New Analysis Tools and Leadership Model for A Modern UN
To: The United Nations Secretary-General

Tobias Bienz[1], Spyros Schismenos[2,3], Garry Stevens[2], Nichole Georgeou[2]

[1]University of St. Gallen, St. Gallen, Switzerland
[2]Humanitarian and Development Research Initiative (HADRI), Western Sydney University, Sydney, Australia
[3]UNESCO Chair on Conservation and Ecotourism of Riparian and Deltaic Ecosystems
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Corresponding Author: Tobias.Bienz@student.unisg.ch
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Executive Summary: Digitalization has disrupted the way products are distributed. With this came an influx of products that depend on network effects and thrive in a winner-takes-all market environment (Schilling 2002). A similar trend is being observed in many frontier technologies, including applications in the so-called 'gig economy', which will create winners and losers. Simultaneously, governments are experiencing an erosion of their tax base (Peng 2016). These resources are desperately needed to tackle the widening digital divide, combatting the lack of electricity, and providing internet access to the poorest (International Energy Agency 2017). The current strategy of the United Nations (UN) shows promise. However, the way the UN currently operates has not been adapted to meet the challenges of a digital economy. This is often observed in global-to-local applications, especially when generalized frameworks fail to adapt to communities with different characteristics and needs. The Sustainable Development Goals (SDGs) are a guiding light to rally stakeholders around specific key issues and opens the field for collaboration. The UN is in a unique position to convince all participants to engage in negotiations, to mobilize substantial resources, and has the best chance to get concessions on restrictive systems such as the intellectual property arrangements (Haugen 2010). Systems need to be in place to facilitate technology transfers and capacities need to be built up to give the least developed countries (LDCs) a chance of catching up. The UN needs to bring international institutions, governments, civil society, academia, and the private sector to the table to enable LDCs to determine their own future (Moyo 2010). The UN should introduce more heuristic analysis tools to bring more diverse partners into workable collaborations to address these challenges. A new leadership system should also be introduced to provide clearer direction and autonomy to their contributors.

I. The age of hyper-scalable technologies and the digital divide

Digitalization disrupted the way products are being distributed. With this came an influx of products that depend on network effects and thrive in a winner-takes-all market environment (Schilling 2002).

Network effects, more specifically positive network externalities, are defined as goods where "the value a user derives from a good increases with the number of other users of the same or similar good" (Schilling 2002, 387). A winner-takes-all market environment is characterized by a technology that displays an increasing return to adoption (Arthur 1989) resulting

in a disproportionate amount of value captured by a limited number of entities. Many frontier technologies rely on a feedback cycle based on products that gather large amounts of data (the Internet of Things is often the poster child for this trend), machine learning to recognize patterns, and big data to improve performance (Kurbalija 2016).

We have seen a widening chasm in the West where many new technologies enable companies (e.g. Airbnb, Google, Facebook) to create a winner-takes-all scenario as network effects are one of the most crucial parts in creating the most benefit (Schilling 2002). A significant portion of the benefits is ultimately captured by very few entities, most often the company behind the innovative product; new technologies such as AI and big data have the same characteristics (Deloitte 2018). As a result, the entity with the largest data set to train the program becomes the best at what it does and therefore becomes the best product, which creates a reinforcing cycle.

Due to improvements in computation technology and better infrastructure, many of these products are delivered through the internet or are cloud-based and depend on a service business model, which implies that "the supplier commits to improving customers' value in use" (Kowalkowski et al. 2017, 7). This enables hyper-scalability where access to a product can be granted to thousands of users, simply by buying additional capacity from an existing data centre (Lehrig et al. 2018). The efficiency gains in these environments are immense and frontier technologies carry the promise of making whole industries significantly more efficient while simultaneously creating more value. In this winner-takes-all environment, it becomes increasingly difficult for least developed countries (LDCs) and their communities, which are lagging technologically, to follow the progress in digitalization of more modernized countries, leading to a digital divide that is increasingly difficult to overcome (van Deursen and van Dijk 2019). The digital divide in this context is understood as "the gap between people who have or do not have access to information and communication technologies" (van Dijk and Hacker 2003, 62).

In order to enable all countries to reach a more balanced position between efficiency gains and losing

out in the marketplace of frontier technologies, key resources (e.g. know-how, access to patented technologies, education, increased government capacity) need to be made available. Currently, tax avoidance is common in most big technology companies, leading to fewer resources for states (Tehrani 2014). These resources are desperately needed to tackle the widening technology gap, combatting the lack of electricity and providing internet access to the poorest (International Energy Agency 2017).

As elaborated above, frontier technologies can bring immense gains to an economy. They can, however, also bring with them detrimental effects such as an increasing digital divide. While LDCs should benefit from the efficiency gains and the additional value created, it should also be ensured that the profits and locally developed intellectual property are not simply extracted by foreign companies (Ampah and Kiss 2019). The UN plays a critical role in solving this ethical dilemma. The opportunities and dangers of frontier technologies are both significant. Enabling negotiating parties to strike an agreement, which is beneficial to all participants may be a difficult task, but also one in which the UN can play a critical and strategic role.

II. The current UN approach
In an official publication, UN Secretary-General António Guterres outlined his strategy for dealing with new technologies. He intends to:

1) "Strengthen UN capacity to engage with new technologies: by training staff, increasing [their] knowledge..."
2) "Increase [his] outreach and engagement: by speaking with diverse partners, calling attention to the benefits and risks of new technologies..."
3) "Promote dialogue on normative and cooperation frameworks: by supporting implementation of existing agreements and recommendations and strengthening established multi-stakeholder mechanisms..."
4) "Increase support to Member States: by strengthening national and regional capacities, by ensuring meaningful access to knowledge and policy discussions, and by connecting governments to ideas, partners and solutions" (United Nations 2018, 5).

The core statements of the UN Secretary-General's strategy include internal capacity building (1), increasing awareness of the risks and opportunities (2), bringing all participants to the table (3) and increasing support to Member States (4).

The Sustainable Development Goals (SDGs) have become a rallying cry to engage stakeholders from different areas and provide them with focus to keep efforts on target. The latest round has increased cross-sector collaboration and recognized the role of business in the fight against poverty (Sachs 2012). The UN is in a unique position to mobilize substantial resources and has the best chance to get concessions on restrictive systems such as the intellectual property arrangements (Haugen 2010).

As the UN is in this unique position, it has a moral obligation to do everything in its power to bring divergent groups of stakeholders into negotiations. There is no other comparable body that is able to call upon all the stakeholders entangled in one specific topic and engage them in a fruitful discussion (Ludji 2018).

Ultimately the goal must be to close the digital divide and to empower the LDCs to make frontier technologies their own. This would imply that LDCs would be able to create local solutions from the underlying frontier technologies and diffuse the skills to interact with these products among the population much more easily, as the product is produced with the specific context in mind. To achieve this, systems need to be in place to facilitate technology transfers and that capacities need to be built up to take full advantage of future frontier technologies.

One key issue that the UN is facing is that their leadership system is not built for a rapidly digitalizing world. The current processes such as the Management and Accountability Framework of the UN Development and Resident Coordinator System (United Nations 2019) or the UN Leadership Model (United Nations 2016) provide stringent guidelines but fail to provide the necessary flexibility or the guiding clarity of a north star which reminds contributors of their purpose on a daily basis. A simple document that is read once during the onboarding process and then never touched again is

no longer sufficient when dealing with frontier technologies.

Similarly, despite its capacity to persuade many stakeholders to compromise, the UN still operates in silos itself. This issue has been illustrated by Anthes who analysed the Food and Agricultural Organisation of the United Nations (2019). She argues that the lack of idea cross germination might have yielded good results in previous decades, but it is no longer apt for the fast-paced reality of dealing with frontier technologies.

III. Recommendation
Frontier technologies have been one of the most important factors to evoke change in societies, and hold the potential for much change today. This article highlights their contribution. Specifically, in Section 1 we highlighted the dangers and opportunities of frontier technologies. In Section 2 we focused on the current approach of the UN and discussed why the current system is no longer fit-for-purpose. Therefore, it is pertinent for the UN to tackle this issue by both committing sufficient resources and enhancing its agility to address these contemporary challenges.

The balance between the dangers and the opportunities of frontier technologies poses an ethical dilemma and leads to a very complex policy environment (Vereinte Nationen 2018). The UN Secretary-General has stated that he intends to "increase support to member states" and for LDCs to cope with the complexity of this environment they need the resources necessary to deal with it (United Nations 2018, 5). Institutions need to be strengthened through approaches such as technology transfer programs and the diffusion of new technologies in LDCs. This is relevant to the current system of patents and trademarks, which are meant to be an incentive to innovate, but have become a hindrance to global diffusion of new technologies and are often abused to ensure a monopolistic market environment (Rouvinen and Stankiewicz 2009). Similarly, the international tax system is meant to create an even playing field for all countries but in many ways has turned into a "race to the bottom'" with the creation and abuse of numerous tax loopholes. Ideas and tools to avoid regulatory arbitrage are available and the international community of states must be able to reliably tax

profits in an era where these have become globally mobile. A minimum tax level has been proposed, where all countries agree to a very low base tax (Peng 2016).

A necessary condition for LDCs to catch up is having the minimum infrastructure in place. For example, the cost of internet access in LDCs is significantly more than in developed economies. This inequity needs to be addressed by the international system, in order to create the necessary conditions to close the digital divide (Kurbalija 2016). Projects such as the UN-administered Digital Solidarity Fund are predicated on the idea of providing financial support to develop the human capacity in LDCs. This is intended to decrease the gaps in global-to-local frameworks and minimize interactions in their implementation by supporting the involvement of all participants, even though this particular experiment was not successful (Farivar 2011). Ensuring digital literacy is a major obstacle to technology diffusion. Building human capacity must therefore encompass population-level traditional and digital literacy and their interface, not only government expertise and capacity building

Government regulations from the previous era are not up to the task of dealing with frontier technologies. One prominent example is how innovation in social media communication is shaping opinions and supplying individuals with news that purely reinforces their existing beliefs (Gregory Eady et al. 2019). The courts have struggled to deal with the issue because the underlying laws and existing legal cases provide an insufficient basis for prosecutions (Zollinger 2018). The agenda surrounding frontier technologies will need to balance the drive for enhanced productivity and ethical considerations. The UN needs to bring international institutions, governments, civil society, academia and the private sector to the table and enable LDCs to determine their own future (Moyo 2010).

To make the UN more effective in supporting LDCs in this endeavour, the best policy recommendation is to change the way the UN leads its contributors. As elaborated in Section 2, the persisting silo structure of the UN is no longer an ideal setup to handle frontier technologies. Tools such as the St. Gallen Management Model (SGMM) provide a heuristic

insight into specific issues (Rüegg-Stürm, Grand, and Uni-Taschenbücher GmbH 2019). Heuristic, in this context, is meant to describe a model that is able to capture an overarching view of very complex topics and provide the user with actionable methods to make complexity workable. The SGMM does this by combining practice theory and autopoietic systems theory (Rüegg-Stürm, Grand, and Uni-Taschenbücher GmbH 2019). One potential tool to restructure how the organisations goals are set and how employees are led, are Objectives and Key Results (OKRs). Increased employee engagement produces significantly better results than working with demotivated contributors (Elqadri, Wardoyo, and Priyono 2015).

i. St. Gallen Management Model (SGMM)
While the UN has the capability to bring stakeholders to the table, the underlying analysis determining who should be at the table in the first place, is often not discussed. Introducing new analytical tools, such as the SGMM, that provide a more heuristic view on different stakeholders could enable the UN to broaden their perspective and motivate unexpected influencers to join the negotiations. While the SGMM is one particular tool, other methodologies such as Design Thinking (Brown and Katz 2009), or Scrum (Sutherland 2014) are also worth evaluating when changing internal processes. The SGMM for example is widely applied in contexts ranging from start-ups to rural communes and has been used in various national contexts (Klimek 2019). As it can be applied to different contexts easily, it makes for a good tool that could be used throughout different UN branches. It is highly recommended to start experimenting with such tools to find out which are fit-for-purpose and can be scaled up for wider use throughout the organisation.

ii. Objectives and Key Results (OKRs)
The Gates Foundation proved how effective humanitarian efforts can be if managed and incentivized properly. OKRs have been used by many large corporations such as Google and Intel, but the Gates Foundation has also embraced this method for leading contributors and aligning an organisation's efforts towards a clear, common direction. The UN could leverage the talent and depth of knowledge of their contributors much better by implementing a more agile leadership system. The OKR system has been proven to be effective in the development sector

by the Gates Foundation and simultaneously it has been implemented by several very large organisations. This makes it an ideal candidate as a potential new leadership system for the UN. There are plenty of resources and experts available who can help implement such a system in the UN as a large organisation and the aid-sector specific knowledge is within reach at the Gates Foundation.

IV. Conclusion: providing a north star and more heuristic analysis tools

Due to the difficulties some LDCs exhibit in undergoing the digitalization process and because the UN has organisational issues adapting their structure and programs to local requirements, there are roadblocks on the path towards the adoption of frontier technologies. The UN is in a unique position to bring stakeholders from diverging groups to the negotiation table. Since there is no comparable organisation to the UN it is their moral obligation to guide the negotiation process in order to ensure that a balance between efficiency and ethics will be found. A simple principle to encapsulate many of the issues mentioned in this paper is that those who profit should pay.

This policy memo is intended to show a snapshot of the issues and possible solutions surrounding the topic of frontier technologies. While the discussion was mostly focused on the internet, because it provides an interesting case study and is omnipresent in our lives, it is not at all clear if some of the specific solutions for issues mentioned in this paper will be applicable to other frontier technologies. The recommendation from the authors is however very clear. The UN should introduce more heuristic analysis tools to bring more diverse partners to the negotiation table. A new leadership system should also be introduced to provide clearer direction and autonomy to their contributors.

References

Ampah, Isaac Kwesi and Gabor David Kiss. 2019. "Economic Policy Implications of External Debt and Capital Flight in Sub-Saharan Africa's Heavily Indebted Poor Countries." *Society and Economy* 41(4): 523–42.
https://doi.org/10.1556/204.2019.41.4.8

Anthes, Carolin. 2019. *Institutional Roadblocks to Human Rights Mainstreaming in the FAO: A Tale of Silo… Culture in the United Nations System*. Wiesbaden: Springer VS.
https://doi.org/10.1007/978-3-658-27759-8

Arthur, W. Brian. 1989. "Competing Technologies, Increasing Returns, and Lock-In by Historical Events." *The Economic Journal* 99(394): 116.
https://doi.org/10.2307/2234208

Brown, Tim and Barry Katz. 2009. *Change by Design: How Design Thinking Transforms Organisations and Inspires Innovation.* New York: Harper Business.

Deloitte. 2018. "Technology, Media and Telecommunications Predictions 2019." *Deloitte.com.*
https://www2.deloitte.com/content/dam/Deloitte/pe/Documents/technology-media-telecommunications/Artificial%20intelligence.pdf

Deursen, Alexander JAM van and Jan AGM van Dijk. 2019. "The First-Level Digital Divide Shifts from Inequalities in Physical Access to Inequalities in Material Access." New Media & Society 21(2): 354–75.
https://doi.org/10.1177/1461444818797082

Dijk, Jan van and Kenneth Hacker. 2003. "The Digital Divide as a Complex and Dynamic Phenomenon." *Information Society* 19(4): 315.
https://doi.org/10.1080/01972240309487

Elqadri, Zaenal Mustafa, Dewi Tri Wijayati Wardoyo, and Priyono. 2015. "The Influence of Motivation and Discipline Work against Employee Work Productivity Tona'an Markets." *Review of European Studies*, 12: 59.
https://doi.org/10.5539/res.v7n12p59

Farivar, Cyrus. 2011. *The Internet of Elsewhere*. New Brunswick: Rutgers University Press.

Gregory Eady, Jonathan Nagler, Andy Guess, Jan Zilinsky, and Joshua A. Tucker. 2019. "How Many People Live in Political Bubbles on Social Media? Evidence From Linked Survey and Twitter Data." *SAGE Open*.
https://doi.org/10.1177/2158244019832705

Haugen, Hans Morten. 2010. "Access Versus Incentives: Analysing Intellectual Property Policies in Four UN Specialized Agencies by Emphasizing the Role of the World Intellectual Property Organisation and Human Rights: Access Versus Incentives." *The Journal of World Intellectual Property* 13(6): 697–728.
https://doi.org/10.1111/j.1747-1796.2010.00401.x

International Energy Agency. 2017. *Energy Access Outlook 2017: From Poverty to Prosperity*. OECD.
https://doi.org/10.1787/9789264285569-en

Klimek, Katarzyna. 2019. "The Implementation of 'The St. Gallen Model for Destination Management (SGDM)' in the Polish Carpathians: A Case Study of Six Bieszczady Communes." *Turyzm/Tourism* 29(2): 55–67.
https://doi.org/10.18778/0867-5856.29.2.06.

Kowalkowski, Christian, Heiko Gebauer, Bart Kamp, and Glenn Parry. 2017. "Servitization and Deservitization: Overview, Concepts, and Definitions." *Industrial Marketing Management* 60 (January): 4–10.
https://doi.org/10.1016/j.indmarman.2016.12.007.

Kurbalija, Jovan. 2016. *An Introduction to Internet Governance.* Msida, Geneva, and Belgrade: DiploFoundation.

Lehrig, Sebastian, Richard Sanders, Gunnar Brataas, Mariano Cecowski, Simon Ivanšek, and Jure Polutnik. 2018. "CloudStore—towards Scalability, Elasticity, and Efficiency Benchmarking and Analysis in Cloud Computing." *Future Generation Computer Systems* 78 (January): 115–26.
https://doi.org/10.1016/j.future.2017.04.018

Ludji, Irene. 2018. "The Ethics of Solidarity and Human Rights: Insights from the World Council of Churches on United Nations Reform." *The Ecumenical Review* 70(3): 430–42.
https://doi.org/10.1111/erev.12373.

Moyo, Dambisa. 2010. *Dead Aid: Why Aid Is Not Working and How There Is a Better Way for Africa.* New York: Farrar, Straus and Giroux.

Peng, Wei. 2016. "Multinational Tax Base Erosion Problem of the Digital Economy." *Modern Economy* 7(3): 345–52.
https://doi.org/10.4236/me.2016.73038

Rouvinen, Petri and Rikard Stankiewicz. 2009. "Are Intellectual Property Rights Hindering Technological Advance? The Need for Technological Commons." *Review of Policy Research* 26 (1–2): 195–217.
https://doi.org/10.1111/j.1541-1338.2008.00375.x

Rüegg-Stürm, Johannes, Simon Grand, and Uni-Taschenbücher GmbH. 2019. *Managing in a Complex World: The St. Gallen Management-Model.* Stuggart: utb GmbH.
https://www.utb-studi-e-book.de/9783838552996

Sachs, Jeffrey D. 2012. "From Millennium Development Goals to Sustainable Development Goals." *The Lancet* 379 (9832): 2206–11.
https://doi.org/10.1016/S0140-6736(12)60685-0

Schilling, Melissa A. 2002. "Technology Success and Failure in Winner-Take-All Markets: The Impact of Learning Orientation, Timing, and Network Externalities." *Academy of Management Journal* 45(2): 387–98.
https://doi.org/10.5465/3069353

Sutherland, Jeffrey Victor. 2014. *Scrum: The Art of Doing Twice the Work in Half the Time*. New York: Crown Business.

Tehrani, Sherry. 2014. "Welcome to the Amazon: Leading Online Retail from Local Tax Avoidance into Your Backyard." *The Tax Lawyer* 67, no. 7: 875-908.

United Nations. 2016. "The United Nations Leadership Model."
https://undg.org/wp-content/uploads/2016/10/UN-Leadership-Model-Rev-Jun-2017.pdf

United Nations. 2018. *UN Secretary-General's Strategy on New Technologies.*
https://www.un.org/en/newtechnologies/images/pdf/SGs-Strategy-on-New-Technologies.pdf

United Nations. 2019. "Management and Accountability Framework of the Un Development and Resident Coordinator System."
https://undg.org/wp-content/uploads/2019/06/UNDS-MAF-2019-country-level-component-FINAL-editorial-rev-26APR.pdf

Vereinte Nationen, ed. 2018. *Frontier Technologies for Sustainable Development. World Economic and Social Survey 2018*. New York: United Nations.

Zollinger, Zach S. 2018. "Old Rules, New Issues: The Discovery of Social Media Information." *Computer & Internet Lawyer* 35(6): 11–15.

Tobias Bienz holds a Master's degree in International Affairs from the University of St. Gallen in Switzerland. During the process of completing his degree, he consulted for the Swiss Agency for Development and Cooperation on the 'Impact Potential of Incubators for Employment and Income Creation'. He also taught a class on 'Innovative Projects for a Sustainable Future'. His thesis focused on an analysis of the off-grid solar energy market in Ethiopia in collaboration with Nobel Prize nominee Gigawatt Global. Furthermore, he was selected as a Leader of Tomorrow at the 2018 St. Gallen Symposium, having successfully submitted an essay on the future of work. This essay was later developed into an exploration of 'Humanitarian Entrepreneurship and Employee Shares' presented at the Asia Pacific Humanitarian Leadership Conference in Melbourne last year.

During his bachelor studies, Tobias cofounded a social impact start-up in the Swiss mobility sector. His other engagements included a longstanding participation in the social entrepreneurship branch of oikos, volunteer experience in rural Thailand and support of the Lee Kuan Yew Responders group in Singapore during his semester abroad.

Spyros Schismenos is currently a PhD Fellow and Member of Humanitarian and Development Research Initiative (HADRI) at School of Social Sciences, Western Sydney University, Australia. Since 2016, he has been working closely with the UNESCO Chair on Conservation and Ecotourism of Riparian and Deltaic Ecosystems as the Focal Point for the Wider Region of Asia-Pacific. He is a Member of the United Nations Association of Australia (UNAA) Academic Network. His research disciplines focus on Humanitarian Engineering, Emerging Technologies, Disaster Management and Renewable Energy.

Garry Stevens is a Senior Lecturer in the Humanitarian and Development Studies (HADS) Program at Western Sydney University. As part of the Humanitarian and Development Research Initiative (HADRI), he is involved in projects examining population preparedness for disasters and critical incidents, including occupational risk and resilience factors among emergency service workers, Disaster Medical Assistance Teams (AUSMAT) and humanitarian aid workers and trainees. His recent work with Aid practitioners focuses on worker self-care and help-seeking attitudes in the context of work-related stress. He is also involved in population mental health and epidemiology, including technology assisted mental health care in hospital and community settings.

Nichole Georgeou is Associate Professor in Humanitarian and Development Studies, and Director of the Humanitarian and Development Research Initiative (HADRI) at Western Sydney University. She holds a PhD in Development Sociology, a Master of Social Change and Development (Research), and a Bachelor of Creative Arts from University of Wollongong, as well as a Diploma of Education from University of Newcastle.
Nichole is the author of the 2012 study 'Neoliberalism, Development and Aid Volunteering' (Routledge). Her research publications on volunteering, aid, development and food security have appeared in, among others, Journal of Sociology, Australian Journal of History and Politics, Australian Journal of Political Science, Third Sector Review, PORTAL: Journal of Multidisciplinary International Studies, PLOS One, Pacific Dynamics, and Voluntas.

Nichole is a Board Member of the Development Studies Association of Australia and is on the editorial board of International Gramsci Journal (http://ro.uow.edu.au/gramsci/). She is a regular article and book reviewer for journals in the disciplines of sociology, politics and in development studies. Before academia, Nichole worked as an aid volunteer and aid organizer/manager in Japan and in Vietnam, working with UNICEF and various civil society organisations