United Nations Inter-agency Working Group on a Technology Facilitation Mechanism

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Options of An Online Platform of a Technology Facilitation Mechanism

Adela Antic and Wei Liu[1]

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Abstract

To be effective, the online platform for Global Technology Facilitation (GTF Hub) *will be implemented as a part of a newly established technology facilitation mechanism will need to have clear objectives, structural components that adequately serve its aims and objectives, be visually attractive and user-friendly, with effective governance arrangements. It should connect individuals, communities, networks, and organizations and provide tools to mobilize joint knowledge and resources. It should take into account emerging/established trends such as openness, mobility, cloud, social networks, and data. It should build upon existing initiatives and efforts in this emerging field, avoid duplication, and build direct linkages to the sustainable development goals and post-2015 development agenda.*

The purpose of this background note is mainly to serve as a reference for internal discussions within the UN interagency task team on science, technology and innovation (STI) for the SDGs, in order to define the parameters of the online platform and formulate ideas for the building blocks of an online knowledge hub and information-sharing platform. In addition, the background note will serve as an initial reference to the preliminary work on independent technical assessment for the online platform. It highlighted that mapping, searching, information repository, and connecting disparate areas of STI-related applications and projects towards SDGs are key functionalities to engage stakeholders from the UN, civil society, the private sector, and the scientific community through an online platform.

[1] For further information, please contact Adela Antic (aantic@worldbank.org) from the World Bank or Wei Liu (liuw@un.org) from UN DESA. Authors are grateful for inputs and feedback from David O'Connor, Prasanna Lal Das, Pi-Yun Hung, Jorge Laguna Celis, Naoto Kanehira, Richard A Roehrl and Clovis Freire. The views expressed in this note are the personal views of the author and do not necessarily represent the views of the United Nations or its Member States. Any mistake or omission in this overview is the sole responsibility of the authors.

1. Introduction

In Paragraph 123 of the outcome document from the Addis Ababa Action Agenda of the Third International Conference on Financing for Development, held in Addis Ababa from 13 to 16 July 2015, United Nations Member States established a technology facilitation mechanism, which comprises, among others, of an online platform as a gateway for information on existing STI initiatives, mechanisms and programs

"*We decide to establish a technology facilitation mechanism. The mechanism will be launched at the United Nations summit for the adoption of the post-2015 development agenda in order to support the sustainable development goals. We decide that the technology facilitation mechanism will be based on a multi-stakeholder collaboration between Member States, civil society, the private sector, the scientific community, United Nations entities and other stakeholders and will be composed of a United Nations inter-agency task team on science, technology and innovation for the sustainable development goals, a collaborative multi-stakeholder forum on science, technology and innovation for the sustainable development goals and an online platform*."

This background paper presents options about possible parameters and functionalities of the online platform and formulates ideas for the building blocks of the online knowledge hub and information-sharing platform.

2. Objectives and functions

The online platform would aim to provide a common platform for accessing a full range of technology facilitation activities, services and resources in support of the sustainable development goals and the post-2015 development agenda. In this regard, the online platform would be implemented with the following objectives stated in the outcome document from the Addis Ababa Action Agenda of the Third International Conference on Financing for Development, held in Addis Ababa from 13 to 16 July 2015:

"*1. To establish a comprehensive mapping of, and to serve as a gateway for, information on existing science, technology and innovation initiatives, mechanisms and programmes, within and beyond the United Nations;*

2. To facilitate access to information, knowledge and experience, as well as best practices and lessons learned, on science, technology and innovation facilitation initiatives and policies;

3. To facilitate the dissemination of relevant open access scientific publications generate worldwide".

The overall longer term impacts of such a platform would ultimately:

1. promote coordination, synergies and cooperation in the delivery of technology-related technical advice, capacity building, and other services, and
2. increase collaboration and facilitate technology needs assessments and identification of sources expertise and relevant technologies to address those needs.

3. become a hub that eventually helps develop new knowledge and approaches (as for instance ResearchGate helps to do - http://time.com/3583191/social-network-scientists-builder/)

The Platform could be designed as a consolidated mapping and "Delivery as One" tool to help address the UN system's fragmentation in support of UN technology-related mandates in the context of the implementation of the post-2015 development agenda. Guided by the objectives enumerated above, the online platform could perform the following functions:

(i) provide space for the sharing of knowledge, data, experiences and good practices of different countries and stakeholders with respect to science, technology and innovation (STI) development, adaptation, dissemination, and transfer in a more systematic and structured way;

(ii) offer technical guidance and tools to inform policy approaches for promoting STI for sustainable development in line with the national circumstances of different countries;

(iii) connect practitioners and policy makers and provide tools/data that allow users to collaborate;

(iv) Facilitate match-making of technology and funding needs[2], including capacity building needs, with suitable suppliers of knowledge, expertise and technology;

(v) support the creation and work of communities of practice, partnerships related to the various technologies relevant to advancing toward the SDGs;

(vi) catalyse international cooperation to accelerate the transfer of technologies to support implementation of the post-2015 development agenda;

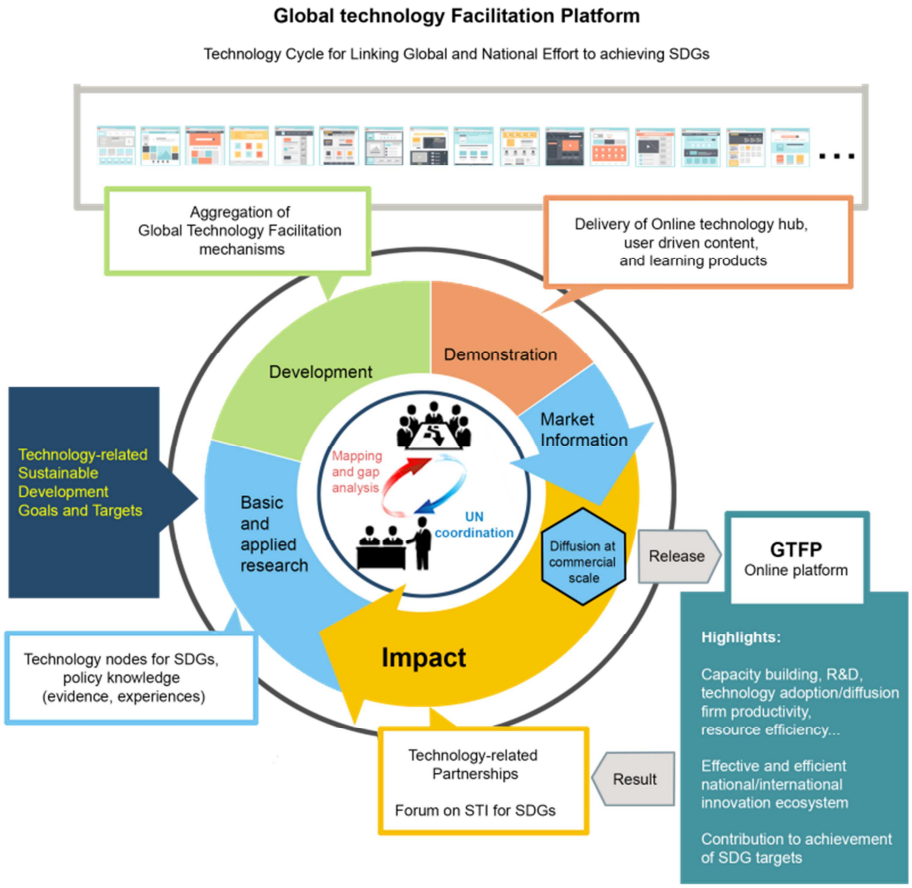
(vii) ultimately, not only provide a standalone service, but also serve as a key element of a larger digital strategy for STI which implies, among other thing:

a. complementary channels such as Facebook /Twitter /Flipboard /Weibo/ WeChat etc.
b. aggregation from other content/data sources
c. user generated content
d. modularized information - focus on sharing/reuse
e. Multimedia.

The agreed objectives and functions of the platform could guide the design of the Platform's structural components and of management and governance arrangements. For illustration purpose, diagram 1 below presents a simply conceptual framework of the online platform.

[2] Matching supply and demand, such as www.experiment.com for STI and http://ssc.undp.org/content/ssc/services/expo/2014/SS-GATE.html SS-GATE matchmaking space.

Diagram 1: Global technology facilitation platform



Source: Authors' elaboration.

3. Key audience

The key audience for the platform includes:

- Public and private entities, decision makers, and practitioners working towards the implementation of the post-2015 development agenda;
- Global technology users, advisors and practitioners involved in other major international political processes related to STI;
- UN system technology focal points and their associated network/community audience;
- Operational staff from member countries and international development organizations, directly involved in client capacity development to improve global technology facilitation;
- Entrepreneurs, academics and researchers in global technology facilitation;
- Civil society – the ultimate beneficiaries of STI;
- Infomediaries such as journalists and related NGOs.

4. Enhancing linkages and providing coherent framework

There is already a plethora of information-sharing platforms in existence or under development (see for example the list of platforms and online services in Annex I). Consolidating and building on current initiatives will be critical.

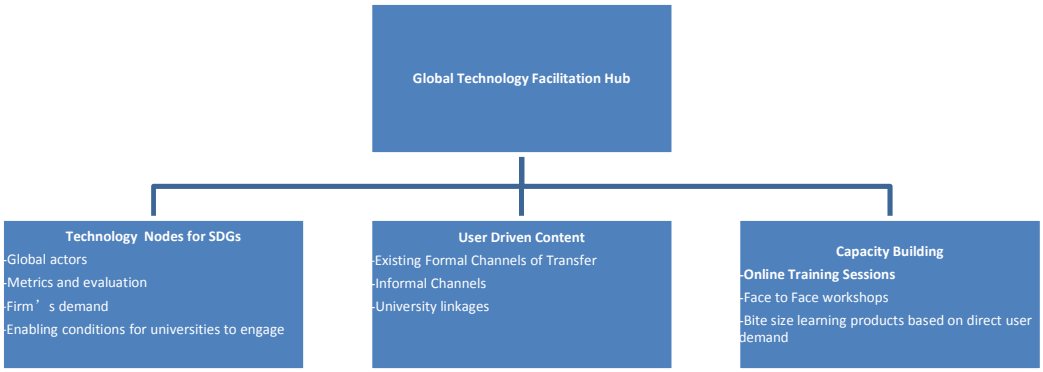
The ever-growing number of information-sharing platforms and initiatives with separate governance arrangements, partnerships, agendas, memberships and networks, along with their potentially duplicative spheres of responsibility and influence, is not an efficient arrangement. There is a real risk of "platform fatigue" as platforms begin to duplicate services and membership, where members do not have the time and resources to commit to multiple uncoordinated initiatives. There may be considerable benefit in forging enhanced linkages between complementary platforms, consolidating duplicative platforms wherever possible, and providing a coherent overarching international framework for connecting these platforms together to support a more coordinated sustainable development capacity building agenda and facilitate global progress towards agreed sustainable development goals.

5. Exploring Possible Elements of Platform

Platform design and development could be conducted in a staged process to ensure continuous relevance of the Online Platform for Global Technology Facilitation Hub (GTF Hub). Using incremental approach, people could consider starting small but agile and constantly iterating and evolving the platform's content and functionalities.

A conceptual core could be organized around modules on technology nodes in the SDG areas. This is where the platform structure remains relatively stable over time. New and updated materials and new knowledge product would be added but the overall module design remains the same. In addition, GTF Hub could include a wiki-like mechanism to tap in the knowledge of a large number of people who are willing to volunteer their time and expertise, and communities of practice spaces where user driven content will be constantly evolving. Both the UN technology wiki and communities of practice spaces will facilitate access to information, and facilitate the dissemination of relevant open access scientific publications generate worldwide. Finally future development of the online platform could contain a learning component for capacity building. This could include online training and capacity building, on demand face to face regional workshops and webinars as well as user driven and shared bite size learning products such as video talks, podcasts, policy briefs and case studies. Figure 1 proposes the possible framework of the GTF Hub.

Figure 1. Example of possible framework of the GTF Hub

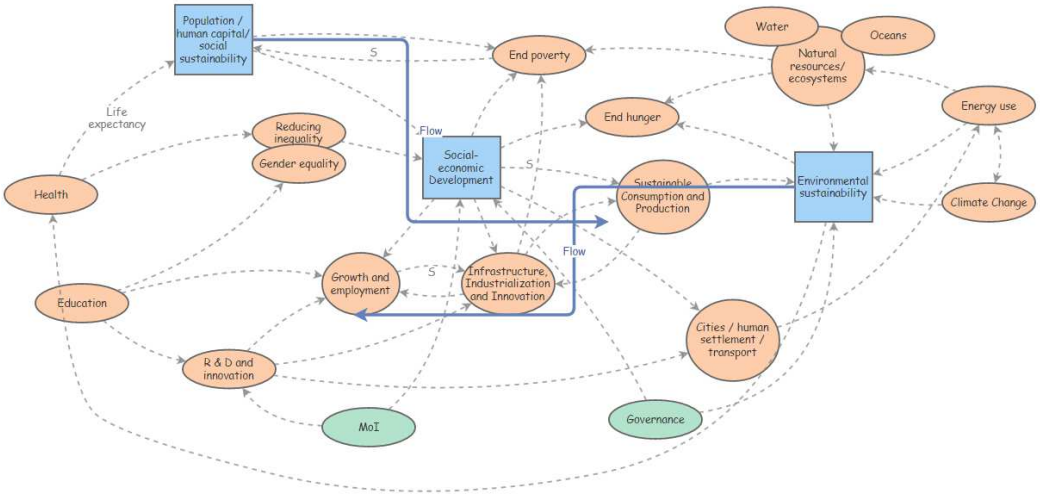


Source: Authors' elaboration.

5.1 Technology nodes

One option could be creation of geographically distributed **technology nodes for different technologies/clusters relevant to SDG attainment**, all of which would maintain their own technology facilitation platforms in their respective areas and link to the central hub, which would presumably deal with systemic, global, policy issues that cut across technology domains. The distributed nodes could also potentially serve as regional hubs. The central regional hubs could aggregate content from existing platforms through contemporary approaches like standard Application Programming Interfaces (APIs). For example, if there were one in Zaragoza that was dealing with water efficiency technologies, it could also be a hub for the exchange of technology know-how in the Mediterranean region -- water-scarce countries for the most part. This design will allow many different communities to continue working through their familiar counterparts and web communities where user driven content will be constantly evolving (see Figure 2 below).

Figure 2: Inter-linkages of SDGs



Source: Authors' elaboration.

In this connection, we would like to highlight the importance of interoperability standards/semantic web standards and building ontologies for everyone's uses. For instance, WordPress was so successful, because of the RSS standard for Blogs which allowed automatically pulling out blog entries from many blogs. Without it, users would have had to write individual interfaces to each and every other blog website that they would like to link to. Whenever these pages change, the interface would have to be changed – the ultimate solution for the GTF Hub for maintenance and scalability in the future.

Therefore, from technical perspective, it is important to note that the semantic web standards provides a common framework that allows data to be shared and reused across application, enterprise, and community boundaries.

5.2 Possible Structural Components

As discussed, the GTF Hub for the SDGs could be a common thread or a map of networks that links the existing platforms together and may provide the opportunity for establishing an overarching framework supported by effective international coordination mechanism.

Any technology facilitation online platform would ultimately comprise a number of core structural components, as required to meet its aims and objectives. Based on the information collected through survey mapping, along with an analysis of some existing knowledge platforms and a review of recent literature on the topic, the architecture of the GTF Hub could be developed in four stratums comprised of knowledge base and platform's functionality.

Layer 1: Interactive Interface – enables users to contribute to the GTF Hub (such as mutual learning) and captures tacit knowledge. It provides interactive tools to promote practitioners' dialogue and virtual community of practice (e.g. competitions, discussion forums, networking tools, etc.)

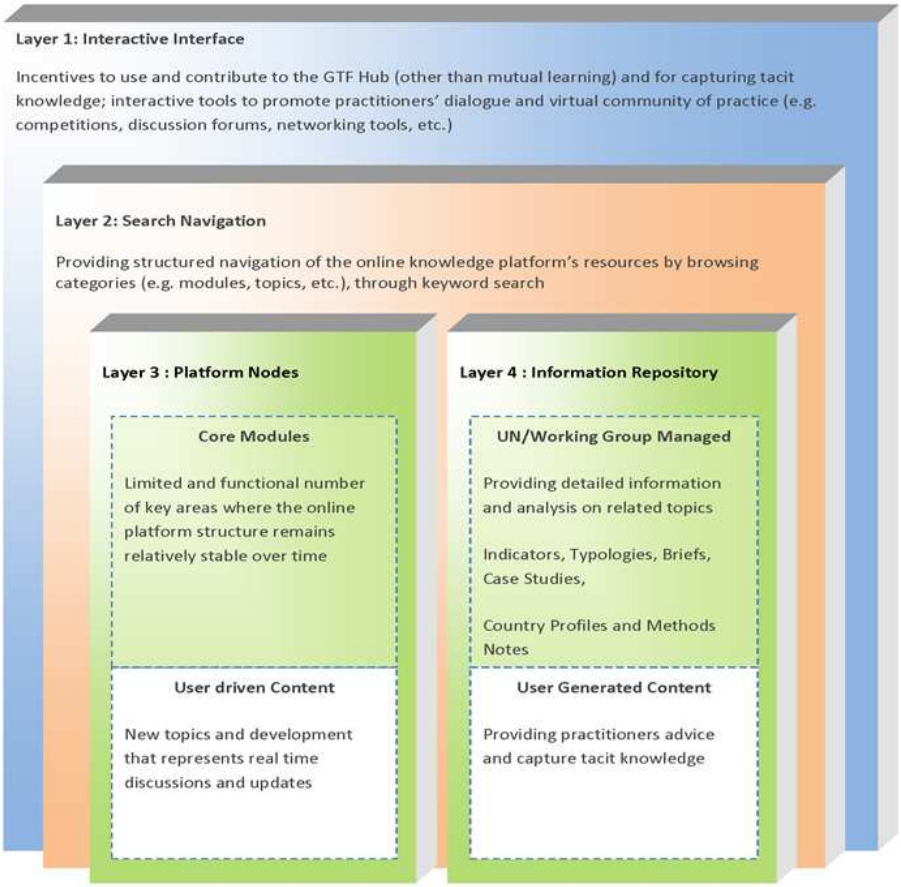
Layer 2: Search Navigation – provides structured navigation of the online knowledge platform's resources by browsing categories (e.g. modules, nodes, topics, etc.), through keyword search

Layer 3: Platform Nodes and Core Modules – provides limited and functional number of key areas where the online platform structure remains relatively stable over time. It also allows for user driven content and supports variety of learning products

Layer 4: Information Repository – provides detailed information and analysis on related topics, indicators, typologies, briefs, case studies, country profiles and methods notes. It could be centrally managed by the UN/Task Team. Another part of information repository contains practical solutions/advices and tactic knowledge. The content of this part shall be user generated in a decentralized way through such mechanisms as a wike-based platform or more structurally formatted and standardised data and information collection methods. Associated incentivizing mechanisms such as a UN Prize, could be put in place to attract large number of external users who volunteer their time to provide STI solutions on the platform.

The first two layers represent the platform's functionalities, and the bottom two layers represent the knowledge base. Combined interactive interface and an advanced search navigation will help to continuously improve and update the knowledge around the conceptual core, while allowing for orienting and applying innovation policy to address most current challenges in development (see Figure 3).

Figure 3: The architecture of the GTF Hub



Source: Modified version of the IPP architecture[3].

6. Features

6.1 External features

More specifically, the GTF Hub should have external features comprise all web-based tools designed for public user groups. Access might be restricted to certain groups of users in some cases. In order to serve as a one-stop-shop, the platform shall provide an overview of global STI related activities within and outside UN at a glance. A news section, where, e.g., the newsletter will be published, will keep visitors updated on recent issues of interest on GTF's work. Selected success stories shall be presented and relevant publications and thematic background information shall be made available for downloading. There may be another way to disseminate STI activities/events/projects. Things to consider may include more contemporary CMS techniques – a la Chorus[4] – that allow both greater modularization

[3] The Innovation Policy Platform (IPP), developed by the Organisation for Economic Co-operation and Development (OECD) and the World Bank is a web-based interactive space that provides easy access to knowledge, learning resources, indicators and communities of practice on the design, implementation, and evaluation of innovation policies. https://www.innovationpolicyplatform.org/

[4] http://www.chorusaccess.org/

and aggregation of content (see how Vox[5] does it through their story streams). It will be important to create space for metrics to drive content positioning. Many websites now feature a balance between editorial judgment and machine control – editors choose some featured stories, most other content finds a place based on what is popular, what is being searched for, etc.

Sections about activities and events and information about the networks and donors shall be included as well. In addition to providing an overview to outsiders, the GTF Hub shall also allow access to detailed information on GTF's work, down to the level of individual projects of GTF member agencies. For this reason the results of the systematic survey mapping will be interlinked to the platform. It will provide:

- Mapping/visualization tools that would provide up-to-date data on technology demands across countries. Mapping tool can help identify citizens/beneficiaries actual use of technologies of our concern; unmet demands and emerging efforts trying to addressing them.[6]
- Search function: The platform shall as well have an easy to navigate search modality. Apart from a keyword based search function, e.g., through google, a criteria based search function shall be included as well. Based on the mapping exercise, filter criteria shall be included, allowing the audience to search for information about GTF activities by specifying the region or country, the technology, the type of activity and other key criteria with the possibility to get in contact with the relevant agency.
- Information repository provides detailed information and analysis on related topics, indicators, typologies, briefs, case studies, country profiles and methods notes, as well as practical solutions/advices and tactic knowledge from external users' wiki-like inputs.

Access

The visitors of the Hub shall be able to subscribe to the newsletter and the mailing list and access their archives with "one click".

Navigation

Further, the user shall have the possibility to contact GTF focal points in their areas directly. According to his/her interest, identified, e.g., by a pull down menu, s/he should be directed to the relevant GTF focal point rather than being forwarded to a general GTF e-mail address. The incoming requests shall be recorded in the restricted section accessible for GTF members, with the possibility of tracing the sender and recipient of each request.

Content

All the content of the Hub shall be edited by content managers, who shall request the required information from the project focal points and ask for approval of the final online content.

[5] http://www.vox.com/

[6] For example, the World Bank could contribute to such approaches building on the work over post years on participatory monitoring through micro-level survey submissions via cell phone, as one of the IDA16 commitments, being dramatically scaled up, geocoded and visually presented.

6.2 Additional external features

Log in area / Extranet: A log in area shall allow the users to subscribe or unsubscribe to certain services like the newsletter or the peer-to-peer mailing list mentioned above. Restricted access may be granted for specific online discussions or for potential future e-courses. The developer will design a registration tool, which will have an export function in order to be able to process collected user data in programmes like Excel. The user will have the possibility to upload documents or links, which will be reviewed by the platform's facilitator before sharing them with a wider audience. The user will as well be able to comment on available information, e.g., via blogs or wikis. The possibilities to incorporate a modified version of World Bank's Innovation Policy Platform (IPP) or UNDP's teamwork's into GTF Hub efforts shall be explored by the web designer or developer.

Platform for communities of practice: The setting up of platforms with designated discussion fora will help to develop communities of practice, aiming at learning from each other's experiences. The Global Forum on Food Security and Nutrition and UNDP's "BDP wiki" and World Bank's IPP can serve as templates for platforms for communities of practice.

Social Networking: The platform will enable users to identify other online users and provides tools for online discussions, such as the possibility to initiate discussions in designated forums.

Above all, creating, acquiring, sharing, adapting, and applying knowledge will be made more open through the platform in the following ways:

- Open Data. The GTF Hub will enable users to get quick access to up-to-date conceptual and operational data.
- Open knowledge. The Hub will offer tools for user-submitted materials to better capture and disseminate knowledge from practitioners.
- Open learning. The Hub will support online learning models and will offer on demand and real time webinars and courses.

6.3 Internal features

Internal features comprise all tools designed for GTF internal use only. UNDP's efforts to build an internal platform serves as a good example on how to combine many of the below mentioned features in one integrated tool (http://teamworks.beta.undp.org).

Yellow pages or STI LinkedIn pages: One of the main internal features of the platform will aim at horizontally connecting people sharing the same domain of interest, comprising all working levels. The network will be designed to enable users to easily identify people working on similar issues in different agencies. The users will be able to register and enter their profile data, indicating their work experience and interests. A search function will then allow users to identify their counterparts in other agencies based on both their profile entries and their contributions within the community, e.g., through their participation in online discussions.

Collaborative spaces: The platform shall allow internal users to create collaborative spaces to easily upload and share draft versions of their work for review and to track changes in these documents within the platform. The users will be able to discuss and comment on

their work. It will be possible to publish events in common calendars, to invite participants to these events, to enable them to export appointments into their private calendar and to register their confirmation. In addition, a wiki based section for sharing internal information shall be considered. The compatibility with Microsoft Office programmes is considered as especially important for these functions. The platform may offer standard tools to share, reuse, download, discuss, etc. for all content, therefore bypassing the need for separate spaces for collaboration and social networking.

7. Exploring Options

In their responses to the above mentioned surveys, UN system entities highlighted more than 46 existing online platforms/websites in support of science, technology and innovation (STI). These platforms are operated largely in isolation from each other and serve a range of different communities, mostly focused on particular sectors, themes or country groups. Most of these platforms do not share formal coordination or joint governance arrangements. However, they typically engage a range of stakeholders and partners beyond the UN system. Furthermore, they are operated based on a range of technologies. Significant efforts would be needed to make them inter-operable <- one approach may be for them to expose their data/content through standardized APIs. A "single window" entry to these distributed resources would enable users to make better choices. The IAWG made a preliminary assessment of three options for development of an "*online knowledge hub and information-sharing platform*" (see table) in ascending order of ambition.

Options	Scope of platform functions	Operational implications
Option 1: Online Library	Repository and mapping of STI-related UN resources, platforms and activities, and directory of partnerships. Periodic updates and news. Limited inter-operability with UN platforms.	Small maintenance team (content and IT). Low cost.
Option 2: Dynamic Exchange of Knowledge and Experiences	All of the above plus: Content exchange with public and private users, including through forums and partnerships. Community-of-practice, user-generated content, tools for knowledge capture. Quality assurance, common taxonomies, user ID and access control, and wiki-type metadata architecture (what is a wiki type metadata architecture).	Interagency team of several staff with multi-stakeholder participation. Moderate cost.
Option 3: Fully Integrated Platform for Operational Delivery	All of the above plus: Functions related to a coordinated STI capacity building programme, with online and offline delivery, content coordination and integration, supported by communities of practice (COP) and various partnerships, going beyond the UN system.	Interagency technical and programmatic management team with multi-stakeholder governance. High cost.

There are 3 proposed platforms for consideration to build: **Option 1 Online Library Portal** as a Gateway or an One-Way Dissemination Channel; **Option 2 Dynamic Exchange of Knowledge and Experiences** and **Option 3 Fully Integrated Delivery Channel** for Knowledge and Experiences.

The more ambitious options with scopes beyond the UN system could especially benefit from multi-stakeholder engagement in all stages – from feasibility evaluation to operation.

Option 1: On-line library

A one-stop portal as a centralized content dissemination channel

This online knowledge hub shall satisfy the following demand and rationale:

- Broad mandates of an online platform, as defined by PGA Report on Structured Dialogues and SG Synthesis Report
- Stocktaking identified numerous relevant online platforms
- Emphasis on existing platforms and request for focus on one stop access

Approach: Based on the responses of mapping questionnaires and the result of gap analysis on the UN system's establishment, coverage, functions, and technologies used for their existing platforms, we can create this one-stop portal by providing the following key platform functions:

1. Repository of relevant UN documents, including on mapping of technology facilitation initiatives
2. Curate inventory of technologies, catalogue of platforms and directory of actors, UN, other public, and private
3. Periodic updates on ad hoc products (good practice, lessons); and progress of policy dialogues and relevant efforts

Implementation (base technical requirements, operational model, and cost implication)

- Some interoperability with services linked
- $100-500k per year for part time maintenance team (subject matter expert and web service technician)

Option 1 Design

Option 2: Online "Homedepot approach"

A one-stop platform to provide dynamic content exchange of knowledge and experiences .
This online knowledge hub shall satisfy the following demand and rationale:

- Support technology facilitation mechanism as an initiative that engages interested Governments and stakeholders, including the business sector, academia, national labs and scientific/engineering academies, philanthropies, etc.
- Facilitate access to and exchange of information and knowledge to support the development, transfer, dissemination and diffusion of technologies for achieving the SDGs, with a particular focus on technologies of benefits.
- Stocktaking identified UN platforms "truly interactive" on such aspects; experiences suggest it takes time and concerted efforts relevant online platforms
- Initial mapping of UN facilitation initiatives indicated full mapping requires open information channel on demands and non-UN initiatives

Approach: Based on the responses of mapping questionnaires and the result of gap analysis on the UN system's establishment, coverage, functions, and technologies used for their existing platforms, we can create this one-stop portal by providing the following key platform functions:

1. Knowledgebase of relevant technologies with information-sharing on experience, good practices, lessons learned; enhance coordination and cooperation; support "matchmaking" between technology supply and needs
2. Interactive tools for data visualization and knowledge capture for technology clusters and policy areas under SDGs and targets. It also facilitate exchanges of dynamic contents base on mapping of UN facilitation initiatives and open information channel on demands and non-UN initiatives
3. Discussion forums on relevant issues related to science, technology and innovation to promote networking among governments, private sector, academics and others active in technology promotion, development and transfer, and build multi-stakeholder partnerships
4. Inter-agency Working Group to coordinate UN system work for optimal efficiency of delivery and promote technology cooperation. Identify synergy and cooperation and promote partnerships in support of the SDGs
5. Capacity Building to administer incrementally on existing programs by the UN system, development banks, and international organizations; to partnership with academic consortia, national R&D labs, and the business sector objectives to improve conceptual clarity through an assessment framework; and Identify knowledge gaps and possible next steps, we propose to build

Implementation (base technical requirements, operational model, and cost implication)

- User identification, access control, wiki-type metadata architecture, quality assurance of dynamic contents
- Interoperability with services integrated via standardized API across platforms
- Full time mid-size team of program administration, middle tier integrators, web service technician and community moderation; with key influencer contributions
- $1-3m per year

Option 2 design

Option 3 design

Design Elements (refer to mock-ups for a visual representation) include but are not limited to some of the common elements such as logo, homepage, document repository, technologies repository, list of partners, search bar and based on complexity of the chosen options they may or may not include interactive tools, forums, collaborative space and capacity building programs.

Option 3: Amazon for science, technology and innovation (STI)

A one-stop platform to provide dynamic content exchange and delivery of knowledge and experiences. In addition to proposed option 2, this online knowledge hub shall also satisfy the following demand and rationale:

- Broader TFM activities emerged such as coordinated STI capacity building program
- Online platform may be a channel for coordination and delivery
- All option 2 functions are embedded to single platform with dynamic content feed and data exchange.

Approach: Based on the responses of mapping questionnaires and the result of gap analysis on the UN system's establishment, coverage, functions, and technologies used for their existing platforms, we can create this one-stop portal by providing the following key platform functions (#1 to #5 are the same as in proposed option 2):

1. Knowledgebase of relevant technologies with information-sharing on experience, good practices, lessons learned; enhance coordination and cooperation; support "matchmaking" between technology supply and needs
2. Interactive tools for data visualization and knowledge capture for technology clusters and policy areas under SDGs and targets. It also facilitate exchanges of dynamic contents base on mapping of UN facilitation initiatives and open information channel on demands and non-UN initiatives
3. Discussion forums on relevant issues related to science, technology and innovation to promote networking among governments, private sector, academics and others active in technology promotion, development and transfer, and build multi-stakeholder partnerships
4. Inter-agency Working Group to coordinate UN system work for optimal efficiency of delivery and promote technology cooperation. Identify synergy and cooperation and promote partnerships in support of the SDGs
5. Capacity Building to administer incrementally on existing programs by the UN system, development banks, and international organizations; to partnership with academic consortia, national R&D labs, and the business sector
6. Fully integrated web services based on coordinated STI capacity development to support online and offline content coordination, subscription, and delivery.

Implementation (base technical requirements, operational model, and cost implication)

- User identification, access control, wiki-type metadata architecture, quality assurance of dynamic contents
- Interoperability with services fully integrated via standardized and custom API for different platforms
- Requires technical and programmatic management, process improvement, developers/integrators, web service technician and community moderation; with key influencer contributions
- >$5 million per year, cost depends on ambitions.

The options 2 and 3 highlighted audience engagement and response. Should budget permits, all design options will be optimized for mobile, and include complementary channels such as Facebook /Twitter /Flipboard/ Weibo/ Wechat. However, following incremental approach, option 3 is more advanced and includes more features and functionalities, especially with a larger pool of technology experts, who could provide support to on-line and off-line match making and other technology facilitation services, self-sustained and motivated by their own interests.

Annex I: Initial compilation of existing online platforms

Name of the platform or service	Web-link	Brief description
Lead Agency/Organization Name: UNCTAD		
UNCTAD's site on the Technology and Innovation Report series	http://unctad.org/en/Pages/Publications/Technology-Innovation-Report.aspx	Provides access to the full series of UNCTAD's flagship Technology and Innovation Report
UNCTAD's site on strengthening innovation systems in developing countries	http://unctad.org/en/pages/publications/Science,-Technology-and-Innovation-Policy-Reviews-%28STIP-Reviews%29.aspx	Site providing access to UNCTAD's national STI policy reviews (reports and methodologies).
UNCTAD's site on Science, Technology and Innovation - Current Studies	http://unctad.org/en/pages/publications/Science,-Technology-and-Innovation---Current-Issues-%28Series%29.aspx	Provides access to UNCTAD's studies on selected issues of STI policy, including transfer of technology.
UNCTAD's statistical portal on e-business	http://unctad.org/en/Pages/Statistics/About-UNCTAD-Statistics.aspx	Statistical data on the use of ICT by businesses
Site of the Partnership on Measuring ICT for Development	http://new.unctad.org/default 600.aspx	Statistical data and capacity-building material related to statistics on ICT for development.
Site of UNCTAD's Information Economy Report series Available at	http://unctad.org/en/Pages/Publications/InformationEconomyReportSeries.aspx	The IER is a source of information and policy analysis regarding the use of ICT for economic development.
ICT Policy reviews	http://unctad.org/en/pages/PublicationWebflyer.aspx?publicationid=880	Access to the content and methodology of UNCTAD's national ICT policy reviews
Site of the United Nations Group on the information society (UNGIS)	www.ungis.org	UNGIS is an inter-agency mechanism with the main objective to coordinate substantive and policy issues facing the United Nations' implementation of the outcomes of the World Summit on the Information Society (WSIS)
Lead Agency/Organization Name: International Telecommunication Union (ITU) Key partners: Member States, Private Sector, IGOs, Academia		
ITU Girls in ICT Portal	www.girlsinict.org	The Girls in ICT Portal is a tool for girls and young women to get an insight into the ICT sector as well as for partners to understand the importance of the International Girls in ICT Day.
e-Health Project Database	http://www.itu.int/en/ITU-D/ICT-	A repository of eHealth projects to collect and make available information on

Name of the platform or service	Web-link	Brief description
	Applications//eHEALTH/Pages/gehealthprojects.aspx	validated, operational eHealth projects that demonstrate the effective use of ICT for health.
Global Cybersecurity Index	http://www.itu.int/en/ITU-D/Cybersecurity/Pages/GCI.aspx	The Global Cybersecurity Index (GCI) is an ITU-ABI research joint project to rank the cybersecurity capabilities of nation states. Cybersecurity has a wide field of application that cuts across many industries and sectors. Each country's level of development is analyzed within five categories: Legal Measures, Technical Measures, Organizational Measures, Capacity Building and Cooperation.
Country Profiles	http://www.itu.int/en/ITU-D/Cybersecurity/Pages/Country_Profiles.aspx	The cyberwellness profiles are factual representations of each nation state's level of cybersecurity development. It aims to provide a clear perspective on the current cybersecurity landscape based on the five pillars of the Global Cybersecurity Agenda namely Legal Measures, Technical Measures, Organisation Measures, Capacity Building and Cooperation. The aspect of Child Online Protection, a key ITU initiative is also covered.
Hornet	http://www.itu.int/en/ITU-D/Cybersecurity/Pages/HORNET.aspx	Honeypot Research Network (HORNET) is a strategically deployed sensors network feeding real-time intelligence to help countries enhance their readiness against cyber threats. HORNET sensors are decoy servers or systems setup to be an easier prey for intruders but with minor system modifications so that their activities can be logged or traced. The sensors are used to capture information such as malware and network attacks to better understand attackers' behaviour. In addition to information on the global cyber threat landscape, deploying HORNET in a country's network provides it with more country specific information on threats and enables it to better understand the threats is facing and the types of mitigation efforts to be put in place. This service is available to Member States through different options.
Aware	http://www.itu.int/en/ITU-D/Cybersecurity/Pages/AWARE.aspx	Abuse Watch Alerting & Reporting Engine (AWARE) is a solution for cyber threats monitoring through various external sources. It addresses the following challenges faced by incident response teams: • Details of an attack not readily available to responders, or they simply doesn't exist. • Inadequate or absence of tools to provide reliable and comprehensive threat information. • Data too scattered and not sufficiently filtered to work with. • Unable to coordinate appropriate actions because the exact threats cannot

Name of the platform or service	Web-link	Brief description
		be identified. • Lack of expert skills to identify critical data from raw data. This service is available to Member States through a yearly subscription.
DSO Database	http://www.itu.int/en/ITU-D/Spectrum-Broadcasting/Pages/DSO/Default.aspx	This portal provides information on the status of the deployment of Digital Terrestrial Television (DTT), worldwide. It includes: • The status of DTT deployment and digital switchover (DSO), with related links (using available data listed under Source of Information) • Links to different ITU workshops and other related activities; also to technical assistance to different countries on that matter (when publically available) • Useful documents and websites related to the transition to DTT
ITU Interactive Transmission Maps	http://www.itu.int/itu-d/tnd-map-public/	The Maps are an authoritative ICT data mapping platform to take stock of backbone connectivity as well as of other key metrics of the ICT sector. The interactive maps are displayed in a web map based on United Nations cartography standards, visually locating the optical fibres and microwaves nodes and links on the maps. These Maps have been created by ITU in collaboration with Economic and Social Commission for Asia and the Pacific (ESCAP) for Asia-Pacific maps, and with The Economic Community Of West African States (ECOWAS) for Africa maps, and data concerning submarine cables are provided by TeleGeography. Satellite links will be included during 2015
Partnership Platform	http://www.itu.int/en/ITU-D/Partners/pages/call4partners/partnerships.aspx	Portal providing information to potential partners on potential opportunities for partnering with ITU/BDT (projects and initiatives)
Sponsorship Platform	http://www.itu.int/en/ITU-D/Partners/Pages/Sponsorships/Sponsorships.aspx	Portal providing information to potential sponsors on sponsorship opportunities proposed by ITU/BDT related to ITU/BDT events in telecommunications/ICTs.
ITU-D Study Groups portal	www.itu.int/ITU-D/study-groups	ITU-D Study Groups provide an opportunity for all Member States and Sector Members (including Associates and Academia) to share experiences, present ideas, exchange views, and achieve consensus on appropriate strategies to address ICT priorities. Outputs agreed on in the ITU-D Study Groups, and related reference material, are used as input for the implementation of policies, strategies, projects and special initiatives in Member States. These activities also serve to strengthen

Name of the platform or service	Web-link	Brief description
		the shared knowledge base of the membership. Sharing of topics of common interest is carried out through face-to-face meetings, online collaborative sites and remote participation in an atmosphere that encourages open debate and exchange of information and for receiving input from experts on the topics under study.
Case Study Library	www.itu.int/en/ITU-D/Study-Groups/Pages/case-study-library.aspx	The Case Study Library allows members to submit, store and consult case studies on topics under study by the Questions in the ITU-D Study Groups. Sharing and learning from each other's experiences is at the core of the mandate of the ITU-D Study Groups and through this tool the remarkable wealth of information that are case studies will be available to all members. Improved features to search and filter have been put in place to make them more easily accessible.
Innovation marketplace	www.Innovation.itu.int	An Innovation marketplace for internal stakeholders of BDT and membership driven innovation platform.
ITU-D Study Group Questions related to LSE Division – BDT/PKM http://www.itu.int/net4/ITU-D/CDS/sg/index.asp?lg=1&sp=2014	http://www.itu.int/net4/ITU-D/CDS/sg/rgqlist.asp?lg=1&sp=2014&rgq=D14-SG02-RGQ05.2&stg=2	- Question 5/2: Utilization of telecommunications/ICTs for disaster preparedness, mitigation and response
	http://www.itu.int/net4/ITU-D/CDS/sg/rgqlist.asp?lg=1&sp=2014&rgq=D14-SG02-RGQ06.2&stg=2	- Question 6/2: ICT and climate change
	http://www.itu.int/net4/ITU-D/CDS/sg/rgqlist.asp?lg=1&sp=2014&rgq=D14-SG02-RGQ08.2&stg=2	- Question 8/2: Strategies and policies for the proper disposal or reuse of telecommunication/ICT waste material
Space Services Software	http://www.itu.int/ITU-R/go/space-software/en	16 software tools to perform necessary calculations and analysis of space networks files submissions in application on pertinent Radio Regulations provisions
Terrestrial Services Software	http://www.itu.int/en/ITU-R/terrestrial/broadcast/Pages/Services.aspx	More than a dozen of software tools for terrestrial broadcasting compatibility and coordination examination in application of pertinent provisions of the Radio Regulations and Regional Broadcasting Agreements
Study Group 3 (Propagation) Databanks	http://www.itu.int/pub/R-SOFT-SG3	Databanks and computer programs on radiowave propagation associated with the ITU-R P. series Recommendations
Global Administration Data System (GLAD)	http://www.itu.int/en/ITU-R/terrestrial/fmd/Pages/glad.aspx	Online data-retrieval-system and central repository of ITU/Radiocommunication Bureau common information concerning Administrations and Geographical Areas

Name of the platform or service	Web-link	Brief description
Maritime Mobile Access and Retrieval System (MARS)	http://www.itu.int/en/ITU-R/terrestrial/mars/Pages/MARS.aspx	MARS provides access to operational information concerning ship, coast stations, search and rescue aircraft, accounting authorities, etc. The MARS database contains more than 720,000 ship stations and 2,000 coast stations around the world.
ITU Patent Statement and Licensing Declaration Information	http://www.itu.int/pub/R-SOFT-PAT	It is Patent statement and licensing declaration information system contains information on those statements relating to ITU-R Recommendations
ITU Digitized World Map (IDWM) and Subroutine Library (32-bit)	http://www.itu.int/pub/R-SOFT-IDWM	Database of country borders geographical data and technical data related to the Radio Regulations and certain Regional Agreements.
Space Network List (SNL)	http://www.itu.int/pub/R-SOFT-SNL	The Space Network List (SNL) is a list of basic information concerning planned or existing space stations, earth stations and radio astronomy stations.
Space Network Systems (SNS)	http://www.itu.int/pub/R-SOFT-SNS	In addition to a brief overview of the Radio Regulations referring to space services and general information containing statistics, a database diagram, tables and the AP4 notice forms, the Space Network Systems Online Service allows the user to navigate freely through the database, making predefined special queries to retrieve data based on specified input parameters and to access reference tables and descriptions of the data used in the system, which is updated bi-weekly
BR International Frequency Information Circular (BR IFIC) - Space Services	http://www.itu.int/pub/R-SP-LN/en	It contains information on the frequency assignments to space stations, Earth stations or radioastronomy stations submitted by administrations to the Radiocommunication Bureau
BR International Frequency Information Circular (BR IFIC) - Terrestrial Services	http://www.itu.int/pub/R-SP-LN/en	It contains information on the frequency assignments/allotments submitted by administrations to the Radiocommunication Bureau
Emergency (Res.647)	http://www.itu.int/net/itu-r/terrestrial/res647/default.aspx	Available frequencies/frequency bands for use in Emergency and Disaster Relief situations and/or Standard operating procedures and national spectrum management practices
International monitoring	The International Monitoring System (IMS) comprises monitoring stations and centralizing offices voluntarily designated by administrations.	
Terminology	http://www.itu.int/ITU-R/index.asp?redirect=true&category=information&rlink=terminology-database&lang=en&adsearch=&SearchTerminology=&collection=&sector=&language=all&part=abbrevi	Online database providing access to all the abbreviations and acronyms, terms and definitions contained in the ITU Publications.

Name of the platform or service	Web-link	Brief description
	ationterm&kind=anywhere&StartRecord=1&NumberRecords=50	
Database of oceanographic radars	https://www.itu.int/en/ITU-R/terrestrial/fmd/Pages/Res612-DB.aspx	This database would contain parameters of existing and planned oceanographic radars operating in the bands between 3 and 50 MHz worldwide
ITU-R Documents Database Search Tool	https://extranet.itu.int/brdocsearch	Development of search database and its search tool for ITU-R documents to assist the ITU Membership to identify ITU-R documents. (The RAG (2012) invited the Director to develop a database ITU-R documents search database and its search tool to ITU Membership.)
ITU-T Working Groups on ICT Standards		ICT standards for: 1. Internet access 2. Standards for e-health/telemedicine 3. Standards and capacity building on exposure to electromagnetic fields due to mobile phones and base stations (e.g. "Estimator Software to allow consumers check the electromagnetic field strengths of transmitting antennas) 4. Development of a methodology to assess the environmental impact of ICT in cities 5. Standards and best practices how ICTs can help cities to become smart and sustainable 6. Standards and best practices on smart water management (e.g. security issues, management) 7. Green submarine cables for tsunami warning, ocean monitoring, earth quake monitoring (= equipping submarine cables with sensors) 8. Standards and best practices for exchanging public warnings and emergencies in case disaster strikes 9. Standards and best practices for mobile money
WSIS Stocktaking Platform	www.wsis.org/stocktaking	The WSIS Stocktaking Process was launched in October 2004. Its aim is to provide a register of activities carried out by governments, international organizations, the private sector, civil society and other entities. To this end, in accordance with **§120 of the** Tunis Agenda for the Information Society adopted by the Summit, ITU has been maintaining the WSIS Stocktaking Database as a publicly accessible system providing information on ICT-related initiatives and projects with reference to the 11 WSIS Action Lines (Geneva Plan of Action). WSIS Stocktaking process provides **a portal of best practices** for stakeholders seeking updated information on the progress of implementation of WSIS outcomes (**§28.e. Geneva Plan of Action**) . Web 2.0

Name of the platform or service	Web-link	Brief description
		Platform serves as a mechanism for sharing experiences on WSIS related activities among its 40000 stakeholders representing governments, the private sector, international organizations, civil society and others. As a result, it has become the biggest ICT for development (ICT4D) online platform. WSIS Project Prizes is part of WSIS Stocktaking Process and it is a unique recognition for the excellence in the implementation of WSIS outcomes.
Child Online Protection (COP)	http://www.itu.int/en/cop/Pages/default.aspx	Website hosting information on the activities of the Child Online Protection Initiative launched in 2008, as a multi-stakeholder effort within the Global Cybersecurity Agenda (GCA) framework. The initiative brings together over 50 partners from all sectors of the global community to create a safe and empowering online experience for children around the world.
Child Online Protection (COP) Case Studies Platform	http://www.itu.int/en/cop/case-studies/Pages/default.aspx	This platform hosts a variety of case studies providing detailed information on policies, best practices, as well as other actions and processes that the broader ICT Industry has implemented to ensure that children enjoy the benefits of the digital technology within a safe online environment. This case study platform is an extended component of the Guidelines for Industry on Child Online Protection, as these were updated by ITU, UNICEF and the COP Initiative partners.
Child Online Protection (COP) Country Profiles	http://www.itu.int/en/cop/Pages/country-profiles.aspx	A repository of COP Country Profiles that indicate the COP-related legal and policy frameworks and mechanisms put in place at the level of individual Member States.
ITU Academy	https://academy.itu.int	It is an educational platform, aimed at integrating and providing training and information recourses in all aspects of telecommunications/ICTs. The portal allows for a single access point of entry to all ITU training interventions, whether delivered face-to-face, or through instructor-led or self-paced e-learning.
Organization Name: UNEP/CTCN		
CTCN	www.ctc-n.org	The CTCN promotes the accelerated transfer of environmentally sound technologies for low carbon and climate resilient development at the request of developing countries. We provide technology solutions, capacity building and advice on policy, legal and regulatory frameworks tailored to the needs of

Name of the platform or service	Web-link	Brief description
		individual countries. The main functions of the CTCN are to: ▪ manage requests from developing country NDEs and deliver responses ▪ foster collaboration and access to information and knowledge to accelerate climate technology transfer ▪ strengthen networks, partnerships and capacity building for climate technology transfer
World Bank Group		
Innovation Policy Platform	https://www.innovationpolicyplatform.org/	The Innovation Policy Platform (IPP) is a joint initiative developed by the OECD and the World Bank. The aim of the platform is to provide policy practitioners around the world with a simple and easy-to-use resource that supports them in the innovation policy-making process. This is done in two ways. Firstly the IPP provides comprehensive information about innovation policy, and secondly it facilitates collective learning about innovation policy, (both the conceptual and the how-to-do aspects), tailored to the needs of developing and developed countries.
The World Economic Forum		
World Economic Forum (WEF)	http://www.weforum.org/	WEF is the International Institution for Public-Private Cooperation to shape the global, regional, national and industry agendas. It was established in 1971 as a not-for-profit foundation and is headquartered in Geneva, Switzerland. It is independent, impartial and not tied to any special interests, working in close cooperation with all major international organisations. WEF engages political, business, academic and other leaders of society in collaborative efforts to improve the state of the world. Together with other stakeholders, it works to define challenges, solutions and actions, always in the spirit of global citizenship. It serves and builds sustained communities through an integrated

Name of the platform or service	Web-link	Brief description
		concept of high-level meetings, research networks, task forces and digital collaboration.
UNESCO, the Hungarian Academy of Science, ICSU		
World Science Forum	http://www.sciforum.hu/about-us/statutes/index.html	World Science Forum was first summoned in 2003 in Budapest as an event initiated by HAS, UNESCO and ICSU in the frame of the UNESCO World Science Day for Peace and Development. It gives participants the possibility to exchange their views regarding - among others - the relationship between science and society, the importance and relevance of science for Society, its future, the related financing issues as well as its relationship to political and civil institutions. World Science Forum shall be a meeting point, and an occasion to exchange views, for representatives of science, politics, international organisations, industrial and financial decision makers, international science fora, and science academies.

Source: collected and compiled by DESA, 2015.

Annex II: Stock taking of current initiatives and key actors for considering a global technology-facilitation platform in the post-2015 Agenda

16 March, 2015

Technology is recognised as one of the key "means of implementation" in the outcome document of the United Nations Conference on Sustainable Development ("Rio+20", Resolution 66/288, paragraphs 269-76), along with finance, capacity building and trade. One of the main elements of this outcome, as specified in paragraph 273, is the request to explore options for a "Technology Facilitation Mechanism". In response to this request, the Secretary General has made recommendations to the General Assembly regarding a Technology Facilitation Mechanism that promotes the development, transfer and dissemination of clean and environmentally sound technologies, based on options identified by all relevant UN entities. His report (A/67/348) provided an overview of proposals, outlining recommendations on the possible functions, format and working methods of a technology facilitation mechanism, as well as on a potential global way forward, and has been noted in the resolution on the "Implementation of Agenda 21", adopted by the 67th session of the General Assembly. Furthermore, the Secretary General in his synthesis report has proposed to "develop an online platform to undertake a thorough mapping of existing technology facilitation mechanisms, framework and process of clean and environmentally sound technologies".

As a follow-up of the Rio+20 mandates and the structured GA technology dialogues, the main objective of this mapping exercise is to provide an overview of the global patterns/distribution and to identify the coverage of existing technology facilitation activities, initiatives and mechanisms with technology being broadly defined as going beyond environmentally sound technologies but guided by the SDGs. As a result, any areas of strength and gaps will be identified with respect to governance and mode of operation[7]; objective and its focus on technology facilitation activities[8]; working methods or instruments[9], scope of assistance including the various stages of technology cycle; partnerships and degree/mechanism of coordination; country coverage; coverage of SDG areas; size of operation; implementation status and maturity; indication of success; and institutional arrangement. The second part of this survey will carry out a systematic mapping of existing online services and platforms, in support of discussions on a global technology facilitation platform. The survey results will contribute to identify parameters of a beta version of an online knowledge hub and information-sharing platform, and serve as a basis for other actors to contribute information on technology facilitation activities being undertaken globally and regionally outside the UN system.

Respondents are requested to complete the Activities or Initiative Survey Template (Attachment 1) and, where an online platform is applicable, to complete the Additional Survey Template for Online Services and Platforms (Attachment 2). Frameworks underpinning the surveys (e.g. typology of international technology facilitation activities, taxonomy of national policy measures, parameters of online platforms) are preliminary and subject to further refinement upon initial survey responses as well as possible follow-up data collection. The results of this survey will offer perspectives on how information, capacity or other gaps can be addressed and how existing international arrangements can be further coordinated or enhanced to foster technology cooperation and transfer, and enhance developing countries capacity in this regard. It will also provide substantive inputs for the inventory of existing frameworks to create beta version of online knowledge hub of a global technology-facilitation platform.

[7] Some mechanisms are specifically instituted through treaties or relevant conventions while others are initiatives or partnerships of agencies with broader or distinct mandates; some activities are delivered through facilities and staff with field presence while others are delivered solely online.

[8] Some mechanisms are dedicated to promotion of development, transfer and dissemination of clean and environmentally sound technologies; others have broader objectives but covers technology facilitation as an important activity component.

[9] Working methods include capacity building, training, and awareness raising, networking, financing, and facilitating inter-governmental dialogue.

Attachment: Additional Survey Template for Online Services and Platforms

Name of the platform or service and Web-link	**Brief description (<150 words)**	**Overall objectives and type of services provided***	**Focus areas (e.g. energy, agriculture, health, water), and top five most frequently using search words**	**Tools and data provided, and type of database using**	**Describe the initiative's governance, including institutional arrangements and decision-making processes (if any).**	**Access: public, access-controlled (e.g., registration requirements), security system requirement for structured data transfer between organization.**	**Standards for interoperability and search (e.g. APIs, W3C compliant, etc.); operating system and programming languages used in the website; [Please provide technical description and information on in-house capacity and note if viewable in standard compatible web browsers and various operating systems]**	**Search Engine Optimization – (Is the website optimized so the content of the website are shown and ranked based on what the search engine considers most relevant to users on all major search engines?);** **Content Feed – (Does the website provide syndicated web feed service for users to subscribe frequently updated content such as RSS feed?).**
	Sample entry: The Innovation Policy Platform (IPP) is a joint initiative developed by the OECD and the World Bank. The aim of the platform is to provide policy practitioners around the world with a simple and easy-to-use tool, supporting them in the innovation policy-making process. This is done by facilitating collective learning about innovation policy, both conceptual and how-to aspects, tailored to the needs of developing and developed countries.	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐	Sample entry: 1.Innovation policy platform 2. innovation financing 3. Innovative entrepreneur definition 4. Entrepreneurial capabilities 5. Innovation radical incremental	Sample entry: IPP site is a content management system and search engine for statistical data, articles, reports, case studies for supporting innovation policy-making process. IPP also integrated community spaces (CoP) to provide		Sample entry: IPP site provides public accessible content, while the IPP CoP provides role and group based access control for registered members only. New members need to go through approval process to be activated. Internal user accounts are created by administrator and assigned role and permissions. The server is configured with SSL for 256-bit	Sample entry: IPP is built on the technologies: • OS: Linux 64-bit • Language: PHP 5.x • Database: MySQL • Framwork: Drupal 7 which uses PHP MySQL, HTML5, CSS3, JQuery and Ajax. • SSO: Janrain APIs The markups for the system itself are W3C compliant but some legacy contents migrated from previous system may still contain non-HTML5 codes.	

Name of the platform or service and Web-link	Brief description (<150 words)	Overall objectives and type of services provided*	Focus areas (e.g. energy, agriculture, health, water), and top five most frequently using search words	Tools and data provided, and type of database using	Describe the initiative's governance, including institutional arrangements and decision-making processes (if any).	Access: public, access-controlled (e.g., registration requirements), security system requirement for structured data transfer between organization.	Standards for interoperability and search (e.g. APIs, W3C compliant, etc.); operating system and programming languages used in the website; [Please provide technical description and information on in-house capacity and note if viewable in standard compatible web browsers and various operating systems]	Search Engine Optimization – (Is the website optimized so the content of the website are shown and ranked based on what the search engine considers most relevant to users on all major search engines?); Content Feed – (Does the website provide syndicated web feed service for users to subscribe frequently updated content such as RSS feed?).
				collaborative platform to facilitate collective learning to community members about innovation policy, both conceptual and how-to aspects. The platform is using Drupal's built-in search engine with conjunction of Apache Solr search capability. The database is hosted on		encryption on HTTPS protocol for all secure transactions such as login and administrative functions. The database is secured with local connection only with sensitive data elements encrypted without decryption option so it is more secure. The Single Sign On capability is based on Jarain platform and APIs integrated with SSO providers.		

Name of the platform or service and Web-link	**Brief description (<150 words)**	**Overall objectives and type of services provided***	**Focus areas (e.g. energy, agriculture, health, water), and top five most frequently using search words**	**Tools and data provided, and type of database using**	**Describe the initiative's governance, including institutional arrangements and decision-making processes (if any).**	**Access: public, access-controlled (e.g., registration requirements), security system requirement for structured data transfer between organization.**	**Standards for interoperability and search (e.g. APIs, W3C compliant, etc.); operating system and programming languages used in the website; [Please provide technical description and information on in-house capacity and note if viewable in standard compatible web browsers and various operating systems]**	**Search Engine Optimization – (Is the website optimized so the content of the website are shown and ranked based on what the search engine considers most relevant to users on all major search engines?);** **Content Feed – (Does the website provide syndicated web feed service for users to subscribe frequently updated content such as RSS feed?).**
				MySQL which is a relational database system.				
		1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐						

Note: * "type of services" might refer to, e.g.,: (1) information depository, (2) policy advice, (3) community of practice, (4) matching supply and demand, (5) content or search services, (6) newsletters, etc.