# *RegTech compliance tools for charities in the United Kingdom: can machine learning help lighten the regulatory burden?*

Article

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# RegTech Compliance Tools for Charities in the United Kingdom: Can Machine Learning help lighten the Regulatory Burden?

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Key Terms: Machine Learning, RegTech, Artificial Intelligence, Unsupervised Learning, Financial Crime and English Law.

Abstract

Machine learning has had a major impact on Banking, Law and other organisations. The speed with which the technology has developed to undertake complex and technical tasks as well as those that are both time consuming and that are subject to constantly changing parameters is a astounding. The purpose of this article is to explore whether machine learning can be used as a potential solution to lighten the compliance and regulatory burden on charitable organisations in the United Kingdom; to facilitate regulatory compliance with legal duties and for the development of a coherent streamlined action plan for future technological investment. The question is approached through the analysis of data, literature, and domestic and international regulation. Part one of the article summarises the current regulatory obligations faced by charities, these are then, in part two, set against the potential technological solutions provided by machine learning as of August 2021. It is recommended that charities utilise machine learning as a smart technological solution to ease the regulatory burden they face in this growing third sector. The work is original because it is the first to specifically explore how the technological advance of machine learning can assist charities in meeting the regulatory compliance challenge.

## Introduction

It is fair to state that artificial intelligence (AI) has changed the way in which organisations work. AI's automation of 'tedious' tasks generates immense benefits including the creation of time for strategizing and networking. AI, data analytics and machine learning (ML) are terms that have become common parlance in many sectors, their potential is being built into the fabric of organisational technology systems as innovative solutions to issues relating to compliance. In this article we explore how ML and its constituents i.e., unsupervised learning can, as a RegTech and CharityTech tool, assist charities in meeting the regulatory compliance challenge. We investigate whether ML is a trustworthy component in the arsenal of the not-for-profit charity sector.

### 1. Financial Crime: Practical and Theoretical Issues Faced By Charities in the United Kingdom

We have already explored, both practically and theoretically, the financial crime issues facing charities in our previous article[1], we also defined the organisations that are the subject of this research. Therefore, we do not propose to set those matters out again save in summary. Charities', in England and Wales, are regulated organisations formed for specific charitable purposes. In law they are purpose trusts[2] without named beneficiaries. Such organisations fall into the voluntary sector but are distinguishable; the sector includes many non-profit and non-charitable organisations all of which add to the complexity of issues discussed in this research. The charitable sector is often referred to as the 'third sector', this sits alongside the 'public' and 'private' sectors. The legal definition and description of charitable purpose is set out in ss.1 – 3 of the United Kingdom's Charities Act 2011. In short, the latter is to prevention or relief of poverty or the advancement of education or religion etcetera[3].

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[1] C. Singh, W. Lin and Z. Ye. (2020). Can Artificial Intelligence, RegTech and CharityTech provide Effective Solutions for Anti-money Laundering and Counter-terror Financing Initiatives in Charitable Fundraising. Journal of Money Laundering Control, Emerald.

[2] Charitable purpose trusts are public trusts set up to provide benefits to the public and are regulated by the Charity Commission. See; P. S. Davies, G. Virgo, and E. H. Burn. *Equity and Trusts: Text, Cases and Materials*. (Oxford University Press, 2016 at Ch.5, pp.175 – 6).

[3] Section 3 provides 13 descriptions of charitable purposes therefore this in-text reference is not exhaustive, see; *Commissioners for Special Purposes of Income Tax v Pemsel* [1891] AC 531, the Recreational Charities Act 1958 and the Charities Acts 1992, 1993 and 2006, as a background to whence the current form of the law came. Charities Act 2011, Chapter 25. HMSO: UK. Available at: http://www.legislation.gov.uk/ukpga/2011/25. [Accessed 13 May 2021]. See also: H. Picarda QC. *Law and Practice Relating to Charities*. (4th Ed., Bloomsbury Professional, 2010). Note the edition has been updated, the First Supplement to the 4th Ed. covers the 2011 statute, Part I at pp.3 – 45. See also: Jones, G. (1974). Charitable Trusts: What is Public Benefit? The Cambridge Law Journal, 33(1), 63-66.

Charities can take legal forms including companies[4] limited by guarantee with trustees as board members. Shell charities are of specific regulatory concern, these are shell corporations[5] or companies set up in compliance with the relevant legislation with financial assets but who conduct little, or often zero, business activity. The primary purpose of shell charities is to act as a conduit through which anonymous financial transactions can be undertaken. Whilst they may be utilised for legitimate purposes i.e., asset storage for start-ups, the form is often abused in furtherance of illegal purposes such as money laundering or terror finance. Shell charities are therefore a major financial crime risk[6]. The law relating to 'charities' must be adhered to regardless of the legal form the organisations take, and the actions of decision-makers are regulated by the rules of equity, a number of fiduciary duties and the duty of prudence, care and skill as set out in the Trustees Act 2000[7]. The Charity Commission has the role of promoting transparency in the financial affairs of third sector organisations with the aim of sustaining and promoting growth and donor trust in charitable giving. The financial i.e. tax benefits[8], to achieving charitable status is a matter beyond the scope of this article but may present problems for the exchequer relating to fraud in its own regard. In 2021, there were over 169,779 charities registered in the England and Wales, or 212,063 operating in the United Kingdom with 19,731 operating overseas as at 2018 per the FATF Mutual Evaluations report[9]. These figures pose a significant compliance challenge both for the authorities and the charities themselves.

## 2. Regulatory Risk, the Compliance Function and Machine Learning

Not-for-profit fundraising is a human endeavour worthy of praise. The traditional methods used to generate funds[10] are; grants, networking and donor dinners and direct giving from corporate foundations. Meetings in coffee shops need supplementing to fund change-the-world initiatives.

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[4] Companies Act 2006 also applies to charities; compliance with dual regulatory regime required. Sections 171 – 177 of the 2006 Act apply to directors of incorporated charitable companies. Unincorporated charities attract contractual liability in addition to liability for breach of the purpose trust. Under the Insolvency Act 1986 trustees are personally liable for wrongful or fraudulent trading. It should be noted that s.191 of the Charities Act 2011 allows the Charity Commission to absolve the trustee from whole or partial liability where he/she has acted in a manner that was honest and reasonable.

[5] Set up in tax havens often to hide the identity of beneficial ownership, the form allows them to engage in financial transactions, buy and sell property and own copyrights as well as the collection of royalties. See; A. Ottavi. *Shell Corporations and Beneficial Owners. Current Criticalities and Future Developments from a Multilevel Perspective*. Bus. (2019) L.R. 40(3), 116-123. Also below: Barr, W. at note 28.

[6] Pacini, C., Hopwood, W. S., Young, G. R. and Crain, J. The role of shell entities in fraud and other financial crimes. Managerial Auditing Journal. September 2018, 34(2).

[7] See *above*, note 3 and the Trustees Act 2000 Parts 1 – 7.

[8] In the financial year 2019 – 2020 tax relief for charities in the United Kingdom totalled £4.03Bn, this was up from £3.9Bn in the financial year 2018 – 19. Individual tax relief for the same period totalled £1.65Bn. Gov.UK. (2021). HMRC Annual Statistics: UK Charities Tax Relief, Table 2. [ONLINE] Available at: https://www.gov.uk/government/statistics/cost-of-tax-relief. [Accessed 14 April 2021]. For a discussion on international approaches to regulation see; O. B. Breen. *Through the Looking Glass: European Perspectives on Non-Profit Vulnerability, Legitimacy and Regulation*. 2011 Vol. 36 No. 3 Brooklyn Journal of International Law at pp. 948-991; *UCD Working Papers in Law, Criminology & Socio-Legal Studies* Research Paper No. 47/2011. Available at SSRN: https://ssrn.com/abstract=1932653. [Accessed 15 May 2021].

[9] Note, the UK is not listed, at time of publication, for a follow-up MER. See: FATF. (2018). Anti-money laundering and counter-terrorist financing measures – United Kingdom. Fourth Round Mutual Evaluation Report, FATF, Paris, p.99. Available at: http://www.fatf-gafi.org/publications/mutualevaluations/documents/mer-united-kingdom-2018.html. [Accessed 12 May 2021]. See also: Financial Action Task Force. Third Mutual Evaluation Report Anti-Money Laundering and Combating the Financing of Terrorism – The United Kingdom of Great Britain and Northern Ireland (Financial Action Task Force: Paris, 2007).

[10] K. S. Sheldon. *Successful Corporate Fund Raising: Effective Strategies for Today's Non-profits. Wiley Non-profit Law, Finance and Management Series.* John Wiley & Sons 2000 at pp. 4 – 6.

AI is a means of achieving low human resource costs whilst maintaining high-levels of relationship-building and outreach activity. AI, of which ML is a constituent technology, allows a machine or series of machines to act, comprehend, learn and sense just like humans would. Unsupervised learning (UL), also a constituent or AI, is a form of ML in which the system is trained to identify patterns in datasets where the 'right answer' may not be apparent because it is difficult to determine perhaps due to the sheer quantity of data that needs processing. UL can create outputs by clustering data together based on perceived patterns. In addition to UL, other forms of ML include supervised learning (SL) and semi-supervised learning (SSL), the differences centre around, amongst other things, the level of human or expert intervention required. Thus, ML is transformative to say the least and the relationship between people and machines has changed at a phenomenal rate. ML harnesses human ingenuity but does so with alarming precision and speed. For example AI outperformed humans, and some of the best lawyers, in the completion of various legal functions[11].

Like many companies of commensurate size charities too have large, and often costly, compliance and legal departments. AI benefits the legal function in terms of the quality of the information that is received by compliance officers and lawyers, but also by the speed[12] at which it can be reviewed by them, leading to mitigation of regulatory risk and exponential costs savings. This is also beneficial for regulators who are demanding faster reporting and greater transparency from organisations. However, there are some significant downsides, for instance, technology is grappling with bias because it is educated by human subjects through data entry and confirmation, additionally, we do not know enough about how deep learning networks make decisions. There are serious questions relating to the competency of the 'educators' from which the technology learns, issues relate to unconscious and subjective biases i.e., gender, racial or ideological biases, the production of biased data without due regard and assessment of its origins, a lack of critical thinking and trust[13] (deficit) in decision-making. There are two diametrically opposed schools of thought in relation to this; at one end of the spectrum many argue the risks are too great and at the other that the benefits outweigh the issues because they can be rectified in due course. IBM, in its quest for fairer AI, suggests that bias in AI occurs in the data or algorithmic models that are used[14]. In addition, AI poses risk and ethical issues in the compliance and lawyering functions but automated settlement of disputes or 'digital dispute resolution' can benefit charitable organisations in terms of legal risk

[11] Sahota, N. and Ashley, M. (2019). Own the A.I. Revolution: Unlock Your Artificial Intelligence Strategy to Disrupt Your Competition. USA: McGraw-Hill Education. It is estimated that AI will have usurped many job functions in law (paralegal, researcher and compliance) by 2030. See: N. Sahota. *Will A.I. Put Lawyers Out Of Business?* Forbes 2020. [ONLINE]. Available at: https://www.forbes.com/sites/cognitiveworld/2019/02/09/will-a-i-put-lawyers-out-of-business/#50e71e9e31f0. [Accessed 31 May 2021].

[12] K. Leary. *The Verdict Is In: AI Outperforms Human Lawyers in Reviewing Legal Documents*. Futurism, 2020. [ONLINE]. Available at: https://futurism.com/ai-contracts-lawyers-lawgeex. [Accessed 01 April 2021].

[13] F. Rossi. *Building Trust in Artificial Intelligence. Journal of International Affairs*. (2018) 72(1), pp.127-134. [Accessed 31 May 2021].

[14] R. K. E. Bellamy et al. *AI Fairness 360: An extensible toolkit for detecting and mitigating algorithmic bias.* IBM Journal of Research and Development, vol. 63, no. 4/5, pp. 4:1-4:15, 1 July-Sept. 2019. Also see the AI resource centre: IBM. *Mitigating Human Bias in AI.* 2020. [ONLINE]. Available at: https://www.research.ibm.com/5-in-5/ai-and-bias/. [Accessed 31 March 2020]. See also: J. Wood, J. *This AI outperformed 20 corporate lawyers at legal work*. World Economic Forum 2020. [ONLINE]. Available at: https://www.weforum.org/agenda/2018/11/this-ai-outperformed-20-corporate-lawyers-at-legal-work/. [Accessed 01 May 2021]. See also: Borgesius, F. Z. Discrimination, artificial intelligence, and algorithmic decision-making. Computer Science, 2018. For a discussion of Art 22 of the GDPR safeguards i.e., restrictions on automated decision making etc. [Accessed 01 June 2021]. Note also; Art. 12 Regulation (EC) No 223/2009.

mitigation and notable costs savings[15]. The discussion on data analytics[16] (DA) will not be repeated in this article, the basic thrust of which is to use technology as a disruptor by changing the way in which information works to promote richer higher-level collaboration amongst stakeholders. The benefits[17] include novel ways in which to manage the legal and regulatory risk[18] charities face.

## 3. Financial Crime Risks; Anti-Money Laundering (AML), Counter-Terror Finance (CTF), Cybercrime and Fraud

In England and Wales charitable spending totalled circa £80Bn[19], possibly rising to £146Bn by 2030[20]. Cybercrime, anti-money laundering, counter-terror finance and fraud are all matters that affect charities (GCHQ, 2020)[21]. Technological pervasion has also led to increases in faceless crimes carried out by organised criminal groups (Reichel, 2019)[22]. Financial crime, globally, has increased and Price Waterhouse Cooper's Global Economic Crime and Fraud Survey (2020) revealed losses to the value of $42Bn[23] in the firms they work with across almost 100 territories. The United Kingdom's regulator, the Financial Conduct Authority (FCA),

[15] K. Beioley, *Robots and AI threaten to mediate disputes better than lawyers*. Financial Times 2019. [ONLINE]. Available at: https://www.ft.com/content/187525d2-9e6e-11e9-9c06-a4640c9feebb. [Accessed 01 April 2020]. See also: J. Hornle. Dispute resolution: digital alternative. June 16, 2014. Law Society Gazette.

[16] EMC Education Services. (Ed.). *Data Science and Big Data Analytics: Discovering, Analysing, Visualizing and Presenting Data*. John Wiley and Sons 2015.

[17] Benefits include out-going correspondence written by AI i.e. ML tools, that learn to mimic an author's writing style and respond to incoming communication. These tools maximise efficiency in terms of travel itineraries and target those donors that are most likely make a gift or donation; AI fundraiser tools are able to sift through copious amounts of data in seconds, something that may take even the most senior employee's days or even weeks to do. AI technologies can also help target the funds where they are required most, therefore the adoption of these tools has become a question of 'when' rather than 'if'.

[18] M. Whalley and C. Guzelian. *The Legal Risk Management Handbook: An International Guide to Protect Your Business from Legal Loss*. Kogan Page 2016, for a good discussion of the management of legal risk and compliance, its management and relationship to issues of corporate governance. See also: D. Carlisle. *FinTech: The Next Frontier*. Money L.B. 2017, 249, 8-11 and T. Mallo. *Fine Words*. Money L.B. 2007, 141, 1-3. [Accessed 03 June 2021].

[19] Charities Commission for England and Wales. (2019). Preventing Charity Cybercrime. Insights + Action. Fraud Advisory Panel. [Online]. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/840997/Web_CC_Cyber.pdf. [Accessed 01 April 2021].

[20] Third Sector. (2013). Global charitable giving could reach £146bn by 2030, says Charities Aid Foundation report. [ONLINE] Available at: https://www.thirdsector.co.uk/global-charitable-giving-reach-146bn-2030-says-charities-aid-foundation-report/fundraising/article/1172356. [Accessed 01 May 2021]. There are no global statistics on charitable giving. The figures in the United Kingdom (above) and United States of America have demonstrated increases in donations. For the latter see: Non-profits. (2018). Charitable Giving Statistics, Trends & Data: The Ultimate List of Charity Giving Statistics. [ONLINE] Available at: https://nonprofitssource.com/online-giving-statistics/. [Accessed 12 April 2021].

[21] Cyber Security Guide for Charities. GCHQ: National Cyber Security Centre. UK: HMSO. [Accessed 15 April 2020]. See also: Preventing Charity Fraud, Insights+Action. October 2019. Fraud Advisory Panel, the Charity Commission for England and Wales. UK: HMSO.

[22] P. Reichel. *Global Crime: An Encyclopaedia of Cyber Theft, Weapons Sales, and Other Illegal Activities*. Greenwood Press 2019, at pp.148 – 154. Also: D. Walker, D. Brock and S. T. Ramon. *Faceless Orientated Policing: Traditional Policing Theories are not Adequate in a Cyber World*. The Police Journal 2006 79(2), 169 – 309. See also: Crime in England and Wales: Additional tables on fraud and cybercrime. Year Ending December 2018. April 25, 2019. UK: HMSO. Available at: https://www.ons.gov.uk/peoplepopulationandcommunity/crimeandjustice/datasets/crimeinenglandandwalesexperimentaltables. [Accessed 15 May 2021].

[23] Price Waterhouse Coopers. (2020). PwC's Global Economic Crime and Fraud Survey 2020. [ONLINE] Available at: https://www.pwc.com/gx/en/services/advisory/forensics/economic-crime-survey.html. [Accessed 12 May 2021].

suggests that the serious and organised crime that money laundering facilitates has cost the United Kingdom £37Bn every year, and the annual cost of fraud is estimated to be around £190Bn every year[24].

The Financial Crime Statistical Analysis[25], an annual FCA publication, has been delayed this year due to the coronavirus pandemic. In 2019 – 20, there were 573,085 suspicious activity reports made to the UK Financial Intelligence Unit (UKFIU), an increase from 458,468 (twenty-percent) in 2018 – 2019[26]. A total of 923,000 suspicious activity reports made by automated systems and employees to the Money Laundering Reporting Officers' (MLRO) within those regulated financial firms within the United Kingdom, and after investigation 363,000 of these cases were reported to the National Crime Agency for further action, and it is salient to note that 2100 of these were terrorism-related[27] suspicious activity reports. The human hours taken by employing people to check those checking is significant and any reduction in this that technology, more specifically ML, can bring is clearly advantageous.
The Serious and Organised Crime Agency (SOCA) identified some of the more notable instances exposing charities to financial crime as including fictional or fake payments, donations by mystery donors and loans with requirements or conditions precedent, all as a means by which to launder money or fund organised crime and terror related activities.

## 4. The Charities Commission for England and Wales

The Charity Commission in England and Wales is the regulator and supervisor of charities in the United Kingdom[28]. Its role includes issuing guidance on regulatory compliance and investigating alleged abuses by charities. The Commission, like the FCA and PRA in the United Kingdom, aims to strike a balance between being effectiveness and overregulation, innovation and efficiency. Thus, it sees its function as; raising awareness, overseeing, supervising, co-operating and only intervening where necessary[29]. Chapter 1 Module 8, of the Compliance Toolkit requires the trustees of the charity to:

- Compliance with the relevant law[30];
- Act within the charity's interest and avoid exposure to undue risk making sure the assets are only used for its charitable purposes. Therefore, the trustees must:

[24] Financial Conduct Authority. (2019). Turning Technology against Financial Crime. [ONLINE] Available at: https://www.fca.org.uk/news/speeches/turning-technology-against-financial-crime. [Accessed 12 May 2021].
[25] Financial Conduct Authority. (2020). Financial Crime: Analysis of Firms' Data. [ONLINE] Available at: https://www.fca.org.uk/publications/research/financial-crime-analysis-firms-data. [Accessed 12 May 2021]. Note: The FCA 'Sandbox' is supporting firms to innovate in RegTech.
[26] National Crime Agency. (2020). UK Financial Intelligence Unit: Suspicious Activity Reports Annual Report 2020. Available at: https://nationalcrimeagency.gov.uk/who-we-are/publications/480-sars-annual-report-2020/file. [Accessed 12 May 2021].
[27] W. Barr. *Shell charities and terrorist financing: a sledgehammer to crack a shell?* Tru. L.I. 2017, 31(4), 202-218. [Accessed 12 May 2021].
[28] The Commission is funded by the UK government and like Companies House, undertakes the registration process and maintains the register and can also deregister (close down) a charity. Note; charitable trusts are enforced in the name of the Crown by the Attorney General.
[29] The Charity Commission's approach is set out in detail in its Compliance toolkit, Chapter 1 Module 2 at p.1. Also see supra, note 31. See also: Gov.uk. *Prevent Duty Guidance*. 2020, HMSO.
[30] Harrison, K. and Ryder, N. *The Law Relating to Financial Crime in the U.K.* 2017, Routledge;
Hopton. D. *Money Laundering: A Concise Guide for All Business*. 2009, Gower: Farnham, 3. See also: Simser, J. Money laundering and asset cloaking techniques. Journal of Money Laundering Control. 2008, 11(1), 15–24.

- Take all reasonable steps necessary to ensure the premises, assets, employees (etc.) cannot be used for activities that may, or appear to, support or condone terrorism or terrorist activities;
- Put in place and implement effective procedures that prevent terror organisations taking advantage of the charity's assets, facilities, reputation or status;
- Take immediate action to disassociate the charity from activity outlined in the first point above;
- Take all reasonable steps to ensure that the activities of the charity are transparent and open, and are not subject to misinterpretation;
- Safeguard the charity's assets;
- Ensure proper control is exercised over financial affairs; and
- Stakeholders should report any concerns about a charity's links with terrorism i.e., beneficiary, employee or trustee[31].

### 4.1. Governance, Best Practice and the Potential for a Machine-Executable Compliance Toolkit

The Charities Act 1992, Charitable Institutions (Fund-Raising) Regulations 1994 and the Charities Act 2006 and now the Charities Act 2011 set out the legal duties of charities. To prevent being targeted by criminals and abused charities should implementing proper governance and management procedures with effective financial controls. For instance, adopting best practices in relation to 'Due Diligence' (DD) and 'Know Your Customer' (KYC) for each transaction, these principles are based on the legal duties of trustees designed to protect charity assets and are known as the 'Know Your' principles[32]. Charities are required, by financial institutions, to mitigate the risk of financial crime through DD procedures. These can require greater levels of due diligence, with risk-based processes relating to affiliated organisations and beneficiaries, donors, employees, partners, suppliers and all volunteers. This should form part of an organisational financial crime policy (FCP); in terms of charities the trustees would have to agree one. These issues are exaggerated where charities deal with 'Politically Exposed Persons' (PEPs) or where they operate in countries that are subject to international sanctions such as Iran and Russia, and in jurisdictions considered as high risk from exploitation by terrorists[33]. Charities, like other organisations, struggle with regulatory compliance because they still use paper-based systems, that coupled with human intervention which is prone to fatigue and forgetfulness, sloppiness and error due to time pressures makes compliance breaches ever more likely. Growth in regulation, requirements for continuous updating and symptomatic rises in compliance costs in the form of fines, business continuity disruption and productivity loss[34] all add to the problem. Whilst this may seem an expensive

[31] K. Raymond Choo. *Politically exposed persons (PEPs): risks and mitigation*. Journal of Money Laundering Control, 2008 Vol. 11 No. 4, pp. 371-387. See: UK national risk assessment of money laundering and terrorist financing. HM Treasury and Home Office. 2017. UK: HMSO. Also: Directives (EU) 2018/843 of the European Parliament and of the Council of 30 May 2018. Official Journal of the European Union, June 19, 2018.

[32] You can read these in-depth in Chapter 2, from p.14 – 37. See: The Charities Commission for England and Wales. (2019). Compliance Toolkit: Protecting Charities from Harm. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/677252/Chapter2new.pdf. [Online]. [Accessed 01 May 2021].

[33] Note; The Afghanistan (Asset- Freezing) Regulations 2011 (SI 2011/1893) and The Al-Qaida (Asset-Freezing) Regulations 2011 (SI 2011/2742).

[34] Lack of published statistical data by charities means that evidence can be extrapolated by drawing comparison with financial services because of the parallels in regulatory compliance reporting requirements. See: S. English, and S. Hammond. *Cost of Compliance*. 2018. UK: Thomson Reuters.

and time-consuming undertaking, because of the human resource requirement, it is the problem that machine learning and machine readable regulatory and/or policy documentation attempt to resolve.

The Charities Commission's Compliance Toolkit[35] seeks to help charities verify the end use of charitable funds, it states that '… ensuring proper internal and financial controls and risk management procedures are in place and implemented is vital'[36] but it is deficient in relation to the 'how' to achieve that. It fails to set out adequate solutions, technological or otherwise in this regard. Thus, the toolkit takes charities no further forward in resolving the plethora of compliance issues faced. Furthermore, there are grey areas on rule application and reporting requirements[37]. The failure of charities to engage with AI results in non-implementation of AI systems for compliance, the result is to impede the creation of modern tool-kits that could enhance regulatory compliance and reduce costs. Charities are not harnessing the benefits of AI, machine learning or otherwise, to automate the compliance function[38] and ease the regulatory burden. Unsurprisingly, the guide is not machine-executable which, the now quite sophisticated, internal AI compliance systems could autonomously engage with to update systems and processes without the need for human intervention. This stands in direct contrast to the financial services sector[39] where there have been many developments in relation to compliance reporting and some of which led by the FCA. The growing RegTech landscape may result in charities having to eventually be forced to automate[40]. The creation of a machine-executable tool-kit would be a relatively easy task, the investment in an AI system is probably the greater hurdle, the long-term benefits significantly outweigh this cost. One solution to this would be, with government policy, to promote stronger collaboration between civil society and the technology sector which would allow the risk of innovating to be shared. A second option could be to start with a cloud based 'centre of truth' first as that is least likely to become obsolete and can be sourced off the shelf at a reasonable cost[41]. Whilst charities have engaged with AI utilities such as 'chatbots' and language translation i.e. for refugees and migrants, many still lack digital strategies and unlike the more proactive FCA and PRA, the Charities Commission has failed to engage with the development of technology that could help resolve the many compliance issues that face the organisations it regulates. Rather interestingly, research by the Charities Commission for England and Wales in 2017[42] found that the average age of charity trustees was 55 – 65, this was increased to 65 – 75 for the smaller organisations, a challenge that needs to be overcome through diversification in the trustee pool to include representation from the 18 – 55 categories too. These factors are important as they provide

[35] The Charities Commission Compliance Toolkit is an online tool that was produced by the Charity Commission and launched in November 2009. It endeavours to assist charity trustees in protecting the charity from potential abuse and harm through assessment and management of risk. The toolkit covers relevant information and compliance tips on terrorism and other financial crime but also is designed to encourage self-monitoring.

[36] Charities Commissions Compliance Toolkit, chapter 2 at p.7.

[37] Macmillan. (personal communication, June 23, 2020).

[38] Above note 35. Charities engage with AI from an information perspective, but a wide gap exists between the current paper-based regulatory compliance and any future use of AI.

[39] Model driven machine executable regulatory reporting TechSprint. FRC, November 20, 2017. https://www.fca.org.uk/events/techsprints/model-driven-machine-executable-regulatory-reporting-techsprint. [Online]. [Accessed 22 June 2021].

[40] This acronym refers to the automation of the regulatory compliance and other functions i.e. digital trading or resolution and legal disputes etc. See also; Wilson, H. J., Daugherty, P., and Bianzino, N. (2017). The jobs that artificial intelligence will create. MIT Sloan Management Review, 58(4), 14–16.

[41] PWC. (personal communication, June 17, 2021).

[42] The Charity Commission's research findings in relation the age demographic of trustees is set out in Taken on Trust: The awareness and effectiveness of charity trustees in England and Wales. November 2017, at p.18.

anecdotal evidence on the shape of the sector in the short-term and requirement for the development of stakeholders.

## 5. OECD, FATF, Regulatory Compliance Challenges and Financial Crime Policies

According to the Organisation for Economic Co-operation and Development (OECD) economic and financial crime poses a major obstacle to development[43] because criminal activity results in the loss of valuable resources. This is particularly acute for fragile economies; they are also often the net beneficiaries of said charitable funds. In short, the money that should be used to rebuild public services i.e., education, health and justice are thereby diverted. Decades of hovering outside the regulatory gaze, being subjected to light-touch regulation in comparison to other company forms has meant that charitable organisations are attractive potential victims to economic or financial criminals. However, the application of law to charities firmly challenges this notion. The Financial Action Task Force (FATF) Recommendation 8 states that, 'Combatting Abuse of Non-Profit Organisations', is a good example of this[44]. Therefore, charities are continuing to come more into the regulatory gaze both domestically and internationally and that too regardless of size[45]; a perusal of the increasing financial sanctions regimes provide an example. Charities must also comply with non-binding rules, these are 'soft' law, for instance the Charities Commission's Governance Code (2017)[46]. The latter is referred to as 'good governance' adopting the same 'comply or explain' approach taken by the UK Corporate Governance Code[47].

The common challenges for charities include;

- Continual assessment of the terror finance risk that is posed by countries on embargo or sanctions lists[48];
- Keeping up-to-date with the information on regimes without adequate legal frameworks to deal with counter-terror finance and money laundering i.e. FATF, the

[43] Organisation for Economic Co-operation and Development (OECD). (2020). Economic and Financial Crime - OECD. [ONLINE] Available at: https://www.oecd.org/dac/accountable-effective-institutions/efc.htm. [Accessed 12 May 2021].

[44] The text of the recommendation highlights the potential for abuse and the need for regulation of the Third Sector; 'Past and ongoing abuse of the NPO sector by terrorists and terrorist organisations requires countries to adopt measures both: (i) to protect the sector against such abuse, and (ii) to identify and take effective action against those NPOs that either are exploited by, or actively support, terrorists or terrorist organisations.' FATF. (2015). Best Practices Paper on Combating the Abuse of Non-Profit Organisations (Recommendation 8). In addition, charities (and NPOs) should 'adopt methods of best practice with respect to financial accounting, verification of program specifics, and development and documentation of administrative, and other forms of control … use formal financial systems to transfer funds and perform due diligence and auditing functions of partners and field and overseas operations respectively.' Available at: https://www.fatf-gafi.org/publications/fatfrecommendations/documents/bpp-combating-abuse-npo.html. [Accessed 23 April 2020]. See also: Security Council Resolution 1373 (UNSCR 1373).

[45] There is an exaggerated regulatory compliance issue for new, small or inexperienced charities run by fewer individuals; excessive pressure often leads to serious failures.

[46] Consultation for revision of this version of the Code was completed in 2019. Non-legally binding codes are called 'soft' law.

[47] The latest version of the Code, 2018, is published by the Financial Reporting Council seeks to promote 'a corporate culture that is aligned with the … purpose … strategy … promotes integrity and values diversity.' FRC. (2018). UK Corporate Governance Code. Available at: https://www.frc.org.uk/directors/corporate-governance-and-stewardship/uk-corporate-governance-code. [Accessed 23 May 2021].

[48] R. Gordon, M. Smythe and T. Cornell. *Sanctions Law*. Hart Publishing 2019. Also: M. Happold and P. Eden. *Economic Sanctions and International Law (Studies in International Law).* Bloomsbury 2019.

U.K. Foreign and Commonwealth Office (FCO), Transparency International[49] and the World Bank;
- Keeping up-to-date with regions considered as notorious terrorism hotspots or those with high levels of criminality and corruption[50]; and
- Keeping up-to-date with sparsely populated areas with poor infrastructure or those with internal strife such as civil war or conflict, militia, or military warfare[51].

Thus, charities must have systems and processes to assess risk taking into account the stability of the political environment, culture, local and customary law, infrastructure to enforce legal rights and protection, the levels of predicate criminality, the economic structure, governmental controls, the reliability of the service sector, the size and maturity of the capital market and/or financial services sector, market and institutions within it, the size of the 'shadow' market/economy and the level of illicit trade to name but few.

Other law that charities must comply with includes the Bribery Act 2010, Companies Act 2006 and the raft of U.K. anti-terror legislation i.e. Terrorism Act 2000. In the European Commission whitepaper titled 'Artificial Intelligence - a European approach to excellence and trust' it sets out the proposed regulatory framework for AI that focusses on development, speed and the human and ethical implications of its use including bias[52]. In July 2020 the Information Commissioner Officer's (ICO) also published guidance on best practice in data protection-compliant AI.

Charities must create an extensive FCP that covers all this legislation, that is in addition to having appropriate operational risk assessments, stakeholder (trustees, employees and volunteers) training, adequate alerts system to mitigate risk, suspicious activity reporting, and scrutiny and consistent reviews to 'learn' from past experience. The FCP needs regular updating to account for changes in, amongst other things, terror designation or lifting of sanctions, all of which can be automated using AI.

## 6. AI Machine Learning: Supervised, Unsupervised and Semi-supervised Learning

In part two of the research, we focus on whether the use of ML can resolve the many compliance issues identified earlier.

AI, or artificial intelligence, refers to the technology that enables machines to simulate human behaviour in relation to data, course intelligence, knowledge and of course understanding. It is therefore the 'centre' or 'brain', for example, in robots. Like human beings, AI is smart and is able to solve the most complex of problems. Machine learning (ML), a subset of AI[53], allows the 'machine' to learn from past data without specific programming. Supervised learning (SL), also known as supervised machine learning is a subset of AI and ML that can facilitate the production of highly sophisticated and accurate ML models. SL uses labelled datasets that train

[49] Transparency International seek to stop the abuse of power, bribery and secret deals trying to ensure that governments act in the public interest and are not influenced by criminal, financial or other more vested interests. They create a 'Corruption Perceptions Index', the latest 2019 highlight corruption hotspots; greater risk for abuse.
[50] FATF. Jurisdictions under Increased Monitoring - February 2021. Available at: http://www.fatf-gafi.org/publications/high-risk-and-other-monitored-jurisdictions/documents/increased-monitoring-february-2021.html. [Accessed 23 May 2021].
[51] In the case of extreme risks, it may be that the charity ceases to operate in that country or area.
[52] Long, W. R. M. and Agyekum, J. *European Commission's Public Consultation on Proposed EU Artificial Intelligence Regulatory Framework.* Data Matters. May 2020. [ONLINE].
[53] Bostrom, N. (2014). Superintelligence: Paths, dangers, strategies. Oxford: OUP.

the algorithm to classify and/or predict accurate outcomes. In short, experts feed input data into the model, the weight of that data, as part of a cross-validation process, is adjusted until it fits the model. The benefit of SL is that it allows organisations to accurately solve real-world problems, at speed and on an unprecedented scale. One example is Google Mail, this uses ML to classify spam (etcetera) into a separate folder in email[54] and assists the user in composing smart replies to the message itself. Microsoft has a similar feature on its Outlook email service, the use of this function on both has grown exponentially[55].

SL uses training datasets that contain the requisite inputs and the correct outputs and teaches the model to yield the required outcome. This allows the model to learn continually over a period of time, algorithmic accuracy is measured via a loss function, this adjusts the model until relevant errors have been mitigated. For data mining purposes SL can be separated into 'classification' and 'regression'. The former, algorithmically, assigns test data into various categories, recognising factors within the dataset from which it draws conclusions in relation to definition and/or labelling. Such algorithms, or linear classifiers, consist of decision trees, vector machines and random forest etcetera. Regression, for example the polynomial or logistical regression algorithm, is used to understand relationships between independent and dependent factors, this is used to make projections. SL is widely used for image or object recognition, predictive analytics and customer sentiment analysis. SL, whilst being able to provide deep data insights and automation that is improved, is prone to human error which can lead to the algorithms learning incorrectly and therefore creating incorrect outcomes.

In contrast, unsupervised learning (USL) uses datasets that are not labelled. The model undertakes a process of discovery, it searches for hidden patterns in data without human intervention, that can solve association, dimensionality, or cluster reduction problems. This type of ML is useful when datasets contain unknown common properties, the three tasks are defined as;

- Association
- Clustering
- Dimensionality Reduction

Association uses different rules to discover relationships between the factors within a dataset, these are used by companies such as Amazon, Apple and Netflix in recommendation engines to make suggestions to customers i.e. 'customers who watched this also watched' or 'also bought'. The most common cluster algorithms are Gaussian mixture, hierarchical and k-means models. Clustering is a technique used in data mining to group unlabelled data on the basis of difference or similarity, often used for market segmentation. Dimensionality reduction for complex datasets where there are too many dimensions, the technique reduces data inputs to a more manageable size whilst quality assuring the data (preserving integrity). This is commonly used in pre-processing data for example to clean visual data and improve its quality. USL is not completely free from human-intervention; output variables may still require validation by the end user. For example, whilst the model may learn that shoppers are more likely to buy groups of products at the same time, what is included in that group may require validation by a data analyst. However, this is still likely to be less time consuming and cheaper than its SL

[54] Aberdeen, A., Pacovsky, O. and Slater, A. The Learning Behind Gmail Priority Inbox. Google Inc. Zurich, 2019.
[55] Kannan, A., Young, P., Ramavajjalam V., Kurach, K., Ravi, S., Kaufmann, T., Tomkins, A., Miklos, B., Corrado, G., Likacs, L. and Ganea, M. 2016. *Smart Reply: Automated Response Suggestion for Email*. In Proceedings of the 22nd ACM SIGKDD International Conference on Knowledge Discovery and Data Mining - KDD 2016. USA: ACM Press, 955–964.

equivalent, and USL can handle large amounts of complex data with relative ease[56]. Furthermore, in contrast to SL, USL is less time consuming and therefore less costly because it does not require domain expertise to label the dataset.

Semi-supervised learning (SSL) is a mixture of SL and USL. In this instance the dataset is labelled and unlabelled, the technique is appropriate for high volumes of data and data from which relevant features are difficult to extract. This method is used in medicine to determine urgency of treatment. One of the issues with these types of ML is that solutions can often lag behind the ability of charities to reorganise internal data. Furthermore, a system would need to deal with different systems, and common but informal knowledge that does not form a recorded data type. In addition, the appropriateness of the solution would need to be kept under review. That said, ML has can deliver real-time monitoring and regulatory compliance solutions, but the requirement for the machine to hand over control, and the need, for human intervention may be greater than envisaged to begin with.

Given the nature and volume of data that charities are concerned with, it is recommended that a combined supervised and unsupervised approach be taken in the short-term, with a long-term view to moving towards an unsupervised approach not just for regulatory compliance but also for protection against financial crime. Therefore, at first instance institutional reviews would be required to determine the following:

- Definitional: set out the recurring functions that must be undertaken for example, identifying suspicious activity, reporting (SARs, MLRO Reports) and regulatory compliance, KYC, training and developing staff, reducing reliance on human resource and risk mitigation;
- Size or Data volume: determine how much data will be processed;
- Structure and evaluation of the input data: decide whether the data needs to be labelled (tagged for operationalisation) or unlabelled with a human resource requirement to support that;
- Quality of the data: what, if anything, can the machine learn from past data; and
- Algorithms: do existing models provide adequate coverage of the dimensions needed and are they capable of supporting the volume and level of data processing required.

Currently, charity regulators including the Charity Commission, Gambling Commission and Information Commissioners Office share information by memorandum of understanding. It is salient to state that effective systems with the ability to communicate digital data between them would make this process more timely, effective and in the long-term have cost benefits. The potential is to enable change and monitoring in real-time i.e. contemporaneously and promote proportionate regulatory regimes that address current data, security and regulatory risk rather than overburden the organisation taking it away from its primary activity.

## 7. ML as a Potential Solution

In 2015 the FCA introduced a 'Regulatory Sandbox' with the aim of promoting the use of technology to resolve both technical and complex regulatory compliance problems like

[56] Arner, D. W., Barberis, J. N., and Buckley, R. P. (2016). The emergence of RegTech 2.0: From know your customer to know your data. Journal of Financial Transformation, 79 UNSW Law Research Paper No. 17–63.

FinTech revolutionised finance[57]. The finance industry has been promoting, through the use of natural language processing, regulatory documentation that is machine readable and interpretable.

ML cuts across markets and specialisms including banking, finance, insurance and law bringing about substantial long-term cost savings, regulatory compliance and mitigating risk for charities. Costs are a contentious matter where charities are concerned as they are often deemed unjustified by the public for example the top 10 UK charities spent on average circa £225M on operating costs alone[58]. Automation can help make cost reductions in, amongst other things, human resource, travel expenses, office space and marketing. These reductions could improve donor trust and confidence, and revenue generation because machines can run 24/7 for internal stakeholders and donors.

By promoting the automation of governance procedures and adopting the Charity Commissions Governance Code alongside proper financial controls charities can use ML as a measure to prevent becoming the victims of financial crime. Again, this would require consistent audits, review, staff training (Wilson et al, 2017) and a proper risk-centred strategy in relation to CDD, KYP and KYC. This allows the determination funding source and beneficiary identity. This also applies to proscribed organisations; therefore, constant updating and ability to identify and mitigate risk, share information is also a prerequisite to an effectively functioning system.

UK charities that operating abroad must also comply with domestic (U.K.) law as well as that of the jurisdiction in which they are located. They must be careful not to breach sanctions regimes or embargoes. Thus, the regulatory compliance risk is substantial because legal frameworks and laws differ between jurisdictions and thus a series of models would be needed. The system would need to monitor terrorist activity, civil disorder and have the ability to communicate with a range of data sources with a view to flagging up hotspots affecting compliance. In short, that needs real-time updating and feeding in large amounts of data from a range of sources for example from the FCA, The Charity Commission, FATF, Transparency International, the World Bank and the Commonwealth Office (FCO) to name a few.

The people, process and policy of each organisation must be able to spot suspicious transactions, identify patterns of behaviour from large volumes of often quite complex and non-conventional data. Manually issuing SARs is labour intensive and costly. Breaches affect reputation, trust and confidence, and inevitably fundraising[59]. The legal remedies against charities do not necessarily promote better compliance[60]. All charities are required to secure their data from criminality that is digital[61] and it is salient to state that the provisions of the Companies Act 2006 are particularly onerous in that regard.

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[57] Regulatory sandboxes provide frameworks for creating and testing dynamic and innovate products, technology and a range of business models. The approach to these sandboxes varies across jurisdictions. For a discussion on FinTech and the regulatory sandboxes see; S. Robinson, S. Altkemper and Y. K. Johal. *The regulatory FinTech Sandbox: A Global Overview*. Comp. & Risk 2020, 9(1), 10-14. [Accessed 29 April 2020]. See also: D. Lee Kuo Chuen and R. Deng (Eds.). *Handbook of Blockchain, Digital Finance, and Inclusion*, 2017 Volume 1: Cryptocurrency, FinTech, InsurTech, and Regulation. Singapore: Academic Press, chapter 16.

[58] The Charities Commission annual charity accounts provide a full breakdown; further discussion is beyond the scope of this article.

[59] Smith, K. T., Smith, M. and Wang, K. Does brand management of corporate reputation translate into higher market value? Journal of Strategic Marketing. 2010, 18:3, pp.201-221.

[60] Charities (Protection and Social Investment) Act 2016 extends a range of criminal offences to charities.

[61] Extensive discussion on this matter is beyond the scope of this research.

Finally, charities tend have an FCP-hesitancy. Ideally, each charity should have an extensive and up-to-date FCP, but these often do not exist and where they do they are grossly inadequately. All of these are matters with which ML can assist.

## 8. ML as a RegTech Compliance Tool

Charities will need to build their own networks if they are to combat criminality by sharing information. This can be quite easily achieved through privacy enhancing technologies (PETs), these facilitate data sharing between for instance the charity, law enforcement agencies and the relevant regulators through a range of nascent and technologies for example homomorphic encryption[62].

The FCA Regulatory Sandbox, has made some headway into the issues relating to digital identity by securing the various pieces of information held by organisations. Manual security checks can be avoided by using ML whilst allowing the identity of the person transacting to be quite easily determined. If charities were looking to promote something similar, they would need to adopt a model that would be equivalent to the open-banking model used in the financial services sector, that model facilitates approved sharing of some secured information using an application programming interface (API). Corporation with the banking industry could in affect partly facilitate this.

Systems that are federated have the added benefit of updating in real time, for charities identifying beneficial ownership, tracking of grants and identification sharing, all of which help tackle financial crime, can be made much easier. The system can ensure that the appropriate flags are identified, and the relevant reports are automatically raised where 'high-risk' donations or patterns of activity are identified allowing automated CDD or KYC to be carried out.

Charities must, amongst other matters, do the following:

- Set-up a centre of truth (central repository/access point) for documentation to assist in better sharing of information;
- Update out-of-date and stale information;
- Mitigate human led error;
- Create centralised CDD and KYC databases;
- Reduce inconsistencies in SAR reporting;
- Have adequate monitoring i.e. reports and analysis, reduce inadequate monitoring;
- Reduced false positive risk analysis resulting in the misallocation of resource;
- Train and develop stakeholders i.e. trustees, staff and volunteers;
- Triangulate and rectify poor quality data;
- Review data fragmentation and its impact on decision making;
- Reduce continually rising manual CDD and KYC costs;
- Mitigate standard and process level inconsistency that violates regulatory compliance;
- Avoid duplicity of process; and
- Reduce system fragmentation that causes failure of system interaction.

[62] Homomorphic encryption performs calculations on encrypted information, the difference is that it does not decrypt it first. This makes cloud computing more secure.

Adopting ML, as part of a strategic approach, can assist with:

- Reduce manual data processing by automating information centric processes;
- Adding e-CDD and e-KYC to the repertoire of RegTech and CharityTech tools;
- Introducing databases that can share CDD and KYC information in real time;
- Auditing, tracking and tracing, identifying and reporting;
- Determining beneficial ownership for example through link analysis);
- Interacting with trustees, employees and other stakeholders; and
- Conducting large volume data analysis via linguistics.

It is salient to state that the regulatory compliance landscape has changed in terms of compliance, ethics and most notably infrastructurally. This is the heart of AML and CTF initiatives, and of course for realigning an organisation so that it is fit for purpose by pursuing a more modern and technological approach to governance, risk management and control.

## 9. Conclusion

It is interesting to note that charitable organisations, whilst being some of the largest companies in the world, are yet to harness the significant progress that has been made by technology in the RegTech revolution. The ML, namely SSML, can assist the sector to resolve some of the biggest issues that it faces, whether that be in rapid automation, real-time data aggregation platforms, statistical modelling, image analytics or risk assessments that are carried out automatically by specifically designed systems. It is clear from our research that the sector lacks both digital and technological transformation initiatives. The advantages of technology which has consistently outperformed humans in complex task completion has not been harnessed. The size of the charity sector across the world is significant as are the cross-border AML and CTF initiatives, therefore the advantages we would suggest are also equally sizeable. ML can assist charities in cost-cutting (operational), regulatory compliance and in the promotion of greater levels of trust and confidence. Charities can start by creating ‘centres of truth’ by utilising a range of cheaper off-the-shelf solutions such as ‘cloud computing’. Thus, instead of increasing human resource, surgical automation and analytical tools can assist charities to navigate the challenges they face allowing for the reduction of risk by pursuing a long-term approach fighting financial crime.