I. Introduction

As provided in the Columbia University Information Security Charter (the “Charter”) http://policylibrary.columbia.edu/information-security-charter, the University is charged with protecting the confidentiality, integrity and availability of its Information Resources (as defined in the Charter). To accomplish this task, a formal Information Security Risk Management Program has been established as a component of the University’s Information Security Program (as defined in the Charter) to ensure that the University is operating with an acceptable level of risk. The Information Security Risk Management Program is described in this Policy.

Capitalized terms used herein without definition are defined in the Charter.

II. Policy History

The effective date of this Policy is November 1, 2013. This policy replaces the CUMC Policy, EPHI1- Information Security Management Process, dated November 2007.

III. Policy Text

Information Security Risk Management covers all of the University’s Information Resources, whether managed or hosted internally or externally. Executive Managers, System Owners, Data Owners and IT Custodians are responsible for working with the applicable Information Security Office to implement the Information Security Risk Management Program, including remediation of identified risks in a timely manner.

The Information Security Risk Management Program is comprised of the following processes:

A. Information Resources Risk Categorization

All Information Resources that store, process or transmit Data are included in the Information Security Risk Management Program. Information Resources are categorized based on their function, threat exposure, vulnerabilities and Data type pursuant to the Information Security Policies. The categorization process takes into account the following elements:

- Size, complexity and capabilities of the Information Resources and organizations;
- Technical infrastructure, hardware and software capabilities;
- Cost of implementing security controls; and
• Probability and criticality of risks to Data, particularly Sensitive Data or Confidential Data.

Resources to address risks are allocated according to the identified risks.

B. Security Control Selection

The appropriate security controls to mitigate identified risks are selected based on the nature, feasibility and cost effectiveness of the controls. The University has selected elements from the following security control frameworks to use as part of its Information Security Risk Management Program:

• ISO 27002, Security Techniques – Code of Practice for Information Security Management;
• ITIL- Industry Standard Framework for IT Service Management Guidelines and Best Practices;
• HITRUST Common Security Framework (CSF); and
• NIST SP 800-53, Recommended Security Controls for Federal Information Systems and Organizations.

All Systems and Endpoints must meet the baseline requirements as defined in the Columbia University Registration and Protection of Systems Policy http://policylibrary.columbia.edu/registration-and-protection-systems-policy or the Columbia University Registration and Protection of Endpoints Policy http://policylibrary.columbia.edu/registration-and-protection-endpoints-policy. Additional controls will be evaluated based on the framework defined above and applied based on risk analysis.

C. Risk Analysis

A documented risk analysis process is used as the basis for the identification, definition and prioritization of risks. The risk analysis process includes the following:

• Identification and prioritization of the threats to Information Resources;
• Identification and prioritization of the vulnerabilities of Information Resources;
• Identification of a threat that may exploit a vulnerability;
• Qualitative identification of the impact to the confidentiality, integrity and availability of Information Resources if a threat exploits a specific vulnerability; and
• Identification and definition of measures and/or controls used to protect the confidentiality, integrity and availability of Information Resources.
The risk analysis process is updated when environmental, operational or technical changes arise that impact the confidentiality, integrity or availability of Information Resources. Such changes include:

- New threats or risks with respect to the Information Resources;
- An information security incident;
- Changes to information security requirements or responsibilities. (e.g., new federal or state law or regulation, new role defined in the institution, new or modified security controls implemented, etc.); and
- Changes to the University’s organizational or technical infrastructure that impacts Information Resources (e.g., addition of a new network, new hardware/software standard implemented, new method of creating, receiving, maintaining or transmitting Data, etc.).

When security measures for an Information Resource do not meet a security standard, risks are identified and expressed. Three factors are considered when determining the risk:

- the type of possible threat and its likelihood;
- the extent of effectiveness of current security controls or their vulnerability; and
- the likely level of impact.

Risks are qualitatively expressed as Critical, High, Medium, Low and Minimal. For purposes of this Policy, Critical, High, Medium, Low and Minimal Risks are defined as follows:

- **Critical Risk:** The risk of imminent compromise or loss of Sensitive Data from either external or internal sources or where Sensitive Data has already been exposed. There is no control in place to protect the Data.
- **High Risk:** The risk of imminent compromise or loss of Sensitive Data from either external or internal sources. There is only a single control, or multiple ineffective controls, in place to protect the Data.
- **Medium Risk:** The risk of compromise or loss of Sensitive Data is possible from either external or internal sources, although less likely from external sources. Controls are in place that are somewhat effective to protect the Data.
- **Low Risk:** The risk of compromise or loss of Sensitive Data is possible, but not probable or an Information Resource might be used to obtain access to Sensitive Data on a different Information Resource.
- **Minimal Risk:** There is no realistic risk of compromise or loss of Sensitive Data.

**D. Risk Remediation**

The strategies for risk remediation are proportionate to the risks to the Information Resource. The selected and implemented risk management measures reasonably protect the confidentiality,
integrity and availability of Information Resources and the risk is managed on a continuous basis. One or more of the following methods are used to manage risk:

- Risk elimination, mitigation or reduction;
- Risk avoidance;
- Risk acceptance; and/or
- Risk transference

A Low or Minimal Risk may be accepted by an Executive Manager with appropriate documentation and periodic review. If a previously accepted risk is realized in a real incident, the risk analysis and management are repeated with the new information, and re-addressed with greater sensitivity and urgency based on the nature and extent of the incident.

E. Risk Monitoring

The results of Risk Analysis and Risk Remediation are documented and reviewed by Executive Managers, the applicable Information Security Office, System Owners, Data Owners and IT Custodians. Monitoring processes are used to evaluate:

- The effectiveness of security controls;
- Changes to Information Resources and environments of operations; and
- Compliance with federal and state laws and regulations, industry standards and University policies.

The frequency of risk monitoring will be based on:

- regulatory compliance requirements;
- the importance or sensitivity of the Information Resource;
- the requirements of the Information Security Policies; and
- the degree to which Systems are interconnected to one another and the risk posed by such connections.

IV. Cross References to Related Policies

The Information Security Policies referred to in this Policy are listed on Appendix A hereto.
Appendix A

Related Policies

Information Security Charter  
http://policylibrary.columbia.edu/information-security-charter

Registration and Protection of Endpoints Policy  
http://policylibrary.columbia.edu/registration-and-protection-endpoints-policy

Registration and Protection of Systems Policy  
http://policylibrary.columbia.edu/registration-and-protection-systems-policy