

**IMPROVING ORGANIZATION PROCESS BY ADOPTING AND IMPLEMENTATION
TOTAL QUALITY MANAGEMENT ON SUSTAINABILITY SYSTEMS AND
PLANNING AS A MEDIATOR IN STRUCTURAL PERFORMANCE**

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Abstract

The applicability of the Total Quality Management (TQM) may be self-evident to every business but we have successfully provided an example of its significant impact on Sustainability (SU) along with the critical importance of Planning (PL) as an intermediary. We placed our attention in a few aspects instead of one approach; in such a way, we also paid attention to the broad issues to effectively address any met challenges. The degree of maturity required in firms has been made as an important criterion in assessment of sustainability. The framework will provide the reader or practitioner who is implementing this study with a comprehensive insight into whole quality management. Administrative and organisational capabilities were also a key factor to the correct definition of the dynamics of the variables in the sustainability systems. We have recognized the importance of providing a holistic explanation of the current changes in the sustainability; hence organisations should determine the specific path that they want to take in their respective areas of operation to enhance their organisational capabilities. As a mediating variable, planning plays a vital role in this study, and it suggests the necessity of a significant role in the improvement of progressive creativity at all times. A sample of 140 employees was selected from Wasit University (Iraq), yielding 136 valid responses to the administered questionnaire; (4) responses were not retrieved. A 7 point Likert scale and the SPSS software were utilized as the primary tools for generating statistical results. All three formulated hypotheses were supported.

Keywords: Total Quality Management, Sustainability, Planning, Employees, Organization.

Introduction

Total Quality Management (TQM) encompasses a range of trends that are continuously evolving within its progressive framework (Riani & Ain, 2022). Furthermore, it aligns with the trajectory of technological development observed across other higher education institutions (Konan, 2023). The questionnaire was distributed to a specific, fixed sample group. Furthermore, efforts were undertaken to identify modern methods for addressing the gaps identified in previous studies (Chankseliani & Cowan, 2021). We anticipate observing a systematic and distinctive approach one that does not remain a one-dimensional display, but rather expands to encompass new programs. The role of new technology with its wealth of innovations and beneficial skills cannot be overlooked, as it ensures resilience and the capacity to keep pace with modern scientific advancements across all institutions (Kim et al., 2023). This entails designating specific hours for work and sustainability development, thereby enabling individuals to utilize their break times as they actively attend to their organizational tasks (Q. Zhang et al., 2021). We have all come to realize that we must realistically focus on and orient ourselves toward

the planning of sustainability systems; furthermore, the planning factor acting as the intermediary that served as the pivotal link between quality and sustainability cannot be overlooked. This approach demonstrates how to articulate the continuity and positive performance of projects, as it does not restrict itself to a single methodological framework. It also encourages the pursuit of diverse fields rather than restricting oneself to a single domain. Furthermore, this research endeavor emphasizes the importance of giving due consideration to university staff and of conveying accurate information eschewing a multitude of conflicting options by adhering to a consistent and fixed reference point. One of the key obligations for university managers is to solicit and respect the opinions of other staff members. Indeed, it is incumbent upon employees to distinguish between ideas and opinions that are beneficial to the university, while maintaining continuous follow-up and oversight, comprehending their efficacy, and eliminating their repercussions (Aulia et al., 2023). Furthermore, periodic and planned meetings between employees and their subordinates are an absolute imperative a duty to be fulfilled in its entirety, without omission in any of its facets. This entails adopting proposals deemed beneficial and applicable to the organization, without alienating any of the parties that submitted them (Madrid et al., 2024). This pertains to the nature of the relationships existing among variable factors within the context of successful processes in research databases and information systems. This is a decision that benefits employees and succeeds in fully leveraging the data available from respondents. The task of formulating solutions to address problems informed by insights derived from previous studies Through organized and diligent effort aimed at establishing a foundation of excellence, qualitative precision, and effectiveness, we as employees will realize all our desired objectives (Biermann et al., 2022). We do not rely on mere expectations or speculations which may lack accuracy to drive our reliable and successful operations; rather, we are committed to making well planned decisions grounded in comprehensive analysis (Fryirs et al., 2021). The implementation of this project would involve a lot of effort being applied which is a requirement in an academic institution. The assumption is that the continuity of the policy in terms of investing in the sustainability of business and at the same time motivating the staff to provide specified services and follow the established guidelines, are the main priorities. Such adherence is characterized by continuous evolution, high-caliber professional skills, and a reputation for excellence in performance, thereby fostering optimal organizational outcomes within a dynamic environment characterized by multifaceted roles and inter organizational competition (Majernik et al., 2022).

1. Theoretical framework

2. 1. Total quality management

Total Quality in education is defined as a comprehensive set of procedures and standards adopted with the aim of advancing, developing, and improving the educational product (Krysovaty et al., 2024). It also encompasses the characteristics and specifications expected to be derived from the educational product, achieved through the execution of various activities and processes utilizing mutually complementary tools and methods to yield the desired results (Maulidin et al., 2024). Furthermore, it seeks to realize all the objectives to which the educational and pedagogical process aspires, while also striving to meet the operational needs of universities by providing a workforce that is scientifically and professionally qualified. At its core, Total Quality permeates every facet of life, placing particular emphasis on sustainability as a means of generating profit. Consequently, a managerial approach is deemed successful if it succeeds in achieving its intended objectives. It is noteworthy that (TQM)

invariably aims to achieve long-term success; this management paradigm empowers members of an organization to participate in improving procedures and implementing necessary modifications to both processes and the products and services prevalent within the work environment (Kulkov et al., 2024). The Total Quality Management (TQM) concept in any organisational structure is rested on the dynamic relationship between data and information in the organisation that is directly direct resultant of what the personnel engaged in performing. The development of the TQM concept has expanded its boundaries to the educational and pedagogical process, prompted by the great significance of education and an immediate demand to devise basic solutions to the problems that have impacted human lives and society (Gurung et al., 2021).

2. 2. Sustainability

Sustainability in education means the concept of ensuring the sustainability and resiliency of educational systems by meeting the needs of the current generations without undermining the ability of future generations to meet their needs (Liu et al., 2023). The meaning of sustainability educational institution is composed of several aspects and these are: Environmental sustainability involves a situation whereby educational institution adopts green practices which include the utilization of renewable energy sources as well as minimizing the use of natural resources. Economic sustainability lays emphasis on acquisition of sustainable funds and monetary resources to learning institutions, and development of economically viable learning systems. Social sustainability entails ensuring the access to education to all people of various ages and socio-economic statuses besides encouraging community participation in the educational process. Organisational sustainability is relevant to the continuity and stability of administrative and management in education and the creation of effective evaluation and monitoring systems.(Paxton & Hughes, 2013). Achieving sustainability in education requires concerted efforts from governments, educational institutions, local communities, and the international community. Sustainable action in education aims to deliver high-quality, enduring education that contributes to societal development, environmental protection, and the realization of sustainable development goals (Kanan et al., 2023). Other key aspects related to sustainability in education include: Sustainable Education, which involves developing curricula that reinforce concepts and knowledge regarding sustainability, thereby encouraging students to make sustainable decisions and adopt sustainable behaviors in their daily lives; and experiential learning or learning outside the classroom, which involves providing learning opportunities beyond the traditional school environment such as field trips and hands on activities to help students gain a deeper understanding of the relationship between humans and the environment, as well as how to conserve natural resources (Weyrich et al., 2021). Teacher training and development (Zhang et al., 2021). This involves providing continuous training and professional development for teachers regarding sustainability concepts and how to integrate them into curricula and educational activities (Weiland et al., 2021). Teachers can serve as living examples of sustainable behavior and inspire students to take sustainable action. Local and Global Partnerships. This entails building strong partnerships with the local community, other institutions, and international organizations to promote sustainable education (Haneef & Sheraz, 2022). These partnerships may involve the exchange of knowledge, expertise, and financial resources to enhance sustainability within the educational sector. Technological Innovation (Leybourne et al., 2025). Technology can be leveraged to foster sustainability in education for instance, through the use of multimedia and distance learning, as well as by providing

digital educational materials that focus on sustainability and encourage interaction and engagement (Kaul et al., 2022).

2. 3. Planning

Organizations employ various types of planning to suit their diverse objectives (Shin et al., 2020). Accordingly, planning can be classified based on several criteria, the most significant of which are: a) Planning based on the scope of its impact, which includes: Strategic Planning: This is a critical form of planning that brings about qualitative change within the organization (Issoufou Hamma et al., 2024). It is conducted by top management and has a long-term impact; examples include planning to introduce a new product line or planning to enter a new market (Mahameed et al., 2024). Tactical Planning: This is undertaken by middle and top management and has a medium-term impact (Cândido et al., 2021). It is formulated to support strategic planning; an example is estimating the market demand for a specific product (Shulla et al., 2021). Operational Planning: This is carried out by middle and lower management and has a medium-term impact (Ozili & Iorember, 2024). It typically elaborates upon tactical plans; an example is determining the production department's requirements for raw materials and spare parts. b) Planning based on the time horizon: Long-term Planning: This covers an extended period of time; relatively speaking, a timeframe of five years or more is generally considered long-term planning. Medium-term Planning: This covers a timeframe that is neither excessively long nor excessively short; it typically spans a period of more than one year but less than five years (Huang et al., 2022). Short-term Planning: This covers a timeframe of less than one year. c) Planning based on function: Production Planning: This focuses on matters related to production, such as the flow of raw materials, personnel within the production department, and production quality control (Tortorella et al., 2022). Marketing Planning: This focuses on matters related to marketing, such as product evaluation, marketing and promotion activities, and distribution (Weigang et al., 2021). Financial Planning: This focuses on issues related to financial aspects, such as how to acquire funds and how to allocate them (Powell et al., 2021). Workforce Planning: This focuses on all matters related to the workforce, such as requirements, recruitment, training, development, and so forth. Good or Effective Planning: Certain characteristics render planning highly effective; chief among these are: It must be flexible and capable of adapting to any variables. It must be realistic, avoiding both exaggerated estimates and excessive pessimism. It must be clear and devoid of vague generalities. It must encompass all facets of the organization specifically, its production, financial, and other aspects. It must cover a reasonable timeframe. Conclusion: In this chapter, we addressed the subject of planning as the primary function of management, examining its constituent elements and the underlying need for it driven primarily by resource scarcity and environmental complexity as well as its overall significance. We also reviewed the stages of planning, which culminate in environmental analysis, objective setting, the identification and evaluation of alternatives, and the selection of the most suitable option. Subsequently, plans are formulated and developed for the chosen alternative; these plans take the form of policies, procedures, rules, programs, and budgets. Finally, we explored the various types of planning, categorized according to their scope of impact, timeframe, and functional area.

2. Hypothesis

H1: (TQM) impact on (SU).

H2: (TQM) impact on (PL).

H3: (PL)impact on(SU).

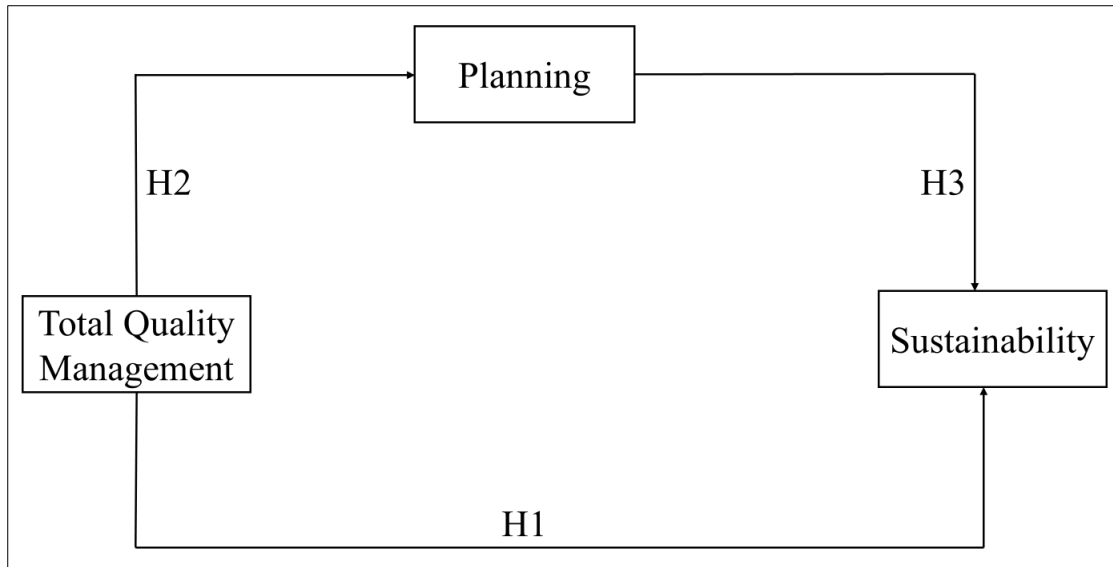


Figure 1: Framework

3. Methodology

This paper demonstrates the characteristics of Total Quality Management (TQM) performance within its specific, contemporary context, for which a definitive and explicit framework has been established to attain measurable values rather than functioning solely as theoretical endeavour. The University asserts that it provides findings of exceptional clarity & comprehensiveness across several qualitative and quantitative dimensions, especially in administration, which it considers a characteristic of prestigious schools. Therefore, it is expected that discoveries would considerably surpass the breadth of numerous other studies that have contributed to this subject. Moreover the developmental progress made during this period together with its systematic distribution, is considered crucial for optimising the effectiveness of the University's existing programs. (Aleixo et al., 2021).

4. Analysis Results

In this study, provided for utility, we have made concerted attempts to utilise the statistical software package SPSS. The study includes 3 theories. We earnestly anticipate the efficacy of this scholarly endeavour, which, after significant effort, may ultimately fulfil our goals. Table 1.

Table 1: Reliability validity

Items	Cronbach's alpha	Composite reliability	Average variance extract
TQM	0.939	0.961	0.662
SU	0.937	0.973	0.551
PL	0.937	0.963	0.593

It has been established that, all the findings in this study are positive, highly beneficial and can be easily applied by the universities. Moreover, the research can be characterized by the best usage of contemporary technological approaches; as a result of this, once universities start using the paper, there will be no appropriate reason to avoid it (Atchombou et al., 2023). (See Table 2).

Table 2: Mean and std. Deviation

Items	No	Mean	Std. Deviation
TQM	136	5.197	1.592
SU	136	5.062	1.206
PL	136	5.841	1.301

Table 3 also displays breadth of the results, paying particular attention to the results of data on the targeted sample. The values given therein are the results we wanted to realize in order to make our research successful. Consequently, this research endeavor stands as distinctive, prominent, and purposeful achievement particularly given that the results, as demonstrated to the reader, are of exceptional quality and profound significance (Wang et al., 2022).

Table 3: Discriminant validity

Items	TQM	IS	IN
TQM			
SU	0.849		
PL	0.162	0.872	

5. Conclusions

1. We have established a convergence and a correlation regarding the accuracy of the information, demonstrating a clear, positive, and distinct relationship between Total Quality Management and sustainability.
2. Moreover, it represented the realized expectation the very outcome we had hoped for aimed at establishing a lasting foundation and fostering a positive, robust relationship in practice, all with the objective of cultivating a competitive edge.
3. There was a determined effort to overcome difficulties in order to maximize the benefit derived from the efforts being expended. Indeed, these endeavors yielded multiple positive outcomes results characterized by integrity that served to establish a high and robust standard of credibility.
4. Providing clear and effective instructions that encourage performance enhancement, and adopting a clear approach that motivates universities and encourages them to refine the methods and style of their reception staff.
5. Eliminating any shortcomings facing the university in achieving an inspiring objective for universities, until the desired benefit is realized.

7. Recommendations

1. Universities must firmly adhere to this study; doing so will, in turn, yield unequivocal results and lead to increased profits.
2. It aims to facilitate the effective and high-quality implementation of these practices, enhance the extent of their adoption across most universities, and encourage interest in them as the most superior and optimal methodologies.
3. This research demonstrated to universities the existence of a diverse array of distinctive, positive approaches that enabled them to formulate varied frameworks, reflecting the diverse nature of their decisions.
4. It was incumbent upon most of those present in official corridors to address the critical matters pertaining to university performance and oversight.

References

1. Al Mahameed, M., Yates, D., & Gebreiter, F. (2024). Management as ideology: “New” managerialism and the corporate university in the period of Covid-19. *Financial Accountability and Management*, 40(1), 34–57. <https://doi.org/10.1111/faam.12359>.
2. Aleixo, A. M., Leal, S., & Azeiteiro, U. M. (2021). Higher education students’ perceptions of sustainable development in Portugal. *Journal of Cleaner Production*, 327, 1–35. <https://doi.org/10.1016/j.jclepro.2021.129429>.
3. Atchombou, J. B., Shidiki, A. A., Tchamba, M. N., & Alexis, K. S. (2023). Opinion of Stakeholders on the Management of Ecotourism in the Benue National Park of the North Region of Cameroon. *Open Journal of Forestry*, 13(01), 92–109. <https://doi.org/10.4236/ojf.2023.131007>.
4. Aulia, M. R., Lubis, Z., Effendi, I., & Junaidi. (2023). Leveraging Quality Management and Partnership Programs for Technopreneurial Success: Exploring their Impact on MSME Performance. *APTISI Transactions on Technopreneurship*, 5(2), 157–168. <https://doi.org/10.34306/att.v5i2.303>.
5. Biermann, F., Hickmann, T., Sénit, C. A., Beisheim, M., Bernstein, S., Chasek, P., Grob, L., Kim, R. E., Kotzé, L. J., Nilsson, M., Ordóñez Llanos, A., Okereke, C., Pradhan, P., Raven, R., Sun, Y., Vijge, M. J., van Vuuren, D., & Wicke, B. (2022). Scientific evidence on the political impact of the Sustainable Development Goals. *Nature Sustainability*, 5(9), 795–800. <https://doi.org/10.1038/s41893-022-00909-5>.
6. Cândido, C. J. F., Coelho, L. M. S., & Peixinho, R. M. T. (2021). Why firms lose their ISO 9001 certification: Evidence from Portugal. *Total Quality Management and Business Excellence*, 32(5–6), 632–651. <https://doi.org/10.1080/14783363.2019.1625266>.
7. Chankseliani, M., & McCowan, T. (2021). Higher education and the Sustainable Development Goals. *Higher Education*, 81(1), 1–8. <https://doi.org/10.1007/s10734-020-00652-w>
8. Fryirs, K., Hancock, F., Healey, M., Mould, S., Dobbs, L., Riches, M., Raine, A., & Brierley, G. (2021). Things we can do now that we could not do before: Developing and using a cross-scalar, state-wide database to support geomorphologically-informed river management. In *PLoS ONE* (Vol. 16, Issue 1 January). <https://doi.org/10.1371/journal.pone.0244719>.
9. Gurung, P. M. S., Melnyk, R., Holler, T., Oppenheimer, D., Witthaus, M., Rashid, H. H., Frye, T. P., Wu, G., Joseph, J. V., & Ghazi, A. E. (2021). Application of IRIS Three-Dimensional Anatomical

- Models As Preoperative Surgical Planning Tools in the Management of Localized Renal Masses. *Journal of Endourology*, 35(3), 383–389. <https://doi.org/10.1089/end.2020.0405>.
10. Haneef, J., & Sheraz, A. (2022). Development of well complexity calculator and its integration into standard well engineering management system/well delivery system. In *Journal of Petroleum Exploration and Production Technology* (Vol. 12, Issue 6). Springer International Publishing. <https://doi.org/10.1007/s13202-021-01428-3>
 11. Huang, Q., Schmerr, N. C., King, S. D., Kim, D., Rivoldini, A., Plesa, A. C., Samuel, H., Maguire, R. R., Karakostas, F., Lekić, V., Charalambous, C., Collinet, M., Myhill, R., Antonangeli, D., Drilleau, M., Bystricky, M., Bollinger, C., Michaut, C., Gudkova, T., ... Banerdt, W. B. (2022). Seismic detection of a deep mantle discontinuity within Mars by InSight. *Proceedings of the National Academy of Sciences of the United States of America*, 119(42), 1–12. <https://doi.org/10.1073/pnas.2204474119>.
 12. Issoufou Hamma, O., Boka Tounga, Y., Abdou Moussa, H., Mahamat Hissene, T., Moussa Daouda, I., Laouali Abba, F., Nicaise Agada, K., Ide, G., Issa Ibrahim, A., Daouda Bako, I., Kelani, A. B., Chaibou, M. S., & Sani, R. (2024). Case Report: Multidisciplinary management of severe blast-related craniofacial and ocular injuries at artisanal gold mining sites in Niger: An unusual case report and comprehensive literature review. *F1000Research*, 13, 855. <https://doi.org/10.12688/f1000research.154348.1>.
 13. Kanan, M., Dababat, H., Saleh, Y., Zaid, A., Assaf, R., Zahran, S., Salahat, M. A., & Al-Sartawi, A. (2023). Impact of Total Quality Management Practices on the Transformation To Entrepreneurial Universities in Palestine: the Moderating Role of Innovation. *Operational Research in Engineering Sciences: Theory and Applications*, 6(3), 34–56. <https://doi.org/10.31181/oresta/060302>.
 14. Kaul, S., Akbulut, B., Demaria, F., & Gerber, J. F. (2022). Alternatives to sustainable development: what can we learn from the pluriverse in practice? *Sustainability Science*, 17(4), 1149–1158. <https://doi.org/10.1007/s11625-022-01210-2>.
 15. Kim, D., Duran, C., Giardini, D., Plesa, A. C., Stähler, S. C., Boehm, C., Lekić, V., McLennan, S. M., Ceylan, S., Clinton, J. F., Davis, P., Khan, A., Knapmeyer-Endrun, B., Panning, M. P., Wiczorek, M., Lognonné, P., & Banerdt, W. B. (2023). Global Crustal Thickness Revealed by Surface Waves Orbiting Mars. *Geophysical Research Letters*, 50(12), 1–10. <https://doi.org/10.1029/2023GL103482>.
 16. Konan, K. H. (2023). La gouvernance de l’orpaillage clandestin dans les localités ivoiriennes frontalières du Mali et du Burkina Faso. *EchoGéo*, 62, 0–15. <https://doi.org/10.4000/echogeo.24335>
 17. Krysovaty, A., Ptashchenko, O., Kurtsev, O., & Ovagim, A. (2024). The Concept of Inclusive Economy as a Component of Sustainable Development Konceptcja gospodarki inkluzywnej jako składnik zrównoważonego rozwoju *** Simon Kuznets Kharkiv National University of Economics **** Simon Kuznets Kharkiv National University of E. *Problemy Ekorozwoju*, 19(1), 164–172.
 18. Kulkov, I., Kulkova, J., Rohrbeck, R., Menvielle, L., Kaartemo, V., & Makkonen, H. (2024). Artificial intelligence - driven sustainable development: Examining organizational, technical, and processing approaches to achieving global goals. *Sustainable Development*, 32(3), 2253–2267. <https://doi.org/10.1002/sd.2773>.
 19. Leybourne, D. J., Musa, N., & Yang, P. (2025). Can artificial intelligence be integrated into pest monitoring schemes to help achieve sustainable agriculture? An entomological, management and

- computational perspective. *Agricultural and Forest Entomology*, 27(1), 8–17. <https://doi.org/10.1111/afe.12630>.
20. Madrid, J., Agarwal, P., Müller-Peltzer, K., Askani, M., Benning, L., Selig, M., Diehl, P., Kalbhenn, J., Trummer, G., Utzolino, S., Wengenmayer, T., Busch, H. J., Stolz, D., Rieg, S., Panning, M., Schlett, C. L., Bamberg, F., & Askani, E. (2024). Vaccination protects against acute respiratory distress syndrome (ARDS) in hospitalized patients with COVID-19. *Clinical and Experimental Medicine*, 24(1), 1–16. <https://doi.org/10.1007/s10238-023-01293-w>.
 21. Majerník, M., Daneshjo, N., Malega, P., Drábik, P., & Barilová, B. (2022). Sustainable Development of the Intelligent Industry from Industry 4.0 to Industry 5.0. *Advances in Science and Technology Research Journal*, 16(2), 12–18. <https://doi.org/10.12913/22998624/146420>.
 22. Maulidin, S., Kurniawan, W., Rohman, M., Nawawi, M. L., & Andrianto, D. (2024). Madrasah Quality Management in Improving Competitiveness in the Digital Age at Madrasa Abstract: *Journal of Advanced Islamic Educational Management*, 4(1), 57–70. <https://doi.org/10.24042/jaiem.v>.
 23. Ozili, P. K., & Iorember, P. T. (2024). Financial stability and sustainable development. *International Journal of Finance and Economics*, 29(3), 2620–2646. <https://doi.org/10.1002/ijfe.2803>.
 24. Paxton, P., & Hughes, M. (2013). Eastern Europe and Central Asia. In *Women, Politics, and Power: A Global Perspective*. <https://doi.org/10.4135/9781452275482.n11>.
 25. Powell, D., Eleftheriadis, R., & Myklebust, O. (2021). Digitally Enhanced Quality Management for Zero Defect Manufacturing. *Procedia CIRP*, 104(March), 1351–1354. <https://doi.org/10.1016/j.procir.2021.11.227>.
 26. Riani, S. S., & Ain, S. Q. (2022). The Role of School Principal in Implementing Education Quality Management. *Jurnal Ilmiah Sekolah Dasar*, 6(2), 204–211. <https://doi.org/10.23887/jisd.v6i2.45216>.
 27. Shin, N., Park, S., & Kim, H. (2020). Consumer satisfaction–based social commerce service quality management. *BRQ Business Research Quarterly*, 24(1), 34–52. <https://doi.org/10.1177/2340944420916098>.
 28. Shulla, K., Voigt, B. F., Cibian, S., Scandone, G., Martinez, E., Nelkovski, F., & Salehi, P. (2021). Effects of COVID-19 on the Sustainable Development Goals (SDGs). *Discover Sustainability*, 2(1). <https://doi.org/10.1007/s43621-021-00026-x>.
 29. Tortorella, G. L., Fogliatto, F. S., Espôsto, K. F., Mac Cawley, A. F., Vassolo, R., Tlapa, D., & Narayanamurthy, G. (2022). Healthcare costs' reduction through the integration of Healthcare 4.0 technologies in developing economies. *Total Quality Management and Business Excellence*, 33(3–4), 467–487. <https://doi.org/10.1080/14783363.2020.1861934>.
 30. Wang, Y. J., Li, Z. X., Gu, H. Q., Zhai, Y., Zhou, Q., Jiang, Y., Zhao, X. Q., Wang, Y. L., Yang, X., Wang, C. J., Meng, X., Li, H., Liu, L. P., Jing, J., Wu, J., Xu, A. D., Dong, Q., Wang, D., Wang, W. Z., ... Zhao, J. Z. (2022). China Stroke Statistics: an update on the 2019 report from the National Center for Healthcare Quality Management in Neurological Diseases, China National Clinical Research Center for Neurological Diseases, the Chinese Stroke Association, National Center f. *Stroke and Vascular Neurology*, 7(5), 415–450. <https://doi.org/10.1136/svn-2021-001374>.
 31. Weigang, S., Fuchs, J., Zimmer, G., Schnepf, D., Kern, L., Beer, J., Luxenburger, H., Ankerhold, J., Falcone, V., Kemming, J., Hofmann, M., Thimme, R., Neumann-Haefelin, C., Ulferts, S., Grosse,



- R., Hornuss, D., Tanriver, Y., Rieg, S., Wagner, D., ... Kochs, G. (2021). Within-host evolution of SARS-CoV-2 in an immunosuppressed COVID-19 patient as a source of immune escape variants. *Nature Communications*, 12(1), 1–12. <https://doi.org/10.1038/s41467-021-26602-3>.
32. Weiland, S., Hickmann, T., Lederer, M., Marquardt, J., & Schwindenhammer, S. (2021). The 2030 agenda for sustainable development: Transformative change through the sustainable development goals? *Politics and Governance*, 9(1), 90–95. <https://doi.org/10.17645/PAG.V9I1.4191>.
33. Weyrich, P., Ruin, I., Terti, G., & Scolobig, A. (2021). Using serious games to evaluate the potential of social media information in early warning disaster management. *International Journal of Disaster Risk Reduction*, 56, 0–34. <https://doi.org/10.1016/j.ijdr.2021.102053>.
34. Zhang, C., Moreira, M. R. A., & Sousa, P. S. A. (2021). A bibliometric view on the use of total quality management in services. *Total Quality Management and Business Excellence*, 32(13–14), 1466–1493. <https://doi.org/10.1080/14783363.2020.1732811>.
35. Zhang, Q., Fisher, T. R., Trentacoste, E. M., Buchanan, C., Gustafson, A. B., Karrh, R., Murphy, R. R., Keisman, J., Wu, C., Tian, R., Testa, J. M., & Tango, P. J. (2021). Nutrient limitation of phytoplankton in Chesapeake Bay: Development of an empirical approach for water-quality management. *Water Research*, 188, 116407. <https://doi.org/10.1016/j.watres.2020.116407>.