CLAIMS:

1. A method of using a blockchain to control a process executing on a computing resource, the method comprising the step:
executing a loop on the computing resource;
storing information relating to at least one iteration of the loop as metadata in a transaction on the blockchain; and
using the state of the blockchain to influence the execution of the loop by monitoring the current state of the blockchain for transactions matching a start or triggering condition, a repeating condition or a stop condition.

2. A method according to claim 1 and further comprising the step of generating a cryptographic hash of code relating to the loop and, preferably, storing the cryptographic hash within a transaction on the blockchain.

3. A method according to any preceding claim wherein the computing resource is arranged to monitor the state of the blockchain for a transaction comprising a cryptographic hash of code relating to the loop.

4. A method according to any preceding claim, the method further comprising the step:
for each iteration of the loop:
evaluating a condition and performing at least one action based on the outcome of the evaluation, wherein the at least one action comprises:
causing at least one transaction to be written to the blockchain; and/or
causing an off-blockchain action to be performed.

5. A method according to claim 3 or 4, wherein the condition relates to:
data received, detected or generated by the computing resource; or
the state of the blockchain.

6. A method according to any preceding claim, wherein the computing resource is arranged to monitor:
the state of the block chain;
a value generated or received by the computing resource; and/or
a data or signal source provided off the blockchain.

7. A method according to any preceding claim, and comprising the steps:
i) using the blockchain as a storage component for data, instructions or a pointer to data and/or instructions; and
ii) using a computing resource as a control flow management component for a Turing complete process, the computing resource being arranged to execute a looping mechanism.

8. A method according to any preceding claim and further comprising the step:
restarting the loop at a specified iteration if the computing resource finds a predetermined hash of a portion of code in a transaction within the blockchain.

9. A method according to claim 8 wherein information relating to the iteration is specified using metadata provided within, or in association with, the transaction.

10. A method according to any preceding claim wherein code for the loop is:
hard-coded into or on the computing resource;
stored in a private or publicly available file; and/or
stored as an entry on a private or public hash table file; and/or
a static code block with hard-coded variables or at least one parameter.

11. A method according to any preceding claim wherein code for the loop is associated with or comprises at least one parameter which is:
populated, initialised or instantiated with a single value of any data format;
a portion of code;
retrieved from metadata in a blockchain transaction or from an source external to the computing resource;

retrieved from a database, or a private or public file or hash table; and/or
populated using values which are accessed using at least one pointer to a data source, preferably wherein the at least one pointer is stored as metadata in a transaction on the blockchain.

12. A method according to any preceding claim, wherein the computing resource comprises or is in communication with a registry which enables the computing resource to access a pre-stored version of the subroutine.

13. A method according to claim 12 wherein the registry stores:
i) a cryptographic hash of code relating to the loop; and
ii) information indicative of a location where a copy of the code can be accessed from.

14. A method according to any preceding claim and further comprising the step of:
using a blockchain transaction to update code for the loop so that the existing code is replaced with new code;
preferably wherein the transaction is a multi-signature P2SH transaction.

15. A method according to claim 14 and further comprising the steps:
storing a hash of the existing code and a hash of the new code.

16. A computer-based system arranged to use a blockchain to control a process executing on a computing resource, the system comprising:
a blockchain; and
a computing resource arranged to execute a loop such that execution of the loop is influenced by state of the blockchain by monitoring the current state of the blockchain for transaction matching a start or triggering condition, a repeat condition or a stop condition;
wherein information relating to at least one iteration of the loop is stored as metadata in a transaction on the blockchain.

17. A system according claim 16 wherein the computing resource is arranged to:
i) generate a cryptographic hash of code relating to the loop and, preferably, storing the cryptographic hash within a transaction on the blockchain; and/or
ii) monitor the state of the blockchain for a transaction comprising a cryptographic hash of code relating to the loop.

18. A system according to claims 16 or 17, wherein for each iteration of the loop:
a condition is evaluated and at least one action is performed based on the outcome of the evaluation; the at least one action comprising:
causing at least one transaction to be written to the blockchain; and/or
causing an off-blockchain action to be performed.

19. A system according to claim 18, wherein the condition relates to:
data received, detected or generated by the computing resource; or
the state of the blockchain.

20. A system according to claims 16 to 19, wherein the computing resource is arranged to monitor:
the state of the block chain;
a value generated or received by the computing resource; and/or
a data or signal source provided off the blockchain.

21. A system according to claims 16 to 20, wherein:
i) the blockchain serves as a storage component for data, instructions or a pointer to data and/or instructions; and
ii) the computing resource serves as a control flow management component for a Turing complete process, the computing resource being arranged to execute a looping mechanism.

22. A system according to claims 13 to 21 wherein the loop is restarted at a specified iteration if the computing resource finds a predetermined hash of a portion of code in a transaction within the blockchain; preferably wherein the information relating to the

iteration is specified using metadata provided within, or in association with, the transaction.

23. A system according to claims 16 to 22, wherein the computing resource comprises or is in communication with a registry which enables the computing resource to access a pre-stored version of the subroutine;
preferably wherein the registry stores:
i) a cryptographic hash of code relating to the loop; and
ii) information indicative of a location where a copy of the code can be accessed from.

24. A system according to claim 16 to 23 wherein the system is configured to:
use a blockchain transaction to update code for the loop so that the existing code is replaced with new code;
preferably wherein the transaction is a multi-signature P2SH transaction.

25. A system according to claim 24 wherein the system is arranged to store a hash of the existing code and a hash of the new code.