

Deng Maturity Model/ SAS Studio

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Deng Maturity Model

The Deng Maturity Model is a framework for assessing an organization's maturity level of business intelligence (BI). It was proposed by Deng in 2007 and is based on the concept of knowledge management. The model consists of four stages: data, information, knowledge, and wisdom.

- **Data stage:** This is the lowest level of BI maturity, where the organization collects and stores data from various sources but does not process or analyze it. The data is often fragmented, inconsistent, and incomplete. The organization lacks a clear vision and strategy for BI and does not have a dedicated BI team or infrastructure.
- **Information stage:** This is the second level of BI maturity, where the organization transforms the data into information by applying basic processing and analysis techniques, such as data cleansing, integration, aggregation, and reporting. The information is used to support operational and tactical decision-making, but not strategic or innovative ones. The organization has some BI tools and systems that are not integrated or standardized.
- **Knowledge stage:** This is the third level of BI maturity, where the organization extracts knowledge from the information by applying advanced processing and analysis techniques, such as data mining, OLAP, and predictive modeling. This knowledge is used to support strategic and innovative decision-making and to create competitive advantages. The organization has a comprehensive BI architecture and platform, and a skilled BI team that collaborates with business users and stakeholders.
- **Wisdom stage:** This is the highest level of BI maturity, where the organization leverages the knowledge to create wisdom by applying cognitive and creative techniques, such as artificial intelligence, machine learning, and simulation. Wisdom is used to support visionary and transformative decision-making and to create new value and opportunities. The organization has a BI culture and governance, and a BI leader that drives the BI vision and strategy.

The Deng Maturity Model can help organizations to evaluate their current BI capabilities and gaps, and to plan and implement improvements to achieve higher levels of BI maturity. However, one of the examples at Unilever cases used the model to improve the data analytics process and better decisions, following step by step:

Data:

At Unilever, the need for Business Intelligence arises to help the employees make better decisions; the company must embed data and analytical reports in its business processes. The company must construct a new analytics platform for its global operations to implement this. The basis for data and analytics at Unilever is its international enterprise data warehouse, built by using SAP software for ETL; not only SAP, but they also use Teradata's database platform and master data management. The database helped the company in a few ways, as 40 departmental data marts and warehouses spread around the globe; not only this, it helped Unilever replace 5000 servers spread globally. The second step of data collection was done by building Microsoft's infrastructure for business intelligence and through Tableau software that helps visualize data. The data collection will help the company better understand business intelligence implementation in business processes (Rossi, 2013).

Information:

To develop the enterprise data warehouse, the company opted for Teradata and Cap Gemini to provide services like testing, program management, and warehouse load. The company has selected Thorogood to deliver Unilever's reporting and analytical applications. Unilever recognized the need to perform business intelligence, and the company needed the help of BI experts. The selected business partners will help Unilever by delivering high-performance, high-functional, and intuitive user interfaces. Success is an essential aspect of the program and would play a significant role in achieving the adoption of business intelligence tools quickly (Palanisamy, 2022).

Following are the reasons why Unilever opted for Thorogood as their partner for reporting and analytics (Palanisamy, 2022):

Critical Thinking 1/ Option 1

1. The company's track record of successfully delivering business intelligence applications to Unilever.
2. Because of Thorogood's ability to deliver cost-effectively and for its globally distributed expertise, the company has strong relations with other blue-chip companies as well.
3. The company has noticeable expertise in integrating business intelligence technologies. The technologies used in Thorogood programs are Microsoft Office, SQL server, and power pivot. Because of its strong focus on BI, the company can deliver value through Tableau.

Knowledge:

The approach toward decision-making in Unilever is based on the vast amount of data available to the company; this has been done to get insightful, actionable, and accurate knowledge. The data helps the company by sorting information according to segments; it sorts the data by category, brand, customer, and channel not. Just it also provides a picture of the market and the opportunities in marketing. The company uses its business intelligence tools in Europe, Latin America, and Africa. The company plans to make the tools live across all its operations. For Unilever, it's a big step on its journey to becoming a data-intelligent organization where the company aims for every decision to be backed by facts and figures and with the help of advanced analytics (Unilever, 2022).

Wisdom:

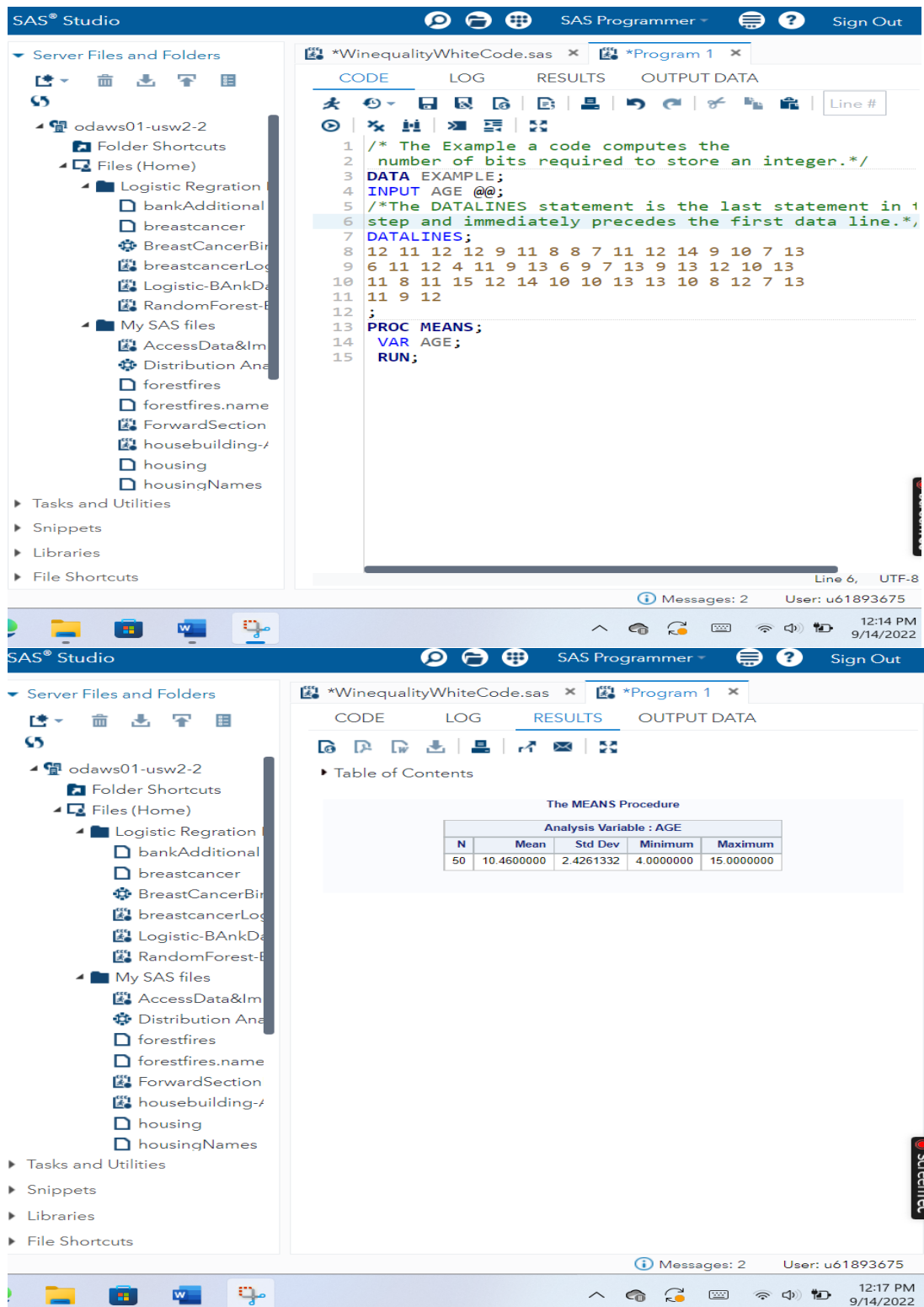
This is the highest level of maturity stage where every company desire to be in terms of business intelligence. Ongoing learning was always crucial for Unilever's culture. According to the world economic forum, 50% of workers need to improvise their skills by 2025. To help the employees upskill, the company has opted for platforms that AI powers to help the resources and leadership work on projects quickly. The company is constantly trying to improvise in business intelligence and incorporating more BI tools in its opinions to ensure that decision-making or skill building should be backed by advanced analytical tools (Gloat, 2022).

Bibliography

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SAS Studio Result

Critical Thinking 1/ Option 1



The top screenshot shows the SAS Studio interface with the code editor open. The code is as follows:

```
1 /* The Example a code computes the  
2 number of bits required to store an integer.*/  
3 DATA EXAMPLE;  
4 INPUT AGE @@;  
5 /*The DATALINES statement is the last statement in 1  
6 step and immediately precedes the first data line.*/  
7 DATALINES;  
8 12 11 12 12 9 11 8 8 7 11 12 14 9 10 7 13  
9 6 11 12 4 11 9 13 6 9 7 13 9 13 12 10 13  
10 11 8 11 15 12 14 10 10 13 13 10 8 12 7 13  
11 11 9 12  
12 ;  
13 PROC MEANS;  
14 VAR AGE;  
15 RUN;
```

The bottom screenshot shows the same SAS Studio interface, but the RESULTS window is open, displaying the output of the PROC MEANS procedure. The output is as follows:

Table of Contents

The MEANS Procedure

Analysis Variable : AGE				
N	Mean	Std Dev	Minimum	Maximum
50	10.4600000	2.4261332	4.0000000	15.0000000