

CLAIMS:

1. 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 being indicative of a first operation risk level resulting from a failure mode of the asset without a first conduct of the maintenance activity on the asset;
 - a value of a reduction of risk (RR) over time t, the reduction of risk being result of the first conduct of the maintenance activity (A);
 - a period of time (P) in which the value of the reduction of risk (RR) is maintained as a result of the first conduct of the maintenance activity (A);

wherein obtaining the value of the risk to failure (R) over time t comprises determining a failure frequency of the asset based on measurements of failure in a past period of time;

- a second step of determining an optimal period of time between the first conduct of the maintenance activity and a second conduct of the maintenance activity (PA) in such a way that a new risk to failure (NRF) over time is minimized, wherein the new risk to failure (NRF) is indicative of an average operation risk level of the asset between the first conduct of the maintenance activity and the second conduct of the maintenance activity, and wherein the new risk to failure (NRF) is based on the input parameters, the time t and a cost (C) of performing the maintenance activity (A); and
- a third step of conducting the second conduct of the maintenance activity on the asset in accordance with a schedule based on the determined optimal period of time (PA).

2. A computer-implemented method according to claim 1 wherein the input parameters further comprise a value of the cost (C) of implementing the action (A).

3. A computer-implemented method according to any one of claims 1 or 2 further comprising:

- a fourth step of calculating the (G) gain associated with implementing the action (A) and
- a fifth 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.

4. A computer-implemented method according to any one of claims 1 to 3 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.

5. A computer-implemented method according to any one of claims 1 to 4, further comprising determining a relevance level based on the value of the value of a risk to failure.

6. A computer-implemented method according to any one of claims 1 to 5, 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.

7. A computer-implemented method according to any one of claims 1 to 6, wherein the steps are periodically implemented and the values of the input parameters are updated at each implementation.

8. 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 7.

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

- means for obtaining input parameters, the input parameters being at least:
 - a value of a risk to failure (R) over time t being indicative of a first operation risk level resulting from a failure mode of the asset without a first conduct of the maintenance activity on the asset;
 - a value of a reduction of risk (RR) over time t, the reduction of risk being result of the first conduct of the maintenance activity (A);
 - a period of time (P) in which the value of the reduction of risk (RR) is maintained as a result of the first conduct of the maintenance activity (A);

wherein obtaining the value of the risk to failure (R) over time t comprises determining a failure frequency based on measurements of failure in a past period of time;

- means for determining an optimal period of time between the first conduct of the maintenance activity and a second conduct of the maintenance activity (PA) in such a way that a new risk to failure (NRF) over time is minimized, wherein the new risk to failure (NRF) is indicative of an average operation risk level of the asset between the first conduct of the maintenance activity and the second conduct of the maintenance activity, and wherein the new risk to failure (NRF) is based on the input parameters, the time t and a cost (C) of performing the maintenance activity (A); and
- means for conducting the second conduct of the maintenance activity on the asset in accordance with a schedule based on the determined optimal period of time (PA).

10. A computer system according to claim 9 wherein the means for obtaining a value of a risk to failure over time includes a Supervisory Control and Data Acquisition (SCADA) system.

11. A computer system according to either claim 9 or 10 wherein either, or both, of the means for obtaining a value of a reduction risk and means for obtaining a period of time includes one, or more, user interface.
12. A computer system according to any one of claims 9 to 11, wherein the means for determining a period of time between actions includes a processor.