

Testing how useful AI is for management and quality professionals

HOW HELPFUL CAN ARTIFICIAL INTELLIGENCE (AI) BE FOR MANAGEMENT AND QUALITY PROFESSIONALS? By Yves Van Nuland and Grace L. Duffy

This paper tests the comprehensive ability of ChatGPT 3.5 to describe an effective model for the management of a total country. A series of questions about country management models were submitted to ChatGPT 3.5. The resulting answers are given and analyzed. Limitations of the results received from the ChatGPT 3.5 AI application are identified compared to the characteristics of a country management model released after the ChatGPT 3.5 database was created.

How helpful can artificial intelligence (AI) be for management and quality professionals? Will we need fewer of these professionals in the future, due to the application of AI? How reliable is AI information? We applied AI in the form of ChatGPTⁱ to the SAC-model as a starting point. This model, the Society & Active Citizenship Modelⁱⁱ, was described in a paper published in 2021. This model describes the extent to which a country is well managed and how consistently the management of the country leads to excellent and sustainable results for all its stakeholders.

Are The Results Achieved By Chat GPT Better Than A Text Written By A Human Being?

The SAC-Model is a revolutionⁱⁱⁱ in management thinking. As far as we know there is not yet a management model that can completely answer the questions asked in the introduction. Therefore, we'll employ AI to check

whether an alternative exists for the SAC-Model. We asked the question to ChatGPT 3.5 and got an answer (see Figure 1). This is an interesting answer because it gives an overview of available management methods. However, all these methods apply to only one organization, not to a whole country. Furthermore, it gives one or more aspects of management that can be managed. Even the sum of these six management concepts doesn't give the whole picture of the management of a country. For example: the importance of partnerships, i.e., the interaction between the different organizations (of the public sector) isn't mentioned. Another example: the ChatGPT answer doesn't mention leadership, i.e., every manager of every organization (of the public sector) is accountable for their Key Performance Indicators.

Figure 1: Is there a management model to determine whether a country is well managed?

Question (query August 27, 2023)

The European Foundation of Quality Management (EFQM) Model is a globally recognized management framework that supports organizations in managing change and improving performance. The model allows for evaluating an organization's ability to achieve excellent and sustainable results for the organization as a whole. The achieved results should be excellent for all stakeholders of the organization. Is there a management model to determine whether a country is well managed? How can it be assessed whether a country's results are excellent? Is this a prescriptive model?

ChatGPT 3.5 Answer

While there isn't a direct equivalent of the EFQM Model for evaluating the management of an entire country, there are various indices and frameworks used to assess the governance, development, and overall well-being of nations. These models aim to provide insights into a country's performance and its progress towards sustainable development and excellence. Here are a few examples:

1. **Human Development Index (HDI)**: Developed by the United Nations, HDI assesses a country's overall development based on factors like life expectancy, education, and income. It offers a broader perspective on well-being beyond just economic indicators.
2. **World Bank's Worldwide Governance Indicators**: These indicators measure the quality of governance in countries, including aspects like the rule of law, government effectiveness, and control of corruption.
3. **Global Competitiveness Index (GCI)**: Published by the World Economic Forum, the GCI assesses the

competitiveness of countries based on factors like infrastructure, macroeconomic stability, and innovation capability.

4. **Sustainable Development Goals (SDGs)**: Developed by the United Nations, the SDGs provide a comprehensive framework for countries to work towards sustainable development across social, economic, and environmental dimensions.
5. **Good Governance Index (GGI)**: Some countries have their own governance assessment models, like India's GGI, which evaluates states' performance in various governance-related parameters.
6. **World Happiness Report**: This report ranks countries based on factors contributing to happiness, including income, social support, life expectancy, freedom, trust, and generosity.

These models are not necessarily prescriptive in the sense of providing a specific set of actions for countries to follow, but they serve as assessment tools to gauge a country's progress, identify strengths and weaknesses, and guide policy decisions. They often highlight areas that need improvement and offer valuable insights into how countries can enhance their governance, sustainability, and overall well-being over time.

This ChatGPT answer fails to mention several issues:

- **Monitoring** of the core activities and achievement of the strategic goals of all organizations of the public sector (AOPS)^{iv}
- The **Key Performance Indicators (KPIs)** that are managed by the AOPS leaders.
- Not only enablers should be described by each AOPS but also **results**. This is what many AOPS are missing on their websites.
- It is not enough to show results, but they need to be compared with (relevant) **benchmarks**.
- Finally, excellent, and sustainable results can only be achieved if the society (country) is free from fraud, corrupt practices, money laundering, black money, etc.

For Figure 1 we took the European EFQM Model as a reference in the query. Let's take the United States Malcolm Baldrige National Quality Award (MBNQA) model as a starting point. Although the Malcolm Baldrige model is like the EFQM model we got a very different answer (see Figure 2).

Figure 2. Is there a management model to determine whether a country is well managed?

Question (September 16, 2023)

Can the American Malcolm Baldrige model be used in the assessment of to what extent the Nation (USA) is well managed? To what extent the results for welfare and well-being are excellent and sustainable? May the next generations hope to get a similar or higher degree of welfare and well-being than we know today?

ChatGPT 3.5 Answer

The Malcolm Baldrige National Quality Award (MBNQA) model, often referred to as the Baldrige framework, is primarily designed for organizational excellence and performance assessment within businesses, healthcare organizations, educational institutions, and non-profit entities. It's not intended for the assessment of an entire nation's management, welfare, or well-being. Instead, its focus is on improving the performance and competitiveness of individual organizations.

Assessing the well-being and sustainability of a nation and its prospects for future generations is a complex and multifaceted endeavor. It involves a broad range of economic, social, political, environmental, and cultural factors. Some key considerations in evaluating a nation's well-being and prospects for future generations include:

1. **Economic Factors:** Assessing the nation's economic stability, growth, and income distribution. Indicators such as GDP per capita, unemployment rates, poverty levels, and income inequality are relevant.
2. **Social Factors:** Evaluating social well-being, healthcare quality, education, access to basic services, and social cohesion. Metrics may include life expectancy, literacy rates, access to healthcare, and social safety nets.
3. **Environmental Sustainability:** Analyzing the nation's environmental policies, resource management, and efforts to combat climate change. Metrics like greenhouse gas emissions, renewable energy adoption, and conservation efforts are relevant.
4. **Political Stability and Governance:** Assessing the nation's political institutions, governance, rule of law, and corruption levels. Transparency, political stability, and the effectiveness of institutions are

important considerations.

5. **Cultural and Social Values:** Considering cultural diversity, social values, and inclusivity. These factors can influence social harmony and overall well-being.

6. **Long-Term Planning and Policies:** Examining the nation's commitment to long-term planning and sustainable policies, including investment in education, infrastructure, and healthcare.

7. **Global Comparisons:** Comparing the nation's well-being and sustainability indicators with those of other countries to gain insights into relative performance.

To address these complex issues and assess the well-being and prospects for future generations, governments and organizations often rely on a combination of economic indicators, social surveys, environmental data, and expert analyses. The United Nations, for example, publishes the Human Development Index (HDI), which combines indicators related to health, education, and income to assess overall well-being at the national level.

While the Baldrige framework isn't designed for this purpose, individual organizations, agencies, or departments within a government can use Baldrige principles to improve their performance and contribute to the overall well-being of the nation. However, assessing the well-being of an entire nation and its prospects for future generations requires a much broader set of tools and methodologies.

ChatGPT 3.5 says “... *requires a much broader set of tools and methodologies.*”, but doesn't give an example of a model. It hasn't found it yet. GPT3.5 has made use of massive amounts of text data from the internet since September 2021.

This text describes what a country on a high level could do. It doesn't say how the enablers and results also need to be stratified, i.e., the management at lower levels, for example at the level of an individual AOPS. Neither does it mention a solution nor how to put that solution into practice. The SAC-Model, on the contrary, provides a solution.

The texts of Figures 1 and 2 don't distinguish between operational management and political management. These two activities are very different for a country. The SAC-Model describes what all AOPS of a country need to do in operational management and in the achievement of their strategic goals to develop healthy welfare and well-being for the country in the short and long term.

The formulation of the question into ChatGPT is important. By changing the focus slightly, you obtain a different answer. See the example in Figure 3.

Figure 3 How can I know if a country is well managed? What can a country do to ensure that prosperity and well-being will be as high or higher 75 years from now compared to today?

Question (query August 27, 2023)

How can I know if a country is well managed? How can we be certain that a country produces sustainable and excellent results? What can a country do to ensure that prosperity and well-being will be as high or even higher 75 years from now compared to today?

ChatGPT 3.5 Answer

Assessing whether a country is well managed and predicting sustainable and excellent outcomes in the long term is a complex question that depends on a wide range of factors. Here are some indicators and approaches that can help determine if a country is well-managed and how it can increase prosperity and well-being in the long term:

1. **Economic stability and growth:** A well-managed country should have stable economic growth with reasonable inflation and unemployment. This should be supported by diversification of the economy, investment in infrastructure, and technological advancement.
2. **Good governance:** Transparency, the rule of law, and effective governance structures are essential. Low levels of corruption, an independent judiciary, and accountable and responsive governance are signs of good governance.
3. **Education and healthcare:** Investing in high-quality education and healthcare is crucial for sustainable development. Well-educated citizens are more productive, and healthy citizens contribute to the economy and society as a whole.
4. **Sustainability and environment:** A well-managed country should pay attention to environmental protection and sustainable development. Measures to combat climate change, preserve natural resources, and promote environmentally friendly practices are of great importance.

5. **Innovation and technology:** Investing in research, development, and innovation can help diversify and

5. **Innovation and technology:** Investing in research, development, and innovation can help diversity and grow the economy. Technological advancement can increase efficiency and create new opportunities.

6. **Social inclusion and equality:** A well-managed country strives for social justice, inclusion, and equality. This means that everyone has access to opportunities and basic services regardless of their background.

7. **Infrastructure and connectivity:** Well-developed infrastructure, including transportation, energy, and communication, is crucial for economic growth and well-being.

To ensure that prosperity and well-being remain the same or increase in 75 years, a country must focus on long-term strategies:

1. **Long-term vision:** Developing a clear vision and goals for the future can serve as a guide for long-term policy decisions.
2. **Education and youth development:** Investing in the younger generation through high-quality education and training will create a stronger and better-educated workforce.
3. **Innovation and technology:** Continued investment in research and development will help address future challenges and create new opportunities.
4. **Sustainability and environmental protection:** Implementing sustainable practices is essential to ensure quality of life in the long term.
5. **Social welfare policies:** Developing robust social safety nets and healthcare systems will ensure that all citizens have access to basic needs.
6. **International cooperation:** Collaborating with other countries and international organizations can help address global challenges and promote peace and prosperity.

Remember that each country's situation is unique, and there is no one-size-fits-all solution. It takes ongoing efforts, adjustments, and evaluation to ensure that a country is well-managed and that prosperity and well-being are promoted in the long term.

This ChatGPT answer is interesting. It is complementary to the first two figures. The third answer better

describes the long-term priorities and challenges.

None of the three answers explain the prescriptive versus non-prescriptive management model. We, as authors of the SAC-Model, are convinced that the non-prescriptive model is a strength. Every AOPS may choose what is important for them. An external third party will not require the AOPS management team to do something. It is the responsibility of every manager within the AOPS management team to make the proper choices and decisions. Effective management of all AOPS of a country will lead to excellent and sustainable results for the country.

Conclusion

Although ChatGPT gives valuable information in no time (seconds after you enter a query, you get an answer), we must keep in mind:

- **Limited Knowledge of ChatGPT:** it is based on information up to September 2021. It doesn't have access to current data or events after that date. The majority of the publications of the SAC-Model have been published after September 2021.
- **Contextual Nuances:** In some cases, context can be important for a full understanding, and AI models may miss this context. ChatGPT doesn't understand the question of management of a whole country because very little has been available on the internet.
- **Paywall:** Management journal papers are often only available for a fee. All papers on the SAC model have been published in management journals after 2021. These papers can be consulted in an academic environment or at www.comatech.be
- **SAC-Model.** ChatGPT hasn't yet discovered this model for managing a country.

We launched a new question some months later. We don't suggest a name for a management model.

Figure 4: Management models enabling management of a country

Question (query October, 2023)

Are there management models that explain how to manage a country?

ChatGPT 3.5 Answer

There are various management models and theories that can be applied to the management of a country, particularly in the context of public administration and governance. These models aim to provide frameworks and guidelines for effective governance and policymaking. Some of the management models and approaches that are often discussed in the context of managing a country include:

1. **Public Administration Models:** These models focus on the principles and practices of public administration. Examples include the New Public Management (NPM) model, which emphasizes efficiency, effectiveness, and accountability in government operations.
2. **Policy Cycle Model:** This model outlines the stages of policy development, implementation, and evaluation. It typically includes stages such as agenda-setting, policy formulation, decision-making, implementation, and evaluation.
3. **Good Governance Frameworks:** Various organizations and scholars have proposed principles of good governance, which include aspects like transparency, accountability, rule of law, and participation. These principles are often used as guidelines for managing a country effectively.
4. **Systems Thinking:** Systems thinking is an approach that emphasizes understanding the interconnections and dynamics within complex systems. It can be applied to analyze and manage various aspects of a country's governance and socio-economic systems.
5. **Balanced Scorecard:** Originally developed for business, the balanced scorecard approach can also be adapted for public sector management. It involves setting strategic objectives, key performance indicators (KPIs), and measuring performance against these indicators.
6. **Sustainable Development Goals (SDGs):** The United Nations has established a set of Sustainable Development Goals that countries are encouraged to work toward. These goals cover various aspects of social, economic, and environmental development and can serve as a framework for managing a country's progress.
7. **Economic Models:** Various economic models, such as Keynesian economics, supply-side economics, and others, can inform economic policy decisions at the national level.
8. **Political Theories:** Political theories, such as liberalism, conservatism, socialism, and others, can shape a country's political and governance systems and policies.

9. **Crisis Management Models:** These models provide guidance on how to handle crises and emergencies.

9. **Crisis Management Models.** These models provide guidance on how to handle crises and emergencies at the national level, such as natural disasters or public health emergencies.

It's important to note that managing a country is a complex and multifaceted task, and no single model or approach can fully capture the intricacies involved. Moreover, the specific model or approach used can vary depending on the country's unique context, political system, culture, and goals. Effective governance often requires a combination of different models and approaches tailored to the specific challenges and opportunities a country face.

The last paragraph in Figure 4 is an interesting conclusion from ChatGPT. The nine models (approaches) mentioned in the answer of ChatGPT 3.5 are good and valuable, but they don't give a *total picture* of the *management of a country* because every AOPS^v can make its own choice of methods. There is no uniformity in presenting the achieved results of all the AOPS of a country. The proposed models by ChatGPT don't give a holistic approach to the management of a country. Although a country needs a strongly organized public sector, the Chat GPT doesn't mention how efficiently the budgets are spent by every AOPS. All these contraindications are solved by the **SAC-Model**^{vi}. The latter is a holistic approach, results-driven, in the interest of the whole population, long-term driven, efficient, and effective management of all AOPS, optimization of the partnerships between AOPS, and results are compared with benchmarks.

Finally, we must answer the question: **is ChatGPT better than a human being?**

We think that the ChatGPT tool is useful and complementary to our management work. But we are still critical. Is the information we get from ChatGPT *complete* and *reliable*? Does it make sense? Only a management expert can answer these questions. This paper demonstrates there is still a need for human interpretation of ChatGPT output. E.g., ChatGPT 3.5 doesn't distinguish between the operational management of an AOPS (this is described in the SAC-model) and political management of a country or part of a country (e.g., department, county, province, etc.). This distinction is crucial for providing objective operational controls for all organizations of the public sector.

References:

- i. **ChatGPT** is an AI chatbot that has garnered significant attention since its launch. Let's delve into the details:
ChatGPT is an AI model developed by **OpenAI**. It falls under the family of large language models (LLMs) known as **GPT-3**. These models are trained on massive amounts of text data from the internet since September 2021, including books, articles, websites, and social media. ChatGPT's primary purpose is to generate human-like text

responses based on user prompts.

- ii. Yves Van Nuland and Grace L. Duffy, *How to Successfully Develop and Manage a Sustainable Country or Region*, The Quality Management Forum, Fall 2021, volume 47 number 3 (14 pages). We strongly advise the reader to consult this basic article for a better understanding of the SAC-Model. Papers are freely available at <https://www.comatech.be/sac-model-2/>
- iii. SAC-Model is a universal model, it can be applied in every country except for countries led by autocrats All Organizations of the Public Sector (AOPS) apply this model simultaneously. It is not a prescriptive model such as ISO 9001. The management team of every AOPS decides which methods, concepts, and tools are used. It is a holistic model, i.e., the expectations of all stakeholders of the country need to be fulfilled. It is an operational model, not a political model. Therefore, all managers use Key Performance Indicators (KPIs) in daily life to manage their core activities and to achieve the strategic goals of their organization.
- iv. When the organization is more than 50% dependent on tax or social services funding, we call it a public sector organization. We consider AOPS to be all the organizational entities of the public sector.
- v. AOPS. When the organization is more than 50% dependent on tax or social services funding, we call it a public sector organization. Therefore, we refer to these entities as all organizations of the public sector (AOPS). See also: Yves Van Nuland and Grace L. Duffy, *How to Successfully Develop and Manage a Sustainable Country or Region*, The Quality Management Forum, Fall 2021, volume 47 number 3 (14 pages). This paper explains also the Society & Active Citizenship Model (SAC-Model).
- vi. See also all the papers on the SAC-Model in <https://www.comatech.be/sac-model-2/>

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After he studied Ph.D. Chemistry at the University of Leuven (Belgium) (1977), Yves worked at the Belgian FDA (1978). Next, he was laboratory and quality manager at PRB (chemical industry) (1979–1988) and quality manager at UCB Chemicals in Brussels (1989–1994). As a self-employed consultant-trainer, he gives support to his customers on subjects like excellence models (EFQM and MBA), Business Process Management, KPIs, and company culture. He is co-author and editor of the books "Excellent, A Guide for the Implementation of the EFQM Excellence Model" and the book "Validating a Best Practice".



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Grace has over 45 years of experience in successful business and process management in corporate, government, education, and healthcare. Grace uses her experience as President, CEO, and senior manager to help organizations improve. She has authored 18 texts and many articles. She is co-author of the book "Validating a Best Practice." She is a frequent speaker and trainer. Grace holds an MBA from Georgia State University. She is an LSS Master Black Belt, ASQ Fellow, and Distinguished Service Medalist.