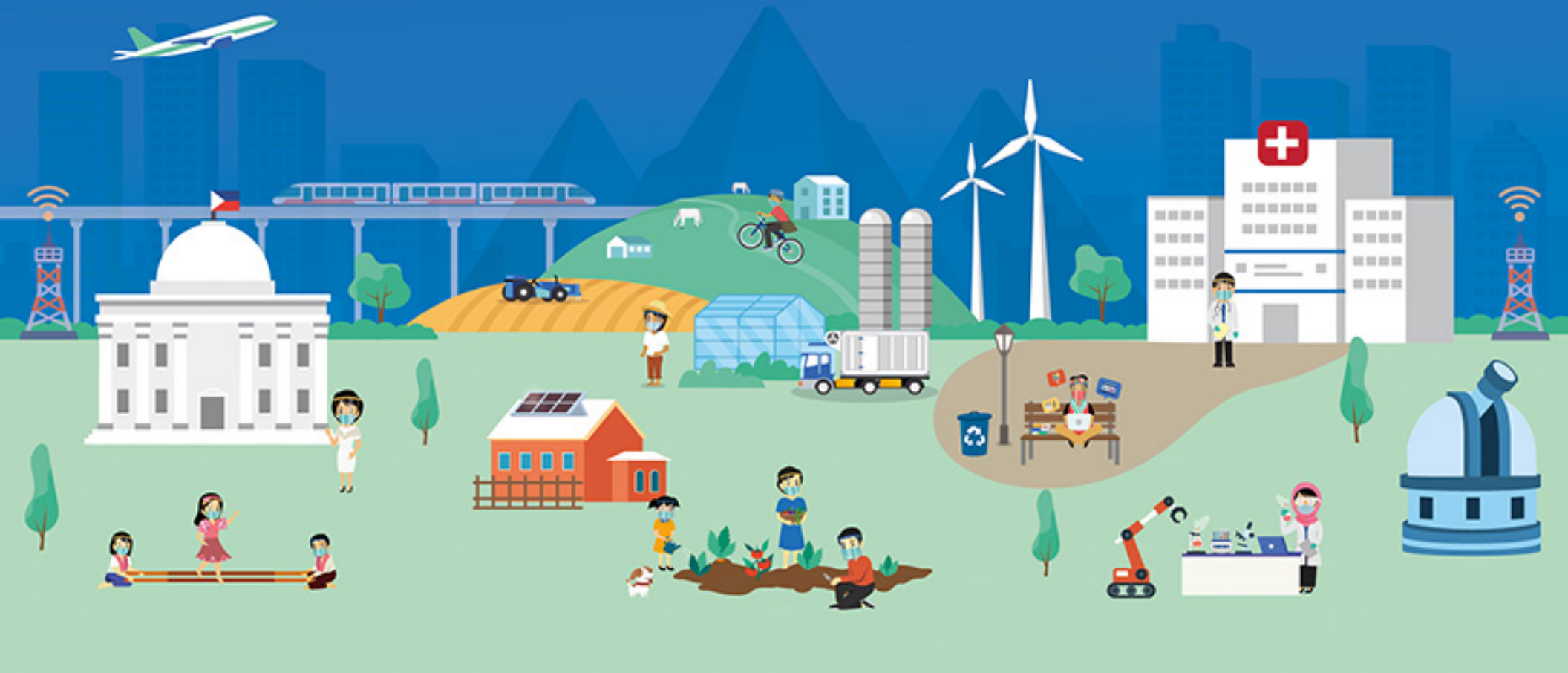
14 Vigorously Advancing Science, Technology, and Innovation



SCALE-UP TECHNOLOGY ADOPTION

ACCELERATE INNOVATION

STI application in agriculture, industry, services, and health sectors increased

- Promote commercialization and utilization of technologies from publicly-funded R&D
- Develop a vibrant intellectual property rights culture

Investments in STI-based startups, enterprises, and spin-offs increased

- Encourage more innovative financing mechanisms and private sector investments
- Provide support mechanisms for startups and MSMEs in the regions

Creative capacity for knowledge and technology generation, acquisition, and adoption enhanced

- Support research and development agenda
- Increase funding for human resource development
- Tap foreign and overseas Filipino expertise
- Strengthen STI infrastructure
- Foster STI culture

Open collaboration among actors in the STI ecosystem strengthened

- Strengthen multisectoral collaboration
- Intensify international cooperation in STI
- Implement the recommendations of the Scoping Study on STI Statistics

Objectives/Results	SDG Tier 1 Indicators	Indicator	Baseline[a]		Annual Plan Targets						End of Plan Target[b]	Means of Verification	Responsible Agency[c]	Reporting Entity[d]	Assumptions and Risks
			Year	Value	2017	2018	2019	2020	2021	2022					
Societal Goal															
A healthy and resilient Philippines															
Intermediate Goal															
Increasing growth potential															
Chapter Outcome 1															
Scale-up Technology Adoption															
Subchapter Outcome 1.1															
Science, Technology and Innovation (STI) application in agriculture, industry, services, and health sectors increased		Proportion of private Agricultural Forestry and Fisheries (AFF), and Industry and Services Research and Development (R&D) to sectoral Gross Value Added (GVA) increased (in percent)	2016	0.11	Increasing	Increasing	Increasing	Increasing	Increasing	Increasing	Increasing	PSA and DOST reports	DOST	DOST	
		AFF	2016	0.07	Increasing	Increasing	Increasing	Increasing	Increasing	Increasing	Increasing				
		Industry	2016	0.13	Increasing	Increasing	Increasing	Increasing	Increasing	Increasing	Increasing				
		Services	2016	0.11	Increasing	Increasing	Increasing	Increasing	Increasing	Increasing	Increasing				
		Proportion of public AFF, and Industry and Services R&D to sectoral GVA increased (in percent)	2015	0.08	Increasing	Increasing	Increasing	Increasing	Increasing	Increasing	Increasing	PSA and DOST reports	DOST	DOST	
		AFF	2015	0.25	Increasing	Increasing	Increasing	Increasing	Increasing	Increasing	Increasing				
		Industry	2015	0.11	Increasing	Increasing	Increasing	Increasing	Increasing	Increasing	Increasing				
		Services	2015	0.05	Increasing	Increasing	Increasing	Increasing	Increasing	Increasing	Increasing				
		Proportion of intellectual property products expenditures to GDP increased (%)	2016	0.46	Increasing	Increasing	Increasing	Increasing	Increasing	Increasing	Increasing	National Income Accounts	IPOPHL	IPOPHL	
Aggregate Outputs															
		Number of technology adoptors increased (incremental)	2015	2,700	3,000	3,300	3,700	4,000	4,500	5,000	5,000	CHED reports	CHED	CHED	

[a] Actual data as of December 2016, or latest available.

[b] May either be cumulative or incremental target value at the end of the Plan period.

[c] Concerned NEDA Board Committees/Cabinet Cluster/Inter-Agency Committees responsible for delivering the outcomes and the concerned implementing agencies for delivering the outputs.

[d] Lead/responsible agency for reporting progress on indicator targets.

Objectives/Results	SDG Tier 1 Indicators	Indicator	Baseline[a]		Annual Plan Targets						End of Plan Target[b]	Means of Verification	Responsible Agency[c]	Reporting Entity[d]	Assumptions and Risks
			Year	Value	2017	2018	2019	2020	2021	2022					
		Number of Filipino patents granted increased (incremental)[e]	2016	30	33	34	36	38	30	38	38	IPOPHL reports	IPOPHL	IPOPHL	
		NCR	2016	19	N/A	N/A	N/A	N/A	8	14	12				
		CAR	2016	0	N/A	N/A	N/A	N/A	1	1	1				
		Region I	2016	0	N/A	N/A	N/A	N/A	1	1	1				
		Region II	2016	0	N/A	N/A	N/A	N/A	1	1	1				
		Region III	2016	0	N/A	N/A	N/A	N/A	5	5	5				
		Region IV-A	2016	4	N/A	N/A	N/A	N/A	1	2	2				
		Region IV-B	2016	1	N/A	N/A	N/A	N/A	1	1	1				
		Region V	2016	2	N/A	N/A	N/A	N/A	1	1	1				
		Region VI	2016	2	N/A	N/A	N/A	N/A	1	1	1				
		Region VII	2016	1	N/A	N/A	N/A	N/A	1	1	1				
		Region VIII	2016	1	N/A	N/A	N/A	N/A	1	1	1				
		Region IX	2016	0	N/A	N/A	N/A	N/A	1	1	1				
		Region X	2016	0	N/A	N/A	N/A	N/A	1	1	1				
		Region XI	2016	0	N/A	N/A	N/A	N/A	2	5	5				
		Region XII	2016	0	N/A	N/A	N/A	N/A	1	1	1				
		Caraga	2016	0	N/A	N/A	N/A	N/A	2	2	2				
		BARMM	2016	0	N/A	N/A	N/A	N/A	1	1	1				
		Not Specified	2016	-	N/A	N/A	N/A	N/A	-	-	-				
		Number of Filipino utility models registered increased (incremental)[e]	2016	552	594	635	680	727	584	750	750	IPOPHL reports	IPOPHL	IPOPHL	
		NCR	2016	253	N/A	N/A	N/A	N/A	143	182	182				
		CAR	2016	41	N/A	N/A	N/A	N/A	22	28	28				
		Region I	2016	30	N/A	N/A	N/A	N/A	19	24	24				
		Region II	2016	27	N/A	N/A	N/A	N/A	29	38	38				
		Region III	2016	27	N/A	N/A	N/A	N/A	29	38	38				
		Region IV-A	2016	16	N/A	N/A	N/A	N/A	22	29	29				
		Region IV-B	2016	1	N/A	N/A	N/A	N/A	3	5	5				
		Region V	2016	27	N/A	N/A	N/A	N/A	20	26	26				
		Region VI	2016	42	N/A	N/A	N/A	N/A	71	92	92				
		Region VII	2016	24	N/A	N/A	N/A	N/A	112	144	144				
		Region VIII	2016	21	N/A	N/A	N/A	N/A	37	47	47				
		Region IX	2016	0	N/A	N/A	N/A	N/A	5	7	7				
		Region X	2016	8	N/A	N/A	N/A	N/A	19	24	24				
		Region XI	2016	10	N/A	N/A	N/A	N/A	12	15	15				
		Region XII	2016	22	N/A	N/A	N/A	N/A	26	33	33				
		Caraga	2016	2	N/A	N/A	N/A	N/A	12	15	15				
		BARMM	2016	1	N/A	N/A	N/A	N/A	3	3	3				
		Not Specified	2016	-	N/A	N/A	N/A	N/A	-	-	-				

[e] There are regional targets from 2020 to 2022 but there are no regional targets from 2017 to 2019. This is because the regional targets were only introduced in 2020.

Objectives/Results	SDG Tier 1 Indicators	Indicator	Baseline[a]		Annual Plan Targets						End of Plan Target[b]	Means of Verification	Responsible Agency[c]	Reporting Entity[d]	Assumptions and Risks
			Year	Value	2017	2018	2019	2020	2021	2022					
		Number of Filipino industrial designs registered increased (incremental)[e]	2016	508	542	569	597	627	494	622	622	IPOPHL reports	IPOPHL	IPOPHL	
		NCR	2016	375	N/A	N/A	N/A	N/A	325	413	413				
		CAR	2016	1	N/A	N/A	N/A	N/A	5	6	6				
		Region I	2016	0	N/A	N/A	N/A	N/A	7	8	8				
		Region II	2016	6	N/A	N/A	N/A	N/A	7	8	8				
		Region III	2016	24	N/A	N/A	N/A	N/A	17	21	21				
		Region IV-A	2016	51	N/A	N/A	N/A	N/A	48	61	61				
		Region IV-B	2016	0	N/A	N/A	N/A	N/A	1	1	1				
		Region V	2016	12	N/A	N/A	N/A	N/A	25	31	31				
		Region VI	2016	7	N/A	N/A	N/A	N/A	10	13	13				
		Region VII	2016	24	N/A	N/A	N/A	N/A	23	27	27				
		Region VIII	2016	1	N/A	N/A	N/A	N/A	2	2	2				
		Region IX	2016	0	N/A	N/A	N/A	N/A	1	1	1				
		Region X	2016	1	N/A	N/A	N/A	N/A	4	5	5				
		Region XI	2016	4	N/A	N/A	N/A	N/A	13	17	17				
		Region XII	2016	2	N/A	N/A	N/A	N/A	3	4	4				
		Caraga	2016	0	N/A	N/A	N/A	N/A	2	3	3				
		BARMM	2016	0	N/A	N/A	N/A	N/A	1	1	1				
		Not Specified	2016	-	N/A	N/A	N/A	N/A	-	-	-				
		Number of Filipino patents filed increased[e]	2016	245	N/A	N/A	325	348	353	394	394	IPOPHL reports	IPOPHL	IPOPHL	
		NCR	2016	115	N/A	N/A	N/A	N/A	141	154	154				
		CAR	2016	3	N/A	N/A	N/A	N/A	3	4	4				
		Region I	2016	0	N/A	N/A	N/A	N/A	6	7	7				
		Region II	2016	0	N/A	N/A	N/A	N/A	3	4	4				
		Region III	2016	18	N/A	N/A	N/A	N/A	23	26	26				
		Region IV-A	2016	26	N/A	N/A	N/A	N/A	50	54	54				
		Region IV-B	2016	3	N/A	N/A	N/A	N/A	9	10	10				
		Region V	2016	14	N/A	N/A	N/A	N/A	28	31	31				
		Region VI	2016	10	N/A	N/A	N/A	N/A	16	19	19				
		Region VII	2016	10	N/A	N/A	N/A	N/A	28	32	32				
		Region VIII	2016	26	N/A	N/A	N/A	N/A	7	8	8				
		Region IX	2016	2	N/A	N/A	N/A	N/A	7	8	8				
		Region X	2016	1	N/A	N/A	N/A	N/A	8	9	9				
		Region XI	2016	10	N/A	N/A	N/A	N/A	10	12	12				
		Region XII	2016	0	N/A	N/A	N/A	N/A	3	4	4				
		Caraga	2016	7	N/A	N/A	N/A	N/A	8	9	9				
		BARMM	2016	0	N/A	N/A	N/A	N/A	3	3	3				
		Not Specified	2016	-	N/A	N/A	N/A	N/A	-	-	-				

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Objectives/Results	SDG Tier 1 Indicators	Indicator	Baseline[a]		Annual Plan Targets						End of Plan Target[b]	Means of Verification	Responsible Agency[c]	Reporting Entity[d]	Assumptions and Risks
			Year	Value	2017	2018	2019	2020	2021	2022					
		Number of Filipino utility models filed increased[e]	2016	1,100	N/A	N/A	1,662	1,862	1,380	1,848	1,848	IPOPHL reports	IPOPHL	IPOPHL	
		NCR	2016	313	N/A	N/A	N/A	N/A	266	356	356				
		CAR	2016	63	N/A	N/A	N/A	N/A	16	22	22				
		Region I	2016	35	N/A	N/A	N/A	N/A	42	56	56				
		Region II	2016	45	N/A	N/A	N/A	N/A	57	76	76				
		Region III	2016	25	N/A	N/A	N/A	N/A	35	47	47				
		Region IV-A	2016	35	N/A	N/A	N/A	N/A	74	99	99				
		Region IV-B	2016	6	N/A	N/A	N/A	N/A	13	17	17				
		Region V	2016	46	N/A	N/A	N/A	N/A	49	66	66				
		Region VI	2016	68	N/A	N/A	N/A	N/A	214	288	288				
		Region VII	2016	79	N/A	N/A	N/A	N/A	238	319	319				
		Region VIII	2016	29	N/A	N/A	N/A	N/A	140	187	187				
		Region IX	2016	8	N/A	N/A	N/A	N/A	9	12	12				
		Region X	2016	10	N/A	N/A	N/A	N/A	95	126	126				
		Region XI	2016	16	N/A	N/A	N/A	N/A	27	37	37				
		Region XII	2016	25	N/A	N/A	N/A	N/A	32	42	42				
		Caraga	2016	14	N/A	N/A	N/A	N/A	72	96	96				
		BARMM	2016	1	N/A	N/A	N/A	N/A	1	2	2				
		Not Specified	2016	282	N/A	N/A	N/A	N/A	-	-	-				
		Number of Filipino industrial designs filed increased[e]	2016	959	N/A	N/A	893	910	675	873	873	IPOPHL reports	IPOPHL	IPOPHL	
		NCR	2016	578	N/A	N/A	N/A	N/A	440	559	559				
		CAR	2016	19	N/A	N/A	N/A	N/A	2	4	4				
		Region I	2016	1	N/A	N/A	N/A	N/A	8	11	11				
		Region II	2016	5	N/A	N/A	N/A	N/A	29	38	38				
		Region III	2016	40	N/A	N/A	N/A	N/A	31	40	40				
		Region IV-A	2016	91	N/A	N/A	N/A	N/A	48	62	62				
		Region IV-B	2016	0	N/A	N/A	N/A	N/A	1	3	3				
		Region V	2016	31	N/A	N/A	N/A	N/A	11	15	15				
		Region VI	2016	7	N/A	N/A	N/A	N/A	28	36	36				
		Region VII	2016	28	N/A	N/A	N/A	N/A	18	24	24				
		Region VIII	2016	1	N/A	N/A	N/A	N/A	2	4	4				
		Region IX	2016	0	N/A	N/A	N/A	N/A	1	1	1				
		Region X	2016	1	N/A	N/A	N/A	N/A	21	28	28				
		Region XI	2016	9	N/A	N/A	N/A	N/A	30	39	39				
		Region XII	2016	1	N/A	N/A	N/A	N/A	3	5	5				
		Caraga	2016	9	N/A	N/A	N/A	N/A	1	2	2				
		BARMM	2016	0	N/A	N/A	N/A	N/A	1	2	2				
		Not Specified	2016	138	N/A	N/A	N/A	N/A	-	-	-				
		Number of Filipino patents filed under Patent Cooperation Treaty (PCT) increased	2018	2	N/A	N/A	2	3	3	4	4	IPOPHL reports	IPOPHL	IPOPHL	

[e] There are regional targets from 2020 to 2022 but there are no regional targets from 2017 to 2019. This is because the regional targets were only introduced in 2020.

Objectives/Results	SDG Tier 1 Indicators	Indicator	Baseline[a]		Annual Plan Targets						End of Plan Target[b]	Means of Verification	Responsible Agency[c]	Reporting Entity[d]	Assumptions and Risks
			Year	Value	2017	2018	2019	2020	2021	2022					
Subchapter Outcome 1.2															
Investments in STI-based startups, enterprises, and spin-offs increased		Global Innovation Index (GII) - Investment Index percentile rank improved[f]	2016	17	18	19	20	22	24	25	25	WIPO reports	DOST	DOST	
Aggregate Outputs															
		Number of technology business incubators (TBI) graduates increased (i.e., enterprises and spin-offs)	2016	41	Increasing	Increasing	Increasing	Increasing	230	270	1000[g]	DOST reports	DOST	DOST	
		Number of innovation hubs increased (e.g., TBIs, innovation centers, niche centers, etc.) (cumulative)[h]	2016	23	33	43	53	63	108	128	128	DOST and DICT reports	DOST and DICT	DOST and DICT	
		R&D expenditure of business enterprises increased (in PHP Billion)[i]	2015	8.1	Increasing	Increasing	Increasing	Increasing	Increasing	Increasing	Increasing	DOST and PSA reports	DOST	DOST	
		Total Funding and Investments received by STI-based startups and spin-offs[j]	2016	N/A	N/A	N/A	N/A	Increasing	Increasing	Increasing	Increasing	DTI, DOST, DICT reports, and SEC	DTI, DOST, DICT	DTI, DOST, DICT	
Chapter Outcome 2															
Stimulate Creativity and Innovation															
Subchapter Outcome 2.1															
Creative capacity for knowledge and technology generation, acquisition, and adoption enhanced		Overall Global Innovation Index (GII) rank improved[k]	2016	Top 58%	N/A	N/A	N/A	Top 38%	Top 35%	Top 33%	Top 33%	WIPO report	DOST	DOST	
		GII - Knowledge and Technology Outputs percentile rank improved[l]	2016	66	Top 34%	Top 34%	Top 33%	Top 33%	Top 33%	Top 33%	Top 33%	WIPO report	DOST	DOST	
		GII - Creative Outputs percentile rank improved[m]	2016	Top 75%	N/A	N/A	N/A	Top 44%	Top 42%	Top 40%	Top 40%	WIPO report	DOST	DOST	

[f] A percentile rank of 17 in 2016 means that 17 percent of the countries in the WIPO ranking scored equal to or lower than the Philippines. It also indicates that 83 percent of the countries in the WIPO ranking scored higher than the Philippines.

[g] The end of Plan target of 1,000 is the sum of all targets from 2017 to 2020. Said targets are attainable since these are within the DOST's capacity to produce TBI graduates. Around 1,000 enterprises and spin-offs are expected to graduate from TBIs from 2017 to 2022.

[h] The targets were revised upwards by the DOST on 2020 to 2022 due to the need to establish more innovation hubs to support economic recovery. In addition, this indicator has now become a combination of the DOST's innovation hubs and the DICT's Digital Transformation Center (DTC) Innovation Hubs.

[i] The PSA and DOST are requested to produce this data annually instead of every two years.

[j] The total funding and investments received by startups and spin-offs will provide a measure on the total investments on locally established startups and spin-offs. It can be measured once the PH Startup database is established and through data from the SEC. Since this is a newly-introduced indicator in 2020, there is no baseline data in 2016. Likewise there are no targets from 2017 to 2019.

[k] On computation of overall GII rank targets, given that the end of Plan target of 2022 is at top 33 percent, the Philippines is expected to rank in increments of 4 percentiles each year. Since this indicator has only been added in 2020, it has no targets from 2017 to 2019. But there are targets from 2020 to 2022. There is also a baseline data for 2016.

[l] A percentile rank of top 34 percent in 2017 means that the Philippines is targeted to be at 66 percentile rank or even higher.

[m] Since this indicator was only added in 2020, it has no targets from 2017 to 2019. But there are targets from 2020 to 2022. There is also a baseline data for 2016.

Objectives/Results	SDG Tier 1 Indicators	Indicator	Baseline[a]		Annual Plan Targets						End of Plan Target[b]	Means of Verification	Responsible Agency[c]	Reporting Entity[d]	Assumptions and Risks
			Year	Value	2017	2018	2019	2020	2021	2022					
Aggregate Outputs															
	9.5.1 (Research and Development (R&D) expenditure as a proportion of GDP)	R&D expenditure as a proportion of GDP increased (in percent, incremental)[n]	2015	0.16	0.20	0.25	0.30	0.35	0.40	0.50	0.50	DOST and PSA reports	DOST	DOST	
		Number of Researchers per million population increased (incremental)[n]	2015	200	275	280	285	290	295	300	300	DOST and PSA reports	DOST	DOST	
		Number of Science, Technology, Engineering, and Mathematics (STEM) enrollees in higher education institutes (HEIs) increased (in million, incremental)	AY 2015/ 2016	1.29	1	0.94	1.09	1.7	1.59	2.03	2.03	CHED reports	CHED	CHED	
		Number of STEM graduates in HEIs increased	AY 2015/ 2016	183,000	270,000	280,100	331,800	50,000	113,000	318,000	318,000	CHED reports	CHED	CHED	
		Number of STEM enrollees in high school increased[o]	2016	220,590	-	-	-	Increasing	516,272	542,650	542,650	DepEd reports	DepEd	DepEd	
		Number of STEM graduates in high school increased[o]	TBD	TBD	-	-	-	Increasing	225,261	231,084	231,084	DepEd reports	DepEd	DepEd	
		Number of scientific articles published in Web-of-Science (Social Science and Science Citation Indexes) by researchers affiliated with Philippine institutions[p]	2016	TBD	N/A	N/A	N/A	Increasing	Increasing	Increasing	Increasing	CHED reports	CHED	CHED	

[n] The PSA and DOST are requested to produce this data annually instead of every two years.

[o] The new targets are based on a 2 percent attrition to account for the annual school leaver rate in Secondary level.

[p] Since this indicator was only added in 2020, it has no targets from 2017 to 2019. Meanwhile, the baseline data of 2016 is yet to be determined.

Objectives/Results	SDG Tier 1 Indicators	Indicator	Baseline[a]		Annual Plan Targets						End of Plan Target[b]	Means of Verification	Responsible Agency[c]	Reporting Entity[d]	Assumptions and Risks
			Year	Value	2017	2018	2019	2020	2021	2022					
		Number of *Balik* Scientists Engaged increased (incremental)[q]	2016	25	39	41	44	46	101	151	151	DOST reports	DOST	DOST	
		Number of government Chief Information Officers (CIO) trained and employed in government agencies[r]	2016	N/A	N/A	N/A	N/A	N/A	200	Increasing	Increasing	DICT reports	DICT	DICT	
		Number of government employees with certifications in intermediate to advanced digital skills[r]	2016	N/A	N/A	N/A	N/A	N/A	200	Increasing	Increasing	DICT reports	DICT	DICT	
		Number of ICT Innovation Networks established fostering STI culture[r]	2016	N/A	N/A	N/A	N/A	N/A	20	35	35	DICT reports	DICT	DICT	
Subchapter Outcome 2.2															
Open collaboration among actors in the STI ecosystem strengthened		GII University-Industry Collaboration percentile rank improved	2016	52.5	Top 50%	Top 50%	Top 50%	Top 49%	Top 49%	Top 49%	Top 49%	WIPO report	CHED/ IPOPHL	CHED/ IPOPHL	
Aggregate Outputs															
		Number of collaborations between HEIs and industries increased (incremental)	2014	70	80	90	100	120	130	150	150	CHED reports	CHED	CHED	
		Number of collaborations between HEIs and government increased (NGAs and LGUs) (incremental)	2015	300	340	380	420	450	480	500	500	CHED reports	CHED	CHED	
		Number of STI-related international cooperations of HEIs increased (incremental)[s]	2015	40	50	60	70	80	95	100	100	CHED and DICT reports	CHED and DICT	CHED and DICT	
		Number of initiated multi-stakeholder partnerships between HEIs, government, and/or private sector firms developed through the Regional Inclusive Innovation Centers (RIICs)[t]	2016	N/A	N/A	N/A	N/A	90	100	110	110	DTI reports	DTI	DTI	

[q] The targets from 2020 to 2022 were adjusted upwards in anticipation of the increase in the number of *Balik* Scientists engaged due to the signing into law of the Republic Act No. 11035, also known as "An Act Institutionalizing the *Balik* Scientist Program." Said law increased the incentives for the *Balik* Scientists.

[r] The pilot year for this initiative is only in 2020. Thus, there are no targets from 2017 to 2020 but there are targets for 2021 and 2022. There is also no baseline data in 2016.

[s] The DICT's targets on the "partnerships of the Philippine ICT Academy with foreign HEIs" have been combined with this indicator.

[t] The RIICs is a platform that links stakeholders from government, academe, and industry in the regions to bridge the gaps in the innovation and entrepreneurship system. It is a partnership initiative between DTI and DOST in cooperation with other national government agencies and regional stakeholders.

This indicator was only added in 2020. Thus, there are no targets from 2017 to 2019 but there are targets from 2020 to 2022. There is also no baseline data in 2016.