Training Session Description

Data-Driven Maintenance Operations

Richard G. Lamb, PE, CPA; Analytics4Strategy.com

A "data-driven" maintenance operation is defined as one that harnesses its CMMS data to augment the experience and judgement of operatives, managers, analysts and engineers as they plan, organize, conduct and control the network of processes that decide their plant's maximal uptime, stay abreast of its site and facility deterioration, and match its maintenance capacity to those ends.

Should a maintenance organization set out to bring itself to be data-driven, it will find itself rethinking its maintenance management processes. The reason is in the adage, "When we change the way we look at things, the things we look at change." When we rethink maintenance management through the lens of what data and analytics allow us to do, new processes take form and standing processes take new form.

The training session, as a case, works top-down through the steps to rethink the management processes of a maintenance operation through the lens of what data and analytics make possible. At the top is to establish how the firm, through the plant, competes and wins in its industry and how the competition is scored financially. Next, is to establish a proxy to the top measure of competitiveness by which the maintenance operation would be measured in the same financial terms as the grand score. In turn, is to establish the set of operational scenarios that would constitute maintenance performance at the pinnacle of the proxy. These constitute the North Star to the maintenance operation. In turn, is to establish and chart the structure of maintenance management processes that are required for the plant to be able to operate at the pinnacle.

As presented, the session will be interactive. Attendees will find themselves offering ideas to the case flowcharts as their perspectives of data-drivenness mixes with their personal experiences and the ongoing challenges of their roles.

Agenda

The agenda is as follows:

- ➢ Purpose of the training session.
- ➢ Competitive North Star for maintenance.
- ➢ Structure of North-Star maintenance processes.
- ➢ Description of the North-Star processes.
    - ▪ Mandatory practice and process.
    - ▪ Workload and service interval processes.
    - ▪ Maintenance capacity processes.
    - ▪ Recountive insight processes.

Session Length

Three options decide session length.

- If session is to be a lecture and discussion: Four hours.
- If the session is to be extended to be a workshop to refine a plant's maintenance operation with the processes of the session as the starting basic design: two to five days.
- If the session is to be extended to refine an operation other than maintenance: four to seven days.

Who Should Attend

The following role holders to the subject process should attend:

- **Managers:** To know what to ask for of their operations, managers must know what is possible with its operational data, as well as, be able to assess how well their operation's role holders are working with data.
- **Operatives, analysts and engineers:** Those whose roles in operational processes involve working with operating systems and Excel. They will need the skills to remain relevant into the future and are in the best position to have immediate ideas to improve the effectiveness and efficiency of the tasks they are responsible for. Furthermore, these people can be looked upon to subsequently train others in the methods of the session.
- **Others:** The subject is relevant to everyone's future. Accordingly, anyone will find ramifications for their own and their organization's future.

Course Materials

The attendees will receive an electronic copy of the session slides. In the slides there will be considerable references (some immediately called up by link) to deeper explanatory papers and texts they will use as guidance upon becoming hands-on in methodologies.

Instructor

In 2003 Richard Lamb was called upon to build a dual-dimensional budget and variance control system for a refinery's maintenance operation (see papers on webpage "Cost Control and Finance"). While struggling to get at the historical data captured in the CMMS he needed to determine the workload and resources necessary to maintain the refinery, he discovered that he could readily reach into the refinery's CMMS for its data and join them in super tables. Since then the Richard has made the discovery as a standard to his work for operational excellence. Along the way he has observed how few people know the easy, exciting skills of extracting and joining data into super tables that otherwise do not, cannot and will never exist in their systems.

In 2014, the instructor began to sense that software—one being free to all—was emerging to not just pass data through to facts but also pass data through analytics and gain insight we could not have before. The sense of something new kicked off what became an intense five-year quest to determine and frame what was newly possible so that it could flow as something tangible into the mainstream of operational excellence.

The result was to discover that bar of what is operational excellence had been raised by the readily obtainable ability to be data-driven. This has greatly strengthened his acumen of almost 40 years as an adviser in business strategy, finance and operations, including almost 30 years with maintenance and reliability, and preceded by 6 years as a manager of complex civil engineering projects. This has also pushed Richard to become an activist to help others recognize and move into what can be new age for their career and, as they do, being hugely consequential for their firms and industries.

Richard is a Registered Professional Engineer and Certified Public Accountant. He has published two books presenting new ideas for reliability and maintenance management framed in business strategy: Availability Engineering and Management for Manufacturing Plant Performance, and Maintenance Reinvented for Business Performance. He has a BSCE, BBA and MBA from the University of Houston and a graduate-level Applied Statistics Certificate from Texas A&M University.

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