The *Program Management for the 21st Century*

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"*We are in a new economic age. We can no longer live with commonly accepted levels of delays, mistakes, defective materials and defective workmanship."*
W. Edwards Deming

Background: the design of this webinar is inspired by the "first steps" taken by attendees of a 22 October 2024 webinar presentation for Centrum Badań Kosmicznych PAN, titled "How to discern quantity and quality in space program management – with practical examples," with an abstract which follows below;

> *While counting, from number of employees to number of products shipped last quarter, is quantity-based, the differences between the entities being counted is quality-based, with a focus on use. For an aircraft manufacturer, if the parts of an airplane remained in boxes and were never assembled, then the variation in each part, as in the variation in employees and products shipped, would be very hard to discern. Variation appears in how well the parts are eventually integrated into a system and, how well the system performs, day after day. Once again, quality is about use. But questions about the distance to the nearest airport are quantity-based, as the answer, whether in kilometers or miles, 10 or 100, ignores the differences between each unit of distance. In short, quantity is about counting. Students are students, doctors are doctors, customers are customers, and suppliers are suppliers. Dr. Deming explained quality with an appreciation of variation and, ultimately, use.*

Learning Objectives: building upon the content of this webinar, which can be viewed at this **link**, attendees of this immersion webinar will take their "next steps" in;

1. Understanding the leadership skills for managing interdependent actions, as defined by an evolving understanding of W. Edwards Deming's System of Profound Knowledge

2. Learning how to discover opportunities for moving from the "Old Economics" of managing *actions* (parts, tasks, and milestones) to the "New Economics" of managing *interactions*

3. Discovering how traditional management systems are designed to manage an endless list of symptoms, resulting from not knowing how to lead with a "systems view"

4. Gain an appreciation of two fundamental modes of thinking which operate in our blind spots, an awareness of which allows for shifting from a focus on "siloes" and "big problems" to "synergy" and "great opportunities" (for investment)

5. Recognize the competitive advantage of understanding the differences between Compliance Excellence (a focus on Actions, in isolation) and Contextual Excellence (a focus on Actions, viewed as a system, also known as Interactions)

Design: the following elements have been integrated into the “whole” of this learning event;

1. The webinar will be presented in eight modules, each offered in a 2-week cycle that includes participation in a live (online) 2-hour lecture, presented using Zoom

2. In addition to a live lecture in each module, each module includes complementary recorded lectures, plus a variety of assigned recordings (30 minutes to an hour in length)

3. With a start date of 20 May, plus a 3-month holiday break from 3 July through 1 October, the proposed dates and topics for each module follow below:

    1. Title: Introduction to Quality Management and Analytics
        a. Start Date: 22 May
        b. Live Lecture Date: 22 May
        c. End Date: 4 June
        d. Content: Overview of present-day quality management practices, including Zero Defect Quality, Six Sigma Quality, and Lean Management. Introduction to common tools and techniques for data analytics, as guided by past, present concepts and strategies, including a proposal for a future concept and strategy for quality management.
        e. Key Learning Objectives:
            - Describe the fundamental goals and strategies of Quality Management and how this relates to the overall operation of organizations; past, present, and future**
            - Describe mental models and offer examples of them, such as a model for Resource Management, which includes Quality Management
            - Describe the contrast between striving for perfection and striving for continual improvement of quality
            - Describe the Data-Information-Knowledge-Understanding-Wisdom (DIKUW) mental model as a way to organize the content of the human mind
            - Describe the "IS/IN NOT" mental modal for Problem Analysis

            **to fellow attendee

    2. Title: Tools, Techniques, Concepts, Strategies
        a. Start Date: 5 June
        b. Live Lecture Date: 5 June
        c. End Date: 11 June
        d. Content: Beginning in 1980, until his passing in December 1993, Dr. Deming presented a transformative seminar, known as “Four Days With Dr.

Deming." A cornerstone of this event was a simulation of factory life, his famous "Red Bead Experiment," with seminar attendees serving as the factory's willing workers and Dr. Deming as the foreman. With implications expending far beyond manufacturing environments of factories, Dr. Deming used this experiment to remind us that that the performance of any organization is a function of how well the overall system is managed.

e. Key Learning Objectives:
   - Explain the basic tenets of Quality management, as widely practiced from the 20th century to today
   - Explain the role of Concepts & Strategies as well as Tools & Techniques and how they can be integrated
   - Explain the contributions of Russell Ackoff's models for systems thinking to Dr. Deming's model for quality management
   - Explain the principles of Lean Management and how it compares to a systems model for quality management
   - Describe the lessons of Dr. Deming's Red Bead Experiment and the connection of this experiment to Quality Management**

   **to fellow attendees

3. Title: The Good, The Bad, and The Beautiful
   a. Start Date: 19 June
   b. Live Lecture Date: 23 June
   c. End Date: 2 July
   d. Content: Before his death in 1993, W. Edwards Deming provided "a map of theory by which to understand the organizations that we work in." He was well aware of the challenges that organizations face, in their "Business as Usual" mode of operation. He shared simple explanations to challenge us to envision "Business as Unusual." "Sure," he said, "we have to solve problems. Certainly, stamp out the fire. Stamp out the fire and get nowhere. Stamp out the fires puts us back to where we were in the first place." Business as Unusual, guided by Dr. Deming's distinctive theory of management, offers unlimited opportunities to both prevent problems and seek opportunities for investment.
   e. Key Learning Objectives:
      - Explain and use the Six Thinking Hats on a personal level**
      - Describe the differences between Category Thinking and Continuum Thinking and how this awareness contributes to advances in Quality Management**
      - Describe the differences between "All Straw" and "Last Straw" Organizations and how each practices Quality Management**
      - Describe the interdependencies of the 4 elements of the Deming System of Profound Knowledge® **
      - Describe the 8 Dimensions of Quality, including the economics of acceptability
      - Describe the tools and techniques of Quality 4.0

      **to fellow attendees

4. Title: Depends: Rethinking Prevailing Approaches to Improvement
   a. Start Date: 2 October
   b. Live Lecture Date: 2 October
   c. End Date: 15 October
   d. Content: Many current management practices naturally evolve towards sub-optimization and its associated losses. In comparison, companies engaged in Continuous Improvement strive for the savings of "Faster, Better, Cheaper". By contrast, "Investment Thinking" offers organizations a superior competitive advantage. Investment Thinking efforts move organizations from a focus on improvement toward a more systemic and strategic focus on "Continuous Investment". This shift may represent a departure from quality management methodologies in use since the early 1980's. With Investment Thinking, organizations deploy activities with a more profound awareness of thinking about thinking. In doing so, the inefficiencies of sub-optimization will be minimized.
   e. Key Learning Objectives:
      - Describe the role of run charts and control charts as basic tools for Quality Management
      - Explain the differences between Data Analysis and Information Synthesis
      - Explain the "4 Distribution" Exercise as a means to explain the contrast between acceptability and desirability
      - Describe the Paradigms of Variation, including how awareness of these 4 paradigms impacts Quality Management**
      - Describe the differences between “Blue Pen” and “Red Pen” Companies and how each practices Quality Management**

      **to fellow attendees

5. Title: Deming Distinctions - Beyond Looking Good
   a. Start Date: 16 October
   b. Live Lecture Date: 16 October
   c. End Date: 29 October
   d. Content: Over 30 years ago, Dr. Deming stated, “We are in a new economic age. We can no longer live with commonly accepted levels of delays, mistakes, defective materials, and defective workmanship.” One way to test for what is *commonly accepted* problems is to ask “How much time is spent every day in organizations discussing parts, tasks, suppliers, customers, activities, and program milestones which are going well?” Often, very little. Although introduced in the 1980s as a better way to manage quality, the Deming philosophy is gaining momentum in the 21st century as a better way to manage systems. Guided by Dr. Deming’s insights, organizations possess limitless opportunities to shift their efforts from problem solving to problem prevention and continual improvement and thereby move beyond “looking good.”
   e. Key Learning Objectives:

- Explain why a better way to operate an organization is to invest resources with the ability to manage customer delight, satisfaction, and disappointment
- Explain the difference between reforming and transforming and how these activities influence "Me" and "We" Organizations
- Explain the difference in perspective of being an observer vs a participant
- Explain the difference between investment thinking and improvement thinking

**to fellow attendees

6. Title: Losses to Society and Opportunities for Organizations
   a. Start Date: 30 October
   b. Live Lecture Date: 30 October
   c. End date: 12 November
   d. Content: When do interchangeable parts cause losses to the enterprise and society? Is the belief system about interchangeability still appropriate for the 21st century, and what other boundaries found in this belief system limit the potential of the organization? Furthermore, in what ways does a focus on "interchangeable parts" hinder progress towards working together? These questions and many others will be raised and answered during a unique exploration of the potential of "thinking together" in the 21st century. Much credit has been given to advances in technology in changing our daily lives. What advances could be achieved when we "think about our thinking" and begin to “think together, learn together, and work together” as one global enterprise?
   e. Key Learning Objectives:
      - Explain the concept of robustness as it applies to improving uniformity of the performance of a product or service
      - Explain the difference between control factors and noise factors and how they apply to Parameter Design
      - Explain the difference between Parameter Design and Tolerance Design, also known as Tertiary Design, as applied with Dr. Taguchi's Methods
      - Explain the economics of variation within the model of the Integration Loss Function

      **to fellow attendees

7. Title: Profits, Pragmatism, and the Possibilities of Possessing "Other Eyes"
   a. Start Date: 13 November
   b. Live Lecture Date: 13 November
   c. End Date: 26 November
   d. Content: The value of profits as an ingredient for organizations to sustain and develop their operations is undeniable. Thinking beyond the design and development of the next iProduct, profits allow for improvements to current products, not to mention needed technology upgrades, employee development, and dividends for shareholders. But, do organizations solely exist to earn profits or meet financial goals, or, are their profits the result of

how well they invest their resources, from innovation to revenue and equipment, and then deliver new and improved products or services? As with Russell Ackoff, who once described a focus on “sufficient profit” as “like a person saying his mission is to breathe sufficiently,” Dr. Deming saw profits as the result of a well-designed and managed organization.

e. Key Learning Objectives:
   - Explain the difference between "big problems" and "great opportunities" as applied to the resource management of We Organizations
   - Explain the difference between reflexive resource management and purposeful resource management
   - Explain the basic assumptions for addition and superaddition
   - Explain the contrast between compliance excellence and contextual excellence and how Blue Pen Companies deploy both forms of excellence

   **to fellow attendees

8. Title: Purposeful Resource Leadership
   a. Start Date: 27 November
   b. Live Lecture Date: 27 November
   c. End Date: 10 December
   d. Content: While it is common to think of management as a position, what if we shift our thinking to management as an activity of allocating resources, where the resources include, but are not limited to time, energy, ideas, and space? How are they used? Specifically, are the resources used to prevent problems or to react to problems? Is being reactive a choice or a reflex action? Are the resources shared or hoarded? That is, are the resources mine or are they ours? Beginning with a series of seemingly simple questions, the answers to which reveal assumptions made in how we allocate resources, this session offer insights into how Genichi Taguchi’s ideas on “Quality Loss” have been integrated with W. Edwards Deming’s “New Economics” to establish a new approach to resource management, termed “Purposeful Resource Leadership.” The foundation of a radical departure from “Reflexive Resource Management” lies in a transformation of the way we think about our thinking.
   e. Key Learning Objectives:
      - Describe the “Cloud Model” for transforming “Me” Organizations in the direction of “We” Organizations**
      - Explain the difference between purposeful resource management and purposeful resource leadership
      - Explain the difference between managers and leaders in both Me and We Organizations

      **to fellow attendees

9. Title: Training summary and certification
   a. Start Date: 11 December
   b. Live Lecture Date: 11 December
   c. End Date: 11 December

2. In addition, attendees will submit short essays on select topics from the webinar lectures, readings, and videos

3. Attendees will keep a personal journal to record the impact of an evolving shared mental model of management presented in the webinar. These journals are for personal use and will not be submitted to anyone. The reflections will reveal how the course content is enabling attendees to see the world through a lens enabled by a "Deming" view of management. Note that the content of the journals, as the name describes, is not about the webinar content. Rather, it is a collection of personal reflections on how the webinar is opening the minds (plus ears and eyes) of attendees to a "Deming" view of management.

4. At the end of each module, attendees will complete a 10-question multiple-choice quiz. Content for the quizzes includes the assigned reading, videos, podcasts, as well as the live and recorded lectures for the module.

5. Throughout the webinar, attendees will complete the self-assessment of their strengths and weaknesses of the content, using a Learning Capacity Matrix

6. The ideas presented in this webinar have the potential to transform individuals and organizations. As will be explained, applying the ideas requires the ability to see opportunities for investment, an effort which can be far more challenging than fixing what is broken, also described by Dr. Deming as "fighting fires." This assignment is designed to develop the thought processes required to implement the systems approach to management presented in this webinar within your current place of employment. It is also an opportunity for feedback from the webinar facilitator for those who would welcome added guidance on a systems approach to management. Note that this assignment is based on and limited to developing proposals for implementation. Most important is the thought process of developing the proposals.

7. All of the assignments in the course are distributed across the 8 modules in a way that balances the work load in each module.

Biography – Dr. Bill Bellows

After serving for 12 years on the Board of Directors, I joined The W. Edwards Deming Institute® staff in October 2016 as Deputy Director. In this role, I worked in collaboration with the Institute's leadership and partners to guide its worldwide efforts. Today, as a member of the Advisory Council, I continue to coach, mentor, facilitate, and advocate for The Deming Institute's aim of enriching society through the Deming philosophy.

Prior to joining The Deming Institute (www.deming.org), I was employed by Aerojet Rocketdyne in Canoga Park, California, serving as an Associate (Technical) Fellow,

focusing on "thinking about thinking" with applicability to the design, development, and production of liquid rocket engines. In a 26-year career that spanned ownership of “Rocketdyne” by Rockwell International, Boeing, United Technologies, and Aerojet, I was widely known for his efforts to provide insights to the advantages of thinking together, learning together, and working together. While integrating the management methods of Dr. Deming with Genichi Taguchi’s “Quality by Design” system and Russell Ackoff's systems thinking, coupled with Edward de Bono’s thinking tools, I pioneered the development and application of ideas that include the Paradigms of Variation, Macro System Models, Micro System Models, Purposeful Resource Leadership, Category & Continuum Thinking, Investment Thinking, and a model for a Resource Conversion System.

Away from “Rocketdyne,” “live” and “online” audiences for my presentations have include thousands of attendees in university settings, plus professional societies across the US. Longer length seminars and courses have reached after-school programs in an elementary school and a graduate-level course in Quality Management at Northwestern University’s Kellogg School of Management. Outside of the US, I have offered “live” corporate, as well as public, presentations and classes in Hong Kong, Israel, Finland, Sweden, the Netherlands, the United Kingdom, and New Zealand.

A thermosciences engineer by training, I earned my B.S., M.S., and Ph.D. in Mechanical Engineering from Rensselaer Polytechnic Institute in Troy, New York. In addition to my employment by “Rocketdyne,” I worked as a heat transfer engineer, structures engineer, as well as an Aero/Thermo Research & Development Project Manager in the gas turbine industry for Textron Lycoming in Stratford, Connecticut. During this employment, I also gained frontline experience as an in-house problem solving consultant, facilitator, and instructor, working in critical Engineering-Manufacturing Task Forces, most often in support of the 1500-hp gas turbine engine for the US Army’s Main Battle Tank.

In addition to consulting, I also serve as an Adjunct Professor for both California State University, Northridge and Southern Utah University, in Cedar City, Utah. Away from work, I serve on the Deming Medal Committee for the American Society of Quality. Beginning in 2001, I was the (founding) president of the non-profit organization, the In2:InThinking Network (www.in2in.org), a position held through 2016. I live in Santa Clarita, California, with my wife, Monica.