

**Method for operating a drinks vending machine and arrangement for
operating a drinks vending machine**

The invention relates to a method for operating a drinks vending machine.

The invention also relates to an arrangement for operating a drinks vending machine.

5 It is known to operate drinks vending machines, for example fully automatic coffee machines, using mobile operating instances, for example smartphones. In this case, the mobile operating instance is set up in such a way that the beverages that can be produced with the drinks vending machine are stored, and the operating
10 instance is coupled wirelessly to the drinks vending machine, for example via Wi-Fi or Bluetooth, in order to trigger the purchase of a beverage from the drinks vending machine.

The invention is concerned with integrating a payment function into a system for wirelessly operating a drinks vending machine.

15 According to the invention, the features of claim 1 are provided to solve this object. In particular, in order to solve the object, it is proposed in accordance with the invention for a method for operating a drinks vending machine that the method uses an administration instance, which is arranged remotely from
20 the drinks vending machine, an operating instance and a payment instance, wherein beverage-specific information is stored in the administration instance, and wherein in a selection step a user selects a beverage at the operating instance, in an order step an order for the selected beverage is determined from the operating
25 instance to the administration instance, the administration instance initiates in a payment step a payment process at the payment instance, and after successful payment, the administration instance transmits an order release to the operating instance in a release step to trigger a delivery of the
30 selected beverage at the drinks vending machine in a triggering

step.

By creating an administrative instance and participations in the payment process, the invention makes it possible to realize a payment function without the drinks vending machine itself having to be connected to the internet to verify a payment transaction. Another advantage is that the operating instance does not have to be specially secured to prevent unpaid beverages from being dispensed.

The method described is particularly advantageous for use in fully automatic coffee machines, where a variety of coffee specialties, for example beverages with and without milk, can be obtained.

For example, the administration instance can be designed to be stationary, in particular in a server. The advantage of this is that the administration instance can be maintained independently of the operating instance, in particular it may be provided with updated information.

This updated information is then available at the same time for all operating instances without these operating instances having to be changed. An example of this is the selection of a specific payment method or a specific payment instance.

The operating instance is preferably designed to be mobile, for example as a smartphone, tablet or similar mobile operating unit. The advantage of this is that a user can use their own operating instance.

It is preferably provided that the payment instance is stationary. This may be a payment instance provided by a payment service provider with a corresponding interface via the internet. It is thus preferred that the payment instance is set up separately from the administration instance.

For example, it may be provided that the operating instance is connected wirelessly to the drinks vending machine and/or to the administrative instance at least in a section of a respective communication path.

- 5 For example, it may be provided that the payment instance is provided as a cloud service or other service that can be controlled with a standardized interface on the internet.

In one design of the invention, it may be provided that the operating instance obtains a machine-specific identifier from the drinks vending machine in an identification step. The advantage
10 of this is that the operating instance can process the machine-specific identifier in order to be set to the respective drinks vending machine to be operated.

For example, it may be provided that this identification step
15 takes place before the selection step. Thus, a range of selectable beverages can be adapted for the selection step at the respective drinks vending machine to be operated.

For example, it may be provided that the identification step is carried out before the ordering step. This makes it possible to
20 adapt the ordering step to the circumstances of the respective drinks vending machine to be operated.

In particular, it may be provided that the machine-specific identifier is transmitted with the order information. Thus, the information about which vending machine is being operated can be
25 used in the administration instance.

For example, it may be provided that the machine-specific identifier is read optically. The advantage of this is that a wireless connection between the operating instance and the drinks vending machine is not required at the time the machine-specific
30 information is read in. For example, the machine-specific identifier can be provided on an outside of the drinks vending

machine in the form of a machine-readable code, such as a QR code, either permanently as a marking or temporarily with a display unit.

The provision and transmission of the machine-specific identifier before the selection step has the advantage that this identifier can be transmitted to the administration instance before the selection step, so that the administration instance can transmit beverage-specific information to the operating instance before the selection is made.

In one design of the invention, it may be provided that a control connection between the operating instance and the drinks vending machine can be established in a coupling step. The advantage of this is that a wireless control, for example via Wi-Fi or Bluetooth, in particular Bluetooth Low Energy or Web-Bluetooth, can be carried out via this control connection.

This can be carried out, for example, after the identification step, so that the machine-specific identifier is available when the operating instance is set up.

This can also be carried out, for example, before the selection step, so that communication with the drinks vending machine is already available while a beverage is being selected.

In one design of the invention, it may be provided that the operating instance can be arranged to obtain from the administration instance, in a single setup step, a set of beverages that are available at the drinks vending machine and/or for the machine-specific identifier. The advantage of this is that the available beverages for a drinks vending machine can be changed by modifying the administrative instance without having to intervene in the operating instance or the drinks vending machine.

For example, the set of available beverages can be transmitted

with an associated price. This means that price information can be changed without having to intervene in the drinks vending machine or the operating instance.

Alternatively or additionally, it may be provided to transmit the
5 set of beverages together with associated recipe parameters, for example, a quantity of milk to be added or other ingredients, a quantity of water or a water temperature, a type of coffee, a degree of grinding or similar parameters, on the basis of which the available beverages can be distinguished and/or individually
10 adapted. The advantage here is that the behavior of the drinks vending machine can be modified remotely without having to intervene in the drinks vending machine.

This can be carried out, for example, simply by modifying the administration instance and/or the beverage-specific information.
15 For this purpose, a user interface can be set up at the administration instance, for example, in order to read and/or modify a database.

It is preferably provided that the setup step takes place before the selection step in order to make an update of information
20 carried out at the administrative instance available, in particular visible, at the operating instance before the execution of the selection step.

In one design of the invention, it may be provided that a verifier is transmitted from the drinks vending machine to the
25 operating instance in a verification step. The advantage of this is that authentic information can be transmitted from the drinks vending machine to the administration instance without the operating instance having to be set up in any special way. For example, a verifier can contain time information about its
30 creation, for example as a nonce.

It is particularly advantageous if the verification step is carried out as part of the selection step. The advantage of this

is that the order or selection of the desired beverage is already available at the drinks vending machine when the verifier is generated. This enables the selected beverage to be linked to the verifier for later verification.

5 In one design of the invention, it may be provided that a verifier, for example the aforementioned verifier, can be transmitted to the administration instance in the ordering step or in a step such as the aforementioned payment step. This provides an instrument for making a payment process secure. In
10 particular, when the verifier is transmitted from the drinks vending machine via the operating instance to the administration instance, the administration instance can process information that originates from the drinks vending machine and cannot be modified by the intermediate operating instance. In this case,
15 the administration instance can also sign the verifier, as described below.

In one design of the invention, it may be provided that the administration instance may send a verifier, for example the aforementioned verifier, to the operating instance in the release
20 step. This provides the administration instance with a means of indicating, for example, that payment has been completed, and of enabling the operating instance to trigger the purchase of the selected beverage. For this purpose, it is advantageous if the verifier is signed by the administrative instance. This can be
25 carried out, for example, with one key of a key pair, for example in an RSA (Rivest-Shamir-Adleman) procedure or generally in an asymmetric cryptographic procedure, so that the drinks vending machine can check the signature.

For example, it may be provided that the operating instance
30 forwards the verifier to the drinks vending machine. Thus, information is available at the drinks vending machine that could be verified or processed by the administrative instance. The processing can be carried out by the signature described here. The signature can be one of the signature methods already known

in the art or another signature method.

It is particularly favorable if this transmission or forwarding of the verifier from the operating instance to the drinks vending machines takes place automatically, i.e. without any additional
5 action on the part of the user.

The use of a verifier processed by the administration instance to automatically trigger the selected beverage has the further advantage that the administration instance can count the number of beverages dispensed for the drinks vending machine or for the
10 machine-specific identifier almost error-free, without the need for feedback from the drinks vending machine to the administration instance after the beverage has been prepared. This is achieved by the fact that after release by the administrative instance, it is practically impossible to prevent
15 the dispensing of a drink because all further steps can be carried out automatically and in a short period of time.

In particular, a connection of the drinks vending machine to the internet is not required independently of the operating instance to provide such feedback.

20 In one design of the invention, it may be provided that the drinks vending machine can be designed to check a verifier transmitted by the operating instance in the triggering step before the selected beverage is dispensed. This makes it possible to check an order process at the drinks vending machine. It is
25 particularly advantageous here if the verifier has been generated and processed as described. In particular, if the verifier contains a time stamp indicating when it was generated, it is practically impossible to trigger a drink purchase twice in succession with a processed verifier.

30 In one design of the invention, it may be provided that a payment request can be transmitted from the payment instance to the operating instance in the payment step. This allows the payment

process to be carried out at the operating instance.

It is particularly favorable if this transmission of the payment request is transmitted from the payment instance to the operating instance via the administrative instance. Thus, the

5 administrative instance can monitor the entire payment process.

A direct coupling of the operating instance to the payment instance is thus not necessary. This has the advantage that a modification of the payment instance is not necessary in order to receive information about a completed payment at a central point
10 such as the administrative instance, and that the information about a completed payment does not have to be transmitted via the operating instance to the administrative instance.

In one design of the invention, it may be provided that the administration instance checks whether a payment process is
15 necessary before the payment step. This provides a means of storing in the administration instance whether a payment is required for a vending machine. This is not the case, for example, if the drinks vending machine is located in a non-public area or is intended to be available free of charge to a specific
20 group of people. In this case, the administration instance can decide that the payment step is skipped if this is specified. The advantage of this is that the administration instance allows for a flexible design of the operating process without having to modify the drinks vending machines or the operating instance.

25 Another advantage is that even in this case, a secure record of the beverages purchased is available at the administration instance without a direct internet connection between the drinks vending machine and the administration instance being required.

For example, this information can be stored on the basis of the
30 drinks vending machine or the machine-specific identifier, so that a correct assignment as to whether a payment process is necessary in an operating process or not can be easily made in the administrative instance.

In one design of the invention, it may be provided that an execution of the release step is stored in the administrative instance. This makes it possible to carry out a statistical and/or accounting evaluation of beverages purchased at the drinks vending machine without having to read out the drinks vending machine, for example via a separate internet connection. This enables a simple comparison of payment transactions and drinks purchased at the drinks vending machine, the setting up of a predictive maintenance system or other statistical and/or accounting evaluations.

In one design of the invention, it may be provided that a machine-specific identifier, in particular the machine-specific identifier already mentioned, is transmitted to the administration instance in a configuration step. This enables the drinks vending machine to register with the administration instance. Preferably, it is provided that the configuration step can be carried out separately from the previously described operating instance, for example via a further operating instance of an authorized person, and is blocked for the previously mentioned operating instance.

For example, it may be provided that the administration instance generates a public/secret key pair, the public key of which is transmitted to the drinks vending machine. For example, this key pair can be generated in an asymmetric cryptographic method, for example the RSA method. This makes it possible to provide the drinks vending machine with information that can be used to generate a verifier or other information that cannot be modified by the operating instance. This enables secure communication between the drinks vending machines and the administration instance via the operating instance, without the need for a separate connection between the administration instance and the drinks vending machine that is not routed via the operating instance.

For example, it may be provided that the public key is used to

verify a preferably signed verifier transmitted in the triggering step, in particular the previously mentioned one, in particular to verify the signature, in the drinks vending machine. This makes it possible to check that a payment process in the drinks vending machine has been completed properly.

In one design of the invention, it may be provided that the drinks vending machine and the operating instance can be coupled with a point-to-point connection. This enables a simple setup of a control connection between the drinks vending machine and the operating instance, without the need for the drinks vending machine to be integrated into any other communication network. For example, this point-to-point connection can be established via Wi-Fi or Bluetooth, in particular Bluetooth Low Energy and/or Web Bluetooth.

The advantage of this is that full communication with the drinks vending machine, in particular between the drinks vending machine and the administration instance, can be carried out via the operating instance, which itself can be connected to the internet via mobile data access.

The invention uses the fact that the operating instance, in particular if it is a smartphone, is technically set up for the data connection, for example via the mobile network or a WLAN, to the internet and thus to the administration instance, without the user having to make any modification to operate the drinks vending machine.

In one design of the invention, it may be provided that in a configuration step, for example the aforementioned configuration step, for a machine-specific identifier, for example the aforementioned machine-specific identifier, it is stored in the administration instance whether or not a payment process is necessary. The advantage of this is that this configuration step can be carried out by an authorized person independently of the operating instance, for example with a separate operating

instance. This information can thus be designed in such a way that an operating instance cannot access it during the normal operating procedure, so that an unauthorized user is virtually unable to modify this information.

- 5 In one design of the invention, it may be provided that a manual input unit on the drinks vending machine is disabled when the process is to be carried out. The advantage of this is that the administrative instance can fully control the drinks vending machine.
- 10 Alternatively or additionally, it may be provided that a visual output unit, for example the output unit already mentioned, presents a machine-specific identifier, for example the machine-specific identifier already mentioned. This enables a simple visual reading of the identifier without a control connection
- 15 having to be established between the drinks vending machine and the operating instance at this point in time. Preferably, it may be provided that this presentation of the machine-specific identifier also contains information for setting up the control connection to the drinks vending machine.
- 20 For example, it may be provided that error messages are displayed via the identifier. This reliably prevents a user from operating a faulty vending machine.

To solve the mentioned object, an arrangement for operating a drinks vending machine is further provided according to the

25 invention, in particular wherein the arrangement has a drinks vending machine, an operating instance and an administrative instance, wherein means are designed to carry out a method according to the invention, in particular as previously described and/or according to one of the claims directed to a method.

- 30 The invention will now be described in more detail with reference to an exemplary embodiment, but is not limited to this exemplary embodiment. Further exemplary embodiments arise from combining

the features of one or more claims with each other and/or with one or more features of the exemplary embodiment, wherein:

Fig. 1 shows a flow chart of a configuration step,

Fig. 2 shows the continuation of the configuration step from Fig. 1 in a second part,

Fig. 3 shows a flowchart of a method for operating a drinks vending machine according to the invention,

Fig. 4 shows a flowchart of a detail from Fig. 3 and

Fig. 5 shows an arrangement for operating a drinks vending machine in a highly schematized representation.

Fig. 5 shows an arrangement, designated as a whole by reference sign 1, for operating a drinks vending machine 2.

Accordingly, the arrangement 1 has a drinks vending machine 2, for example a coffee machine, a mobile operating instance 3, for example a smartphone, an administrative instance 4, for example a database 11 accessible via the internet, and a payment instance 5, for example a cloud service.

The drinks vending machine 2 has a display unit 6 on which a machine-readable code, for example a QR code, can be presented.

This machine-readable code contains a machine-specific identifier and information for starting an app on the operating instance 3.

The operating instance 3 has a reading unit 7 with which information presented on the display unit 6 can be read in for further machine processing.

The read-in information is used to establish a control connection 8 between communication units 9 of the drinks vending machine 2

and the operating instance 3. In the example, the control connection 8 is a web-Bluetooth connection or a BLE (Bluetooth Low Energy) connection.

5 The operating instance 3 is connected to the administration instance 4 via a data connection 10, for example at least partially via the internet.

The data connection 10 can also be established on the basis of information transmitted by the drinks vending machine 2 via the reading unit 7, for example on the basis of the machine-specific
10 identifier.

The administration instance 4 has the aforementioned database 11 with beverage-specific information, in particular in assignment to the machine-specific identifier.

15 This beverage-specific information may, for example, contain parameters of a recipe and/or price information.

The administration instance 4 also has a manual user interface for maintaining, servicing and updating the database 11.

The user interface 12 can also be accessed remotely.

20 The administration instance 4 can be connected at least temporarily to the payment instance 5 via a further data connection 13.

Figs. 1 and 2 show the individual sub-steps of a configuration step 14.

The devices and instances involved are arranged in columns.

25 "KVA" refers to the drinks vending machine (for example KVA = coffee machine) that has a wireless connector ("Frog"). This wireless connector forms the communication unit 9 of the drinks

vending machine 2 in Fig. 5.

In the third column, "Setup App", an operating instance 3 is presented. This operating instance 3 does not have to correspond to the operating instance in normal operating mode, but can be an
5 operating instance 3 of a specially authorized user.

The "Operator Frontend" column denotes the administration instance 4.

A user's interventions are marked by a horizontal dashed line.

It can be seen that the communication unit 9 is activated first
10 in a sub-step marked with a 1 in a circle.

The drinks vending machine 2 then displays a QR code on its display unit 6, which is scanned with the operating instance 3 to provide a link to a setup routine.

With this link, a user can now start a setup app at the operating
15 instance 3 in a sub-step marked with a 2 in a circle and log in to the administration instance 4 or register a new user.

Now the user selects at the operating instance 3 that a new drinks vending machine 2 is to be registered.

A control connection 8 is now established between the drinks
20 vending machine 2 and the operating instance 3.

The drinks vending machine 2 now transmits a machine-specific identifier via the communication unit 9, which contains a unique designation of the machine ("machine ID") and an indication of the device type (e.g. "product name"). In a sub-step designated
25 with a 3 in the circle, the user at the operating instance 3 first selects which operating mode is chosen. The modes of Fig. 4 are available for selection.

Here there is now the mode "Authorization", the mode "Payment" and the mode "Open Access".

In the open mode "open Access", where the user sees the QR code on the drinks vending machine 2 (on the display unit 6), but
5 everything is available without payment. In this case, a payment step 20, which is described in more detail below, is skipped.

This mode is used to obtain the statistics of the drinks vending machine 2 and display them in the administration instance 4.

The second mode is the payment mode "Payment", in which the user
10 scans the QR code, makes a payment in payment step 20, which is described in more detail below, and receives a beverage.

The third mode is called "Authorization", where a user of a vending machine 2 can be assigned via an operator front end 24 (with manual controls such as a touch screen or a switch). This
15 means that if a user is assigned to a vending machine 2, they can use the drinks vending machine 2; if not, they cannot use the drinks vending machine 2. To do this, the user must log into the coffee app at operating instance 2, and so the system can see who can use vending machine 2.

20 Back to Fig. 1, operating instance 3 now sends the machine-specific identifier and further information (e.g. the chosen operating mode and possibly a protocol version of the data communication, a MAC address of the communication unit 9 and a relevant version number) to the administration instance 4 in
25 order to effect a registration of the drinks vending machine 2 with the administration instance 4.

This data is now stored in the database 11 of the administration instance 4.

The administration instance 4 now generates a key pair with a
30 public key and a secret key.

This public key is now transmitted to the operating instance 3 and from there to the drinks vending machine 2 or its communication unit 9, in order to be stored in the drinks vending machine 2.

- 5 This public key is thus stored independently of the operating instance 3 in the drinks vending machine 2 for further use.

At the end of the sub-step marked with a 3 in a circle, the drinks vending machine 2 sends a response to the operating instance 3 via the control connection 8 and switches the display unit 6 in such a way that local operation at the drinks vending machine 2 is no longer possible and no longer displayed.

In a sub-step designated by a 4 in the circle, the user at the operating instance 3 still has the option of assigning an individual name for the drinks vending machine 2 ("Frog name"), which is stored in the communication unit 9. As soon as the drinks vending machine 2 has transmitted the successful name change to the operating instance 3, this newly defined name for the drinks vending machine 2 is transmitted to the administrative instance 4 for storage in the database 11.

20 This concludes configuration step 14.

Fig. 3 shows the normal operating mode for carrying out the method according to the invention.

Here, the "Frog" column stands for the communication unit 9 of the drinks vending machine 2 and thus for the drinks vending machine 2, the "Coffee App" column for the operating instance 3, the "operator frontend/server" for the administration instance 4 and the column "payment provider" for the payment instance 5. Dashed horizontal lines again indicate input at the operating instance 2.

30 In an identification step 15 at the beginning of the sub-step in

Fig. 3, designated by a 5 in the circle, an operating instance 3 reads in machine-readable information at the display unit 6, which in particular also contains a machine-specific identifier of the drinks vending machine 2 and a link to the app to be executed on the operating instance 3. This app ("Coffee App") is usually different from the app described previously for configuration step 14.

Now the operating instance 2 can - as shown in Fig. 4 - query the set mode at the administration unit 4.

10 In the "Open Access" mode, the payment step 20, which is described later, is skipped; in the "Payment" mode, the procedure described below is carried out in full; and in the "Authorization" mode, a local operation is carried out at the drinks vending machine by authorized users, without recording the beverage purchases in the administration unit 4.

The following describes the process when the "Payment" mode is set.

With the aforementioned identifier, the operating instance 3 then queries the available beverages from the drinks vending machine 2 in the administrative instance 4 and the associated prices and, if applicable, parameters of a recipe in a setup step 16.

Once this is stored in the operating instance 3, the operating instance 3 is ready to select a beverage and can establish the control connection 8 with the information from the identification step 15.

At the beginning of the sub-step designated by a 5 in the circle, i.e. in the identification step 15, some of the transmitted information can be used by the drinks vending machine 2 to establish the data connection 10 between the operating instance 3 and the administration instance 4, for example via a mobile data connection and a subsequent internet connection to the

administration instance 4.

At the end of the setup step 16, the operating instance 3 now displays a menu structure ("coffee menu" in Fig. 4) of available beverages at the drinks vending machine 2 to the user.

- 5 This information does not come from the drinks vending machine 2, but can be changed and updated via the administration instance 4 without access to the drinks vending machine 2.

In a sub-step marked 6 in a circle, the user selects a desired beverage in a selection step 17 at the operating instance 3. This
10 beverage is now transmitted from the operating instance 3 to the drinks vending machine 2, wherein a verifier ("nonce") is requested.

This verifier is generated in a verification step 18 in the drinks vending machine 2 and transmitted to the operating
15 instance 3.

In a subsequent order step 19, the operating instance 3 transmits the order with the details of the selected drink and the verifier as a payment request to the administration instance 4.

The administration instance 4 calls the payment instance 5 to
20 initiate the payment process. A response from the payment instance 5 is returned by the administration instance 4 to the operating instance 3.

In a payment step 20, the user enters the data required to initiate the payment process at operating instance 3 at the
25 beginning of the sub-step marked with a 7 in the circle. This data is now transmitted together with the verifier to the administration instance 4, which forwards the payment data to the payment instance 5 to initiate the payment.

The payment instance 5 sends a response to the administration

instance 4 if the payment process was completed properly.

The administration instance 4 then signs the verifier with the aforementioned key pair and sends it back to the operating instance 3.

- 5 If the "Open Access" mode is selected, the administration instance 4 skips the call to the payment instance 5 and the payment step 20 and signs and sends the verifier directly to the operating instance 2.

10 The signed verifier is therefore transmitted to the operating instance 3 in a release step 21 in both the "open access" mode and the "payment" mode.

In a triggering step 22, the signed verifier is transmitted from the operating instance 3 to the drinks vending machine 2 without further user intervention.

- 15 The drinks vending machine 2 checks the signed verifier with its public key and, after a successful check, triggers the dispensing of the selected beverage at the dispensing unit 23 of the drinks vending machine 2.

20 Afterwards, the app can be closed on the operating instance 3 or it can be re-executed from the sub-step marked with a 6 in a circle to purchase another beverage.

The invention accordingly relates to a method and an arrangement 1 for operating a drinks vending machine 2, wherein the drinks vending machine 2 is coupled to an operating instance 3, wherein 25 the operating instance 3 obtains operating information from a remotely arranged administrative instance 4, which can be connected to a payment instance 5 for the purpose of paying for drinks dispensed.

/ List of reference signs

List of reference signs

	1	Arrangement for operating a vending machine
	2	Drinks vending machine
5	3	Operating instance
	4	Administrative body
	5	Payment instance
	6	Display unit
	7	Reading unit
10	8	Control connection
	9	Communication unit
	10	Data connection
	11	Database
	12	User interface
15	13	(Further) data connection
	14	Configuration step
	15	Identification step
	16	Setup step
	17	Selection step
20	18	Verification step
	19	Order step
	20	Payment step
	21	Release step
	22	Triggering step
25	23	Output unit
	24	Operator front end

/ **Claims**

CLAIMS:

1. Method for operating a drinks vending machine (2), in particular a fully automatic coffee machine, having a preferably stationary administration instance (4) which is
5 arranged remotely from the drinks vending machine (2), a preferably mobile operating instance (3) and a preferably stationary payment instance (5), wherein beverage-specific information is provided in the administration instance (4), wherein a user selects a beverage at the operating
10 instance (3) in a selection step (17), an order for the selected beverage is transmitted in an ordering step (19) from the operating instance (3) to the administration instance (4), the administration instance (4) initiates in a payment step (20) a payment process at the payment
15 instance (5) and, after successful payment, the administration instance (4) transmits an order release to the operating instance (3) in a release step (21) for triggering a beverage dispensing of the selected beverage at the drinks vending machine (2) in a triggering step
20 (22).
2. Method according to claim 1, characterized in that in an identification step (15), preferably before the selection step (17) or before the ordering step (19), the operating instance (3) obtains a machine-specific identifier from
25 the drinks vending machine (2), in particular wherein the machine-specific identifier is transmitted with the order information and/or wherein the machine-specific identifier is read in optically.
3. Method according to one of the preceding claims,
30 characterized in that in a coupling step, in particular after the identification step (15) and/or before the selection step (17), a control connection is established between the operating instance (3) and the drinks vending machine (2).
- 35 4. Method according to one of the preceding claims,

characterized in that the operating instance (3), in a setup step (16), in particular before the selection step (17), obtains from the administration instance (4) a set of beverages which are available at the drinks vending machine (2) and/or for the machine-specific identifier, in particular with a respectively associated price and/or with at least one associated recipe parameter.

5. Method according to one of the preceding claims, characterized in that in a verification step (18), in particular as part of the selection step (17), the drinks vending machine (2) transmits a verifier, in particular a nonce, to the operating instance (3).
6. Method according to one of the preceding claims, characterized in that in the ordering step (19) and/or the or a payment step (20), the or a verifier is transmitted to the administration instance (4).
7. Method according to one of the preceding claims, characterized in that the administration instance (4) sends the verifier or a preferably signed verifier to the operating instance (3) in the release step (21), in particular wherein the operating instance (3) preferably automatically forwards the verifier to the drinks vending machine (2).
8. Method according to one of the preceding claims, characterized in that the drinks vending machine (2) checks the verifier or a verifier transmitted by the operating instance (3) in the triggering step (22) before the selected beverage is dispensed.
9. Method according to one of the preceding claims, characterized in that, in the payment step (20), a payment request is transmitted from the payment instance (5) to the operating instance (3), in particular via the administration instance (4).

10. Method according to one of the preceding claims,
characterized in that it is checked in the administration
instance (4) before the payment step (20) as to whether a
payment process is necessary, in particular for the drinks
vending machine and/or for the machine-specific
identifier, in particular wherein the payment step (20) is
skipped if this is not the case.
11. Method according to one of the preceding claims,
characterized in that an execution of the release step
(21) is stored in the administration instance (4), in
particular for a statistical and/or accounting evaluation.
12. Method according to one of the preceding claims,
characterized in that in a configuration step (14) the or
a machine-specific identifier is transmitted to the
administration instance (4), in particular wherein the
administration instance (4) generates a public/secret key
pair whose public key is transmitted to the drinks vending
machine (2) and/or is used to check the or a verifier
transmitted in the triggering step (22) in the drinks
vending machine (2).
13. Method according to one of the preceding claims,
characterized in that the drinks vending machine (2) and
the operating instance (3) are coupled with a point-to-
point connection, in particular via Wi-Fi and/or Bluetooth
(BLE, Web-Bluetooth), in particular wherein complete
communication with the drinks vending machine (2) takes
place via the operating instance (3).
14. Method according to one of the preceding claims,
characterized in that in the or a configuration step (14)
for the or a machine-specific identifier, it is stored in
the administration instance (4) whether a payment process
is necessary.
15. Method according to one of the preceding claims,

characterized in that a manual input unit on the drinks vending machine (2) is deactivated and/or an optical output unit presents the or a machine-specific identifier, in particular wherein error messages are displayed via the identifier.

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16. Arrangement for operating a drinks vending machine (2), in particular a fully automatic coffee machine, with means for carrying out a method according to one of the preceding claims.

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