



AXA
Research Fund

**Cyber Risk:
Creating a Safer Cyberspace
Call for proposals**

April 15th

Cyber Risk: Creating a Safer Cyberspace

Cyberspace, the world of computer networks and the internet, is critical to commerce, research, education and government as technology continues to permeate most aspects of society. While the growing internet penetration (55.6% worldwide in March 2019¹) is a significant step towards a more inclusive global information society, it also requires robust measures to protect against unauthorized access or attack.

Reports of cyber-attacks are on the rise with increasing frequency and sophistication worldwide. In 2017, the global number of cyber incidents reached 159,700² and the cost of cybercrime has been estimated at €4.63 trillion over the next 5 years³. The consequences of cybercrime can be severe, even life-threatening, affecting individuals, organizations, critical infrastructure and services.

In 2015, the Prykarpattiaoblenergo Power Plant Control Center in Western Ukraine was hacked, leaving 230,000 people without power for up to 6 hours⁴. In 2017, the ransomware cyber-attack WannaCry hit the National Health Service (NHS) in the UK, resulting in cancellation of almost 20,000 hospital appointments and operations, and patients were diverted from the five accident and emergency departments that were unable to treat them. The UK government estimated the total financial cost of the attack to the NHS, considering the direct costs of lost output and IT support, to be €107 million⁵. Furthermore, the WannaCry attack affected computers in over 150 countries⁶, illustrating the geographically wide scope of the threat to cybersecurity.

Cybercrime is thus considered as one of the major risks faced by governments and organizations today. In the *World Economic Forum Global Risks Report 2019*, cyber-attacks feature as the fifth most likely risk and the seventh most impactful risk, reflecting the role of technology in the risk landscape⁷. The trend is confirmed by the *AXA Emerging Risks Survey 2018*, where cyber risk was selected as the second most worrisome issue for society at large for three consecutive years⁸. Reflecting this perception, investments made by both organizations and nation states in cybersecurity are at an all-time high with worldwide

¹ Internet World Stats (March 2019) <https://www.internetworldstats.com/stats.htm>

² Online Trust Alliance (January 2018) <https://otalliance.org/blog/cyber-incident-tsunami-time-get-ready>

³ Accenture (March 2019) <https://www.accenture.com/us-en/insights/security/cost-cybercrime-study>

⁴ Wired (March 2016) <https://www.wired.com/2016/03/inside-cunning-unprecedented-hack-ukraines-power-grid/>

⁵ GOV.UK (October 2018)

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/747464/securing-cyber-resilience-in-health-and-care-september-2018-update.pdf

⁶ Trautman et al. (August 2018) https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3238293

⁷ World Economic Forum (January 2019) http://www3.weforum.org/docs/WEF_Global_Risks_Report_2019.pdf

⁸ AXA (January 2019) https://www-axa-com.cdn.axa-contento-118412.eu/www-axa-com%2F77953fa3-bc71-45d2-9d53-b36d5ae6a246_axa_er_survey2018_b.pdf

spending on information security products and services to reach €109 billion in 2019, an increase of 8.7% from last year⁹.

- To compound its global and ubiquitous nature, cyber risk has unique characteristics that make modelling approaches more complex and non-replicable due to several factors, namely, Scarce and quickly-outdated data that is not representative of the future vulnerability arising from rapid technological innovation with potential fixes and solutions being short lived;
- Threats that spread widely and swiftly and can recur;
- High interconnectivity with unbounded exposure;
- Potential for impact on governments, public infrastructure and extension into warfare.

With its unique characteristics and complexities, cyber risk is an area where research is essential in helping to better assess costs, probabilities and impacts, and in providing innovative approaches for stronger prevention and defense. As an insurer, AXA strives to understand and anticipate cyber risk as a major issue clearly identified for our societies at large, hence this call for proposals aims at funding projects with wide societal relevance. Up to 4 Postdoctoral Fellowships will be selected and funded for research in cyber security including, but not limited to:

- Assessment of cyber risk, detrimental effects and costs of cyber attacks
- Modelling, empirical analysis, and management of cyber risk
- Perception of cyber risk and cyber insurance, insurability of cyber risk, innovative ways to manage cyber risk through insurance
- Impact of cyber-attacks on society and individuals
- Cyber terrorism, cyberwarfare and state-sponsored cyber activity

⁹ Gartner (August 2018) <https://www.gartner.com/en/newsroom/press-releases/2018-08-15-gartner-forecasts-worldwide-information-security-spending-to-exceed-124-billion-in-2019>

AXA Fellowships Guidelines

The AXA Research Fund's mission is to support outstanding researchers and committed to improving peoples' lives through innovative research in areas of Climate & Environment, Health, New Technologies, and Socio-Economics.

AXA Research Fund

AXA Fellowships aim at supporting promising researchers (max. PhD+5 years¹⁰) on a topic aligned with AXA's priorities and societal challenges. The support of the AXA Research Fund should be transformative for the researcher and the advancement of their field.

Duration

An AXA Postdoctoral Fellowship is awarded for a period of 2 years.

Institution eligibility

The project calls are global, however, the AXA Research Fund partners with academic institutions only; NGOs, governmental bodies, foundations, independent research centers, cultural institutions (such as museums), hospitals are not eligible.

Researcher

Candidates should be of the highest caliber and have demonstrated outstanding research achievements, as evidenced by the usual indicators for assessing academic excellence such as research outputs (e.g. publications), research activities (e.g. organizing networks, being involved in communities) and research impact (e.g. policy report, specific recognition through awards, etc.).

Candidates must be awarded their PhD before they submit their Expression of Interest, at the latest on May 20th, 2019.

Institutions can submit only one candidate per topic, i.e. one on Mental Health **AND/OR** one on Cyber Risk. In case of two Expressions of Interest from one institution submitted for the same call (i.e. the same topic), both applications would be disqualified.

Research program

The research program should demonstrate its scientific originality and innovative nature and have the potential to contribute to a step change in the considered field. It is the responsibility of the institution to demonstrate the relevance of the proposed research topic to the AXA Research Fund

Engagement

It is a requirement that researchers would be proactive in engaging science with society when supported by the AXA Research Fund and use an open-data framework when

¹⁰ There is a flexibility of 6 months regarding PhD date (i.e. PhD max 5 full years + 6 months), at the Expression of Interest date (i.e. May,20,2019) i.e. PhD awarded after November 20,2013.

applicable. Our researchers commit to share their project and communicate their research to a broad audience, supported by the AXA Research Fund.

Diversity

Diversity will be an important criterion in the selection process whether in the research topic, gender or geography. Furthermore, attention will be brought to the opportunity for the grant to deliver a significant step-change in the career of the grantee.

Budget

An AXA Fellowship is awarded for a maximum amount of 125,000€. It is the applicant's responsibility to submit a carefully calibrated budget, appropriate for the ambition of the research program and justified in a detailed and coherent manner. Budget will cover:

- Annual salary of the researcher (based on institution internal policy)
- Equipment/ resources (databases, survey costs, consumables, etc.), academic activities (conferences, workshops, fieldwork, etc.)
- Outreach activities (beyond academic audiences).

Any other type of costs not listed above should be justified in the application template. No overhead costs can be eligible.

Host institutions will be expected to participate in the AXA Fellowship's general funding with studentships, PhD support and material resources related to the research program. The Institution shall demonstrate this participation in the section dedicated to the budget in the application form.

Ethics

The AXA Research Fund places extremely high importance on the ethics of the work it supports. Programs are required to comply fully with all relevant ethical review processes and for this compliance to be evidenced. Cases of scientific misconduct (such as fabrication, falsification, plagiarism or of inappropriate behavior towards staff or other parties) will be considered as breaches of the AXA ethical principles¹¹ and will be excluded from funding.

Intellectual property

The researcher and the host institution remain fully independent to conduct the research project. AXA will not claim any right to the ownership or use of the results.

¹¹ AXA Group Compliance and Ethics Guide, 2011:

<https://www.axa.com/en/newsroom/publications/compliance-ethics-guide>

Timeline & Application process

The AXA Research Fund evaluation process has been designed to assess scientific excellence. The evaluations are monitored to ensure transparency, fairness and impartiality in the treatment of proposals.

The AXA Research Fund partners with independent external providers to carry out the peer review process in accordance with criteria defined with the AXA Research Fund, the results of which are submitted to the scientific board for final selection.

Please note that:

- The application must be submitted in English, on time, online, and complete. It must respect the template structure and the page limit.
- The research topic must fall within the scope of the eligible topic focus as listed above.
- The candidate must submit a free standing independent research project involving full-time work for the duration of the fellowship (with an exceptional acceptance of up to 20% time dedicated to teaching).

Timeline

Host institution Phase	Step 1 - Registration <i>Only if your institution is not already registered on the AXA Research Fund's online platform</i>	April 15, 2019 to May 20, 2019
	Step 2 - Expression of interest <i>on the AXA RF platform</i>	April 15, 2019 to May 20, 2019 4 PM Paris time
Researcher's phase	Step 3 - Research proposal submission <i>on the ESF platform our partner organization (online link to be provided on due time)</i>	May 23, 2019 to June 17, 2019 11 AM Paris time
	Step 5 - Rebuttal <i>on the ESF platform</i>	October 15, 2019 – October 21 st , 2019
AXA RF	Results announcement	November 30, 2019

Projects selected for funding are expected to start between December 2019 and September 2020.

Application process

Step 1 – Registering

To apply for the AXA Fellowship grants, academic institutions must be registered on our platform: <https://institution.axa-research.org/>. You can check if your Institution is already registered in the database via the above link. If your Institution is already on our database, you can omit the registration and your institution's operational contact can log in directly using the login details they defined.

Institutions should appoint a single point of contact (“Operational Contact”) who will handle relations with the AXA Research Fund.

Step 2 – Expression of Interest **ON OUR ONLINE APPLICATION PLATFORM**

To submit an online Expression of Interest, host institutions need to follow the steps below:

- 1/ Log onto our online application platform: <https://institution.axa-research.org/>**
- 2/ Go to the “Application” tab and click the “Post-doc” link to go to the “Expression of Interest” page**
- 3/ Click “New” and fill in the online Expression of Interest form. Attach a short CV (3 pages maximum)**
- 4/ Click “Submit”**

At the stage of Expression of Interest, you will be requested to provide the following information:

- About the candidate
 - Name, last name
 - Birth date
 - PhD defense date
 - Current university he/she is affiliated with
 - Short CV (3 pages maximum)

- About the research program
 - Project's description: 3000 characters including spaces

You will receive an email confirming that your Expression of Interest has been submitted. If you don't receive the email, please check your spam folder or contact fellowships@axa.com

You will be able to edit your Expression of Interest as long as you have not clicked on “Submit”. Once submitted, your Expression of Interest can no longer be edited. The Expression of Interest will be reviewed by the AXA Research Fund team. You will be informed of the decision pertaining to your Expression of Interest by email.

Expression of Interest received after the deadline or by email will not be considered.

Step 3 – Full Application

Academic institutions will be given an access to the dedicated ESF platform to nominate their candidate by entering his/her name & email address online. **Please note that only one candidate per institution will be considered on a given topic - i.e. one candidate on Mental Health AND/OR one candidate on Cyber Risk.** Nominated candidates will be invited to submit their research proposals and will be provided with the necessary information to access the application form. Eligibility criteria of the application call will be screened by our partner organization.

Candidates will have maximum 3 weeks to submit their proposals through the ESF platform. Please note that if the host institution doesn't nominate the candidate on the ESF platform, the candidate won't have access to the platform.

Step 4 – Scientific assessment

The evaluation of the scientific quality of research proposals is carried out in a fully independent manner by our partner per review organization.

Each application is reviewed by two relevant experts who will assess the candidate's excellence and the research program's scientific quality.

Step 5 – Rebuttal

Candidates will have the opportunity to respond online to peer review experts' comments before their applications are reviewed by The AXA Research Fund. The main purpose of the rebuttal is to provide applicants with the possibility to comment on any potential misinterpretations or misunderstandings that may have been made by the experts while initially assessing their proposals.

Step 6 – Selection & results publication

The Scientific Board of the AXA Research Fund selects to fund applications based on strength of the scientific case, peer review assessments, the potential of the project, candidate profile and of the institution and overall impact. The AXA Research Fund informs the academic institution of the decisions through the institution's representative. Results will also be made available online ([http:// www.axa-research.org/](http://www.axa-research.org/)) and on the dedicated platforms for applicants and institutions.

