# AGC Establishes Original "Causal Chain Analysis" Method for Defining Business Issues in the Era of Big Data

Tokyo, November 14, 2019– AGC Inc.(AGC), a world-leading manufacturer of glass, chemicals and high-tech materials, has established "Causal Chain Analysis" for data science, a new unique method for defining business issues.

In recent years, making effective use of the massive amounts of complex big data possessed by companies has become an important part of increasing competitiveness. Although there are many methods for analyzing big data, such as using statistics, AI, or IT, the business issues that are the premise for the analysis itself are not appropriately set, and so there are numerous cases in various industries where big data cannot be used effectively.

It is for this reason that AGC established "Causal Chain Analysis" for data science as a method for defining business issues. This method 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 can more easily be achieved with regard to defining business issues, clarifying what data should be analyzed. As a result, a series of data science processes, from the definition of business issues to the utilization of data and the implementation of specific improvements to create solutions, can be linked to highly convincing results without making the process seem like a black box. Various results have already been achieved, such as a case where the method was applied to bring manufacturing defects down to almost zero, and another where e-commerce sales were significantly increased.

Data Science Utilization Process
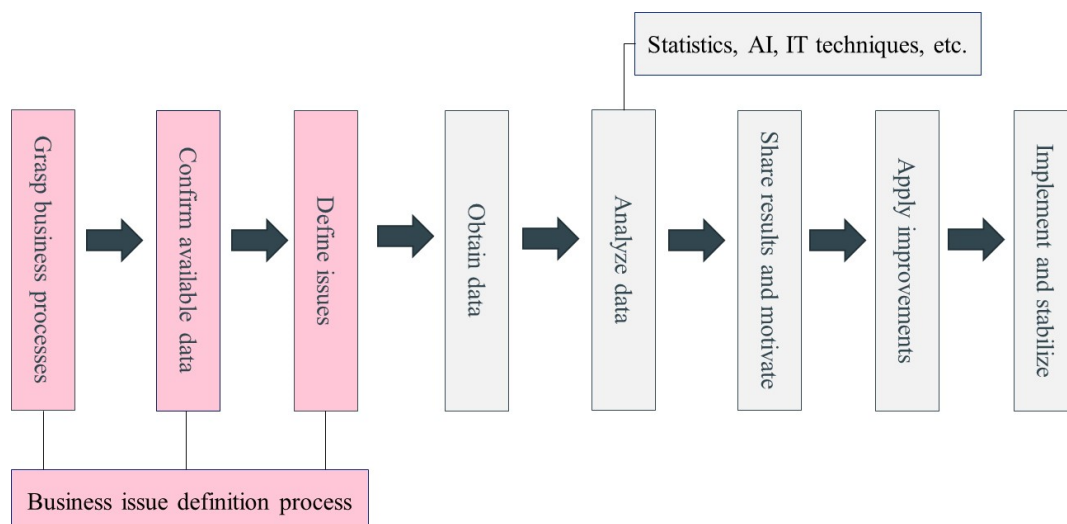
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*The company changed its name from Asahi Glass Co., Ltd. to AGC Inc. on July 1, 2018.
*Handling of personal information is governed by our privacy policy.

Additionally, AGC aims to contribute to the spread of data science in the industry by hosting "issue defining study sessions using Causal Chain Analysis", which began in May of this year, together with NTT DATA Mathematical Systems Inc. and in collaboration with Professor Kaoru Kawamoto of Shiga University's Faculty of Data Science. Ten companies highly interested in data science, mainly centered around the manufacturing industry but from a wide range of industries overall, are participating in case studies for setting business issues, forming human networks, etc. Among the participating companies, the effectiveness and versatility of "Causal Chain Analysis" is also being confirmed.
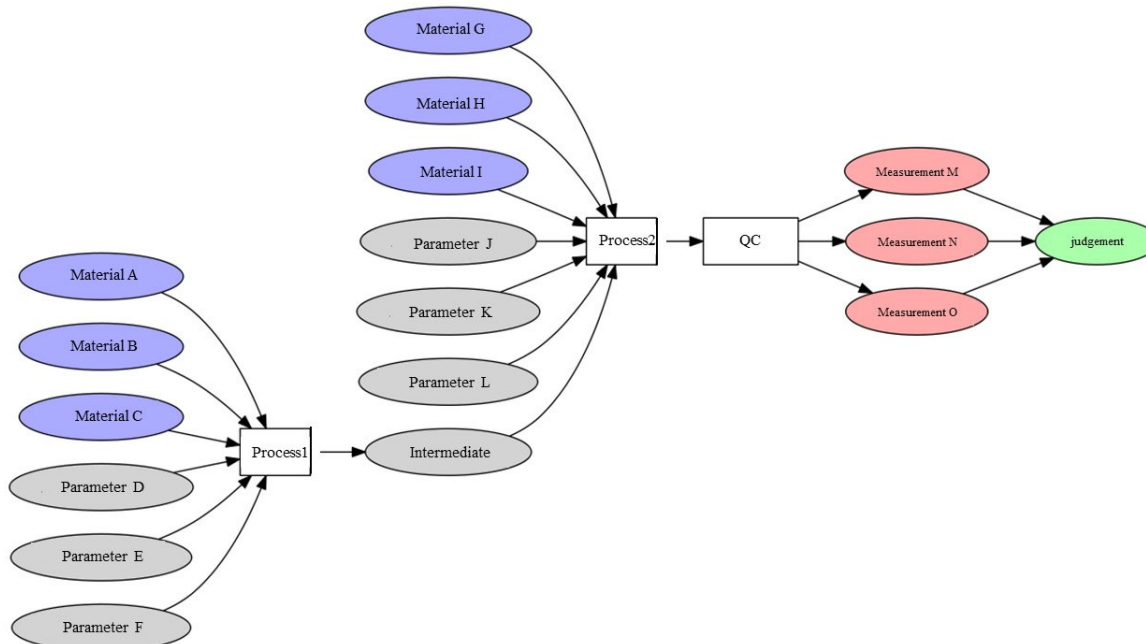
Under the management policy *AGC plus*, the AGC Group will continue to realize "Smart AGC" using digital technology to transform business processes. By utilizing big data in all operations including manufacturing, R&D, and sales, we aim to further increase the efficiency of operations and provide new added value to customers.

REFERENCE

■ Causal Chain Analysis
Causal Chain Analysis is performed using the following procedure.
(1) Understanding business processes: Research and create a causal chain diagram (see 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 Causal Chain Diagram for a Chemical Plant (Schematic Diagram)