Assessment of sustainable development objectives in Smart Labs: technology and sustainability at the service of society.

Ángeles Verdejo* [1], Macarena Espinilla[2]**,** Jose Luis López[2], Francisco Jurado[1]

[1] Electrical Engineering Department, University of Jaén, 23071 Jaén, Spain; mverdejo@ujaen.es
[2] Department of Computer Science, University of Jaén, 23071 Jaén, Spain; mestevez@ujaen.es.
* Correspondence: mverdejo@ujaen.es.

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COMPLEMENTARY MATERIAL
TABLE 8

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15 **Table 8**. Evaluation of the UJAmI Laboratory according to the SDGs [61].

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Global indicator framework for the Sustainable Development Goals and targets of the 2030 Agenda for Sustainable Development [56]				**Evaluation of SDGs in the Living Lab UJAmI Installed Devices and Systems** [1]	

Goal 1. End poverty in all its forms everywhere.

Goals and targets	**Indicators**	**Existing**	**Future**	**Installed Systems**	**Future Systems**
1.1 By 2030, eradicate extreme poverty for all people everywhere, currently measured as people living on less than $1.25 a day.	1.1.1 Proportion of the population living below the international poverty line by sex, age, employment status and geographic location (urban/rural).	0	0		
1.2 By 2030, reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions.	1.2.1 Proportion of population living below the national poverty line, by sex and age.	0	0		
	1.2.2 Proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions.	0	0		

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1.3 Implement nationally appropriate social protection systems and measures for all, including floors, and by 2030 achieve substantial coverage of the poor and the vulnerable.	1.3.1 Proportion of population covered by social protection floors/systems, by sex, distinguishing children, unemployed persons, older persons, persons with disabilities, pregnant women, newborns, work-injury victims and the poor and the vulnerable	1	1	Environmental Sensors Actuators Vision Cameras Multimedia Health Devices Brain Interfaces Human Computer Interfaces	Social assistance robots (SAR) Smart Grid Manager (SGM) Energy control (EC) Renewable energy (RE) Intelligent health monitoring (IHM)
1.4 By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance.	1.4.1 Proportion of population living in households with access to basic services	0	1		SGM EC Intelligent water and sanitation control (IWSC) RE Internet of Everything (IoE)
	1.4.2 Proportion of total adult population with secure tenure rights to land, (a) with legally recognized documentation, and (b) who perceive their rights to land as secure, by sex and type of tenure	0	0		
1.5 By 2030, build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters.	1.5.1 Number of deaths, missing persons and directly affected persons attributed to disasters per 100,000 population	0	0		
	1.5.2 Direct economic loss attributed to disasters in relation	0	0		

	to global gross domestic product (GDP)			
	1.5.3 Number of countries that adopt and implement national disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction 2015–2030	0	0	
	1.5.4 Proportion of local governments that adopt and implement local disaster risk reduction strategies in line with national disaster risk reduction strategies	0	0	
1.a Ensure significant mobilization of resources from a variety of sources, including through enhanced development cooperation, in order to provide adequate and predictable means for developing countries, in particular least developed countries, to implement programmes and policies to end poverty in all its dimensions.	1.a.1 Total official development assistance grants from all donors that focus on poverty reduction as a share of the recipient country's gross national income	0	1	Circular economy control Economic and environmental sustainability Intelligent administrative management
	1.a.2 Proportion of total government spending on essential services (education, health and social protection)	0	1	
1.b Create sound policy frameworks at the national, regional and international levels, based on pro-poor and gender-sensitive development strategies, to	1.b.1 Pro-poor public social spending	0	1	Intelligent control, management of social funds

support accelerated investment in poverty
eradication actions.

	Current	Future
Indicators evaluated. SDG 1	1	5
%	7.7%	38.5%

Goal 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture.

Goals and targets	Indicators	Existing	Future	Installed Systems	Future Systems
2.1 By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round.	2.1.1 Prevalence of undernourishment	0	0		
	2.1.2 Prevalence of moderate or severe food insecurity in the population, based on the Food Insecurity Experience Scale (FIES)	0	0		
2.2 By 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons.	2.2.1 Prevalence of stunting (height for age <-2 standard deviation from the median of the World Health Organization (WHO) Child Growth Standards) among children under 5 years of age	0	0		
	2.2.2 Prevalence of malnutrition (weight for height >+2 or <-2 standard deviation from the median of the WHO Child Growth Standards) among children under	0	0		

‒‒‒‒‒	5 years of age, by type (wasting and overweight)				
	2.2.3 Prevalence of anaemia in women aged 15 to 49 years, by pregnancy status (percentage).	1	1	Health Devices Human Computer Interfaces	Mood sensors Intelligent prosthesis Social assistance robots Intelligent health monitoring
2.3 By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment.	2.3.1 Volume of production per labour unit by classes of farming/pastoral/forestry enterprise size	0	0		
	2.3.2 Average income of small-scale food producers, by sex and indigenous status	0	0		
2.4 By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality.	2.4.1 Proportion of agricultural area under productive and sustainable agriculture	0	0		

2.5 By 2020, maintain the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species, including through soundly managed and diversified seed and plant banks at the national, regional and international levels, and promote access to and fair and equitable sharing of benefits arising from the utilization of genetic resources and associated traditional knowledge, as internationally agreed.	2.5.1 Number of (a) plant and (b) animal genetic resources for food and agriculture secured in either medium- or long-term conservation facilities	0	0
	2.5.2 Proportion of local breeds classified as being at risk of extinction	0	0
2.a Increase investment, including through enhanced international cooperation, in rural infrastructure, agricultural research and extension services, technology development and plant and livestock gene banks in order to enhance agricultural productive capacity in developing countries, in particular least developed countries.	2.a.1 The agriculture orientation index for government expenditures	0	0
	2.a.2 Total official flows (official development assistance plus other official flows) to the agriculture sector	0	0
2.b Correct and prevent trade restrictions and distortions in world agricultural markets, including through the parallel elimination of all forms of agricultural export subsidies and all export measures with equivalent effect, in accordance with the mandate of the Doha Development Round.	2.b.1 Agricultural export subsidies	0	0

2.c Adopt measures to ensure the proper functioning of food commodity markets and their derivatives and facilitate timely access to market information, including on food reserves, in order to help limit extreme food price volatility.	2.c.1 Indicator of food price anomalies	0	0

		Current	Future
	Indicators evaluated. SDG 2	**1**	**1**
	%	**7.1%**	**7.1%**

3 GOOD HEALTH AND WELL-BEING

Goal 3. Ensure healthy lives and promote well-being for all at all ages.

Goals and targets	Indicators	Existing	Future	Installed Systems	Future Systems
	3.1.1 Maternal mortality ratio	0	0		
3.1 By 2030, reduce the global maternal mortality ratio to less than 70 per 100,000 live births	3.1.2 Proportion of births attended by skilled health personnel	0	1		Social assistance robots Virtual medical assistant Intelligent health monitoring Antibacterial and antiviral sensors
3.2 By 2030, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12	3.2.1 Under-5 mortality rate	0	0		
	3.2.2 Neonatal mortality rate	0	0		

per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births					
3.3 By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases	3.3.1 Number of new HIV infections per 1,000 uninfected population, by sex, age and key populations	0	0		
	3.3.2 Tuberculosis incidence per 100,000 population	0	0		
	3.3.3 Malaria incidence per 1,000 population	0	0		
	3.3.4 Hepatitis B incidence per 100,000 population	0	0		
	3.3.5 Number of people requiring interventions against neglected tropical diseases	0	0		
3.4 By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being	3.4.1 Mortality rate attributed to cardiovascular disease, cancer, diabetes or chronic respiratory disease	0	0		
	3.4.2 Suicide mortality rate	0	0		
3.5 Strengthen the prevention and treatment of substance abuse, including narcotic drug abuse and harmful use of alcohol	3.5.1 Coverage of treatment interventions (pharmacological, psychosocial and rehabilitation and aftercare services) for substance use disorders	1	1	Environmental Sensors Actuators Indoor Location Vision Cameras Health Devices	Social assistance robots Intelligent health monitoring Virtual medical assistant Antibacterial and antiviral sensors

				Brain Interfaces Human Computer Interfaces	
	3.5.2 Alcohol per capita consumption (aged 15 years and older) within a calendar year in litres of pure alcohol	0	0		
3.6 By 2020, halve the number of global deaths and injuries from road traffic accidents	3.6.1 Death rate due to road traffic injuries	0	0		
3.7 By 2030, ensure universal access to sexual and reproductive health-care services, including for family planning, information and education, and the integration of reproductive health into national strategies and programmes	3.7.1 Proportion of women of reproductive age (aged 15–49 years) who have their need for family planning satisfied with modern methods	0	1		Intelligent health monitoring Virtual medical assistant Biomaterials
	3.7.2 Adolescent birth rate (aged 10–14 years; aged 15–19 years) per 1,000 women in that age group	0	0		
3.8 Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all	3.8.1 Coverage of essential health services	1	1	Environmental Sensors Actuators Indoor Location Vision Cameras Health Devices Brain Interfaces Human Computer Interfaces	Social assistance robots Intelligent health monitoring Virtual medical assistant Biomaterials Intelligent prosthesis

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3.9 By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination	3.9.1 Mortality rate attributed to household and ambient air pollution	1	1	Environmental Sensors Actuators Multimedia Health Devices Human Computer Interfaces	SGM EC RE Advanced environmental monitoring Odor sensors
	3.9.2 Mortality rate attributed to unsafe water, unsafe sanitation and lack of hygiene (exposure to unsafe Water, Sanitation and Hygiene for All (WASH) services)	0	1		Antibacterial and antiviral sensors Intelligent health monitoring Intelligent water and sanitation control RE Advanced environmental monitoring
	3.9.3 Mortality rate attributed to unintentional poisoning	0	0		
3.a Strengthen the implementation of the World Health Organization Framework Convention on Tobacco Control in all countries, as appropriate	3.a.1 Age-standardized prevalence of current tobacco use among persons aged 15 years and older	0	0		

3.b Support the research and development of vaccines and medicines for the communicable and non-communicable diseases that primarily affect developing countries, provide access to affordable essential medicines and vaccines, in accordance with the Doha Declaration on the TRIPS Agreement and Public Health, which affirms the right of developing countries to use to the full the provisions in the Agreement on Trade-Related Aspects of Intellectual Property Rights regarding flexibilities to protect public health, and, in particular, provide access to medicines for all	3.b.1 Proportion of the target population covered by all vaccines included in their national programme	0	0		
	3.b.2 Total net official development assistance to medical research and basic health sectors	1	1	Environmental Sensors Actuators Indoor Location Vision Cameras Human Computer Interfaces	Intelligent administrative management Intelligent control and management of social funds
	3.b.3 Proportion of health facilities that have a core set of relevant essential medicines available and affordable on a sustainable basis	0	0		
3.c Substantially increase health financing and the recruitment, development, training and retention of the health workforce in developing countries, especially in least developed countries and small island developing States	3.c.1 Health worker density and distribution	0	1		Social assistance robots Intelligent health monitoring Virtual medical assistant Intelligent control and management of social funds
3.d Strengthen the capacity of all countries, in particular developing countries, for early warning, risk reduction and management of national and global health risks	3.d.1 International Health Regulations (IHR) capacity and health emergency preparedness	1	1	Environmental Sensors Multimedia Health Devices Human Computer Interfaces	Social assistance robots Intelligent health monitoring Virtual medical assistant Intelligent control and management of social funds

	Robots		
3.d.2 Percentage of bloodstream infections due to selected antimicrobial-resistant organisms	0	0	
	Current	**Future**	
Indicators evaluated. SDG 3	**5**	**9**	
%	**17.9%**	**32.1%**	

4 QUALITY EDUCATION

Goal 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.

Goals and targets	Indicators	Existing	Future	Installed Systems	Future Systems
4.1 By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes	4.1.1 Proportion of children and young people (a) in grades 2/3; (b) at the end of primary; and (c) at the end of lower secondary achieving at least a minimum proficiency level in (i) reading and (ii) mathematics, by sex	0	1		Internet of Everything (IoE) Mood sensors Social assistance robots SGM Intelligent control and management of social funds. Intelligent administrative management
	4.1.2 Completion rate (primary education, lower secondary education, upper secondary education)	0	1		
4.2 By 2030, ensure that all girls and boys have access to quality early childhood de-	4.2.1 Proportion of children aged 24–59 months who are developmentally on track in health,	0	1		

velopment, care and pre-primary education so that they are ready for primary education	learning and psychosocial well-being, by sex				
	4.2.2 Participation rate in organized learning (one year before the official primary entry age), by sex	0	1		
4.3 By 2030, ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university	4.3.1 Participation rate of youth and adults in formal and non-formal education and training in the previous 12 months, by sex	0	1		
4.4 By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship	4.4.1 Proportion of youth and adults with information and communications technology (ICT) skills, by type of skill	1	1	Environmental Sensors Actuators Indoor Location Vision Cameras Multimedia Brain Interfaces Human Computer Interfaces Robots	Internet of Everything (IoE) Mood sensors Social assistance robots SGM Intelligent control and management of social funds Intelligent administrative management
4.5 By 2030, eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations	4.5.1 Parity indices (female/male, rural/urban, bottom/top wealth quintile and others such as disability status, indigenous peoples and conflict-affected, as data become available) for all education indicators on this list that can be disaggregated	0	1		Economic and environmental sustainability Intelligent control and management of social funds Intelligent administrative management

4.6 By 2030, ~~ensure~~ that all youth and a substantial proportion of adults, both men and women, achieve literacy and numeracy	4.6.1 Proportion of population in a given age group achieving at least a fixed level of proficiency in functional (a) literacy and (b) numeracy skills, by sex	0	1	
4.7 By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development	4.7.1 Extent to which (i) global citizenship education and (ii) education for sustainable development are mainstreamed in (a) national education policies; (b) curricula; (c) teacher education; and (d) student assessment	0	1	Economic and environmental sustainability
4.a Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, non-violent, inclusive and effective learning environments for all	4.a.1 Proportion of schools offering basic services, by type of service	0	1	Intelligent control and management of social funds Intelligent administrative management
4.b By 2020, substantially expand globally the number of scholarships available to developing countries, in particular least developed countries, small island developing States and African countries, for enrolment in higher education, including vocational training and information and communications technology, technical,	4.b.1 Volume of official development assistance flows for scholarships by sector and type of study	0	1	

engineering and scientific programmes, in developed countries and other developing countries

Goals and targets	Indicators	Existing	Future	Installed Systems	Future Systems
4.c By 2030, substantially increase the supply of qualified teachers, including through international cooperation for teacher training in developing countries, especially least developed countries and small island developing States	4.c.1 Proportion of teachers with the minimum required qualifications, by education level	0	1		Social assistance robots Economic and environmental sustainability Intelligent control and management of social funds Intelligent administrative management

		Current	**Future**		
	Indicators evaluated. SDG 4	**1**	**12**		
	%	8.3%	100.0 %		

Goal 5. Achieve gender equality and empower all women and girls.

Goals and targets	Indicators	Existing	Future	Installed Systems	Future Systems
5.1 End all forms of discrimination against all women and girls everywhere	5.1.1 Whether or not legal frameworks are in place to pro-	0	0		

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5.2 Eliminate all forms of violence against all women and girls in the public and private spheres, including trafficking and sexual and other types of exploitation	5.2.1 Proportion of ever-partnered women and girls aged 15 years and older subjected to physical, sexual or psychological violence by a current or former intimate partner in the previous 12 months, by form of violence and by age	0	1	Advanced environmental monitoring Mood sensors Intelligent control and management of social funds Intelligent administrative management
	5.2.2 Proportion of women and girls aged 15 years and older subjected to sexual violence by persons other than an intimate partner in the previous 12 months, by age and place of occurrence	0	1	
5.3 Eliminate all harmful practices, such as child, early and forced marriage and female genital mutilation	5.3.1 Proportion of women aged 20–24 years who were married or in a union before age 15 and before age 18	0	0	
	5.3.2 Proportion of girls and women aged 15–49 years who have undergone female genital mutilation/cutting, by age	0	0	

5.4 Recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies and the promotion of shared responsibility within the household and the family as nationally appropriate	5.4.1 Proportion of time spent on unpaid domestic and care work, by sex, age and location	0	0	
5.5 Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life	5.5.1 Proportion of seats held by women in (a) national parliaments and (b) local governments	0	0	
	5.5.2 Proportion of women in managerial positions	0	0	
5.6 Ensure universal access to sexual and reproductive health and reproductive rights as agreed in accordance with the Programme of Action of the International Conference on Population and Development and the Beijing Platform for Action and the outcome documents of their review conferences	5.6.1 Proportion of women aged 15–49 years who make their own informed decisions regarding sexual relations, contraceptive use and reproductive health care	0	1	Advanced environmental monitoring Intelligent control and management of social funds Intelligent administrative management
	5.6.2 Number of countries with laws and regulations that guarantee full and equal access to women and men aged 15 years and older to sexual and reproductive health care, information and education	0	0	
5.a Undertake reforms to give women equal rights to economic resources, as well as access to ownership and control over	5.a.1 (a) Proportion of total agricultural population with owner-	0	0	

land and other forms of property, financial services, inheritance and natural resources, in accordance with national laws	ship or secure rights over agricultural land, by sex; and (b) share of women among owners or rights-bearers of agricultural land, by type of tenure				
	5.a.2 Proportion of countries where the legal framework (including customary law) guarantees women's equal rights to land ownership and/or control	0	0		
5.b Enhance the use of enabling technology, in particular information and communications technology, to promote the empowerment of women	5.b.1 Proportion of individuals who own a mobile telephone, by sex	1	1	Multimedia Human Computer Interfaces	IoE Smart Grids Manager Intelligent administrative management
5.c Adopt and strengthen sound policies and enforceable legislation for the promotion of gender equality and the empowerment of all women and girls at all levels	5.c.1 Proportion of countries with systems to track and make public allocations for gender equality and women's empowerment	0	0		
		Current	**Future**		
	Indicators evaluated. SDG 5	**1**	**4**		
	%	**7.1%**	**28.6%**		

6 CLEAN WATER AND SANITATION

Goal 6. Ensure availability and sustainable management of water and sanitation for all.

Goals and targets	Indicators	Existing	Future	Installed Systems	Future Systems
6.1 By 2030, achieve universal and equitable access to safe and affordable drinking water for all	6.1.1 Proportion of population using safely managed drinking water services	1	1	Environmental Sensors Actuators	Internet of Everything (IoE) Smart Grids Manager Antibacterial and antiviral sensors Advanced environmental monitoring Intelligent water and sanitation control Intelligent administrative management
6.2 By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations	6.2.1 Proportion of population using (a) safely managed sanitation services and (b) a hand-washing facility with soap and water	1	1		
6.3 By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally	6.3.1 Proportion of domestic and industrial wastewater flows safely treated	1	1		
	6.3.2 Proportion of bodies of water with good ambient water quality	0	1		
6.4 By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity	6.4.1 Change in water-use efficiency over time	1	1		
	6.4.2 Level of water stress: freshwater withdrawal as a proportion of available freshwater resources	0	0		
	6.5.1 Degree of integrated water resources management	1	1	Environmental Sensors Actuators	Intelligent water and sanitation control

6.5 By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate				Economic and environmental sustainability Intelligent control and management of social funds Intelligent administrative management
	6.5.2 Proportion of transboundary basin area with an operational arrangement for water cooperation	0	0	
6.6 By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes	6.6.1 Change in the extent of water-related ecosystems over time	0	0	
6.a By 2030, expand international cooperation and capacity-building support to developing countries in water- and sanitation-related activities and programmes, including water harvesting, desalination, water efficiency, wastewater treatment, recycling and reuse technologies	6.a.1 Amount of water- and sanitation-related official development assistance that is part of a government-coordinated spending plan	0	1	Intelligent water and sanitation control Economic and environmental sustainability Intelligent control and management of social funds Intelligent administrative management
6.b Support and strengthen the participation of local communities in improving water and sanitation management	6.b.1 Proportion of local administrative units with established and operational policies and procedures for participation of local	0	1	

	Current	Future
communities in water and sanitation management		
Indicators evaluated. SDG 6	**5**	**8**
%	**45.5%**	**72.7%**

Goal 7. Ensure access to affordable, reliable, sustainable and modern energy for all.

Goals and targets	Indicators	Existing	Future	Installed Systems	Future Systems
7.1 By 2030, ensure universal access to affordable, reliable and modern energy services	7.1.1 Proportion of population with access to electricity	0	1		Smart Grids Manager
	7.1.2 Proportion of population with primary reliance on clean fuels and technology	0	1		Internet of Everything (IoE) Smart Grids Manager Energy control Renewable energy
7.2 By 2030, increase substantially the share of renewable energy in the global energy mix	7.2.1 Renewable energy share in the total final energy consumption	0	1		
7.3 By 2030, double the global rate of improvement in energy efficiency	7.3.1 Energy intensity measured in terms of primary energy and GDP	0	1		
7.a By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology,	7.a.1 International financial flows to developing countries in support of clean energy research and development and renewable	0	1		Smart Grids Manager Economic and environmental sustainability

and promote investment in energy infra-structure and clean energy technology	energy production, including in hybrid systems				Intelligent control and management of social funds Intelligent administrative management
7.b By 2030, expand infrastructure and up-grade technology for supplying modern and sustainable energy services for all in developing countries, in particular least developed countries, small island devel-oping States and landlocked developing countries, in accordance with their respec-tive programmes of support	7.b.1 Installed renewable en-ergy-generating capacity in devel-oping countries (in watts per cap-ita)	0	1		Smart Grids Manager Renewable Energy Economic and environ-mental sustainability Intelligent control and management of social funds Intelligent administrative management

		Current	Future		
	Indicators evaluated. SDG 7	**0**	**6**		
	%	**0.0%**	**100.0**		

8 **DECENT WORK AND ECONOMIC GROWTH**

Goal 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.

Goals and targets	Indicators	Existing	Future	Installed Systems	Future Systems
8.1 Sustain per capita economic growth in accordance with national circumstances and, in particular, at least 7 per cent gross	8.1.1 Annual growth rate of real GDP per capita	0	0		

domestic product growth per annum in the least developed countries			
8.2 Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high-value added and labour-intensive sectors	8.2.1 Annual growth rate of real GDP per employed person	0	0
8.3 Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalization and growth of micro-, small- and medium-sized enterprises, including through access to financial services	8.3.1 Proportion of informal employment in total employment, by sector and sex	0	0
8.4 Improve progressively, through 2030, global resource efficiency in consumption and production and endeavour to decouple economic growth from environmental degradation, in accordance with the 10-Year Framework of Programmes on Sustainable Consumption and Production, with developed countries taking the lead	8.4.1 Material footprint, material footprint per capita, and material footprint per GDP	0	0
	8.4.2 Domestic material consumption, domestic material consumption per capita, and domestic material consumption per GDP	0	0

8.5 By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value	8.5.1 Average hourly earnings of employees, by sex, age, occupation and persons with disabilities	0	0	
	8.5.2 Unemployment rate, by sex, age and persons with disabilities	0	0	
8.6 By 2020, substantially reduce the proportion of youth not in employment, education or training	8.6.1 Proportion of youth (aged 15–24 years) not in education, employment or training	0	1	Internet of Everything (IoE) Advanced environmental monitoring Intelligent control and management of social funds Intelligent administrative management
8.7 Take immediate and effective measures to eradicate forced labour, end modern slavery and human trafficking and secure the prohibition and elimination of the worst forms of child labour, including recruitment and use of child soldiers, and by 2025 end child labour in all its forms	8.7.1 Proportion and number of children aged 5–17 years engaged in child labour, by sex and age	0	0	
8.8 Protect labour rights and promote safe and secure working environments for all workers, including migrant workers, in	8.8.1 Fatal and non-fatal occupational injuries per 100,000 workers, by sex and migrant status	0	0	

particular women migrants, and those in precarious employment	8.8.2 Level of national compliance with labour rights (freedom of association and collective bargaining) based on International Labour Organization (ILO) textual sources and national legislation, by sex and migrant status	0	0	
8.9 By 2030, devise and implement policies to promote sustainable tourism that creates jobs and promotes local culture and products	8.9.1 Tourism direct GDP as a proportion of total GDP and in growth rate	0	0	
8.10 Strengthen the capacity of domestic financial institutions to encourage and expand access to banking, insurance and financial services for all	8.10.1 (a) Number of commercial bank branches per 100,000 adults and (b) number of automated teller machines (ATMs) per 100,000 adults	0	0	
	8.10.2 Proportion of adults (15 years and older) with an account at a bank or other financial institution or with a mobile-money-service provider	0	1	Internet of Everything (IoE) Advanced environmental monitoring
8.a Increase Aid for Trade support for developing countries, in particular least developed countries, including through the Enhanced Integrated Framework for Trade-related Technical Assistance to Least Developed Countries	8.a.1 Aid for Trade commitments and disbursements	0	1	Intelligent control and management of social funds Intelligent administrative management

8.b By 2020, develop and operationalize a global strategy for youth employment and implement the Global Jobs Pact of the International Labour Organization	8.b.1 Existence of a developed and operationalized national strategy for youth employment, as a distinct strategy or as part of a national employment strategy	0	1

		Current	**Future**
	Indicators evaluated. SDG 8	**0**	**4**
	%	0.0%	25.0%

Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.

Goals and targets	Indicators	Existing	Future	Installed Systems	Future Systems
9.1 Develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all	9.1.1 Proportion of the rural population who live within 2 km of an all-season road	0	0		
	9.1.2 Passenger and freight volumes, by mode of transport	0	0		
9.2 Promote inclusive and sustainable industrialization and, by 2030, significantly raise industry's share of employment and gross domestic product, in line with national circumstances, and double its share in least developed countries	9.2.1 Manufacturing value added as a proportion of GDP and per capita	0	1		Smart Grids Manager Advanced environmental monitoring Economic and environmental sustainability
	9.2.2 Manufacturing employment as a proportion of total employment	0	1		

	——				Intelligent administrative management
9.3 Increase the access of small-scale industrial and other enterprises, in particular in developing countries, to financial services, including affordable credit, and their integration into value chains and markets	9.3.1 Proportion of small-scale industries in total industry value added	0	1		
	9.3.2 Proportion of small-scale industries with a loan or line of credit	0	1		
9.4 By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities	9.4.1 CO_2 emission per unit of value added	0	1		Smart Grids Manager Advanced environmental monitoring Intelligent administrative management
9.5 Enhance scientific research, upgrade the technological capabilities of industrial sectors in all countries, in particular developing countries, including, by 2030, encouraging innovation and substantially increasing the number of research and development workers per 1 million people and public and private research and development spending	9.5.1 Research and development expenditure as a proportion of GDP	1	1	Software	
	9.5.2 Researchers (in full-time equivalent) per million inhabitants	0	1		Intelligent administrative management

Goals and targets	Indicators	Existing	Future	Installed Systems	Future Systems
9.a Facilitate sustainable and resilient infrastructure development in developing countries through enhanced financial, technological and technical support to African countries, least developed countries, landlocked developing countries and small island developing States	9.a.1 Total official international support (official development assistance plus other official flows) to infrastructure	1	1		Advanced environmental monitoring Circular economy control Economic and environmental sustainability Intelligent control and management of social funds Intelligent administrative management
9.b Support domestic technology development, research and innovation in developing countries, including by ensuring a conducive policy environment for, inter alia, industrial diversification and value addition to commodities	9.b.1 Proportion of medium and high-tech industry value added in total value added	1	1		
9.c Significantly increase access to information and communications technology and strive to provide universal and affordable access to the Internet in least developed countries by 2020	9.c.1 Proportion of population covered by a mobile network, by technology	1	1		Intelligent administrative management
		Current	**Future**		
	Indicators evaluated. SDG 9	**4**	**10**		
	%	**33.3**	**83.3%**		

10 REDUCED INEQUALITIES

Goal 10. Reduce inequality within and among countries.

Goals and targets	Indicators	Existing	Future	Installed Systems	Future Systems

10.1 By 2030, progressively achieve and sustain income growth of the bottom 40 per cent of the population at a rate higher than the national average	10.1.1 Growth rates of household expenditure or income per capita among the bottom 40 per cent of the population and the total population	0	0	
10.2 By 2030, empower and promote the social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status	10.2.1 Proportion of people living below 50 per cent of median income, by sex, age and persons with disabilities	0	1	Internet of Everything (IoE) Intelligent control and management of social funds Intelligent administrative management
10.3 Ensure equal opportunity and reduce inequalities of outcome, including by eliminating discriminatory laws, policies and practices and promoting appropriate legislation, policies and action in this regard	10.3.1 Proportion of population reporting having personally felt discriminated against or harassed in the previous 12 months on the basis of a ground of discrimination prohibited under international human rights law	0	1	
10.4 Adopt policies, especially fiscal, wage and social protection policies, and progressively achieve greater equality	10.4.1 Labour share of GDP	0	1	
	10.4.2 Redistributive impact of fiscal policy4	0	1	
10.5 Improve the regulation and monitoring of global financial markets and institutions and strengthen the implementation of such regulations	10.5.1 Financial Soundness Indicators	0	0	

10.6 Ensure enhanced representation and voice for developing countries in decision-making in global international economic and financial institutions in order to deliver more effective, credible, accountable and legitimate institutions	10.6.1 Proportion of members and voting rights of developing countries in international organizations	0	1	Internet of Everything (IoE) Intelligent control and management of social funds Intelligent administrative management
10.7 Facilitate orderly, safe, regular and responsible migration and mobility of people, including through the implementation of planned and well-managed migration policies	10.7.1 Recruitment cost borne by employee as a proportion of monthly income earned in country of destination	0	0	
	10.7.2 Number of countries with migration policies that facilitate orderly, safe, regular and responsible migration and mobility of people	0	0	
	10.7.3 Number of people who died or disappeared in the process of migration towards an international destination	0	0	
	10.7.4 Proportion of the population who are refugees, by country of origin	0	0	
10.a Implement the principle of special and differential treatment for developing countries, in particular least developed	10.a.1 Proportion of tariff lines applied to imports from least developed countries and developing countries with zero-tariff	0	0	

Goals and targets	Indicators	Existing	Future	Installed Systems	Future Systems
countries, in accordance with World Trade Organization agreements					
10.b Encourage official development assistance and financial flows, including foreign direct investment, to States where the need is greatest, in particular least developed countries, African countries, small island developing States and landlocked developing countries, in accordance with their national plans and programmes	10.b.1 Total resource flows for development, by recipient and donor countries and type of flow (e.g. official development assistance, foreign direct investment and other flows)	0	0		
10.c By 2030, reduce to less than 3 per cent the transaction costs of migrant remittances and eliminate remittance corridors with costs higher than 5 per cent	10.c.1 Remittance costs as a proportion of the amount remitted	0	0		

		Current	Future		
	Indicators evaluated. SDG 10	**0**	**5**		
	%	**0.0%**	**35.7%**		

Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable.

Goals and targets	Indicators	Existing	Future	Installed Systems	Future Systems
11.1 By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums	11.1.1 Proportion of urban population living in slums, informal settlements or inadequate housing	0	1		Internet of Everything (IoE)

11.2 By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons	11.2.1 Proportion of population that has convenient access to public transport, by sex, age and persons with disabilities	0	1	Intelligent control and management of social funds Intelligent administrative management
11.3 By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries	11.3.1 Ratio of land consumption rate to population growth rate	0	0	
	11.3.2 Proportion of cities with a direct participation structure of civil society in urban planning and management that operate regularly and democratically	0	1	Internet of Everything (IoE) Intelligent control and management of social funds Intelligent administrative management
11.4 Strengthen efforts to protect and safeguard the world's cultural and natural heritage	11.4.1 Total per capita expenditure on the preservation, protection and conservation of all cultural and natural heritage, by source of funding (public, private), type of heritage (cultural, natural) and level of government (national, regional, and local/municipal)	0	0	

11.5 By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations	11.5.1 Number of deaths, missing persons and directly affected persons attributed to disasters per 100,000 population	0	0	
	11.5.2 Direct economic loss in relation to global GDP, damage to critical infrastructure and number of disruptions to basic services, attributed to disasters	0	0	
11.6 By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management	11.6.1 Proportion of municipal solid waste collected and managed in controlled facilities out of total municipal waste generated, by cities	0	1	Intelligent waste management Internet of Everything (IoE) Advanced environmental monitoring Social assistance robots Smart Grids Manager Intelligent administrative management
	11.6.2 Annual mean levels of fine particulate matter (e.g. PM2.5 and PM10) in cities (population weighted)	0	1	Internet of Everything (IoE) Advanced environmental monitoring Intelligent administrative management

11.7 By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities	11.7.1 Average share of the built-up area of cities that is open space for public use for all, by sex, age and persons with disabilities	0	1		Internet of Everything (IoE) Internet of Everything (IoE) Advanced environmental monitoring Intelligent administrative management
	11.7.2 Proportion of persons victim of physical or sexual harassment, by sex, age, disability status and place of occurrence, in the previous 12 months	0	0		
11.a Support positive economic, social and environmental links between urban, peri-urban and rural areas by strengthening national and regional development planning	11.a.1 Number of countries that have national urban policies or regional development plans that (a) respond to population dynamics; (b) ensure balanced territorial development; and (c) increase local fiscal space	1	1	Software	Intelligent control and management of social funds Intelligent administrative management
11.b By 2020, substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adapta-	11.b.1 Number of countries that adopt and implement national disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction 2015–2030	0	1		

tion to climate change, resilience to disasters, and develop and implement, in line with the Sendai Framework for Disaster Risk Reduction 2015–2030, holistic disaster risk management at all levels	11.b.2 Proportion of local governments that adopt and implement local disaster risk reduction strategies in line with national disaster risk reduction strategies	0	1
11.c Support least developed countries, including through financial and technical assistance, in building sustainable and resilient buildings utilizing local materials	No suitable replacement indicator was proposed. The global statistical community is encouraged to work to develop an indicator that could be proposed for the 2025 comprehensive review. See E/CN.3/2020/2, paragraph 23.	0	0

		Current	Future
	Indicators evaluated. SDG 11	**1**	**9**
	%	**7.1%**	**64.3%**

Goal 12. Ensure sustainable consumption and production patterns.

Goals and targets	Indicators	Existing	Future	Installed Systems	Future Systems
12.1 Implement the 10-Year Framework of Programmes on Sustainable Consumption and Production Patterns, all countries taking action, with developed countries	12.1.1 Number of countries developing, adopting or implementing policy instruments aimed at supporting the shift to sustainable consumption and production	1	1	Environmental Sensors Human Computer Interfaces Software	Internet of Everything (IoE) Intelligent control and management of social funds

taking the lead, taking into account the development and capabilities of developing countries					Intelligent administrative management
12.2 By 2030, achieve the sustainable management and efficient use of natural resources	12.2.1 Material footprint, material footprint per capita, and material footprint per GDP	0	1		
	12.2.2 Domestic material consumption, domestic material consumption per capita, and domestic material consumption per GDP	0	1		
12.3 By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses	12.3.1 (a) Food loss index and (b) food waste index	1	1	Environmental Sensors Human Computer Interfaces	
12.4 By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment	12.4.1 Number of parties to international multilateral environmental agreements on hazardous waste, and other chemicals that meet their commitments and obligations in transmitting information as required by each relevant agreement	0	0		
	12.4.2 (a) Hazardous waste generated per capita; and (b) proportion of hazardous waste treated, by type of treatment	0	1		Internet of Everything (IoE)

12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse	12.5.1 National recycling rate, tons of material recycled	0	1	Intelligent control and management of social funds Intelligent administrative management
12.6 Encourage companies, especially large and transnational companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle	12.6.1 Number of companies publishing sustainability reports	0	0	
12.7 Promote public procurement practices that are sustainable, in accordance with national policies and priorities	12.7.1 Degree of sustainable public procurement policies and action plan implementation	0	0	
12.8 By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature	12.8.1 Extent to which (i) global citizenship education and (ii) education for sustainable development are mainstreamed in (a) national education policies; (b) curricula; (c) teacher education; and (d) student assessment	0	0	
12.a Support developing countries to strengthen their scientific and technological capacity to move towards more sustainable patterns of consumption and production	12.a.1 Installed renewable energy-generating capacity in developing countries (in watts per capita)	0	1	Internet of Everything (IoE) Smart Grids Manager Renewable Energy Intelligent control and management of social funds

				Intelligent administrative management
12.b Develop and implement tools to monitor sustainable development impacts for sustainable tourism that creates jobs and promotes local culture and products	12.b.1 Implementation of standard accounting tools to monitor the economic and environmental aspects of tourism sustainability	0	0	
12.c Rationalize inefficient fossil-fuel subsidies that encourage wasteful consumption by removing market distortions, in accordance with national circumstances, including by restructuring taxation and phasing out those harmful subsidies, where they exist, to reflect their environmental impacts, taking fully into account the specific needs and conditions of developing countries and minimizing the possible adverse impacts on their development in a manner that protects the poor and the affected communities	12.c.1 Amount of fossil-fuel subsidies (production and consumption) per unit of GDP	0	1	Internet of Everything (IoE) Smart Grids Manager Renewable Energy Intelligent control and management of social funds Intelligent administrative management

		Current	Future	
	Indicators evaluated. SDG 12	**2**	**8**	
	%	**15.4%**	**61.5%**	

13 CLIMATE ACTION

Goal 13. Take urgent action to combat climate change and its impacts.

Goals and targets	Indicators	Existing	Future	Installed Systems	Future Systems
13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries	13.1.1 Number of deaths, missing persons and directly affected persons attributed to disasters per 100,000 population	0	0		Intelligent control and management of social funds Intelligent administrative management
	13.1.2 Number of countries that adopt and implement national disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction 2015–2030	0	1		
	13.1.3 Proportion of local governments that adopt and implement local disaster risk reduction strategies in line with national disaster risk reduction strategies	0	1		
13.2 Integrate climate change measures into national policies, strategies and planning	13.2.1 Number of countries with nationally determined contributions, long-term strategies, national adaptation plans and adaptation communications, as reported to the secretariat of the United Nations Framework Convention on Climate Change	1	1	IoT Data management software	
	13.2.2 Total greenhouse gas emissions per year	0	1		Internet of Everything (IoE) Smart Grids Manager

13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning	13.3.1 Extent to which (i) global citizenship education and (ii) education for sustainable development are mainstreamed in (a) national education policies; (b) curricula; (c) teacher education; and (d) student assessment	1	1	Environmental Sensors Vision Cameras Multimedia Brain Interfaces Human Computer Interfaces Data management software IoT	Internet of Everything (IoE) Advanced environmental monitoring Circular economy control Economic and environmental sustainability Intelligent control and management of social funds Intelligent administrative management
13.a Implement the commitment undertaken by developed-country parties to the United Nations Framework Convention on Climate Change to a goal of mobilizing jointly $100 billion annually by 2020 from all sources to address the needs of developing countries in the context of meaningful mitigation actions and transparency on implementation and fully operationalize the Green Climate Fund through its capitalization as soon as possible	13.a.1 Amounts provided and mobilised in United States dollars per year in relation to the continued existing collective mobilization goal of the $100 billion commitment through to 2025	0	0		
13.b Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women,	13.b.1 Number of least developed countries and small island developing States with nationally determined contributions, long-term strategies, national adaptation	0	0		

		Current	Future		
youth and local and marginalised communities	plans and adaptation communications, as reported to the secretariat of the United Nations Framework Convention on Climate Change				
	Indicators evaluated. SDG 13	**2**	**5**		
	%	**25.0%**	**62.5%**		

14 LIFE BELOW WATER

Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development.

Goals and targets	Indicators	Existing	Future	Installed Systems	Future Systems
14.1 By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution	14.1.1 (a) Index of coastal eutrophication; and (b) plastic debris density	0	0		
14.2 By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans	14.2.1 Number of countries using ecosystem-based approaches to managing marine areas	0	0		
14.3 Minimize and address the impacts of ocean acidification, including through enhanced scientific cooperation at all levels	14.3.1 Average marine acidity (pH) measured at agreed suite of representative sampling stations	0	0		

14.4 By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics	14.4.1 Proportion of fish stocks within biologically sustainable levels	0	0
14.5 By 2020, conserve at least 10 per cent of coastal and marine areas, consistent with national and international law and based on the best available scientific information	14.5.1 Coverage of protected areas in relation to marine areas	0	0
14.6 By 2020, prohibit certain forms of fisheries subsidies which contribute to overcapacity and overfishing, eliminate subsidies that contribute to illegal, unreported and unregulated fishing and refrain from introducing new such subsidies, recognizing that appropriate and effective special and differential treatment for developing and least developed countries should be an integral part of the World Trade Organization fisheries subsidies negotiation4	14.6.1 Degree of implementation of international instruments aiming to combat illegal, unreported and unregulated fishing	0	0

14.7 By 2030, increase the economic benefits to small island developing States and least developed countries from the sustainable use of marine resources, including through sustainable management of fisheries, aquaculture and tourism	14.7.1 Sustainable fisheries as a proportion of GDP in small island developing States, least developed countries and all countries	0	0
14.a Increase scientific knowledge, develop research capacity and transfer marine technology, taking into account the Intergovernmental Oceanographic Commission Criteria and Guidelines on the Transfer of Marine Technology, in order to improve ocean health and to enhance the contribution of marine biodiversity to the development of developing countries, in particular small island developing States and least developed countries	14.a.1 Proportion of total research budget allocated to research in the field of marine technology	0	0
14.b Provide access for small-scale artisanal fishers to marine resources and markets	14.b.1 Degree of application of a legal/regulatory/ policy/institutional framework which recognizes and protects access rights for small-scale fisheries	0	0
14.c Enhance the conservation and sustainable use of oceans and their resources by implementing international law as reflected in the United Nations Convention on the Law of the Sea, which provides the legal framework for the conservation and	14.c.1 Number of countries making progress in ratifying, accepting and implementing through legal, policy and institutional frameworks, ocean-related instruments that implement international law,	0	0

sustainable use of oceans and their resources, as recalled in paragraph 158 of "The future we want"	as reflected in the United Nations Convention on the Law of the Sea, for the conservation and sustainable use of the oceans and their resources		
		Current	**Future**
	Indicators evaluated. SDG 14	**0**	**0**
	%	0.0%	0.0%

15 LIFE ON LAND

Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity los.

Goals and targets	Indicators	Existing	Future	Installed Systems	Future Systems
15.1 By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements	15.1.1 Forest area as a proportion of total land area	0	0		
	15.1.2 Proportion of important sites for terrestrial and freshwater biodiversity that are covered by protected areas, by ecosystem type	0	1		Internet of Everything (IoE) Smart Grids Manager Advanced environmental monitoring Intelligent control and management of social funds Intelligent administrative management
15.2 By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally	15.2.1 Progress towards sustainable forest management	0	1		

15.3 By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world	15.3.1 Proportion of land that is degraded over total land area	0	0		
15.4 By 2030, ensure the conservation of mountain ecosystems, including their biodiversity, in order to enhance their capacity to provide benefits that are essential for sustainable development	15.4.1 Coverage by protected areas of important sites for mountain biodiversity	0	1		Internet of Everything (IoE) Smart Grids Manager Advanced environmental monitoring Intelligent control and management of social funds Intelligent administrative management
	15.4.2 Mountain Green Cover Index	0	1		
15.5 Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species	15.5.1 Red List Index	0	1		
15.6 Promote fair and equitable sharing of the benefits arising from the utilization of genetic resources and promote appropriate access to such resources, as internationally agreed	15.6.1 Number of countries that have adopted legislative, administrative and policy frameworks to ensure fair and equitable sharing of benefits	1	1	IoT Data management software	
15.7 Take urgent action to end poaching and trafficking of protected species of flora and fauna and address both demand and supply of illegal wildlife products	15.7.1 Proportion of traded wildlife that was poached or illicitly trafficked	1	1		

15.8 By 2020, introduce measures to prevent the introduction and significantly reduce the impact of invasive alien species on land and water ecosystems and control or eradicate the priority species	15.8.1 Proportion of countries adopting relevant national legislation and adequately resourcing the prevention or control of invasive alien species	0	0		
15.9 By 2020, integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies and accounts	15.9.1 (a) Number of countries that have established national targets in accordance with or similar to Aichi Biodiversity Target 2 of the Strategic Plan for Biodiversity 2011–2020 in their national biodiversity strategy and action plans and the progress reported towards these targets; and (b) integration of biodiversity into national accounting and reporting systems, defined as implementation of the System of Environmental-Economic Accounting	1	1	IoT Data management software	Intelligent administrative management
15.a Mobilize and significantly increase financial resources from all sources to conserve and sustainably use biodiversity and ecosystems	15.a.1 (a) Official development assistance on conservation and sustainable use of biodiversity; and (b) revenue generated and finance mobilized from biodiversity-relevant economic instruments	1	1		

Goals and targets	Indicators	Existing	Future	Installed Systems	Future Systems
15.b Mobilize significant resources from all sources and at all levels to finance sustainable forest management and provide adequate incentives to developing countries to advance such management, including for conservation and reforestation	15.b.1 (a) Official development assistance on conservation and sustainable use of biodiversity; and (b) revenue generated and finance mobilized from biodiversity-relevant economic instruments	1	1	IoT Data management software	
15.c Enhance global support for efforts to combat poaching and trafficking of protected species, including by increasing the capacity of local communities to pursue sustainable livelihood opportunities	15.c.1 Proportion of traded wildlife that was poached or illicitly trafficked	0	0		

		Current	Future
	Indicators evaluated. SDG 15	**5**	**10**
	%	**35.7%**	**71.4%**

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.

Goals and targets	Indicators	Existing	Future	Installed Systems	Future Systems
16.1 Significantly reduce all forms of violence and related death rates everywhere	16.1.1 Number of victims of intentional homicide per 100,000 population, by sex and age	0	0		
	16.1.2 Conflict-related deaths per 100,000 population, by sex, age and cause	0	0		

	16.1.3 Proportion of population subjected to (a) physical violence, (b) psychological violence and (c) sexual violence in the previous 12 months	0	1	Internet of Everything (IoE) Advanced environmental monitoring Intelligent administrative management
	16.1.4 Proportion of population that feel safe walking alone around the area they live	0	1	
16.2 End abuse, exploitation, trafficking and all forms of violence against and torture of children	16.2.1 Proportion of children aged 1–17 years who experienced any physical punishment and/or psychological aggression by caregivers in the past month	0	1	
	16.2.2 Number of victims of human trafficking per 100,000 population, by sex, age and form of exploitation	0	0	
	16.2.3 Proportion of young women and men aged 18–29 years who experienced sexual violence by age 18	0	1	Internet of Everything (IoE) Advanced environmental monitoring Intelligent administrative management
16.3 Promote the rule of law at the national and international levels and ensure equal access to justice for all	16.3.1 Proportion of victims of violence in the previous 12 months who reported their victimization to competent authorities or other officially recognised conflict resolution mechanisms	0	1	

————	16.3.2 Unsentenced detainees as a proportion of overall prison population	0	0
	16.3.3 Proportion of the population who have experienced a dispute in the past two years and who accessed a formal or informal dispute resolution mechanism, by type of mechanism	0	0
16.4 By 2030, significantly reduce illicit financial and arms flows, strengthen the recovery and return of stolen assets and combat all forms of organised crime	16.4.1 Total value of inward and outward illicit financial flows (in current United States dollars)	0	0
	16.4.2 Proportion of seized, found or surrendered arms whose illicit origin or context has been traced or established by a competent authority in line with international instruments	0	0
16.5 Substantially reduce corruption and bribery in all their forms	16.5.1 Proportion of persons who had at least one contact with a public official and who paid a bribe to a public official, or were asked for a bribe by those public officials, during the previous 12 months	0	0

‒‒‒‒‒‒	16.5.2 Proportion of businesses that had at least one contact with a public official and that paid a bribe to a public official, or were asked for a bribe by those public officials during the previous 12 months	0	0		
16.6 Develop effective, accountable and transparent institutions at all levels	16.6.1 Primary government expenditures as a proportion of original approved budget, by sector (or by budget codes or similar)	0	0		
	16.6.2 Proportion of population satisfied with their last experience of public services	1	1	Data management software	Intelligent administrative management
16.7 Ensure responsive, inclusive, participatory and representative decision-making at all levels	16.7.1 Proportions of positions in national and local institutions, including (a) the legislatures; (b) the public service; and (c) the judiciary, compared to national distributions, by sex, age, persons with disabilities and population groups	0	0		
	16.7.2 Proportion of population who believe decision-making is inclusive and responsive, by sex, age, disability and population group	0	1		Intelligent administrative management
16.8 Broaden and strengthen the participation of developing countries in the institutions of global governance	16.8.1 Proportion of members and voting rights of developing	0	0		

―――――	countries in international organizations				
16.9 By 2030, provide legal identity for all, including birth registration	16.9.1 Proportion of children under 5 years of age whose births have been registered with a civil authority, by age	0	0		
16.10 Ensure public access to information and protect fundamental freedoms, in accordance with national legislation and international agreements	16.10.1 Number of verified cases of killing, kidnapping, enforced disappearance, arbitrary detention and torture of journalists, associated media personnel, trade unionists and human rights advocates in the previous 12 months	0	0		
	16.10.2 Number of countries that adopt and implement constitutional, statutory and/or policy guarantees for public access to information	0	0		
16.a Strengthen relevant national institutions, including through international cooperation, for building capacity at all levels, in particular in developing countries, to prevent violence and combat terrorism and crime	16.a.1 Existence of independent national human rights institutions in compliance with the Paris Principles	0	0		
16.b Promote and enforce non-discriminatory laws and policies for sustainable development	16.b.1 Proportion of population reporting having personally felt discriminated against or harassed in the previous 12 months on the	1	1	Data management software	Intelligent administrative management

	basis of a ground of discrimination prohibited under international human rights law		

		Current	Future
Indicators evaluated. SDG 16		**2**	**8**
	%	**8.3%**	**33.3%**

17 PARTNERSHIPS FOR THE GOALS

Goal 17. Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development.

Goals and targets	Indicators	Existing	Future	Installed Systems	Future Systems
Finance					
17.1 Strengthen domestic resource mobilization, including through international support to developing countries, to improve domestic capacity for tax and other revenue collection	17.1.1 Total government revenue as a proportion of GDP, by source	0	0		
	17.1.2 Proportion of domestic budget funded by domestic taxes	0	0		
17.2 Developed countries to implement fully their official development assistance commitments, including the commitment by many developed countries to achieve the target of 0.7 per cent of gross national income for official development assistance (ODA/GNI) to developing countries and 0.15 to 0.20 per cent of ODA/GNI to least developed countries; ODA providers are	17.2.1 Net official development assistance, total and to least developed countries, as a proportion of the Organization for Economic Cooperation and Development (OECD) Development Assistance Committee donors' gross national income (GNI)	0	0		

encouraged to consider setting a target to provide at least 0.20 per cent of ODA/GNI to least developed countries			
17.3 Mobilize additional financial resources for developing countries from multiple sources	17.3.1 Foreign direct investment, official development assistance and South-South cooperation as a proportion of gross national income	0	0
	17.3.2 Volume of remittances (in United States dollars) as a proportion of total GDP	0	0
17.4 Assist developing countries in attaining long-term debt sustainability through coordinated policies aimed at fostering debt financing, debt relief and debt restructuring, as appropriate, and address the external debt of highly indebted poor countries to reduce debt distress	17.4.1 Debt service as a proportion of exports of goods and services	0	0
17.5 Adopt and implement investment promotion regimes for least developed countries	17.5.1 Number of countries that adopt and implement investment promotion regimes for developing	0	0

	countries, including the least developed countries				
Technology					
17.6 Enhance North-South, South-South and triangular regional and international cooperation on and access to science, technology and innovation and enhance knowledge-sharing on mutually agreed terms, including through improved coordination among existing mechanisms, in particular at the United Nations level, and through a global technology facilitation mechanism	17.6.1 Fixed Internet broadband subscriptions per 100 inhabitants, by speed5	1	1		Intelligent administrative management
17.7 Promote the development, transfer, dissemination and diffusion of environmentally sound technologies to developing countries on favourable terms, including on concessional and preferential terms, as mutually agreed	17.7.1 Total amount of funding for developing countries to promote the development, transfer, dissemination and diffusion of environmentally sound technologies	1	1	Data management software Data management software	Intelligent control and management of social funds Intelligent administrative management
17.8 Fully operationalize the technology bank and science, technology and innovation capacity-building mechanism for least developed countries by 2017 and enhance the use of enabling technology, in particular information and communications technology	17.8.1 Proportion of individuals using the Internet	1	1		Intelligent administrative management
Capacity-building					

17.9 Enhance international support for implementing effective and targeted capacity-building in developing countries to support national plans to implement all the Sustainable Development Goals, including through North-South, South-South and triangular cooperation	17.9.1 Dollar value of financial and technical assistance (including through North-South, South-South and triangular cooperation) committed to developing countries	0	0
Trade			
17.10 Promote a universal, rules-based, open, non-discriminatory and equitable multilateral trading system under the World Trade Organization, including through the conclusion of negotiations under its Doha Development Agenda	17.10.1 Worldwide weighted tariff-average	0	0
17.11 Significantly increase the exports of developing countries, in particular with a view to doubling the least developed countries' share of global exports by 2020	17.11.1 Developing countries' and least developed countries' share of global exports	0	0
17.12 Realize timely implementation of duty-free and quota-free market access on a lasting basis for all least developed countries, consistent with World Trade Organization decisions, including by ensuring that preferential rules of origin applicable to imports from least developed countries are transparent and simple, and contribute to facilitating market access	17.12.1 Weighted average tariffs faced by developing countries, least developed countries and small island developing States	0	0
Systemic issues			

Policy and institutional coherence					
17.13 Enhance global macroeconomic stability, including through policy coordination and policy coherence	17.13.1 Macroeconomic Dashboard	0	0		
17.14 Enhance policy coherence for sustainable development	17.14.1 Number of countries with mechanisms in place to enhance policy coherence of sustainable development	1	1	Data management software	Intelligent administrative management
17.15 Respect each country's policy space and leadership to establish and implement policies for poverty eradication and sustainable development	17.15.1 Extent of use of country-owned results frameworks and planning tools by providers of development cooperation	0	0		
Multi-stakeholder partnerships					
17.16 Enhance the Global Partnership for Sustainable Development, complemented by multi-stakeholder partnerships that mobilize and share knowledge, expertise, technology and financial resources, to support the achievement of the Sustainable Development Goals in all countries, in particular developing countries	17.16.1 Number of countries reporting progress in multi-stakeholder development effectiveness monitoring frameworks that support the achievement of the sustainable development goals	0	0		
17.17 Encourage and promote effective public, public-private and civil society partnerships, building on the experience and resourcing strategies of partnerships	17.17.1 Amount in United States dollars committed to public-private partnerships for infrastructure	0	0		
Data, monitoring and accountability					

		Current	Future		
17.18 By 2020, enhance capacity-building support to developing countries, including for least developed countries and small island developing States, to increase significantly the availability of high-quality, timely and reliable data disaggregated by income, gender, age, race, ethnicity, migratory status, disability, geographic location and other characteristics relevant in national contexts	17.18.1 Statistical capacity indicator for Sustainable Development Goal monitoring	1	1	Data management software	Intelligent administrative management
	17.18.2 Number of countries that have national statistical legislation that complies with the Fundamental Principles of Official Statistics	0	1		
	17.18.3 Number of countries with a national statistical plan that is fully funded and under implementation, by source of funding	0	0		
17.19 By 2030, build on existing initiatives to develop measurements of progress on sustainable development that complement gross domestic product, and support statistical capacity-building in developing countries	17.19.1 Dollar value of all resources made available to strengthen statistical capacity in developing countries	0	0		
	17.19.2 Proportion of countries that (a) have conducted at least one population and housing census in the last 10 years; and (b) have achieved 100 per cent birth registration and 80 per cent death registration	1	1	Data management software	Intelligent administrative management
		Current	**Future**		
Totals: 169 Goals and 232 Indicators	**Indicators evaluated. SDG 17**	6	7		
	%	**25.0%**	**29.2%**		
	Total Indicators evaluated at UJAmI	36	111		
	%	**15.5%**	**47.8%**		

17   [1] The score given for the evaluation of the indicators is 0 or 1, depending on whether the indicator can be evaluated or not in the UJAmI. Two evaluation groups have been made,

18   current and future, taking into account existing and potential future sensors and devices, which will be proposals for improvement in the LL

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Table 8 shows an analysis of the groups of devices currently installed in the UJAmI laboratory according to goals and indicators, as well as the potential improvement that may be implemented in the future. An evaluation has been carried out that offers us, on the one hand, a quantification and total percentage of the SDG indicators currently evaluated and, on the other hand, the proposals for improvement. Table 8 also shows systems and devices grouped by blocks of sensors, including ones that exist today and others that can be installed in the coming years.

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