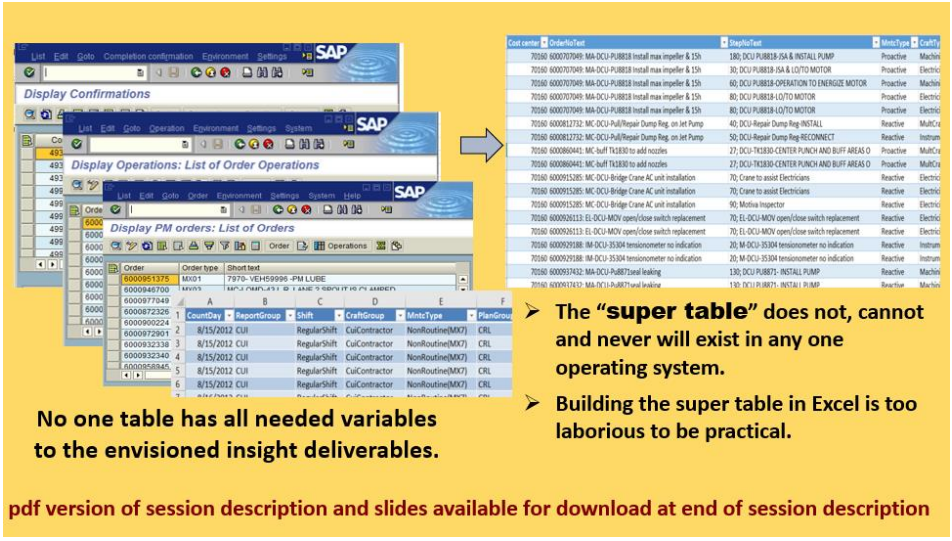

Training Session Description

Build Super Tables from Operational Data

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

A "data-driven" operation is defined as one that harnesses its operational data to augment the experience and judgement of operatives, managers, analysts and engineers as they plan, organize, conduct and control their processes.

Massive troves of data are captured in thousands of tables in the background of a firm's operating systems such as a CMMS. To be capable of becoming data-driven; role holders across an operation must know how to extract tables from their systems and join and mold them into single "super" tables. The purpose of the session is to teach its attendees how to build super tables.

The following characteristics make the session maximally relevant and consequential to its attendees and their firms:

- The session has been developed as data cases that draw upon the tables and variables that exist in any CMMS rather than outside the universe of the attendees and their industries.
- The instructor is a subject matter expert in maintenance and reliability rather than a data specialist struggling to speak to SMEs; allowing freewheeling discussion of ideas as the session unfolds.
- The session is presented with MS Access because every firm already has rights to the software through its Microsoft Office license, allowing the attendees to have the means of working with data in-hand by the time of the session or immediately afterward.
- The principles and skills exercised within Access are universal to working with data, thus, enabling the attendees to, in turn, work with any data and dashboard software.

Agenda

The agenda is as follows:

- Big picture.
- Extracting, joining and molding subtables into super tables.
  - Perspective.
  - **Case 1:** Build a super table inclusive of all relevant details to work order, order task and craft hours.
- Building aggregations into super tables.
  - Perspective.
  - **Case 2:** Identify outlier work orders by Z-Score of craft hours grouped by cost center and work type.
  - **Case 3:** Classify work orders by lead craft and identify outliers by Z-Score with lead craft added to the grouping.
  - **Case 4:** Compute the median variable for a grouping of lead craft and work type, and compare to individual orders.
- SQL perspective.
- On-line help and literature for hands-on experience.

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.

Customization for Hands-on Experience

The session can be easily customized upon an organization's systems and data. When hands-on customization is elected, the slide set will include instructions to download a specified set of tables from their sources. Thence, the attendees will follow along hands-on as the session progresses. The value is that the emergence of an organizations ability for working with its data will spread more broadly and quicker. This is because the attendees will leave the session "*having done it for the first time*" as compared to "*trained to do it for the first time*."

Session Length

Two options decide session length.

- If session is to be given without customization for hands-on: Four hours.
- If customized for hands-on: Eight hours.

Course Materials

The attendees will receive an electronic link to the session slides for their download and use in the organization. Throughout the slides, there will be references to texts, explanatory documents, blogs and YouTube videos.

Should the organization elect to customize the session on their data, the attendees will receive instructions for replicating extracted tables with which to track the session.

Instructor: Richard Lamb, PE, CPA

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 the Texas A&M University.

To navigate to download copy of session slides