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IMPACT OF COUNTRY-LEVEL CULTURAL DEVELOPMENT ON THE ACHIEVEMENT OF SUSTAINABLE DEVELOPMENT GOALS

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Abstract. *Purpose* – The goal of the research was to test a general assumption about culture contribution to sustainable development via the relationship between culture-related indices and the achievement of specific sustainable development goals.

Research methodology – Linear regression analysis along with robustness testing was used to test research hypotheses. The data set is represented by 19 explanatory variables and 2 dependent variables, which are proxies for sustainable developments goals *Decent Work and Economic Growth* and *Industry, Innovation and Infrastructure* – Innovation index and Global competitiveness index. The data were collected from 27 European countries for the period 2011–2020.

Findings – Statistical analysis revealed relationship between sustainable development indices and culture development of European countries. *Decent Work and Economic Growth* demonstrated more significant relationship to cultural development than the *Industry, Innovation and Infrastructure Development*.

Research limitations – The findings are limited by the fact that some variables were missing.

Practical implications – The outcomes of the research allow to define the structure of relationship between sustainable development goals and cultural development indicators.

Originality/Value – The research results have indicated that the achievement of sustainable development goals *Decent Work and Economic Growth* and *Industry, Innovation and Infrastructure Development* are affected by the level of cultural development.

Keywords: sustainable development, culture economics.

JEL Classification: Q01, Z10.

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Introduction

In 2015, the United Nations adopted the agenda Sustainable Development Goals (henceforth SDGs), the aim of which was to reduce poverty and to ensure peace and stability. In contrast to other policies, this document focuses on the holistic approach to the improvement of life on the planet (Zheng et al., 2021). In other words, a pathway to the attainment of an economic objective includes the simultaneous attainment of relevant social and environmental objectives, or else, social and environmental aspects are embedded into the structure of an economic objective. Considering a great variety of standards of life across the globe, which could not be merely attributed to differences in geographical locations and riches of natural resources, these should be social factors, which in tandem with other factors, significantly

impact the quality of life, and thus, the pathway of the attainment of SDGs and interpretation of some content of SDGs.

In the SDGs context, any activity is both encoded and decoded through the prism of various human minds, whose information processing mechanisms are mediated by informational and interpretational differences. The roots of some of such differences might be traced to the varied interpretation of values of human existence, which can be attributed, at least in part, to differences in cultures – culture vision, mission, and norms. Therefore, culture has recently been viewed as both a driver (UNESCO, 2019) and mediator of the attainment of sustainable development despite the cultural goals' having been included only in 4 out of 169 targets of SDGs (Zheng et al., 2021). To bridge the cultural gaps in SDGs, UNESCO developed the agenda Culture 2030 Indicators, whose aim is both to include and measure culture contributions to the attainment of SDGs (UNESCO, 2019).

However, the agenda of Culture 2030 Indicators does not only support the attainment of SDGs, it also helps citizens and institutional agents realize the transformational power of culture (UNESCO, 2019) and change their perception of culture as a secondary player because culture has a potential to contribute to talent development (Bertacchini & Segre, 2016), yield creativity (Bertacchini & Segre, 2016; Montalto et al., 2023), because culture codevelops the prestige of socioeconomic contexts, for example, of cities (Montalto et al., 2023) and even entire sectors of economies, for example, of tourism (Zhao et al., 2023). Culture has the capacity to produce not only tangible assets, such as paintings, music compositions, etc., thus, expanding socioeconomic activities. Culture generates intangible assets, which in the context of the digital era, become especially important contributions to economic development (Ni et al., 2023) by providing ideas, co-creating resources and environment for new economic dimensions.

Thus, being an important, yet, often underestimated socioeconomic agent, culture needs increased visibility in society. Therefore, the European Commission has supported various initiatives, aimed at the inclusion of culture in socioeconomic landscapes. One such initiative was the creation of the Cultural and Creative Cities Monitor (European Commission, 2017), which promotes the development of creative, culture-driven, economies even of cities of small nations, such as Tartu of Estonia (Montalto et al., 2023). The indicators of the monitor were designed to help cities to develop their creative industries irrespective of their historical and other resources. Ultimately, this builds the resilience of economies to internal and external crises. Moreover, new methodologies have emerged to measure contributions of culture products similar to those of economic goods (Bertacchini & Segre, 2016).

Thus, there are reasons and instruments to measure culture contributions to socioeconomic development, including those of SDGs. The motivation of this paper was to contribute to culture visibility research by exploring the impact of culture on the attainment of SDGs in a context of a specific country.

The goal of the research is to investigate the relationship between culture development and the achievement of specific sustainable development goals, based on European sample data. The data set includes by 19 culture-related indices (explanatory variables), such as "General government expenditure by recreation, culture and religion", "Exports of audio-visual and interactive media goods", "Imports of visual arts and crafts goods" and others. Dependent variables were selected, based on the content of sustainable developments goals "Decent

work and economic growth" and "Industry, innovation and infrastructure". Two indices were used – Innovation index and Global competitiveness index. Data was collected about 27 European countries for the period 2011–2020. Linear regression analysis along with robustness testing was used to test research hypotheses. The structure of the paper includes literature review, methodology, results and conclusion sections.

1. Literature review

To ensure the continuity and prosperity of life on the planet, national and supranational authorities have been working on mechanisms to ensure environmental, economic and social sustainability by merging various domains of human activities (Morton et al., 2017) into one framework of operations (Wang et al., 2022). One globally accepted output of such endeavours has been Agenda 2030 of the United Nations, also known as Sustainable Development Goals (SDGs), which was accepted by all United Nations members for the period of 2016–2030 (Morton et al., 2017). SDGs comprise 17 goals of sustainable development, which are generally agreed upon by United Nations members (Morton et al., 2017). These goals are rooted in the needs of the humankind and other species of the planet to live in peace, prosperity, partnership, and stability (United Nations, 2015) not only in the current but also future contexts (Morton et al., 2017; Wagner et al., 2023). The values of the Agenda seem to be the keys to shaping new world views on sustainability (Arora-Johnsson, 2023). To ensure the attainment of SDGs, some governments have been promoting localisation of SDGs through awareness, support, implementation, monitoring processes (Ningrum et al., 2023), while some other research points to positive contributions of the processes of stakeholder value creation (Beck et al., 2023).

To assign a higher degree of applicability of these goals, there were developed 169 targets and 244 indicators of SDGs. The targets and indicators of SDGs makes the SDGs framework useable by both public and private agents, while the design of SDGs promotes the integration of SDGs into business strategies and annual reports of various enterprises and sectors of the economy (Wagner et al., 2023). These features help various organizations and national agencies to implement the SDGs framework into their business strategies despite the advisory nature of SDGs (Wagner et al., 2023).

These features co-create the accountability mechanisms, embedded into the SDGs framework, to increase the applicability of SDGs to private sectors (Calabrese et al., 2021) to enable the implementation and monitoring of progress over the attainment of SDGs (Bowen et al., 2017). The accountability mechanisms have the capacity to assess the quality of decisions, actions, and outputs of socioeconomic agents (Bowen et al., 2017) through indicators by providing a transitional path to sustainability of operations at both national and organizational levels. Sometimes such sustainability transition requires redirection of resources from traditional agents, networks, practices to new niche actors, values and mechanism designs (Sareen & Wolf, 2021), which might be impeded due to the novelty or resentment. Yet, the power of accountability lies with the comparison of intended and implemented actions to the established norms, expectations and values of multiple agents, which can simultaneously include, for example, SDGs and national agendas, as well as by sanctions, which help the

agents to follow the established course of actions (Sareen & Wolf, 2021). Furthermore, a high number of indicators makes it possible for organizations to align their business strategy with SDGs (Calabrese et al., 2021).

Thus, SDGs have values, measurable indicators and accountability mechanisms that make them useable both in macroeconomic and microeconomic contexts. By prioritizing and measuring SDGs indicators, macroeconomic and microeconomic agents assess the degree of sustainability of their operations and outputs. The development of mechanisms of overcoming challenging of assessment, which includes SDGs index and dashboards, creates the scientific context of the measurement of the immeasurable (Arora-Johnsson, 2023). As any indicator, SDGs indicators are subject to both internal and external influences. One such domain of factors is culture, the power of which tends to be underestimated despite some scientific evidence pointing to culture impact on economic, social and environmental outputs (Varvarigos, 2023).

The discussion of contribution of culture to sustainability has been expanding (Verina et al., 2021), particularly, in terms of the relationship between culture and sustainable development (Zheng et al., 2021). Because cultural outputs can be both intangible and tangible, the discourse on the impact of culture on sustainable development leads to the discussion of functional roles of culture (Zheng et al., 2021). Since any action of a social agent is interpreted through the prism of cultural norms, values and beliefs, the value of the created outputs is assigned by a cultural prism (Zheng et al., 2021), which is particularly important when measuring trade-offs of implemented actions. Such culture-grounded evaluation of socioeconomic activities can either propel or hinder the production of tangible socioeconomic outputs, thus, increasing or reducing contributions of particular sectors of the economy to the overall socioeconomic development of a nation. But culture has also a direct impact on the socioeconomic outputs through its tangible assets (Wiktor-Matc, 2018; Zheng et al., 2021), such as the number and economic values of musical compositions, paintings, sold tickets to performances, etc.

According to Zheng et al. (2021), despite culture contributions, the evidence on the culture impact on sustainability remains fragmented and sometimes difficult to measure due to the methodological gaps between culture and sustainability sciences. The measurement of such gaps is made even more complicated in the context of SDGs, which, according to Nilsson et al. (2018), are interconnected but the measurement of their interconnection remains the subject of scientific debate and further analysis. Such measurement gaps might be a reason why sustainability sciences have traditional assigned a subordinate role to culture (Kagan et al., 2018). Other obstacles include abstractness of some cultural concepts and entities, which are difficult to measure, as well as a relatively low degree of interest in policy-making bodies to promote culture and cultural interventions, despite the fact that cultural aspects are embedded in all 17 goals and 133 targets of SDGs (Zheng et al., 2021). Yet other set of obstacles relate to the difficult of disentangling culture creativity from the creativity of other disciplines.

Overall, having the capacity to affect poverty, identify, education and health, the impact of culture on sustainability is significant (Wiktor-Matc, 2018) and therefore its impact cannot be ignored (Vries, 2020). Despite uncertainty of the formulation of the impact of culture on socioeconomic development, culture contributions should be measured within the available frameworks.

2. Methodology

The positive relationship between cultural indicators and sustainable development was confirmed in previous studies (UNESCO and World Bank, 2021). The selection of culture-related indices for the current research was deter-mined by data availability for European countries.

The dataset developed for the purposes of this study included 228 units which reflected quantitative characteristics of cultural development in Europe as independent variables, and the corresponding number of indicators reflecting achievement of sustainable development goals which were addressed as dependent variables in this study. Explanatory variables (X_n) are presented in Table 1.

As for dependent variables, the initial list included nine indices aligned with the specific SGDs (Table 2).

Table 1. Explanatory research variables (source: created by the authors)

X_n	Content	X_n	Content
X_1	Cultural employment by age, total age	X_{11}	Cultural employment by age, total age
X_2	Individuals working as creative and performing artists, authors, journalists and linguists, thousand persons	X_{12}	Individuals working as creative and performing artists, authors, journalists and linguists, thousand persons
X_3	Arrivals at tourist accommodation facilities	X_{13}	Arrivals at tourist accommodation facilities
X_4	General government expenditure by recreation, culture and religion	X_{14}	General government expenditure by recreation, culture and religion
X_5	Persons working as creative and performing artists, authors, journalists and linguists by individual and employment characteristics, %	X_{15}	Persons working as creative and performing artists, authors, journalists and linguists by individual and employment characteristics, %
X_6	Exports of design and creative services goods	X_{16}	Exports of design and creative services goods
X_7	Imports of design and creative services goods	X_{17}	Imports of design and creative services goods
X_8	Exports of audio-visual and interactive media goods	X_{18}	Exports of audio-visual and interactive media goods
X_9	Imports of audio-visual and interactive media goods	X_{19}	Imports of audio-visual and interactive media goods
X_{10}	Exports of books and press goods		

Table 2. SGD goals and proxy (source: created by the authors)

SDG No.	SGD	Proxy
Goal 1	No poverty	Human development index
Goal 2	Zero hunger	Food production index
Goal 5	Gender equality	Gini income inequality index
		Gender equality index
Goal 6	Clean water and sanitation	Water exploitation index
Goal 8	Decent work and economic growth	Economic globalization index
Goal 9	Industry, innovation and infrastructure	Innovations index
		Global Competitiveness index score
Goal 16	Peace, justice and strong institutions	Corruption perception index

However, during the process of data collection, the authors decided to use only two sustainable development goals indicators as dependent variables: Decent work and economic growth, and Industry, innovation and infrastructure. The first reason pertains to a large amount of missed data for some variables, whereas the second one refers to the overly narrow specifics of a measure.

The data were collected throughout a decade from 2011 to 2020 for 27 European countries. The original set of independent variables included the total cultural employment by age, number of individuals working as creative and performing artists, authors, journalists and linguists, general government expenditure by recreation, culture and religion, percentage of persons working as creative and performing artists, authors, journalists and linguists, exports and imports of design and creative services and goods, audio-visual and inter-active media goods, books and press goods, performance and celebration goods, visual arts and crafts goods, cultural goods, cultural and natural heritage goods, which were normalized by using algorithms due to high variance range of the values. Dependent variables included economic globalization index which indicates achievement of Goal 8 – Decent work and economic growth; and two variables responsible for indicating achievement of Goal 9 (Industry, innovation and infrastructure)^ innovation index and global competitiveness index. The dataset was tested for consistency, leading to use of 228 units out of 279 originally collected elements of raw dataset.

For the purposes of this study the authors used linear regression analysis by SPSS along with robustness testing using VIF-test and Dur-bin-Watson test. The variables which indicated autocorrelation or a problem of collinearity, where excluded from the sample.

Using the set of data was used in the study to test the following hypotheses.

- *Hypothesis 1. Achievement of "Decent work and economic growth" sustainable development goal is positively related to country-level cultural development.*
- *Hypothesis 2. Achievement of "Industry, innovation and infrastructure" sustainable development goal is positively related to country-level cultural development.*

Hypothesis 1 was tested by using one dependent variable, economic development index. Hypothesis 2 was tested by using two dependent variables, innovation index and global competitiveness index, which were tested separately.

3. Results

To test the hypothesis on the effect of country-level cultural sector development on the sustainable development goal on Industry, innovation and infrastructure development, the following algorithm was used. First, a multifactor linear regression model was developed to include all the described independent variables, along with checking those factors for collinearity. Based on the collinearity check, the following independent variables were excluded: number of individuals working as creative and performing artists, authors, journalists and linguists, percentage of persons working as creative and performing artists, authors, journalists and linguists, exports and imports of design and creative services and goods, audiovisual and interactive media goods, performance and celebration goods, visual arts and crafts goods, cultural goods, cultural and natural goods as those were found to be collinear. All remaining independent variables allowed to form linear regression model which explains 41.7% of the

dependent variable's variance, with Durbin-Watson criteria equals 1.982 which defines the model is robust. The levels of significance, coefficients and VIF-factor for the remaining independent variables can be seen in Table 3.

Thus, the countries with higher level of cultural and natural crafts imports and publication goods imports demonstrate higher level of economic development, whereas more intensive involvement in cultural sector in Europe indicates lower level of sustainable development goal fulfilment.

To test the hypothesis on the effect of the country-level cultural sector development on the sustainable development goal on Industry, Innovation and Infrastructure Development (measured by innovation index), the same algorithm as described above was used. Based on the collinearity check and level of significance, the following independent variables were excluded: total cultural employment by age, number of individuals working as creative and performing artists, authors, journalists and linguists, exports and imports of performance and celebration goods, visual arts and crafts goods, cultural goods. All remaining independent variables were used to form linear regression model which explains 24.6% of the dependent variable's variance, with Durbin-Watson criteria equals 1.961 which defines the model is robust. The levels of significance, coefficients and VIF-factor for the remaining independent variables can be seen in Table 4.

Table 3. Linear regression model for Decent work and economic growth (economic globalization index indicator) for the fulfilment of the sustainable development goal (dependent variable)

	Beta coefficient	Significance	VIF
Constant	90.143	0.000	–
Total cultural employment by age	–0.428	0.000	1.477
General government expenditure by recreation, culture, and religion	–0.232	0.000	1.339
Exports of cultural and natural heritage goods	–0.242	0.000	2.675
Imports of cultural and natural heritage goods	0.455	0.013	3.603
Exports of books and press goods	–0.740	0.000	2.957
Imports of books and press goods	0.755	0.000	1.898

Table 4. Linear regression model for the Industry, Innovation and Infrastructure Development (measured by innovation index) goal fulfilment (dependent variable)

	Beta coefficient	Significance	VIF
Constant	32.121	0.000	–
General government expenditure by recreation, culture, and religion	0.191	0.003	1.140
Imports of cultural and natural heritage goods	0.366	0.000	2.533
Exports of books and press goods	–0.046	0.063	1.764
Imports of design and creative services and goods	–0.163	0.046	1.205
Percentage of individuals working as creative and performing artists, authors, journalists, and linguists	0.295	0.000	1.870

Thus, the countries with higher level of cultural and natural crafts imports and percentage of individuals working as creative and performing artists, authors, journalists, and linguists demonstrate higher level of industry and innovation development, as well as higher level of government expenditure on recreation, culture and religion is a sign of higher innovative performance. On the contrary, imports of heritage and design, as well as publication goods exports, identifies possible problems in innovation development for a European country.

Finally, to determine if the hypothesis on the effect of the country-level cultural sector development on the sustainable development goal on Industry, innovation and infrastructure development (measured by global competitiveness index score) is true, the same algorithm as described above was applied. Based on collinearity check and level of significance, we had to exclude the following independent variables: total cultural employment by age, number of individuals working as creative and performing artists, authors, journalists and linguists, general government expenditure by recreation, culture and religion, percentage of persons working as creative and performing artists, authors, journalists and linguists, exports and imports of books and press goods, performance and celebration goods, visual arts and crafts goods, cultural goods, cultural and natural heritage goods. All remaining independent variables allowed to form linear regression model which explains only 4% of the dependent variable's variance (though staying statistically significant), with Durbin-Watson criteria equals 1.955 which defines the model is robust. The levels of significance, coefficients and VIF-factor for the remaining independent variables can be seen in Table 5.

Table 5. Linear regression model for the Industry, Innovation and Infrastructure development (measured by global competitiveness index score) goal fulfilment (dependent variable)

	Beta coefficient	Significance	VIF
Constant	18.917	0.000	–
Imports of design and creative services and goods	0.220	0.003	1.365
Imports of audio-visual and interactive media goods	–0.184	0.009	1.362

Thus, the countries with higher level of design and creative services and goods imports and lower imports of audio-visual and interactive media goods demonstrate higher level of industry and innovation development. Yet, the effect of those two factors appear to be low.

As a result of the study, both hypotheses were partly supported, both Decent Work and Economic Growth and Industry, Innovation and Infrastructure sustainable development goals are related to country-level cultural development. Still, the effect of factors in controversial, though positively related independent variables have higher level of influence on dependent variables in two studied cases.

Conclusions

The research results have indicated that achievement of sustainable development goals both in case of Decent Work and Economic Growth as well as Industry, Innovation and Infrastructure Development are influenced by the level of cultural development. The Decent Work and Economic Growth case the sample allowed to define more significant relationship to cultural

development than for Industry, Innovation and Infrastructure Development (in case of both indicators applied to measure it). The effect of cultural development on global competitiveness index score appeared to be very low, 4%. In cases of the significant effect, the following independent variables appeared to appear in both cases - general government expenditure by recreation, culture and religion; cultural and natural heritage goods imports; books and press goods exports. Yet, those findings are limited by the fact that some variables in the analysis were missing, and the inclusion of those might change the results. Also, there is a slight deviation of Durbin-Watson index, indicating insignificant autocorrelation effect.

The proposed dataset al.ows the authors to continue with the following key directions of research. First, mediation and moderation analysis might shed light on the type of influence each independent variable has on the dependent one. Second, the multilevel regression analysis should be implemented to define the structure of relationship between sustainable development goals and cultural development indicators. Third, the amount of sustainable development goals indicators should be enlarged by adding the indicators for the other sustainable development goals, and the independent variables and variance explained by them is to be defined by the additional analysis.

Disclosure statement

The authors of the paper to not have any competing financial, professional, or personal interests from other parties.

References

Arora-Johnsson, S. (2023). The sustainable development goals: A universalist promise for the future. *Futures*, *146*, Article 103087. https://doi.org/10.1016/j.futures.2022.103087

Beck, D., Ferasso, M., Storopoli, J., & Vigoda-Gadot, E. (2023). Achieving the sustainable development goals through stakeholder value creation: Building up smart sustainable cities and communities. *Journal of Cleaner Production*, *399*, Article 136501. https://doi.org/10.1016/j.jclepro.2023.136501

Bertacchini, E., & Segre, G. (2016). Introduction: Culture, sustainable development and social quality: A paradigm shift in the economic analysis of cultural production and heritage conservation. *City, Culture and Society*, *7*, 69–70. https://doi.org/10.1016/j.ccs.2015.12.007

Bowen, K. J., Cradock-Henry, N. A., Koch, F., Patterson, J., Hayha, T., Vogt, J., & Barbi, F. (2017). Implementing the "Sustainable Development Goals": Towards addressing three key governance challenges – collective action, trade-offs, and accountability. *Current Opinion in Environmental Sustainability*, *26*(27), 90–96. https://doi.org/10.1016/j.cosust.2017.05.002

Calabrese, A., Costa, R., Gastaldi, M., Ghiron, N. L., & Montalvan, R. A. V. (2021). Implications for sustainable development goals: A framework to assess company disclosure in sustainable reporting. *Journal of Cleaner Production*, *319*, Article 128624. https://doi.org/10.1016/j.jclepro.2021.128624

European Commission. (2017). *The cultural and creative cities monitor.* Publications Office of the European Union.

Kagan, S., Hauerwaas, A., Holz, V., & Wedler, P. (2018). Culture in sustainable urban development: Practices and policies for spaces of possiblity and institutional innovations. *City, Culture and Society*, *13*, 32–34. https://doi.org/10.1016/j.ccs.2017.09.005

Montalto, V., Alberti, V., Panella, F., & Sacco, P. L. (2023). Are cultural cities always creative? An empirical analysis of culture-led development in 190 European cities. *Habitat International*, *132*, Article 102739. https://doi.org/10.1016/j.habitatint.2022.102739

Morton, S., Pencheon, D., & Squires, N. (2017). Sustainable Development Goals (SDGs), and their implementation: A national global framework for health, development and equity needs a systems approach at every level. *British Medical Bulletin*, *124*(1), 81–90. https://doi.org/10.1093/bmb/ldx031

Ni, Q., Zhang, H., & Lu, Y. (2023). Way to measure intangible capital for innovation-driven economic growth: Evidence from China. *Economic Analysis & Policy*. https://doi.org/10.1016/j.eap.2023.03.003

Nilsson, M., Chisholm, E., Griggs, D., Howden-Chapman, P., McCollum, D., Messerli, P., Neumann, B., Stevance, A.-S., Vibeck, M., & Stafford-Smith, M. (2018). Mapping interactions between the sustainable development goals: Lessons learned and ways forward. *Sustainability Science*, *13*, 1489–1503. https://doi.org/10.1007/s11625-018-0604-z

Ningrum, D., Raven, R., Malekpour, S., Moallemi, E. A., & Bryan, B. S. (2023). Transformative potential in sustainable development goals engagement: Experience from local governance in Australia. *Global Environmental Change*, *80*, Article 102670. https://doi.org/10.1016/j.gloenvcha.2023.102670

Sareen, S., & Wolf, S. A. (2021). Accountability and sustainability transitions. *Ecological Economics*, *185*, Article 107056. https://doi.org/10.1016/j.ecolecon.2021.107056

UNESCO; World Bank. (2021). *Cities, culture, creativity: Leveraging culture and creativity for sustainable urban development and inclusive growth*.

UNESCO. (2019). *Culture 2030 indicators*. United Nations Educational, Scientific, and Cultural Organization.

United Nations. (2015). *Transforming our world: The 2030 Agenda for Sustainable Development A/RES/70/1*. Resolution adopted by the General Assembly On 25 September 2015, Paris.

Varvarigos, D. (2023). Cultural persistence in corruption, economic growth, and the environment. *Journal of Economic Dynamics & Control*, *147*, Article 104590. https://doi.org/10.1016/j.jedc.2022.104590

Verina, N., Astike, K., Grybaite, V., & Budanceva, J. (2021). Culture as a driver of sustainable development in Europe. *Economics and Culture*, *18*(2), 73–82. https://doi.org/10.2478/jec-2021-0016

Vries, G. (2020). *Culture in the sustainable development goals: The role of the European Union*. (Research report). Institut für Auslandsbeziehungen, Stuttgart.

Wiktor-Matc, D. (2018). What role for culture in the age of sustainable development? UNESCO's Advocacy in the 2030 Agenda Negotiations. *International Journal of Cultural Policy*, *26*(2), 312–327. https://doi.org/10.1080/10286632.2018.1534841

Wagner, B., De Gooyert, V., & Veeneman, W. (2023). Sustainable development goals as accountability mechanism? A case study of Dutch infrastructure agencies. *Journal of Responsible Technology*, *14*, Article 100058. https://doi.org/10.1016/j.jrt.2023.100058

Wang, S., Abbas, J., Sial, M. S., Alvarez-Otero, S., & Cioca, L.-J. (2022). Achieving green innovation and sustainable development goals through green knowledge management: Moderating role of organizational green culture. *Journal of Innovation & Knowledge*, *7*, Article 100272. https://doi.org/10.1016/j.jik.2022.100272

Zhao, X., Xie, C., Huang, L., Wang, Y., & Han, T. (2023). How digitalization promotes the sustainable integration of culture and tourism for economic recovery. *Economic Analysis and Policy*, *77*, 988–1000. https://doi.org/10.1016/j.eap.2023.01.005

Zheng, X., Wang, R., Hoekstra, A. Y., Krol, M. S., Zhang, Y., Gui, K., Sanwal, M., Sun, Z., Zhu, J., Zhang, J., Lounsbury, A., Pan, X., Guan, D., Hertwish, E. G., & Wang, C. (2021). Consideration of culture is vital if we are to achieve the sustainable development goals. *One Earth*, *4*(2), 307–319. https://doi.org/10.1016/j.oneear.2021.01.012