Controls and Compliance

Control categories

Controls within cybersecurity are grouped into three main categories:

- Administrative/Managerial controls
- Technical controls
- Physical/Operational controls

Administrative/Managerial controls address the human component of cybersecurity. These controls include policies and procedures that define how an organization manages data and clearly defines employee responsibilities, including their role in protecting the organization. While administrative controls are typically policy based, the enforcement of those policies may require the use of technical or physical controls.

Technical controls consist of solutions such as firewalls, intrusion detection systems (IDS), intrusion prevention systems (IPS), antivirus (AV) products, encryption, etc. Technical controls can be used in a number of ways to meet organizational goals and objectives.

Physical/Operational controls include door locks, cabinet locks, surveillance cameras, badge readers, etc. They are used to limit physical access to physical assets by unauthorized personnel.

Control types

Control types include, but are not limited to:

1. Preventative
2. Corrective
3. Detective
4. Deterrent

These controls work together to provide defense in depth and protect assets. **Preventative controls** are designed to prevent an incident from occurring in the first place. **Corrective controls** are used to restore an asset after an incident. **Detective controls** are implemented to determine whether an incident has occurred or is in progress. **Deterrent controls** are designed to discourage attacks.

Review the following charts for specific details about each type of control and its purpose.

Administrative/Managerial Controls		
Control Name	**Control Type**	**Control Purpose**
Least Privilege	Preventative	Reduce risk and overall impact of malicious insider or compromised accounts
Disaster recovery plans	Corrective	Provide business continuity
Password policies	Preventative	Reduce likelihood of account compromise through brute force or dictionary attack techniques
Access control policies	Preventative	Bolster confidentiality and integrity by defining which groups can access or modify data
Account management policies	Preventative	Managing account lifecycle, reducing attack surface, and limiting overall impact from disgruntled former employees and default account usage
Separation of duties	Preventative	Reduce risk and overall impact of malicious insider or compromised accounts

Technical Controls		
Control Name	**Control Type**	**Control Purpose**
Firewall	Preventative	To filter unwanted or malicious traffic from entering the network
IDS/IPS	Detective	To detect and prevent anomalous traffic that matches a signature or rule
Encryption	Deterrent	Provide confidentiality to sensitive information
Backups	Corrective	Restore/recover from an event
Password management	Preventative	Reduce password fatigue
Antivirus (AV) software	Corrective	Detect and quarantine known threats
Manual monitoring, maintenance, and intervention	Preventative	Necessary to identify and manage threats, risks, or vulnerabilities to out-of-date systems

Physical/Operational Controls		
Control Name	**Control Type**	**Control Purpose**
Time-controlled safe	Deterrent	Reduce attack surface and overall impact from physical threats

Adequate lighting	Deterrent	Deter threats by limiting “hiding” places
Closed-circuit television (CCTV)	Preventative/Detective	Closed circuit television is both a preventative and detective control because it’s presence can reduce risk of certain types of events from occurring, and can be used after an event to inform on event conditions
Locking cabinets (for network gear)	Preventative	Bolster integrity by preventing unauthorized personnel and other individuals from physically accessing or modifying network infrastructure gear
Signage indicating alarm service provider	Deterrent	Deter certain types of threats by making the likelihood of a successful attack seem low
Locks	Deterrent/Preventative	Bolster integrity by deterring and preventing unauthorized personnel, individuals from physically accessing assets
Fire detection and prevention (fire alarm, sprinkler system, etc.)	Detective/Preventative	Detect fire in physical location and prevent damage to physical assets such as inventory, servers, etc.

Controls and compliance checklist exemplar

Select “yes” or “no” to answer the question: *Does Botium Toys currently have this control in place?*

Controls assessment checklist

Yes	No	Control	***Explanation***
☐	☑	Least Privilege	*Currently, all employees have access to customer data; privileges need to be limited to reduce the risk of a breach.*
☐	☑	Disaster recovery plans	*There are no disaster recovery plans in place. These need to be implemented to ensure business continuity.*
☐	☑	Password policies	*Employee password requirements are minimal, which could allow a threat actor to more easily access secure data/other assets via employee work equipment/the internal network.*
☐	☑	Separation of duties	*Needs to be implemented to reduce the possibility of fraud/access to critical data, since the company CEO*

			currently runs day-to-day operations and manages the payroll.
☑	☐	Firewall	*The existing firewall blocks traffic based on an appropriately defined set of security rules.*
☐	☑	Intrusion detection system (IDS)	*The IT department needs an IDS in place to help identify possible intrusions by threat actors.*
☐	☑	Backups	*The IT department needs to have backups of critical data, in the case of a breach, to ensure business continuity.*
☑	☐	Antivirus software	*Antivirus software is installed and monitored regularly by the IT department.*
☐	☑	Manual monitoring, maintenance, and intervention for legacy systems	*The list of assets notes the use of legacy systems. The risk assessment indicates that these systems are monitored and maintained, but there is not a regular schedule in place for this task and procedures/ policies related to intervention are unclear, which could place these systems at risk of a breach.*
☐	☑	Encryption	*Encryption is not currently used; implementing it would provide greater confidentiality of sensitive information.*
☐	☑	Password management system	*There is no password management system currently*

			in place; implementing this control would improve IT department/other employee productivity in the case of password issues.
☑	☐	Locks (offices, storefront, warehouse)	*The store's physical location, which includes the company's main offices, store front, and warehouse of products, has sufficient locks.*
☑	☐	Closed-circuit television (CCTV) surveillance	*CCTV is installed/functioning at the store's physical location.*
☑	☐	Fire detection/prevention (fire alarm, sprinkler system, etc.)	*Botium Toys' physical location has a functioning fire detection and prevention system.*

Compliance checklist

Select "yes" or "no" to answer the question: *Does Botium Toys currently adhere to this compliance best practice?*

Payment Card Industry Data Security Standard (PCI DSS)

Yes	No	Best practice	***Explanation***
☐	☑	Only authorized users have access to customers' credit card information.	*Currently, all employees have access to the company's internal data.*
☐	☑	Credit card information is accepted, processed, transmitted, and stored internally, in a secure environment.	*Credit card information is not encrypted and all employees currently have access to internal data, including customers' credit card information.*

☐	☑	Implement data encryption procedures to better secure credit card transaction touchpoints and data.	*The company does not currently use encryption to better ensure the confidentiality of customers' financial information.*
☐	☑	Adopt secure password management policies.	*Password policies are nominal and no password management system is currently in place.*

General Data Protection Regulation (GDPR)

Yes	No	Best practice	***Explanation***
☐	☑	E.U. customers' data is kept private/secured.	*The company does not currently use encryption to better ensure the confidentiality of customers' financial information.*
☑	☐	There is a plan in place to notify E.U. customers within 72 hours if their data is compromised/there is a breach.	*There is a plan to notify E.U. customers within 72 hours of a data breach.*
☐	☑	Ensure data is properly classified and inventoried.	*Current assets have been inventoried/listed, but not classified.*
☑	☐	Enforce privacy policies, procedures, and processes to properly document and maintain data.	*Privacy policies, procedures, and processes have been developed and enforced among IT team members and other employees, as needed.*

System and Organizations Controls (SOC type 1, SOC type 2)

Yes	No	Best practice	***Explanation***

☐	☑	User access policies are established.	*Controls of Least Privilege and separation of duties are not currently in place; all employees have access to internally stored data.*
☐	☑	Sensitive data (PII/SPII) is confidential/private.	*Encryption is not currently used to better ensure the confidentiality of PII/SPII.*
☑	☐	Data integrity ensures the data is consistent, complete, accurate, and has been validated.	*Data integrity is in place.*
☐	☑	Data is available to individuals authorized to access it.	*While data is available to all employees, authorization needs to be limited to only the individuals who need access to it to do their jobs.*

Recommendations (optional): In this section, provide recommendations, related to controls and/or compliance needs, that your IT manager could communicate to stakeholders to reduce risks to assets and improve Botium Toys' security posture.

Multiple controls need to be implemented to improve Botium Toys' security posture and better ensure the confidentiality of sensitive information, including: Least Privilege, disaster recovery plans, password policies, separation of duties, an IDS, ongoing legacy system management, encryption, and a password management system.

To address gaps in compliance, Botium Toys needs to implement controls such as Least Privilege, separation of duties, and encryption. The company also needs to properly classify assets, to identify additional controls that may need to be implemented to improve their security posture and better protect sensitive information.