

Cross-Cultural Leadership Styles in the Turkic World: A FLIGBY Simulation

Study of Hungary, Turkey, and Kazakhstan

ABSTRACT

This research examines the leadership styles and skills of managers from Hungary, Turkey, and Kazakhstan—three different cultural Turkic nations—utilizing the serious game simulation FLIGBY (Flow Is Good Business for You). This study employs transformational, sustainable, and flow-promoting leadership theories to identify national variations in leadership skills and to analyse the impact of these leadership styles on organisational performance measurements, including profit, sustainability, and psychological flow. A dataset including 1,409 FLIGBY simulation players was analysed using SmartPLS 4 for structural equation modelling and multi-group analysis. The findings indicate that transformational leadership is the predominant type in all three countries, although sustainable and flow-promoting leadership exhibit variations based on country circumstances. All three types show a statistically significant beneficial impact on organisational results, offering novel empirical insights into leadership efficacy within a simulated cross-cultural context. This research is the first comparative leadership analysis across these nations using a serious game technique, enhancing both leadership theory and cross-cultural management practice.

Keywords: Transformational leadership, sustainable leadership, flow-promoting leadership, serious games, FLIGBY, cross-cultural leadership, Turkic nations, organizational performance.

Introduction

Leadership is pivotal in influencing organisational success, particularly within a more networked and multicultural corporate landscape. Within the Organisation of Turkic States—Hungary, Turkey, and Kazakhstan—there is an increasing interest in examining the impact of national culture on leadership behaviour and efficacy. Considering the geographical and historical connections connecting these nations, there is less understanding of the variations and effectiveness of leadership styles among them.

Leadership requires leading employees towards organisational goals while effectively communicating and motivating them to ensure they are positioned to use their skills and remain committed to their roles (Karacsony, 2021).

A serious game is a digital application primarily designed to increase certain abilities and self-awareness rather than to entertain. Serious games serve as an innovative tool for assessing, evaluating, and improving leadership skills and styles by requiring that participants in leadership development training make decisions. Serious games may be used across various fields, including education, safety, healthcare, and engineering (Almeida & Simoes, 2019).

This research fills the gap by using the serious game simulation FLIGBY, created by Csikszentmihalyi and colleagues (2007–2012), to measure leadership skills across these three countries. The game measures 29 leadership skills and simulates business decision-making situations, offering a unique platform for the examination of leadership in reality. The study is directed by three research questions:

1. What are the distinct leadership strengths and weaknesses in Hungary, Turkey, and Kazakhstan as assessed by FLIGBY?
2. What are the dominant leadership styles in each country?
3. How do transformational, sustainable, and flow-promoting leadership styles influence organizational outcomes such as profit, sustainability, and flow in the simulation?

According to these research questions, we formulated the following hypotheses:

H1: Leadership styles and skills differ significantly across the three nations in the serious game FLIGBY.

H2: Transformational Leadership is the predominant leadership style among managers from Hungary, Turkey, and Kazakhstan in the Serious Game FLIGBY simulation, though sustainable and flow-promoting leadership exhibit varying degrees of prominence across these nations.

H3: All leadership styles positively impact Profit/Sustainability/Flow, with effects moderated by national context in the serious game FLIGBY.

This study enhances leadership theory by supporting the significance of transformational, sustainable, and flow-promoting leadership styles within a cross-cultural framework. It highlights the capacity of serious games as an effective tool to measure leadership skills and estimate organisational success.

Literature Review

Transformational leadership (TFL) was first introduced by Burn (1978) and associated with political leaders. Bass (1985) further investigated TFL in the organizational setting. Bass and Avolio conducted a study on infantry leaders (1994), describing TFL as a style in which leaders and subordinates can exchange ideas and achieve top-level skills bilaterally.

Transformational leaders would always be vigilant for signs of motivation on the part of their followers; however, they may direct their focus to what is important and assist their followers in changing their narrow self-interest into broader, group-based goals (Bakker et al., 2023). Transformational leadership has been more recognized and valued in many countries, such as Turkey, Hungary, and Kazakhstan (Özgül & Zehir, 2023). Transformational leadership has had a significant impact on the political environment in Turkey (Pagda et al., 2021). Mustafa Kemal Atatürk and other leaders used a transformational leadership approach to guide Turkey through modernization and social transformation (Kasapoğlu, 2014).

In terms of society and the organization, sustainable leadership (STL) is one kind of leadership that assesses the economic, social, and ecological principles of sustainability and promotes the effective management of sustainability thinking (Kalkavan, 2015). For sustainability to be achieved, we need leaders who can devise concepts, policies, and programs that promote sustainable behavior at the social and organizational levels and spark economic success (McCann & Holt, 2010). Many stakeholders in the green economy see sustainable leadership as a top priority and an essential component of success (Avery & Bergsteiner, 2011). Organizations that are led sustainably have an advantage over their competitors (Iqbal et al., 2020).

To cultivate a leadership style that encourages Flow, one must possess a profound comprehension of the psychological and emotional requirements of employees (Buzady et al., 2024). It entails establishing conditions that enable people to achieve a state of "Flow," marked by deep attention and pleasure in their tasks (Badibanga, 2019). This leadership style is beyond conventional job delegation and focuses on establishing demanding but attainable objectives to maintain workers' engagement and motivation. Organizations may establish a healthy work environment by focusing on leadership that encourages ow, leads to engaged, productive, and fulfilled workers (Bakker & Woerkom, 2017).

The serious game FLIGBY was prompted by Mihaly Csikszentmihalyi's 2003 book "Good Business," which introduced the term "Flow-promoting Leadership"(Wimmer, Buzady et al., 2022). The FLIGBY leadership-competency-skillset has made an important addition to the field of management and leadership by including qualities that are less strongly emphasized by other frameworks. Facilitating personal development and professional advancement for individuals is key to maintaining a positive work environment. As a bonus, the company should see greater performance as a result, which is good news for everyone involved. (Marer Paul, 2015). When employees are content, they are more motivated and efficient. If a manager wants to see success at work, he or she has to learn what employees value most and utilize that information to their advantage. Management may do a better job of encouraging workers to work together toward shared objectives and professional development if they provide venues for Flow as it relates to work (Csikszentmihalyi, 2003).

Methodology

This study used a quantitative method to examine the research topics, using data sourced from the worldwide FLIGBY leadership simulation secondary database. The sample comprises 1,409 managers and professionals from Hungary (512), Turkey (478), and Kazakhstan (419) who engaged in the FLIGBY simulation from 2014 to 2024.

The simulation immerses participants in a virtual leadership position, requiring them to make over 150 choices that influence several facets of corporate performance and team interactions. FLIGBY assesses 29 unique leadership abilities, classified according to three theoretical frameworks:

Transformational Leadership (Burns, 1978) – e.g., empowerment, motivation, emotional intelligence, and delegation

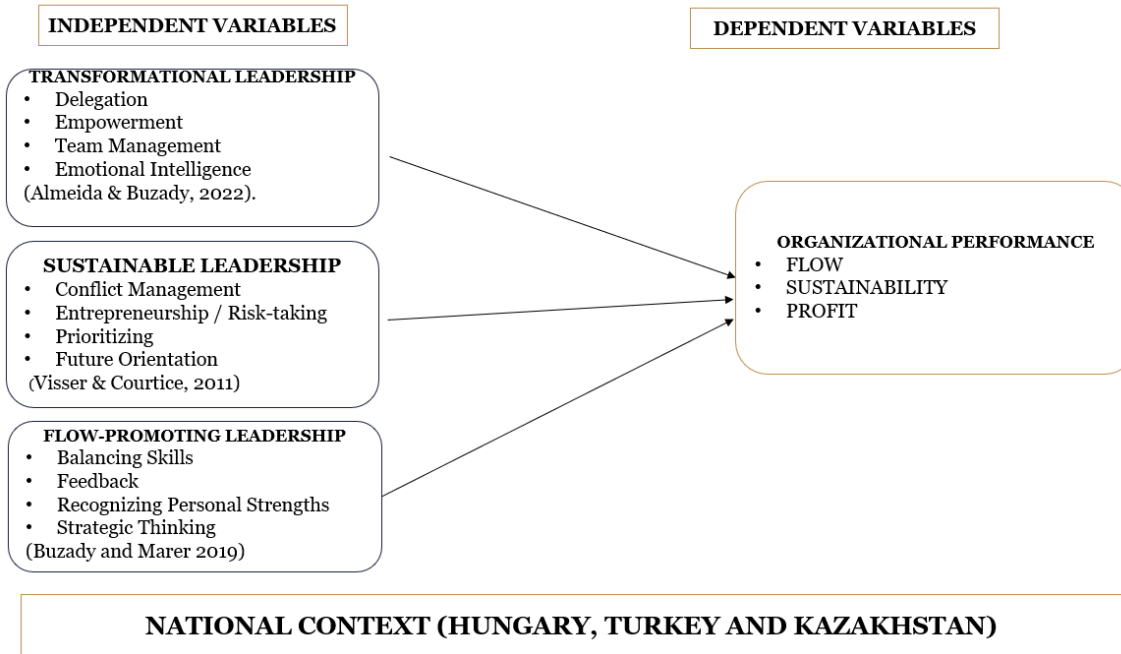
Sustainable Leadership (Hargreaves & Fink, 2006) – e.g., conflict management

Entrepreneurship/risk-taking, prioritizing, and future orientation

Flow-Promoting Leadership (Csikszentmihalyi, 1990) – e.g., balancing skills, feedback, strategic thinking, recognizing personal strengths.

This study used the following theoretical framework:

Figure 1. Theoretical Model



Source: Authors' own completion

The theoretical framework outlines the correlation among three particular leadership styles—transformational, sustainable, and flow-promoting leadership—and their influence on organisational performance, assessed via the indicators of flow, sustainability, and profit. Each leadership style is defined by certain skill sets derived from existing literature, including delegation and emotional intelligence (transformational), conflict management and future orientation (sustainable), and feedback and strategic thinking (flow-promoting). The leadership styles perform as independent variables, while the measures of organisational performance serve as dependent variables. The national context—specifically Hungary, Turkey, and Kazakhstan—serves as a moderating framework that may influence the expression and efficacy of each leadership style. This model is designed to clarify the complex connection between leadership styles and organizational performance results in culturally varied settings, evaluated using the FLIGBY serious game simulation.

Research Design

Data were analysed using SmartPLS 4 software, using a thorough methodological framework to assess the research model. First, descriptive statistics were performed to examine and contrast the

strengths and shortcomings of leadership skills in Hungary, Turkey, and Kazakhstan. The next step included evaluating the measurement model, emphasising reliability, convergent validity, and the validation of both higher- and lower-order constructs to ascertain the robustness of the latent variables. Thereafter, structural model analysis was conducted to investigate the direct impacts of transformational, sustainable, and flow-promoting leadership styles on essential organisational performance (flow, profit, and sustainability). To address possible cross-national variance, multi-group analysis (MGA) was used to identify statistically significant variations in leadership dynamics across the three nations. The dependent variables—profit, sustainability, and flow—were obtained from FLIGBY's integrated performance metrics, whereas the three leadership styles served as independent variables, facilitating a detailed comprehension of how leadership skills impact tangible organisational performance across various cultural contexts.

Assessment of Leadership Skills through Serious Games

Leadership development and assessment could be improved by using serious games (Romero et al., 2015) because it is simple to draw comparisons between different playthroughs or players when everyone is subjected to the same conditions and makes decisions based on the same data. Evaluation is focused only on in-game judgments and the application of the proper skillset, eliminating bias from the trainer's ties with the trainee (Buzady et al., 2024). As a serious game, FLIGBY is grounded on the principles of positive psychology. This hypothesis, grounded on a study of the human mind, examines an individual's skills and motivations over their whole life (Buzady & Almeida, 2019). FLIGBY has delineated five competencies that leaders adept at managing these challenges will exhibit (a) risk acceptance, (b) experimentation, (c) self-awareness, (d) rapid learning, and (e) stringent prioritization.

Analysis and Findings

Descriptive statistics were initially performed to evaluate the distribution of leadership skills across nations, uncovering country-specific strengths: Hungarian managers demonstrated proficiency in team management and emotional intelligence, Turkish participants excelled in delegation and empowerment, while Kazakh managers exhibited superior scores in future orientation, entrepreneurship, and risk-taking—supporting Hypothesis 1 regarding distinctive national leadership skill.

In the measurement model, each component indicated satisfactory reliability and convergent validity, with Cronbach's alpha and composite reliability values above 0.70. Composite Reliability (CR) was

calculated to evaluate the internal consistency of reflective constructs (Hair et al., 2021). CR values exceeding .70 were considered acceptable, indicating adequate item homogeneity (Fornell & Larcker, 1981; Voorhees et al., 2016) and AVE values beyond the 0.50 threshold. Average Variance Extracted (AVE) was computed to assess convergent validity. AVE values $> .50$ confirm that constructs explain $\geq 50\%$ of their indicator variance (Hair & Sarstedt, 2019; Fornell & Larcker, 1981)

No multicollinearity issues were detected, as VIF values stayed under 5. The validation of higher- and lower-order constructs confirmed that the 29 FLIGBY leadership skills accurately corresponded to their designated theoretical categories: transformational, sustainable, and flow-promoting leadership. The structural model analysis indicated that all three leadership styles had statistically significant positive impacts on the dependent variable, organizational performance: profit, sustainability, and flow. Transformational leadership had the most significant influence on all three outcome variables ($\beta = 0.32$ to 0.41 , $p < 0.05$), hence validating Hypothesis 2. Sustainable leadership significantly impacted results ($\beta = 0.21$ to 0.35 , $p < 0.05$), especially regarding sustainability and flow, thus confirming Hypothesis 2. Flow-promoting leadership had notable albeit rather modest impacts ($\beta = 0.18$ to 0.28 , $p < 0.05$), hence supporting Hypothesis 2.

The multi-group analysis (MGA) demonstrated statistically significant variations in path coefficients across nations, suggesting that national context moderates the association between leadership styles and organisational performance, hence supporting Hypothesis 3. Transformational leadership had the most significant influence on profit in Hungary, while sustainable leadership was predominant in Kazakhstan, and flow-promoting leadership facilitated the highest levels of flow in Hungary. These results validate the conceptual model and provide substantial empirical evidence for the varying effects of leadership styles on organisational performance in various cultural contexts.

The data indicate that transformational leadership is the predominant style in all three nations, corroborating Hypothesis 2. Hungarian participants had marginally superior abilities in team management and emotional intelligence, but Turkish managers have shown improved competence in empowerment and delegation. Kazakh participants demonstrated proficiency in vision communication and risk-taking, consistent with sustainable leadership qualities.

Multigroup analysis verifies statistically significant country variations in leadership styles (supporting H1 and H2), with transformational leadership consistently delivering the greatest effect across all performance indicators. Sustainable and flow-promoting leadership styles showed significant variation

between settings, with sustainable leadership being more prevalent in Kazakhstan and flow-promoting leadership exerting more influence in Hungary.

All three leadership styles had statistically significant beneficial impacts on the simulation's performance metrics—profit, sustainability, and psychological flow—validating Hypothesis 3.

Conclusion and Discussion

This study contributes to the growing body of cross-cultural leadership research by providing empirical evidence of how leadership styles and competencies vary across Turkic nations and influence organizational outcomes. By leveraging the serious game FLIGBY, it offers an innovative methodological approach that bridges the gap between theoretical leadership frameworks and practical leadership behavior in dynamic decision-making environments.

The results emphasize the cross-cultural applicability of transformational leadership while illustrating the contextual variability of sustainable and flow-promoting styles. The findings support the integration of simulation tools like FLIGBY into leadership development programs, particularly in multinational or culturally diverse organizations.

However, the study is limited by its reliance on simulated environments. While FLIGBY offers a controlled and interactive setting, future research should validate these results in real-world organizational contexts. Expanding the research to include additional Turkic nations, sector-specific analysis, and demographic variables such as age and managerial level could offer deeper insights into regional leadership patterns.

In sum, this study presents the first comparative leadership analysis among Hungary, Turkey, and Kazakhstan using serious game methodology, affirming both the theoretical significance and practical utility of leadership simulations in cross-cultural management research

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Appendix

Table 1. Descriptive analysis across three countries

Gender	Male	%	Female	%	Total	
Hungary	351	54.08	298	45.92	649	
Turkey	242	61.73	150	38.27	392	
Kazakhstan	199	54.08	169	45.92	368	
Pipeline across countries						
	Senior managers	Business/func.head	First-line managers			Total
Hungary	177	236	236			649
Turkey	70	103	219			392
Kazakhstan	106	142	120			368
Managerial roles across countries						
	Administrator	Entrepreneur	Expert	Leader	Manager	Total
Hungary	13	26	72	264	274	649
Turkey	33	20	66	84	189	392
Kazakhstan	39	25	62	79	163	368
Average Managerial Time (Experience).						
	Less than One Year	1-3 Years	3-7 Years	7-15 Years	More than 15 Years	Total
Hungary	49	176	174	143	107	649
Turkey	45	136	111	78	22	392
Kazakhstan	68	121	109	53	17	368

Figure 2. Measurement Model assessment

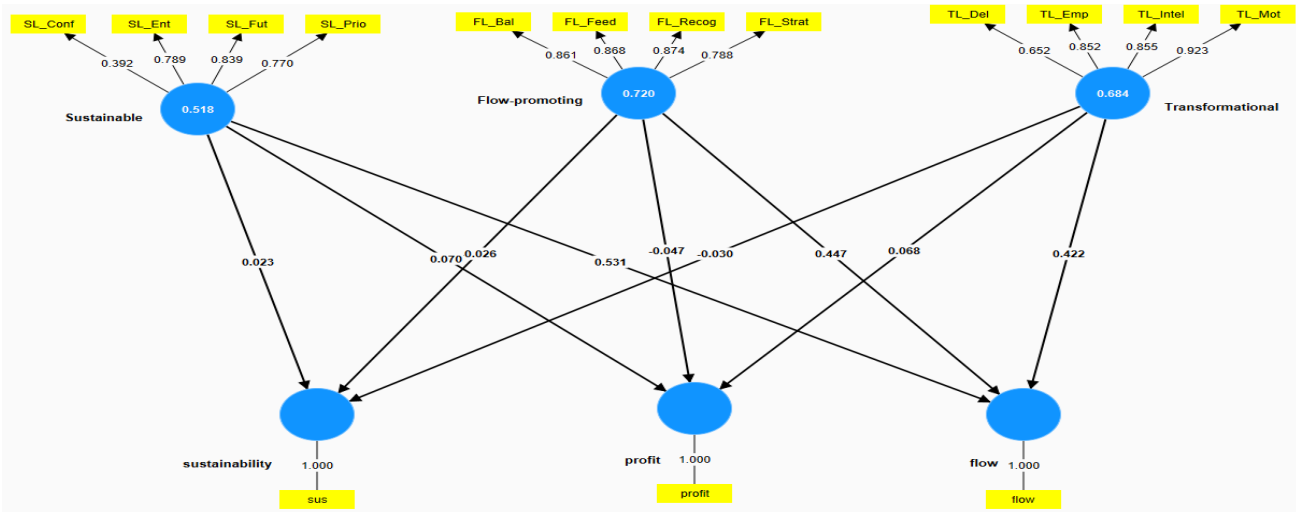


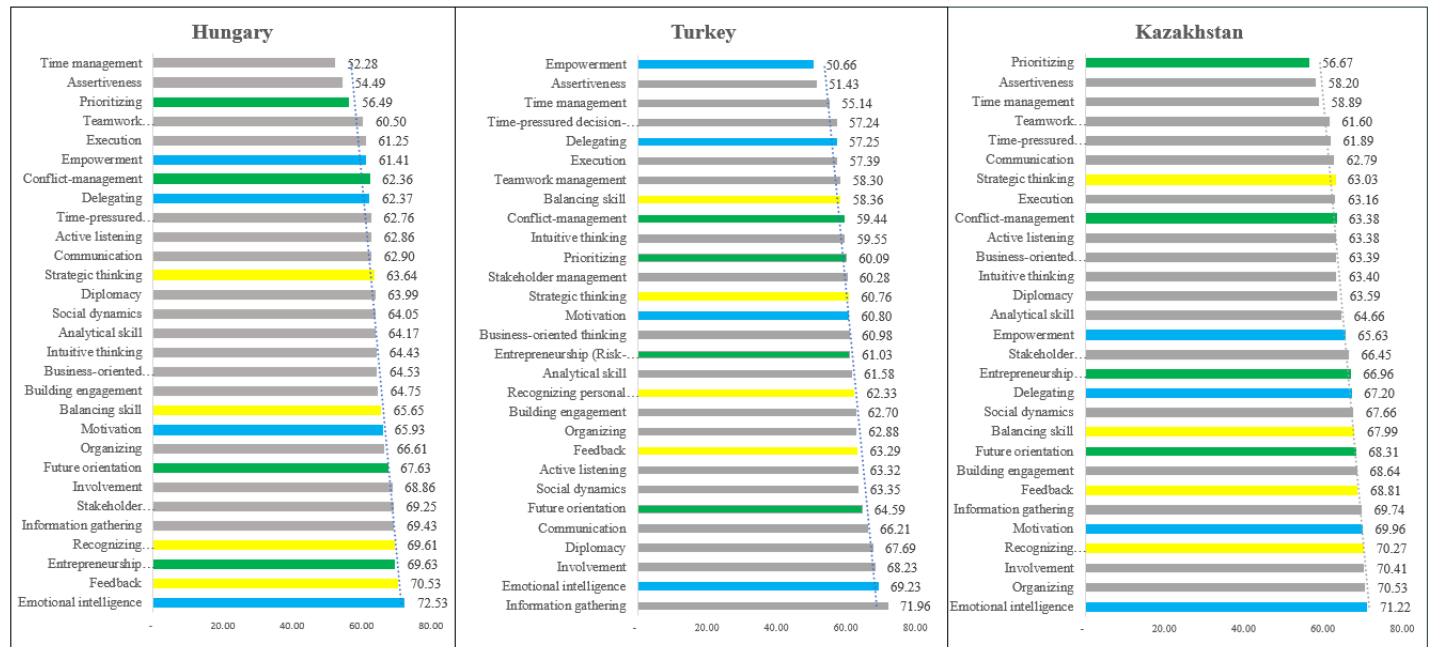
Table 2. AVE, convergent validity, reliability, and Cronbach's α of the constructs

	Hungary			Turkey			Kazakhstan			Complete		
Items	Alpha	CR	(AVE)	Alpha	CR	(AVE)	Alpha	CR	(AVE)	Alpha	CR	(AVE)
Flow-promoting Leadership	0.872	0.874	0.724	0.860	0.860	0.706	0.866	0.869	0.714	0.874	0.874	0.727
Sustainable Leadership	0.724	0.805	0.568	0.857	0.869	0.707	0.483	0.790	0.411	0.704	0.772	0.535
Transformational Leadership	0.846	0.870	0.691	0.828	0.907	0.661	0.845	0.897	0.683	0.848	0.905	0.688

Table 3. Higher-Order Construction Validation (Structural Equation Model)

	Hungary						Turkey						Kazakhstan						Complete					
Items	Outer Weights	T Statistics	P values	VIF	Outer Loadings	P Values	Outer Weights	T Statistics	P values	VIF	Outer Loadings	P Values	Outer Weights	T Statistics	P values	VIF	Outer Loadings	P Values	Outer Weights	T Statistics	P values	VIF	Outer Loadings	P Values
FL_Bal	0.301	81.425	0.000	2.629	0.868	0.000	0.304	54.425	0.000	2.603	0.854	0.000	0.328	61.405	0.000	2.197	0.855	0.000	0.293	115.714	0.000	2.686	0.861	0.000
FL_Feed	0.313	87.288	0.000	2.423	0.873	0.000	0.302	56.413	0.000	2.266	0.861	0.000	0.277	56.027	0.000	2.282	0.858	0.000	0.289	121.144	0.000	2.400	0.868	0.000
FL_Recog	0.285	70.589	0.000	2.394	0.854	0.000	0.293	62.366	0.000	2.615	0.875	0.000	0.291	69.802	0.000	2.526	0.878	0.000	0.283	119.378	0.000	2.671	0.874	0.000
FL_Strat	0.290	27.563	0.000	1.772	0.765	0.000	0.292	29.419	0.000	1.673	0.766	0.000	0.288	32.132	0.000	1.720	0.787	0.000	0.317	56.008	0.000	1.652	0.788	0.000
SL_Conf	0.286	43.840	0.000	1.096	0.811	0.000	0.048	0.649	0.206	1.012	0.060	0.258	0.016	0.809	0.350	1.007	0.069	0.209	0.141	9.372	0.000	1.077	0.392	0.000
SL_Ent	0.331	69.912	0.000	2.428	0.849	0.000	0.399	23.568	0.000	1.324	0.761	0.000	0.395	39.464	0.000	1.764	0.844	0.000	0.343	50.387	0.000	1.662	0.789	0.000
SL_Fut	0.309	98.662	0.000	2.524	0.899	0.000	0.383	16.937	0.000	1.313	0.740	0.000	0.453	73.702	0.000	1.942	0.890	0.000	0.409	63.332	0.000	1.753	0.839	0.000
SL_Prio	0.293	30.789	0.000	1.354	0.713	0.000	0.507	28.836	0.000	1.269	0.809	0.000	0.341	24.654	0.000	1.457	0.769	0.000	0.429	48.672	0.000	1.286	0.770	0.000
TL_Del	0.240	25.749	0.000	1.447	0.666	0.000	0.141	8.578	0.002	1.481	0.539	0.000	0.205	16.992	0.000	1.529	0.671	0.000	0.199	28.406	0.000	1.553	0.652	0.000
TL_Emp	0.298	71.256	0.000	2.461	0.860	0.000	0.266	41.083	0.000	2.414	0.859	0.000	0.246	41.149	0.000	2.191	0.835	0.000	0.247	77.556	0.000	2.423	0.852	0.000
TL_Intel	0.346	71.259	0.000	2.320	0.849	0.000	0.413	41.821	0.000	2.259	0.868	0.000	0.358	54.687	0.000	2.189	0.853	0.000	0.391	95.939	0.000	2.120	0.855	0.000
TL_Mot	0.319	101.575	0.000	3.233	0.910	0.000	0.367	87.683	0.000	3.024	0.919	0.000	0.380	131.592	0.000	3.096	0.926	0.000	0.353	199.684	0.000	3.238	0.923	0.000

Figure 3. 29 Fligby Leadership Skills Across Three Countries



The 29 leadership skills measured in FLIGBY(N=1409). Color coding: **blue** –transformational leadership skills, **green**-sustainable leadership skills, **yellow**-flow-promoting leadership skills. Source: *Author's own compilation, data extracted from FLIGBY global database*

Figure 3. Analysis of Leadership Skills Through Three Countries

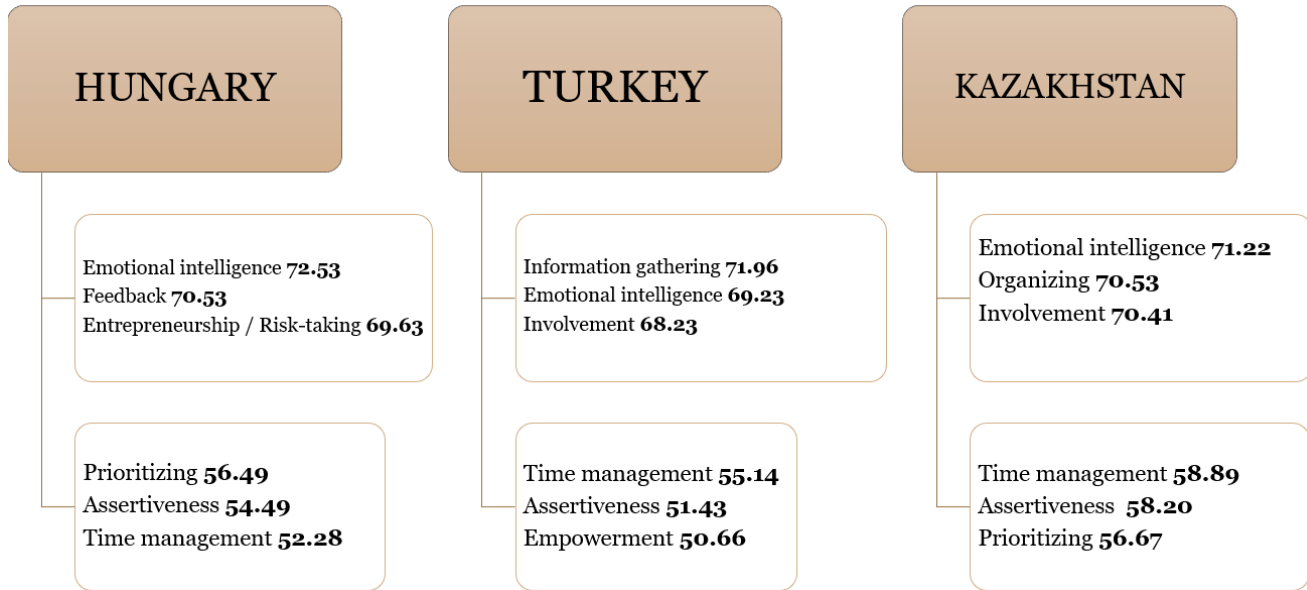
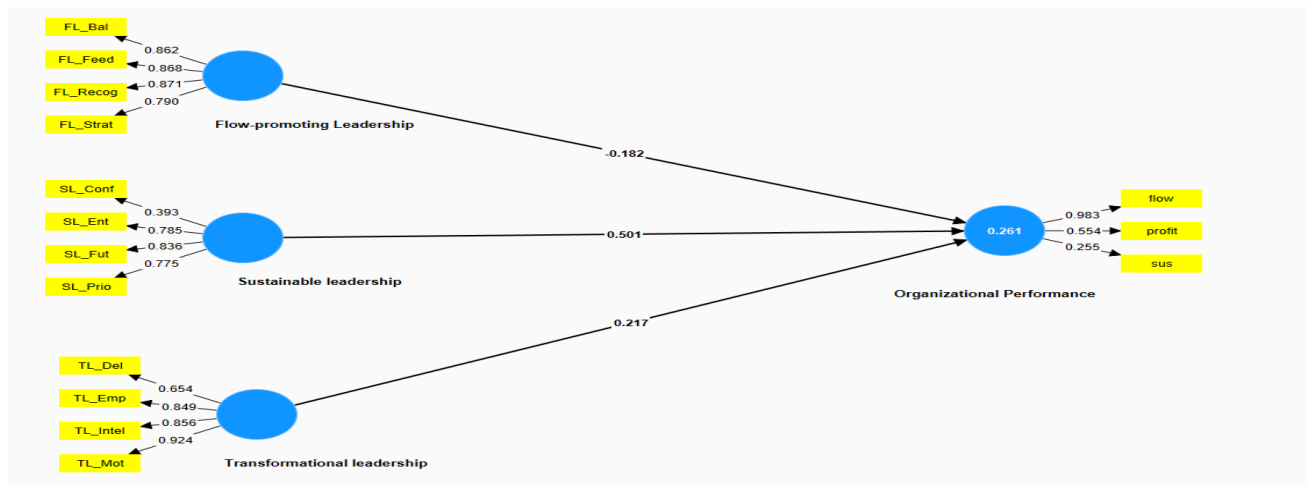


Figure 4. Hypthesis testing



	Hungary				Turkey				Kazakhstan				Complete d			
Hypothesis	B	T	P	Results	B	T	P	Results	B	T	P	Results	B	T	P	Results
H5: TL-> OP	0.456	8.810	0.000	Supported	0.130	2.069	0.019	Supported	0.151	2.279	0.011	Supported	0.217	5.471	0.000	Supported
H6: SL-> OP	0.311	4.240	0.000	Supported	0.469	7.637	0.000	Supported	0.421	4.619	0.000	Supported	0.501	11.950	0.000	Supported
H7: FPL-> OP	0.008	0.074	0.470	Not Supported	-0.091	1.052	0.146	Not Supported	0.074	0.685	0.247	Not Supported	-0.182	2.765	0.003	Supported

Table 4. Multigroup analysis

	Difference (Hungary - Turkey)	P- value	Difference (Hungary - Kazakstan)	P- value
FPL -> OP	0.099	0.242	-0.066	0.338
SL -> OP	-0.158	0.050	-0.110	0.173
TL -> OP	0.326	0.000	0.305	0.000

