

人工智能势不可挡： 我的工作会受影响吗？

作 为一名高级主管，我始终都在想方设法增强我的实践和业务能力。经济大衰退之后，我的使命就是尽量降低衰退对团队业务模式的影响。然而，几年过后，我意识到，还存在第二条战线去实现持续增长这一使命。经济大衰退促使我们的个人理财方式以及对金融服务的看法发生了巨大的变化。现在，我们将这种变化称为“金融科技”。¹ 技术领域的变革速度可谓异常惊人，我不得不思考如何才能跟上变革的步伐、免遭淘汰。未来 5 年、10 年以及 20 年，人力资源行业、就业市场和就业文化会发展成怎样一副光景？如果不能参与其中，我希望能走在变革的前面。其他行业已经为我们提供了一个又一个的警示：智能手机及相关应用程序的出现使传统出租车司机受到重创；如今任何人都能够为他人提供适宜的住宿场所，酒店老板因而备感压力。银行和零售商的实体分行和门店还能存在多久？变革是一件好事，我深信不疑，尤其是考虑到我们所有人都能从变革的结果中受益，比如，获得更多的便利、更近的人际关系、更好的交流效果、更多的数据和服务等。但是，就如生活中的所有事情一样，福祸总相依。

¹ Sanjeev Menon、Zach Plotkin、John Liberatore, “FinTech: Taking the Leap”, 《今日 ACAMS》, 2017 年 8 月, <https://www.acamstoday.org/fintech-taking-the-leap/>

当前的技术

技术正在对反洗钱 (AML) 和合规专业人士、其必要技能及就业机会造成哪些影响？目前，金融犯罪合规 (FCC) 和制裁技术是比较容易理解的。多数银行和金融服务公司采用了某种交易监控 (TM) 系统和美国海外资产控制办公室筛查机制，有负面新闻和了解您的客户 (KYC) 服务提供商，而且可能还有能使用 Tableau、数据可视化平台等工具的分析团队。虽然纽约州金融服务局 (NYDFS) 第 504 条规则规定，受监管机构需要配备（“手动或自动的”）交易监控系统，² 但银行保密法专员和下级认证员只能自求多福，因为他们不具备支持相应评估和持续数据验证的自动化系统。技术对所有反洗钱制度的实施至关重要，监管机构已经明确过这一点，但仍然需要有人进行监督和验证。Pryor Cashman 金融机构部联合主管 Jeffrey Alberts 说：“我认为，监管机构不会同意让“人”这个要素消失，至少今后十年不会。然而，监管机构已经开始表示，愿意在反洗钱领域加大人工智能技术的运用力度，因为越来越多的洗钱犯罪分子开始利用技术手段增加识别和防范他们洗钱交易的难度。

记住，纽约州金融服务局还要求受其管辖的所有机构遵守网络安全条例并“提供年度合规证明。”³ 因此，对于强力的数字和网络保护、可靠有效的数据以及高效的监控和

筛选措施的迫切需求，使技术成为所有反洗钱制度和金融犯罪合规制度固有且重要的组成部分。不过，在使系统成功、高效地发挥作用方面，“人”这一要素确实是不可或缺的。我看到并见证了反洗钱技术在过去十年的演变进程以及技术对金融犯罪合规群体的影响，反洗钱技术的规模和普及率均得到了显著提升。

不久的将来

目前，金融科技行业和监管科技行业势头正盛，处于前所未有的程度，并都以改变金融服务行业为己任。随着打击犯罪、恐怖主义和洗钱活动的成本和复杂性的持续增长，这两个行业的发展不会很快停止。无论如何，金融犯罪合规与合规专业人士目前无需担心会大批失业。传统金融机构的发展与上述行业的速度不同。采用新技术时，他们非常谨慎且需要长时间的斟酌，主要是基于以下三个方面的考虑：一是改变现状需要付出代价，二是美国各监管机构对新技术的看法（有时）并不一致，三是尚不能确定新技术实际上是否更有优势。通过分析有些未来学家提出的“变革的四大要素”，即资源、技术、人口和治理，我们可以描绘出近期未来的图景。⁴ 这四个要素共同形成当前和未来环境的“趋势”。⁵

全球人口统计资料（此时假设所有必要资源都可用）体现的趋势符合增长的特点，至少表明金融犯罪合规就业市场的人力资本

需求保持稳定。目前，经济大衰退已经结束，由于失业率极低并且婴儿潮时代出生的人将陆续退休，所以，许多行业都很难找到合适的人才。最优秀的人才可以获得多个工作机会，不但有晋升机会，还能获得更高的工资。美国劳工部对人才需求进行了测量：“（2017 年）11 月最后一个工作日，共有 590 万个空缺职位，相比（2017 年）10 月几无变化。”⁶

我国治理制度亦是如此（三权分立、监管机构等）。联邦政府和州监管机构表现了对金融机构和受制裁的国家、地区和个人进行罚款的强烈偏好，这反过来又为金融犯罪合规的从业人员带来更多的挑战、责任和机会。对“四大要素”的分析显示，在不久的将来（三到五年内），金融犯罪合规专业人士将迎来强劲的就业市场。但对银行监管专员的需求却呈现出下滑迹象。由于本届联邦政府存在反监管、反消费者金融保护、反《多德-弗兰克法案》的倾向，有迹象表明，对非反洗钱专业的合规人员的需求将出现下滑。⁷

在目前和不久的将来，技术已经对反洗钱和合规就业市场产生了积极但又有讽刺意味的影响。你是否参加了在拉斯维加斯举行的 2017 年 ACAMS 年会？本届年会有许多值得关注的地方，其中之一是对技术、网络和数据的高度重视。例如，有些分会的主题中使用了以下一些术语：创新、量化指标、

² Chris Recor, “Understanding the New DFS Part 504 Regulations and the Associated AML Program Testing Challenges”, ACAMS, http://files.acams.org/pdfs/2017/Understanding_the_New_DFS_Part_504_Regulations_C.Recor.pdf

³ CitrinCooperman, “Mandatory NYS Cybersecurity Regulations for Financial Services Companies-Summary”, http://www.citrincooperman.com/uploads/1592/doc/NYS_DFS_OnePager.pdf

⁴ Cecily Sommers, “Think Like a Futurist: Know What Changes, What Doesn't, and What's Next”, 2012 年 10 月。

⁵ 同上。

⁶ 美国劳工部劳动统计局, “Economic News Release: Job Openings and Labor Turnover and Summary”, 2018 年 1 月, https://www.bls.gov/news.release/archives/jolts_01092018.pdf

⁷ 联邦政府有太多的事要操心，所以无暇彻底废除《多德-弗兰克法案》，但我猜想，在联邦政府与掉期交易商首席合规官和《多德-弗兰克法案》专家交谈后，“沃尔克规则” (Volcker Rule) 仍有可能成为攻击目标。

网络犯罪、网络安全、算法、网络战、新兴技术、数据挖掘、网络威胁等。⁸ 在年会会议交流中，出现频率最高的两个词是“人工智能”和“机器学习”。人们在下列问题上的观点分歧引起了极大的兴趣：人工智能何时会取代反洗钱制度中人的要素？当前是否存在真正的人工智能？供应商是否通过给产品贴上机器学习和人工智能的标签来欺骗企业？人工智能和机器学习对偏爱监管机构的金融犯罪合规体系的真正重要性体现在哪里。Kaufman Rossin 风险咨询服务部主管 Jason Chorlins 说：“技术的不当运用已成为反洗钱制度的负担，因为自动化监控系统产生了大量的警报，误报率超高。监管机构已经开始接受该概念（关于人工智能和机器学习），但是，我看到的顾虑是，人们过度依赖这种系统，希望其能取代人，决定将哪些活动归为异常或可疑。”他的看法和观察普遍存在。反洗钱业内有很大一部分人仍然对先进技术及其运用持怀疑态度，并且对这个未来的优秀自动化工具并未表现出太大的耐心。

最后，《今日 ACAMS》2017 年的年度文章是《当两个世界产生碰撞》，该文描述了区块链和加密货币对金融服务业、执法机构和全体反洗钱专业人士的影响。文章作者做出结论认为，“显然，反洗钱人员和执法人员需要学习这一领域的知识，不只限于了解这一全新技术，还需要在面对可能发生的巨大变化时，依然有能力胜任反洗钱工作。”⁹ 加密技术、区块链和新兴支付行业已经创造出数量众多的金融犯罪合规与合规岗位，因为就如普通的金融服务企业和银行一样，这些行业属于“受监管实体”。因此，具有讽刺意味的是，一方面，金融

科技和监管科技企业增加了人力资本需求，另一方面，它们又在朝着自动化会改变一切的临界点前进。

遥远的未来

现在，我们转向问题的关键：在遥远的未来，技术将对金融犯罪合规与合规工作产生什么样的影响？简单而言，所有银行和金融机构将成为金融科技企业，他们会通过监管科技处理合规事宜。投行法国巴黎银行交易监控优化部副总裁 Sandeep Loshali 对这一点进行了说明：“银行的重点工作提高客户满意度，越来越多的客户开始使用最新技术。为了开展业务、满足客户需求，银行需要技术支持。为此，银行越来越像金融科技公司。”结果，Loshali 发现，“资源从投入时间审核警报或可疑活动转向了构建监视技术平台”，以达到监管要求。因此，未来企业的成功和洗钱活动的防范都取决于能否顺利运用相关技术。

许多银行都在实施回顾项目，这也需要投入大量的人力。在今后十年和更远的将来，自动化将取代很大一部分人力资本。届时，补救措施只需要由项目经理、开发员和程序员联手完成，同时需要经验丰富的反洗钱专业人士在他们调整系统时提供专业建议。最终，机器学习、人工智能和自动化会实施警报核定、最终受益所有权 / 了解您的客户账户补录、低级别日常业务职责等工作。初级和入门级岗位仍将存在，但需要学习自动化的运维方法。来自 ConsenSys 的 Juan Llanos 称，“如果反洗钱从业人员不接受继续培训，则无法实现自身职责的转变。他们只会被取而代之。是的，全部都将走向机械车间。”

下列四大变革要素勾勒出一个与如今大不相同的未来：

资源

出于文章需要，我们假定，全球社会将拥有能维持正常运转的所有资源。但是，南非开普敦等大城市面临严重的缺水问题，因此，我们需要全面看待问题。¹⁰ 埃隆·马斯克或许需要继续致力于将火星开发成人类的殖民地，这样人类就有了一张“灾难保单”。¹¹

人口统计

目前全球人口已超 70 亿。联合国预测，到 2100 年，地球人口将达到 112 亿。¹² 随着人类对自动化的依赖性越来越强，全球经济是否还会需要那么多的人力资源？是的，即使我们可以有意识地在各个行业运用相关技术，同时也是有可能找到维持人力资本需求的办法的。此外，我们还要确保建立更加完善的人员教育和技能培训体系。

治理

虽然本届联邦政府有意反对服务外包模式带来的全球化，退出《北美自由贸易协定》和《跨太平洋伙伴关系协定》并着手收紧移民政策，但世界只会变得愈发一体化，国界只会变得越来越模糊。互联网、智能手机和社交媒体将继续促进全球化的发展。我们的法律法规将屈从于全球化的意志，这势必会使整个全球金融服务业的一体化水平达到前所未有的高度。欧盟是走向统一的绝佳例子，与此同时，该地区的监管力度也在不断升级（如出台了 GDPR、MiFID、PSD2 等监管规定）。更多的监

⁸ <http://www.acamsconferences.org/vegas/program/#monday>

⁹ Joseph Mari、Peter Warrick、Leonardo Real，“When Two Worlds Collide”《当两个世界产生碰撞》，《今日 ACAMS》，2016 年 9 月 - 11 月号，<https://www.acamstoday.org/when-two-worlds-collide/>

¹⁰ “South Africa: Cape Town Slashes Water Use Amid Drought”，BBC 新闻，2018 年 1 月，<http://www.bbc.com/news/world-africa-42731084>

¹¹ Blair Reeves，“Elon Musk is Wrong – We Are Not Going To Colonize Mars”，Medium，2015 年 10 月，<https://medium.com/@BlairReeves/elon-musk-is-wrong-we-re-not-going-to-colonize-mars-43e363726ef2>

¹² 联合国经济与社会事务部，“World Population Expected to Reach 9.7 Billion By 2050”，2015 年 7 月，<http://www.un.org/en/development/desa/news/population/2015-report.html>

管义务会造成更加复杂的合规风险,结果又会对更先进、更完善的技术提出要求。Llanos 提出了另一种可能出现的场景:“到 2050 年,我希望人类经过发展,抛弃了需要监视和控制的政体结构,凸出协作、安全和幸福,从而消除对制裁和金融犯罪实施监控的必要性。”

技术

人们似乎都希望从现有数据中挖掘出更多的信息,或是获得更多的数据。知识就是力量。将来的金融犯罪合规与合规制度将会涉及准确数据的采集、分析和运用,届时,高级反洗钱分析解决方案监管技术提供商 Amberoon 顾问委员会成员 Nikhil Aggarwal 的展望将成为现实,即“主动决策以深化现有的客户关系,降低风险,退出被系统识别出的高风险客户。”假以时日,再加上足够的投入,目前已经存在的优化工具将成为真正的人工智能产品,即工具能够学习并预测行为,从而发现和防范金融犯罪,推进业务发展。我要说的是,相比人的判断和人力资本,这种技术将变得更加可靠、更加高效、性价比更高。

你的未来

技术对整个社会的运转方式和生活方式产生了重大影响,将来也会如此。那些我们已习以为常、认为只有人才能胜任的工作,也将受到技术的影响。另外,自动化将改变我们的就业文化,零工经济将成为我们思维方式的一部分,就如半个世纪以前的“公司人”一样。变革不可避免,而且我相信,变革本身是好事。在不久的将来,技术将与人共存,而不是取代人。但在 5 到 10 年(更不必说 50 到 100 年)内,金融犯罪合规领域将发生意义重大的巨变。LexisNexis 风险解决方案部高级总监 Chris Siddons 说道:“新技术将连接各个


脱节的平台,并整合机器学习和自动化所需的数据,进而提高效率,减少开支。”技术将变得比人更加准确、精确,且成本更低。

就如以前的所有工业革命一样,技术和自动化将以特殊方式演变,一方面它们会取代现有的工作岗位,另一方面又会创造新的工作机会。要使子孙后代和企业保持竞争优势,(至少对美国来说)应该改变教育制度和教学理念。在一篇关于自动化和就业的文章中,Brian Heater 称,如果要创造便利条件,抓住新技术带来的新就业机会,“就需要加大对教育的投入力度,这些投入涉及到两个方面,一是希望把有价值的员工转移到新岗位的企业,二是能使员工与现实世界需求对接起来的教育制度。”¹³目前,随着自动化技术的快速发展,反洗钱和合规专业人士需要认清技术的变化形势、不断加快的发展步伐及其对必备技能的影响,由此实现对未来的掌控。

总之,以下几点建议有助于你对可能发生的变革做好准备:

- 先问自己几个问题,勇敢面对残酷的现实。你目前的工作和职业与技术“冲突”吗?与技术相容吗?或是本身就包含技术创造?如果第一个问题的答案是肯定的,而且未来可能会有一款新的应用程序或软件会去取代你,那么你就应该想想下一步要怎么走。如果第二个问题的答案是肯定的,你就要问自己,你会在将来的某个时候被取代吗?如果你正在开发新技术,干得漂亮。
- 要继续走在潮流前列。你在金融犯罪合规/合规制度中发挥什么作用?你目前使用的技术有哪些?这些技术是最先进的,还是陈旧且已过时的?你是否发现其他机构在裁减与你相同的工作岗位?去参加 ACAMS 的会议、研讨会及活动,

与同行交往,并且永远不要停止学习。如果你认为自己无所不知,你可能会被打个措手不及。

- 了解新技术。尽你所能,了解什么是区块链、什么是加密货币以及二者的区别,了解金融科技企业和监管科技企业准备怎样实现颠覆性变革,推进金融服务业的发展。最重要的是,要在新技术成为主流之前了解它们。订阅谷歌快讯,开始阅读偏重于技术行业的杂志和网站,与精通分析技术和数据处理技术的同事开展合作。正如《当两个世界产生碰撞》的作者所强调的那样:“这是反洗钱领域的未来,因此反洗钱人员和执法人员有必要与时俱进。”¹⁴
- 不要担心,要欣然接受变革,重点培养自身的技能和能力。不要受杞人忧天者的影响。机器学习和人工智能不会让你成为职场古董。在金融犯罪合规、反洗钱及合规领域,人的要素依然坚不可摧。然而,既然技术发展速度如此之快,消除忧虑的最好办法是保持积极向上的心态。学习以计算机和数据为导向的新技能,与同行多交流,引领主流,继续思考你的工作、职业和角色在技术变革中处于什么的位置:是挡住了它的去路,还是将与它一路随行? 

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¹³Brian Heater, “Technology is Killing Jobs, and Only Technology Can Save Them”, TechCrunch.com, 2017 年 3 月 26 日, <https://techcrunch.com/2017/03/26/technology-is-killing-jobs-and-only-technology-can-save-them/>

¹⁴Joseph Mari, Peter Warrick, Leonardo Real, “When Two Worlds Collide”《当两个世界产生碰撞》,《今日 ACAMS》,2016 年 9 月 - 11 月号, <https://www.acamstoday.org/when-two-worlds-collide/>

[illegible]

As a senior leader within my organization, I am always thinking about ways to keep my practice and business in growth mode. After the Great Recession, I made it my mission to make my team's business model as recession-proof as possible. However, after a few years, I realized a second front existed in my mission for continuous growth. The Great Recession started a massive shift in the way we conduct our personal finances and perceive financial services. We now call this shift the "Fin-tech" industry.¹ However, the speed of change in technology is so phenomenal that I have to figure out how to keep up and fight off obsolescence. What will the staffing industry, the employment market and our job culture look like in the next five, 10 and 20 years? I want to be ahead of the change, if not part of it, because the taxi driver was sucker punched by smartphones and the hotelier is on the defensive now that we all can provide suitable accommodations for guests. How much longer will banks and retailers need their brick and mortar branches and storefronts? I truly believe change is good, especially when we all benefit from the results, such as more convenience and connection, better communication and greater access to data and services. However—like everything in life—with the good comes the bad.

¹ Sanjeev Menon, Zach Plotkin and John Liberatore, "FinTech: Taking the Leap," *ACAMS Today*, August 2017, <https://www.acamstoday.org/fintech-taking-the-leap/>

Technology now

How is technology affecting anti-money laundering (AML) and compliance professionals' requisite skillset and employment opportunities? Right now, financial crimes compliance (FCC) and sanctions technology is relatively easy to understand. Most banks and financial services firms have adopted some sort of transaction monitoring (TM) system and Office of Foreign Assets Control filter, have a negative news and know your customer (KYC) vendor, and possibly have an analytics team that uses tools such as Tableau and data visualization platforms. Although the New York Department of Financial Service's (NYDFS) Rule 504 says regulated institutions need a TM system, "which may be manual or automated."² Good luck to the Bank Secrecy Act officers and sub-certifiers who do not have an automated system that can be properly assessed and from which data can be validated constantly. Technology is vital for all AML programs to function, and the regulators have made that clear. But human supervision and validation is mandatory. Jeffrey Alberts, co-head of the Financial Institutions Group at Pryor Cashman, says, "I do not think that regulators will be open to the human element disappearing, at least [not] in the next decade. However, regulators already are starting to express openness to the increased use of artificial intelligence (AI) in AML because criminals who launder money are increasingly using technology to make it more difficult to identify and prevent money laundering."

Remember, the NYDFS also requires all covered entities to follow cybersecurity regulations and to "provide annual proof of compliance."³ The need for strong digital

and cyber protection, reliable and valid data, and efficient monitoring and filtering have made technology an inherent and invaluable part of all AML and FCC programs. However, the human element is indispensable in making the system successful and productive. I have observed and witnessed the evolution of AML technology over the last decade and the positive impact it has had on the FCC community, which has grown both in size and popularity.

The near future

The Fintech and Regtech industries are hotter than ever and are on a mission to change the financial services industry. The growth of both industries will not stop any time soon as the fight against crime, terrorism and money laundering becomes more expensive and complex. However, at this point in time, FCC and compliance professionals should not worry about losing their jobs en masse. Conventional financial institutions move at a different speed and will implement new technologies cautiously and after long deliberation because of the potential costs of changing the status quo, the (sometimes) incongruent opinions of our country's regulatory bodies on new technology and the uncertainty of whether new technology is actually better. We can create a picture of our near future by analyzing what some futurists call the "four building blocks of change"—resources, technology, demographics and governance.⁴ As a whole, these four blocks create the "trends" of our current and future circumstances.⁵

Our global demographics (we will assume all necessary resources are available) are showing trends that are in line with growth

or, at least, steady human capital demand in the FCC employment market. With such a low unemployment rate and baby boomers set to retire now that the Great Recession is over, many industries are having a tough time finding the best talent. The best candidates are receiving multiple offers and getting promoted with higher raises at the same time. The U.S. Department of Labor has measured the demand for talent: "On the last business day of November [2017], there were 5.9 million job openings, little changed from October [2017]."⁶

The same goes for the U.S.' system of governance (the three branches, regulatory bodies, etc.). The federal administration and state regulators have shown a strong tendency to fine financial institutions and sanctioned countries, regions and individuals, which, in turn, provides the FCC community with more challenges, responsibilities and opportunities. Overall, for the near future (three to five years) the "four blocks" predict a strong employment market for FCC professionals. The one sign of decline is in the demand for bank regulatory professionals. With a federal administration that is anti-regulation, anti-Consumer Financial Protection Bureau and anti-Dodd Frank, there are signs of a slow down in the need for non-AML compliance professionals.⁷

Technology, now and in the near future, is having a positive and ironic impact on the AML and compliance employment market. Did you attend the 2017 ACAMS Conference in Las Vegas? One of the many interesting features of the event was the focus on technology, cyber and data. For example, here are terms used in the titles of some of the sessions: innovation, quantitative metrics, cybercrime, cybersecurity,

² Chris Recor, "Understanding the New DFS Part 504 Regulations and the Associated AML Program Testing Challenges," ACAMS, http://files.acams.org/pdfs/2017/Understanding_the_New_DFS_Part_504_Regulations_C.Recor.pdf

³ "Mandatory NYS Cybersecurity Regulations for Financial Services Companies—Summary," CitrinCooperman, http://www.citrincooperman.com/uploads/1592/doc/NYS_DFS_OnePager.pdf

⁴ Cecily Sommers, "Think Like a Futurist: Know What Changes, What Doesn't, and What's Next," October 2012.

⁵ Ibid.

⁶ U.S. DOL Bureau of Labor Statistics, "Economic News Release: Job Openings and Labor Turnover and Summary," January 2018, https://www.bls.gov/news.release/archives/jolts_01092018.pdf

⁷ The federal administration has too much on its plate to repeal all of Dodd-Frank, but I suspect the Volcker Rule will still have a target on its back after speaking to Swap Dealer CCOs and Dodd-Frank experts.

algorithms, cyber war, emerging technologies, data mining and cyberthreat.⁸ But I cannot leave out the buzzwords most used in my conversations at the conference: artificial intelligence (AI) and machine learning. I was intrigued by the differing opinions people have on when AI will replace the human element of AML programs, if true AI tools exist currently, if vendors are taking advantage of companies by characterizing their product as machine learning and AI, and the actual importance of AI and machine learning to a regulator-loving FCC program. Jason Chorlins, a principal of Risk Advisory Services at Kaufman Rossin, says, “Incorrectly implemented technology has become a burden on AML programs as automated monitoring systems have been producing large amounts of alerts resulting in a high false positive ratio. Regulators are already open to the idea (of AI and machine learning), but the concern I see is the overreliance on such systems to replace the human element in determining what activity is deemed unusual and/or suspicious.” His opinion and observations are not uncommon. A substantial proportion of the AML community still has a suspicious view of technological advancements and implementations, while being impatient for the next great automation tool.

Lastly, the *ACAMS Today* Article of the Year in 2017 was *When Two Worlds Collide*, which describes how blockchain and cryptocurrencies are affecting the financial services industry, law enforcement and all AML professionals. In the article, the authors conclude that “what is clear is the need for knowledge and education in this space, not just to make sense of this new technology, but to compete in a world of AML that may see drastic change.”⁹ The crypto, blockchain and emerging payments industries are already creating more FCC and compliance roles than ever because

they fall under the “covered entities” umbrella like plain old money services businesses and banks. So, Fintech and Regtech firms are ironically adding to the demand for human capital while chugging away to the tipping point, where and when automation changes everything.

The distant future

Now, we come to the crux of the matter: How will technology affect FCC and compliance in the distant future? Well, the simple answer is that all banks and financial institutions will be Fintech firms that will use Regtech to maintain compliance. Sandeep Loshali, a vice president in the Transaction Monitoring Optimization Group at the investment bank BNP Paribas, elaborates on this point: “Banks’ focus has been on customer satisfaction with more and more customers using the latest technology. Banks will need technological support to do business and [to] satisfy customers’ needs. In order to do so, banks will start operating more in the form of financial technology companies.” As a result, Loshali has seen a “drift of resources from investing time in performing review of alerts or suspicious activity to building surveillance technology platforms” in order to fulfill regulatory needs. So, both business success and AML prevention are predicated on successfully implemented technology in the future.

Many banks are conducting look-back projects that require large amounts of human capital. In the next decade and beyond, automation will replace much of this human capital. Remediations will need only project managers, developers and coders, and seasoned AML professionals that can communicate with them to tweak the systems. Machine learning, AI and automation will eventually conduct the alerts clearing, ultimate beneficial ownership/know your customer accounts remediations and lower

level business-as-usual responsibilities. Junior- and entry-level roles will still exist but they will have to involve learning how to maintain automation. Juan Llanos, from ConsenSys, says, “If AML personnel do not re-educate and retrain themselves, there will be no possibility of ‘shifting in responsibilities.’ They’ll simply be displaced. Yes, it will all move to the engineering shops.”

The following four building blocks of change predict a much different future:

Resources

For the sake of this article, we have to assume that our global society will have the resources to function properly. But a lack of water in major cities like Cape Town, South Africa are scary and put things into perspective.¹⁰ Elon Musk might need to continue his efforts to colonize Mars, so we have an “insurance policy” against catastrophic threats to humankind.”¹¹

Demographics

The planet currently supports more than 7 billion people. The U.N. predicts 11.2 billion will inhabit the planet in 2100.¹² Can our global economy employ enough people while we continue to become more dependent on automation? Yes, it is possible, if we deliberately and consciously make the decision to implement technologies in all industries and simultaneously figure out how to maintain human capital needs. In addition, we will have to make sure we create a better system for educating people and teaching skills.

Governance

Although, our current federal administration is fighting globalization caused by outsourcing, the North American Free Trade Agreement, the Trans-Pacific Partnership and immigration, the world will only become more integrated and borderless. The

⁸ <http://www.acamsconferences.org/vegas/program/#monday>

⁹ Joseph Mari, Peter Warrack and Leonardo Real, “When Two Worlds Collide,” *ACAMS Today*, September-November 2016, <https://www.acamstoday.org/when-two-worlds-collide/>

¹⁰ “South Africa: Cape Town Slashes Water Use Amid Drought,” *BBC News*, January 2018, <http://www.bbc.com/news/world-africa-42731084>

¹¹ Blair Reeves, “Elon Musk is Wrong – We Are Not Going To Colonize Mars,” *Medium*, October 2015, <https://medium.com/@BlairReeves/elon-musk-is-wrong-we-re-not-going-to-colonize-mars-43e363726ef2>

¹² United Nations Department of Economic and Social Affairs, “World Population Expected to Reach 9.7 Billion By 2050,” July 2015, <http://www.un.org/en/development/desa/news/population/2015-report.html>

internet, smartphones and social media will continue to increase globalization. Our rule of law will have to bend to globalization's will, which will make the global financial services industry, as a whole, more integrated than ever. The EU is a good example of unification and a single market leading toward more regulation (GDPR, MiFID and PSD2, for instance). More regulatory obligations will create more complex compliance risks, which in turn will drive the need for better and more sophisticated technology. Llanos presents another possible scenario: "In 2050, I hope humans have evolved away from political structures that require surveillance and control, and focus on collaboration, safety and well-being, therefore precluding the need to monitor for sanctions and financial crime."

Technology

We all seem to want more from our current data or access to more of it. Knowledge is power. FCC and compliance programs in the future will revolve around collecting, analyzing and utilizing accurate data to make what Nikhil Aggarwal, advisory board member of Amberoon and Regtech provider of advanced AML analytics, calls "proactive decisions to deepen existing client relationships and de-risk and exit identified clients." With time and effort, the optimization tools that already exist will become true AI that learns and predicts behavior to both uncover and prevent financial crimes and drive business, all at the same time. Point being, this technology will be more reliable, efficient and cost-effective than human judgment and capital.

Your future


Technology has and will have a major impact on how our entire society operates and lives. Technology will affect the jobs that we have taken for granted and have seen as inherently human. In addition, automation will change our employment culture and the gig economy will become just as embedded in our way of thinking as being a "company man" was a half-century ago. Change is inevitable and, I believe, inherently good. In

the near future, technology will work alongside the human element and not replace it. But in five to 10 years (and definitely in 50 to 100 years), FCC will see significant and drastic change. Chris Siddons, senior director in Risk Solutions at LexisNexis, says "New technologies will overlay disjointed platforms and consolidate data to enable machine learning and automation to drive efficiencies and limit expenses." Technology will become more accurate, precise and cheaper than human capital.

Technology and automation can still evolve in ways that both replace roles while creating new ones as it has done in all previous industrial revolutions. Education systems and pedagogical philosophy (at least in the U.S.) will have to change to keep future generations and companies competitive. In an article about automation and jobs, Brian Heater says facilitating the process of new technologies creating new jobs will "require some massive investments in education, both on the part of the corporations looking to move valued employees into new roles and an education system preparing workers for the real world."¹³ For now, as automation organically grows, AML and compliance professionals can be in control of their future by being cognizant of technological change, its increasing speed of development and its effect on their requisite skillset.

In conclusion, here are some pointers for preparing yourself for potential change:

- Ask yourself a few questions and embrace the hard truth. Does your current job and profession "fight" technology? Does it work alongside technology? Or, does it involve creating technology? If your answer is yes to the first question, and you are currently waiting for an app or new software to replace you, then you should figure out what to do next. If your answer is yes to the second question, you have to ask yourself if you will be replaceable at some point. And, if you are creating technology, more power to you.

- Stay on top of the trends. What part and role do you play in your FCC/compliance program? What technologies are you using? Are they state-of-the-art or old and obsolete? Do you see downsizing at other institutions of people with your role? Go to ACAMS conferences, seminars and events and network with your peers. Also, never stop learning. You will be blindsided if you think you know everything.
- Be aware of new technologies. Try your best to understand what blockchain is, what cryptocurrencies are, the differences between the two, and how Fintech and Regtech companies are trying to disrupt and enhance the financial services industry. Most importantly, be aware of new technologies before they become mainstream. Sign up for Google Alerts, start reading magazines and websites that focus on the technology industry, and work with your teammates who are analytical and data-oriented. As the authors of *When Two Worlds Collide* emphasize: "This is the future of AML and it is important for AML and law enforcement professionals to keep up-to-date."¹⁴
- Do not worry, embrace change, and focus on skills and abilities. Do not be alarmed by the alarmists. Machine learning and AI tools will not make you obsolete. The human element in FCC, AML and compliance is still too strong. However, when technology grows at such a rapid pace, the best way to beat the fear is to stay active. Learn new computer-oriented and data-driven skills, network, stay ahead of the mainstream, and continue to reflect on where your job, profession and role stand in regards to technological change: Is it in the way or along for the ride? 

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¹³ Brian Heater, "Technology is Killing Jobs, and Only Technology Can Save Them," TechCrunch.com, March 2017, <https://techcrunch.com/2017/03/26/technology-is-killing-jobs-and-only-technology-can-save-them/>

¹⁴ Joseph Mari, Peter Warrack and Leonardo Real, "When Two Worlds Collide," *ACAMS Today*, September-November 2016, <https://www.acamstoday.org/when-two-worlds-collide/>