

AGC Provides Proprietary "Causal Chain Analysis" Method for Defining Business Issues to the JX Nippon Mining & Metals Group

Used as a case study at Shiga University's Faculty of Data Science

Tokyo, December 21, 2020 – AGC (Headquarters: Tokyo; President: Takuya Shimamura) has announced that it has provided its proprietary "Causal Chain Analysis" method for defining business issues to JX Nippon Mining & Metals (JX NMM) Group (President: Seiichi Murayama) and supported its implementation.

In recent years, making effective use of the massive amounts of complex big data has become crucial for companies to increase its competitiveness. Although there are many methods for analyzing big data, such as using statistics, AI, and IT, there have been numerous cases in many industries where big data cannot be used effectively because the business issues that are the premise for the analysis itself are not appropriately defined.

Against this backdrop, in 2019, AGC developed "Causal Chain Analysis" for data science as a method for defining business issues. Since then, AGC has hosted issue-defining study sessions using Causal Chain Analysis to disseminate this method mainly in the manufacturing sector, and contributed to solving business issues in a wide range of industries. In addition, in the same year, AGC also introduced this method to the Faculty of Data Science at Shiga University, which is leading Japan in the field of data science, to help develop the next-generation of data scientists.

By supporting the introduction of causal chain analysis at JX Nippon Tomakomai Chemical, a member of the JX NMM Group, AGC has successfully found the optimal operating conditions for a combustion facility more easily than by conventional data analysis. This implementation example will be used as a case study of manufacturing process analysis using causal chain analysis at a seminar of Professor Kaoru Kawamoto at Shiga University's Faculty of Data Science.



A combustion facility at JX Nippon
Tomakomai Chemical

Under the management policy **AGC plus**, the AGC Group will continue to realize “Smart AGC” using digital technology to transform business processes. By utilizing big data in all operations including manufacturing, R&D, and sales, AGC aims to further increase the efficiency of operations and provide new added value to customers.

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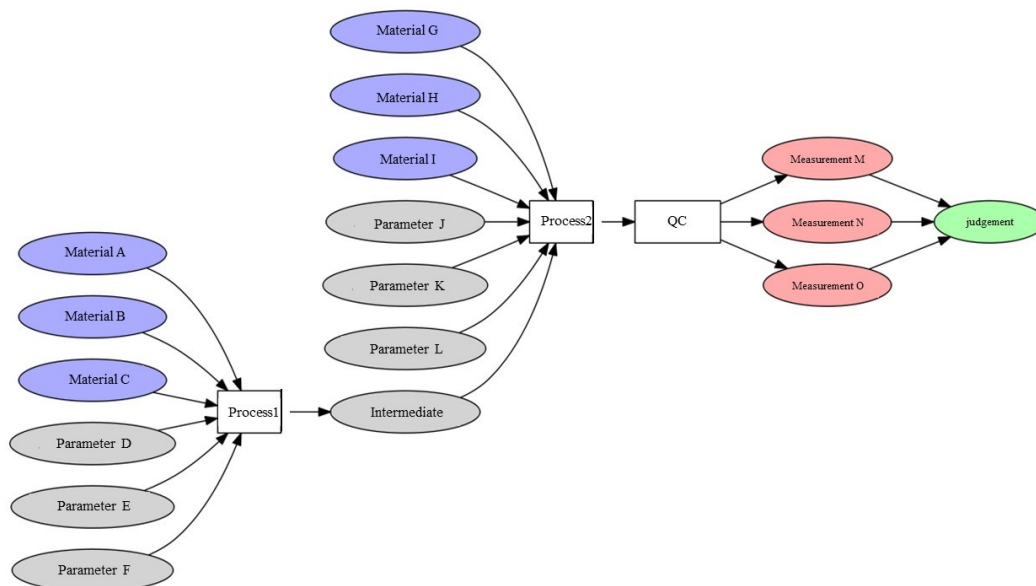
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Reference Information

■ About Causal Chain Analysis

Causal chain analysis is a method that organizes and visualizes factors that can lead to problem solving from a “causal chain” perspective, including tacit knowledge based on individual experiences and intuition that cannot normally be verbalized. By visualizing the relationships between various factors, consensus on defining business issues can be formed more easily and what data should be analyzed can be clarified. Causal Chain Analysis is performed using the following procedure.

- (1) Understand business processes: Interview experts and create a causal chain diagram (see the figure below). Share information accurately.
- (2) Confirm available data: Mark what data is readily available, what data that will take time and resources to acquire, and what data has not yet been acquired.
- (3) Set issues: Identify what data is important for business improvements and decision-making.



Example of a causal chain diagram in a chemical plant (schematic diagram)

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