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## **Special Articles: Commentary**

### **Intellectual Phishing, Hidden Conflicts of Interest and Hidden Data: New Risks of Preprints**

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#### **Abstract**

Preprints were originally destined to put forward a first version of a version of a paper that was prepared, as best and complete as possible, by the authors, but for which they wanted intellectual input from the community prior to submission to a regular peer reviewed journal. Although arXiv has led the way with physics and mathematics, bioRxiv became popular for the biological sciences. Since the beginning of 2016, after a preprint promotional campaign by ASAPbio, the popularity of preprints has been increasing, as has the number of preprint servers. Three fairly recent (March and May of 2017) preprints published in bioRxiv test the limits and uses of preprints, and bring with them a whole set of ethical questions. The three preprints were published primarily by members of the publishing elite, leaders of ethical bodies and think tanks aiming to establish new rules or guidelines, to address several issues in research integrity and ethics. However, in at least two cases, the texts are in a fairly crude state of intellectual development, and the authors are explicitly using bioRxiv to “fish” for ideas from peers and the public. It is unclear how any individual / group who contributes intellectually to such preprints will be acknowledged, if at all, and the risks of ghost authorship exist with this new exploratory model of preprints. In addition, the use of preprints to accommodate the intellectual ideas of others, while taking all the credit, may be a new form of academic scam in publishing, “intellectual phishing.” Risks to the integrity of publishing are already high, and if preprints are seen as being abused in any way, then this may reduce trust in this new academic model. The risk is compounded by the discovery of multiple hidden conflicts of interest in these and one other preprint.

**Keywords:** arXiv; ASAPbio; bioRxiv; DOI; Hidden Conflicts of Interest; Peer Review; Preprint Server; Quality Control; Retraction Watch.

#### **Preprints in a Nut-shell**

Preprints, which are a subset of the grey literature (Lawrence, 2015), have existed since 1991 when arXiv (arXiv, 2017), run by Cornell University Library (Ithaca, New York), served primarily the physics and mathematics communities. Representing a pre-submission version of a scientific

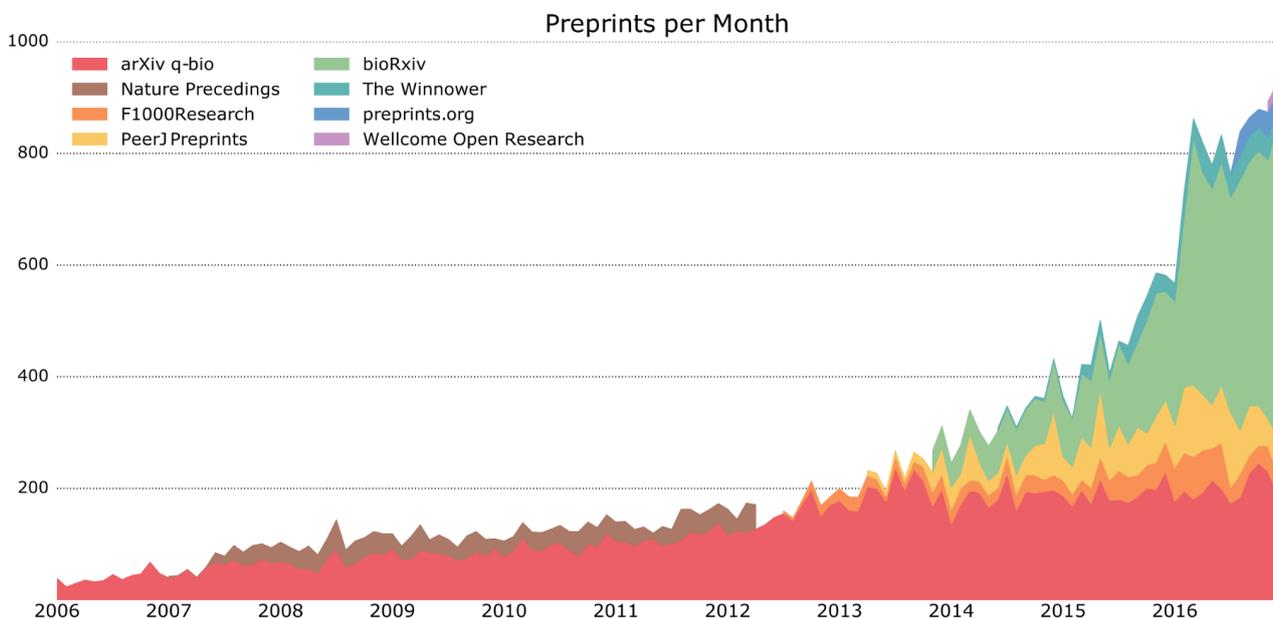
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paper, but for which the authors were seeking input regarding possible errors in their methodology, or formulae, arXiv found a comfortable niche among the mathematics and physics communities, expanding more recently to accommodate a wider spectrum of scientific fields, emboldened by three-year funding (US\$ 445,000) from the Alfred P. Sloan Foundation (Alfred P. Sloan Foundation, 2017). bioRxiv (bioRxiv, 2017a) emerged as a preprint server for the biological sciences, and by the end of 2016, represented the greatest proportion of preprints among the most well-known preprint servers (Fig. 1), confirmed by Kaiser (2017).

Biologists have more recently begun to warm to the idea of preprints because the publishing process takes so much time, causing them distress and frustration at not having their important results visible to the public for so long (Teixeira da Silva, & Dobránszki, 2017). Consequently, in order to plant an intellectual flag in peer or academic territory, a preprint can serve two purposes for academics: a) it provides documented proof, with an accompanying digital object identifier (DOI), that gives a time stamp on intellectual ideas, preventing them from being plagiarized or scooped, at least in theory; b) it serves to attract feedback and readership even before it reaches a final stage, in some cases, possibly months or even years later, allowing for authors to reap benefits of having their intellectual ideas in the public domain early. Related to preprints, three important trends have started to take place.



**Fig. 1.** Preprints per Month Graph

(Fig. 1) bioRxiv, by the end of 2016, represented the largest proportion of preprints, overtaking arXiv, which has been in existence since 1991. Graph courtesy of Jordan Anaya and PrePubMed (PrePubMed, 2017).

Firstly, the number of preprint servers has started to increase, in essence triggering a “preprint war” (Teixeira da Silva, 2017a). Secondly, preprint servers like bioRxiv have started to receive funding from philanthropic groups such as the Chan Zuckerberg Initiative (Cold Spring Harbor Laboratory, 2017). Thirdly, funding groups are creating their own preprint servers, such as the Wellcome Trust’s Wellcome Open Research (Wellcome Trust, 2017), and also the UK Medical Research Council, HHMI and NIH (Kaiser, 2017), which serve as exclusive platforms to show-case early research results by research groups that they fund. So, there is clearly an increasing trend towards preprints, at least in the biomedical sciences, and some positive aspects that complement traditional peer review. However, like all scams that exist in scholarly publishing, new portals of intellectual ideas represent new uncharted risks for academics. This paper highlights how four fairly recent preprints published at bioRxiv may represent a new unsettling trend in the world of preprints, and evidence is provided to support these claims. In general, preprints should not be

cited, except where to critique them, as has been done in this paper, because they represent crude forms of unscrutinized scholarly information (Teixeira da Silva, 2017b).

### bioRxiv Suddenly Changes Policy, Without Warning

bioRxiv, until about May 20, 2017, accepted only three types of articles: new, confirmatory or contradictory (bioRxiv, 2017b), stating “Articles in bioRxiv are categorized as *New Results*, *Confirmatory Results*, or *Contradictory Results*. *New Results* describe an advance in a field. *Confirmatory Results* largely replicate and confirm previously published work, whereas *Contradictory Results* largely replicate experimental approaches used in previously published work but the results contradict and/or do not support it.” The latter two categories most likely exist as a way to improve reproducibility in science. Regarding the content of preprints that were permissible at bioRxiv, the FAQ page (bioRxiv, 2017c) stated, also until about May 20, 2017, that “bioRxiv does not permit the posting of news, product advertisements, teaching materials, policy statements, theses, dissertations, student projects, recipes, and simple protocols.” However, at or near this date (the precise date is unclear because bioRxiv does not date its changes to policies, there exists no public version of record, and because bioRxiv consistently fails to offer public clarification), the scope of submissions suddenly changed, without warning to the public or public notice (see B in Fig. 2).

A	B
<p><b>What types of content can be posted on bioRxiv?</b></p> <p>bioRxiv is for the distribution of preprints, which are complete but unpublished research articles. Research articles reporting new, confirmatory, or contradictory findings may be posted. Individual components of research articles such as figures, tables, and data sets are not appropriate for posting to bioRxiv. bioRxiv does not permit the posting of news, product advertisements, teaching materials, policy statements, theses, dissertations, student projects, recipes and simple protocols.</p>	<p><b>What types of content can be posted on bioRxiv?</b></p> <p>bioRxiv is for the distribution of preprints, which are complete but unpublished manuscripts. Research articles reporting new, confirmatory, or contradictory findings may be posted. Individual components of research articles such as figures, tables, and data sets are not appropriate for posting to bioRxiv. In the Scientific Communication and Education subject category, research articles and white papers on professional standards and best practices may be posted. bioRxiv does not permit the posting of news, product advertisements, teaching materials, policy statements, theses, dissertations, student projects, recipes and simple protocols.</p>

**Fig. 2.** Version of record for the bioRxiv FAQ page

(A) April 23, 2017; (B) at or near May 20, 2017. (A) is courtesy of Klaas Van Dijk, who provided the screen-shot in PDF format.

In that new policy, bioRxiv suddenly allowed, in “the Scientific Communication and Education subject category, research articles and white papers on professional standards and best practices.” Although clearly announced and explained changes in policies are positive academic aspects, this sudden and unannounced change in policies at and by bioRxiv sets a dangerous precedent for several reasons. Firstly, it indicates that bioRxiv, which is now the likely leading preprint server for the biomedical sciences, at least in terms of volume, can manipulate any aspect of its policies at any time, without prior warning to academics, thus potentially affecting them negatively. In essence, being a privately owned preprint server, its management can make any changes they wish, but drastic and radical changes without community input or approval diminishes the positive image of this preprint server and trust in its leadership and management. This is because such decisions are made opaquely. It also indicates that those authors who may have submitted, until about May 20, 2017, preprints related to policy or “professional standards and best practices” may have been disadvantaged, and thus victimized by bioRxiv, deepening the notion that at the end of the day, these new experimental publishing models may be serving simply

to further erode authors' rights or victimize them because the wider academic public is increasingly excluded from basic academic decisions that affect them (Al-Khatib, & Teixeira da Silva, 2017).

In an age of academic publishing where many fake aspects are threatening the basic fabric of scholarly communication and information integrity (Teixeira da Silva, 2017c), openness and transparency should be the most important aspects required from bioRxiv regarding their policies, including dating and documenting different versions of record, as equally as any new preprint version that is published is assigned a new version number, and sometimes a new DOI. In this case, as is argued next, the policies regarding permissible preprint content may have been manipulated to accommodate for powerful vested interests in the world of publishing and research ethics. This potentially dishonest change in policy, including its highly suspicious timing, achieves the inverse of what preprints are meant to achieve in publishing, i.e., increasing honesty, openness and transparency, to increase trust.

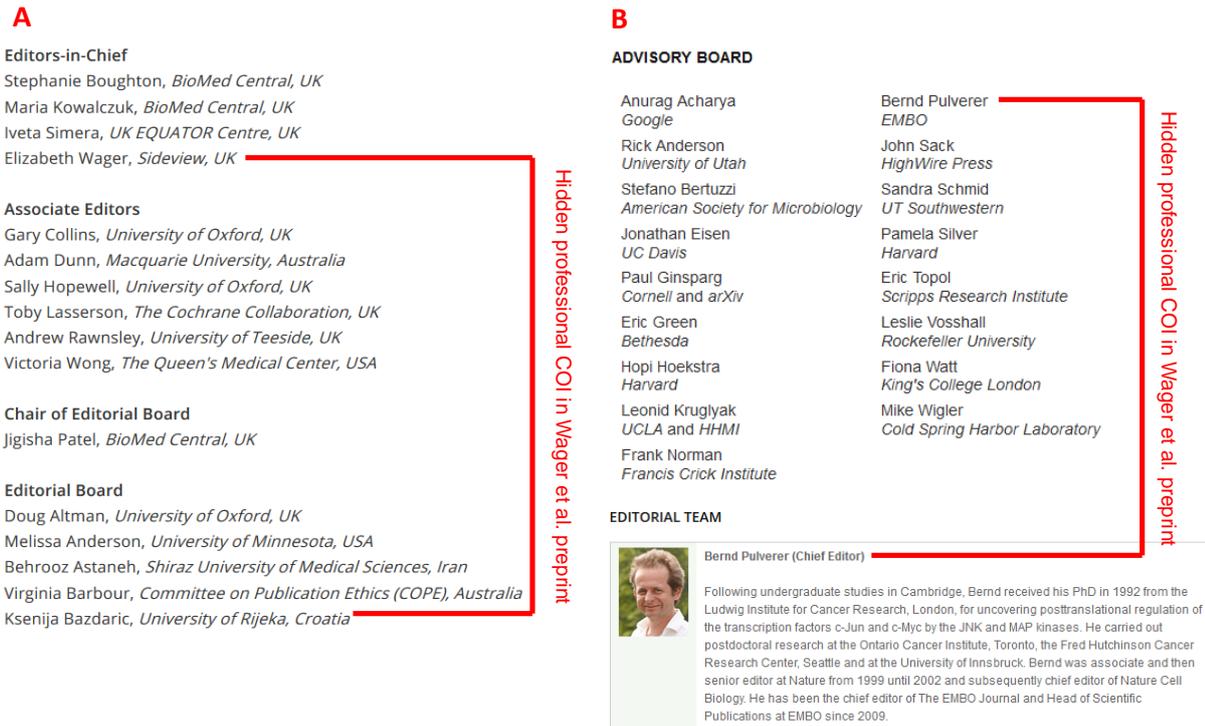
### Three Policy-related bioRxiv Preprints

Three preprints were published at bioRxiv that caught the attention of social media and those who take interest in issues related to preprints: Barbour et al. (2017a), McNutt et al. (2017), Wager et al. (2017). In the Barbour et al. (2017a) preprint, the authors, who stem from the Committee on Publication Ethics (COPE), BMJ (British Medical Journal), Crossref and BioMed Central (BMC), proposed that retractions and corrections should be replaced by versioning of manuscripts, like preprints, in which each version of an academic paper receives an updated version, with an independent DOI, as occurs during open peer review at f1000Research (f1000Research, 2017). Although the authors correctly conclude, mainly as a result of weak and short-sighted COPE guidelines to date and poor implementation by COPE members (Teixeira da Silva, 2017d, 2017e), that “[o]ur current system of correcting research post publication is failing both ideologically and practically”, the ideas put forward by Barbour et al. (2017a) are crude, and the authors are clearly seeking input from the public and academics to build their paper and fortify their ideas.

Many statements are unsupported by literature, most of the text serves as crude advertising for COPE and Crossref, even though, quite misleadingly, versions 1 to 4 of the preprint (published between March 20, 2017 and March 24, 2017) claim that “this document does not necessarily represent the views of the organizations listed here”, while stating, after the author list “on behalf of COPE working group”, an indistinct group that could not be clearly identified on any COPE page, even though COPE claims to have multiple “working groups”, noting that “Several subcommittees and working groups have also been established” (COPE, 2017a). Even though funding and competing interests and/or conflicts of interest (COIs) were visibly missing from version 1, they were incorporated into version 4 following a public outcry on social media. The Barbour et al. (2017a) preprint thus represents the first case of where policy makers and powerful publishing industry leaders are seeking preprint servers, in this case, bioRxiv, to launch “crude” ideas, hoping to trawl public input and feedback, i.e., intellectual phishing. How each and every contributor will be acknowledged, if at all, will be a new ethical challenge for preprints to test whether preprints are stimulating ghost or guest authorship, especially the former, where intellectual input from known or anonymous public sources are not suitably acknowledged or rewarded for their input. The risk already exists as the Twitter feed and comments section related to this set of four versions of this preprint already include many suggestions that have not yet been publicly acknowledged, although, admittedly, their ideas appear to not have yet been fused into the next version of the preprint. Evidence exists that not all contributors were duly acknowledged (Barbour et al., 2017b), validating the concerns about potential intellectual phishing and thus ethical concerns in an as-yet untested field of publishing ethics.

The Wager et al. (2017) preprint tackles the important issue of what would be the best practices to follow, in cases of potential misconduct, between universities and journal editors. This preprint, which includes several executives of important publishing organizations, including EMBO, The Lancet, Wiley and COPE, among others, is much clearer and well written relative to the Barbour et al. (2017a) preprint. However, as one example, one of the authors, Ksenija Baždarić, is the Chief Editor of *European Science Editing* (ESE, 2017), the official journal of the European Association of Science Editors, a hidden COI not mentioned in the COI statement of this preprint. Also related to Baždarić and the first author Wager, a very serious COI is missing: Elizabeth Wager is one of the editors-in-chief of a BMC-published journal, *Research Integrity and Peer Review*,

where Ksenija Baždarić serves as an editor (RIPR, 2017) (Fig. 3A). At least three other co-authors of the Wager et al. (2017) preprint have failed to declare COIs. Sabine Kleinert, who is a Senior Executive Editor at *The Lancet* (Lancet, 2017), is also an editor of *RIPR*. Chris Graf, who works for Wiley Blackwell (where Wager was also previously employed), is a COPE Trustee and the COPE co-Vice Chair (COPE, 2017b). Incidentally, Elizabeth Moylan, who works for BMC, and who is an editor at *RIPR*, is a co-author of the Barbour et al. (2017a) preprint. Finally, Bernd Pulverer, the *EMBO Journal* EIC (*EMBO Journal*, 2017), also serves on the Advisory Board of bioRxiv (bioRxiv, 2017b) (Fig. 3B), a direct academic COI, suggesting that processing and approval of this preprint, despite its flaws, may have been selected for non-academic reasons, possibly for personal and professional links.



**Fig. 3.** Hidden conflict of interest in the Wager et al. (2017) preprint

(A) Both Elizabeth Wager and Ksenija Baždarić serve as editor-in-chief and editor of BMC-published *Research Integrity and Peer Review*. (B) Bernd Pulverer, an author of the Wager et al. (2017) preprint, is the Chief Editor of *EMBO Journal* and also serves on the Advisory Board of bioRxiv, the preprint server where this preprint was published within 24 hours. Sources: (A) *RIPR* (2017); (B) (*bioRxiv*, 2017b) (top); *EMBO Journal* (2017) (bottom).

Thus, a new risk in preprints, as exemplified by these preprints, are hidden professional COIs. The vast majority of the Wager et al. (2017) preprint discusses broad concepts, many of which are not substantiated by the published literature, but which the authors were hoping to enrich with ideas from the public and from closed circle meetings at the 5th World Conference on Research Integrity (5th WCRI) (WCRI, 2017a), which received some snide critique – with some merit – on Twitter by a science watchdog (Teixeira da Silva, 2016), Leonid Schneider, who was found guilty of libel in two German courts earlier in 2017. It is unclear how a wide range of ideas and proposals received from the public and at the 5th WCRI will be acknowledged, and the risks of intellectual phishing are high, as exists for the Barbour et al. (2017a) preprint. Notice carefully how the conference proceedings of the 5th WCRI include what appears to be a guest opportunity to publish in *RIPR* (WCRI, 2017b). Readers should also note that the proceedings of the 4th WCRI were published in *RIPR* (RIPR, 2015), and unlike all other papers published in *RIPR*, which undergo open peer review, no such peer reports exist for the 4th WCRI proceedings, i.e., an apparent case of publishing ethical exceptionalism (Teixeira da Silva, 2017f).

The McNutt et al. (2017) preprint, which includes some very powerful individuals in publishing ethics and the publishing industry generally, focuses on “transparency in authors’ contributions and responsibilities.” Despite this, there is no formal COI statement, and only a small single sentence appears in tiny font on the front page “Several authors’ employers are ORCID member organizations. Veronique Kiermer serves as Chair of the ORCID Board of Directors in a volunteer capacity.” Emilie Marcus, for example, the CEO of Cell Press, also oversees Cell Press’ Sneak Peek (Cell Press, 2017), in which only academics who registered at Mendeley can access information about manuscripts that are in review in Elsevier-hosted Cell Press journals. Sneak Peek serves as a type of Cell Press-exclusive preprint service that also received considerable stoning on social media, for example by Michael Eisen who stated in a Tweet “.@CellPress is cynically trying to kill @biorxivpreprint and undermine the public preprint movement - DO NOT FALL FOR THIS - #ASAPBio”. Michael Eisen’s brother, Jonathan Eisen, serves on the Advisory board of biorXiv (Fig. 3B). Critique was also offered at the same Sneak Peek blog by Boris Barbour, whose PubPeer is funded by the Laura and John Arnold Foundation (LJAF), which also funds Retraction Watch’s parent organization, the Center for Scientific Integrity Inc. (CSI), where Wager (of the Wager et al. 2017 preprint) serves as a co-Director (Retraction Watch, 2017a) (Fig. 4A), possibly explaining why Wager is so frequently positively profiled by Retraction Watch (Retraction Watch, 2017b).

A

## Retraction Watch

## Board of Directors

with one comment

The volunteer members of the Board of Directors of The Center For Scientific Integrity (CSI) are deeply knowledgeable about scientific publishing, scientific integrity, and other issues relevant to the missions of Retraction Watch and CSI. They offer CSI management and staff strategic advice, feedback on specific proposals, and guidance on our work. The management and staff, not the Board, are responsible for day-to-day operations of Retraction Watch and our other efforts. We are deeply grateful for their support and counsel. They are:

- **Ferric Fang**, MD, editor in chief, *Infection and Immunity*; professor of laboratory medicine, microbiology, medicine and pathobiology, University of Washington, Seattle, Washington, USA
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- **David Vaux**, MBBS, PhD, deputy director and joint division head, Walter & Eliza Hall Institute of Medical Research, Melbourne, Australia
- **Elizabeth Wager**, PhD, publications consultant, Sideview; former chair, Committee on Publication Ethics, Princes Risborough, UK

Hidden professional COIs in Wager et al. preprint

Hidden professional COIs in Fanelli et al. preprint

B

The screenshot shows the mBio journal website. On the left, the 'board of editors' section lists Arturo Casadevall as Editor in Chief and Ferric C. Fang as Editor. On the right, a search result for 'Erratum' is displayed, titled 'Erratum for Fang and Casadevall, Research Funding: the Case for a Modified Lottery' by Ferric C. Fang and Arturo Casadevall. The search results are for a May/June 2016 issue.

**Fig. 4.** Hidden conflict of interest in the McNutt et al. (2017) and Fanelli et al. (2017) preprints.

(A) Both Elizabeth Wager, of the Wager et al. (2017) preprint, and Ferric Fang, of the Fanelli et al. (2017) preprint, serve as Directors for the parent organization of Retraction Watch, the Center for Scientific Integrity Inc. (CSI), which operates from the apartment of Ivan Oransky. (B) Fang and Arturo Casadevall, who is the mBio Editor-in-Chief, who have published an estimated 13 papers, including two errata (one is shown), in mBio, are co-authors of the Fanelli et

al. (2017) preprint. Daniele Fanelli works as a senior research scientist at METRICS, at Stanford University in the USA, which is funded by the Laura and John Arnold Foundation, which also funds METRICS. None of these professional and financial COIs have been stated in the Fanelli et al. (2017) preprint. Sources: (A) ([Retraction Watch, 2017a](#)); (B) *mBio* (2017) and “Search” at <http://mbio.asm.org/>

LJAF also funds the Center for Open Science, run by Brian Nosek at the University of Virginia, and their set of preprint servers at the Open Science Framework ([OSF, 2017](#)). So, apart from one of the McNutt et al. (2017) preprint authors exposing a deep set of COIs to this preprint, such COIs have not been mentioned, which is considered by some as an act of publishing dishonesty or misconduct ([Thornton, 2017](#)). An error was detected with one of the references in the McNutt et al. (2017) preprint, and Marcia McNutt was immediately contacted to correct the error. Dr. McNutt promised on May 23, 2017, to correct this error, showing that preprints can avoid the publication of erroneous information.

### **Other Risks of Preprints: Anti Open Data Policies and Opacity by the “Ethics” Elite**

Another recent bioRxiv preprint, Fanelli et al. (2017), assessed image duplications in the biomedical literature to assess why scientists are driven to fabricate data. Although this is not a laboratory experiment, the authorship contribution statement states, erroneously “contributed reagents and materials: EB, FF, AC.” This is false because no reagents were involved in that paper. Also, there is a glaring missing COI statement. The COIs of the Fanelli et al. (2017) preprint are, curiously or incidentally, linked to authors of some of the other bioRxiv preprints discussed in this paper. For example, like Elizabeth Wager, Ferric Fang is a Director of Retraction Watch’s CSI (Fig. 4A), and his work is thus continuously positively profiled by Retraction Watch ([Retraction Watch, 2017c](#)). As had been noted on PubPeer ([PubPeer, 2017a](#)), but now deleted by PubPeer, the Fanelli et al. preprint suffers from two main ethical problems: a) a COI statement is missing, and even if the authors have no COIs, this should have been stated, but was not; as can be seen a bit later on in this discussion, there is an intricate link of undisclosed professional and financial COIs; b) the authors refuse to release the raw data for the 20,000+ papers whose images they analyzed, and which formed the core basis of this reprint’s analysis and for the publication of another paper ([Bik et al., 2016](#)).

*mBio* has a mandatory requirement to declare COIs in *mBio* papers, making the Bik et al. paper, with the *mBio* EIC, a direct and blatant violation of *mBio* ethical policies, and thus a clear case of editorial corruption, misconduct and ethical exceptionalism. A formal request was made on April 13, 2017, to obtain the raw data and to indicate that the email of the first author of the Bik et al. paper, Elizabeth Bik, was dysfunctional (@stanford.edu) since Bik had been relieved of her position at Stanford University in late 2016 – it is believed as a result of her whistle-blowing activities and use of social media (Twitter) during working hours – and that a suitable substitute email was needed to contact the corresponding author about the content of that paper. An email request to Bik’s co-author’s Arturo Casadevall and Ferric Fang, the latter the third author of the Fanelli et al. (2017) preprint, for the raw data and also to modify the corresponding author’s email were neither acknowledged, nor was the raw data provided. The e-mail for Bik has still not been corrected by *mBio*.

Bik, Fang, Casadevall and Retraction Watch are part of a small and exclusive close-net group leading the movement on “open science”, calling for full transparency in the publication process and even calling for the open data movement to become a publishing standard. Yet, when formal requests are made for the raw data of the Fanelli et al. (2017) preprint and its precursor paper published in *mBio* (published by the American Society for Microbiology) – which lists Casadevall as the EIC ([mBio, 2017](#)) – the authors fail to respond to formal queries, displaying complete opacity, and refusing to provide the underlying data, i.e., they are showing the complete antithesis of the open data movement. A search on *mBio* reveals that Casadevall and Fang share at least 13 publications, including two errata, an editorial COI that should have been published in the Bik et al. (2016) paper – an issue that was registered at PubPeer ([PubPeer, 2017b](#)) – which was quickly processed by *mBio* after it had been on bioRxiv as a preprint. Fang, Casadevall and Bik, the three authors of the Bik et al. (2016) paper, are all co-authors of the Fanelli et al. (2017) preprint. It was

revealed fairly recently that Bik was the whistle-blower (Schneider, 2017) behind the reports made to journals about 20,500+ images, and which involved PubPeer, by documenting some or all of those image manipulations. This is another hidden COI by Bik et al. because PubPeer also receives funding from the LJAF. The final, and possibly most important hidden COI of the Fanelli et al. (2017) preprint, is financial. Fanelli's stated affiliation on the preprint is "Meta-Research Innovation Center at Stanford (METRICS), 1070 Arastradero Road, Stanford University, Palo Alto, CA 94304, USA". METRICS, which is headed by John P.A. Ioannidis (METRICS, 2017a) (the other director is Steven Goodman), received funding from the LJAF, the same philanthropic organization that funds Retraction Watch's CSI and PubPeer, as part of a wider "war on bad science" policy by LJAF's John Arnold (Wired.com, 2017). Finally, why has Fanelli used a non-institutional email for his preprint (METRICS, 2017b), when he has an @stanford.edu email? It is for these possible / plausible reasons (hidden COIs, ethical exceptionalism, editorial corruption or cryonyism, and double standards by elements of the so-called "ethical elite") that it is essential to be monitoring the science watchdogs (Teixeira da Silva, 2016) and proponents of the open science and preprint movements.

### Conclusions

Traditional publishing in science, technology, engineering and medicine is under strain and the number of scandals rocking academic publishing appear to be emerging weekly, if not daily. It has been proposed that one effective way to fortify the publishing process is by increasing the number of verifications prior to a manuscript entering the traditional route of peer review, such as the use of preprints, because it eliminates risks, errors and possible fraud (Teixeira da Silva, & Dobránszki, 2015). However, until now, it has been broadly understood that preprints should represent a fairly final state of a paper, almost ready for submission to a traditional academic journal. However, this notion has now been seriously challenged by the publication of three policy-related preprints at bioRxiv, a preprint server that, until precisely the time when two of these preprints were published, had forbidden other academics from publishing such content. Examination of the authorship of these preprints reveals powerful individuals and lobbyists in equally powerful publishing- and ethics-related organizations, suggesting that the rules have been bent to suit powerful lobbying groups who wish to use preprints as a way to phish (or fish) for intellectual ideas that might not be fully acknowledged (ghost authorship; Teixeira da Silva, & Dobránszki, 2016), or that may be misappropriated without due acknowledgement (plagiarism). Thus, "intellectual phishing", a new risk introduced by the preprint movement, may represent a new risk to the integrity of publishing, fortifying the notion that preprints carry reduced credibility (Fuster, 2017), and test the boundaries between ethical vs unethical publishing practices. This paper also documents hidden COIs among several authors of this publishing elite, suggesting a two-tier system of ethics, one for the academic masses and a separate one for the ethical publishing elite, i.e., ethical exceptionalism (Teixeira da Silva, 2017e). COIs, in all forms, including the omission of professional relationships, can introduce bias, reduce transparency and trust in the publication process (Dunn et al. 2016), and in the ethical and publishing elite, as exemplified by these select preprints.

### Conflicts of Interest

The author has been profiled by Retraction Watch and PubPeer, which are discussed in this paper. The author has written about Leonid Schneider, a science watchdog and journalist in Teixeira da Silva (2016). The author has contacted all authors / corresponding authors of the preprints discussed to express concerns about missing data, hidden COIs, etc. Other than these, the author declares no conflicts of interest.

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## **Special Articles: Commentary**

### **Concerns with the Winnower and Laura and John Arnold Foundation Reproducibility Essay Contest**

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#### Paper Review Summary:

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#### **Abstract**

On April 26, 2016, an announcement was made for an essay contest to be published in and by *The Winnower* (<https://thewinnower.com>), a low-cost open access journal. The contest, which was financially sponsored by the Laura and John Arnold Foundation (LJAF; <http://www.arnoldfoundation.org>), aimed to find an answer to the question “How do we ensure that research is reproducible?” In a bid to tackle the reproducibility crisis in science, the contest set out its objectives, as well as the rules for contestants, including a deadline for submission, and a range of word limits (750-1500). As for the submission to a journal, it was expected that all contestants would abide by the rules to be valid contestants. After a delay in releasing the results, an examination of the entries revealed that 12/21 of the essays did not abide by the contestant’s rules, and thus, to be fair, should have been disqualified, as equally as a submitted paper that does not abide by the rules of submission to a journal is equally rejected, or retracted, if the breach of rules is known post-publication. A request was sent to the LJAF and *The Winnower* CEO, Joshua (Josh) Nicholson, for a more formal explanation and greater transparency. The acceptance of the winning essays, each of which received a \$US 500 cash prize, was summarized by a single sentence. This case study examines how *The Winnower* and the LJAF mismanaged that contest, how the winners remained winners despite breaking the basic rules of the contest, and how no public transparency was offered with respect to contest mishandling, the make-up of the panel of judges, or the qualifications of these judges. Reproducibility begins with trust, accountability and openness, qualities that were not displayed, in this case, by the LJAF and *The Winnower*.

**Keywords:** accountability; fake and unqualified judges; false statements; misleading; predatory

#### **An Essay Contest: An Excellent Initiative to Tackle the Reproducibility Crisis**

It is often said that science is in a reproducibility crisis, and there is much finger-pointing as to the source of this problem. The issue of reproducibility in science is one of the core failures of

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science. Embedded in roots related to poor or incomplete methodology, failed peer review or false incentives, among other factors, science is in search of the reasons for why published research cannot be reproduced, and how such limitations can be overcome. The debate among scientists, academics and industry is in a dynamic state, and there exists quite a bit of literature on this topic. Despite this, spurious solutions have not been able to curb this problem, and a lingering reproducibility crisis would harm science's image in the public's eyes.

That is why, when there is a concerted effort to tackle the issue of reproducibility, it is broadly welcomed by the scientific community, because it allows for a centralized platform for discussion. This was most likely (hopefully) the emotion that most essay participants felt when they learned of an essay contest that was to be published in and by *The Winnower* (<https://thewinnower.com>), financially sponsored by the Laura and John Arnold Foundation (LJAF; <http://www.arnoldfoundation.org>). Announced on April 26, 2016 through Facebook and Twitter, the essay first caught my eye when I saw Leonid Schneider, a self-made science journalist and critic, submit the text of his blog post in a reduced form as an essay to this contest. Personally very interested in many aspects related to science and science publishing, including the issue of reproducibility – or the lack thereof – in science, I felt interested in the contest, also because there are not many essay-writing contests in science, so I felt that this would be a personal challenge and positive academic experience. Also, knowledge that the US\$ 25 open access (OA) fee would be waived for contestants was a welcome and attractive option for me, being retired and not having any funding for publishing. Most importantly, I felt that the solutions that I had seen that were being sought by the academic community to solve the reproducibility crisis were showing mild or no success simply because two core values were not being treated appropriately, namely accountability and transparency.

The essay contest had three simple rules: a) discuss reproducibility with a view to finding a solution to the crisis; b) submit the paper by the deadline, June 15, 2016; c) write within word limits (750-1500 words). By the time I submitted, just a few days before the contest was meant to close, several contestants had already submitted and published their essays. Some of these were really good intellectual contributions and I felt humbled and honored to be among this group of such excellent intellectuals. Most importantly, I felt grateful that I was given this opportunity to submit to *The Winnower*, a relatively new OA journal that launched in 2014. The results were expected to be announced on July 15, a month after the contest closed. *The Winnower*, a peer reviewed journal, conducted no peer review on my essay, and it is unclear if peer review was conducted on any of the other essays. There was not even a single editorial comment, or feedback by any of the judges. *The Winnower* CEO, Joshua (Josh) Nicholson, did however offer assistance at uploading my file to his journal's web-site.

### **Contest Mismanagement Warning Signs**

When the competition closing date of July 15 came and went, I decided to contact Mr. Nicholson, who indicated that the results of the contest were slightly delayed, but that these would be released in August, a month late. In that email, Mr. Nicholson stated "Judges names will be announced so long as all judges are okay with it." On September 20, I sent a simple email reminder to the CEO, requesting if there was any formal explanation for the delay in announcing the winners. My email request was met with silence. About a month later, and just under three months after the official close of the contest, I contacted Mr. Nicholson once more by email and LJAF through their online contact form, concerned with this silence and lack of an explanation. No notice appeared on the web-site about this delay. On October 13, I received an email from Mr. Nicholson indicating that the results had in fact been announced, and that the email to me must have somehow escaped: "Apologies for the delay, your email must have slipped through. There is a blog announcing the winners on *The Winnower* for over a month now. We also announced it via Twitter and email. I am sorry that you missed these announcements." The link, dated August 15, 2016, that was provided was: <https://thewinnower.com/posts/contest-winners-how-the-improve-reproducibility>

Note very carefully how the comments section has been actively disabled, not allowing the contestants or any member of the public to comment, or possibly, more accurately, not allowing us to be critical of the essay contest and its mismanagement and mishandling.

The page indicated that "The Laura and John Arnold foundation has been integral in trying

to answer this by funding organizations like the Center of Open Science and others and we're happy to have partnered with them to hold the second essay competition on the Winnower, which we've just concluded judging. We had many great entries (read them here) from around the world and are happy that this is not just a competition but a resource that will continue to be useful now and in the future as we tackle improving reproducibility in the sciences. So without further ado, we give the winners of the contest: Anne Jorstad & Konrad Hinsén."

Concerned by several issues, I decided to issue a more formal complaint, and copied the other contestants on my email. My main concerns were:

a) Unlike what Mr. Nicholson had asserted, no email notice had been sent (at least not to me).

b) There was little, or no, transparency about the decision process.

c) There was little, or no, transparency about the judges, or their qualifications. When the contest was first announced, the following had been stated "The essay competition will run until June 15th and will be judged by a committee of scientists, librarians, members of industry, and students based on the following criteria." Those criteria were never indicated before, during or after the contest. It was important to learn the identities and qualifications of the judges, because the published reports for the winning essays were as follows: "I think it has the potential for greatest impact, and it is focusing on the next generation" for the Jorstad essay, and "Interesting and informed, this essay very clearly follows one idea from definitions to implications" for the Hinsén essay. Over-simplistic statements that under-appraised the efforts of all other contestants, and that gave the impression of a rushed job required a greater and fully transparent explanation.

d) From a total of 21 submitted essays, five of the contestants exceeded the word count (incl. references) (including the winning essay by Anne Jorstad), two were under the limit, while four essays were submitted after the submission deadline (Table 1). In essence, when also considering that four essays were not archived, i.e., the submission process was not formally completed, 12 (possibly 16, if one considers references as part of the word count) of the essays should have been disqualified based on technical criteria, as in a journal. More alarmingly, only five essays conformed to essay rules and should strictly have been the only valid entries. Also of concern, the reason why these 12 essays were allowed to be approved and published, despite these infractions of essay rules, was never explained, neither by Mr. Nicholson, *The Winnower*, or the LJAF. As occurs in science publishing, and a core aspect of the reproducibility movement, one would surely expect rule-infracting submissions to be retracted.

e) General mishandling, mismanagement, poor communication, lack of accountability, twisted rules, and no, or little, transparency.

The requests for an explanation and for these details were never provided. However, some responses were provided by Mr. Nicholson, the LJAF and select contestants, as detailed next. All parties contacted were explicitly indicated that their responses could be used in a paper on this case.

### **Formal Responses**

Mr. Nicholson was the first to respond: "I am sorry your requests will not be granted. The judging was performed according to the guidelines and the winners were selected fairly. I will consider this now resolved and appreciate it if you did as well." Zoltan Boka, a contestant, responded next "For what it's worth this is the first time I hear of any outcomes in this contest. I took the approach that a publication is a publication and left it at that. May be healthier in the long term." This was closely followed by a similar statement by Olivia Guest, also a contestant, and one of the more severe cases of exceeding the word limits, who claimed not to have been contacted about the results of the contest: "I received no email about the results and was also wondering why the word limits were not respected. I haven't read the full thread of emails here yet so sorry if I'm repeating what others have said. It was all a little confusing to me and I only found out when somebody else linked me to the results." Between the Guest and Boka emails, Mr. Nicholson sent me this email: "You repeated harassment is why I will not make the names of the judges public. I do not wish to expose them to such harassment. I will no longer be corresponding with you, please stop emailing me." Two emails from one of the winners, Jorstad, stated, among other things, the following "As one of the winners, I would also be very happy to be able to see the full content of the reviews, and I was surprised that I was not able to see the review of my own essay... I was told

by The Winnower to not worry about the references in the word count... I also agree that all the contestants should have been contacted via email when the winners were decided. I assume The Winnower has learned its lesson on this matter... I agree that we were probably guinea pigs for this competition, but I see absolutely no problem with this, and assumed as much when I submitted my essay." Schneider, a prominent science watchdog (Teixeira da Silva, 2016a), noted: "there seems to be a misunderstanding. I am not involved into this complaint, in fact I think as a non-academic and free journalist I shouldn't have participated in this contest in the first place. That was obviously a mistake from my side, I only ask that my essay is not to be used for any commercial purposes or advertising." All of these communications took place on October 21, 2016.

On October 22, Matthew MacLennan stated: "I too received no official notification as to the outcome of the contest (until this morning in this thread) and would have liked to. I was glad to participate and take some time to put something together. Not being notified made me feel undervalued... Looking forward to some policy transparency for a good resolution to this." Finally, on October 26, 2016, Renice Armelin, the Office Manager of the LJAF, stated the following: "the Laura and John Arnold Foundation ("LJAF") is not in a position to confirm the judges' comments because LJAF was not at all involved in determining the rules and eligibility requirements for the competition, selecting the judges, or selecting the competition finalists. The funds LJAF provided to The Winnower were solely for operational support."

These communications form an integral historical record of this essay contest.

It is not clear how much funding was provided to *The Winnower*. No information can be found on the LJAF grants page: <http://www.arnoldfoundation.org/?s=The+Winnower>

Almost one year after my emails expressing these concerns, these papers all remain intact, and the public remains misinformed about these publishing ethics infractions, with direct protection by Mr. Nicholson, *The Winnower*, and the LJAF. No papers that infringed upon the publishing norms associated with this contest have been retracted, nor has any editorial expression of concern been published. *The Winnower* is not listed as a Committee on Publication Ethics (COPE) member.

### **The Lessons Learned and What Needs to be Done**

*The Winnower* is a relatively recent OA publishing project. In November 2014, I received an enthusiastic invitation from Mr. Nicholson "We are a new science publishing platform that aims to fix this (price) amongst many other problems with science publishing." *The Winnower* was indeed an attractive and inexpensive OA option that offered a refreshing perspective to what seemed to be an endless sea of predatory, misleading OA publishers and journals that continue to plague the OA movement. So, when the essay contest arose to tackle the reproducibility crisis, publishing in *The Winnower* seemed to be the right choice, and a perfect opportunity to express some of my own ideas about why there may be a crisis in reproducibility. I am of the belief that some of the actions, attitudes and mismanagement that characterized this essay contest are also at the heart of the reproducibility crisis, including lack of accountability by publishing leadership, an attempt to stifle criticism when criticism is warranted, "secrecy" about the identity of judges (*aka* peers), especially when their verdict seems excessively simple or unprofessional, although many may claim that the same single-blind peer review operates in traditional journals. However, most likely the same individuals who claim this might then fail to offer a suitable explanation as to why breaking the rules of the contest would constitute a position compatible with science publishing.

I believe that the following needs to be done to regain trust and respect in *The Winnower* and LJAF:

- 1) A clear explanation as to why this contest was fair and valid, is required, especially considering that most contestants were in violation of the written rules, i.e., word limits and submission dates (Table 1). In one striking case, the word count of the essay of one of the winners, Konrad Hinsen, is registered as being 1769 words in the PDF file downloaded on June 15, 2016, while the word count of the html text as copied on October 26, 2016 registers 1815 words. Why is there this stark discrepancy in word count, has this author been allowed to make edits to his essay, and if so, why have others not been offered the same opportunity? Why was Swartz allowed to publish an essay with 11,155 words when others were limited to an essay of 1500 words? Why were other contestants not afforded the same freedom and length? No doubt that many of us could have benefitted from a greater word limit to express ideas in greater depth.

**Table 1.** List of essays that have broken the rules of the contest published in *The Winnower*

Author*	Word count <sup>1</sup>			Submissions		Should essay be disqualified? <sup>2</sup>
	With references	Without references	Word count rule infraction?	Submission date	Rule infraction?	
Barratt	1142	1033	No	27/6/2016	Yes	Yes
Boka	1091	968	No	5/25/2016	No	No
Brand	1540	1078	Possibly <sup>†</sup>	13/6/2016	No	Possibly <sup>†</sup>
Charlton	1050 <sup>‡</sup>	1050	No	6/5/2016	No	No
de Grijs	1919	1567	Yes (count exceeded)	5/27/2016	No	Yes
Emmerich	1175 <sup>‡</sup>	1175	No	14/6/2016	No	Yes <sup>5</sup>
Guest	2956	1888	Yes (count exceeded)	13/6/2016	No	Yes
Hinsen <sup>3</sup>	1769/1815 <sup>4</sup>	1662	Yes (count exceeded)	6/6/2016	No	Yes
Hobson	1513	1360	Possibly <sup>†</sup>	2/6/2016	No	Possibly <sup>†</sup>
Jorstad <sup>3</sup>	1542	1432	Possibly <sup>†</sup>	15/6/2016	No	Possibly <sup>†</sup>
MacLennan	1434 <sup>‡</sup>	1434	No	4/29/2016	No	No
Rotman	1681	1475	Possibly <sup>†</sup>	14/6/2016	No	Possibly <sup>†</sup>
Sassenhagen	1433 <sup>‡</sup>	1433	No	21/6/2016	Yes	Yes <sup>5</sup>
Schmalz	1470	1195	No	4/27/2016	No	No
Schneider	1972 <sup>‡</sup>	1972	Yes (count exceeded)	4/29/2016	No	Yes
Sunder	528 <sup>‡</sup>	528	Yes (under count)	16/6/2016	Yes	Yes × 2 <sup>5,6</sup>
Swartz	11,155 <sup>‡</sup>	11,155	Yes (count exceeded)	4/28/2016	No	Yes
Teixeira da Silva**	1470	1416	No	9/6/2016	No	No
Tressoldi	723	560	Yes (under count)	11/5/2016	No	Yes
Vandekerckhove and Wagenmakers	1055	786	No	16/6/2016	Yes	Yes <sup>6</sup>
Verheggen	1307 <sup>‡</sup>	1307	No	5/26/2016	No	Yes <sup>5</sup>

Table 1 shows essays that have broken the rules of the Laura and John Arnold Foundation-funded essay contest published in *The Winnower* (<https://thewinnower.com/keywords/ljafreproducibility>). The word count limits for the contest were 750-1500 words, and the submission deadline was June 15, 2016.

Notes:

\* Listed alphabetically.

\*\* The only paper with a formal conflict of interest statement.

‡ Some essays did not have references.

† Depending on the word count with or without references (a specific factor that was never clearly indicated by *The Winnower*, but one that can differ in other academic journals). So, in the four cases marked, if word counts of references are considered, then these essays violated essay rules, but if references are not considered as part of the word count, then these are valid (i.e., respect the rules of the contest) essays.

<sup>1</sup> word count refers to main body of text (excluding author identifiers and title), but including references.

<sup>2</sup> either a word count infraction or a submission date infraction should lead to a disqualification.

<sup>3</sup> competition winners and recipients of the US\$ 500 prize.

<sup>4</sup> word count in PDF downloaded on June 9, 2016 and word count of html text on October 26, 2016.

<sup>5</sup> These essays were never archived (i.e., publication was never formally finalized) and has no valid or final citation, or DOI, as in most other archived essays. It is therefore not a valid submission, and should have been disqualified since archival was an essential aspect of the essay contest.

<sup>6</sup> No affiliation listed.

2) Konrad Hinsen in fact critiqued several of the other contestants' essays online, including mine and of Olivia Guest, but all on June 21, 2016. How are those criticisms not considered to be a conflict of interest (COI), or an attempt to downplay competitors' essays so as to score a higher chance of winning the contest? Although there were no written or specified rules about this (although there should have been), the appropriateness of criticizing competitors as a potential tool to guarantee a winning slot cannot be ruled out. Why was Hinsen awarded a win if he violated the rules of the competition, and to some extent, critiqued some of his competitors? Is there perhaps a hidden COI with his Open Science project that has not been disclosed by him or the LJAF? Curiously, Olivia Guest, who was not selected as a winner, was critical of Hinsen's essay, writing a stinging critique on June 13, 2016, a week prior to his rebuke of her essay. Were these criticisms considered when the "secret" panel of judges selected the rule-breaking Hinsen essay as one of the two winning essays?

3) An explanation (by *The Winnower* and by the authors) as to why the Emmerich, Sassenhagen, Souder and Verheggen essays were not archived is required. Are they currently in a state of "limbo" (i.e., in publishing terms, in a non-citable form). Or should these be considered preprints?

4) A sincere and public apology should be made on the contest announcement page, without reservations, indicating that contestants were not clearly informed of the outcome. *The Winnower* management should also address the several issues plaguing this contest.

5) The LJAF, rather than attempting to distance itself from this essay scandal, claiming to only provide the financial support, should embrace that it has financed winners who have broken the rules of the contest, and that it has financially supported a flawed and mismanaged contest. It should set out a number of conciliatory and reparatory measures for all contestants, and should encourage *The Winnower's* management to comply with corrective measures specified herein.

6) The winners should reimburse the US\$ 500 for breaking the rules that a minority of the contestants in fact respected. All other essays (Table 1) that violated the contest rules, in one way or another, should be retracted.

7) Unfreezing the comments section of the contest results page to allow fair and free signed, but moderated, commentary.

8) Hold a new essay contest in which clear rules and timetables are set, and in which contestants who infract upon the rules are warned, then excluded if their infractions persist. Such a contest should involve open, but double-blind peer review, to make it as transparent as possible.

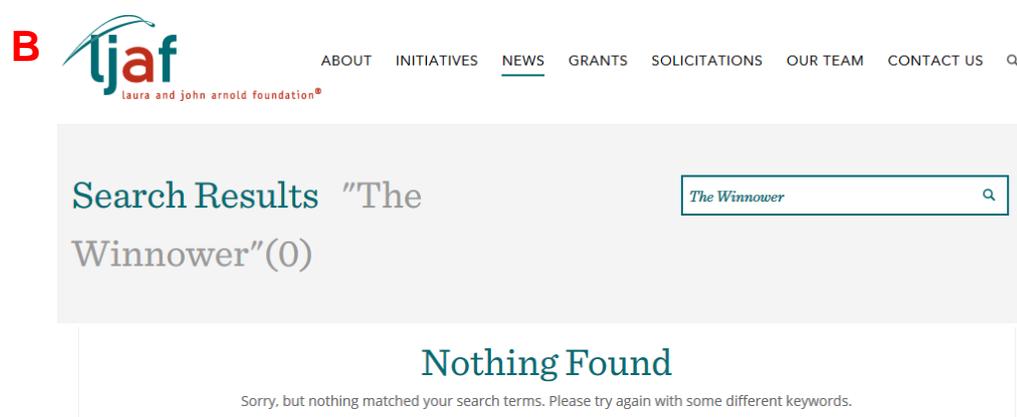
## Conclusions

The contestants are all to be praised for a wealth of interesting and some refreshing ideas and perspectives related to reproducibility. However, these noble efforts may have been undermined by a poor culture of appreciation, a lack of respect to participants, and a blatant lack of respect for the contestant rules by the vast majority of contestants. Based on technical reasons, only 5 of the 21 contestants are in fact valid (Table 1).

**A** Towards identifying ways to ensure research is robust we are launching an essay competition sponsored by the Laura and John Arnold Foundation for researchers and other stakeholders to put forward new ideas and solutions to the reproducibility crisis that we face in science. How do we ensure and incentivize robust work? Does peer review need to be changed? Does data sharing need to be incentivized or mandated? Funding practices improved? Let us know what you think should be done to improve the system in a 750-1500 word essay.

The essay competition will run until June 15th and will be judged by a committee of scientists, librarians, members of industry, and students based on the following criteria. To enter, please upload your essay to the Winnower platform and include the following keyword [#LJAFreproducibility](#) or simply email it to [contact@thewinnower.com](mailto:contact@thewinnower.com) and we'll do it for you!

We're waiving our publication cost of twenty-five dollars and awarding the top two essays prizes of \$500 each.



**C** Today, in service of this mission, we're announcing that we've acquired [The Winnower](#), a scholarly publishing platform with a simple vision: "All ideas should be openly discussed, debated, and archived." The Winnower has been one of the pioneers in the push towards a more transparent model of publishing, employing open post-publication peer review and providing a set of tools for researchers to benefit from publishing Grey literature.

The Winnower will power a range of publishing services for researchers who are writing on Authorea. Existing and new users will see a gradual roll-out of tools that are designed to help control the output and dissemination of research, including minting of DOIs, pre-print linking, and more.

Join us in welcoming the founder of The Winnower, Josh Nicholson, to our team as Chief Research Officer. (We also welcome his dog Pete who will fill our newly created position as Chief Dog Officer.)

**Fig. 1.** Details on *the Winnower* reproducibility essay contest

Figure 1 depicts the Winnower reproducibility essay contest, sponsored by the Laura and John Arnold Foundation (LJAF), clearly states the word count and the closing date of submission (A). Any contestant in violation of either of these basic rules should be invalidated and disqualified, as detailed in Table 1. There is no formal record of funding to The Winnower on the LJAF grants page (B). The Winnower CEO, Joshua (Josh) Nicholson was recently appointed, after a November 2016 sale of The Winnower to Authorea (<https://www.authorea.com/>), as the Chief Research Officer (C).

By allowing double standards in this contest, namely the imposition of one set of rules for some contestants, and a separate or flexible set of rules for others, makes this contest unfair, and void. The two winners of this LJAF-funded essay contest (Hinsen and Jorstad) are thus in fact invalid. In an academic setting, authors that violate the written rules set by journals and publishers suffer consequences, including rejections and retractions (if rule violation was detected before/during or after submission/publication, respectively). So why is *The Winnower*, an OA journal, an exception? Thus, to allow this essay contest result to remain unchallenged, and to leave the published literature uncorrected, is a direct affront to the institution of reproducibility, because

it erodes trust, confidence, respect, and rules. The lack of strict adherence to rules, the lack of the enforcement of rules, or the lack of a fair and across-the-board exemption to those rules, is a corrupting factor in science and science publishing. It makes one wonder if, had the rules been truly followed and respected, and if essays that should have been excluded for technical reasons were in fact excluded, if contestants such as MacLennan could have been deserving of the US\$ 500 cash prize, given his lamentation in the last sentence of his essay “I just have a few bucks in the bank, but I’m waiting for a possible \$500 payout.”

In early November of 2016, Authorea (<https://www.authorea.com/>) purchased *The Winnower*, Josh Nicholson was appointed as the Chief Research Officer, and Mr. Nicholson’s dog was appointed as the Chief Dog Officer (Fig. 1B). Of concern is if Mr. Nicholson has been so opaque about the essay context, how can be entrusted with such an important academic position as the Chief Research Officer? Finally, one must also question the ambitions and objectives of the LJAF, whose founder, John Arnold, was an Enron insider, and an organization that claims to have philanthropic interests. If philanthropic organizations are willing to dole out funding to supposedly deserving causes, but are unwilling to be held accountable for any ethical infractions by the organizations that have received their monetary donations, then does the public need to begin to question the motives and ethics of such foundations? The link between the LJAF and *The Winnower* has now become crystal clear, preprints (Teixeira da Silva, 2017).

### Conflicts of Interest

The author declares no financial conflicts of interest. The author has interacted and communicated with Dr. Leonid Schneider, one of the essay contestants, but not within the context of this essay contest. The author has several disagreements with some LJAF-funded groups such as PubPeer and Retraction Watch.

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## Articles and Statements

### Women in the C-Suite: Do They Have the Globe Enthralled?

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#### **Abstract**

Women have historically showed outstanding capability in leadership roles in varying societal spheres and periods across the globe. Although grossly underrepresented in leadership, those who take up the positions bring to the exercise of leadership an arsenal of strengths, which increasingly, are meant to benefit the entities they lead on local, national, and global levels. In the run-up to the Fourth World Women Conference held in Beijing in 1995, there was much hype about the issues of equity, equality and women representation. During the conference, the concepts of equity and equality, in relation to gender were expansively discussed. While the conference ultimately called for equal opportunities and equal representation, an examination of the several sectors in different countries revealed that the percentage of women in the C-Suite is still very low. Can one say that women are discriminated against or do they discriminate themselves? Do they get technically disqualified because they are women? This analysis focuses on the status of women leadership in politics, education, health and religion. While these are not the only sectors where women hardly get to the top management, they mirror the status quo in the other sectors. The few women at the top also face certain challenges, including the fact that they cannot make important decisions concerning their sectors without consultation. Those who do so are considered to be acting like 'men'. Although affirmative action is adhered to in many sectors, in most cases, women do not aggressively seek for leadership positions.

**Keywords:** Education, Health, Leadership, Politics, Religion, Women.

#### **Introduction**

The notion of women leadership is not new. Historically, women have prolifically led in different capacities. In varying epochs, women were in the C-suite applicable at that time, and although oftentimes, it was by inheritance, when they got into their positions, they made great strides and navigated their territories effectively. The early women political leaders faced resistance, just like the modern ones, and most of their leadership was so controversial that they at

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times had to be androgynous to assert themselves. Cleopatra, the legendary woman leader in Egypt was resourceful, disciplined and suppressive when managing the affairs of her kingdom (Aneni, 2016). She initiated development in Egypt and made male world leaders copy from her. For example, when Emperor Julius Caesar visited Egypt, he was so inspired by Cleopatra's kingdom that he established some reforms based on what he had learnt (Tsoucalas, & Sgantzios, 2014). The notable ones are the institution of a public library and the enactment of a law for the census policy in the Roman kingdom. Most men in the leadership circles in her kingdom did not agree with her policies but she was assertive and ensured that her ideas materialized. When she was about to lose the battle with Octavian, Cleopatra chose to commit suicide rather than be captured by her enemies. To her, defeat and possibly capture, was more shameful than death. She lived and died a heroic leader.

Queen Victoria is a historical woman leader who reached her potential during her reign. Victoria made it clear that she had the capacity to rule immediately after she ascended to power albeit a very young queen. She exiled her mother and fired her advisor because she disagreed with them about running the affairs of the monarchy. Femininity did not play any role in her leadership and she suggested several laws to improve the quality of life of working people in the deplorable conditions of the slums (McKendry, 1993). She is associated with the expansion of the British empire to the whole world and the rise in industrialization. The expansion was so great that:

*'During her reign, the sun never set on the British empire'* (p. 68). About seven assassination attempts were made against Queen Victoria during her reign. They were all made by men, revealing how disgruntled the men were with her leadership. Both Queen Victoria and Cleopatra succeed in their capacities and endured bitter rivalry from men. In traditional Africa, there were women leaders who ruled traditional kingdoms and even led men in battles. Idia was an energetic, formidable, strategic and military warrior in her kingdom of Benin (Aneni, 2016). She led her army to war when they were attacked by the Igala people. She was a powerful and influential ruler who did all she could to protect her kingdom. Mekatilili wa Menza in Kenya was another fiery political woman leader who used her power to deal with the British invasion of the Giriama kingdom (Carrier, & Nyamweru, 2016).

Mekatilili led a public forum at Chakama to protest the British recruitment of African porters for World War I. During this protest meeting, the British fired at the crowd which made her more infuriated. She mobilized the Giriama to take oaths to maintain their allegiance to the Giriama kingdom. She led her people in opposing forced labor, payment of taxes, land seizure and restrictions about consuming palm wine. Mekatilili organized the famous Giriama uprising against the British in 1914 which led to the death of many Giriamas because the British had superior weapons. Although the British won, they were challenged and they had to honor some of her demands like the use of forced labor and restriction on alcohol consumption. Like Sojourner Truth and Harriet Tubman (Ngunjiri et al., 2012) who campaigned fearlessly for the liberation of African Americans, Mekatilili struggled for the liberation of her people. Other famous known women leaders in African kingdoms include Syokimau of the Akamba and Wangu wa Makeri of the Agikuyu. Wangu wa Makeri, was an assistant chief appointed by the British during their rule in Kenya. She later became a paramount chief, which was the highest position for the locals at that time in colonial Kenya. She was a no-nonsense leader who did not encourage young people to be idle. She would have them arrested and whipped publicly. Many men avoided meeting her in the village paths especially the tax evaders who were made to carry the visitors on their backs, especially the British who visited her chieftom. She is said to have been a very stubborn and authoritative ruler of the Agikuyu community (Gathogo, 2008). When she was addressing her subjects, she sat on a man's back. Even in the traditional kingdoms, some men were opposed to women leadership but because they were effective, they remained in power. She lost her position in shame after men implicated her in a dance scandal and she was forced to resign. All these historical women show that women were successful leaders, long before the advent of feminist ideology. The dissent lies in the numbers and the rise of formal leadership structures which seem to alienate women.

The rise of the emancipation worldview in the last two decades, which emphasizes self-expression values, human choice and autonomy of women, has led to an increase in the number of women elites who can respond to the need for equal representation in different sectors of leadership. Women with good academic standing, who have interest in leadership and are ready to

overcome the existing gender stereotyping have made it to positions of leadership, even to the most top positions in government and major corporations. There are challenges to women leadership and these differ from one geographical location to another but most studies have established that economic development is central to women emancipation, empowerment and leadership.

In a Nigerian study by Anigwe (2014), most of the participants felt that their educational backgrounds empowered them for political office, but it was not a defining factor for their getting elected. Financial stability was deemed to be a more important factor when making the decision to vie for a political position. The women felt that the cost of a political campaign was too high. Spousal approval and support was also considered very important because patriarchy is the norm in African settings. Many African governments, including Nigeria, have failed to protect the rights of women and advance gender equality especially in key social, economic and political sectors (Chamley, 2011). Women empowerment programs have not succeeded in Nigeria because of the lack of adequate educational, economic and political development.

In the United States, women are involved in leadership in different sectors but the representation is still far from being equal to that of men. African American women are more underrepresented. Starting off as first-generation college graduate, most African American women leaders face challenges of having a background of low socio-economic levels (Johnson, 2015). Self-confidence, good communication skills, and motivating followers are important skills for today's leaders. Women stated that they did not consider gender to be a barrier in the ascending to leadership. They felt that diversity was increasing rapidly at the time and all they needed was to advance in their careers. This new information is important to aspiring women leaders and to women's leadership scholars in general.

### **The C-Suite**

What does Angela Merkel (German Chancellor), Drew Gilpin Faust (President of Harvard University), The late Wangari Maathai (Nobel peace prize winner), The late Margaret Thatcher (Former British Prime Minister), Ellen Sirleaf-Johnson (President of Liberia), Katherine Jefferts Schori (Former Presiding Bishop and Primate of the Episcopal Church), and Diana Natalicio (President of the University of Texas at El Paso) have in common? The simple answer is that they are or were women leaders. The apropos answer is that they are women who have sacrificed their time, passions, energies and resources to serve as public leaders in the top most leadership positions in different sectors in their countries. Only a few women bear these characteristics globally. Statistics continue to indicate the dearth of women in CEO positions across many different sectors and the unceasing slow progress over time in having more women infiltrate the C-suite.

Education plays a major role in getting women into leadership. When women have the knowledge and skills, they have empowerment which is the driving force in aspiring for leadership. A good percentage of women in the C-suite have got terminal degrees while majority are graduates. Schools play a prominent role in the development of women's leadership skills. Most of the women in leadership had teachers who recognized their leadership potential and nurtured their intellect while they were still in school. Women do not have to identify as feminists to perform their leadership roles and most of those who have led and enthralled the world did not use the term feminist nor preach the emancipation gospel (Phillips, 2016). Women continue to shatter the glass ceiling to rise to the most powerful positions in major sectors in different parts of the globe, even though the numbers are low due to the existence of different forms of barriers.

### **Women in political leadership**

Stereotypes and skewed perceptions still remain powerful and impede the advancement of women to top level positions in almost all settings. Political leadership is a challenge for both males and females because of the procedures involved before and the nature of the assignments involved if one succeeds. Women do not succeed politically purely just by pursuing the feminist agenda, Margaret Thatcher and other famous women leaders never identified themselves as feminists. Critics of feminism and women leadership claim that women policymakers, such as Margaret Thatcher and Indira Gandhi, behaved exactly like men. Thatcher, the Oxford educated scientist, believed in persuading people to go her way (Phillips, 2016). Most women are able to handle

difficult situations without using force but Margaret Thatcher was a different woman in political leadership. She was forceful, directive, stubborn and uncompromising (Stepney, 2013).

She once said:

*'I must say the adrenaline flows when they really come out fighting at me and I fight back. I stand there, and I say, now come on Maggie, you are wholly on your own; no one can help you and I love it'* (p. 16).

- She was more of an authoritarian than a democrat and she claimed that she could 'steer the car from the back seat'. Her campaign slogan was 'Britain needs the *Iron Lady*' and she indeed proved to be the iron lady during her reign. She adamantly rejected communism and she never gave up, and never compromised on any issues affecting her country. She was at times unpopular among her own people, especially when she imposed controversial policies in a bid to revive the ailing economy at that time. Thatcher is, however, regarded as the strongest leader on the international stage Britain had produced since Winston Churchill. Two similarly powerful women heads of government, Indira Gandhi of India and Benazir Bhutto of Pakistan were assassinated for their controversial policies, including production of nuclear weapons, and broad populist appeal.

- The tag of feminism is associated with women empowerment although it has a negative implication of depicting feminists as liberals and rebels. The reasons why women seek political office may vary but the view of pro-feminism is still regarded as being against male dominance which may not be the motivation behind aspiring for political office. Even among the current global women political leaders, none can be identified with being a revolutionary in the sense of feminism but their ideology and perception is based on the values they stand for. Studies have shown that women and men make equally good political leaders (Kendall, 2014). Women and men have to meet similar requirements to gain leadership roles in the first place. Women and men tend to differ in their leadership styles, with men preferring a hierarchical, top-down and more of directive leadership and women being more interactive, consultative, restrained, and patient (Lynn, 2012).

- As of January 2017, approximately 10 percent of the world countries were headed by women, either as Heads of State or Heads of Government. Two women were in their eleventh year of leadership in their countries, Angela Merkel of Germany and Ellen Sirleaf Johnson of Liberia. Chancellor Angela Merkel is the world's only head of state with a Ph.D. in Physics. Matthijs (2016) describes Merkel as a leader who uses 'small steps'. Using this emblem, she has been able to achieve much and even put Germany as the leader in Europe. Merkel's leadership is characterized by caution, and she prefers to delay and conceal information so as to avoid big decisions. Evidence shows that women leaders typically have more compassion and empathy, and a more open and inclusive negotiation style.

- Merkel went against other European countries and opened German's borders to Syrian refugees in 2015, following her humanitarian impulse. She went against her counter parts in Hungary and Austria and directed that the refugees in buses, trains or foot, be received in Germany. This was a major collateral damage because she did not consult other European nations. The fact that she did not consult others may have been driven by the empathy that she had for the suffering human beings. She was filled with pity as a mother and did not consider rejection as an option, when the other leaders refused to have the refugees in their countries. She acted quickly to save a humanitarian situation. Critics said that this could cost her another term in office (it did not!) but as a woman, she was comfortable with her decision. Studies have shown that women leadership is characterized by consideration for others and leaders with more complex moral reasoning are more likely to value goals that go beyond immediate self-interest and to foresee the benefits of actions that serve the collective good (Ionescu, 2012).

- Many times, women experience disapproval for their more masculine behaviors, such as asserting clear-cut authority over others, as well as for their more feminine behaviors, such as being especially supportive of others. Merkel does not identify with feminism but she is for women freedom, opportunities and empowerment. Supporting a statement from queen Maxima of the Netherlands who stated that feminism meant women having equal opportunities, she said: 'If that is a feminist, I am a feminist'.

- In the United States, women made up 19% of the Congress, which translates to gross underrepresentation, considering that American women are said to be liberated. In 2016 only six of the 50 governors in the United States were women (Center for American Women in Politics,

2016), and only two are women of color. Barriers, both internal and external still exist for those women who wish to run for US congress. Warner (2014) states that in the political world, gender stereotyping is a major barrier to women leadership meaning that women are less likely than men to be recruited to run for elected office, are more likely to be discouraged from running, and are less likely to consider themselves qualified to run. Women are the majority in most professions, raise as much money and are as successful as male candidates when they assume public office but most times, they keep off the political arena. Historically, women in the US congress were concerned about women issues and supported ideas for the promotion of women. Although there is still support, much of the influence lies in allegiance to party affiliation. There is some evidence that Republican women legislators are oftentimes likely to make a priority of discussing issues relating to women in the house committee, but when it comes to final voting, they adhere to the party line. Being pro-woman is, however, in the eye of the beholder and there are those who openly show their support, irrespective of their party voting line. Democratic women are strong proponents of women political empowerment for leadership, however, it is worth noting that both congress men and women have valuable insights and perspectives despite their political standing.

- Rwanda has the highest percentage of women parliamentarians worldwide. Women there have won 63.8 per cent of seats in the lower house. After the 1994 genocide, women got a chance to work, just like men. They, however, face many challenges related to gender discrimination due to the patriarchal nature of the society. In her study on the private lives of the Rwandan women politicians' private lives, Uvuza (2014) found that with rare exceptions, no matter how powerful these women were in public, that power did not extend into their own homes. One participant expressed stated;

*'My husband expects me to make sure that the water is put in the bathroom for him to bathe, his clothes are ironed, shoes polished, and laid out with socks on top of them every morning, all by me, his wife, the parliamentarian' (p. 132).*

In an African family setting, it does not matter how high the woman politician ranks, she has to be at the beck and call of her husband. Many men say that they have paid bride price and the wife has to perform her traditional chores. In most African traditions, where Rwanda is included, a good woman is socially expected to be one who is married, and who takes good care of her husband and children. She is expected to feed, nurture, and nurse the ill members of her extended family. If a woman aspires for political leadership in Africa, she is connotatively referred to as an American woman. To be an American woman is to be liberal, aggressive and more so, a feminist. In fact, feminist is almost a no mention word in many African contexts. Aspiring young women politicians are often told that their place is in America, not Africa (Gaidzanwa, 2013). Unfortunately, this stereotypical thinking makes many qualified women to shy off from political leadership. In the United States house, women hold only 19 per cent of the seats. They may not be seen to focus on women issues because as leaders, they have to balance between policy and practice.

### **Women in educational leadership**

The dearth of women in top leadership roles in most professional fields creates the perception that women do not belong in those positions. In educational institutions, women administrators stay longer in service before being appointed to higher positions as compared to their male counterparts (Reis, 2015; Shober, 2014). Women face some disadvantage in obtaining promotions at all levels in organizations, have a discriminatory wage and promotion disadvantage compared with men. In Africa, women face barriers to their performance which range from stereotyping, double burden of family and public life to outright discrimination (Chamley, 2011). Research has shown that they do not apply for the positions, keep family obligations at the front and succumb to gender stereotyping. Women educational administrators in Nigeria have to be more qualified than their male counterparts in order to be appointed to the same positions (Ifedili, & Ifedili, 2009).

Women were therefore reluctant to aspire for positions, even when they were qualified. Some of the women teachers who have appropriate qualifications, positive attitude to work are seeking to be recognized and appointed but it doesn't always work for them. They look upon those in management to help them to achieve their ambitions. Aspiring South African women professors

have to have not only strong publication records and high qualifications, but should also have received good teaching evaluations and have been involved in community service. They are expected to be superwomen, excelling in all four pillars of institutional life. Mazjibuko (2006) argues that endogenous factors such as perception of the changing processes in higher education, self-perception, mentorship, and networking can act as transformative agencies for women succeeding in higher education. Sader, Odendaal, and Searle (2005) agree saying that not enough attention is given to leadership attitudes, performance and development needs of women, holding leadership positions in university. Some women educators who have appropriate qualifications, positive attitude to work are seeking to be recognized and appointed (Kele, & Pietersen, 2015). It is upon the women in management to help them achieve their ambitions, thus raising the numbers.

Women lead in educational institutions in Pakistan due to their very nature and composition and even so, they do not handle finance matters. Their leadership is also confined to the four walls of their offices. As long as they are operating within their sphere, then they are okay but if they venture into the male world of finance and resources, then they are inviting trouble. Guided by the religiously endorsed practice of sex-segregation in Pakistan, the educational institutions in the public sector are mainly single-sex, called *Zanana* (Shah & Shah, 2012). Single-sex colleges are an expression of the dominant culture of sex-segregation in most Muslim societies, which is justified in the name of Islam. Segregation is observed more closely in the rural regions because of limited exposure, than in the urban areas, and is generally stricter in the secondary and the college sectors. The age factor of the students in these levels is perceived as very sensitive within socio-religious discourse as it relates to sex, chastity, and moral code of conduct in the society. In the *Zanana* colleges, the leaders are women as well as the teachers. The other staff include men. In the study by Shah and Shah (2012) participants were unanimous that women college heads suffer a lot because of social norms and pressures, it is inappropriate for women to visit banks or other male offices.

In the United States, women college students outnumber males but the diversity of college presidents has not shifted substantially because only a third of United States universities are led by women. In 2014, white men made up 75 percent of superintendents, white women made up 23 percent, black women made up 1 percent, and women of other races and ethnicities together made up about 1 percent. From 2008 to 2013, half of the Ivy League institutions were led by women, most of whom were the first women to serve as presidents of their respective universities. Most of the college presidents try to attract female and minority faculty members to better represent their student population. The first woman president of Harvard, Drew Faust emphasized on the importance of free speech in a recent graduation. She stated that silencing ideas or basking in intellectual orthodoxy independent of facts and evidence obstructs access to new and better ideas, and it prevents a fair rejection of bad ideas. Drew Faust has initiated a broad expansion of financial aid, thus opening Harvard's doors to many more qualified applicants, and has championed increased diversity and inclusivity on campus.

Women exhibit a greater degree of transformational leadership skills (Eagly, Johannesen, & Van Engen, 2003). Some of the longest serving presidents in American universities are women. They include Sharon Diaz, the President and Chief Executive Officer of Samuel Merritt University (SMU), who has served for 32 years and, Diana Natalicio the president of the University of Texas at El Paso who has served for 29 years. In February 2016, Natalicio was the longest serving president at a major public research university. In a study on gender in university leadership participants experienced barriers related to gender, professional development and family life (Reis, 2015). Negotiation around these barriers was required to achieve leadership success. On self-identity, women college presidents, identified their strengths as communication, creativity, decision making, problem-solving, sense of humor, listening, identifying with others, making connections, willingness to question themselves, accepting their own imperfection, recognizing the relationship between self-confidence and making mistakes, and the value of relying on others (Alexander, & Welzel, 2007). Women in leadership make use of others to be effective. Most are transformational leaders who empower others and appreciate team work.

### **Women leadership in healthcare**

Over the past few decades, gender disparities in hospital executive leadership have narrowed. In the United States healthcare system, women make up 74 percent of healthcare service managers and 48 percent of medical school graduates but in the top echelons of power, there is dire

underrepresentation. Only 19 percent of US hospital CEOs are women and only 4 percent of top healthcare companies have women at the helm.

Although the future for women in healthcare leadership looks bright, many women who are presently endeavoring to reach the executive office are facing glass ceilings, competing priorities, and lack of access to support and mentorship. There are different societal challenges and there is not one specific factor responsible for the current underrepresentation of women in leadership positions in healthcare. Gender stereotypes still play a major role in the appointments, together with family commitments, parental leave policies and work schedules (Talib & Barry, 2017). Women sometimes also slow down their upward mobility with lack of aspirations and believing that limitations about their upward mobility abound. There are many women in the health sector who continue to work within the confines of the male authority in their institutions while slowly and quietly resisting and attempting to slowly bend the boundaries, rocking the boat from within, while being careful not to fall out of the boat.

In Ethiopia, women who advanced into leadership roles in healthcare were often asked to assume new responsibilities in addition to their prior roles, thus leaving little time for the already existing duties and pursuing of academic interests (Kvach et al., 2007). In a global health leadership symposium, participants stated that women healthcare leaders in low and middle-income countries often felt increasing burn-out, and some stepped down from the leadership positions altogether (Downs et al., 2016). Participants noted that, in these countries, overtly sexist assumptions that women ascend to leadership through nepotism or by exchanging sex for promotion is still commonplace ideology. Women confront a double challenge because they face barriers when pursuing leadership positions, and when they get into leadership, they are punished for achieving the goal.

Some research evidence accumulated over time suggests that gender differences in mentoring and leadership succession planning are key barriers that need to be addressed in healthcare leadership (Lantz, 2008). Most healthcare executives stated that the healthcare institutions do not invest enough in mentoring and leadership development, and the lack of attention is even more pronounced for women and minorities. Women healthcare executives who are married are more likely to have spouses who work full time unlike their male counterparts whose spouses may be taking care of family duties only. Still, in most families, women are more likely to spend more time attending to home care responsibilities than men and are more likely to take a leave of absence or have a respite from their jobs because of family roles. Adams and Funk (2012) argue that women spent more rather than less time with their children as a result of an increased tendency toward intensive parenting duties.

Women's leadership style tends to be transformational whereas men's style edges towards transactional. Transformational leaders are more people centered than hierarchical. Transactional leaders are more structure centered and the leaders expect the followers to do their duties to the latter. Men think more about the hierarchy of leadership than women and women prefer more of relationship based interactions in their leadership. However, the most effective leader is the person who incorporates both transformational and transactional leadership styles.

While the percentage of women in healthcare leadership positions doesn't reflect the composition of the healthcare workforce, hospitals have a long history of women in leadership positions in many countries. Available evidence alludes to the fact that when women lead in global health, health the outcomes are more equitable because they take decisions that directly and positively affect the wellbeing of women and children (Fontenot, 2012). Research findings show that promoting women creates a ripple effect that benefits families, communities, and countries. Women in political leadership in India advocated for immunization programs, girls' education, and women's employment. In the United States, women senators financed the Breast and Cervical Cancer Mortality Prevention Act in order to safeguard preventive breast and cervical cancer screening for all women.

To increase diversity of leadership in the top positions in healthcare, there is need for renewed commitment from organizations to improve leadership and eventually close the diversity and gender leadership gap. Although it will take time and investment of resources to see the results and initiatives reach those in early careers, efforts to change organizational culture, and to nurture community relationships are necessary. In a study on the successes and challenges of five health leaders, three themes on how women practiced effective health leadership to promote equity

emerged: (1) challenging status quos and norms; (2) leading by listening and leveraging others' expertise to build a common vision for health; and (3) having social support early on to develop confidence and credibility (Javadi et al., 2016). Leadership in healthcare is very political and focusing on the vulnerability of women requires their participation in the political sphere. Taking up leadership is therefore challenging because there are still differences in how men and women are perceived in society, and these are deeply entrenched in cultural norms, with the expectation of women being home makers. Women should be more involved in politics because the participation of women is a sustainable means of achieving equity in all sectors and it slowly changes the culture and puts shared power and responsibility on both men and women in driving society forward.

### Women in religious leadership

The gradual rise of women leaders in the world of religion over the last forty to fifty years has been largely unnoticed. In many Christian denominations, the issue of the ordination of women has divided many churches and resulted in many conflicts. In the bible, Jesus placed women on equal status with men and showed that they had equal legal rights in marriage. He did not support Moses in the Old Testament who asked men to divorce their wives. During his Galilean ministry, Jesus was accompanied by a group of women together with the disciples. They included Mary Magdalene, from whom seven demons had been cast, Joanna, the wife of Herod's steward Chuza, Susanna, and many others who sacrificed their resources for the work Jesus was doing. While the Jewish culture elevated men and subordinated women, Jesus invited them to His ministry. If giving women their right place in society and more so in leadership implies being a feminist, Jesus was then a feminist. Christians claim to be followers of Jesus while practically doing opposite of what He did.

In the Roman Catholic Church, where ordained ministry is a prerequisite for church leadership, women cannot be ordained deacons, priests or bishops. They therefore cannot offer Holy Mass which is the most important sacrament in the Catholic faith. The Mass and other sacrament rituals are reserved only for the Roman Catholic priesthood, an all-male vocation consecrated by the sacrament of Holy Orders. The Vatican, under Pope Paul VI, issued an official declaration against women's ordination in 1977 with a statement suggesting that although it would cause dissatisfaction, it would lead to a better understanding of the roles of men and women in the church (Haskins, 2003). Pope John Paul II raised awareness on the importance of women in church ministry and called for the Catholic Church to increase the role of women and consented to women serving at the altar during Holy Mass (Henderson, 2004). In his letter to women in 2000, he admitted that women had been discriminated for long and their services had not been acknowledged. Having women as ordained leaders is yet to be accomplished. The teachings about the subordinate role of women emanate from the Palestinian cultural practice where women were supposed to serve their husbands. Pope John Paul in his letter, *Mulieris Dignitatem* disagreed with the long held believe that the man was the head in a marriage and instead supported mutual love and companionship.

The Roman Catholic Church continues to ensure that the subordination of women and other minorities persists and intensifies but in Australia, the female ordination movement, acts as a vehicle of change, and provides an alternative, an example, and a catalyst for reform within the Catholic Church (Spence, 2016). In order to liberate the alienated Catholics, there should be widespread subversion and transformation of Catholic traditional conventions. Although Paul's letters highlight that women should be subordinate to men, they were written in the context of the Jewish culture which was purely patriarchal. Due to this patriarchal influence, women leadership in the church declined and became hidden. The epistles are used today to degrade women and show that they are not supposed to lead, according to the bible. In the United States, women who were ordained priests were immediately ex-communicated from the Catholic Church and the bishops sent out letters to the Catholics in those areas not to attend Mass presided over by those priests. Presently there are now four women Catholic bishops in Europe who are accountable to the communities and aim at transforming the church (Rue, 2008):

*'Both male and female can represent, and must represent Christ' (p. 7).*

Historically, black women in the United States served as critical organizers and leaders within the black church and community. Yet, they still found resistance and vast opposition to their

leadership both in social movements and in the church mostly for socio-cultural and theological reasons. Famous black women church leaders include Julia Foote, Zilpha Elaw, Sojourner Truth, Jarena Lee, and Harriet Tubman. These pioneering women preachers were composed and resisted reactions that would break ties with the church. Ngunjiri et.al, (2012) call them ‘tampered radicals’ while Collier-Thomas (1998) calls them ‘daughters of thunder’ because they were not only toughened by their experiences in the black church but were also passionately committed to fulfilling their call to ministry. Jarena Lee was at first denied the opportunity to preach in the African Methodist Episcopal church but was later granted permission to hold prayer meetings in her home and serve as worship leader when the male preacher preached. This was the commencement of her preaching journey which took her to different states.

In the mainstream protestant denominations, the ordination of women was not acceptable until they expressed the need for equality following the rise of the American Civil Rights movement and the second wave of feminism (Barnes, 2006). Modern protestant conviction upholds democratic values, respect for all human beings and reciprocity. Studies have found that protestant adherents promote the status of women (Inglehart, & Welzel, 2010). Protestant heritage churches have opened doors to women ordinations and gender equality has become an accepted order, culturally and theologically in many churches. There are milestone accomplishments of women in religious leadership, like the election of Bishop Katharine Jefferts Schori as the presiding bishop and primate of the Episcopal Church from 2006 to 2015, and the election of Dr. Ingrid Mattson as the first woman president of the Islamic Society of North America. Although officially elected, Bishop Schori was subjected to innumerable indignities, the most noteworthy of which was a 2010 order by Archbishop of Canterbury Rowan Williams that she not wear a mitre (*the hat worn by Christian bishops to symbolize their spiritual authority*) when preaching in an English cathedral. Others in the church leadership made it clear that although she had the title of presiding bishop, she was not really a bishop and worked to undermine her authority at every opportunity. She faced a lot of challenges as a result of her gender, sometimes being excluded from meetings.

Some churches do not allow women to preach from the pulpit, stating that it surmounts to insubordination of men. Women preachers are allowed to use the floor or the side of the church. This has not gone down well with most women preachers as Pastor Royce indicated, when she is invited to a congregation, she immediately asks where she will stand to preach. If they indicate that she will preach from the floor as opposed to the pulpit, she declines such invitations (Ngunjiri et al., 2012). In the same way, a pioneer woman church minister, Mary Moore, who had been appointed to be the first woman at the helm of the New Salem Missionary Baptist Church in South Memphis said in a newspaper interview that she no longer accepted invitations to churches that do not allow women to preach from the pulpit.

Many people still believe that the Shariya law does not allow Muslim women to be leaders although women have led in Islamic nations since the early days of Islam. Khadija, Muhammad’s first wife, was successfully running her business and Aisha, the mother of believers, well-known as an *Ulema*, was an Islamic religious leader. She was the commander during the successful battle of camels. Muslim conservatives use the Quran to support their argument against women leadership, quoting some of the sayings of Muhammad, out of context. The saying, also known as *hadith*, that they cite mostly is one which says that ‘a nation that is led by a woman will not succeed’ (Rohman, 2013). Megawati Sukarnoputri is an Indonesian Muslim politician who persistently ran for president, and at times was barred from participating in the presidential elections by conservative Muslim men (Van Doorn-Harder, 2002). She however had the support of most of the citizens and finally won the elections in 1999. Although she had won the elections, she had to take up the vice-presidential position and a man became the president. She only got to be president when the man in power did not perform and they got rid of him and she took over the office. She was a one term president but proved effective amid many controversies bordering on gender insubordination. In the mosques, women are relegated to the rear during prayers which are led by male religious leaders or *Imams*. Muslim women have not been allowed to lead prayers in mosques. Some Muslim women have established women only mosques where they can get a chance to lead, especially in America and Europe. Rabia Keeble, an Islamic convert and the Imam of the second all women mosque in Oakland, California, said the idea for the new mosque was born from her frustration with the way women are separated from men in most mosques, how they are expected to behave, and how they are patronized by male Imams. The spiritual leader for the Islamic Center

of America, the largest mosque in the U.S, said he backs the women's idea of starting the women's Mosques.

### **Conclusion**

Success in leadership appears to be highly idiosyncratic for both men and women leaders. Women with the knowledge, attitudes, dedication, and stamina to assume the C-suite are the only individuals who stand a chance to survive, and indeed flourish, in positions that call for public accountability and dedication when serving people. Differences in perceptions, psychological challenges and societal values act as challenges when opportunities for leadership present themselves to women. Those who take up the baton have proved to be effective during their terms in office. In a study on barriers, fears and motivations encountered by women leaders in higher education leadership roles, Rabas' (2013) findings directly supported the motivational factor of mentoring for women. Women leaders reflected a desire to role model and lead for others within their department. Participants felt motivated to help others achieve their professional goals and also serve at a broader level with the desire to give back. Mentors provide key opportunities and offer a critical boost to the mentees' self-confidence as emerging leaders to seek promotions or make key career advancement moves early in their careers. Cultural values, including stereotypes, affect women participation in the top administrative positions in many organizations in ways such as family commitment, society norms, organizational culture and personal inclinations. These factors, although common, affect women differently depending on the geographical and historical context of their countries.

The last three decades have been a plethora of activity on gender equity and equality. The Beijing Declaration (1995), the Millennium summit (2000) and the World Summit (2005) have all been platforms of making decisions about gender and equal representation. Governments are committed to making the policies effective and most times, the affirmative action policy is a common call in job advertisements. Despite women being highly represented in formal political, educational, health and religious institutions, access to leadership positions is still limited. Women's empowerment initiatives must recognize and look for the inter-relationship between different forms and levels of leadership participation, and give due regard to the gendered nature of political campaigns and financial politics, while focusing on the intimidation women candidates experience (Haley, & Zubrinich, 2016). Women leadership styles reflect their nurturing characteristics although at times, they have to be androgynous to prove that they deserve their positions.

### **Conflicts of Interest**

The authors declare the work has no conflicts of interest.

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## Language Education in Multicultural Dimension

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### Abstract

This article highlights a key trend of pluralistic school of language education in Ukraine. The questions of influence factor on: multicultural school language education, the development of an individual student, the concept of multicultural education and the processes of learning Ukrainian and foreign languages in the content of multicultural education. This paper seeks to determine the means and methods that provide quality multicultural education in national school. It also explores the necessity of encouraging students to study several languages and the need to use information technology. Besides, the prospects of multicultural language education in Ukraine have been established in this article. Thus, school education must meet the requirements of society, especially as Ukraine develops with an expansion of international contacts. To ensure the successful cooperation of Ukraine with other countries, students should be equipped with quality knowledge of foreign languages to guarantee their linguistic formation.

**Keywords:** Education, Language, Multicultural Education, Multilingualism, Pluralization of Linguistic Education.

### Introduction

Language is a universal means of acquiring knowledge and communication in the world. It provides mobility and effective exchange of deepening mutual understanding and mutual enrichment among different cultures. In the process of multicultural interactions, the amount of perceived values changes and the nature of perception increases; it becomes deeper, more thoughtful, reflects properties of the object in all its versatility. Ukraine's independence began with expanding its contacts and involving the European educational space in its education. Taking into account Ukraine's and European's multiculturalism, the need for training and bringing up of future professionals, who will be able to socialize in multicultural space is a matter of urgency. Thus, "*pluralization, which is one of the most pressing global trends in educational reform process, called to life democratization*" (Loschenova, 2002, p. 75).

Multicultural education is a relatively new branch of pedagogical knowledge. It is a response to problems such as the development of globalization in the modern world, interpersonal, intergroup and interethnic conflicts, discriminatory effects, class, political and religious

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antagonisms. The development of this direction in modern pedagogy and educational practices are due to processes of democratization and humanization of social life. Other factors include the desire to create a society in which the respect for the individual is cultivated; where the rights and dignity of every person are protected (Sultanova, 2009).

The aim of this article is to expand the importance of multicultural education in the contest of school language education in Ukraine.

### **The concept of “multicultural education”**

The concept of “multicultural education” has gained widespread use in American pedagogy since the 1960's. At that time, the conception of multicultural education was formed. The basic concepts formulated in these theses are as follows:

- ethnic uniqueness contributes to the enrichment of the nation;
- safe and rapid resolution of personal and public issues;
- deeper knowledge of national culture by exploring another culture;
- achieved a high level of self-learners;
- arms students with the knowledge needed for life in the global community (Ananyan, 2006).

Multicultural education provides a means for developing a comprehensive vision of the world. It also provides the ability to assess what happens from the viewpoint of other cultures; a desire to organize cooperation, mutual support and understanding. Multicultural education is aimed at cultivating and nurturing in a person; the spirit of solidarity, mutual understanding and tolerance aimed at preserving peace throughout society (Ananyan, 2006).

The most important socio-cultural determinants of multicultural education include:

- the extensive growth of the integration process as an important component of the modern world;
- the desire of countries to integrate into the global socio-cultural and educational space while preserving their national identity;
- with the opening of borders between states which increases the mobility of people, their motivation to learn foreign languages, as well as establishing and maintaining contacts within the country and abroad remains a priority.

At this stage, language education in Ukraine is based on the experience of European countries working towards multilingualism - forming capacity to study and use more than one foreign language, increasing the linguistic repertoire of rights to empower communication and interaction with different cultures (Basina, 2007). The purpose of schooling in this sense is to build a multicultural personality; an individual with a holistic outlook that has both native and foreign cultures. Multicultural education there by achieves its goal only in the case of diversity promotion and the respect for it. Thus, the cultural content of education should be integrated into all subjects during the study time of students. Most cultural content is transmitted during language learning.

### **The effects of multilingualism and multicultural education**

The development of multilingualism is ensured by the fact that languages are taught and used not in isolation but integrated, causing their mutual influence and enhancing their communicative competence. Mastering several languages makes it possible to participate in present and future educational and professional projects. Significant educational worth of language tolerance and positive perception of different nations and cultures allow room for the growth of multilingualism. According to V. A. Tishkov: “*tolerance, as personal or social characteristics, which involves the realization of peace and social environment is multidimensional, and therefore looks at the world as different and cannot be reduced to uniformity or in someone's favor*” (Abibulova, 2006, p. 80). Language education is seen as a source of equal opportunities for personal, educational and professional development of students. It provides access to information and communication through intercultural learning and mastering of foreign languages (Basina, 2007).

Currently, the content of language education in the national standards offers interdependent, interconnected and socio-cultural proficiencies. The process of teaching Ukrainian cross-cultural orientation is characterized not only by forming communication skills, but the identity formation of a new type of a person who is able to communicate effectively in an intercultural capacity. Fluency

in the national language is crucial for Ukraine's socialization of citizens from different nationalities. This will stimulate their cultural integration and intellectual contribution to the scientific potential of the Ukrainian community. It will also enhance the formation of Ukrainian scientific, artistic, political and business elite collaborations with non-nationals (Drozd, 2009).

### **Linguistic identity formation in a multicultural education**

Due to the merits of multilingualism, it is important to ensure that secondary schools in Ukraine are tasked to make sure that their graduates master several languages, i.e. official Ukrainian, ethnic dialects, and one or two foreign languages (Drozd, 2009). Such efforts will provide graduates with the right of level of linguistic proficiencies to meet the educational needs of native language preservation, multicultural cooperation and the development of their own ethnic culture. Undeniably, the formation of a linguistic identity should include not only the mastery of the verbal part of foreign languages and the ability to use them during conversation, but also forming in the minds of students', the sociocultural worldview of the native speakers. This is necessary because education should not only be aimed at attracting students to a different language system but also to encourage the understanding of multicultural dimensions of two or more different socio-cultural communities (native and foreign).

A parallel study of several languages offers a comparative analysis of texts that include representatives of different national cultures. It obvious that "*the study of world languages is also the history of the world of thoughts and feelings of the mankind. It should describe people of all countries and all stages of cultural development; it should include all that relates to man*" (Humboldt, 1985, p. 349). It is significant to note that interdisciplinary communication provides a deep understanding of the necessity for mastering foreign languages. For example, this will enable students read books in their original language and then search for relevant information on foreign-language sites, etc. In effect, it is not about the number of linguistic units learnt by the speaker, but also the perfection of language proficiency. Language proficiency in this capacity enables the understanding of all aspects of language such as linguistic units, lexical and grammatical meanings, semantic, stylistic shades and purposeful use of a range of expressive potentials (Drozd, 2009).

An important tool in learning a foreign language is not just within the study of vocabulary and grammar, but the dipping in foreign environment using Internet resources (Kononenko, 2011). Using Internet resources allows students to communicate with native speakers to improve the pronunciation. It also helps students to improve their ability to comprehend oral language, and to get reliable knowledge about the country whose language the student studies. It affords them the opportunity to read foreign publications to train their existing acquired skills at school.

### **Conclusion**

Multicultural language education will produce a new generation of students with extensive knowledge of not only Ukrainian, but several foreign languages. It will also promote the development of high linguistic culture of the citizens, respect to the state language and languages of national minorities of Ukraine. This approach to language education will lead to the expansion of the world, introduce the culture and traditions of other countries and teach tolerance towards other languages and cultures.

On a broader scale, multicultural language education will offer opportunities for foreign universities and companies collaborate with local organizations in Ukraine. This will raise the prestige of the Ukrainian language and the country as a whole on a global level. Accordingly, it is appropriate for language lessons to select texts and tasks that will boost the interest of students. It is advisable to include language textbooks, interesting stories of national history of Ukrainian and world art, biographies of prominent figures, texts describing emergencies, humorous miniatures etc.

So, education is the greatest social institution that affects the formation of personality, consciousness of society and governing processes of the consciousness of citizens; new forms of thinking. It is necessary to update the content of language education constantly according to the emerging requirements of society.

### **Conflicts of Interest**

The authors declare the work has no conflicts of interest.

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## **Analyses of the Sustainable Tourism Development Factors: the Example of Sochi-City**

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### **Abstract**

The concept of sustainability is the leading trend of modern world development. This term is found in almost all government programs and strategies. Countries dependent on tourism revenues are extremely interested in sustainable development. This concept allows to minimize their environmental impact and to maximize the overall socio-economic benefits for tourist destinations. Formation and implementation of sustainability programs are long-term and expensive processes, which are influenced by factors of internal and external environment. The aim of this article is to define the role of sustainability in the tourism industry and to reveal the major factors that influence on the process. The objectives of this paper are: (i) to study theoretical base of the sustainability concept, (ii) to analyze current situation in the industry and (iii) to reveal the main factors of Sustainability tourism from Sochi-City.

**Keywords:** Sochi-City, Sustainability Concept, Sustainable Development, Sustainable Tourism.

### **Introduction**

Sustainability is usually associated with success and profitability. The term sustainable development describes a long-term process with all stages of economic cycle. Understanding the essence of this process is a way to its optimization. That is why it requires studying different opinions and approaches to form complex understanding of factors and their impacts. Every industry has its specification, and to define what is driving or restraining force, there is the need to access all aspects and elements of market functioning. Sustainable tourism development includes social, economic and environmental aspects (Andereck, Valentine, Vogt, & Knopf, 2007; Buckley, 2012; Liu, 2003; Saarinen, 2006).

Today, numerous reports suggest the idea of following the way of sustainable development (Andereck et al., Buckley, 2012; Gallagher, & Hammerschlag, 2011; Liu, 2003; Saarinen, 2006). Sustainability and performance optimization during economic recession is a hot topic in a modern world for any industry. The relevance of this research is the need for determination of stimulating and restraining factors in order to resist fluctuations in the world economy and tourist market.

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The understanding of these factors' impact is a key element in successful formation and implementation of tourism sustainable development programs (Buckley, 2012; Hall, 2010, Ritchie, Amaya Molinar, & Frechtling, 2010; Smeral, 2010).

### **Materials and Methods**

The methodological basis of this study are the works of Russian and foreign scientists in the field of sustainable tourism development (Amir, Ghapar, Jamal, Ahmad, 2015; Edwards, 2009; Pisarevsky, 2014; Bruns-Smith, Choy, Chong & Verma, 2015). This paper used methods of system, factor and comparative analysis, as well as the method of statistical processing of empirical data.

### **Results and Discussion**

#### **Sustainable development and tourism**

There are different interpretations of the sustainable development concept. Traditionally, it is defined as development, in which the vital needs of present generations are met without depriving the opportunity of future ones. Both foreign and Russian scientists' studies are dedicated to the concept of sustainable development. A lot of works are devoted to the development of this concept with reference to the tourism and hospitality industry (Amir et al., 2015; Angelevska-Najdeskaa, & Rakicevik, 2012; Edwards, 2009; Golodyaeva, & Rassokhina, 2015; Laitamaki et al., 2016; Pisarevsky, 2014; Saarinen, 2006).

Though each of these researchers may present a specific standpoint, the concept of sustainable development is very clear. For example, Pisarevsky (2014) considers the need for functioning harmonization of the nature-society-super-system as the basis of the concept of sustainable development. Amir et al. (2015) however believe that an effective sustainable development program is devoted to presenting a sustainable development and promoting the relationship between local community and visitors. They consider the essence of sustainable development in tourism as a so-called "triple bottom-line", in which policies and actions attempt to balance social, economic and environmental costs and benefits (Amir et al., 2015). The need for a detailed study of sustainable development in tourist industry is justified by Edwards (2009). According to his opinion, tourism is often viewed as an economic activity first, although it can also be conflicted with the environmental and cultural conservation goals of community sustainability. Angelevska-Najdeskaa and Rakicevik (2012) also underline the importance of the use of natural, cultural and all other tourist resources without exploitation from the current generation, it means to preserve them for future use by future generations. They define sustainability as a process that allows development to be achieved without degradation or depletion of those resources on which it is based (Angelevska-Najdeskaa, & Rakicevik, 2012).

The review of the scientific literature did not reveal any significant differences in the definitions of Russian and foreign authors. Particular attention in modern society is paid to the ecological aspects of the issue. In a collective study by Bruns-Smith et al. (2015), they consider environmental sustainability in the hospitality industry as essential to development. Despite tourist markets participants' sustainability efforts which are essential for saving energy and resources, they underlined an element of such a green program - consumers' reaction and participation.

Considering sustainable development as a concept, it is worth emphasizing such a thing as "moderation" - moderation in water and energy consumption, pollution of the environment, attendance of nature protection zones and so on. Mostly, people do not think about the consequences; they consider receiving unlimited benefits from the exploitation of natural and cultural resources. The complexity of theoretical and methodological basis leads to the definition of sustainable tourism development as a balanced long-term development of the industry with a moderate expenditure of natural and cultural heritage, taking into account the interests of both the local population and consumers of the tourist product.

#### **Sustainable tourism and development**

Another term in scientific literature is "sustainable tourism". To understand the difference between this term and "sustainable tourism development", it is worth looking at the definitions of Pisarevsky (2014). According to him, sustainable tourism is "*such a kind of tourism, which ensures the rational use of environmental resources, supports the socio-cultural characteristics of the host*

communities, ensures the effectiveness and viability of long-term economic processes, and part of the receipts from tourism development incomes is channeled to the restoration of tourist resources and technological optimization of tourist services" (Pisarevsky, 2014). While sustainable development is a long-term development of tourism, with achievement of a balance in the realization of economic, ecological, social and cultural development goals, taking into account the interests of all stakeholders, and based on the rational use of tourism resources and all-round partnership (Pisarevsky, 2014).

Antiptseva, Karpova and Mischenko (2017) add describe the concept of sustainable tourism as a form of "social responsibility, fulfillment of obligations in relation to nature, as well as involving the local population in all processes associated with the management of tourism activities". Thus, sustainability in tourism implies a balance of environmental, socio-cultural, and economic aspects of tourism, combined with optimal interaction between visitors and residents of the tourist destination. So, sustainable tourism is a kind of tourism that meets all the conceptual requirements of sustainable development. The need to follow the principles of sustainable development in tourism has been studied in literature for over 10 years, but in the process of formation and implementation, the concept often faces serious obstacles. In the current situation, the issue of identifying factors that stimulate or restrain development is extremely relevant.

To determine the key factors, it is necessary first of all to consider the basic requirements and components of sustainability. Based on the system of indicators presented in the scientific literature (Bogdanova, 2011; Golodyaeva, & Rassokhina, 2015; Government of the Russian Federation, n.d.; Laitamaki et al., 2016; Romanova, 2014), the study outlines the following criteria for sustainable development of tourist destinations (Figure 1).



**Fig. 1.** Criteria of tourist destination's sustainable development

The generalized system of criteria includes such aspects as:

1. Tourism impact on the local community;
2. Quality and conservation of drinking water;
3. Wastewater treatment and solid waste management;

4. Control of the territorial fund operation intensity (number of buildings and other use);
5. Geographical accessibility of the destination;
6. Efficiency of seasonal management and so on.

As mentioned above, the tourism industry is influenced by many factors. Romanova (2014) classifies these factors into 2 main groups; Group 1 (natural, socio-cultural, demographic and labor) and Group 2 (economic, political, legal, technological and international). A study by Fokin (2012) also endorses the methodology of the IEF and identifies the following factors: (i) business environment and infrastructure, (ii) socio-cultural factor and natural resources, and (iii) legislative framework and its application. Laitamaki et al. (2016) also highlight the following as aspects that determine the sustainability of tourism development. These include: (i) management capacity, (ii) marketing, (iii) transportation sector, (iv) environment, (v) security issues, (vi) linkages, (viii) cultural heritage and (ix) biosphere reserves. The final classification is by Antiptseva et al. (2017). Their list of factors influencing sustainability comprise: (i) the development, accessibility and comfort of the tourist environment, (ii) implementation of the social role of tourism, (iii) the effectiveness of the management system and statistical accounting, (iv) the stage of the economic cycle and the standard of living in the destination, (v) the level of security in the sphere of tourism and tourist services, and (vi) the degree of integration of the tourist product in the domestic and foreign markets.

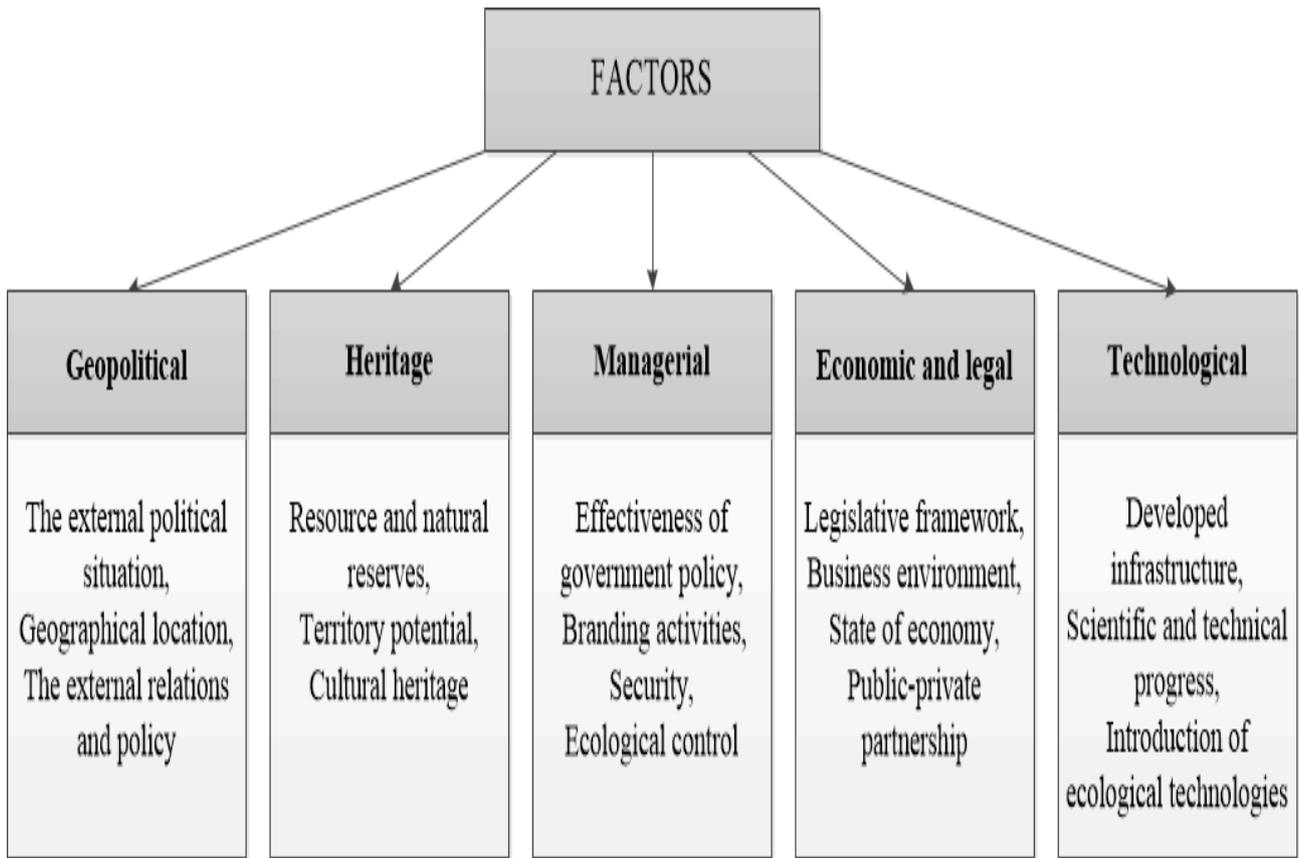
The Strategy for the Development of Tourism in the Russian Federation by the Russia Tourism (n.d.) for the period until 2020 identifies the following priorities for sustainable development:

- i. Improving the quality of life of Russian citizens by guaranteeing personal security, as well as high standards of livelihood;
- ii. Economic growth, which is achieved primarily through the development of the national innovation system and investment in human capital;
- iii. Science, technology, education, health and culture, which are developed by strengthening the role of the state and improving public-private partnerships;
- iv. Ecology of living systems and rational nature management, the maintenance of which is achieved through balanced consumption, the development of progressive technologies and the expedient reproduction of the country's natural and resource potential;
- v. Strategic stability and equal strategic partnership, which are strengthened on the basis of Russia's active participation in the development of a multipolar model of the world order.

Since the concept of sustainable development is a product of modern society, it is necessary to add to its characteristics or principles aspects such as adherence to current trends and tendencies in scientific and technological progress. The last decade brings an active development of e-commerce in tourism; the introduction of an active information technology system in all stages of production and distribution processes. In this regard appeared a separate segment of the tourist market which involves e-travel (which includes the purchase / sale of air and railway tickets, the booking of hotels, tours and other services online).

### **Global dimensions of sustainable tourism development**

Based on the above data, the study suggests a general classification of factors affecting the sustainable development of tourism.



**Fig. 2.** Global factors of sustainable tourism development

The aggregate of the presented factors can have both a positive and negative impact on the growth rate of tourism and its sustainability. In this regard, it is necessary to separately identify factors that inhibit and stimulate the sustainable development of tourism.

**Factors of tourism sustainability in Sochi-City**

Table 1 demonstrates a matrix of factors from the example of tourism in the Russian Federation, in particular – Sochi-City Resort.

**Table 1.** Factors of tourism sustainability in Sochi-City

Factors	Internal	External
<b>Constraints</b>	Absence of investment flows and support for the sanatorium complex; Low effectiveness of seasonality management; Low level of e-commerce use in tourism; Economy stagnation; Undeveloped energy and water saving systems; Ecological problems	Inconstancy of key trends in the world tourism market; Geopolitical instability; Extraordinary situations
<b>Stimulating</b>	Major events; Large resource base; Active implementation of the Southern Federal District	Temporary closure of popular external destinations; Visa-free regime with some countries;

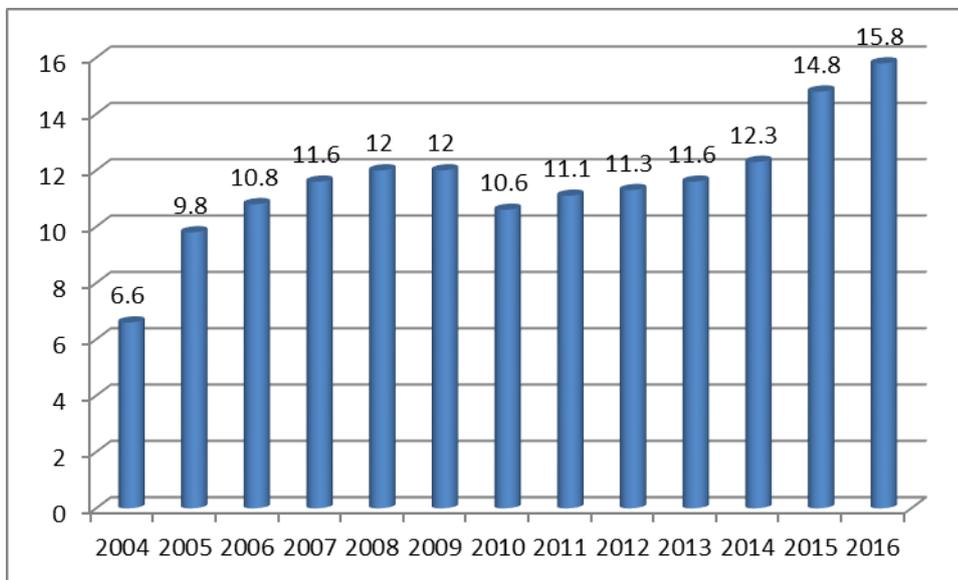
	development strategy; The overall growth of domestic tourism; Developing infrastructure; Marketing and investing policy of authorities	International cooperation on a way to ecological standards
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To determine the degree of influence these factors have on the sustainability of tourism development in the Sochi region, the study presents an assessment of the dynamics of the industry and related key and secondary factors. According to the World Tourism Organization’s (UNWTO) methodology, the sustainability of the development of a tourist destination can be assessed by the huge number of indicators such as:

- i. Total number of tourist arrivals (tourist flow);
- ii. Incomes from tourism (% GRP of the region);
- iii. Level of residents’ satisfaction;
- iv. Level of satisfaction of tourists;
- v. The number and dynamics of employment in the industry and others (UNWTO, 2004).

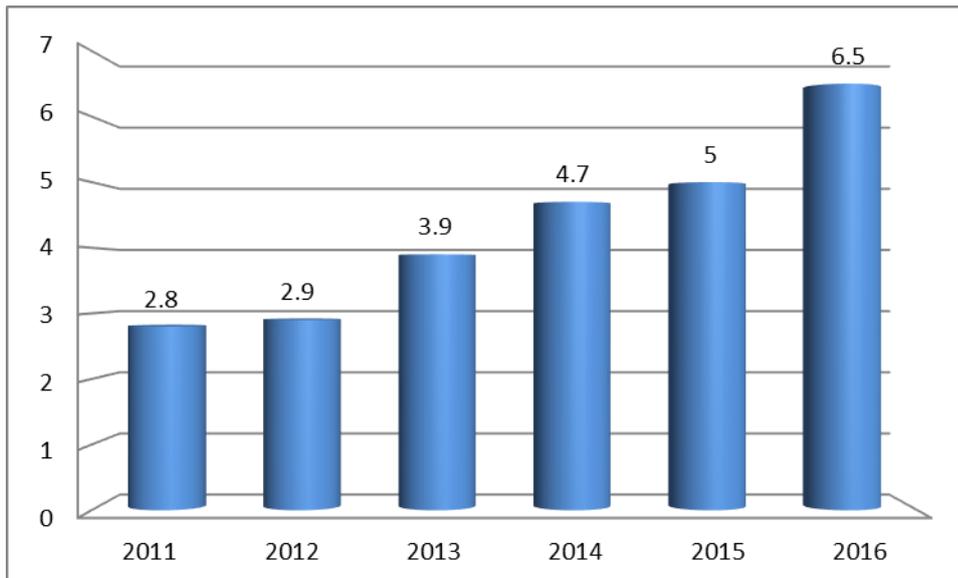
The social aspects of tourism development, which is impossible to assess through statistical accounting, are usually described by questionnaires and the lack of open statistical information makes it possible to evaluate only with a limited number of indicators.

Sochi is the resort of the Krasnodar region, and it stands out among the neighboring territories, demonstrating its competitive advantages. The dynamics of the tourist flow in the Krasnodar region in the period from 2004 to 2016 is shown in Figure 3. The figure provides the assessment for the degree of influence of the geopolitical factors on the tourists’ flow in the region. In 2015, there was a significant increase in the number of arrivals - 20.3%, due to the overall growth of domestic tourism. That is explained by geopolitics: the flights termination with Egypt, the ban on the sale of tours to Turkey, the depreciation of the ruble against the dollar and the euro, the inability to travel abroad for civil servants and so on.



**Fig. 3.** Tourist flow in Krasnodar region, million people (Federal State Statistics, n.d.)

Sochi is the leader in the region. In 2016 the share of the resort in the total volume of the tourist flow of the region exceeded 40%. The dynamics of the tourists’ number is shown in Figure 4.



**Fig. 4.** Number of tourists in Sochi, million people (Federal State Statistics, n.d.)

Over the past three years, the number of tourists in Sochi, increased by 40%; the number of visitors increased from about hundred thousand people in 2012 to about 1.1 million in 2015. Hotels occupancy during this period increased from 62% to 82%. During the preparation for the 2014 Olympic Games, Sochi constructed 42 new hotels and the renovated 28 existing hotels. The overall number of rooms then became 73 thousand - accommodating approximately 200 thousand tourists (Fokin, 2012). In addition, the share of the "accommodation and food service activities" in the GRP of the region for the last three years averaged 3% (Federal State Statistics, n.d.). The growth rate of the tourists' flow in Sochi indicates that sports and cultural events held at sports and tourist sites, which were built for the Olympics and the Paralympic Games, as well as the infrastructure of the post-Olympic heritage provides a steady stream of tourists. Consequently, the heritage factor also plays an important role in the sustainable development of the resort.

The next factor under study is managerial. This includes state and regional policy, strategic planning, marketing activities, environmental monitoring and so on. Sochi is part of the Southern Federal District, within the framework of which the state implements the strategy of social and economic development (Government of the Russian Federation, n.d.). Currently, there is the Krasnodar region Development Strategy for the period until 2020 (Law of the Krasnodar region, 2008), and at the formation stage, there is a strategy document until 2030 in which Sochi is identified as one of the key agglomerations of the region. This strategy is aimed at solving some of the issues noted above as factors restraining the sustainable development of the resort - the problem of ecology. Consequently, there is an acute problem with the recycling of household waste and the authorities in the city are planning to build a heat treatment plant for garbage (Business Newspaper Yug, 2018).

Another important area is the development of the digital technology of the city. Thus, Sochi residents and guests could order taxi, food, tickets and so on online. In addition, the government actively implemented a marketing policy during the preparation of the Olympic Games to enhance the recognition of the city. It spent about 550 million RUB and sponsors invested more than 1 billion USD in the period 2010 to 2014. However, a serious disadvantage is the lack of management of water supply systems in the city. In effect, the operation of the obsolete water supply network, which was paved in the 1970's often leads to frequent water outages in the districts of the city due to accidents (Molchanova, 2016; Molchanova et al., 2014).

### Conclusion

A review of the current situation shows that in the sustainable development of the Sochi-City resort, the key factor is the managerial factor, which also has some shortcomings. Natural potential

and post-Olympic heritage has a great influence on the development of the city; and competent management makes a significant contribution to the sustainable development of tourism.

Practically, it is early to talk about the sustainable development of tourism in the Krasnodar region, as the technological and environmental aspects of the concept are not yet sufficiently developed. However, the region is definitely not deprived of prospects and has already embarked on the path of sustainable development.

### Conflicts of Interest

The authors declare the work has no conflicts of interest.

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## **Technology and Power Play in the International System: A Study of the 20th and 21st Centuries**

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### **Abstract**

Globalization has led to a profound diffusion of technological innovations among State and Non-state actors. This has a resultant impact on the arrangement of the distribution of power in the International System. History captures continuous transition in the distribution of power between states in the International System; from a multi-polar system during the first and Second World War, to the bipolar system of the cold war and the uni-polar system that emerged in the aftermath of the cold war. The emergence of new actors in the international system and the change in technological nature and application is ushering in a new era of 'Non-polarity' in the International System. The aim of this paper is to consider the evolving dynamics of the distribution of power in the International System while considering the roles technology has to play. The paper relays the conceptualization of basic terms, and then applies the 'Balance of Power theory' as its theoretical thrust. Finally, it expands on the role of technology in the distribution of power in the International System and what it entails for the future.

**Keywords:** International System, Polarity, Power, Stability, Technology, War.

### **Introduction**

A 'Great Power' is often seen as a State which thrives in the size of its Population, Territory, Military Strength, Economic Capabilities, Resource Endowment and Competence. According to Waltz (1979), these are the characteristics of the States '*Power Capabilities*' that enables her to apply her political, economic, military and social influence in a global scale (p. 5). As important as the stand of Waltz is, it is key to note to that the size of a country's population, territory, and others to a large extent are not the strongest determinants of the level of power a nation possesses globally.

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The strength of a nation's military for example, must be enhanced by its technological possession and effective use (Chong-yang, & Hong, 2008; Liu, Wan, & Zhang, 2002). With the possession of great technological prowess, a tiny country would bring down a country with a large population with poor technological advancement. In buttressing this point, most African states are way bigger than European countries, but the European countries conquered territories in Africa that were far bigger than their own territories back home, due to technological prowess (Nelson, Bolia, Vidulich, & Langhorne, 2004; Rodman, 2015). This led to emphasize the fact that the polarity and number of great powers in the international system are highly dependent on how these Power Capabilities are distributed within the system. The great powers could be two (Bipolar), more than two (Multi-Polar) or Just the one (Unipolar) (Varisco, 2013). In a similar vein, the ability of a country to dominate among the conglomerates of nations is dependent on the level of its technology.

Nonetheless, technology is not static, it is fluidic in nature; technology is a dynamic branch of knowledge (Dahlman, 2007). It has taken different forms over the years from the industrial age through to the information age; it has increasingly gained momentum and is considered a vital component of globalization and competitiveness in the International System. The constant acceleration in technological change has come to serve as an impetus for determining which State waxes power around the globe. In other words, the level of technology possessed by a particular generation is different and peculiar to that generation.

The impact of Technology in the distribution of power cannot be overemphasized. One of the primary determinants of the rise of each power in histories past has been consistent acquisition and improvement of technological capacity, which gives the State Economic, Military, and Industrial edge over its competitors for World Power and as well determine the things that happen in the international scene. The main thrust of this paper is to discuss the impact of technology on how power is been distributed in the international system (Dahlman, 2007; Geels, 2002; Stirling, 2007).

## Conceptual Clarifications

### **Stability**

Karl Deutsch and J. David Singer define 'stability' in the context of International System as "*the probability that the system retains all of its essential characteristics; that no single nation becomes dominant; that most of its members continue to survive; and that large-scale war does not occur*". They further posit that when there is Stability, there would be consistent political independence and elevated territorial integrity with no foresight of engaging in war with the intent of survival (Deutsch, & Singer, 1964, p. 390).

### **Technology**

Technology encompasses the collection of skills, processes, methods and techniques used for the production of goods and services in a bid to accomplish certain objectives like scientific investigation (Dahlman, 2007). The aim of engaging in these processes is to attempt to bridge the gap between time and space.

### **Power play**

Power is an essential part of human existence that is evident in every manifestation of social relations. Professor Joseph Nye; a renowned contemporary scholar in power politics defined Power as "*the ability to influence the behaviour of others to get a desired outcome*" (Nye, 2011). By this term, it is meant to focus on how technology have given birth to the kind of power possessed and used by different nations in the global system.

### **Polarity**

The term Polarity is used to understand the nature of the International System and the consequences that spring from it. Put simply, it is the distribution of power in the International Community. It could be Unipolar, which is a world order where One State is considered the great power; Bipolar, where two States balance power between themselves and wage influence on their allies and it could be a multipolar system where the International System consists of several great powers (Tomja, 2014).

### **Non-polarity**

This is a World Order where the International System is characterised by massive diffusion of Power. Sovereign Nation-States are not the only actors or Powers here rather there are other Non-

State Actors like Multinational Corporations, Nongovernmental Organizations, regional and global commercial organizations, terrorist groups, diaspora political parties etc. In this case, power is not concentrated but distributed among these emergent bodies (Huesken, 2012). Table 1 shows a history of polarity in the International Systems since 1816.

**Table 1.** History of polarity in the International Systems since 1816

COUNTRY	MULTI-POLARITY (PERIODS)	BIPOLARITY (PERIODS)	UNIPOLARITY (PERIODS)
Austro-Hungarian Empire	1816-1918		
France	1816-1940		
Prussia/Germany	1816-1918/1925-1945		
Italy	1860-1943		
Japan	1895-1945		
Great Britain	1816-1945		
	1816-1917/1922-1945	1946-1989	
USSR	1898-1945	1946-1989	1990-2013

Source: Sarkees and Wayman (2010)

### Theoretical Framework

The alternating transition of various polar arrangements in the international system has influenced the decision to adopt the Balance of Power theory as the main theoretical thrust of this paper. The idea is to gain basic understanding and solve the puzzle of the present distribution of power in the international system. It is when clarity is drawn on why the global system has presented a unipolar arrangement for decades now that we can draw out the roles being played by technology in power distribution around the globe.

The key proponents of Balance of Power theory include; Hans Morgenthau, Claude Monet, Walter Gulick, and Georg Dehio. The theory is an extract of structural realism. This theory argues that the structure of the international system is anarchic; power distribution among states is unequal and there is no central authority (world government) to defend the interest of states in times of danger. The proponents of the theory assert that the primary goal of the State is to own up to its survival and this is in terms of territorial integrity and autonomy (Paul, Wirtz, & Fortmann, 2004)

This decentralised International System that is generally considered a threat to the survival of states is the primary motivation behind the unending pursuit of power by states for survival and territorial integrity. The lack of trust and certainty of the intention of other states have constructed an environment of “self-help” where states depend solely on their ability to develop both defensive and offensive capabilities as a means to balance relative power and protect their territorial integrity; a task they consider most pressing for survival in this highly competitive international environment (Huesken, 2012).

The international system is gradually shrinking in geographical space as the politically defined borders are gradually being lifted. There is greater connectivity of people; socially through the media and telecommunications; culturally through easy movements of people; economically through regional/international trade; environmentally through sharing one planet; and politically through international relations and systems of regulation. This wake of globalization has consequently led to the massive diffusion and proliferation of Science and Technology (Tomja, 2014). Since the Industrial Revolution and now the Information technological diffusion, the importance of technology as a determinant of power in States has been cemented. Throughout the historic transitions of polarity, the attainment of power in the international system has been dependent on the ability of a state to thrive, militarily, economically, or socially; the integral component here being technological build-up (Tomja, 2014).

## **Method**

### ***Data Sources***

The study synthesised data from available secondary sources. These resources included some books and online works.

### ***Data Analysis***

Content Analysis was used to analyse the data collected through secondary sources, as well as descriptive technique, which involves the description of the roles of technology in global power play, in the 20th and 21st centuries.

## **Results**

### **Theme 1: Technology and the Emergence of Power Play in the Global System**

This part of the paper will look at the major turning points in World Order and the technological advancements that took place during the periods to facilitate the type of power distribution at the time.

#### **First World War (1914-1918)**

Table 1 shows that during the First World War, the International System had a multi-polar structure where several great powers emerged: Austro-Hungarian Empire, Germany, France, Italy, Japan, Britain, USSR and USA. During this period, Tanks were introduced, they were powered by internal combustion engines and could advance irrespective of overwhelming fire arms. They were first acquired by the Germans, closely followed by the French (Wang, 1995). The flamethrower and poison gas were also introduced by the Germans and then the interrupter gear was introduced by USA in 1913 which the Germans adopted in 1915. Several other ammunitions were introduced to bridge time and space during this period, like the Hydrophones (adopted by France, Russia and USA); Air craft carriers (Britain); Unmanned Drones (USA); Mobile X-ray Machines (USA) and Sanitary Napkins (USA) (Stone, 1992). The fact that these technological capacities were mostly diffused made it practically impossible to have a single great power as to a reasonable extent, there was considerable balance of power between several States; hence, the existence of a multipolar system.

### **Theme 2: Technology and the Era of the Multi-Polar System (World War 2: 1939-1945)**

The Second World War ushered in a new technological age that completely shaped the world we live in today. With the war consuming vast chunks of the globe, the stakes for National stability and security were incredibly high. It's against this backdrop that governments put vast sums of money into the research and development of technology to help them win the war (Varisco, 2013).

Obviously, the multi-polar international system in the 20th century was not working since it brought about great instability and the deadliest wars registered in history. The constant empowerment of military technological capabilities has further influenced the decisions of these States. Germany for instance, having consistently built its capacities since the early 20th century invaded Poland in 1939 marking the genesis of the Second World War (Varisco, 2012). When the war broke out, trench warfare, Calvary and the battleships deployed during the first world war were still in use. However, by the end of the war in 1945, the weapons introduced included, Ballistic Missiles, Jet aircrafts, radar guided anti-aircraft guns, atomic bombs (made out of uranium and plutonium) etc. there were also major technological strides in medicine, communications, electronics and industry; all of which played key roles in modifying the shape of the international system by mid-20th century (Stone, 1992).

Gradually, the great powers kept building on their weaponry and those with superior capabilities defeated the less weaponized until the end of the war in 1945 when two great powers emerged; The United States of America and Soviet Union (Haas, 2008).

### **Theme 3: The Rise of Bipolar Global System (Cold War: 1945-1990)**

The emergence of a Bipolar International System after the Second World War resulted in a Cold War between the two Great Powers; this was a period of significant expansion of state-funded science and technology research. The Government and military of the super power at the time, focused on techno-scientific practices; imposing methods that were project oriented, team based, and subject to national-security restrictions. These changes affected not just the arms race and the

space race but also research in agriculture, biomedicine, computer science, ecology and other fields (Oreskes, & Krige, 2014).

The Cold War presented a Doctrine called the 'Mutually Assured Destruction' (MAD) in a bid to balance power; even though Churchill referred to it as 'Balance of Terror'. The provisions of the doctrine elucidate an arrangement of brinkmanship where neither side will attack the other with their nuclear weapons because both sides are guaranteed to be totally destroyed in the conflict (for example, Cuban Missile Crisis). Nuclear engagement, because of its devastating consequences, was profoundly avoided since the repercussions would be dramatic for both parties. This maintained a considerable level of stability in the global system (Sarkees, & Wayman, 2010). To maintain this doctrine, the two power blocs kept investing in new technologies that could better stress their capabilities and shield them from possible attack by their counterparts while maintaining their position in the International System (Sarkees, & Wayman, 2010).

When Ronald Reagan emerged the president of the United States of America, the Status quo began to change. He implored researchers to attempt to build a missile defence system (like the Anti-Scud Missile) which would prevent the United States from being wiped out in a possible 'MAD' war. Whether or not this 'Star Wars' system would ever work was questioned, even allies of the United States thought it was dangerous and would destabilise the peace maintained by the 'MAD' doctrine, but the United States was able to invest in the technology while the Soviet Union, with an ailing infrastructure and technological base, could not keep up, and this is cited as one reason why Gorbachev decided to end the Cold War (Godwin, 2015). The end of the Cold War presented a Unipolar System with the United States of America being the Hegemon.

### Discussion

Having taken a look through the annals of history and how technological improvements have altered the level of power play in the global system in the 19th and 20th centuries, it has also shown how certain nations weigh great power in dominating others due to the level of technology they possess. The United States which has enjoyed the Unipolar power play in global issues has been awoken to a world of new challenges, as she is no longer at the total helm of the swinging pendulum of power as a result the Economic, Military and Technological strength, breakthroughs of other countries like Britain, Russia, India, China and others. Hence, they face the fear of a possible break in its power. The 21st century has ushered in diverse developments due to varying technological exploits by actors and non-actors in the international system. The world order has taken a turn that has not been previously envisioned; while it may seem that the International System is shaping towards another multi-polar system with the rise of powers such as China, European Union, India, Japan and Russia; due consideration has to be given to the rise and diffusion of power to non-state actors; Nongovernmental Organizations, Terrorist Groups, Intergovernmental Organizations etc. The future is gradually turning out to be that of a 'nonpolar' global system (Haas, 2008).

Computer Revolution became a force to be reckoned with in the early 1990s, especially in the United States. The chips kept reducing in size and increasing in power. With the nature of the International system that encouraged Globalization and regional integration, the expansion and diffusion of these contemporary communication networks to other regions was unavoidable (Watson, 2001). A new kind of warfare has emerged tagged the 'cyber warfare' and several Countries have made efforts to acquire these Computer and Information technology to give them an asymmetric edge in the global system. The BRICS nations such as Britain, Russia, India, and China are also a growing entity of Information Technology and prominent forces to be reckoned with in the International System.

Access to Computer Technologies and other contemporary technological advancements are not restricted to the States alone as other actors in the global system have made efforts to possess these technologies. Al-Qaeda, Hezbollah, Zapatistas, Hamas, and a couple of Hacker attackers (Hacking team) are just a few of some dangerous non-state actors that have accessed and used cyber-warfare or plan to use it in the nearest future. This is a development that was not considered in the Control Regimes initiated to minimize the excesses that could emerge from having access to these high tech applications. These regimes were mainly devised to protect States from States and hardly made reference to other actors that may arise (Godwin, 2015).

Hence, the Impact of Technology in the distribution of power in the International System cannot be emphasised enough. Since time past, it has been a major determinant of how power is dispersed and with the continuous advancement in Technology and ever-deepening of globalization, the dimensions of power distribution will keep changing in the global system. An era of Non-polarity is before us with the rise of multiple actors that are beyond the State. The next warfare to be expected might not be physical combat or ammunition bound but waged using Computers. This warfare would not be restricted to States but might spring forth other rising Non-State actors. Indeed, the future is looking like one of integrated warfare and balance of power between States and Non-State actors if technological diffusion continues at the pace it is going.

### **Limitation**

The scope of this paper is restricted to technology and power play in the global system: A study of 20th and 21st centuries. This is because, this period marked a watershed in the world history due to the advancement in technology, which determined how powerful nations became at the international scene, and these technological advancements orchestrated the first and the second world war, and so, how much a country can hijack in the international system is dependent on the level of technological advancement it has been able to make.

### **Conclusion**

The International System has continually experienced transitions in the nature of its distribution of power. It transitioned from multipolar system during the first and second world wars to a bipolar system during the cold war; at the end of the cold war, a unipolar International System emerged with United States of America as the Hegemon. Throughout these transition processes, the determining component for States to emerge as great powers was the level and rate at which they are able to build up on the trending technological capacities that could give them an edge in the global system. The more they advanced in technology, the more their status is elevated.

The 21st century has ushered another dimension of technology known as the era of information technology where Computers are trending. The wake of globalization has caused a profound diffusion of these technological advancements to not just States but also rising Non-State Actors. The distribution of power is no longer just to multiple States but the future, vague as it looks, promises to be interesting (not necessarily in a good way) since power blocs might eventually encompass both States and Non-State Actors; all as a result of the massive proliferation of technology.

### **Conflicts of Interest**

The authors declare the work has no conflicts of interest.

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## **Extremist Radicalism and Terrorist Inroads in West Africa: Understanding the Threat**

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### **Abstract**

While research has not yet established the regional consequences of terrorism, its immediate effects on states that have been hit (i.e. Mali, Niger, Burkina Faso and Nigeria), and the spill over effects in neighbouring countries cannot be discounted. This paper analyses the challenge of violent extremism in Africa based on existing evidence from across the West African sub- region. It pays particular attention to the recruitment of young people in Africa into extremist causes on the continent and beyond and proffers measures for their curtailment. The paper argues that terrorism in contemporary Africa undermines democratization, good governance, peace and security and regional development. It also recommends three-pronged strategies for addressing the miasma of extremist radicalism and its associated violence in West Africa, namely, governance, development and security reforms. While it may be difficult to absolutely curtail the activities of terrorist organizations in West Africa. Countries with minimal vulnerabilities like Ghana, Sierra Leone, Liberia and others should intensify efforts towards increased border and cyber security surveillance, sustained de-radicalization programmes and youth empowerment programmes to curb unemployment in earnest.

**Keywords:** Civil Society, Extremism, Governance, Radicalisation, Recruitment, Terrorism.

### **Introduction**

The African continent and the West African sub-region in particular face serious state and human security challenges. Many of these challenges are caused by armed conflicts, political instabilities as well as deficient democracy and governance systems. Due to many security concerns of the continent, Africa has been described as an unstable region (Fawole, & Ukeje, 2005), and a

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veritable theatre of violent conflicts (Adebajo, 2004). The challenges of the continent of Africa are far reaching leading to deplorable living conditions for many.

In addition to these woes, Africa battles with an eminent insurgence of terrorism in many of its regions. Terrorist groups and their activities have taken on dimensions of domesticity and Trans nationality in Africa over the past decade. Terrorist groups like al-Shabaab and Boko Haram are now boundary blind to the extent of unleashing atrocious attacks on countries other than those they have traditionally operated in.\* The trans nationality of terrorism and new strategies of recruiting foreign nationals to join terrorist groups like the Islamic State of Iraq and the Levant (ISIL) has made the threat a global one. Attacks by al-Shabaab in Nairobi (Kilcullen, 2013), Boko Haram in Nigeria (Oyeniya, 2010) and later in Mali and Burkina Faso show the closeness of the threat to terror –free West African countries.†

The Islamic State of Iraq and the Levant (ISIL) is combining its traditional radical interpretation of Islam with modern technology to expand its sphere of influence. Through the internet and social media, the ISIL is expanding its sphere of influence beyond national boundaries. Indeed, the evidence suggests that citizens of other African countries are fighting for other terrorist organizations such as Al -Shabaab and Al -Qaeda in the Maghreb (Bertram, & Ellison, 2014). Therefore, this calls for continuous monitoring to prevent these terrorist activities in other West African countries. There is evidence that ISIL is successfully radicalising and recruiting foreigners to fight its cause (Winter, 2016) which is an alarming global threat.

Using existing materials and secondary sources of data, this paper presents an analysis of the threat of terrorism in West Africa. The paper gives an overview of terrorist activities in the West African sub-region using trend analysis. It outlines some of the factors responsible for the local radicalization of terrorist groups. The structure of these terrorist groups, their financial bases and armaments are discussed. It also examines the extent of reach of terrorist groups on the internet and other social media platforms as well as their recruitment processes and the challenges they pose to the sub-region's resolve to deal with terrorism. The paper makes a strong case for the continuous monitoring of the activities of these terrorist groups to prevent their activities from escalating into neighbouring countries and suggests measures for the prevention of these groups' operations.

### **Trends of Terrorist Activities in West Africa**

Onuoha and Ezirim (2013) draw an intriguing relationship between transnational organized crime (TOC) and terrorism in the West African Sub -region. They argue that, this relationship further complicates the fragile security landscape of the sub-region. Indeed, considering the funding sources and methods of terrorist groups, it would be natural to conclude that proceeds from these TOCs go to fund terrorist activities in the sub-region. The existence of militant groups, organized criminal gangs and the relationship between their activities all around the world is not a recent phenomenon (Onuoha, & Ezirim, 2013). In recent times however, their manifestation and intricate linkages in Africa, with terrorist footprints are disturbingly increasing. This is largely due to the activities of al- Qaeda in the Islamic Maghreb (AQIM), the Movement for Unity and Jihad in West Africa (MUJAO), Ansar Dine, Boko Haram and Jammtu Ansarul Musilimina Fi Biladis Sudan (Ansaru) in addition to other militant networks on the continent.

In a space of just about five years (spanning 2010 – 2016), Africa saw a great number of terrorist incidents with related deaths, human displacement and devastation. Till today, Africa continues to witness deadly attacks by Islamist groups. The year 2015 alone saw a number of prominent attacks in Africa. Boko Haram extremists armed with guns and explosives in the early part of 2015 stormed and torched a village in Nigeria killing scores of people, including children.

\* al- Shabaab planned and launched attacks and suicide bombings in Somalia, Kenya, and Djibouti in 2014 alone. Its Kenyan attack, killing 200 people in towns and villages along its borders has remained the deadliest terrorist attack on Kenya in its history. Boko Haram committed hundreds of attacks resulting in over 5,000 deaths in 2014 alone with violent spill overs into neighbouring Cameroon, Chad, and Niger.

† On January 15, 2015, gunmen stormed a cafe popular with foreigners in Burkina Faso's capital, and then attacked a nearby luxury hotel. They killed at least 30 people after more than 12-hour siege similar to a Bamako Hotel assault in Mali which also happened on November 30. The al-Qaida in the Islamic Maghreb (AQIM) claimed responsibility for this attack.

It was the latest of a series of deadly attacks attributed to the ISIL-affiliated terror group. In a related case, two female suicide bombers attacked a mosque in a town near Cameroon's border with Nigeria, killing 10 people and injuring many others ([News24, 2017](#)).

Al-Shabaab fighters stormed and took over a beachfront restaurant in Somalia's capital, Mogadishu in which more than 20 people were killed in the same year. Earlier on January 15, al-Shabaab had attacked an African Union base in Somalia, killing a number of Kenyan peacekeepers. Similar to the Bamako Hotel assault in Mali, gunmen stormed a cafe popular with foreigners in Burkina Faso's capital, and then attacked a nearby luxury hotel, killing at least 30 people after more than 12-hour siege. The al-Qaeda in the Islamic Maghreb (AQIM) claimed responsibility for these attacks ([Guled, 2016](#)).

This spate of attacks points to an arc of terrorism that is spreading its wings over Africa. The region is firmly in the grip of a network of Islamic militant groups, ranging from al-Shabaab in Somalia to Boko Haram in Nigeria, and al-Qaeda in the Islamic Maghreb along with affiliate groups of ISIS in Libya. Boko Haram and al-Shabaab are the most prolific and active groups by far but, recently, AQIM has expanded its reach, shifting its target from the UN and foreign military personnel to civilians. Countries such as Nigeria, Somalia, Mali and Libya have emerged as the fulcrum of terrorism, impacting and threatening neighbouring countries including Kenya, Egypt, Tunisia, Algeria, Niger, Cameroon, Chad and Djibouti among others. While research has not yet established the regional consequences of terrorism, its immediate effects on states that have been hit (i.e. Mali, Niger, Burkina Faso and Nigeria), and the spill over effects in neighbouring countries cannot be overestimated in any way. One finds loss of civilian lives, destruction of infrastructure and kidnapping among others in these areas. Attacks by Boko Haram alone between 2009 and 2014 for example claimed well over 13,000 lives, displaced some 1.5 million and devastated the already impoverished North-eastern part of Nigeria ([Salihu, 2015](#)).

Many factors such as weak states, porous borders, availability of small arms and light weapons, relatively free movement of persons and goods, the youth bulge, and the growing networks of transnational criminals underlie these terrorist activities. Indeed, despite the fragmentation of al-Qaeda and its affiliates, weak or failed governance continue to provide an enabling environment for the emergence of extremist radicalism and violence, notably in Yemen, Syria, Libya, Nigeria, and Iraq. The statistics of terrorist activities within and across West African states are worrying. Particularly notable is the major intensification of terrorism in Nigeria. Nigeria saw the largest increase in terrorist deaths ever recorded by any country between 2014 and 2015. Terrorist deaths increased by over 300 per cent to a height of 7,512 fatalities in the space of one year. Boko Haram, which operates mainly in Nigeria, has become the deadliest single terrorist group in the world today. Muddying the waters, Boko Haram pledged allegiance to ISIL (the Islamic State) as the Islamic State's West Africa Province in March 2015 ([Institute for Economics and Peace, IEP, 2015](#)).

### **Terrorist Groups' Finances and Armaments**

Terrorist groups and the threat they pose to the world has changed overtime but one thing has remained relatively stable – that is their need to raise, move and use funds ([FATF, 2013](#)). While some would want to consider it unimportant, our knowledge of the sources of funding methods, could serve as a great leap in the fight against terrorism. A good understanding of how terrorist groups manage their finances is critical to current efforts to reduce terrorism.

Traditionally, terrorist groups have operated through private donations, abuse and misuse of non-profit organizations, proceeds from criminal activities like drugs, extortion of local and diasporic populations and businesses, kidnapping for ransom, legitimate commercial enterprises, and state sponsorships. The literature shows that funds for terrorist groups have traditionally moved through bank transfers, money value transfer systems, and physical transportation of cash.

There are however emerging terrorist financing threats and vulnerabilities worth discussing. These threats include foreign terrorist fighters and their funding needs. Self-funding by foreign terrorist fighters makes it difficult to trace funding sources today. There has also emerged a new strategy of raising funds through social media. Another key threat is the use of new payment products and services like virtual currencies, prepaid cards and internet based payment services. The exploitation of natural resources like oil and gas and the mining of minerals also pose a great

threat to fighting terrorism from the financial front because a lot of wealth from these sources gets into the hands of these terror groups.

Tied in to the cash flows, terrorist groups have often possessed an array of deadly weapons. Terrorist groups are usually well armed. Their armaments range from sophisticated metal weapons to deadly chemical weapons. They have also often used localised weaponry including cutlasses and simple metals depending on the scale of the operation. The continuous escalation of the transfer of arms and armaments across borders to third world countries, and the apparent ease with which it is often done cannot be overlooked. The arms easily fall into rogue hands. This practice is overtly and covertly engaged in by some powerful countries of the world, and is a great source of supplies for these radical extremist and terrorist groups within the sub-region and in other parts of the world. These supplies are a tacit way of gaining influence by these powerful countries.

While a great chunk of their funds is used for terrorist acts, some parts of it is used for other activities. Propaganda and recruitment are examples of such activities. The process as has been described earlier is rigorous and financially involving. They also set some of these funds aside as salaries and compensation for the leaders, members and families of jailed and deceased members. For many of the groups according to existing research reports, they use their funds to establish a system that provides social services to populations. This function of their financial resources is meant to essentially build support for the group among local populace which in effect makes recruitment easier. The groups usually establish or subsidize social institutions to provide social, educational and health services for people to undermine legitimate governments and their efforts.

### **Terrorist Recruitments and the Extent of Reach**

Clearly, the fact that a Ghanaian youth could travel to join ISIL shows that “Jihadism” is more globalized today than it had ever been before. Due to the current rise of Islamic state in the international media, the activities of the modern-day caliphate is now a very familiar thing to many people. The term “foreign fighter” as Winter would describe it, has also “become an almost ubiquitous rubric” (Winter, 2016, p.5). It is indeed quite paradoxical to find that despite the terror they visit on the world, terrorist groups continue to recruit young people from all around the world with great success. It is important to know what propaganda machinery these terrorist groups employ in this recruitment. This section in an effort to understand how terrorists’ groups have succeeded in attracting tens of thousands of fighters from as many as 86 countries across the globe, discusses some recruitment strategies of the groups with emphasis on ISIS/ ISIL.

Bertram and Ellison in an assessment of terrorist acts in Africa and Sub Saharan Africa describes terrorist recruitment as being facilitated by the adoption of social media technology (Bertram, & Ellison, 2014). In their study, they observed a strong trend of web publishers of social media technologies among terrorist groups. Many young people are thus becoming radicalized and travelling from around the world to join terrorist groups via the internet and social media. Winter (2016) is of the view that the media prominence of Islamic State obstructs people’s understanding of recruitment in terrorist groups. The sheer number of people who have joined ISIL in the past decade alone makes people think of their recruitment as a short term or instantaneous activity. The evidence available however proves otherwise. The terrorist recruitment process is an elaborate and well-structured one (Horgan, 2008; Winter, 2016).

Three complimentary mechanisms used in Islamic state’s recruitment into violent extremism have been identified by researchers. These mechanisms are the echo chamber, the propaganda, and the enlister. The process begins with the echo chamber which is one’s exposure to and absorption into a jihadist micro-community (Winter, 2016). This exposure and absorption happens both online and offline just as their future interaction too. Interaction within this micro-community could and often does catalyse a recruits’ radicalization. This isolates the individual and hardens his or her extremist learnings. This process is particularly serious because of its sociological significance. There is a deliberate effort to circumvent ongoing adult socialisation in the life of the potential candidate. As the individual avoids his/her everyday influencers in society and other valid channels of information, pro-Islamic state persuasions are then amplified through propaganda. This propaganda comes in the form of messages, videos, etc meant to gradually realign the moral norms of the curious individual. Once the first two mechanisms are done, a crucial third party is introduced – the enlister. It is widely believed that the echo-chamber and propaganda by

themselves hardly ever lead to recruitment without the activity of the enlister (source). The enlister is “a provider of logistical information and a humanizer of risk” (Winter, 2016, p.6).

While there are a few cases of recruitments offline, much of the literature emphasize the usage of online resources especially through social media (Bolt, 2012). On social media, people follow like-minded individuals and groups who tend to share views which are similar to theirs. This gradual process overtime exposes one to a clique of selected individuals from where the process builds on. Once this is done, the rigorous propaganda begins. The recruit is fed with as much material as possible until he or she begins to participate in the propagandist role. Then the enlister suffices to now continue different levels of interaction with the recruit. Enlisters are active influencers, usually a deviant peer who has already joined the group, desirous of evangelising and attracting others. The enlister gives a lot of advice and offer logistical support and networks to the recruit. It is the success of their activities that finally gets the individual recruited. Conversation with the enlister can thus be tagged and appropriately so as the tipping point for the recruit.

Reports indicate that many of these targets in this exercise are the youth. An even more troubling trend reported in the literature is the involvement of women and children in the recruitment to join the caliphate (Allison, & Barnes, 2015). These are curious vulnerable young women and children who regard these violent extremists on the internet as role models. The children in particular see the violent extremists as people living the jihadist dream which they aspire to live.

### **Prevention, Containment, and Curtailment of Terrorist Operations: The Way Forward**

The discussion so far makes it clear without equivocation that terrorism is closer to many West African states than it was a decade ago and requires an urgent effort to safeguard the borders of countries and prevent internal fettering of terrorist groups and their activities. The paper suggests a three-thronged approach towards prevention and responding to terrorism in countries in the sub region. These include governance, development and security measures (Onuoha, & Ezirim, 2013).

These measures are suggested on the strengths of the problem of extremist radicalisation and terrorism. There are several factors/ reasons for the fettering of terrorist activities in Africa and the West African sub- region. Ray makes a veritable list of reasons for which Islamist groups have been operating with relative success in Africa. Ray attributes the success of terrorist operations to a combination of factors which include weak and corrupt states, porous national borders, lack of governing institutions, and ungoverned spaces. Others include under-trained and under-equipped military, socio economic discontent of populations, underdevelopment, poverty, unemployment, and conflicts (Ray, 2016).

On the governance front, there is the need for the strengthening of institutions and processes that will promote efficiency, transparency and accountability in the management of national resources across each nation. The rule of law should also be upheld with the strengthening of the courts and law enforcement agencies. This will help enforce sanctions for human rights violations and diligently prosecute criminals and militants that may arise in these countries. Also, social inclusion should be deliberately fostered in West Africa. This could be achieved through democracy and the broadening of the political space to accommodate all manner of people and groups. Besides, recent reports on the quality and quantity of democratic governance in West Africa have been negative. Incessant ethno-religious conflicts in Northern Nigeria and the inability of the state to perform its basic social provisioning roles, particularly in areas of job creation, youth empowerment, provision of free quality education, partisan politics have greatly been responsible for the preponderance of extremist radicalism in the region. Thus, building sustainable democratic institutions anchored upon the delivery of the dividends of good governance to the people is a viable measure to addressing the upsurge of terrorist movement in Africa and the West African sub-region in particular.

On the development pedestal, West African governments should work to provide functional support for the poor and unemployed youth. There should be a sustained and concerted effort at building a meritorious and equitable environment for fair treatment in work spaces. West African states could also seek international support to effectively fight TOCs facilitated across borders. Considering its trans-nationality, fighting terrorism along the borders should be by collaborative

effort with other neighbouring countries. Security efforts should be much less combative and concentrate on intelligence gathering on militant group activities to inform proactive responses.

There is also the urgent need for regional collaboration in the fight against illicit drugs, small and light weapons proliferation and cross boundary movement of radical Jihadist fighters on the African continent. In line with this, national and regional bureaucracies should be encouraged and resourced to train experts in the fields of counterterrorism. Indeed, there is evidence to suggest that military efforts, increased information sharing and improved border security have contributed to reducing the number of fighters travelling to Syria and Iraq to join ISIL. Training of bureaucrats and security personnel will help in the building of a clear profile of terrorist and foreign fighters.

The role of women and children in terrorist-related activities is becoming more prominent. In order to prevent the radicalisation of women and children, West African countries and the regional body (ECOWAS) need to invest in getting a better understanding of the factors that draw women and children to violence and develop targeted interventions. For this to be effective however, it will require the involvement of civil society organisations especially those with proven grassroots operations.

Some of the terrorist attacks appear to have come from lone actors who may have 'loosely' been in touch with operatives of ISIL through encrypted social media applications. The misuse of communication technology by terrorist organisations must be prevented by working more closely together with internet service providers. This is not to suggest a censorship per se but some level of activity of security operatives on new media platforms should help.

Finally, financial intelligence is a key component for all counter terrorism activities (FATF, 2013). This is because without adequate financial resources, no terrorist organisation could function effectively. Thus, a clear understanding of funding sources and methods of terrorist groups could help to starve the groups and eventually disrupt their programmes and activities in the long run.

It is important to state that none of these measures is possible in the absence of a vibrant civil society and the media. Scholars and practitioners alike recognize the centrality of governance capacity to achieve sustainable peace and development objectives. Efforts towards the eradication of extreme poverty, access to services and livelihoods, promotion of economic growth, environmental protection and gender equality among others cannot be sustained in the absence of a vibrant civil society.

Despite their known challenges, civil society organisations (CSOs) over the years have shown leadership in the promotion of inclusive governance that is characterized by the principles of accountability, transparency, participation, access, equity, subsidiarity and the rule of law (Popovski, Cheema, Lowry & Notaras, 2008). As Popovski et al. (2008) note, the world has seen a marked increase in the number, diversity, focus and influence of CSOs since the early 1990s. These bodies have been found to function effectively at the local, national, regional and global levels. Their approach stems from CSOs' recognition that improving the quality of democratic governance processes requires actions at all levels. While this approach exists in the decentralisation concept in theory, it has not yielded any valuable results on the political front. The increasingly integrated nature of the world requires active civil society engagement especially at the local level with the complement of open and transparent national political institutions.

## Conclusion

Africa and West Africa in particular has seen groups initially thought to be normal transform into very deadly groups. In most cases, these terror groups come to be as a result of a complex of factors within their countries of origin with external support. As has been made clear in this paper, the effects of the activities of terrorist groups on their countries and the spill over effects on their neighbours have been increasingly monumental.

While we recognise that the challenge of terrorism in Africa has become herculean, efforts at combating them require a well thought out and coordinated programme. States have often been reactive in their effort to deal with terrorism and we argue that such efforts only result in marginal short –term results. In seeking to counter jihadist recruitment in particular, efforts and policies must be proactive and take into account antecedents to radicalisation and not the acts of terror themselves. An integrated, society-led approach backed by strong security intelligence is required

to successfully prevent terrorism and also deal with this growing menace in the West African sub-region.

### **Conflicts of Interest**

The authors declare the work has no conflicts of interest.

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