

Course/课程名称: Data Driven Systematic Problem Solving/基于数据的系统化问题解决

Duration/时长: 2 days, daily 9:00-17:00/2 天, 每天 9:00-17:00

Language/语言: CN

Trainer/讲师: Nadya Liu

Introduction/课程介绍

Data analysis and problem solving are two essential skills for modern professionals. However, when solving problems at work, do we often fall into the misunderstanding of "only treat the head when head hurts, only treat the feet when feet hurt"? Digitization makes it easier to obtain data, but do we often struggle to draw valid conclusions when faced with massive amounts of data? This course is designed to overcome the above dilemmas. It helps students reshape their problem-solving thinking and data-oriented thinking, and establish a way of thinking that combines systematic problem solving and data-oriented thinking. The course is systematic and practical:

- **Systematic:** organically insert data analysis tools into a clear overall framework of problem-solving method. Students will master a systematic approach rather than discrete tools.
- **Practical:** With a work-related simulation game embedded, students could actively practice the tools. Not only to learn the "what" and "why", but also master the "how" and achieve visible results onsite.

数据分析和问题解决是现代职场人必不可少的两项技能。然而，在解决工作中的问题时，我们是否常常陷入“头痛医头，脚痛医脚”的误区？数字化让获取数据变得容易，面对海量数据我们却是否常常苦于得不出有效结论？基于数据的系统化问题解决课程专为破除以上困境设计，可以帮助学员重塑问题解决思维和数据导向思维，建立起系统问题解决与数据导向结合的思维方式。本课程兼具系统化和实操性两个特点：

- **系统化：**从思维方式入手，为学员搭建起清晰的问题解决逻辑框架，并在合适的步骤中有机地插入数据分析工具，内容关联紧密。学员将掌握系统性的方法，而非相互割裂的单个工具。
- **实操性：**课程贯穿一个贴近工作场景的沉浸式模拟游戏，学员将把所学工具带入该场景实操练习，不仅能学会“是什么”和“为什么”，还能在培训现场掌握“怎么做”并取得可见的成果。

Target Audience/目标学员

Professionals in all industries and positions who is in need of data analysis and problem-solving.

有数据分析和问题解决需求的各类职场人士，不限行业和岗位。

Teaching Method/授课形式

Lectures, case study, group discussion, group exercise, simulation game

课堂讲授、案例分析、分组讨论、小组练习，模拟游戏

Objective/课程目标

Through this course, participants will be able to:

- Change the mindset: get rid of their fixed pattern for problem solving and data analysis, while establishing a systematic problem-solving mindset based on data
- Master the method: master a systematic problem-solving method
- Upgrade the skillset: be proficient in using data analysis tools such as hypothesis testing, correlation analysis, regression analysis, etc., and mastering the logic principles
- Solve a real problem: participants will solve a real problem through a simulation game, applying the methodology and tools learned in the training.

在课程结束时，学员将：

- 改变固有思维模式：打破“头痛医头”和“被数据推着走”的固有模式，建立基于数据的系统化问题解决思维
- 掌握问题解决方法：掌握 DMAIC 高效问题解决方法
- 熟练数据分析工具：熟练使用假设检验、相关分析、回归分析等常用数据分析工具，并掌握背后原理
- 解决实际工作问题：通过模拟游戏，在培训现场解决一个工作场景中的实际问题

Outline/课程大纲

Part One: Establishing Mindset

- **Interaction Case 1:** Systematic problem-solving mindset
- **Interaction Case 2:** Correct data-driven mindset
- Reflection: How to build a mindset that combines systematic problem-solving with data orientation

Part Two: Mastering Methodologies and Tools

- A simulation case study (initial status)
- Phase 1: Understand the problem itself
 - Establish problem indicators
 - SMART principles
 - Scope the problem from a process perspective
 - SIPOC
 - Clarify the essence of the problem
 - From "Voice of the Customer" to "Critical Quality Characteristics"
 - Understand customer's true needs
 - KANO Model
 - **Exercise 1:** practice phase 1 tools in the simulation case
- Assess the Current State

- Correctly identify data source
- Scientifically collect data
 - Data collection approach
 - Reliability of data collection
 - Statistical sampling basics
 - Sampling strategy
- Effectively present data collection result
 - Key statistics
 - Key performance indicators
 - Visualization
- **Exercise 2:** practice phase 2 tools in the simulation case
- Find out the root causes
 - Identify potential causes
 - Fishbone diagram & 5 Whys
 - **Exercise 3:** potential cause identification practice in the simulation case
 - Verify root causes - Qualitative analysis
 - Swimlane
 - Value analysis
 - **Exercise 4:** qualitative analysis practice in the simulation case
 - Verify root causes - Data analysis
 - Data analysis foundation
 - Hypothesis test
 - Correlation
 - Regression
 - **Exercise 5:** data analysis practice with the simulation case data (using Excel)
- Implement the best solutions
 - Identifying potential solutions
 - Selecting the best solution
 - Implementing the best solution
 - **Exercise 6:** practice phase 4 tools in the simulation case
- Monitor the improved result
 - Clearly defining control indicators
 - Establishing a control plan
 - Developing response plans
 - Continuous improvement

- Summary and recap

第一部分：建立思维方式

- 互动案例 1：系统的问题解决思维
- 互动案例 2：正确的数据导向思维
- 思考：如何建立系统问题解决与数据导向结合的思维方式

第二部分：掌握方法工具

- 某问题解决模拟情景的背景介绍（初始状态）
- 第一步：明确问题本身
 - 设立问题指标
 - SMART 原则
 - 从流程视角定义问题边界
 - SIPOC 工具
 - 明确问题本质
 - 从“客户的声音”到“关键质量特性”
 - 理解客户需求
 - KANO 模型
 - **练习 1**：第一阶段工具在模拟情景中的实操练习
- 第二步：通过数据衡量现状
 - 正确识别数据
 - 筛选数据源
 - 科学收集数据
 - 定义数据收集方法
 - 检验数据收集方法的可靠性
 - 理解抽样原理
 - 选择抽样方法
 - 有效呈现结果
 - 关键统计量
 - 流程表现指标
 - 可视化
 - **练习 2**：第二阶段工具在模拟情景中的实操练习
- 第三步：识别根本原因
 - 识别潜在原因
 - 鱼骨图 & 5 Why
 - **练习 3**：模拟情景中的识别潜在原因实操练习

- 筛查根本原因——定性分析
 - 泳道图
 - 价值分析
- **练习 4:** 模拟情景中的定性分析工具实操练习
- 筛查根本原因——定量分析
 - 数据分析基本原理
 - 假设检验
 - 相关分析
 - 回归分析
- **练习 5:** 基于模拟情景中数据的定量分析工具实操练习（需使用 Excel）
- 第四步：实施最佳方案
 - 识别潜在解决方案
 - 筛选最佳解决方案
 - 实施最佳解决方案
 - **练习 6:** 第四阶段工具在模拟情景中的实操练习
- 第五步：监控改善结果
 - 明确控制指标
 - 建立控制计划
 - 制定响应预案
 - 持续改善

总结与回顾