

Calculating Corporate Compliance & The Foreign Corrupt Practices Act

Brian S. Haney

Abstract

Technology is rapidly disrupting every industry and institution around the globe. Yet, corporate compliance has remained relatively unaffected by technological change when compared to other industries. If firms continue to lag behind in their compliance efforts, their risk exposure to the potentially lethal sanctions associated with major compliance failures will continue to increase with time. This is particularly true in the context of the Foreign Corrupt Practices Act. Generally, the Foreign Corrupt Practices Act (“FCPA”) is a regulatory statute that forbids bribery and false accounting for domestic firms doing business abroad. And, in the past decade the DOJ and SEC have begun aggressively enforcing the FCPA. Firms should begin using technology to develop more robust and cost-efficient compliance programs to insulate themselves from the FCPA’s harsh penalties.

This Article provides an algorithm that allows firms to evaluate and improve their compliance programs in accordance with several published sources of guidance. Compliance scholars have made clear that it is critical for firms to maintain strong corporate compliance programs and have suggested different models and frameworks for internal evaluation and auditing. However, those suggestions fail to consider how technology may be used to improve the cost-efficiency of corporate compliance and ethics programs. This Article takes an informatics-based approach to evaluating and improving firm compliance by focusing on the most important compliance functions according to the Department of Justice (“DOJ”), courts, and other Government actors. Indeed, firms may drastically improve the cost-efficiency of their compliance efforts by adopting the analytical framework proposed in this Article.



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Brian S. Haney*

INTRODUCTION

The Department of Justice (“DOJ”) and Securities Exchange Commission (“SEC”) are aggressively enforcing the Foreign Corrupt Practices Act (“FCPA”) against corporations engaged in international business.¹ The FCPA was signed into law in 1978² and has two main purposes. First, the FCPA’s anti-bribery provisions make it unlawful for certain classes of entities to make payments to foreign government officials to assist in obtaining business.³ Second, the FCPA’s accounting provisions require companies whose securities are listed in the United States to (a) make and keep books and records that accurately and fairly reflect the transactions of the corporation and (b) devise and maintain an adequate system of internal controls.⁴

Interestingly, in the 23-year period from 1978 through 2000, there were only a total of 50 enforcement actions brought under the FCPA.⁵ However, in 2001 prosecutions began skyrocketing.⁶ From 2001 through 2006, there were a total of 63 enforcement actions brought under the statute.⁷ From 2007 through 2017, the trend in enforcement continued to accelerate.⁸ Indeed, during this ten-year period there

* Brian Haney, Esq., J.D. Notre Dame Law School 2018. Thanks to Professor Veronica Root for the mentorship inspiring this Article. Thanks also to Professor John Ross and Professor Kathleen Rice Mosier for the helpful comments and constructive criticisms.

¹ Veronica Root, *The Outsized Influence of the FCPA?*, 2018 ILL. L. REV. (forthcoming 2018) (manuscript at 3), <https://ssrn.com/abstract=3209510>.

² *Id.* at 21.

³ 15 U.S.C.A. § 78dd-1 (West 1998).

⁴ 15 U.S.C.A. § 78m (West 1978).

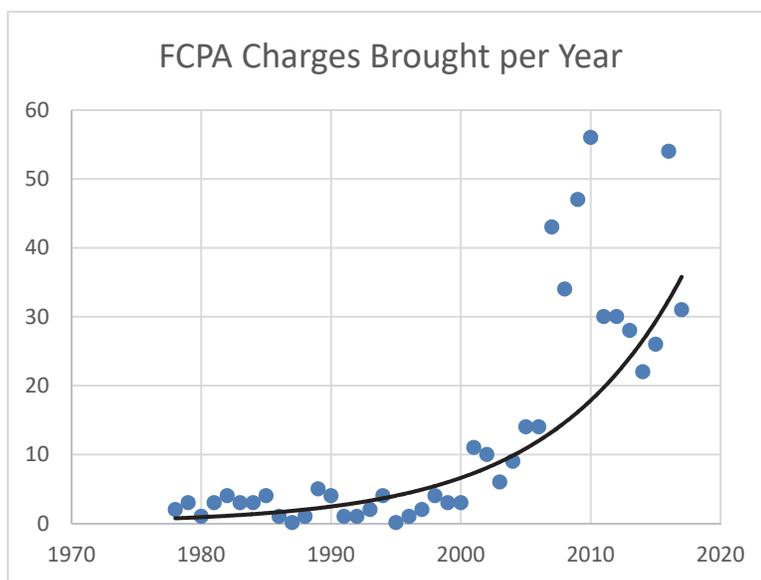
⁵ STAN. L. SCH., *Foreign Corrupt Practices Clearinghouse: A Collaboration with Sullivan & Cromwell, LLP*, <http://fcpa.stanford.edu> (last visited Apr. 22, 2018).

⁶ *Id.*

⁷ *Id.*

⁸ *Id.*

were a total of 405 enforcement actions brought under the statute.⁹ The graph below charts the number of combined prosecutions under the FCPA by the DOJ and SEC:



10

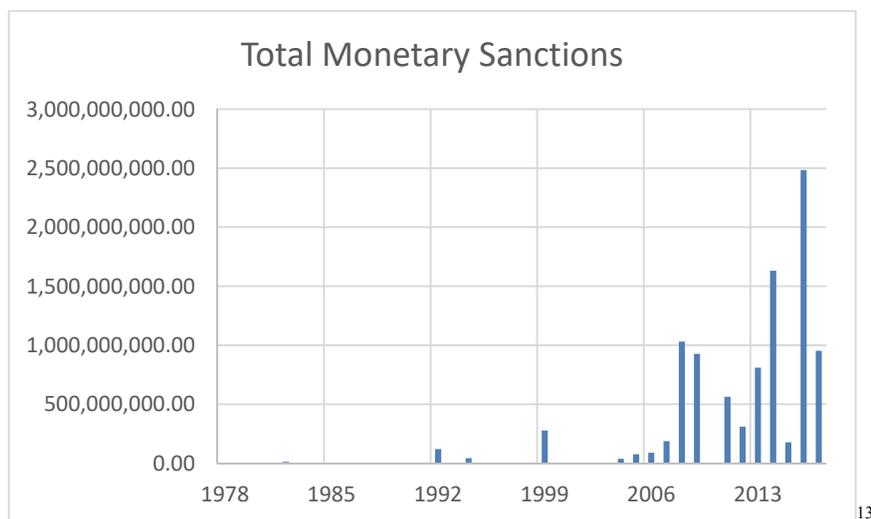
FCPA prosecutions are commonly accompanied by heavy fines. The SEC and DOJ collected roughly \$10 billion in fines under the FCPA from 1978 through 2017.¹¹ Additionally, there have been 94 cases of fines levied in excess of \$10 million dollars against individual violators.¹² The table below graphs the total monetary sanctions imposed on organizations under the FCPA by year in U.S. Dollars; the values are adjusted for inflation:

⁹ *Id.*

¹⁰ Brian S. Haney, *FCPA Clearinghouse* (2018) (the information contained in this chart was prepared by the author with information from Stanford University's FCPA website as a research assistant for Professor Veronica Root) (on file with author). *See also* Appendix A for complete table of FCPA prosecutions by year; *id.*

¹¹ STAN. L. SCH., *supra* note 5.

¹² *Id.*



The total monetary sanctions recovered per year mirrors the DOJ and SEC's pattern of increased enforcement. Indeed, over \$9 billion of the roughly \$10 billion recovered under the 39-year life of the statute was recovered between 2007 and 2017.¹⁴ Both the rate of growth in the number of prosecutions and the total monetary sanctions imposed under the FCPA are trending up at an accelerating rate.¹⁵ As a result of heavy fines and penalties associated with these increased prosecution efforts, companies have been forced to change the way they approach compliance and ethics.¹⁶ Now compliance is king, and its subjects, regulators, prosecutors, courts, and corporations, are quick to tout its power for potential good.¹⁷

The growing importance of FCPA compliance is unsurprising given the emphasis that governmental actors, like the DOJ and SEC, place on the need for institutions to adopt effective compliance programs.¹⁸ Indeed, the DOJ has made

¹³ Inflation rates were calculated using an online inflation calculator. *See Inflation Calculator*, SAVING.ORG, <https://www.saving.org/inflation/> (last visited Apr. 22, 2018). *See also* Brian S. Haney, *FCPA Clearinghouse* (2018) (the information contained in this chart was prepared by the author with information from Stanford University's FCPA website as a research assistant for Professor Veronica Root) (on file with author); *id.*

¹⁴ *Inflation Calculator*, *supra* note 13; STAN. L. SCH., *supra* note 5.

¹⁵ STAN. L. SCH., *supra* note 5.

¹⁶ Root, *supra* note 1 (manuscript at 21).

¹⁷ Veronica Root, *Coordinating Compliance Incentives*, 102 CORNELL L. REV. 1003, 1004 (2017).

¹⁸ Mike Koehler, *The Façade of FCPA Enforcement*, 41 GEO. J. INT'L L. 907, 909 (2010).

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explicitly clear that prosecution of corporate crime is a high priority.¹⁹ And, the DOJ has explained that prosecution of corporate crime is a vital element of protecting the public interest.²⁰ For example, in 2014 the Assistant Attorney General for the Department of Justice’s Criminal Division explained that the work of compliance officials serves to protect the integrity of our public markets, the country’s financial systems, intellectual property, and taxpayer dollars.²¹ Therefore, corporations have begun to focus on strengthening their internal compliance programs.²² To illustrate, in 2014 the President and CEO of Walmart Stores, in the midst of a stunning bribery scandal, discussed the company’s goal to become the model of excellence in global compliance and ethics.²³ Further, the President and CEO of Walmart International explained that “[a]s a global company, we have responsibilities to the countries in which we operate. We earn trust through our commitment to compliance.”²⁴

A corporation engaged in FCPA misconduct can be sure regulators will point to an ineffective compliance program as a cause of misconduct.²⁵ However, developing a robust compliance program poses problems for many firms because, in short, compliance is a complicated, time consuming, and expensive process.²⁶ This Article presents an algorithm firms may use to improve the cost-efficiency of their compliance programs, proceeding in three parts. Part I explores various sources of guidance for evaluating compliance programs. Part II introduces an algorithm firms may use to measure compliance programs quantitatively. Part III explains how the algorithm introduced in Part II can be used by firms to improve the quality and cost-efficiency of their compliance programs.

¹⁹ U.S. DEP’T OF JUSTICE, *United States Attorneys’ Manual 9-28.000 - Principles of Federal Prosecution of Business Organizations*, JUSTICE.GOV, <https://www.justice.gov/usam/usam-9-28000-principles-federal-prosecution-business-organizations> (last visited Apr. 22, 2018).

²⁰ *Id.*

²¹ Leslie R. Caldwell, Assistant Attorney Gen. for the Criminal Div., U.S. Dep’t of Justice, Remarks at the 22nd Annual Ethics and Compliance Conference (Oct. 1, 2014) (transcript available at <http://www.justice.gov/opa/speech/remarks-assistant-attorney-general-criminal-division-leslie-r-caldwell-22nd-annual-ethics>).

²² Beverley Earle & Anita Cava, *The Mystery of Declinations Under the Foreign Corrupt Practices Act: A Proposal to Incentivize Compliance*, 49 U.C. DAVIS L. REV. 567, 571 (2015).

²³ Root, *supra* note 17, at 1005.

²⁴ *Id.*

²⁵ *Id.* at 1003.

²⁶ Tom Butler et al., *Beyond the Hype of AI: A Smart Approach to Unpacking Regulations*, 36 NO. 10 BANKING & FIN. SERVS. POL’Y REP. 1 (Oct. 2017).

I. SOURCES OF GUIDANCE

The Government has made multiple resources available to corporations interested in developing robust compliance programs. First, the DOJ provides guidance on how agency officials evaluate compliance programs in the Evaluation of Corporate Compliance Programs Memo (“DOJ Memo”).²⁷ The DOJ Memo provides a list of eleven factors, known as the Filip Factors, that the DOJ may consider when evaluating corporate compliance programs. The eleven factors are:

- 1) Analysis and Remediation of Underlying Misconduct;
- 2) Senior and Middle Management;
- 3) Autonomy and Resources;
- 4) Policies and Procedures;
- 5) Risk Assessment;
- 6) Training and Communications;
- 7) Confidential Reporting and Investigation;
- 8) Incentives and Disciplinary Measures;
- 9) Continuous Improvement, Periodic Testing and Review;
- 10) Third Party Management; and
- 11) Mergers and Acquisitions.²⁸

The DOJ Memo describes each of the Filip Factors in further detail by listing several questions the DOJ considers under each factor in its overall evaluation of corporate compliance and ethics programs.²⁹ However, the DOJ Memo specifically states that “[b]ecause a corporate compliance program must be evaluated in the specific context of a criminal investigation that triggers the applications of the Filip Factors, the Fraud Section does not use any rigid formula to assess the effectiveness of corporate compliance programs.”³⁰ Therefore, it is important for firms to draw on multiple sources of guidance in constructing their compliance programs.

Second, the Principles of Federal Prosecution of Business Organizations (“Principles of Prosecution”) provide guidance for companies regarding the DOJ’s expectations for corporate compliance programs.³¹ The Principles of Prosecution explain that federal prosecutors should consider “the existence and effectiveness of the corporation’s pre-existing compliance program” when deciding whether to charge a corporation or negotiating a settlement agreement.³² It is important to note that when under investigation by the DOJ, “the existence of a compliance program

²⁷ U.S. DEP’T OF JUSTICE, *Evaluation of Corporate Compliance Programs*, <https://www.justice.gov/criminal-fraud/page/file/937501/download> (2017).

²⁸ *Id.* at 1–7.

²⁹ *Id.*

³⁰ *Id.* at 1.

³¹ U.S. DEP’T OF JUSTICE, *supra* note 19.

³² *Id.* § 9-28.300.

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is not sufficient to justify not charging a corporation for criminal conduct.”³³ However, prosecutors and courts consider the existence of such programs in determining whether the employee engaged in misconduct acted in accordance with the will of the firm or independently.³⁴ Therefore, firms are able to insulate themselves from potential lethal liability under the FCPA by implementing and maintaining effective compliance programs.³⁵

Further, the Principles of Prosecution provide detailed guidance on what constitutes an effective compliance program.³⁶ The Principles of Prosecution state that two critical factors in evaluating compliance programs are 1) whether the program is designed to maximize effectiveness in preventing and detecting wrongdoing by employees; and 2) whether corporate management is enforcing the program or pressuring employees to engage in misconduct to achieve business objectives.³⁷ Additionally, prosecutors will consider the design of the compliance program, whether the program is maintained in good faith, and the comprehensiveness and effectiveness of the compliance program when making prosecution and settlement decisions.³⁸ Therefore, one important task for prosecutors is to determine whether a corporation’s compliance program is merely a “paper program.”³⁹ As a result, firms must make sure that their policies and procedures accurately describe the way in which their employees behave. And, it is critical compliance officials work with employees when writing policies and procedures to ensure organizational policies and procedures are well understood and followed.

A third source of guidance for compliance programs is the United States Sentencing Guidelines for Organizations (“Sentencing Guidelines”), which are applied by prosecutors when sentencing organizations.⁴⁰ The Sentencing Guidelines specifically state that “the existence of an effective compliance and ethics program” is a factor that will mitigate the ultimate punishment of a defendant.⁴¹ In defining an

³³ *Id.* § 0-28.800.

³⁴ *United States v. Beusch*, 596 F.2d 871, 878 (9th Cir. 1979).

³⁵ Drury D. Stevenson & Nicholas J. Wagoner, *FCPA Sanctions: Too Big to Debar*, 80 *FORDHAM L. REV.* 775, 806 (2011).

³⁶ U.S. DEP’T OF JUSTICE, *supra* note 19.

³⁷ *Id.* § 9-28.800.

³⁸ *Id.*

³⁹ *Id.*

⁴⁰ U.S. SENTENCING COMM’N, *Sentencing of Organizations*, (2015), <https://www.ussc.gov/guidelines/2015-guidelines-manual/2015-chapter-8>.

⁴¹ *Id.*

“effective compliance program” the Sentencing Guidelines place an emphasis on the exercise of due diligence and the promotion of an ethical organizational culture.⁴² This emphasis is critical because a company’s compliance program is deeply interwoven with company culture.⁴³

Further, the Sentencing Guidelines detail seven requirements of an effective compliance program.⁴⁴ First, organizations should establish standards and procedures to prevent and detect criminal conduct.⁴⁵ Second, a company’s senior management personnel should be knowledgeable about the company’s compliance issues and should put mechanisms in place to ensure the company develops its’ culture with an appreciation for the value of ethical conduct.⁴⁶ Third, companies should exercise proper screening and due diligence in their hiring practices, especially for management positions.⁴⁷ Fourth, organizations must effectively and practically communicate to their employees the standards and procedures established by the company.⁴⁸ Fifth, compliance programs must ensure that their compliance and ethics standards and procedures are followed.⁴⁹ This may be accomplished through various means including monitoring and auditing to prevent and detect criminal misconduct.⁵⁰ Sixth, companies should ensure that their compliance and ethics programs are enforced consistently throughout the organization.⁵¹ This includes proper incentives for compliant performance and disciplinary measures for compliance failures.⁵² Lastly, organizations must have remedial measures in place for compliance failures that occur.⁵³

An additional source of guidance for evaluating compliance programs is information provided in FCPA settlement and plea agreements between alleged

⁴² *Id.*

⁴³ Brian S. Haney, *Ethics Pitfalls in Mergers, Acquisitions*, NAT’L DEF. MAG. (June 13, 2017), <http://www.nationaldefensemagazine.org/articles/2017/6/13/ethic-pitfalls-in-mergers-acquisitions>.

⁴⁴ U.S. SENTENCING COMM’N, *supra* note 40.

⁴⁵ *Id.*

⁴⁶ *Id.*

⁴⁷ *Id.*

⁴⁸ *Id.*

⁴⁹ *Id.*

⁵⁰ *Id.*; see also Veronica Root, *The Compliance Process*, 94 IND. L.J. (forthcoming 2018).

⁵¹ U.S. SENTENCING COMM’N, *supra* note 40.

⁵² *Id.*

⁵³ *Id.*

corporate wrongdoers and the DOJ or SEC. For instance, in 2012 Pfizer H.C.P. Corporation (“Pfizer”) entered into a Deferred Prosecution Agreement (“DPA”) with the DOJ for violating the FCPA.⁵⁴ Pfizer made numerous improper payments to government officials in Bulgaria, Croatia, Kazakhstan, and Russia.⁵⁵ Pfizer made these payments to improperly influence government decisions regarding the approval and regulation of Pfizer pharmaceutical products.⁵⁶ In sum, Pfizer paid more than \$2 million in fines and reaped more than \$7 million in profits as a result of its bribes.⁵⁷ However, these improper payments resulted in a \$15 million dollar fine levied against Pfizer.⁵⁸ Pfizer’s DPA required a complete overhaul of the company’s FCPA compliance program and included nine specific minimum elements:

1. A clearly articulated corporate policy against violations of the FCPA.
2. Promulgation of compliance standards and procedures designed to reduce the prospect of violations of the FCPA.
3. The assignment of a senior executive to be responsible for the implementation of the new compliance program.
4. Implementation of mechanisms designed to ensure that the policies and procedures of the new program are clearly communicated to employees.
5. The creation of an effective reporting system for suspected compliance failures or criminal conduct.
6. The application of appropriate disciplinary procedures to address FCPA compliance violations.
7. The implementation of proper due diligence policies for Pfizer’s business partners.
8. The implementation of standard contractual terms in all agreements designed to protect against violations of the FCPA.

⁵⁴ Deferred Prosecution Agreement, *United States v. Pfizer H.C.P.*, No. 1:12CR00169 (D.D.C. Aug. 7, 2012).

⁵⁵ STAN. L. SCH., *Case Information*, *United State v. Pfizer H.C.P.*, FOREIGN CORRUPT PRACTICES CLEARINGHOUSE: A COLLABORATION WITH SULLIVAN & CROMWELL, LLP, <http://fcpa.stanford.edu/enforcement-action.html?id=429> (last visited Apr. 22, 2018).

⁵⁶ *Id.*

⁵⁷ *Id.*

⁵⁸ *Id.*

9. Periodic testing of the new compliance program.⁵⁹

Another example of a settlement agreement which provides guidance for compliance programs is the guilty plea agreement between BAE Systems (“BAE”) and the DOJ. In 2010, BAE pleaded guilty to making false statements regarding its FCPA program.⁶⁰ BAE’s misconduct began in 2000, when BAE engaged in significant expansion into the United States market.⁶¹ As part of that expansion, BAE represented to the Department of Defense (“DOD”) and DOJ that it would create a compliance program to ensure that its domestic and international business operations would conform to the anti-bribery provisions of the FCPA.⁶² Yet, in 2002 rumors began circulating that BAE had been awarded contracts for fighter jets with several Eastern European countries through bribing public officials.⁶³ As a result of these rumors, the DOD asked for BAE’s assurance that BAE had complied with the FCPA anti-bribery provisions in procuring the awards.⁶⁴ In response, BAE stated that it had reformed its business practices and implemented sufficient mechanisms to ensure that all of its businesses were operating in compliance with the anti-bribery provisions of the FCPA.⁶⁵ However, this was false.⁶⁶

BAE’s guilty plea agreement imposed a \$400,000,400 fine against BAE, one of the largest fines ever levied under the FCPA.⁶⁷ BAE’s plea agreement with the DOJ required BAE to implement and maintain a compliance program that includes a system of internal accounting controls designed to ensure BAE makes and keeps fair and accurate books, records, and accounts; a rigorous anti-corruption compliance code; and standards and procedures designed to detect and deter violations of the

⁵⁹ Deferred Prosecution Agreement, *supra* note 54.

⁶⁰ Press Release, U.S. DEP’T OF JUSTICE, OFF. OF PUB. AFF., *BAE Systems PLC Pleads Guilty and Ordered to Pay \$400 Million Criminal Fine* (Mar. 1, 2010), <https://www.justice.gov/criminal-fraud/case/united-states-v-bae-systems-plc-court-docket-number-10-cr-035-jdb>. See also Trial Motion, Memorandum and Affidavit, *United States of America v. BAE Systems PLC*, No. 1:10CR035 (D.D.C. Feb. 22, 2010).

⁶¹ Trial Motion, Memorandum and Affidavit, *supra* note 60.

⁶² *Id.*

⁶³ STAN. L. SCH., *Case Information*, *United States of America v. BAE Systems PLC*, FOREIGN CORRUPT PRACTICES CLEARINGHOUSE: A COLLABORATION WITH SULLIVAN & CROMWELL, LLP, <http://fcpa.stanford.edu/enforcement-action.html?id=295> (last visited Apr. 22, 2018).

⁶⁴ Trial Motion, Memorandum and Affidavit, *supra* note 60.

⁶⁵ Press Release, U.S. DEP’T OF JUSTICE, OFF. OF PUB. AFF., *supra* note 60.

⁶⁶ Trial Motion, Memorandum and Affidavit, *supra* note 60.

⁶⁷ *Id.*

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FCPA and other applicable anti-corruption laws.⁶⁸ Further, BAE agreed to secure the services of an independent monitor of the program for a three-year period to ensure the effective implementation of the compliance program.⁶⁹ According to the plea agreement, the monitor's primary responsibility is to assess and monitor BAE's compliance with the terms of the plea agreement and specifically reduce the risk of any recurrence of BAE's misconduct, including an evaluation of BAE's FCPA compliance.⁷⁰

The United States Attorneys Manual Insert on FCPA Corporate Enforcement Policy ("Enforcement Policy") is a fifth source of guidance for FCPA compliance programs.⁷¹ The Enforcement Policy is aimed at providing additional benefits to companies based upon their behavior after discovering misconduct.⁷² Indeed, if a company behaves in accordance with the Enforcement Policy following the discovery of a compliance failure, the DOJ will recommend a 50% reduction off the low end of the U.S. Sentencing Guidelines fine range, with limited exception.⁷³ The Enforcement Policy requires that companies implement an effective compliance and ethics program to receive the benefits of the Enforcement Policy.⁷⁴ Further, the Enforcement Policy defines several criteria to illustrate the properties of an effective compliance program.⁷⁵ These criteria include: employee awareness of company compliance policies and procedures, the dedication of adequate resources to compliance, the quality and experience of compliance personnel, the authority and independence of the company's compliance function, auditing of the company's compliance function; appropriate disciplinary procedures for compliance failures, appropriate retention of business records, and any additional steps to demonstrate a company's commitment to promoting and maintaining a culture of respect for compliance and ethics.⁷⁶

These five sources of guidance may be used by firms to inform decision making when developing a corporate compliance and ethics program. Further, by drawing

⁶⁸ Letter from U.S. Dep't of Justice Criminal Div., Fraud Section, to Lawrence Byrne, Esq., Counsel for BAE Systems PLC (Feb. 4, 2010), <https://www.justice.gov/sites/default/files/criminal-fraud/legacy/2011/02/16/03-01-10baesystems-plea-agree.pdf>.

⁶⁹ Trial Motion, Memorandum and Affidavit, *supra* note 60.

⁷⁰ *Id.*

⁷¹ U.S. DEP'T OF JUSTICE, FCPA CORP. ENFORCEMENT POL'Y, U.S. ATT'YS' MANUAL INSERT 9-47.120 (2017).

⁷² *Id.*

⁷³ *Id.*

⁷⁴ *Id.*

⁷⁵ *Id.*

⁷⁶ *Id.*

on multiple sources of guidance, firms can develop robust compliance programs tailored to their individual needs. Indeed, firms can proactively insulate themselves from the liability risks associated with compliance failure in a cost-efficient manner by focusing on the criteria analyzed by the DOJ, SEC, federal prosecutors, and courts in developing and maintaining their compliance and ethics programs.

II. QUALITY MEASUREMENT ALGORITHM

Part I of this Article explored five sources of guidance for measuring the quality and effectiveness of a compliance program. Part II consolidates the information from the five sources of guidance in Part I to develop an algorithm for the measurement of compliance program quality.

Quality Metrics

Quality metrics are measurement tools that enable subjective quality assessment to be measured within a formalized framework.⁷⁷ In this context quality is not a single idea, but rather a multidimensional concept, which includes an entity and the measurable quality factors of that entity.⁷⁸ And, the ability to measure quality is critical to the modernization of in-house legal departments, compliance departments, and law firms because it facilitates the improvement of efficiency and performance.⁷⁹ Further, quality metrics present a framework that facilitates a more direct mapping of the reasons behind expert analysis.⁸⁰ Indeed, quality metrics seek to uncover the reasons for expert scores and model them accordingly.⁸¹

Several quality factors are important and must be combined to develop an overall quality assessment for a particular entity when measuring quality in any given situation.⁸² Additionally, quality metric analysis allows for the discovery of strengths and weaknesses at both the macro and component level.⁸³ However, quality metrics must do three things to be effective. First, quality metrics must be practical and

⁷⁷ Ron Dolin, *Measuring Legal Quality* (June 18, 2017) (unpublished), <https://ssrn.com/abstract=2988647>.

⁷⁸ STEPHEN H. KAHN, *METRICS AND MODELS IN SOFTWARE QUALITY ENGINEERING 1* (2d ed. 2002).

⁷⁹ See generally RICHARD SUSSKIND, *TOMORROW'S LAWYERS 83* (Oxford Univ. Press 2d ed. 2017).

⁸⁰ Dolin, *supra* note 77.

⁸¹ *Id.*

⁸² *Id.*

⁸³ KAHN, *supra* note 78.

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implementable to the parties expected to produce them.⁸⁴ Second, quality metrics must be objective, transparent, mathematical measurements.⁸⁵ Third, quality metrics must correlate to the consumer's subjective interpretation of quality.⁸⁶ Ultimately, the main objective of implementing quality assessment metrics is to develop measures that are consistent with subjective evaluation.⁸⁷

The goal of a compliance program evaluation is to assess the quality of the compliance program and to identify areas of improvement to prevent future misconduct.⁸⁸ However, this task is difficult without a proper framework for evaluation. Organizations and agencies will be able to evaluate compliance programs in a more cost-efficient manner by establishing a standard set of compliance program quality metrics.⁸⁹ Hence, once a set of compliance quality factors are defined, a human indexer may then evaluate each of the factors independently based on her professional experience.⁹⁰ Scoring mechanisms may then be put in place to mathematically model and calculate the quality of a compliance program. The compliance program evaluation process is describable algorithmically, simplifying and standardizing the evaluation process.

Algorithm for Compliance Program Evaluation

Generally, an algorithm is a sequence of instructions executed to transform some input of information to an output of information.⁹¹ In the context of compliance program evaluation, the goal of quality measurement algorithms is to define input criteria as objectively as possible, and to transform that input information into a useful output informing human decision makers in their evaluation processes. This part of the Article draws on the sources of guidance in Part I, as well as the basic principles of quality metrics to present an algorithm for the evaluation of corporate compliance programs.

⁸⁴ Dolin, *supra* note 77.

⁸⁵ *Id.*

⁸⁶ *Id.*

⁸⁷ *Id.*

⁸⁸ See generally Veronica Root, *Modern-Day Monitorships*, 33 YALE J. ON REG. 109 (2016).

⁸⁹ Dolin, *supra* note 77.

⁹⁰ James D. Anderson & José Pérez-Carballo, *The Nature of Indexing: How Humans and Machines Analyze Messages and Texts for Retrieval. Part I: Research, and the Nature of Human Indexing*, 37 INFO. PROCESSING & MGMT. 231, 254 (2001).

⁹¹ ETHEM ALPAYDIN, *MACHINE LEARNING: THE NEW AI 16* (MIT Press 2016).

The first step in the algorithm is selecting the relevant evaluation factors.⁹² The table below includes nine factors that should be considered in evaluating corporate compliance programs:

Evaluation Factors	Remediation of Underlying Conduct	Senior and Middle Management	Autonomy and Resources	Training and Communications
Reporting and Investigation	Incentives and Disciplinary Measures	Improvement, Testing, and Review	Third Party Management	Bribery and Accounting

These nine factors are largely derived from the Filip Factors outline in the DOJ memo.⁹³

The second step is weighting the defined evaluation factors based on their relative importance.⁹⁴ Indeed, each evaluation factor may not be considered equal in an overall evaluation of a compliance program. So, each factor may be raised to an exponent greater than or equal to one to represent its relative importance among the other evaluation factors. For example, suppose Senior and Middle Management and Third Party Management are particularly important in a specific evaluation. In that case, those important factors should be weighted to an exponent of 2, while the other factors are raised to an exponent of 1. The table below illustrates the hypothetical weighting of the nine defined factors that should be considered in evaluating corporate compliance programs:

Evaluation Factors	Remediation of Underlying Conduct ¹	Senior and Middle Management ²	Autonomy and Resources ¹	Training and Communications ¹
Reporting and Investigation ¹	Incentives and Disciplinary Measures ¹	Improvement Testing, and Review ¹	Third Party Management	Bribery and Accounting ¹

The third step is developing a normalized scoring system.⁹⁵ The goal of the scoring system is to score each evaluation factor independently.⁹⁶ This allows for a compliance program to be analyzed at the component level.⁹⁷ Each evaluation factor

⁹² Dolin, *supra* note 77.

⁹³ U.S. DEP'T OF JUSTICE, *supra* note 19.

⁹⁴ *Id.*

⁹⁵ Dolin, *supra* note 77.

⁹⁶ *Id.*

⁹⁷ *Id.*

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should be scored in terms of the number of evaluation factor criteria the compliance program satisfies. The evaluation factor criteria must be measurable and may be reflective of tangible qualities. The table below draws upon the sources of guidance described in Part I and includes a list of five evaluation factor criteria for each evaluation factor to measure compliance programs:

Evaluation Factor	Evaluation Factor Criteria
Remediation of Underlying Conduct	<ol style="list-style-type: none"> <li data-bbox="824 569 1242 730">1. The company has written procedures to identify and analyze the root cause of misconduct when it occurs; and the company has demonstrated that it follows those procedures.⁹⁸ <li data-bbox="824 743 1242 905">2. The company has written procedures to identify and analyze systematic compliance issues; and the company has demonstrated that it follows those procedures.⁹⁹ <li data-bbox="824 917 1242 1121">3. The company has written procedures to determine who in the company is involved root cause analysis for compliance issues; and the company has demonstrated that it follows those procedures.¹⁰⁰ <li data-bbox="824 1134 1242 1295">4. The company has written procedures to detect and address allegations of misconduct; and the company has demonstrated that it follows those procedures.¹⁰¹ <li data-bbox="824 1308 1242 1512">5. The company has written procedures that require specific changes be made to reduce the risk of similar misconduct after misconduct occurs; and the company has demonstrated that it follows those procedures.¹⁰²

⁹⁸ U.S. ATT'YS' MANUAL INSERT, *supra* note 71.

⁹⁹ U.S. DEP'T OF JUSTICE, *supra* note 27.

¹⁰⁰ U.S. ATT'YS' MANUAL INSERT, *supra* note 71.

¹⁰¹ U.S. SENTENCING COMM'N, *supra* note 40.

¹⁰² U.S. DEP'T OF JUSTICE, *supra* note 27.

Evaluation Factor	Evaluation Factor Criteria
Senior and Middle Management	<ol style="list-style-type: none"> <li data-bbox="824 411 1248 604">1. The company has written procedures that require action to educate senior and middle management on company policies and procedures; and the company has demonstrated it follows those procedures.¹⁰³ <li data-bbox="824 625 1248 785">2. The company has written procedures that mandate board review of relevant information of misconduct; and the company has demonstrated it follows those procedures.¹⁰⁴ <li data-bbox="824 806 1248 1033">3. The company has written procedures that provide incentive for senior management to provide leadership to engage in model behaviors in compliance; and the company has demonstrated it follows those procedures.¹⁰⁵ <li data-bbox="824 1054 1248 1247">4. The company has written procedures that provide for specific actions by senior management that demonstrate a commitment to compliance; and the company has demonstrated it follows those procedures.¹⁰⁶ <li data-bbox="824 1268 1248 1493">5. The company has written procedures that require meetings between compliance professionals, senior management, and the board on a quarterly basis; and the company has demonstrated it follows those procedures.¹⁰⁷

¹⁰³ U.S. SENTENCING COMM'N, *supra* note 40.

¹⁰⁴ U.S. DEP'T OF JUSTICE, *supra* note 27.

¹⁰⁵ U.S. DEP'T OF JUSTICE, *supra* note 19.

¹⁰⁶ U.S. SENTENCING COMM'N, *supra* note 40.

¹⁰⁷ U.S. DEP'T OF JUSTICE, *supra* note 27.

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Evaluation Factor	Evaluation Factor Criteria
Autonomy and Resources	<ol style="list-style-type: none"> <li data-bbox="824 380 1242 611">1. The company has written procedures that require the maintenance of a comprehensive compliance program and training for all potential misconduct; and the company has demonstrated it follows those procedures.¹⁰⁸ <li data-bbox="824 625 1242 821">2. The company has written procedures that require due diligence investigation prior to the hiring of new employees; and the company has demonstrated it follows those procedures.¹⁰⁹ <li data-bbox="824 835 1242 999">3. The company has written procedures for when to outsource compliance functions to an external firm; and the company has demonstrated it follows those procedures.¹¹⁰ <li data-bbox="824 1014 1242 1209">4. The company has written procedures to ensure that compliance personnel have the appropriate experience and qualifications for their roles; and the company has demonstrated it follows those procedures.¹¹¹ <li data-bbox="824 1224 1242 1356">5. The company has written procedures that discourage prohibited conduct; and the company has demonstrated it follows those procedures.¹¹²

¹⁰⁸ *Id.*

¹⁰⁹ U.S. SENTENCING COMM'N, *supra* note 40.

¹¹⁰ U.S. DEP'T OF JUSTICE, *supra* note 27.

¹¹¹ U.S. ATT'YS' MANUAL INSERT, *supra* note 71.

¹¹² U.S. DEP'T OF JUSTICE, *supra* note 19.

Evaluation Factor	Evaluation Factor Criteria
Training and Communications	<ol style="list-style-type: none"> <li data-bbox="824 380 1242 541">1. The company has written procedures to train employees in relevant control and compliance functions annually; and the company has demonstrated it follows those procedures.¹¹³ <li data-bbox="824 558 1242 720">2. The company has written procedures to measure the effectiveness of compliance functions annually; and the company has demonstrated it follows those procedures.¹¹⁴ <li data-bbox="824 737 1242 932">3. The company has written procedures to make company policies and procedures readily available to employees; and the company has demonstrated it follows those procedures.¹¹⁵ <li data-bbox="824 949 1242 1110">4. The company has written procedures for communications with terminated employees; and the company has demonstrated it follows those procedures.¹¹⁶ <li data-bbox="824 1127 1242 1289">5. The company has written procedures to conduct employee specific analysis and training; and the company has demonstrated it follows those procedures.¹¹⁷

¹¹³ *Id.*

¹¹⁴ *Id.*

¹¹⁵ U.S. DEP'T OF JUSTICE, *supra* note 27.

¹¹⁶ *Id.*

¹¹⁷ *Id.*

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Evaluation Factor	Evaluation Factor Criteria
Reporting and Investigation	<ol style="list-style-type: none"> <li data-bbox="824 380 1242 541">1. The company has written procedures to handle information obtained through reporting mechanisms; and the company has demonstrated it follows those procedures.¹¹⁸ <li data-bbox="824 558 1242 720">2. The company has written procedures regarding the assessment of the severity of different allegations; and the company has demonstrated it follows those procedures.¹¹⁹ <li data-bbox="824 737 1242 961">3. The company has written procedures that ensure that investigations are independent, properly scoped, objective, properly documented, and appropriately conducted; and the company has demonstrated it follows those procedures.¹²⁰ <li data-bbox="824 978 1242 1182">4. The company has written procedures for responding to investigative findings that go all the way up to senior management and board; and the company has demonstrated it follows those procedures.¹²¹ <li data-bbox="824 1199 1242 1394">5. The company has written procedures to allow the compliance function full access to information involved in the reporting and investigatory process; and the company has demonstrated it follows those procedures.¹²²

¹¹⁸ U.S. ATT'YS' MANUAL INSERT, *supra* note 71.

¹¹⁹ U.S. DEP'T OF JUSTICE, *supra* note 27.

¹²⁰ *Id.*

¹²¹ *Id.*

¹²² *Id.*

Evaluation Factor	Evaluation Factor Criteria
Incentives and Disciplinary Measures	<ol style="list-style-type: none"> <li data-bbox="824 380 1242 575">1. The company has written procedures for disciplinary actions that the company takes in response to compliance violations; and the company has demonstrated it follows those procedures.¹²³ <li data-bbox="824 590 1242 751">2. The company has written procedures that incentivize compliant and ethical behavior; and the company has demonstrated it follows those procedures.¹²⁴ <li data-bbox="824 766 1242 968">3. The company has written procedures that hold managers accountable for misconduct that happens under their supervision; and the company has demonstrated it follows those procedures.¹²⁵ <li data-bbox="824 982 1242 1184">4. The company has written procedures that require the fair and consistent application of disciplinary procedures; and the company has demonstrated it follows those procedures.¹²⁶ <li data-bbox="824 1199 1242 1356">5. The company has written procedures that strictly discipline repeat offenders; and the company has demonstrated it follows those procedures.¹²⁷

¹²³ *Id.*

¹²⁴ *Id.*

¹²⁵ *Id.*

¹²⁶ *Id.*

¹²⁷ U.S. ATT'YS' MANUAL INSERT, *supra* note 71.

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Evaluation Factor	Evaluation Factor Criteria
Improvement, Testing, and Review	<ol style="list-style-type: none"> <li data-bbox="824 380 1242 541">1. The company has written procedures to collect and analyze compliance data; and the company has demonstrated it follows those procedures.¹²⁸ <li data-bbox="824 558 1242 720">2. The company has written procedures to audit procedures to identify and prevent misconduct; and the company has demonstrated it follows those procedures.¹²⁹ <li data-bbox="824 737 1242 932">3. The company has written procedures that require the review and amendment of compliance policies and procedures on an annual basis; and the company has demonstrated it follows those procedures.¹³⁰ <li data-bbox="824 949 1242 1110">4. The company has written procedures for the board and management to follow up on audit results; and the company has demonstrated it follows those procedures.¹³¹ <li data-bbox="824 1127 1242 1289">5. The company has written procedures to audit high-risk areas on a regular basis; and the company has demonstrated it follows those procedures.¹³²

¹²⁸ U.S. DEP'T OF JUSTICE, *supra* note 27.

¹²⁹ U.S. ATT'YS' MANUAL INSERT, *supra* note 71.

¹³⁰ U.S. DEP'T OF JUSTICE, *supra* note 27.

¹³¹ U.S. DEP'T OF JUSTICE, *supra* note 19.

¹³² U.S. DEP'T OF JUSTICE, *supra* note 27.

Evaluation Factor	Evaluation Factor Criteria
Third Party Management	<ol style="list-style-type: none"> <li data-bbox="824 380 1237 541">1. The company has written procedures for merger and acquisition due diligence; and the company has demonstrated it follows those procedures.¹³³ <li data-bbox="824 558 1237 720">2. The company has written procedures that incentivize third parties to behave ethically; and the company has demonstrated it follows those procedures.¹³⁴ <li data-bbox="824 737 1237 932">3. The company has written procedures to identify and resolve red flags found in due diligence research of third parties; and the company has demonstrated it follows those procedures.¹³⁵ <li data-bbox="824 949 1237 1144">4. The company has written procedures to suspend, terminate, or audit third parties as a result of compliance failures; and the company has demonstrated it follows those procedures.¹³⁶ <li data-bbox="824 1161 1237 1356">5. The company has written procedures for training relationship managers about compliance risks and compliance risk management; and the company has demonstrated it follows those procedures.¹³⁷

¹³³ *Id.*

¹³⁴ Deferred Prosecution Agreement, *United States v. Pfizer H.C.P.*, No. 1:12CR00169 (D.D.C. Aug. 7, 2012).

¹³⁵ U.S. DEP'T OF JUSTICE, *supra* note 27.

¹³⁶ U.S. DEP'T OF JUSTICE, *supra* note 19.

¹³⁷ U.S. DEP'T OF JUSTICE, *supra* note 27.

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Evaluation Factor	Evaluation Factor Criteria
Bribery and Accounting	<ol style="list-style-type: none"> <li data-bbox="824 380 1242 541">1. The company has written procedures that ensure that contract payment terms are appropriate; and the company has demonstrated it follows those procedures.¹³⁸ <li data-bbox="824 558 1242 758">2. The company has written procedures to ensure that compensation is commensurate with the services rendered; and the company has demonstrated it follows those procedures.¹³⁹ <li data-bbox="824 774 1242 974">3. The company has written procedures that ensure that contract terms specifically describe the services to be performed; and the company has demonstrated it follows those procedures.¹⁴⁰ <li data-bbox="824 991 1242 1190">4. The company has written procedures to ensure that books and records accurately and fairly reflect the transactions of the corporation; and the company has demonstrated it follows those procedures.¹⁴¹ <li data-bbox="824 1207 1242 1394">5. The company has written procedures to devise and maintain an adequate system of internal accounting controls; and the company has demonstrated it follows those procedures.¹⁴²

¹³⁸ *Id.*

¹³⁹ 15 U.S.C.A. § 78dd-1 (West 1998).

¹⁴⁰ U.S. DEP'T OF JUSTICE, *supra* note 19.

¹⁴¹ 15 U.S.C.A. § 78m (West 1978).

¹⁴² Trial Motion, Memorandum and Affidavit, *supra* note 60.

This table is meant to be illustrative and may be adapted, updated, or changed before implementation.

The fourth step in the algorithm is for a human indexer to gather and record evaluation information for each of the evaluation factors.¹⁴³ To do this, the human indexer must score each evaluation factor based upon the number of evaluation factor criteria an organization's compliance program satisfies. The table below illustrates hypothetical results for the Remediation of Underlying Conduct evaluation factor:

Remediation of Underlying Conduct	Satisfied (Yes = 1 and No = 0)
1. The company has written procedures to identify and analyze the root cause of misconduct when it occurs; and the company has demonstrated it follows those procedures.	1
2. The company has written procedures to identify and analyze systematic compliance issues; and the company has demonstrated it follows those procedures.	1
3. The company has written procedures to determine who in the company is involved root cause analysis for compliance issues; and the company has demonstrated it follows those procedures.	0
4. The company has written procedures to detect and address allegations of misconduct; and the company has demonstrated it follows those procedures.	1
5. The company has written procedures that require specific changes be made to reduce the risk of similar misconduct after misconduct occurs; and the company has demonstrated it follows those procedures.	1

¹⁴³ Dolin, *supra* note 77.

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Each evaluation factor may then be given a score calculated by dividing the number of satisfied evaluation factor criteria by the total number of evaluation factor criteria. So, in the hypothetical above, the Remediation of Underlying Conduct evaluation factor would receive a score of .800; calculated as 4, the number of satisfied evaluation factor criteria, divided by 5, the total number of evaluation factor criteria.

Calculating a weighted geometric mean for the compliance program is the fifth step.¹⁴⁴ The weighted geometric mean allows the algorithm to produce an overall score that when measured on a relative basis, is well suited to capture human intuition in quality analysis.¹⁴⁵ The weighted geometric mean represents an overall evaluation of a company's compliance program in a numerical score from zero to one.¹⁴⁶ The weighted geometric mean calculation can be described formally with the equation:¹⁴⁷

$$C = \sqrt[\sum_{j=1}^n w_j]{\prod_{i=1}^n F_i^{w_i}}$$

In the above equation C is the overall compliance score. Additionally, n represents the number of evaluation factors, F_i , and W_i , is the per factor weight.¹⁴⁸ The square root is a summation equation designed to calculate the total weight for all of the factors. In other words, the equation above represents a mathematically formalistic way of expressing that the product of all the weighted factors is calculated and is then squared to the n^{th} root, where n is the sum of the exponents of all the factors.¹⁴⁹ For illustrative purposes the table below includes hypothetical scores for a compliance program:

Evaluation Factor	Score
Remediation of Underlying Conduct	.800 ¹
Senior and Middle Management	.600 ²
Autonomy and Resources	.400 ¹
Training and Communications	1 ¹
Reporting and Investigation	1 ¹

¹⁴⁴ *Id.*

¹⁴⁵ *Id.*

¹⁴⁶ *Id.*

¹⁴⁷ *Id.*

¹⁴⁸ *Id.*

¹⁴⁹ *Id.*

Evaluation Factor	Score
Incentives and Disciplinary Measures	.800 ¹
Improvement, Testing and Review	.200 ¹
Third Party Management	.800 ²
Bribery and Accounting	1 ¹

Using the information in the table above, the company's compliance score could be calculated in the following way:

$$C = (.8 \times .6 \times .6 \times .4 \times 1 \times 1 \times .8 \times .2 \times .8 \times .8 \times 1)^{\frac{1}{11}}$$

So, in this example the company's overall compliance score is .668. Practically applied, the closer a compliance score is to 1, the better the quality of the compliance program. Conversely, the closer the compliance score is to 0, the lower the quality of the compliance program. For example, a compliance program with a score of .808 is of better quality than a compliance program with a score of .556.

Properties

The algorithm uses the weighted geometric mean to calculate the compliance score as opposed to an arithmetic mean, coefficient variables, addition, or another method of score determination due the geometric mean's properties.¹⁵⁰ The algorithm includes seven distinct properties as a result of the weighted geometric mean calculation.¹⁵¹ These properties are designed to reflect properties of human intuition in decision making.¹⁵² The first property that the algorithm includes is an ordered ranking that balances trade-offs between various criteria.¹⁵³ Next is the property that the algorithm is heterogeneous because it is able to accommodate and combine different types of data.¹⁵⁴ The third property that the algorithm includes is a filter property; which means that if any evaluation factor receives a score of zero, the total score is zero.¹⁵⁵ The filter property allows for the identification of unacceptable compliance for any one evaluation factor. Normalized scoring is the

¹⁵⁰ *Id.*

¹⁵¹ Larry Hardesty, *System That Replaces Human Intuition with Algorithms Outperforms Human Teams* (Oct. 16, 2015), <http://news.mit.edu/2015/automating-big-data-analysis-1016>.

¹⁵² Dolin, *supra* note 77.

¹⁵³ *Id.*

¹⁵⁴ See generally RAY KURZWEIL, *HOW TO CREATE A MIND* 131 (2012).

¹⁵⁵ Dolin, *supra* note 77.

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fourth property that the algorithm includes.¹⁵⁶ In other words, all factors are assigned a normalized score between 0 and 1.¹⁵⁷ Fifth, the algorithm includes a hierarchy property.¹⁵⁸ Hierarchical scoring allows sub-scores to be derived and treated as atomic scores, or for atomic scores to be decomposed into smaller elements without impacting the way the characteristic is used.¹⁵⁹ The sixth property that the algorithm includes is a linear diagonal.¹⁶⁰ The linear diagonal allows any two factors relationship to be graphed along a diagonal of a plot.¹⁶¹ Finally, the seventh property that the algorithm includes is weightability, meaning it can account for the relative importance of each factor of consideration.¹⁶² In sum, these seven properties allow for the algorithm to model human intuition in quality analysis.¹⁶³

III. ORGANIZATIONAL BENEFITS

The former compliance counsel at the DOJ has repeatedly commented on the lack of internal assessment and data generation by organizations with regard to their internal compliance efforts.¹⁶⁴ Indeed, it is critical firms begin to change their approach to compliance to maximize the cost-efficiency with which they operate. Compliance programs are tasked with serving three distinct functions within an organization. Prevention is the first function, which involves the company's actions to prevent compliance failures from occurring within the organization.¹⁶⁵ Second is detection, which involves the organization's actions aimed at identifying misconduct, risks, or errors.¹⁶⁶ The third function is remediation, which involves an organization's strategies for responding to and recovering from misconduct.¹⁶⁷ Executing these three functions requires the work of multiple compliance personnel working together to ensure the effective pursuit of a corporation's compliance goals.

¹⁵⁶ See generally Donald McAlister, *The Law of the Geometric Mean*, 29 PROC. R. SOC'Y LOND. 367, 368 (1879).

¹⁵⁷ Dolin, *supra* note 77.

¹⁵⁸ KURZWEIL, *supra* note 154.

¹⁵⁹ Dolin, *supra* note 77.

¹⁶⁰ *Id.*

¹⁶¹ *Id.*

¹⁶² McAlister, *supra* note 156, at 375.

¹⁶³ Dolin, *supra* note 77.

¹⁶⁴ Hui Chen, *A Tale of Two Data Sets*, CORP. ON BLOOMBERG L. (BNA) (Apr. 23, 2018).

¹⁶⁵ Root, *supra* note 50, at 18.

¹⁶⁶ *Id.* at 20.

¹⁶⁷ *Id.* at 24.

Companies can use the algorithm provided in Part II to improve each of the three functions compliance programs serve. Organizations can use the algorithm to improve the prevention function because the algorithm includes proactive solutions to prevent compliance failures: the evaluation factor criteria. The evaluation factor criteria were derived from the five sources of guidance discussed in Part I. Therefore, the algorithm measures the quality of a compliance program based upon the key factors that the DOJ and courts consider in their evaluations of compliance programs. Further, companies can use the algorithm to implement preventative compliance procedures designed specifically to improve the key factors that DOJ and courts use to evaluate compliance programs. In other words, the evaluation factor criteria serve both as measurement tools and, when implemented, preventative compliance mechanisms. For example, if a company has a low score under the Senior and Middle Management factor, the company can identify the evaluation factor criteria it failed to satisfy. Then, the company can implement procedures associated with the unsatisfied criteria, on paper and in practice, to decrease the probability of a future compliance failure. Thus, a company can use the algorithm to directly improve its prevention function because the algorithm consolidates several sources of Government compliance guidance to include specific recommendations for preventative improvements.

In addition, firms can use the algorithm presented in Part II to improve the detection function because the algorithm is designed to aid compliance officials in identifying areas of weakness in compliance programs. One reason that quality metrics are important to the algorithm is that they allow for analysis of compliance programs at the component level.¹⁶⁸ Indeed, as stated in the DOJ memo, the evaluation factors divide a program into individual components and are modeled after the compliance program evaluation factors that the DOJ considers when evaluating compliance programs.¹⁶⁹ This allows companies to analyze the specific components of their compliance program.

The ability to analyze the specific components of a compliance program supports the detection function in two ways. First, analyzing specific procedures at the component level allows companies to detect weaknesses and high-risk areas in their compliance program. For example, if a company receives a relatively low score in the Senior and Middle Management evaluation factor, the algorithm has aided in detection of an area of compliance weakness and risk. Second, analyzing specific procedures at the component level helps companies ensure that their compliance program is not merely a paper program. The algorithm supports this analysis by requiring companies demonstrate they follow their written procedures to satisfy

¹⁶⁸ Dolin, *supra* note 77.

¹⁶⁹ U.S. DEP'T OF JUSTICE, *supra* note 27.

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individual evaluation factor criteria. Thus, the algorithm aids in the detection of employee behavior that is not in accordance with company procedure.

In that respect, firms can use the algorithm to improve the remediation function proactively. As Professor Veronica Root argues, firms often act irrationally in the compliance space by acting reactively as opposed to proactively.¹⁷⁰ And, while corporations may take steps to maximize their level of compliance with the FCPA, perfect compliance is impossible to assure.¹⁷¹ Thus, one critical role of compliance personnel is to minimize risk by ensuring the company is insulated from strict enforcement penalties in the event of a compliance failure.¹⁷² The most effective way for compliance personnel to meet this objective is to maintain an effective compliance program.¹⁷³ For instance, the Principles of Prosecution require federal prosecutors to take account of the existence and effectiveness of a company's pre-existing compliance program when deciding whether to prosecute a corporate offender and during settlement discussions.¹⁷⁴ Further, the Sentencing Guidelines provide that an effective compliance program is a mitigating factor in the punishment of corporate defendants.¹⁷⁵ Hence, the most significant way in which firms can insulate themselves from liability under the FCPA, and for compliance failures generally, is to demonstrate a commitment to an ethical culture by developing a robust compliance program. Additionally, the algorithm presented in Part II provides a cost-efficient way for doing so.

Therefore, the algorithm supports each of the three functions compliance programs serve. First, the algorithm supports the prevention function by including proactive solutions to prevent compliance failures. Next, the algorithm supports the detection function by facilitating compliance officials' ability to analyze the specific components of a compliance program. Finally, the algorithm supports the remediation function by proactively aiding the program's effectiveness. Further, the evaluation factor criteria support each of these three functions indirectly. For example, the remediation function is improved if a company implements the evaluation factor criteria: "The company has written procedures to identify and analyze the root cause of misconduct when it occurs; and the company has

¹⁷⁰ Root, *supra* note 1.

¹⁷¹ U.S. DEP'T OF JUSTICE, *supra* note 19.

¹⁷² *See generally* SUSSKIND, *supra* note 79.

¹⁷³ U.S. SENTENCING COMM'N, *supra* note 40; *see also* U.S. DEP'T OF JUSTICE, *supra* note 19.

¹⁷⁴ U.S. DEP'T OF JUSTICE, *supra* note 19.

¹⁷⁵ U.S. SENTENCING COMM'N, *supra* note 40.

demonstrated that it follows those procedures.”¹⁷⁶ Thus, a compliance program that has written procedures in place to identify and analyze the root cause of misconduct when it occurs and is able to demonstrate that it follows those procedures is more likely to receive favorable treatment if under investigation by the DOJ.¹⁷⁷

The algorithm presented in Part II takes account of the specific considerations that prosecutors are required to consider under the Principles of Prosecution. For example, prosecutors should consider whether a compliance program is legitimate or merely a paper program.¹⁷⁸ The algorithm takes account of this consideration by requiring that companies demonstrate that they follow their procedures to satisfy evaluation factor criteria.¹⁷⁹ Additionally, the algorithm takes account of the seven detailed requirements of an effective compliance program defined in the Sentencing Guidelines. For instance, the Sentencing Guidelines require effective compliance programs exercise proper due diligence and screening in their hiring practices.¹⁸⁰ And, the algorithm takes account of this requirement under the Autonomy and Resources evaluation factor by including the evaluation factor criteria: “[t]he company has written procedures that require due diligence investigation prior to the hiring of new employees; and the company has demonstrated that it follows those procedures.”¹⁸¹ Therefore, while companies cannot use the algorithm to ensure perfect compliance; companies can use the algorithm to ensure that if a compliance failure does occur, the DOJ will work with the company, instead of against it during the remediation process.

CONCLUSION

Organizations with complex corporate structures should adopt strategies for developing comprehensive compliance processes that aggregate data across information silos.¹⁸² Indeed, the purpose of the algorithm provided in this Article seeks to serve exactly that goal: improving firm compliance generally by allowing firms to structure their compliance data in a standardized format. Further, the algorithm allows for data to be collected, structured, and analyzed, so that firms can

¹⁷⁶ U.S. DEP’T OF JUSTICE, *supra* note 27.

¹⁷⁷ *Id.*

¹⁷⁸ *Id.*

¹⁷⁹ *Id.*

¹⁸⁰ *Id.*

¹⁸¹ *Id.*

¹⁸² Root, *supra* note 1.

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more specifically monitor their compliance efforts and correlate those efforts with firm performance.

Importantly, the algorithm also supports the cost efficiency of corporate compliance programs by utilizing a framework based upon the Government's published sources of compliance guidance.¹⁸³ Following this framework allows companies to target their compliance spending and direct resources at the factors that are most important to the Government, which supports the maximization of cost-effective risk reduction. In sum, Part I provided insight into sources of guidance the DOJ and courts use when evaluating the effectiveness of a corporate compliance program. Part II introduced an algorithm that firms can use to support compliance program analysis. Part III described how the algorithm can be used by organizations to maximize compliance cost-efficiency by improving the compliance functions of prevention, detection, and remediation.

¹⁸³ See generally U.S. SENTENCING COMM'N, *supra* note 40; see also U.S. DEP'T OF JUSTICE, *supra* note 19; see also U.S. DEP'T OF JUSTICE, *supra* note 27.

Appendix A: FCPA Charges Brought by Year

Year	Charges
2017	31
2016	54
2015	26
2014	22
2013	28
2012	30
2011	30
2010	56
2009	47
2008	34
2007	43
2006	14
2005	14
2004	9
2003	6
2002	10
2001	11
2000	3
1999	3
1998	4

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Year	Charges
1997	2
1996	1
1995	0
1994	4
1993	2
1992	1
1991	1
1990	4
1989	5
1988	1
1987	0
1986	1
1985	4
1984	3
1983	3
1982	4
1981	3
1980	1
1979	3
1978	2

Appendix B: Total Monetary Sanctions Adjusted for Inflation

Year	Total Monetary Sanctions	2017 Adjusted Value
2017	953,820,120	953,820,120
2016	2,434,118,479	2,484,617,239
2015	173,055,788	177,934,709
2014	1,575,067,421	1,631,724,133
2013	770,883,375	810,605,855
2012	290,548,285	310,838,976
2011	511,522,338	563,456,631
2010	1,840,671,027	2,113,880
2009	808,198,909	928,159,327
2008	897,508,450	1,031,667,238
2007	156,586,705	187,339,154
2006	73,309,777	89,935,500
2005	60,533,574	76,798,433
2004	29,473,407	38,610,003
2003	4,201,931	5,607,963
2002	3,213,598	4,390,862
2001	161,175	223,637
2000	1,144,200	1,641,393
1999	18,905,200	278,484,201
1998	4,939,450	7,393,312

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Year	Total Monetary Sanctions	2017 Adjusted Value
1997	385,000	586,073
1996	300,000	471,854
1995	0	0
1994	26,707,178	44,224,742
1993	50	85
1992	68,500,800	119,929,551
1991	0	0
1990	235,000	449,932
1989	1,850,700	3,708,034
1988	10,000	20,921
1987	0	0
1986	0	0
1985	235,000	538,808
1984	0	0
1983	545,000	1,348,160
1982	4,824,000	12,390,084
1981	539,512	1,509,333
1980	0	0
1979	50,000	178,310
1978	0	0