

CLAIMS:

1. A computer-implemented method for conducting a maintenance activity on an asset, comprising:

obtaining a value of a first parameter, the value of the first parameter being indicative of a first operation risk level of the asset over time with respect to a failure mode of the asset without a first conduct of the maintenance activity;

obtaining values of a set of parameters indicative of properties of the maintenance activity with respect to the failure mode of the asset;

determining a time interval between the first conduct of the maintenance activity and a second conduct of the maintenance activity based on a model, the model containing the value of the first parameter and the values of the set of parameters, and the model representing a value of a second parameter indicative of an average operation risk level of the asset over the time interval with respect to the failure mode of the asset given the first conduct of the maintenance activity and the second conduct of the maintenance activity; and

if the average operation risk level indicated by the value of the second parameter is lower than the first operation risk level indicated by the value of the first parameter, causing the second conduct of the maintenance activity to be performed.

2. The computer-implemented method according to claim 1, wherein determining the time interval further comprises determining the time interval such that the value of the second parameter is minimised.

3. The computer-implemented method according to claim 1 or 2, wherein causing the second conduct of the maintenance activity to be performed comprising:

sending the time interval to a Computerized Maintenance Management System (CMMS) to cause the second conduct of the maintenance activity to be performed at the time interval after the first conduct of the maintenance activity is performed.

4. The computer-implemented method according to claim 1 or 2, causing the second conduct of the maintenance activity to be performed comprising:

generating a maintenance schedule containing the time interval; and

send the maintenance schedule to a maintenance mechanism associated with the asset, wherein the maintenance mechanism is configured to automatically perform the maintenance activity based on the maintenance schedule.

5. The computer-implemented method according to claim 4, further comprising:

sending a maintenance notification message including the maintenance schedule to a mobile device, the maintenance notification message causing the maintenance schedule to be displayed on the mobile device.

6. The computer-implemented method according to any of the preceding claims, wherein obtaining the values of the set of parameters comprises determining the values of the set of the parameters indicative of one or more of the following properties of the maintenance activity:

a level of an effect of the maintenance activity on the first operation risk level;

a duration of the maintenance activity;

a cost level of the maintenance activity; and

a fading mode of the effect of the maintenance activity on the first operation risk level.

7. The computer-implemented method according to any one of the preceding claims, wherein obtaining the value of the first parameter comprises determining a failure frequency of the failure mode and a severity level of the failure mode to determine the value of the first parameter.

8. The computer-implemented method according to claim 7, wherein determining the failure frequency of the failure mode comprises determining an average failure frequency based on occurrences of the failure mode in a past period of time.

9. The computer-implemented method according to claim 8, wherein determining the severity level of the failure mode comprises determining the severity level based on impact levels indicative of impacts of the failure mode on one or more of following aspects:

production, troubleshooting, safety, environment, and reputation.

10. The computer-implemented method according to claim 9, wherein determining the severity level of the failure mode comprises calculating a sum of the impact levels.

11. A computer-implemented method for conducting a maintenance activity on an asset, comprising the steps of:

- a first step of obtaining input parameters, the input parameters being at least
- a value of a risk to failure (R) over time t;
- a value of a reduction of risk (RR) over time t, the reduction of risk being result of the implementation of an action (A);
- a period of time (P) in which the value of the reduction of risk (RR) is maintained result of the implementation of the action (A);

- a second step of determining a period of time between actions (PA) in such a way that a new risk to failure (NRF) over time is minimized, the new risk to failure (NRF) taking into account the input parameters, the time t and a cost (C) of performing the action (A).

12. A computer-implemented method according to claim 11 wherein the input parameters further comprise a value of the cost (C) of implementing the action (A).

13. A computer-implemented method according to any one of claims 11 or 12 further comprising

a third step of calculating the (G) gain associated with implementing the action (A) and

a fourth step of discriminating whether the action (A) is to be implemented as a function of a comparison between the gain (G) with a predetermined threshold.

14. A computer-implemented method according to any one of claims 11 to 13 wherein obtaining in a value of a risk to failure (R) over time t comprises determining a failure frequency based on occurrences of failure in a past period of time.

15. A computer-implemented method according to any one of claims 11 to 14 wherein a decrease of value of a reduction of risk (RR) over time t, indicates a reduction in troubleshooting and/or safety and/or environment and/or reputation.

16. A computer-implemented method according to any one of claims 11 to 15, further comprising determining a relevance level based on the value of the value of a risk to failure.

17. A computer-implemented method according to any one of claims 11 to 16, wherein:

- the step of obtaining a value of a risk to failure (R) over time t comprises receiving the value of a risk to failure (R) from a Supervisory Control and Data Acquisition, or SCADA system;

- the step of obtaining a value of a reduction of risk (RR) over time t comprises receiving the value of a reduction of risk (RR) from a user interface;
- the step of obtaining a period of time (P) in which the value of the reduction of risk (RR) is maintained result of the implementation of the action (A) comprises receiving the period of time (P) from a user interface.

18. A computer-implemented method according to any one of claims 11 to 17, wherein the steps are periodically implemented and the values of the input parameters are updated at each implementation.

19. A computer software program, including machine-readable instructions which, when executed by a processor, causes the processor to perform the method according to any one of claims 1 to 10 and 11 to 18.

20. A computer system for conducting a maintenance activity on an asset, the computer system comprising:

- means for obtaining a value of a risk to failure (R) over time;
- means for obtaining a value of a reduction of risk (RR) over time t, the reduction of risk being result of the implementation of an action (A);
- means for obtaining a period of time (P);
- means for determining a period of time between actions (PA) in such a way that a new risk to failure (NRF) over time is minimized, the new risk to failure (NRF) taking into account the input parameters, the time t and a cost (C) of performing the action (A).