

ERF 26th Annual Conference:  
*Sustainable Development Goals (SDGs) as a Framework for  
MENA's Development Policy*

# E-Governance for Sustainable Development in MENA Countries

Iyad Dhaoui



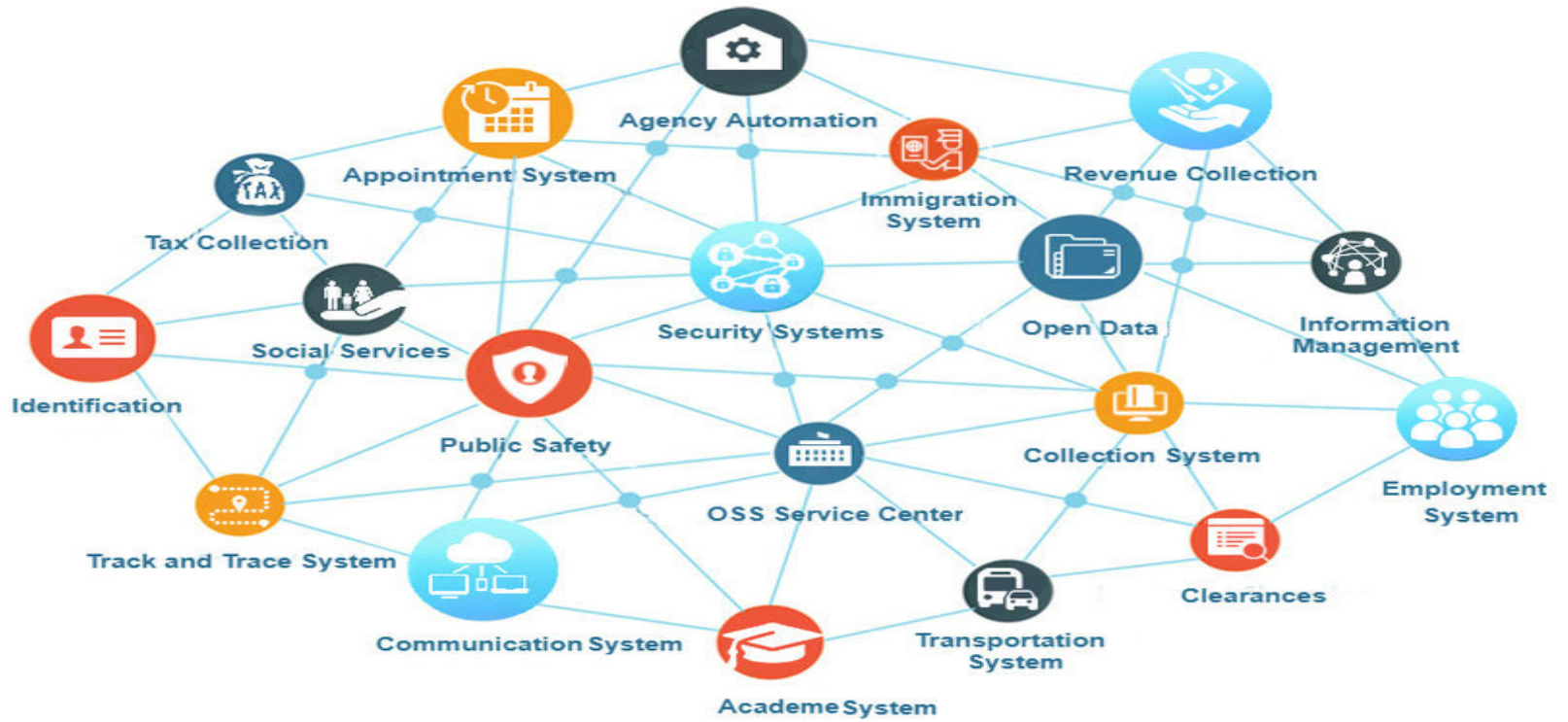
# Plan

- 1. E-Government & Sustainable Development**
- 2. Research design**
- 3. Research results**
- 4. Policy recommendations**



# 1

## E-Government & Sustainable Development



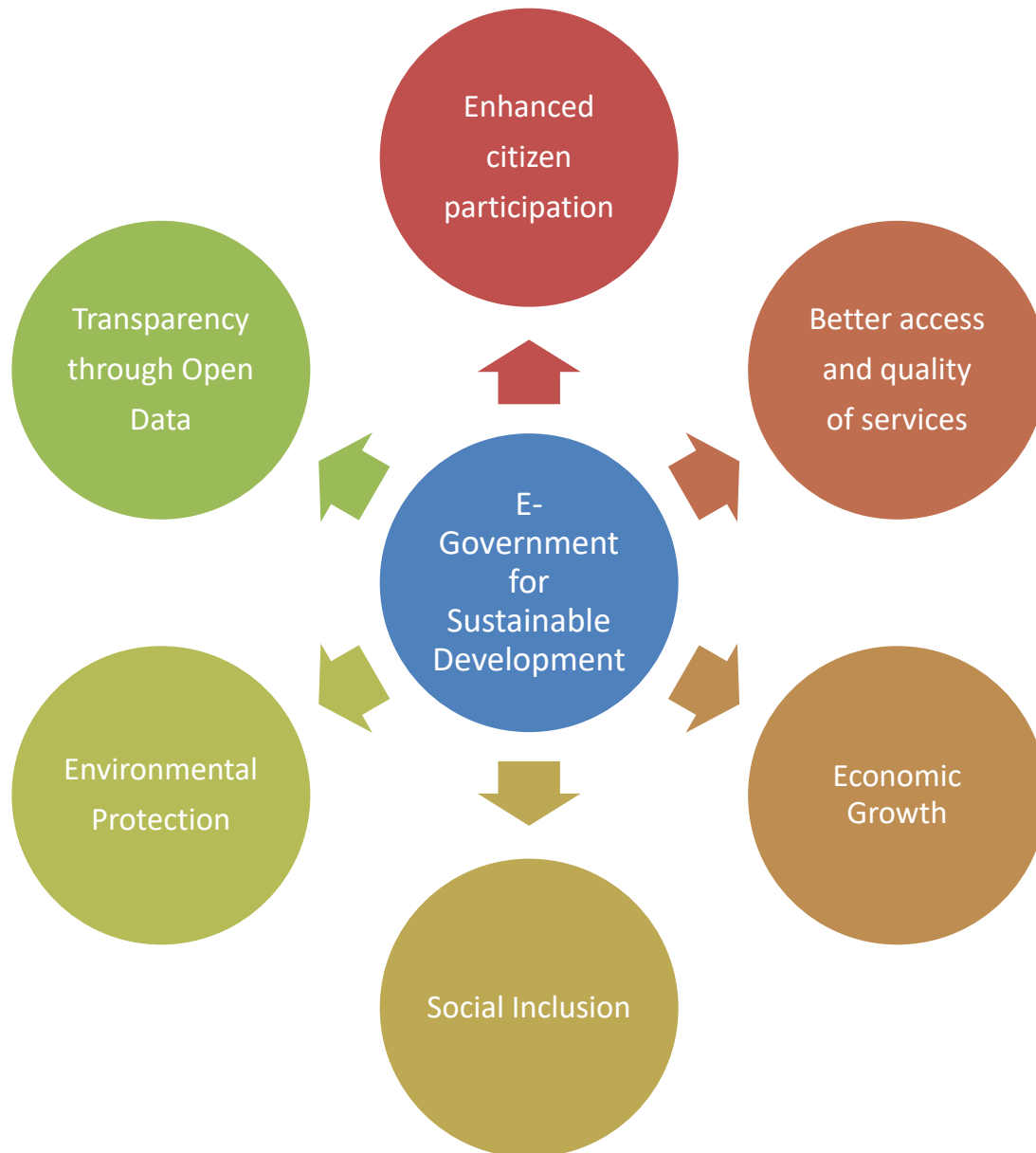
# Overview of SDGs



- 1. 17 in all: Universal in nature, encompass the social, economic, and environmental governance dimensions**
- 2. Interlinked through 169 targets**
- 3. Goal 16: Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels**
- 4. Goal 17: Strengthen the means of implementation and revitalize global partnership for sustainable development**



# E-Government for Sustainable Development



## E-Government for Sustainable Development (continued)

### Economic Sustainability

- Online integrated business registration
- Easy property registration systems
- Easy tax payment systems
- Innovative agricultural programmes
- Employment opportunities portals

### Social Sustainability

- E-education
- E-health services
- Security
- Community planning
- Services to vulnerable groups
- Welfare networks
- Youth engagement
- Silver innovation

### Environmental Sustainability

- Citizen-participating
- Greenhouse emissions
- Monitor energy, water consumption for savings
- Green procurement
- Disaster management



# 2

## Research design



# Research Objectives

- ❑ To empirically examine effects of e-government on good governance and sustainable development in MENA countries
- ❑ To identify key success factors which makes the differences in e-government development among MENA countries
- ❑ To provide relevant policy recommendations on e-government development for sustainable development in MENA countries

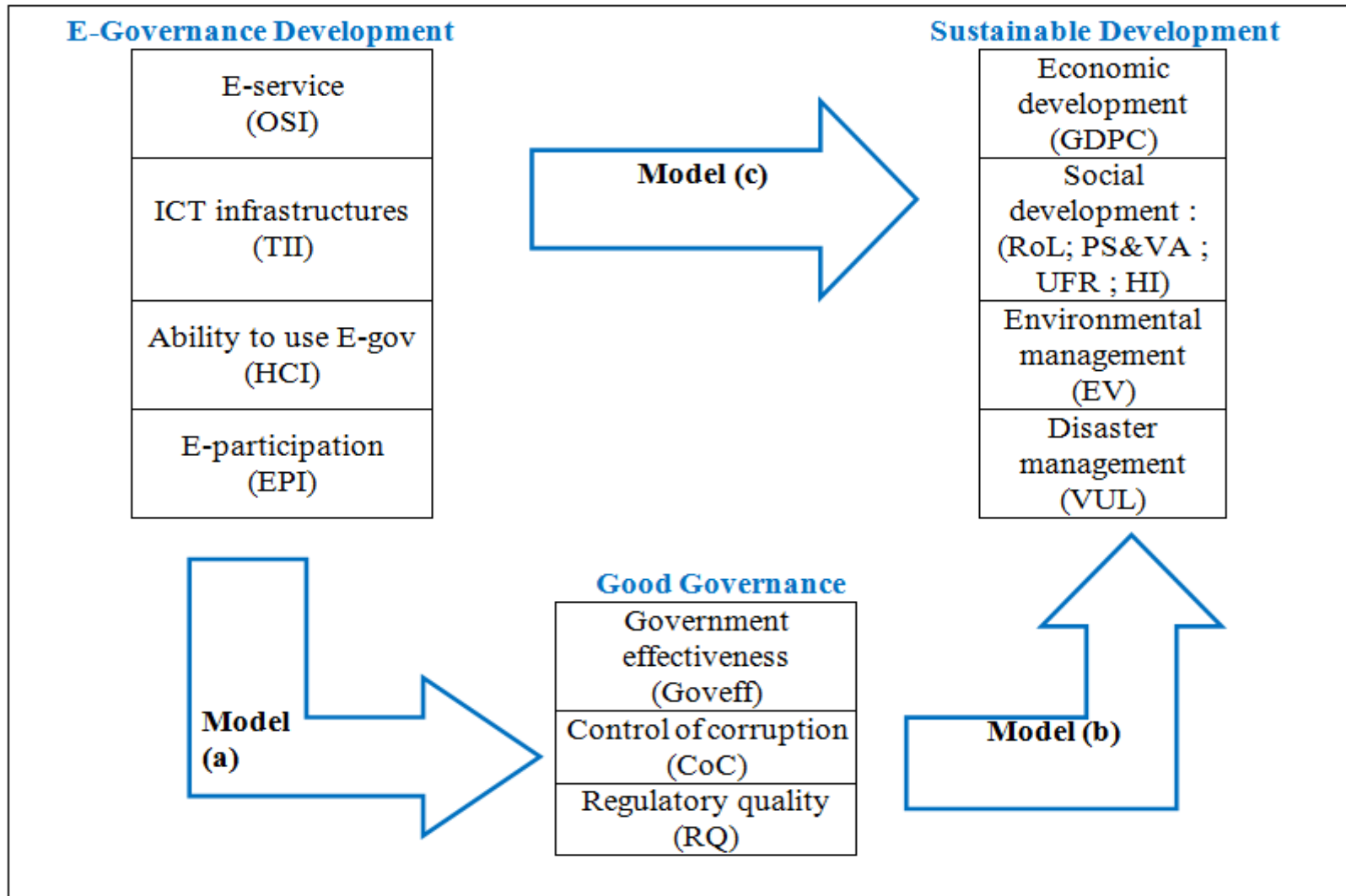
## Sample

- ❑ 15 MENA countries: Algeria, Bahrain, Egypt, Iran, Iraq, Jordan, Kuwait, Lebanon, Morocco, Oman, Qatar, Saudi Arabia, Tunisia, Turkey, and United Arab Emirates
- ❑ Time period: 2003-2018

## Research method

- ❑ Literature Review, Survey (UN E-Gov't Surveys: 2003-2018)
- ❑ Regression Analysis and Comparative Analysis

# Research design (cont'd)



# Measures on E-Government Development

Area	Factors	Variables/ conceptual definition	Sources
ICT Infrastructure	Telecommunication Infrastructure Index (TII)	Internet users (%)	UN E-Gov't
		Main fixed phone lines (%)	Survey
		Mobile subscribers (%)	2003-2018
		Fixed Internet subscriptions (%)	(based on ITU's
		Fixed broadband subscriptions (%)	IDI)
		Wireless broadband subscriptions (%)	
Ability to use E-Government	Human Capital Index (HCI)	Adult Literacy (%)	UN E-Gov't
		Primary, secondary, tertiary	Survey
		Gross Enrollment (%)	2003-2018
		Expected years of education	(based on
		Mean years of schooling	UNDP's HDR)
E-Public Service	Online Service Index (OSI)	National website's services level (e.g. gov't portal, ministries' websites)	UN E-Gov't
E-Democracy	E-Participation Index (EPI)	E-Information, E-Consultation, E-Decision making	Survey 2003-2018

# Measures on Good Governance

Area	Factors	Variables/ conceptual definition	Sources
Government Transparency	Control of Corruption (CoC)	The extent to which public power is exercised for private gain, including both petty and grand forms of corruption Capture of the state by elites & private interests	World Bank's Worldwide Governance Indicators (WGI) 2003-2018 combined from several sources including EIU, IMD, ADB, Freedom House, and so on
Government capabilities	Government Effectiveness (Goveff)	Quality of public services Quality of civil service and the degree of its independence from political pressures Quality of policy formulation and implementation Credibility of the gov't's commitment to policies	
	Regulatory Quality (RQ)	The ability of the gov't to formulate and implement sound policies and regulations that promote private sector development	

# Measures on Economic & Social Development

Area	Factors	Variables/ conceptual definition	Sources
Economic Development	GDP per capita (GDPC)	GDP (constant 2010, USD)/ population	World Bank 2003-2018
Social development	Rule of Law (RoL)	The extent to which agents have confidence in and abide by the rules of society Quality of contract enforcement, property rights, the police, and the courts Likelihood of crime and violence	World Bank's Worldwide Governance Indicators (WGI) 2002-2018
	Political Stability & Absence of Violence/Terrorism (PS&AVT)	Unlikelihood that the gov't will be destabilized or overthrown by unconstitutional or violent means, including politically-motivated violence & terrorism	
	Under-five Mortality Rate (UFM)	Under-five mortality (per 1,000 live births)	UNDP's human development index (HDI)
	Health Index (HI)	Life expectancy at birth	

# Measures on Environmental Management

Area	Factors	Variables/ conceptual definition	Sources		
Ecosystem vitality (EV)	Water Resources	Wastewater Treatment Level	Environmental Performance Index (EPI) of Yale Univ. (YCELP) & Columbia Univ. (CIESIN) 2002-2016 combined from several sources including WHO, UNICEF, World Bank, UNEP, IEA, FAO, and so on		
	Agriculture	Agricultural Subsidies Pesticide Regulation			
	Forests	Change in forest cover			
	Fisheries	Coastal Shelf Fishing Pressure Fish Stocks			
	Biodiversity & Habitat			Terrestrial protected areas (national biome weights)	
				Terrestrial protected areas (global biome weights)	
				Marine Protected Areas Critical Habitat Protection (%)	
	Climate & Energy			Trend in Carbon Intensity Change of Trend in Carbon Intensity Trend in CO2 Emissions per KWH	
				Susceptibility	Population without access to drinking water(a) & sanitation (%)
					Nutrition
Poverty and dependencies					
Economic capacity & income distribution					
Government & authorities					
Coping capacities		Medical services Material coverage			
		Adaptive capacities	Education & Research Gender equity Environmental status & ecosystem protection		
			Investment		



# 3

## Research Results

Regression analysis & Comparative analysis

# Effects of E-Government development on Good governance

	Control of corruption (Eq.a.1)	Government effectiveness (Eq.a.2)	Regulatory quality (Eq.a.3)
	Pooled OLS	Pooled OLS	Pooled OLS
OSI	1.508* (0.376)	1.145* (0.325)	1.728* (0.325)
TII	1.304* (0.367)	1.396* (0.317)	0.438 (0.317)
HCI	-0.128 (0.386)	0.145 (0.333)	-0.059 (0.333)
EPI	-1.050* (0.353)	-0.726** (0.305)	-0.536*** (0.305)
VA	0.104 (0.202)	0.417** (0.174)	0.400** (0.174)
INTER	-0.047 (0.343)	-0.521*** (0.296)	-0.318 (0.296)
POP (log)	-0.167* (0.029)	-0.116* (0.025)	-0.238* (0.025)
HCIND(1)	-0.264** (0.116)	-0.308* (0.100)	-0.335* (0.100)
constant	2.114* (0.619)	1.278** (0.535)	3.382* (.534)
N	240	240	240
R <sup>2</sup>	0.495	0.544	0.640
Prob(F)	0.000	0.000	0.000

\*1%, \*\* 5%, \*\*\*10%. Values between parentheses are the standard errors.

- E-governance development works well for the control of corruption and government effectiveness, and in a lesser extent, for regulatory quality. The human capital index does not have the expected impact
- This implies that the MENA region needs more developed skills to benefit from the ICT divides



# Effects of Effects of Good Governance on Sustainable Development

	<b>Economic development</b>	<b>Social development</b>				<b>Environmental management</b>	<b>Disaster management</b>
	<i>GDP per capita(log) (Eq.b.1)</i>	<i>Rules of law (Eq. b.2)</i>	<i>Political stability &amp; Absence of violence/terrorisme (Eq. b.3)</i>	<i>Under- five mortality (Eq. b.4)</i>	<i>Heath index (Eq. b.5)</i>	<i>Ecosystem vitality (Eq. b.6)</i>	<i>Vulnerability to natural disaster (Eq. b.7)</i>
	<i>FE</i>	<i>FE</i>	<i>FE</i>	<i>FE</i>	<i>FE</i>	<i>FE</i>	<i>FE</i>
<u>Goveff</u>	0.001 (0.061)	0.322* (0.058)	0.723* (0.140)	-2.807 (1.710)	0.011 (0.007)	0.092 (0.060)	-4.309 (4.077)
<u>CoC</u>	-0.004 (0.053)	0.152* (0.050)	0.055 (0.122)	.497 (1.496)	-0.012** (0.006)	-0.148* (0.053)	2.915 (3.762)
RQ	.045 (.053)	0.201* (0.050)	0.187 (0.122)	4.911* (1.488)	-0.018* (0.006)	-0.052 (0.053)	0.661 (3.586)
VA	0.039 (0.037)	0.104* (0.035)	0.031 (0.085)	-.817 (1.044)	0.004 (0.004)	0.144* (0.037)	0.186 (3.312)
Pop (log)	-0.015 (.041)	0.007 (0.038)	-0.596* (0.094)	-8.510* (1.147)	0.051* (0.004)	0.546* (0.040)	-13.742 (5.162)
constant	9.490* (0.667)	-0.081 (0.629)	9.305* (1.523)	1.147* (18.548)	-0.001 (0.076)	-8.343* (0.660)	271.552 (84.947)
N	240	240	240	240	240	240	120
Prob(F)	0.7315	0.000	0.000	0.000	0.000	0.000	0.107

\*1%, \*\* 5%, \*\*\*10%. Values between parentheses are the standard errors.

▪Government effectiveness affects positively and significantly rule of law, political stability and absence of violence. However, it is not found to have any significant effect on GDP per capita, under-five mortality or the health index.

▪The control of corruption has a significant impact on the variables rules of law, heath index, and ecosystem vitality

# Effects of E-Government Development on Sustainable Development

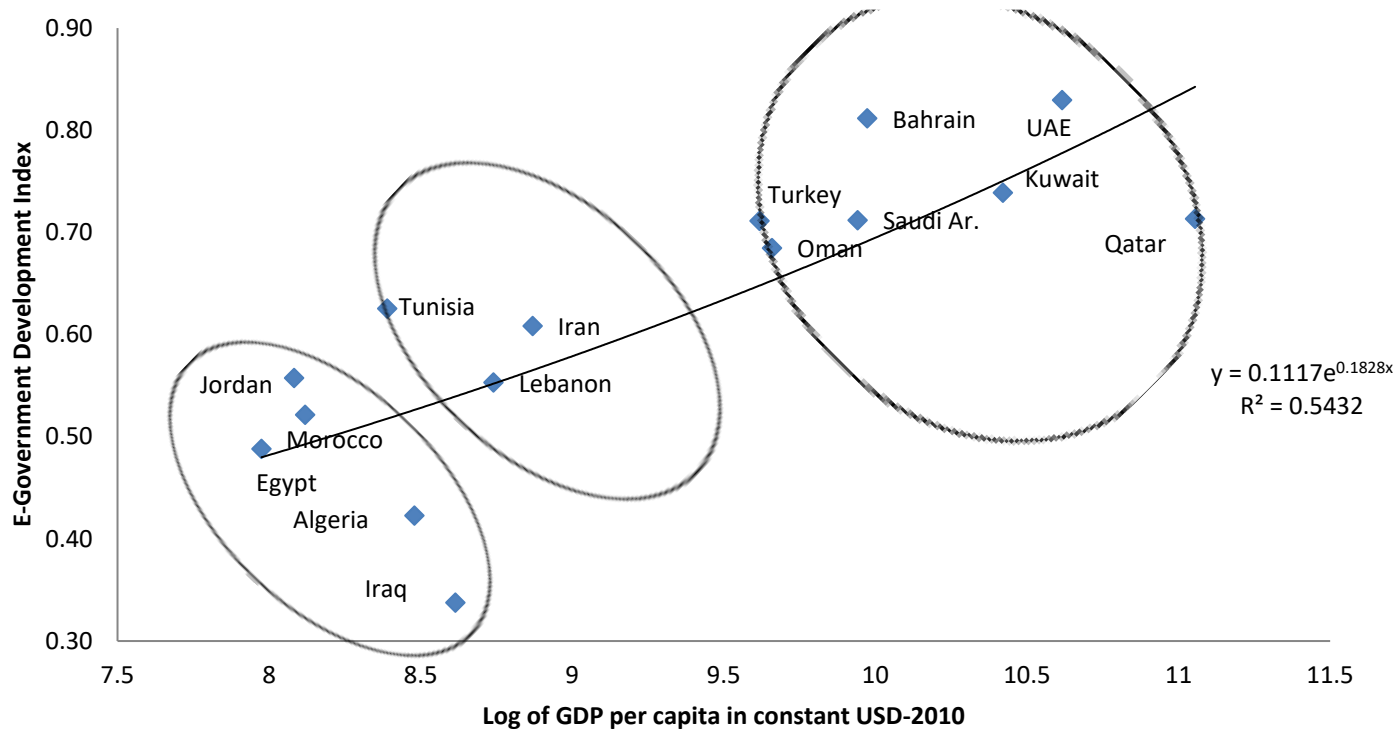
	<b>Economic development</b>	<b>Social development</b>				<b>Environmental management</b>	<b>Disaster management</b>
	<i>GDP per capita(log) (Eq.c.1)</i>	<i>Rules of law (Eq.c.2)</i>	<i>Political stability &amp; Absence of violence/terrorisme (Eq.c.3)</i>	<i>Under-five mortality (Eq.c.4)</i>	<i>Health index (Eq.c.5)</i>	<i>Ecosystem vitality (Eq.c.6)</i>	<i>Vulnerability to natural disaster (Eq.c.7)</i>
	<i>RE</i>	<i>FE</i>	<i>RE</i>	<i>FE</i>	<i>RE</i>	<i>FE</i>	<i>Pooled OLS</i>
OSI	0.168 (0.101)	0.075 (0.133)	-0.152 (0.263)	2.292 (2.369)	-0.005 (0.009)	0.048 (0.072)	-13.904 (7.109)
TII	-0.028 (0.123)	-0.627* (0.166)	-0.633** (0.313)	-9.267* (2.961)	0.054* (0.011)	0.220** (0.090)	-19.280*** (5.184)
HCI	-0.223 (0.164)	0.178 (0.216)	-0.014 (0.425)	-7.58*** (3.854)	0.063* (0.015)	-0.407* (0.117)	-19.251* (5.479)
EPI	0.050 (0.097)	-0.056 (0.128)	-0.471*** (0.252)	-3.972*** (2.275)	0.016*** (0.009)	0.062 (0.069)	5.465* (6.182)
VA	0.125*** (0.064)	0.242* (0.084)	0.347** (0.167)	-7.118* (1.508)	0.025* (0.006)	0.446* (0.045)	-9.990 (5.113)
inter	-0.323* (0.099)	-0.324* (0.131)	-0.830* (0.259)	14.499* (2.342)	-0.049* (0.009)	-0.787* (0.071)	13.221*** (7.653)
POP(log)	-0.388* (0.052)	0.249* (0.080)	-0.205** (0.104)	3.834* (1.425)	-0.006*** (0.003)	0.132* (0.043)	-0.129*** (0.439)
HCIND(1)	0.051*** (0.030)	0.017 (0.039)	0.085 (0.078)	-1.754* (0.702)	0.009* (0.002)	-0.060* (0.021)	-1.771 (1.469)
Constant	15.551 (0.864)*	-4.079* (1.305)	3.128*** (1.753)	-34.546 (23.197)	0.875* (0.064)	-1.477** (0.705)	73.001* (8.797)
N	240	240	240	240	240	240	120
R <sup>2</sup>	-	-	-	-	-	-	0.648
Prob(F)	0.000	0.000	0.000	0.000	0.000	0.000	0.000

\*1%. \*\* 5%. \*\*\*10%. Values between parentheses are the standard errors.

- The three components (OSI, TII, HCI) of EDGI do not have a positive and significant impact on the various dimensions of sustainable development
- Digital government efforts in the region are still perceived as technical support activities and not as a core strategic component for development corpus

# Comparative Analysis (1)

Scatter plot of EGDI and GDP per capita as of 2018



- This scatter plot shows positive correlation between GDP per capita and EGDI
- This correlation has an exponential tendency

# Comparative Analysis (2)

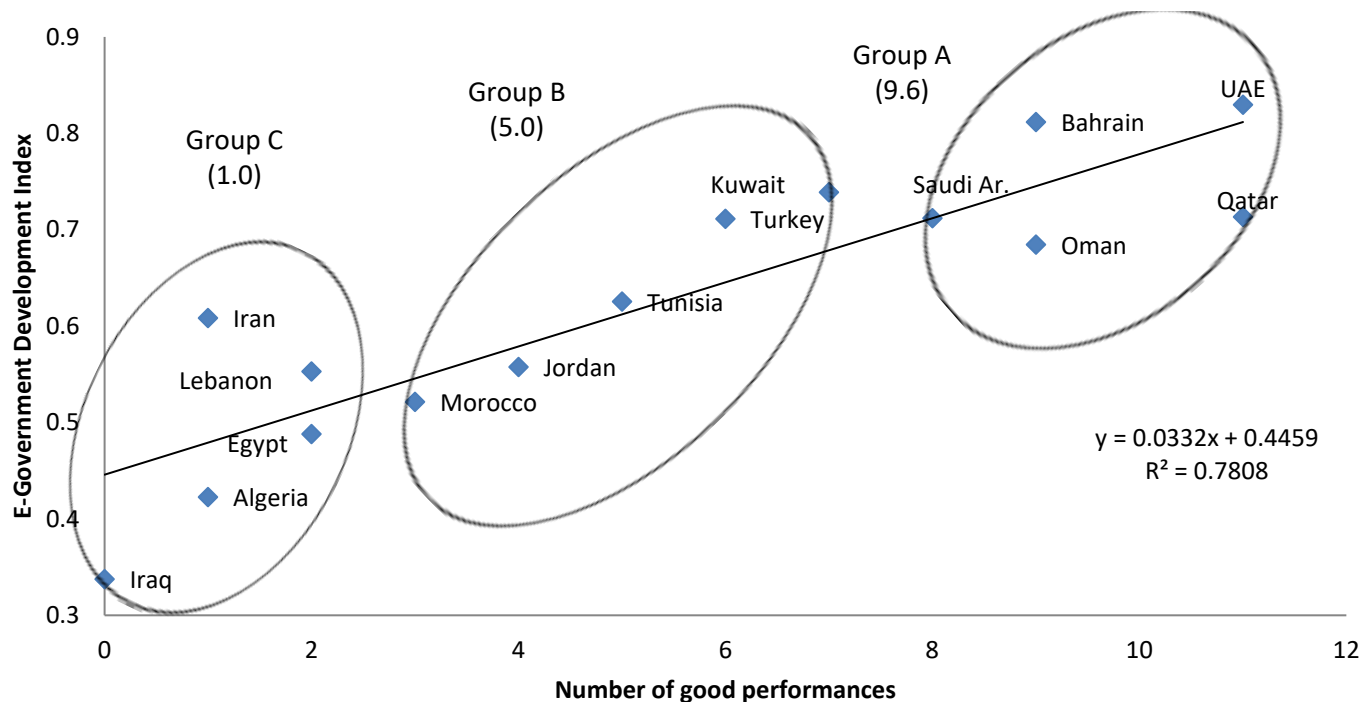
## EGDI and Performance in Good Governance and Sustainable Development

Group	Country	EDGI	CoC	GovEff	RQ	IGDPC	RoL	PSAV	MOR	HI	EV	VUL	No of good performance
Group A	UAE	0.830	1.152	1.431	0.932	10.616	0.806	0.743	7.6	0.890	0.529	31.510	11
	Bahrain	0.812	-0.147	0.180	0.446	9.973	0.413	-0.840	7.1	0.879	0.484	37.650	9
	Qatar	0.713	0.725	0.631	0.515	11.054	0.735	0.678	6.8	0.925	0.635	35.480	11
	Saudi Ar.	0.712	0.360	0.323	-0.046	9.942	0.142	-0.518	7.1	0.846	0.473	35.090	8
	Oman	0.685	0.246	0.187	0.310	9.659	0.465	0.655	11.4	0.887	0.349	40.670	9
Group B	Kuwait	0.739	-0.289	-0.088	-0.036	10.420	0.211	0.110	7.9	0.852	0.568	34.840	7
	Turkey	0.711	-0.335	0.006	-0.047	9.618	-0.319	-1.329	10.6	0.884	0.406	40.330	6
	Tunisia	0.625	-0.053	-0.105	-0.411	8.390	0.039	-0.902	17	0.869	0.498	43.080	5
	Jordan	0.558	0.150	0.113	0.083	8.082	0.234	-0.379	16.2	0.837	0.459	44.120	4
	Morocco	0.521	-0.216	-0.209	-0.243	8.119	-0.138	-0.332	22.4	0.869	0.608	47.670	3
Group C	Iran	0.608	-0.959	-0.430	-1.296	8.869	-0.694	-1.307	14.4	0.869	0.476	43.550	1
	Lebanon	0.553	-1.109	-0.640	-0.342	8.740	-0.764	-1.645	7.4	0.906	0.463	43.540	2
	Egypt	0.488	-0.587	-0.585	-0.867	7.975	-0.412	-1.165	21.2	0.797	0.563	48.320	1
	Algeria	0.423	-0.636	-0.444	-1.264	8.480	-0.775	-0.794	23.5	0.872	0.413	45.690	1
	Iraq	0.338	-1.399	-1.321	-1.219	8.614	-1.759	-2.556	26.7	0.776	0.310	56.550	0
Average		0.621	-0.207	-0.063	-0.232	9.237	-0.121	-0.639	13.820	0.864	0.482	41.873	5.3

\*\*

# Comparative Analysis (3)

Scatter plot of EGDI and the number of good performances in good governance and sustainable development



This scatter plot shows positive correlation between EGDI and good performances in good governance and sustainable development



# 4

## Policy recommendations

# Development policies

- Establish good governance by forming an institutional environment capable to enable government with more effective and efficient tools for more successful development plans.
- The use of digital technologies needs to be adequately embedded in public sector reform
- Bring digital technology and governance practices together at the forefront of sustainable development strategies and provide new and innovative technological options leading to improve governance strategies may contribute heavily to achieve sustainable development in all dimensions.
- A particular emphasis on building a digitally inclusive society is needed.
- Sound strategic and policy framework and progressively revise the contribution of ICTs may support the shift towards good governance and thus more sustained development.

# Integrated E-government Strategy

MENA countries should establish & Implement an *Integrated E-government Strategy*, incorporating the 7 key success factors:





*Thank you for your attention*

