of the procedure, the data of several applications or data content is included in the response sent to the external communication device, on the basis of which the application to be activated or the data content to be read can be determined.

In the case of an even further different realisation of the same procedure, in the case that the same applications or data contents are located on the different secure storage part-units, the signals sent by the external communication device to a given determined application or data content are sent to the determined application or data content via the selecting part-unit or selecting component.

In the course of another realisation of this procedure again, security and/or other data relating to the individual applications or data content is also stored in the database-handling part-unit and/or database-handling component, and on the basis of the data, after receiving the signals of the external communication device, user-connection is initiated in respect of the application or data content determined on the basis of the order of preference, or messages are displayed on the display part-unit of the communication device.

In accordance with the set aim, the further procedure according to the invention for the operation of applications or the regulation of data content located on the communication device or in the secure storage part-unit with its own running environment allocated to it is based on the principle that the information content of the database-handling part-unit or database-handling component is periodically updated with information relating to the status of the individual applications or data content, the updated information is processed with the help of the control application, and the applications are operated in accordance with this processed information, or the data content is regulated in accordance with this processed information.

Also in accordance with the set aim, another different procedure according to the invention for the operation of applications or the regulation of data content located on the
communication device or in the secure storage part-unit with its own running environment allocated to it is based on the principle that the operation of the selecting part-unit or selecting component is monitored with the help of a control application, and the selected applications are operated on the basis of the information obtained in the course of monitoring, or the data content is regulated on the basis of the information obtained in the course of monitoring.

Also in accordance with the set aim, a further procedure according to the invention for changing the controlling partner allocated to the secure storage part-unit of the communication device is based on the principle that the changing of the controlling partner of the secure storage part-unit is initiated at the database in charge of the identification of the controlling partner of the secure storage part-unit, and for the period of changing the rights of access to the secure storage part-unit the secure storage part-unit is set to temporary status, and then the new controlling partner is allowed to update the rights of access to the secure storage part-unit, and finally the new controlling partner's rights of access to the secure storage part-unit are updated and the identifiers relating to the new controlling partner are activated in the database used for identifying the current controlling partner.

The greatest advantage deriving from the joint use of the communication device, the secure storage part-unit with its own running environment and the procedure relating to them according to the invention is that it makes it possible to connect several secure storage part-units with their own running environment to the communication device in such a way that on each of them several applications or data contents can be located independently from each other, but also taking into consideration each other's parameters in a given case, and in each case these applications or data contents can be operated optimally, suiting the user's demands or in the user's interest, without the risk of violating or impairing the integrity of the communication device or the algorithm or secure operation of the individual applications.

It is also an advantage that due to the inventions it becomes possible to download, update and replace certain applications and data contents in the secure storage part-units from a remote access point automatically, and also to put the individual applications and
data content in order of operation or access according to previously set conditions, which was not possible at all in the case of the known devices.

Due to this solution, unlike the physical realisation known so far, the construction according to the invention handles the applications and data contents located in the communication device in an intelligent way, and on the basis of analysing the parameters relating to the applications it is able to select the application or data content to be activated directly, independently from where they are stored.

It is also made clear in the description that the idea behind the invention is operable and applicable both in the case of applications and data contents, moreover, if the task is only to handle and access data contents, then the secure storage part-unit can only be constructed with a simpler structure.

A further advantage deriving from the solutions according to the invention is that the use of the applications and data contents independently from each other or in collaboration with each other does not depend on whether the applications themselves are located on the same memory area or in several memory units different from each other in a given case, and it does not depend on what kind of communication device or secure storage part-unit they are stored on either. This circumstance significantly improves the reliability of operation, increases the number of installable applications, accelerates implementation and significantly extends the field of use of mobile communication devices.

It can also be regarded as an advantage that due to the construction according to the invention it becomes possible to avoid long technical discussions with the controlling partner before locating a new application or data content on a given communication device or on its secure storage part-unit, as the communication device can dynamically collect the data needed for installation and supply such data automatically to the remote controlling partner or to the user. The advantage deriving from this is that after the evaluation of the received data, suitting the structure of the communication device and the secure storage part-unit with its own running environment, the given application can be installed practically optimally from a remote access point, in a quick and reliably way, which was not possible before.
A further advantage of the solution according to the invention is that due to the registration of the applications and data content and due to the updating of the operation data the selection and activation of the applications and the data content as well as the operation of the individual applications can be accelerated. By monitoring the applications the active application or the application to be activated can be accessed directly, there is not need for interrogating other "passive" applications, as a result of which the necessary automatic functions or even user interventions can be realised as fast as possible.

It is also favourable that due to the solutions according to the invention a mobile communication device can be realised, with which different functions, such as payment possibilities, the possibility of personal identification, ticket handling and registration relating to travelling and traffic can be solved at the same time, and as a result of short-distance and long-distance wireless communication a versatile, small, convenient electronic device is created.

A further advantage regarded as the result of one of the procedures according to the invention is that even in the case of changing the controlling partner of the secure storage devices there is no need for the user to go through inconvenient administrative processes, because as a result of the structured and secure step-by-step assignment of the control authorisation the change of control can be realised automatically, without the user's active participation. Furthermore, in the case of a failure to change the controlling partner, the secure storage part-unit set to temporary status can be simply returned under the control of the previous controlling partner.

Below the communication device and secure storage part-unit is described in detail in connection with a construction example and procedure examples. In the drawings

figure 1 is a block diagram showing a possible construction of the communication device with a secure storage part-unit according to the invention,
figure 2 shows a possible process of the location, sequence setting and selection of the application
figure 3 is a block diagram indicating the procedure relating to changing the controlling partner of the communication device.
Figure 1 shows a version of the communication device 1 according to the invention constructed as a mobile telephone. It has an ordinary house 1a, in which contains the display part-unit Ib, the data input part-unit Ic, the central part-unit Id and also the central unit 10. In the case of this version beside the central unit 10 there is also the connection establishing part-unit 40, which in this case realises the so-called "NFC" function. The central unit is connected to the central storage part-unit Id, to the display part-unit Ib and to the data input part-unit Ic with the help of the data channel 11. Apart from this the central unit 10—in the case of the present construction of the invention - is also connected to two signal-forwarding cases Ie, while the central storage part-unit Id and the signal-forwarding case Ie in parallel connection with the database-handling part-unit 20, the sequence-setting part-unit 30 and the selecting part-unit 60, which connection is suitable for forwarding signals.

Here parallel connection means that the database-handling part-unit 20, the sequence-setting part-unit 30 and the selecting part-unit 60 can have direct access to the individual applications 120 in the central storage part-unit Id on the one part, in the secure storage part-unit 2 inserted in the signal-forwarding case Ie on the other part, and in a given case in the secure storage part-unit 2', without having to examine each individual application 120 located on the memory areas.

The task of the database-handling part-unit 20, the sequence-setting part-unit 30 and the selecting part-unit 60 is to check, appropriately control and harmonise the selection, activation and operation of the applications 120 located in the central storage part-unit Id and in the secure storage part-units 2.

The sequence-setting part-unit 30 and the selecting part-unit 60 are connected to the receiver 50 with the mediation of the connection establishing part-unit 40. The receiver 50 enables wireless connection between the communication device 1 itself, and through this the secure storage part-units 2 inserted in the signal-forwarding cases Ie, and the external communication device 3. Favourably this wireless connection operates on the basis of the NFC principle, but through a mobile telephone ordinary GSM or other type of wireless communication of an approved standard can also be realised with the communication
device 1 in the interest of receiving data from a greater distance and forwarding data to a
greater distance.

Figure 1 also indicates the structure of the memory area 2a of the secure storage part-
unit 2 inserted in the signal-forwarding case 1e. The memory area 2a includes the
administration zone 2d, memory zone 2b and memory zone 2c - only two in the present
case for the sake of simplicity - for accommodating applications. The task of the
administration zone 2d is to support the operation of memory zone 2b and memory zone
2c. The memory area 2a also contains the database-handling component 2e, the sequence-
setting component 2f and the selecting component 2g, which are responsible for operating
the individual applications 120 located in memory zone 2b and memory zone 2c and for
harmonising their operation. It is pointed out here that the database-handling component
2e, the sequence-setting component 2f and the selecting component 2g can be put either in
the administration zone 2d or in an independent memory zone. Obviously the other secure
storage part-unit 2' inserted in the signal-forwarding case 1e also contains memory zone
2b', memory zone 2c' and administration zone 2d', and it may contain a database-handling
component 2e', a sequence-setting component 2f' and a selecting component 2g' too.

It is pointed out here that due to the connections realised by the data channels 11 the
database-handling component 2e, the sequence-setting component 2f and the selecting
component 2g located on the memory area 2a of the secure storage part-unit 2 area also
suitable for containing or handling applications 120 located in memory zone 2b' and
memory zone 2c' of the secure storage part-unit 2' or data relating to their individual
components.

Figure 1 also shows that the control application 100 is situated in the central storage
part-unit 1d of the communication device 1, but in the case of other realisations it can also
be stored on the memory area 2a of the secure storage part-unit 2, or it can be present on
both storage areas with the help of several collaborating components.

Figure 1 also shows application 110 and the information content HOa allocated to it,
which information content 110a contains the data needed for the location of the application
110, especially the technical data of the communication device 1 and/or the central storage
part-unit Id and/or the secure storage part-unit, and/or essential information of already stored other applications 120.

Figure 1 also shows the database 210, which contains the data of controlling partner 200 and controlling partner 201. The role of controlling partner 200 and controlling partner 201 is to enable the remote location of applications 110 and applications 120 to be located on the individual communication devices 1 and/or in the secure storage part unit 2. Several controlled partners 200, 201 can have access to the secure storage part-units 2, 2' situated in the same communication device 1, or one single secure storage part-unit 2 can have several controlling partners at the same time.

Below the procedure according to the invention are described in detail in connection with examples.

Example 1:

In the course of procedure according to the example an application 110 is located on the communication device 1. In the course of this first, either via remote communication or with the help of the receiver 50, under the control of the central unit 10 of the communication device 1—in a way known in itself—the control application 100 is entered in the central storage part-unit Id of the communication device 1 and stored therein in a way suitable for running. The control application 100 used is able to collect information about the communication device 1 itself and about the secure storage part-units 2, 7 therein, about their controlling partners 200, and about the applications 120 located on the memory areas of the communication device 1, such as the central storage part-unit Id and the memory areas 2a, 2a' of the secure storage part-units 2, 2', and to send such information to the service provider intending to download the new application 110.

After locating the control application 100 in the central storage part-unit Id of the communication device 1, it is used for mapping the communication device 1, the central storage part-unit Id, the secure storage part-units 2 and the memory areas 2a. After such monitoring the technical information relating to the communication device 1, to the connected secure storage part-units 2 and possibly to the applications 120 located earlier is collected using the control application 100, information content HOa is generated from it
using the control application 100, which information content 110a is sent to the service provider intending to download the new application 110, with the help of the central unit 10, using a remote communication channel.

After receiving the information content 110a, it is assessed at the service provider or controlling partner 200, and on the basis of the assessment it is determined whether the communication device 1 and/or secure storage part-unit 2 and/or secure storage part-unit T as a location environment is suitable for the operation of the application 110 to be located. After it is determined on the basis of the information content 110a that the application 120 stored earlier in the memory zone 2b of the secure part-unit 2 is the same as the application 110 to be located, it is taken into consideration when the application 110 to be located is located on the determined storage area through a remote communication channel.

It is pointed out here that the application 120 available in the memory zone 2b of the secure storage part-unit 2 can also be located on the secure storage part-unit 2 in a way other than described in connection with the application 110. In our case the application 120 was located earlier, during manufacture in the memory zone 2b of the secure storage part-unit 2, but the application 110 could have been located via the receiver 50 and the connection establishing part-unit 40 too.

**Example 2:**

During this procedure according to the invention the order of preference to be used in the course of the activation of application 110 and application 120 available on the communication device 1 was set according to the following. It is pointed out that in the present procedure example application 110 and application 120 were concurrent applications, which in the present case means that they related to the same area of use, to the realisation of payment transactions in this case. In the first step of the procedure, all applications located in the central storage part-unit 1d and in the secure storage part-units 2, 2', in the present case application 110 and application 120, were taken into consideration, and a cumulative list was made on the basis of them in the database-handling part-unit 20.
Then all applications included in the cumulative list were put in order of preference using the sequence-setting part-unit 30, and by this it was determined what conditions needed to be fulfilled for the individual applications to be activated out of all the applications. After setting the order of preference in cases when a payment transaction had to be realised, with the help of the selection part-unit 60 in each case we tried to realise the transaction using application 120 first, that we tried first to realise the payment transaction, and only when it failed was application 110 used.

Example 3:

In the case of another different realisation of the procedure according to the invention, the sequence of activating application 110 and application 120 available on the communication device 1 was determined according to the following. In the given version of the procedure application 110 and application 120 were concurrent applications again, which in this case related to collecting regular customer points.

In the first step of this procedure the applications located in the central storage part-unit 1d and in the secure storage part-unit 2, in the present case application 110 and application 120, were taken into consideration in such a way that the ones in the central storage part-unit 1d and the ones in the secure storage part-unit 2 were taken into consideration separately, and a cumulative list of the applications in the central storage part-unit 1d was prepared in the database-handling part-unit 20, while a cumulative list of the applications in the secure storage part-unit 2 was prepared in the database-handling component 2e. Then with the help of the sequence-setting part-unit 30 and the sequence-setting component 2f the application to be used in respect of the given list was selected among the applications included in the lists. Then the lists belonging to the individual storage areas were summarised in the database-handling component 2e, and with the help of the sequence-setting component 2f the application 110 was selected as an application to be used in the case of a certain scope of services.

In the course of selection the display part-unit 1b situated in the house 1a of the communication device 1 was used to enter data and to check the result. After realising selection, in cases when at a certain service provider it is time to collect regular customer points, in each case the selecting component 2g forwarded the information received from
the external communication device 3 to the application 110. If the transaction failed, or we wanted to use application 120 instead, this selection could be realised in respect of one single occasion using the data input part-unit 1c.

**Example 4:**

In the case of this version of the procedure according to the invention the order of preference as in example 2 or example 3 was changed according to the following. The order of preference set earlier by the sequence-setting part-unit 30 or the sequence-setting component 2f was displayed on the display part-unit 1b of the communication device 1, then in the given order the sequence was overwritten in the database-handling part-unit 20 or in the database-handling component 2e with the instructions given by the data input part-unit 1c to the central unit 10, with the help of the sequence-setting part-unit 30 or the sequence-setting component 2f.

**Example 5:**

In the version of the procedure according to this example a given application needed for realising a service, in this case a bank transaction, was selected according to the following. In order to start the desired service, using the external communication device 3 a signal was sent to the receiver 50 of the communication device 1, it was received by the receiver 50 and then forwarded to the selecting part-unit 60 through the connection establishing part-unit 40. With the help of the selecting part-unit 60 the application 120 in the first position on the preference list was identified, and the signals sent by the external communication device 3 were forwarded to the memory zone 2b of the secure storage part-unit 2 containing the application 120.

**Example 6:**

In the case of this version of the procedure according to the invention a given application was activated according to the following. The signals of the external communication device 3 were forwarded to the receiver 50 of the communication device 1, and the received signals were sent to the selecting part-unit 60 through the connection establishing part-unit 40. With the help of the selecting part-unit 60 the data needed for activating the selected application 120 was identified, then it was returned to the external
communication device 3, and with the help of this returned data the activation of application 120 was initiated.

It is pointed out here that on the basis of the information included in the database-handling part-unit 20 it is also possible to return the data of not only one application 120 but also another application 110 to the external communication device 3. In this case it can be decided with the help of the external communication device 3 whether application 110 or equivalently suitable application 120 should be favourably started.

After making a decision in the external communication device 3, the activation of application 120 was initiated on the basis of the data already known, directly by inviting application 120. However, as on secure storage part-units 2 and 2' there were two identical applications 120, the selecting part-unit 60 forwarded the signals to the application 120 in the memory zone 2b of the secure storage part-unit 2' further up on the preference list, and this application was activated.

Example 7:

In the case of this realisation of the procedure according to the invention the authorisation of a transaction needed during the operation of a given application is shown. After the activation of the application 120, it notified the component located on the memory area 2a of the control application 100 about that it had entered into operation. As the control application 100 located in the communication device 1 observed the change of status of the components located in the individual secure storage part-units 2, the control application 100 found that in respect of the application 120 a demand was asserted to enter the PIN, and it displayed the necessary message on the display part-unit 1b of the communication device 1.

In the case of a further realisation of the procedure according to the example the control application 100 is in connection with the selecting part-unit 60 or the selecting component 2g, and on the basis of the information obtained in this way it determined that in respect of the application 120 a demand was asserted to enter the PIN.

Example 8
The present procedure example shows a possible process of the location, sequence-setting and selection of an application, with the help of figure 2. In the first step application 110 is located in the memory zone 2b of the secure storage part-unit 2. After the location the data of the application 110 is recorded in the database-handling component 2e of the secure storage part-unit 2. As a new application 110 appeared in one of the database-handling components 2e situated in the communication device 1, about which the sequence-setting part-unit 30 obtained information, the sequence-setting part-unit 30 initiated the updating and synchronisation of the database-handling part-unit 20 controlling all database-handling components 2e of the communication device 1. After a new application appeared in the database-handling part-unit 20, it became necessary to update the order of preference, which could be realised using the sequence-setting part-unit 30, with the help of the display part-unit 1b and the data input part-unit 1c not shown in figure 2. After carrying out the settings the communication device 1 is ready to realise the transaction with the external communication device 3.

The external communication device 3, which is a POS terminal in the present example, searched for an application suitable for realising a payment transaction with a bankcard on the receiver 50 and in the communication device 1 through the connection establishing part-unit 40. The selecting part-unit 60 checked for the given secure storage part-unit 2 and the given memory zone 2b in which the payment application 110 in the first position on the preference list could be found, and forwarded the information deriving from the external communication device 3 to the selected application 110.

**Example 9:**

The procedure according to this example, described with the help of figure 3, shows the process for changing the controlling partner of the communication device, as a result of which process, by setting the appropriate parameters on the secure storage part-unit 2, the current controlling partner 200 enables the new controlling partner 201 to gain control over the secure storage part-unit.

In the procedure according to the present example we realised transactions in the course of which the controlling partner 200 of the secure storage part-unit 2 was changed. In the first step of the procedure the change was initiated at the database 210 used for the
identification of the controlling partner 200 of the secure storage part-unit 2, and for the period of making the change the secure storage part-unit 2 was set to temporary status. Then the new controlling partner 201 was enabled to update the access rights relating to the secure storage part-unit 2, the access rights were updated, and in this way the secure storage part-unit 2 was put under the control of the new controlling partner 201, and finally the identifiers relating to the new controlling partner 201 were entered and activated, and so the right of disposal of the new controlling partner 201 was officially authorised.

The communication device, secure storage part-unit and the relating procedures according to the invention can be used favourably in cases when several applications that are independent from each other and are able to replace each other in certain cases need to be located and then used in compliance with certain conditions on the same device.
List of references

1 communication device
I a house
I b display part-unit
I c data input part-unit
I d central part-unit
I e signal-forwarding case

2 secure storage part-unit
2a memory area
2b memory zone
2c memory zone
2d administration zone
2e database-handling component
2f sequence-setting component
2g selecting component

2' secure storage part-unit
2a' memory area
2b' memory zone
2c' memory zone
2d' administration zone
2e' database-handling component
2f' sequence-setting component
2g' selecting component

3 external communication device
10 central unit
20 database-handling part-unit
30 sequence-setting part-unit
40 connection establishing part-unit
50 receiver
60 selecting part-unit
100 control application
110 application
120 application
200 controlling partner
201 controlling partner
210 database

11 data channel
110a information content
CLAIMS

1. Communication device with improved service characteristics, which comprises a house, a central unit situated inside the house, a display part-unit connected with the central unit, a data input part-unit, a connection establishing part-unit and a central storage part-unit, and the house is equipped with a signal-transmitting case suitable for accommodating the secure storage part-unit, and the central unit is connected to the signal-transmitting case via a data channel. **characterised** by that the central unit (10) is supplemented with a database-handling part-unit (20) suitable for receiving parameters relating to the individual applications (110, 120) and/or data contents stored on the communication device (1) and/or on the secure storage part-unit (2) allocated to it, and/or with a sequence-setting part-unit (30) and/or with a selecting part-unit (60), where the database-handling part-unit (20) and/or sequence-setting part-unit (30) and/or selecting part-unit (60) is connected to the signal-transmitting case (1e) and/or to the central storage part-unit (Id) with a connection suitable for parallel data transmission, and via a connection establishing part-unit (40) the selecting part-unit (60) is connected to a receiver (50) suitable for receiving the signals of an external communication unit (3) and/or with a central unit (10) suitable for establishing remote communication connection.

2. Secure storage part-unit with or without its own running environment for use with the communication device, which secure storage part-unit has a memory area for receiving and storing applications and data contents, where the memory area contains memory zones to be allocated to separate applications and data contents, and an administration zone for receiving and storing a control application monitoring the lifecycle of the individual memory zones and/or the applications collaborating with them, and the individual applications are connected to each other via the administration zone or directly. **characterised** by that the memory area (2a) is supplemented with a database-handling component (2e) suitable for receiving data contents and the parameters of the applications running on the communication device (1) and/or on the secure storage part-unit allocated to it, and/or with a sequence-setting component (2f) and/or with a selecting component (2g), and the database-handling component (2e) and/or sequence-setting component (2f) and/or
selecting component (2g) is connected to one or more memory zones (2b, 2c) and/or administration zone (2d) and/or database-handling component (2e).

3. Communication device as in claim 1 or 2, characterised by that the house (1a) has two or more signal-transmitting cases (Ie), there are secure storage part-units (2) located in the individual signal-transmitting cases (Ie), and in this way, via the data channels (11) each one of the secure storage part-units (2) is connected to the database-handling part-unit (20) and/or sequence-setting part-unit (30) and/or selecting part-unit (60).

4. Communication device as in any of claims 1-3, characterised by that the house (1a) has two or more signal-transmitting cases (Ie), there are secure storage part-units (2) located in the individual signal-transmitting cases (Ie) and the database-handling component (2e) and/or sequence-setting component (2f) and/or selecting component (2g) located on the memory area (2a) of one of the secure storage part-units (2) is connected to memory zones (2b', 2c') and/or administration zones (2d') located on one or more further secure storage part-units (T), and/or contains information relating to the applications or data contents located in them.

5. Procedure for the preparation of locating applications and/or data content on the communication device or on the secure storage part-unit with its own running environment allocated to it, characterised by that a control application (100) is located in the communication device (1) and/or secure storage part-unit (2) allocated to it, and before locating the given application (110) or data content, with the help of the control application (100) data is collected from the communication device (1) and/or its central storage part-unit (Id) and/or at least one of its secure storage part-units (T), on the basis of the data collected the information content of the communication device (1) and/or central storage part-unit (Id) and/or secure storage part-unit (T) needed for the location of the given application or data content is determined, and then the information content determined is forwarded to the party realising the location of the given application (110) or data content.

6. Procedure as in claim 5, characterised by that the information content needed for the location of the given application (110) or data content is forwarded to the party realising the location of the given application (110) via a communication network and/or a wired or wireless communication channel.
7. Procedure as in claim 5 or 6, characterised by that the information content (HOa) needed for the location of the given application (110) or data content contains the technical data of the communication device (1) and/or central storage part-unit (Id) and/or at least one secure storage part-unit (2), and or the data of other applications (120) or data content already stored.

8. Procedure for activating applications or reading data content located on the communication device or in the secure storage part-unit with its own running environment allocated to it, characterised by that the applications (110, 120) or data content located in the central storage part-unit (Id) and/or secure storage part-unit (2) of the communication device (1) are sorted and put in order of preference in the database-handling part-unit (20) and/or database-handling component (2e) with the help of a sequence-setting part-unit (30) and/or sequence-setting component (2f), and the information and orders are allocated to the applications (110, 120) or data content on the basis of the relating order of preference.

9. Procedure as in claim 8, characterised by that the individual applications (110, 120) or data content located in the central storage part-unit (Id) of the communication device (1) and/or in the at least one secure storage part-unit (2) with its own running environment allocated to the communication device (1) are sorted in the central unit (10) or in the given secure storage part-unit (2) and put in order of preference therein.

10. Procedure as in claim 8, characterised by that the individual applications (110, 120) or data content located in the central storage part-unit (Id) of the communication device (1) and/or in the at least one secure storage part-unit (2) with its own running environment allocated to the communication device (1) are sorted jointly, a joint order of preference is set up, and then on the basis of the result of the joint order of preference the earlier order of preference maintained in the database-handling part-unit (20) of the central unit (10) and/or in the database-handling component (2e) of the secure storage part-unit (2) is changed.

11. Procedure as in claim 8, characterised by that the individual applications (110, 120) and/or data content located in the central storage part-unit (Id) of the communication device (1) and/or in the at least one secure storage part-unit (2) with its own running environment allocated to the communication device (1) are recorded in the database-
handling part-unit (20) and/or database-handling component (2e) allocated to the given storage part-unit, and then the registered applications (110, 120) or data content is arranged in a uniform structure in the database-handling part-unit (20) and/or in one of the database-handling components (2e).

12. Procedure as in claim 11, characterised by that in the database-handling part-unit (20) and/or database-handling component (2e) containing the applications (110, 120) or data content arranged in a uniform structure the sequence-setting part-unit (30) or sequence-setting component (2f) is used for arranging the applications (110, 120) or data content in a uniform structure.

13. Procedure as in any of claims 8-12, characterised by that the use of the set order of preference is subjected to a given condition, and in the case that the condition is fulfilled, the order of preference is changed at least partly.

14. Procedure as in any of claims 8-13, characterised by that in order to activate a given application (120) or read some data content needed for the realisation of a service, the signals of an external communication device (3) are forwarded to the communication device (1), where they are received with the help of a receiver (50), and via the connection establishing part-unit (40) the received signals are forwarded to the selecting part-unit (60) or selecting component (2g) and the data sent by the external communication device (3) is directed to the application (120) or data content determined with the help of the selecting part-unit (60) or selecting component (2g).

15. Procedure as in any of claims 8-13, characterised by that in order to activate a given application (120) or read some data content needed for the realisation of a service, the signals of an external communication device (3) are forwarded to the communication device (1), where they are received with the help of a receiver (50), and the received signals are forwarded to the selecting part-unit (60) or selecting component (2g) via the connection establishing part-unit (40), on the basis of the received signals the determined application (120) or data content is identified, the data needed to access the determined application (120) or data content is returned to the external communication device (3), and access to the given determined application (120) or data content is initiated on the basis of this data.
16. Procedure as in claim 15, characterised by that the data of several applications (110, 120) or data content is included in the response sent to the external communication device (3), on the basis of which the application (120) to be activated or the data content to be read can be determined.

17. Procedure as in claim 15 or 16, characterised by that in the case that the same applications (120) or data contents are located on the different secure storage part-units (2, 2'), the signals sent by the external communication device (3) to a given determined application (120) or data content are sent to the determined application (120) or data content via the selecting part-unit (60) or selecting component (2g).

18. Procedure as in any of claims 8-17, characterised by that security and/or other data relating to the individual applications (110, 120) or data content is also stored in the database-handling part-unit (20) and/or database-handling component (2e), and on the basis of the data, after receiving the signals of the external communication device (3), user-connection is initiated in respect of the application (120) or data content determined on the basis of the order of preference, or messages are displayed on the display part-unit (1b) of the communication device (1).

19. Procedure for the operation of applications or the regulation of data content located on the communication device or in the secure storage part-unit with its own running environment allocated to it, characterised by that the information content of the database-handling part-unit (20) or database-handling component (2e) is periodically updated with information relating to the status of the individual applications (110, 120) or data content, the updated information is processed with the help of the control application (100), and the applications are operated in accordance with this processed information, or the data content is regulated in accordance with this processed information.

20. Procedure for the operation of applications or the regulation of data content located on the communication device or in the secure storage part-unit with its own running environment allocated to it, characterised by that the operation of the selecting part-unit (60) or selecting component (2g) is monitored with the help of a control application (100), and the selected applications are operated on the basis of the information obtained in the
course of monitoring, or the data content is regulated on the basis of the information obtained in the course of monitoring a.

21. Procedure for changing the controlling partner allocated to the secure storage part-unit of the communication device according to claims 1-7, characterised by that the changing of the controlling partner (200) of the secure storage part-unit (2) is initiated at the database (210) in charge of the identification of the controlling partner (200) of the secure storage part-unit (2), and for the period of changing the rights of access to the secure storage part-unit (2) the secure storage part-unit (2) is set to temporary status, and then the new controlling partner (201) is allowed to update the rights of access to the secure storage part-unit (2), and finally the new controlling partner's (201) rights of access to the secure storage part-unit (2) are updated and the identifiers relating to the new controlling partner (201) are activated in the database (210) used for identifying the current controlling partner.
The manufacturer creates a Scrambler (S) and a De-scrambler (D) key.

The manufacturer places the product (U) of S and C into the secure storage part-unit.

The manufacturer hands over the S value to the controlling partner (current controlling partner).

In the case of a change of controlling partner, the current controlling partner selects a value (T).

The current controlling partner stores the multiplied values of S and T into the secure storage part-unit, through this the secure storage part-unit enters into a temporary status.

With appropriate security measures being applied, the current controlling partner hands over the T value to the new controlling partner.

The new controlling partner requests and receives the D key from the manufacturer.

The new controlling partner creates the D/T value and stores it in the secure storage part-unit, and with this stores its own key as well.

In the secure storage part-unit the S'T value stored by the current controlling partner is multiplied with the D/T value stored by the new controlling partner.

In the case of a successful transaction the product of the two values will be U, therefore the secure storage part-unit leaves its temporary status and with its own stored key the new controlling partner takes over the control of the secure storage part-unit.

In the case of an unsuccessful transaction the manufacturer is able to terminate the temporary status with its own key and returns the secure storage part-unit to the control of the current controlling partner.

Fig. 3