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Development of a Green Competency Matrix Based on Civil Servants' Perception of Sustainable Development Expertise

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Abstract: This paper analysed the responses of 242 civil servants collected during a survey for public authorities personnel with management or executive responsibilities. The survey focused on the perception of respondents regarding the key competencies and the utility of the sustainability development expert occupation (SDE). Based on the assumption that the responses were influenced by multiple factors, the impact of perceptual theory, agency theory and sustainability theory calibrated the analysis of the collected data. Cronbach's alpha was used to test the reliability of the received responses and multinominal logistic regression with a single dichotomous variable (Regulation Awareness) and several continuous predictor variables (Specialization, Knowledge, Attributions and Competence) was employed to determine to what extent the SDE occupation would contribute to the implementation of sustainable development policies. This paper argues that the 'green' competency matrix appropriate for the implementation of sustainable development policies should include executive, compliance promoting, ethical and reporting competencies. The creation of a green competency matrix is an important step toward changing the organisational culture of the public or private sectors to achieve sustainable and reliable development. This research can help organizations and public authorities understand where their efforts should be focused to efficiently incorporate sustainability development into their systems.

Keywords: sustainable development; green competency matrix; public administration; sustainable development expert; sustainable expertise

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1. Introduction

The implementation of sustainable development policies is an ongoing and necessary concern both for practice and in research. Although a general consensus has been reached on the need to implement sustainability principles in daily life and activities [1,2], there is still an unresolved dilemma as to who is best suited to implement such a system with the best outcomes [3]. Some researchers argue that sustainability should be "socially constructed" and that the construction of an appropriate and effective organization promoting collaboration and coordination between individuals is similar to creating new social capital [4–6]. The search for the most effective set of 'green' competencies for sustainable development processes [7] is an important step towards changing the organisational culture of the public and private sectors to achieve reliable sustainable development.

The complexity of sustainability principles and processes is undeniable [8], and the perception of how and with whom to implement them is influenced by context and individual perception [9].

This study is focused on unravelling the following research question: To what extent would the profession of a sustainable development expert (SDE) contribute to the implementation of sustainable development policies, given the knowledge of official regulations and the specialization, knowledge, attributions and competences that such a profession encompasses?

Reflecting on the novelty that this research on the perspective of civil servants brings to sustainability research, we can identify a few elements at least. First, such analysis provides significant insights into how civil servants seem to relate to sustainability regulations and compliance and sheds light on how they self-evaluate their specialization, knowledge, attributions and competencies. A set of empirical concepts is provided to help explain the complexity and specificity of the civil servants' working environment, values and perceptions. Furthermore, it offers a comprehensive set of techniques to promptly and in-depth analyse the participants' perception of sustainability expertise. The empirical assertions are anchored in the intricate context of perceptual, agency and sustainability theories, which help develop an evocative professional profile of sustainable expertise.

This paper aims to contribute to the development of a specific competency matrix for a performant sustainable development expert and to elaborate on the utility [10] and importance of such "green" competencies specific to sustainable development processes for changing the organisational culture in public administrations. The survey included a representative number of 242 civil servants working in public administration, the year of reference being 2021. The methodology of the study followed a bottom-up approach and was based on addressing a questionnaire to civil servants in local and central public administrations in widespread Romania. The collected responses allowed for the development of a professional profile of sustainable development experts and shed light on the perception of the practical usefulness of such a profile, as perceived by active Romanian public civil servants.

2. Literature Review

2.1. Knowledge and Skills for Sustainable Organizations

Several studies have focused on analysing the principles of sustainability and the policies that have been issued and subsequently improved for sustainable development [11]. Sustainability is a complex concept [12] aimed at creating future-oriented strategies anchored in the symbiosis of social, environmental and economic fields. Multiple studies have explored the dimensions, importance, actors or contextual impact of one or more of these fields, and their arguments have converged to augment knowledge about several aspects of sustainable development [13–15].

Another research trend has extensively explored the Sustainable Development Goals (SDGs) [16,17]. In simple terms, sustainable development aims to promote the 'green' consumption of resources, a balanced social climate and develop responsible economic policies for the benefit of current and future generations [18]. However, oversimplifying complex phenomena such as sustainability can lead to the loss of essential information. As a result, research interest in sustainability and its goals has experienced a remarkable revival in recent decades [19], especially in the context of digitalization [20], or the recent crises have led to significant imbalances in the sustainability of the environment, the social dimension or the economic field in general [21].

While there have been numerous studies documenting the motivation, objectives and expected outcomes of sustainability concepts [22], there is a gap in research on the skills or knowledge required from individuals with specific tasks to implement sustainable policies. What these individuals should know or what skills they should have are new and evolving research directions [23].

At the organizational level, knowledge is supported, explained, assigned and reinforced by global or local policies Furthermore, knowledge transfer has been deemed to need expert assessment in various contexts to achieve sustainable development [24,25]. Regarding professional skills [26], they can be understood in terms of Specialization, Knowl-

edge, Attributions and Competence. Researching the relationship between knowledge and skills to identify ways to optimize the implementation of sustainable policies is a research gap that this study aims to fill. Based on organizational circumstances, the relationship between management and executives and between the institutional objectives and methods for achieving these objectives, this study aims to develop a matrix of green competency attributable to the SDE profession to contribute to the optimal achievement of sustainable development goals:

H1: *A competency matrix for the SDE occupation can be developed to ensure the implementation of sustainable development policies.*

2.2. Perceptions of the Implementation of Sustainability Policies in the Public Sector

Evidence from empirical or theoretical studies suggests that civil servants may often have different perceptions [27–29] of the usefulness of certain tasks or legal obligations than those of private sector employees. The work in public administration is governed by specific criteria [30,31], such as meeting the requirements of the law or the efficiency of activities for the benefit of citizens. In contrast, the work of employees in the private sector is oriented toward achieving profitability and the high-quality performance of activities [32], which are mandatory in a competitive environment.

Other research studies have shown that the implementation of sustainability principles in the private sector is a serious concern [33], so managers tend to assign sustainability tasks, responsibilities or competences to all occupations, according to their specific tasks [6,34] or market conditions [35–37].

The implementation of sustainability principles is generally a purposive organizational arrangement that can be particularly perceived as an obligation or a voluntary act. The factors, mechanisms and effects of the implementation of sustainable policies can be differently assessed in public administration than in the private sector [38].

In public administration, regulators believe that it is appropriate to establish a new executive occupation, that of the sustainable development expert (SDE), in order to fulfil the legal obligations of the public entity in the implementation of specific sustainable development activities. Consequently, tasks related to the implementation of sustainability principles should not represent the general concern of public administration employees but are tasks related to a specific executive occupation of an individual or a designated group of individuals.

Although the literature on the implementation of sustainable policies is complex and constantly evolving [39,40], we have not identified comprehensive studies on the establishment of competency matrixes suitable for the implementation of sustainable policies. In addition, the perceived usefulness of an SDE occupation in public administration is another research gap that this research attempted to fill.

These observations further stimulated our research into the following hypothesis:

H2: *The SDE profession substantially contributes to the implementation of sustainable development policies in the public sector.*

3. Research Framework

The concept of sustainable development is based on the premise that there is a balance between the four essential dimensions, which in fact represent the pillars of sustainable development, and can also be referred to as the four "Ds" of sustainable development [41], namely human sustainability, social sustainability, economic sustainability and environmental sustainability.

Human sustainability implies the maintenance and continuous development of human capital [42,43] within central and local public administration, representing a complex process, characterized by constant investment in education, the development of training

and continuous specialization programmes, allowing the transfer of skills with practical applicability in the field of sustainable development.

The recent economic crisis generated by pandemics, the war in Ukraine, ominous climate changes, rapid technological advancements and the minacious scarcity of environmental resources are current global challenges that are compelling authorities and private entities alike to consider the effectiveness of implementing sustainable policies. Such endeavours have focused on the identification of a "green" mix of skills and knowledge appropriate for raising awareness and proactively implementing sustainable development policies to stimulate research and challenging practice.

In this context, in order to successfully implement public policies with an impact on the environment, and to implicitly increase awareness and implementation of the principle of Do Not Significant Harm (DNSH) [44,45], particular attention should be paid to approaches involving the development of new professions/specializations that primarily target the field of sustainable development and that can directly impact the work carried out by human resources [46,47] within public administration.

Identifying and prioritising a set of professional skills that can be associated with sustainable development processes, and disseminating and transferring them to those responsible for the field, is a first step towards developing a new type of economic-administrative behaviour in which the linear economic model (take-make-consume-dispose) is replaced by a circular economic model based on the 4Rs reduce-reuse-recycle-recover principle [48,49].

The article thus aims to identify and analyse what the civil servant respondents consider to be the level of professional training, as well as the professional skills (professional profile), required/needed to be possessed by human resources working or wishing to work in the field of sustainable development. The answers obtained also provide information on the perception of the usefulness of the existence of a distinct profession, that of the sustainable development expert, of the respondents who participated in this study.

The successful implementation of sustainable development policies depends on having a high level of green skills among employees [50–52], skills that are in line with the level of responsibility and the job description of the employee within the organisation. The identification, implementation, nurturing and assessment of the efficiency or usefulness of such skills are key concerns for governance in public or private sectors. The investigation of the perceptions of different practitioners on sustainable expertise yields valuable insights with major theoretical and practical implications, as the following sections of this paper highlight.

4. Data Analysis and Research Methods

4.1. Description of Data

The analysis was based on a survey designed to assess to what extent the profession of sustainable development expert (SDE) may contribute to the implementation of sustainable development policies, given the knowledge of official regulations and the specialization, knowledge, attributions and competencies that such a profession encompasses. The answers were collected by means of questionnaires distributed to employees of public institutions and authorities in Romania.

The questionnaire was developed by a research team of academics with the support of a governmental specialist in sustainable development and local authorities management. The draft was tested using the master students of administrative science and its calibration and optimization carried out based on the answers and suggestions sent by students, who had knowledge and were active in the field of public administration.

The questionnaire was sent to about 2000 administrative territorial units through the associative structures of the local public authorities, covering all eight development regions and all sizes of the local authorities from municipality to village. The questionnaires were completed by civil servants from the local public administration, with direct or indirect responsibilities and duties in the field of sustainable development, with one

response per unit being registered. This sampling mechanism offered representativeness of the respondents.

The choice of respondents working at different public authorities and institutions was based on the premise that the implementation of sustainability policies should be a main concern of corporate governance in the public sector. At the same time, it was considered that the likelihood of respondents being trained about the characteristics or occupational requirements of SDE should be higher among public institutions than among private companies. Consequently, 242 responses were collected during the survey, mainly from representatives of municipalities and local public institutions. Data curation was not needed due to the fact that the returned questionnaires were completed.

Regarding the description of the respondents, Figure 1 shows their characteristics, which were considered significant for the research. Figure 1a shows the answers given by the respondents to the question of whether they were aware of the regulations in force regarding sustainability policies. A total of 157 respondents (representing 64.88% of the 242 respondents) stated that they were not aware of the regulations in force, and 85 people confirmed that they were aware of the regulations in force. Furthermore, the position held by the respondents within their working places (Figure 1b) was considered relevant: 63.22% of responses came from people in executive positions and 36.78% of responses came from managers. Regarding the geographical location of respondents' residence (Figure 1c), most of the respondents lived in rural areas (82.23%), and 17.77% of respondents lived in urban areas.

(**a**) (**b**) (**c**)

Figure 1. Description of respondents: (**a**) declared regulation awareness; (**b**) position at work of respondents; (**c**) living zone. Source: authors' results.

4.2. Research Methods

The collected data were centralized and included in the analysis model. Figure 2 presents the flow chart of the research methodology, describing the stages of the study in a comprehensive way.

The first hypothesis that this study tested (H1) was whether a competency matrix for the SDE occupation could be developed to ensure the implementation of sustainable development policies. The study considered that the respondents' perceptions are influenced by multiple factors, thus acknowledging the impact of perceptual theory, agency theory and sustainability theory in the analysis of the collected responses. Cronbach's alpha was used to test the reliability of the received responses. A total of 242 observations were analysed. Multinominal logistic regression with one dichotomous variable (Regulations awareness) and several continuous predictor variables (Specialization, Knowledge, Attributions and Competence) was employed to determine to what extent would the profession of sustainable development expert (SDE) contribute to the implementation of sustainable development policies.

Perceptual theory studies have received extensive research on how people assess various activities, needs or concepts. Researchers have highlighted the importance of experience in shaping appraisal skills [52]. People tend to observe and evaluate external aspects based on their own example, on past experiences that can be evaluated by identifying known causes or effects, on cognitive abilities or on their own feelings triggered by external

factors [53]. The analysis of respondents' perceptions of the necessity or characteristics of the SDE profession, as well as the extent to which this profession contributes to the implementation of sustainable development policies, was based on each respondent's personal experience or cognition level.

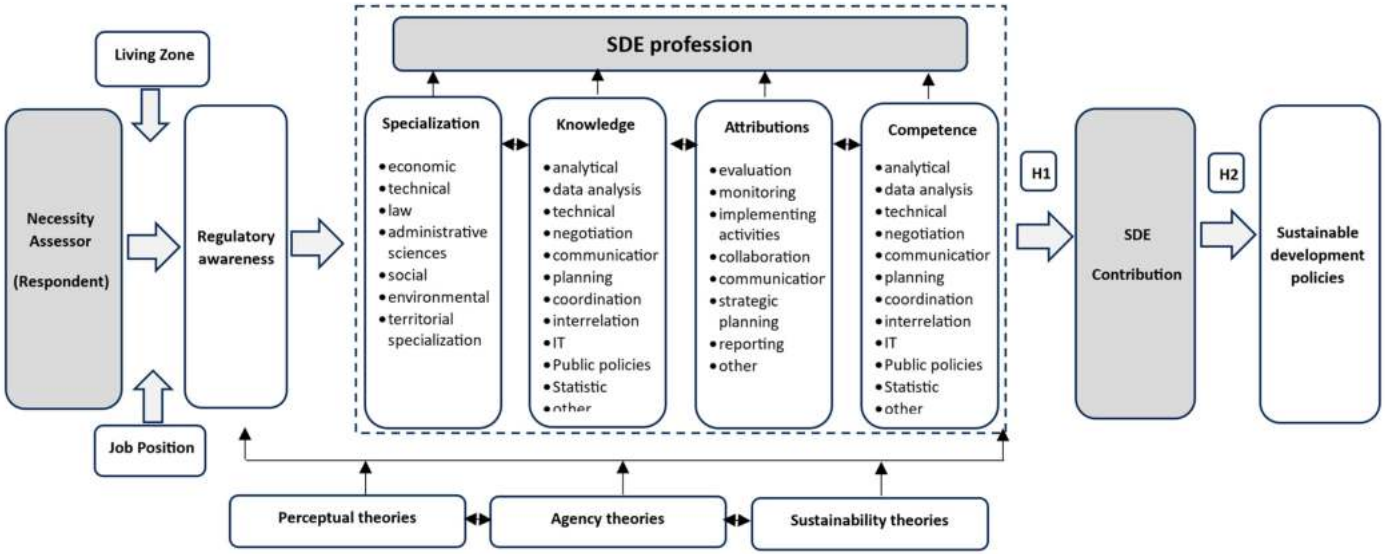

Figure 2. Flow chart of the analysis process. Source: authors' conception.

Agent theory in corporate governance was used to stimulate the understanding of how an agent or principal may assess the requirements of the survey [40]. The questions were addressed to both executive and managerial staff. According to agent theory, the expectation of the study was that respondents would be able to provide answers without regard to their own job duties, knowledge, specialization or personal skills. To collect a complete sample of data, the questionnaires were distributed to entities located in different locations nationwide. The collected answers were provided by respondents from both rural and urban areas.

Based on sustainability theory conceptual considerations [54], the study investigated whether the respondents were aware of regulations on the implementation of sustainable development policies. Sustainable development policies are intended to provide future generations with the opportunity to benefit from similar opportunities for wealth, resources or well-being, as in the present [3,55,56]. As a result, good knowledge of the regulations would be a good starting point for good intergenerational cooperation. The regulation awareness of respondents was measured based on the self-reported states of the respondents. The coding for regulation awareness was 0 for a lack of knowledge acknowledgment and 1 for positive knowledge acknowledgements.

The second hypothesis tested (H2) was whether the SDE profession substantially contributes to the implementation of sustainable development policies in the public sector. Specialization, Knowledge, Attributions and Competence were considered predictor inputs used to analyse to what extent the profession of sustainable development expert (SDE) would contribute to the implementation of sustainable development policies. The predictor variables were measured as perceptions of the respondents given the key characteristics attributed to each variable based on the questionnaire. The answers were classified into a five-point Likert scale. Each predictor category comprised a set of questions aimed at quantifying the perception of the respondents on the necessity of certain key characteristics that the profession of sustainable development expert (SDE) encompasses; 1 was attributed to a very low perception of the respondents on the necessity of the inquiry subject (very low necessity), and 5 was attributed to a very high perception of the perceived necessity (very high necessity).

When setting up this study, the responses indicating that the contribution of SDE is insignificant or extremely low were included in group 1, as the reference or baseline category against which all other answers were compared. The analysis also focused on finding which key features of specializations, knowledge, attributions and competency bring a significant contribution to the implementation of sustainable development policies, given the respondents' perceptions.

5. Findings and Discussion

During an early stage of the study, we tested the reliability and consistency of the Likert scale attributed to each of the qualitative predictors, Specialization, Knowledge, Attributions and Competence, using the Cronbach's alpha (CA) consistency test. According to Table 1, the calculated values for the Cronbach's alpha were greater than 0.8, thus indicating the very good significance of the test. The number of items shown in Table 1 for each scale variable represented the descriptive categories attributable to such variables. Each descriptive category (N of items) is presented in Figure 2, under the corresponding variable.

Table 1. Reliability analysis performed with the Cronbach's alpha test. Source: authors' results.

Scale	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
Specialization	0.830	0.832	7
Knowledge	0.886	0.891	12
Attributions	0.893	0.909	8
Competence	0.922	0.927	12

During the next steps of the study, several tests were performed on the database. The analysis sought to identify a combination of characteristics of the sample descriptive indicators that were perceived by respondents as necessary for the SDE profession to contribute to the implementation of sustainable development policies.

The performed tests pointed to a 14 characteristics combination perceived as relevant to the respondents for the SDE profession to contribute to the implementation of sustainable development policies. The 14 characteristics are presented in Table 2. A new reliability Cronbach's alpha internal consistency test was performed for the new sample, and the calculated value of 0.893 indicated a very good fit of the sample.

Table 2. Item statistics for the sample characteristics perceived as necessary for the SDE profession. Source: authors' results.

	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11	X12	X13	X14
Mean	4.4	4.57	4.29	4.17	4.49	3.9	4.11	3.72	3.94	4.07	4.37	4.17	4.01	4.33
Std. Deviation	0.758	0.661	0.828	0.877	0.701	0.912	1.029	1.125	1.025	1.042	0.836	0.77	0.902	0.773
N	242	242	242	242	242	242	242	242	242	242	242	242	242	242

Note: X1 = evaluation attributions; X2 = implementing attributions; X3 = reporting activities; X4 = analytical knowledge; X5 = planning knowledge; X6 = interrelation knowledge; X7 = economic specialization; X8 = technical specialization; X9 = social specialization; X10 = environmental specialization; X11 = territorial specialization; X12 = analytical competences; X13 = negotiation competences; X14 = communication competences.

According to Table 2, the minimum average score calculated for the perceived necessary SDE characteristics is greater than 3.7. This value is considered a minimum threshold value for the Likert perception of the necessary SDE characteristics that provides significance to the contribution of the SDE profession in the implementation of sustainable development. The findings indicate that characteristics perceived with values lower than 3.7 have no significant statistical relevance for the SDE contribution to the implementation of sustainable development.

According to Table 3, several significant correlations were identified between the analysed variables; the values greater than 0.5 were considered very strong and values greater than 0.4 were considered strong. All of the calculated correlations were found to be positive. These correlations provide valuable insights into the perceived profile of the SDE profession and the connections that are perceived by the sample respondents as necessary and interconnected for the profession to contribute to the implementation of sustainable development policies.

Table 3. Inter-Item Correlation matrix of the sample characteristics perceived as necessary for the SDE profession. Source: authors' results.

	X1	**X2**	**X3**	**X4**	**X5**	**X6**	**X7**	**X8**	**X9**	**X10**	**X11**	**X12**	**X13**	**X14**
X1	1.000	**0.551**	**0.549**	**0.430**	**0.431**	0.367	0.290	0.285	0.265	0.269	0.334	**0.520**	0.366	0.377
X2		1.000	**0.507**	0.317	**0.467**	0.256	0.374	0.298	0.257	0.267	0.335	0.361	0.298	**0.415**
X3			1.000	**0.420**	**0.424**	**0.424**	**0.407**	0.265	**0.401**	0.318	0.286	**0.488**	**0.436**	**0.427**
X4				1.000	**0.509**	**0.478**	0.380	0.295	0.352	0.255	0.239	**0.572**	0.386	0.353
X5					1.000	**0.462**	0.353	0.238	0.282	0.362	0.415	**0.519**	**0.407**	**0.502**
X6						1.000	0.339	0.356	**0.460**	0.383	0.311	**0.416**	**0.521**	**0.456**
X7							1.000	0.492	**0.474**	0.360	0.350	0.354	0.299	0.336
X8								1.000	**0.457**	**0.445**	**0.437**	0.301	0.248	0.328
X9									1.000	**0.540**	**0.413**	0.376	0.346	0.334
X10										1.000	**0.618**	0.362	0.269	0.336
X11											1.000	0.313	0.244	0.329
X12												1.000	**0.476**	**0.509**
X13													1.000	**0.717**
X14														1.000

Note: Each inter-item correlation was found to be statistically significant (calculated *p*-value < 0.01).

The very strong correlation between X10 and X11 (0.618) suggests that the perception of the high environmental specialization of SDE significantly impacts the necessity of the improvement of the territorial and local specialization of SDE. Furthermore, the very strong correlation between X13 and X14 (0.717) indicates that the perceived necessary negotiation competence of SDE significantly impacts the necessity of high communication skills of SDE professionals. X14 also exhibits significant correlations with X2 (0.415), X3 (0.427), X5 (0.502), X6 (0.456) and X12 (0.509), indicating that good communication competencies are increased by SDE professional implementing and reporting attributions, good planning and interrelations knowledge, together with the perceived necessity of analytical competences.

The correlations between X4 and X12 (0.572), X1 and X12 (0.520) and X5 and X12 (0.519) suggest that professionals with required high analytical knowledge, evaluation attributions and good planification knowledge are more likely to receive analytical competence while performing the SDE tasks. The same logic would also apply to the correlation between X6 and X13 (0.521), X12 and X13 (0.476), X3 and X13 (0.436) and X5 and X13 (0.407), where the perception indicated that good interrelation knowledge, negotiation competence, reporting attributions and good planning knowledge are characteristics that impact the increase in negotiation competencies.

Table 3 indicates significant correlations between X4 and most of the sample variables analysed, meaning that analytical knowledge is perceived as a key characteristic of the SDE profession, with extensive correlations with the perceived need for specialization, knowledge, attributions and competence that the SDE profession should need to contribute to the implementation of sustainable development policies.

Table 4 presents the calculated results higher than 0.88 for all the Cronbach's alpha if deleted, which indicates the significant contribution of all fourteen items for the good internal consistency of the study.

Table 4. Statistics on the means of item deleted and Cronbach's alpha if item deleted. Source: authors' results.

Characteristic Number	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's lpha if Item Deleted
X1	54.12	57.063	0.570	0.486	0.886
X2	53.96	58.318	0.535	0.452	0.888
X3	54.24	55.853	0.615	0.476	0.884
X4	54.36	55.867	0.574	0.462	0.886
X5	54.04	57.144	0.615	0.502	0.885
X6	54.63	55.005	0.615	0.461	0.884
X7	54.42	54.452	0.569	0.398	0.887
X8	54.81	54.130	0.530	0.398	0.889
X9	54.59	54.094	0.598	0.462	0.885
X10	54.46	54.332	0.569	0.506	0.887
X11	54.16	56.559	0.549	0.468	0.887
X12	54.36	56.130	0.645	0.521	0.883
X13	54.52	55.628	0.574	0.583	0.886
X14	54.19	56.282	0.628	0.607	0.884

The next steps of the analysis considered the 14 categories identified as relevant to fulfil the research objectives and performed a multinominal logistic regression, where the predicted variable was the contribution of the SDE profession to the implementation of sustainable policies. The regression considered regulations awareness as the dichotomous predictor variable of the model, and the 14 relevant characteristics described in the previous test as continuous predictor variables. The SDE contribution was a categorical variable, assessed as an insignificant contribution, some contribution or a very significant contribution.

The Likelihood Ratio Test compared the analysed model against an intercept-only model (null model). The calculated chi-square ($\chi^2(30) = 88.68$) and the p-value < 0.001 indicated that the full model represents a statistically significant improvement in fit over the intercept-only model.

The goodness-of-fit analysis showed that the Pearson chi-square test ($\chi^2(400) = 413.398$, $p = 0.308 > 0.05$) and Deviance chi-square ($\chi^2(400) = 285.958$, $p = 1.00$) exhibited a good fit to the data.

The overall contribution of each predictor variable to the model was calculated with the Likelihood ratio tests, as shown in Table 5. The interpretation of results used the conventional $\alpha = 0.05$ threshold. Several significant predictors were obtained in the model.

For the knowledge category of predictors, relevant were perceived to be interpersonal knowledge skills ($p = 0.013$), analytical thinking ($p = 0.045$) and planning abilities ($p = 0.072$). For the Specialization category of predictors, relevant was perceived to be the social professional specialization ($p = 0.025$). For the Attribution category of predictors, relevant was perceived to be evaluation attributions ($p = 0.001$) and reporting attributions ($p = 0.040$). The perceived significance of Competence predictor variables was attributed to analytic ($p = 0.019$), negotiation ($p = 0.002$) and communication ($p = 0.022$) competencies. Regulations awareness was also identified as significant for the analysis ($p = 0.022$).

The parameters estimation showed very interesting results in terms of the respondents' perception regarding the SDE contribution to the implementation of sustainable development policies.

The first set of coefficients (A) in Table 6 presents the comparison between the perceptions of insignificant contribution and the perception of some contribution of SDE to the implementation of sustainable development policies.

Table 5. Likelihood ratio tests performed in SPSS. Source: authors' results.

Effect	Model Fitting Criteria			Likelihood Ratio Tests		
	AIC of Reduced Model	BIC of Reduced Model	−2 Log Likelihood of Reduced Model	Chi-Square	df	Sig.
Intercept	360.109	471.755	296.109 [a]	0.000	0	.
X1	369.596	474.264	309.596	13.487	2	0.001
X2	359.758	464.426	299.758	3.649	2	0.161
X3	362.526	467.195	302.526	6.417	2	0.040
X4	362.315	466.983	302.315	6.206	2	0.045
X5	361.376	466.044	301.376	5.267	2	0.072
X6	364.832	469.500	304.832	8.723	2	0.013
X7	356.914	461.582	296.914	0.805	2	0.669
X8	361.568	466.236	301.568	5.459	2	0.065
X9	363.454	468.122	303.454	7.345	2	0.025
X10	358.571	463.239	298.571	2.462	2	0.292
X11	367.401	472.069	307.401	11.292	2	0.004
X12	363.986	468.654	303.986	7.877	2	0.019
X13	368.634	473.302	308.634	12.525	2	0.002
X14	363.759	468.427	303.759	7.650	2	0.022
Regulations awareness	363.733	468.401	303.733	7.624	2	0.022

Note: The chi-square statistic is the difference in the −2 log-likelihoods between the final model and a reduced model. The reduced model is formed by omitting an effect from the final model. The null hypothesis is that all parameters of that effect are 0. [a] This reduced model is equivalent to the final model because omitting the effect does not increase the degrees of freedom.

Table 6. Parameter estimates regarding the SDE contribution to the implementation of sustainable development policies. Source: authors' results.

SDE Contribution	(A) Some Contribution				(B) Very Significant Contribution			
	B	Std. Error	Sig.	Exp(B)	B	Std. Error	Sig.	Exp(B)
Intercept	0.327	2.031	0.872		−4.979	2.489	0.045	
X1	**−2.139 ***	**0.683 ***	**0.002 ***	**0.118 ***	**−2.179 ***	**0.738 ***	**0.003 ***	**0.113 ***
X2	0.718	0.589	0.223	2.050	1.184	0.647	0.067	3.268
X3	**1.161 ***	**0.478 ***	**0.015 ***	**3.193 ***	0.869	0.515	0.092	2.385
X4	**0.850 ***	**0.399 ***	**0.033 ***	**2.339 ***	**1.083 ***	**0.451 ***	**0.016**	**2.953 ***
X5	0.045	0.470	0.923	1.046	−0.783	0.540	0.147	0.457
X6	0.447	0.379	0.238	1.564	**1.130 ***	**0.445 ***	**0.011 ***	**3.096 ***
X7	−0.170	0.296	0.566	0.844	−0.291	0.330	0.379	0.748
X8	−0.062	0.316	0.845	0.940	0.404	0.349	0.246	1.498
X9	0.286	0.353	0.418	1.331	−0.364	0.402	0.365	0.695
X10	−0.461	0.405	0.255	0.631	−0.167	0.451	0.712	0.846
X11	0.807	0.428	0.059	2.240	**1.607 ***	**0.517 ***	**0.002 ***	**4.987 ***
X12	−0.359	0.522	0.491	0.698	0.515	0.578	0.373	1.674
X13	**−2.076 ***	**0.728 ***	**0.004 ***	**0.125 ***	**−2.199 ***	**0.762 ***	**0.004 ***	**0.111 ***
X14	**1.639 ***	**0.751 ***	**0.029 ***	**5.153 ***	1.054	0.798	0.187	2.868
[Regulations awareness]	−0.921	0.675	0.173	0.398	**−1.632 ***	**0.715 ***	**0.022 ***	**0.196 ***

Note: * The reference category is: insignificant contribution, indicates statistical significance at $p < 0.05$.

On the one hand, Reporting attributions (B = 1.161, s.e. = 0.478, $p < 0.05$), Communication competencies (B = 1.639, s.e. = 0.751, $p < 0.05$) and analytical knowledge (B = 0.850, s.e. = 0.399, $p < 0.05$) of SDE were identified as significant predictors in the model, as necessity perceptions scoring higher on this variables were more likely to bring some contribution to the implementation of sustainable development policies. The calculated exponential beta coefficients for each significant predictor indicate that for every unit increase

in the perception of necessity attributed to Reporting attributions (e^B = 3.193), Communication competencies (e^B = 5.153) and analytical knowledge (e^B = 2.339) of SDE profession, the increase in the perception of some contribution attributable to SDE in implementing sustainable development strategies would be changed by a corresponding factor to the odds ratio. In other words, for one unit increase in reporting attributions, the odds of some perceived contribution of SDE to the implementation of sustainable development policies is 3.193 times greater. For one unit increase in communication competencies, the odds of some perceived contribution of SDE to the implementation of sustainable development policies is 5.153 times greater. For one unit increase in analytical knowledge of SDE, the odds of some perceived contribution of SDE to the implementation of sustainable development policies is expected to increase by a factor of 2.339.

On the other hand, Evaluation attributions (B = −2.139, s.e. = 0.683, $p < 0.05$) and Negotiation knowledge (B = −2.076, s.e. = 0.728, $p < 0.05$) were identified to be significant predictors in the model, which suggests that perceptions of necessity scoring higher on these variables are less likely to bring some contribution to the implementation of sustainable development policies

The analysis of the first set of coefficients (A) did not identify a statistically significant contribution of Regulations awareness to the perception of some contribution of SDE to the implementation of sustainable development policies.

The second set of coefficients (B) in Table 6 presents the comparison between the perceptions of insignificant contribution and the perception of the very significant contribution of SDE to the implementation of sustainable development policies.

The significant predictors in the model that were perceived to be highly necessary in order for SDE to more likely very significantly contribute to the implementation of sustainable development policies were identified to be Interrelationships knowledge (B = 1.130, s.e. = 0.445, $p < 0.05$), Territorial specialization (B = 1.607, s.e. = 0.517, $p < 0.05$) and analytical knowledge (B = 1.083, s.e. = 0.451, $p < 0.05$). According to the results, for one unit increase in Interrelationships knowledge, the odds of the perceived very significant contribution of SDE to the implementation of sustainable development policies is 3.096 times greater. For one unit increase in Territorial specialization, the odds of the perceived very significant contribution of SDE to the implementation of sustainable development policies is 4.987 times greater. For one unit increase in analytical knowledge of SDE, the odds of the perceived very significant contribution of SDE to the implementation of sustainable development policies is expected to increase by a factor of 2.953.

Other significant predictors identified in the model to negatively influence the perception of the very significant contribution of SDE to the implementation of sustainable development policies are similar to the ones in the first set of coefficient analyses: Evaluation attributions (B = −2.179, s.e. = 0.738, $p < 0.05$) and Negotiation knowledge (B = −2.199, s.e. = 0.762, $p < 0.05$). An interesting result is finding that Regulations awareness significantly negatively influences the comparison between the perceptions of insignificant contribution and the perception of the very significant contribution of SDE to the implementation of sustainable development policies (B = −1.632, s.e. = 0.715, $p < 0.05$). The results indicated that the persons aware of the sustainability regulations perceive that the SDE occupation would less likely to bring a very significant contribution to the implementation of sustainable development policies. The observed relationship between evaluation attributions or negotiation knowledge and sustainable development policies highlights the perception of Romanian civil servants on the SDE occupation. Given that the benefits of sustainable development policies are in an early stage in the public sector in Romania, such features seem to bring feeble benefits for the effective implementation of sustainable development policies. It is interesting to develop similar investigations in the private sector, where similar features of SDE professions, such as evaluation attributions or negotiation knowledge, can bring significant contributions to the implementation of sustainable development policies.

The classification statistics presented in Table 7 indicated which group memberships were better predicted by the model. The characteristics of the SDE occupation that provide some contribution to the implementation of the sustainable development policies were correctly predicted by the model 86.9% of the time, as 133 of the 153 responses indicated some contributions were correctly predicted by the model. The characteristics of SDE that bring an insignificant contribution or a very high contribution were not correctly predicted. The situation is supported by the previous findings, which point to a moderate contribution of the SDE occupation to the overall implementation of sustainable development policies.

Table 7. Classification of observed and predicted statistics. Source: authors' results.

Observed	Predicted			
	Insignificant Contribution	**Some Contribution**	**Very Significant Contribution**	**Percent Correct**
Insignificant contribution	4	15	1	20.0%
Some contribution	2	133	18	86.9%
Very significant contribution	2	36	31	44.9%
Overall percentage	3.3%	76.0%	20.7%	69.4%

The sample respondents who stated that they had knowledge of sustainability regulations did not perceive the SDE occupation to make a great contribution to the implementation of sustainable policies. At the same time, previous research studies and everyday reality clearly show that the need for sustainable policy implementation is real and present [57]. As a result, the findings of this study bring a very important perspective from the empirical dimension, creating a profile of those key characteristics attributable to the persons in charge of implementing sustainable development policies that can contribute with statistically significant accuracy (86.9%) to the implementation of sustainable development procedures: analytical knowledge, reporting attributions and communication skills. As a consequence, the study led to the development of a competency matrix for the SDE occupation to ensure the implementation of sustainable development policies. Our first hypothesis (H1) was validated.

Another significant observation of the study was that the specialization of the people in charge of implementing sustainability policies was not found to be statistically significant. The predictors included in the analysis referring to economic, technical, environmental and social specialization did not show statistical significance ($p > 0.05$) in terms of respondents' perceived need to implement sustainable development policies. According to the respondents, sustainability policies may be implemented by persons with either economic, technical, environmental or social education skills. Similarly, planning knowledge was also not perceived by respondents as necessary, as SDE activity is perceived as predominantly oriented towards compliance and the reporting of events that occurred or publicly reported decisions issued by corporate governance representatives. The conclusion of this phase of the study led to the partial validation of the second hypothesis (H2) that the SDE occupation substantially contributes to the implementation of sustainable development policies in the public sector. As the SDE professional advice becomes integrated into the organizational system and meets the characteristics identified in the green competency matrix, public perception of the usefulness of the SDE occupation is also likely to improve.

5.1. Theoretical Implications

The findings of this paper add interesting insights to theoretical research. A competency matrix for the experts in charge of implementing sustainable development policies within their working institutions is developed. In addition, the perception of the use-

fulness of this competency is drawn based on the perception of employees working in public institutions. This study suggests that the perception of the respondents of the high necessity of two main requirements imposed by SDE, namely evaluation attributions or negotiations knowledge, would less likely bring any contribution to the implementation of sustainable development policies. The contribution of SDE to proactive sustainable development within organizations [58] is not favoured by evaluation attributions or negotiation knowledge since this occupation is not perceived as intended to negotiate or evaluate any of the sustainable policies that are to be implemented. The experts designated to implement sustainable policies in their working institutions, especially in the public sector, should encourage a climate of conformity and ethical behaviour to achieve positive sustainable outcomes. These findings are consistent with studies in private companies, that have supported the importance of ethical values for sustainable development [32]. Organizations and public entities should proactively implement the execution of sustainable development policies by imprinting values such as ethics and compliance among their employees.

In addition, this study shows that the competency matrix of a reliable SDE occupation should include characteristics such as very good knowledge of interpersonal relations, in-depth local knowledge and strong analytical knowledge. Such characteristics can make a very significant contribution to the implementation of sustainable development policies and to the increase in social capital [5]. Another interesting finding is that the usefulness of the expertise in implementing sustainable development is better observed through the competency matrix than through a SDE occupation, as an employed individual activity. The perceived mismatch between evaluation and negotiation skills and the practical usefulness of the SDE occupation, coupled with the inverse relationship between legislative knowledge and the perceived very significant contribution of the SDE occupation, suggests that respondents' opinion places the role of the SDE-employed occupation in a formal area with no significant practical benefits. These findings resonate with the outcomes of previous studies based on surveys that observed discrepancies between the formal sustainable declarations of companies regarding sustainability strategies and practical outcomes [28,59]. Consequently, the outcome suggests that to effectively implement sustainable institutional policies, organizations should promote collective participation and a proactive working environment throughout the sustainable implementation procedures.

5.2. Practical Implications

The findings of the study are very important for practice and building on empirical knowledge by raising awareness of the significance of ethics, compliance and a collaborative working environment in achieving sustainable development. According to our analysis sample, good implementation of sustainable development policies, based on good knowledge of regulations, does not necessarily need to be carried out by a specific person employed in this role or distinct occupation, such as SDE. Good implementation of sustainable development policies can be carried out by people with good knowledge of human interactions, in-depth local knowledge and good analytical skills, able to carry out reporting and implement procedures.

The results of the research can also be useful both in calibrating professional training/specialization programmes that provide the cross-cutting and horizontal competences required of a sustainable development expert, and in developing interview tools that can be used by human resources departments in central and local government in human resources selection processes.

5.3. Limitations of the Study and Further Developments

The limitations of this study are mainly represented by the fact that the study was carried out in a restricted geographic area, the territory of Romania, and by the analysis of the perceptions of a significant number of respondents working in public administrations. The research sample did not include respondents working in private sector organizations. Although the analysis was carried out on a statistically significant group of respondents,

by number, the field of activity and place of work, the answers may be affected by the subjectivity specific to a certain geopolitical area [30,60] or by the incidence of specific national regulations. This limitation of the study also represents an opportunity for future research development. Research needs to further expand similar analysis into wider geographic areas and the private sector. Expanding the sample of respondents by also including respondents from other countries may contribute to the development of comparative investigations into the perceptions and usefulness of the competency matrix of sustainability development expert professionals.

6. Conclusions

This paper analysed 242 responses regarding the perception and usefulness of the sustainability development expertise profession during a survey addressed to public authority personnel with managerial or executive attributions. The SDE occupation was not perceived as an individual endeavour that leads to negotiations or personal evaluations, but rather like a professional competency matrix that incorporated executive, compliance-promoting, ethical and reporting activities. According to the civil servants' perception, there is some incompatibility between having higher evaluation or negotiation skills and the need for compliance that the SDE occupation requires to make some contribution to the implementation process of sustainable development policies.

Organizations in general and public authorities in particular incorporate important social capital, valued by knowledge and experience. At the same time, the competitiveness of the public services must be in accordance with the private sector dealing in the same area. As we know, private sector businesses are more sensitive to new trends and customer expectations, SDGs being not only a trend, but a must for any company or institution to efficiently perform in the long term [61]. Such proactivity towards sustainability-oriented strategies and public service improvement are pressing requirements in the public sector as well. SDE expertise is essential in raising awareness, and promoting and achieving effective sustainable development in both public and private entities. However, the SDE mindset should not necessarily become an occupational requirement, but rather a new "green" mindset in which the principles of a safe and sustainable future should prevail. As practice shows, a symbiotic relationship between the private and the public sectors and an ethical cohesion for the effective implementation of sustainable policies are beneficial and yet stringent.

The potential of social capital in the context of sustainability policy implementation is enhanced by an appropriate institutional environment oriented towards proactiveness and a collaborative working environment. Sustainable development cannot be achieved in isolation through technological solutions, paperwork, or financial reports. Achieving sustainable development requires a change in the way people think and act. The development of sustainable development experts with a set of 'green' competencies specific to sustainable development processes is a first step towards recalibrating and changing the organisational culture in public administrations.

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