It's All About the Bottom Line: Winning the ICM through Showmanship, Low Expectations, and the CIA Cal Pierog, Elijah Bogart, and Lorraine Marie

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Cost Equation

$$\begin{aligned} AttackCost &= \\ years \cdot \left(\frac{BaselineCostC}{\prod_{i=1}^{i=n} dC_i} + \frac{BaselineCostI}{\prod_{i=1}^{i=n} dI_i} \right. \\ &+ \frac{BaselineCostA}{\prod_{i=1}^{i=n} dA_i} \right) \end{aligned}$$

$$SunkCost = \sum_{i=1}^{n} \left(procureCost + maintCost + trainCost \right) + years \cdot \left(\frac{BaselineValueP}{\prod_{i=1}^{n} dP} - BaselineValueP \right)$$

Algorithms

• Cherry Picking

- Iteratively pick the most profitable security measures
- Stop when there are no more profitable security measures or the security budge is exceeded

• Reduced Brute Force

- Remove any security measures that are non-profitable on their own
- Find the optimal configuration of the remaining security measures with brute force search

Results



- Diagonal lines are of points with equal cost.
- Point A = min attack cost
- Point B = Cherry Picking
- Point C = Reduced Brute Force
- Point D = min sunk cost

Analysis

Attack Cost vs Sunk Cost - Varied Attack Rates



- Points A, B, C and D are as before.
- Subscript 1 = half attack cost
- Subscript 2 = normal attack cost
- Subscript 3 = twice attack cost

• The problem statement should be concise

MCM A

It is a commonplace belief that the thumbprint of every human who has ever lived is different. Develop and analyze a model that will allow you to assess the probability that this is true. Compare the odds (that you found in this problem) of misidentification by fingerprint evidence against the odds of misidentification by DNA evidence.

MCM B

"QuickPass" systems are increasingly appearing to reduce people's time waiting in line, whether it is at tollbooths, amusement parks, or elsewhere. Consider the design of a QuickPass system for an amusement park. The amusement park has experimented by offering QuickPasses for several popular rides as a test. The idea is that for certain popular rides you can go to a kiosk near that ride and insert your daily park entrance ticket, and out will come a slip that states that you can return to that ride at a specific time later. For example, you insert your daily park entrance ticket at 1:15 pm, and the QuickPass states that you can use your slip to enter a second, and presumably much shorter, line that will get you to the ride faster. To prevent people from obtaining QuickPasses for several rides at once, the QuickPass machines allow you to have only one active QuickPass at a time.

You have been hired as one of several competing consultants to improve the operation of QuickPass. Customers have been complaining about some anomalies in the test system. For example, customers observed that in one instance QuickPasses were being offered for a return time as long as 4 hours later. A short time later on the same ride, the QuickPasses were given for times only an hour or so later. In some instances, the lines for people with Quickpasses are nearly as long and slow as the regular lines.

The problem then is to propose and test schemes for issuing QuickPasses in order to increase people's enjoyment of the amusement park. Part of the problem is to determine what criteria to use in evaluating alternative schemes. Include in your report a non-technical summary for amusement park executives who must choose between alternatives from competing consultants.

To Be Secure or Not to Be?

You probably know about computer hackers and computer viruses. Unless your computer has been targeted by one, you may not know how they could affect an individual or an organization. If a computer is attacked by a hacker or virus, it could lose important personal information and software.

The creation of a new university campus is being considered. Your requirement is to model the risk assessment of information technology (1T) security for this proposed university. The narrative below provides some background to help develop a framework to examine 1T security. Specific tasks are provided at the end of this narrative.

Computer systems are protected from malicious activity through multiple layers of defenses. These defenses, including both policies and technologies (Figure 1), have varying effects on the organization's risk categories (Figure 2).



Figure 1 - Preventative Defensive Measures

Management and usage policies address how users interact with the organization's computers and networks and how people (system administrators) maintain the network. Policies may include password requirements, formal security audits, usage tracking, wireless device usage, removable media concerns, personal use limitations, and user training. An example password policy would include requirements for the length and characters used in the password, how frequently they must be changed, and the number of failed login attempts allowed. Each policy solution has direct costs associated with its implementation and factors that impact productivity and security. In Figure 1, only the topmost branch is fully detailed. The structure is replicated for each branch.

The second aspect of a security posture is the set of technological solutions employed to detect, mitigate, and defeat unauthorized activity from both internal and external users. Technology solutions cover both software

and hardware and include intrusion detection systems (IDS), firewalls, anti-virus systems, vulnerability scanners, and redundancy. As an example, IDS monitors and records significant events on a specific computer or from the network examining data and providing an "after the fact" forensic ability to identify suspect activity. SNORT (www.snort.org) is a popular IDS solution. Figure 1 provides a sample of key defensive measures (management/usage policies and technology solutions). As with a policy, a technology solution also has direct costs, as well as factors that impact productivity and security.

Sources of risk to information security include, but are not limited to, people or hardware within or outside the organization (Figure 2). Different preventive defensive measures (Figure 1) may be more effective against an insider threat than a threat from a computer hacker. Additionally, an external threat may vary in motivation, which could also indicate different security measures. For example, an intruder who is trying to retrieve proprietary data or customer databases probably should be combated much differently from an intruder who is trying to shut down a network.

Potential costs due to information security that an organization may face (Figure 2) include opportunity cost, people, and the cost of preventative defensive measures. Significant opportunity costs include: litigation damages, loss of proprietary data, consumer confidence, loss of direct revenue, reconstruction of data, and reconstruction of services. Each cost varies based on the profile of the organization. For example, a health care component of the university might have a greater potential for loss due to litigation or availability of patient medical records than with reconstruction of services.



Figure 2 - Economic Risk schematic for IT systems

An organization can evaluate potential opportunity costs through a risk analysis. Risks can be broken down into three risk categories; *confidentiality, integrity*, and *availability*. Combined, these categories define the organization's security posture. Each of the categories has different impacts on cost depending on the mission and requirements of the organization. *Confidentiality* refers to the protection of data from release to sources that are not authorized with access. A health care organization could face significant litigation if health care records were inadvertently released or stolen. The *integrity* of the data refers to the unaltered state of the data. If an intruder modifies pricing information for certain products or deletes entire data sets, an organization would face costs associated with correcting transactions affected by the erroneous data, the costs associated with recornstructing the correct values, and possible loss of consumer confidence and revenue. Finally, *availability*

refers to resources being available to an authorized user, including both data and services. This risk can manifest itself financially in a similar manner as confidentiality and integrity

Each measure implemented to increase the security posture of an organization will impact each of the three risk categories (either positively or negatively). As each new defensive security measure is implemented, it will change the current security posture and subsequently the potential opportunity costs. A complicated problem faced by organizations is how to balance their potential opportunity costs against the expense of securing their IT infrastructure (preventative defensive measures).

Task 1: You have been tasked by the Rite-On Consulting Firm to develop a model that can be used to determine an appropriate policy and the technology enhancements for the proper level of IT security within a new university campus. The immediate need is to determine an optimal mix of preventive defensive measures that minimizes the potential opportunity costs along with the procurement, maintenance, and system administrator training costs as they apply to the opening of a new private university. Rite-On contracted technicians to collect technical specifications on current technologies used to support IT security programs. Detailed technical data sheets that catalog *some* possible defensive measures are contained in Enclosures A and B. The technician who prepared the data sheets noted that as you combine defensive measures, the cumulative effects within and between the categories confidentiality, integrity, and availability cannot just be added.

The proposed university system has 10 academic departments, a department of intercollegiate athletics, an admissions office, a bookstore, a registrar's office (grade and academic status management), and a dormitory complex capable of housing 15,000 students. The university expects to have 600 staff and faculty (non 1T support) supporting the daily mission. The academic departments will maintain 21 computer labs with 30 computers per lab, and 600 staff and faculty computer labs with 30 computers per lab, and 600 staff and faculty computer labs with 30 computers per lab, and 600 staff and faculty computers (one per employee). Each dorm room is equipped with two (2) high speed connections to the university network. It is anticipated that each student will have a computer requirements for the remaining department/agencies cannot be anticipated at this time. It is known that the bookstore will have a Web site where students can check the status of payments and grades. The admissions office, student health center, and the athletic department will maintain Web sites.

The average administrative employee earns \$38,000 per year and the average faculty employee earns \$77,000 per year. Current industry practice employs three to four system administrators (sys admin) per sub-network and there is typically one (1) sys admin (help desk support) employee per 300 computers. Additionally, each separate system of computers (for web hosting or data management) is typically managed by one (1) sys admin person.

The current opportunity cost projection (due to LT) with no defensive measures is shown in Table 1. The contribution of various risk categories (Confidentiality Integrity, and Availability) to a given cost is also shown in Table 1.

Table 1: Current Opportunity costs and Risk Category contribution	Table 1: Current O	pport unity costs and	Risk Category contributions
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Opportunity Cost (due to IT)	Amount	Risk Category Contribution
Litigation	\$3,800,000	C (55%), I (45%)
Proprietary Data loss	\$1,500,000	C (70%), I (30%)
Consumer confidence	\$2,900,000	C (40%), I (30%), A (30%)
Data Reconstruction	\$400,000	I (100%)
Service Reconstruction	\$80,000	I (100%)
Direct Revenue Loss	\$250,000	I (30%), A (70%)

Task 2: We know that technical specifications will change rapidly over time. However, the relations and interplay among costs, risk categories, and sources of risk will tend to change more slowly. Create a model for the problem in Task 1 that is flexible enough to adapt to changing technological capabilities and can be applied to different organizations.

Carefully describe the assumptions that you make in designing the model. In addition, provide an example of how the university will be able to use your model to initially determine and then periodically update their 1T security system.

Task 3: Prepare a three page position paper to the university President that describes the strengths, weakness, and flexibility of your model in Task 2. In addition, explain what can be inferred and what should not be inferred from your model.

Task 4: Explain the differences that may exist in the initial Risk Category Contributions (Table 1) if you model LT security for a commercial company that provides a search engine for the World Wide Web (such as Google, Yahoo, AltaVista, ...). Will your model work for this type of organization?

Task 5: Honeynets are designed to gather extensive information on LT security threats. Write a two-page memo to your supervisor advising whether a university or a search engine company should consider using a honeynet.

Task 6: To become a leader in IT security consulting, Rite-On Consulting must also take an active role in anticipating the future direction of information technology and advising companies on how to respond to future security risks. After performing your analysis, write a two-page memo to the President of Rite-On to inform him of the future of IT security. In addition, describe how your model can be used to anticipate and respond to the uncertain future.

Technology -Preventive Detensive Measure

Enclosure A

How to read this table: The Qualitative Values are a judgment based on the assessment from indusky experts on the tools' effectiveness. Each deferrate measure has several instances that vary in costs and effectiveness. The Low, Mean, and High values represent a characterization of reviews found in different consumer review periodicals as they relate to user poductivity, condentiality, heighly, and availability. The variability inducates the concentration of the data about the mean. The Low and High are the minimum and maximum possible values, respectively. Costs are in U.S. dollars. A factor value of 5.00% indicates and High are the minimum and maximum possible values, respectively. Costs are in U.S. dollars. A factor value of 5.00% indicates an improvement of 5%. A value of -5.00% indicates that the factor is degraded by 5%. These values are modifiers to the existing levels. For example from a base Corridentially level of .8. a factor value of 25% would result in a new Confidentiality factor of 08 - (08*025) = 0.6. A positive value results in a positive change in the factor.

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			Integrity	800%		15.00%	18,00%	Low
			Availability	7.00%		10.00%	2000%	Low
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E	Factors	Us e Productivity Coniidentiality Integrity Availability	-11.00% 15.00% 15.00% 1.00%	\$	-5.00% 19.00% 16.00% 6.00%	000% 23.00% 18.00% 10.00%	Ned Ned Ned
Fegg#	Factors Dred: Co	User Productivity Conil d'entitably Integrity Availability Ba	-11.00% 15.00% 15.00% 1.00%	*	-5.00% 19.00% 16.00% 6.00%	000% 23.00% 18.00% 10.00%	Ned Med Ned Ned
Fagger	Factors Direct Co	Use Productivity Confidentiality Integrity Availability als Procursement/computer	-11.00% 15.00% 15.00% 1.00%	\$	-5.00% 19.00% 16.00% 6.00% 3.00	000% 23.00% 18.00% 10.00%	Med Med Med
Fagge	Factors Dred: Co	User Productivity Confidentiality Integrity Availability als Procurementicomputer Maintenance/year/computer	-11.00% 15.00% 15.00% 1.00% n/a n/a	\$ \$ \$	-5.00% 19.00% 16.00% 6.00% 3.00	000% 23.00% 18.00% 10.00% nia nia	Med Med Med
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Fagg#	Factors Direct Cor Factors	Us = Productivity Confidentiality Integrity Availability Sis Procurementicomputer Maintenance (year/computer Training/year/bys.admin	-11.00% 15.00% 15.00% 1.00% n/a n/a	\$ \$ \$	-5.00% 19.00% 16.00% 6.00% 3.00 - 1,000.00	na 2300% 1800% 1800% 1000% nia nia nia	Med Med Med Med
Fagge	Factors Direct Co Factors	User Productivity Confidentiality Integrity Availability als Procurement/computer Maintenance/year/computer Training/year/bys.admin User Productivity	-11.00% 15.00% 15.00% 1.00% n/a n/a -11.00%	\$ \$ \$	-5.00% 19.00% 16.00% 6.00% 3.00 1,000,00	nia 000% 23.00% 18.00% 10.00% nia nia nia nia	Med Med Med Med
Fagge	Factors Dreet Co Factors	Use Productivity Confidentiality Integrity Availability als Procurementicompute Maintenancelyear/computer Training/year/bys admin Use Productivity Confidentiality	-11.00% 15.00% 15.00% 1.00% nia nia nia -11.00% 15.00%	\$ \$ \$	-5.00% 19.00% 16.00% 6.00% 3.00 1,00000 -5.00%	nia 223.00% 223.00% 18.00% 10.00% nia nia nia 23.00% 23.00%	Med Med Med Med Low
Fagge	Factors Drect Co Factors	Us = Productivity Confidentiality Integrity Availability Sta Procurementicomputes Maintenance (year/computer Training/year/bys admin Us = Productivity Confidentiality Integrity	-11.00% 15.00% 15.00% 1.00% n/a n/a n/a -11.00% 15.00%	\$ \$ \$	-5.00% 19.00% 16.00% 6.00% 3.00 1,00000 -5.00% 19.00% 16.00%	na 2300% 2300% 1800% 1800% 1800% nia nia nia 2300% 2300% 1800%	Ned Ned Ned Ned Low
Fagge	Factors Drect Cor Factors	User Productivity Confidentiality Integrity Availability als Procurementicomputer Maintenance/year/computer Training/year/bys admin User Productivity Confidentiality Integrity Availability	-11.00% 15.00% 15.00% 1.00% nia nia nia -11.00% 15.00% 15.00%	\$ \$ \$	-5.00% 19.00% 16.00% 6.00% 1,000000 -5.00% 19.00% 16.00% 6.00%	na 000% 2200% 1800% 1000% nia nia nia 000% 2200% 1800% 1000%	Ned Med Med Med Low Low Ked
Fagge	Factors Direct Co Factors Direct Co	User Productivity Confidentiality Integrity Availability and ability Procurement from puter Mainten and elyear formputer Training (year by a dmin User Productivity Confidentiality Integrity Availability	-11.00% 15.00% 15.00% 1.00% 1.00% 1.00% 15.00% 15.00% 1.00%	\$ \$ \$	-5.00% 19.00% 16.00% 6.00% 3.00 1.000000 -5.00% 19.00% 16.00% 6.00%	na 2300% 2300% 1800% 1800% 1800% nia nia nia nia 2300% 1800% 1800%	Med Med Med Low Low Low
Fagge	Factors Drect Co Factors Drect Co	Us = Productivity Confidentiality Integrity Availability Bis Procurementicomputes Maintenance (year/computer Training/year/bys admin Us = Productivity Confidentiality Integrity Availability Brocurementicompute	-11.00% 15.00% 15.00% 15.00% 15.00% 15.00% 15.00% 15.00%	\$ \$ \$ \$	-5.00% 19.00% 6.00% 1.000% 1.00000 -5.00% 1.000% 16.00% 6.00%	na 000% 22,00% 18,00% 10,00% nia nia nia 000% 22,00% 18,00% 10,00%	Med Med Med Med Low Low Med
Fogg =	Factors Direct Co Factors Direct Co	Use Productivity Confidentiality Integrity Availability ats Procurementicomputer Maintenance/year/computer Training/year/bys admin Use Productivity Confidentiality Integrity Availability ats Procurementicomputer	-11.00% 15.00% 15.00% 1.00% nia nia -11.00% 15.00% 15.00% 1.00%	\$ \$ \$ \$	-5.00% 19.00% 8.00% 1.00000 -5.00% 1.00000 -5.00% 19.00% 16.00% 8.00% 500	na 000% 2300% 1800% 1000% na na na 000% 2200% 1800% 1800% 1800% 1800%	Med Med Med Med Low Low Med
Fagg a Inn caulata	Factors Dreet Co Factors Dreet Co	Use Productivity Confidentiality Integrity Availability als Procurementicompute Maintenance/year/computer Training/year/bys.admin Use Productivity Confidentiality Integrity Availability Bis Procurementicompute Maintenance/year/computer Maintenance/year/computer	-11.00% 15.00% 15.00% 1.00% nia nia -11.00% 15.00% 15.00% 15.00% 1.00%	\$ \$ \$ \$ \$ \$	-5.00% 19.00% 16.00% 6.00% 1.00000 -5.00% 19.00% 19.00% 6.00% 5.00%	na 000% 23.00% 18.00% nia nia nia nia 000% 23.00% 18.00% 18.00% 18.00%	Med Med Med Low Low Med
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Fogg =	Factors Direct Co Factors Factors Factors	Use Productivity Confidentiality Integrity Availability Integrity Procurementicomputer Maintenance/year/computer Training/year/bys admin Use Productivity Confidentiality Integrity Availability Integrity Availability Integrity Maintenance/year/computer Training/year/bys admin	-11.00% 15.00% 15.00% 1.00% nia nia -11.00% 15.00% 15.00% nia nia nia	\$ \$ \$ \$ \$ \$ \$ \$	-5.00% 10.00% 6.00% 1.00000 -5.00% 1.00000 -5.00% 5.00% 1.00000 1.00000	na 000% 23.00% 18.00% 18.00% 10.00% 23.00% 23.00% 18.00% 18.00% 18.00% 18.00%	Med Med Med Med Low Low Med
Fogger Innoculator	Factors Direct Co Factors Factors	Use Productivity Confidentiality Integrity Availability als Procurementiformpute Maintenance/year/computer Training/year/bys admin Use Productivity Confidentiality Integrity Availability als Procurementiformpute Maintenance/year/computer Training/year/bys admin Use Productivity Confidentiality	-11.00% 15.00% 15.00% 1.00% nia nia -11.00% 15.00% 15.00% 1.00% nia nia nia nia nia	\$ \$ \$ \$ \$ \$ \$	-5.00% 19.00% 16.00% 6.00% 1,00000 -5.00% 10.00% 6.00% 500 1,00000 5.00%	na 000% 23.00% 18.00% nia nia nia 000% 23.00% 18.00% 18.00% 18.00% 18.00% 18.00% 23.00% 23.00%	Med Med Med Low Low Med
Faggar	Factors Direct Co Factors Factors	Use Productivity Confidentiality Integrity Availability Procurementicomputes Maintenance (year/computer Training/year/bys admin Use Productivity Confidentiality Integrity Availability Procurementicomputes Maintenance (year/computer Training/year/bys admin Use Productivity Confidentiality	-11.00% 15.00% 15.00% 1.00% nia nia -11.00% 15.00% 15.00% 15.00% 15.00%	\$ \$ \$ \$ \$ \$ \$ \$	-5.00% 19.00% 6.00% 3.00% 1.00000 -5.00% 1.000% 5.00% 5.00% 1.000% 1.000%	nia 000% 22,00% 10,00% 10,00% 22,00% 10,00% 22,00% 10,00% 10,00% 22,00% 10,00% 22,00% 10,00% 22,00% 10,00% 22,00% 10,00% 22,00% 10,	Med Med Med Low Low Low Med Med
Fagg =	Factors Direct Co Factors Factors Factors	Use Productivity Confidentiality Integrity Availability Bis Procurementicomputer Maintenance/year/computer Training/year/bys.admin Use Productivity Confidentiality Integrity Availability Maintenance/year/computer Training/year/bys.admin Use Productivity Confidentiality Integrity Confidentiality	-11.00% 15.00% 15.00% 1.00% nia nia -11.00% 15.00% 1.00% 1.00% 1.00% 1.00%	\$ \$ \$ \$ \$ \$	-5.00% 10.00% 2.00% 3.00 -5.00% 1.00000 -5.00% 10.00% 1.00000 -5.00% 1.00000 -5.00% 1.00000 -5.00% 1.00000	na 000% 23.00% 18.00% 10.00% 23.00% 23.00% 23.00% 18.00% 10.0	Med Med Med Med Low Low Med Med

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Network-based								
Andi-Virus								
1	Entersise Stope	Direct Cos	da .					
	Trates at the		Producement	n/a.	\$	400000	n/a.	
			Maintenance/year/computer	n/a.	\$	-	n/a.	
			Training/year/sys_admin	nia	\$	3,000,00	n/a.	
		Factors	•		-			
			User Productivity	-15.00%		-5.00%	0.00%	Med
			Confidentiality	10.00%		30.00%	40,00%	High
			Integrity	10.00%		30.00%	40,00%	High
			Availability	10.00%		20.00%	3000%	Med
	System Splatter	Direct Cos	alta					
			Producement	n/a.	\$	1,000,000	n'a.	
			Mainten and elyeau/computer	nia	\$	-	n'a.	
			Training/year/sys_admin	n/a.	\$	2,500.00	n'a.	
		Factors						
			User Productivity	-800%		-5.00%	000%	Low
			Conidentiality	10.00%		30.00%	3500%	Med
			Integrity	0.00%		3000%	41.00%	Ned
	Estamption In and A	Direct C	watabiliy	400%		2000%	2800%	nied
	Enterprise in coulation	Lirect Cos	Bassussent			60000		
			Procurement Matakas and all and distant	nna.	P 6	80000	n'a.	
			Turininana e year computer		*	300000	na. ni-	
		Earless	iraning year sys aomin		Þ	200000		
		1.000	User Productivity	-15.00%		-5.00%	0.00%	Med
			Confidentiality	10.00%		30.00%	3600%	Med
			Integrity	12.00%		30.00%	3500%	Med
			Availability	900%		20.00%	21.00%	Med
	Global Protect	Direct Cos	aba					
			Procurement	nia	\$	400.00	n/a.	
			Mainten and elyeau/computer	nia	\$	-	n/a.	
			Training/year/sys_admin	n/a.	\$	4,000,000	n/a.	
		Factors						
			User Productivity	-11.00%		-5.00%	0.00%	Med
			Confidentiality	10.00%		25.00%	30,00%	Med
			Integrity	10.00%		25.00%	3000%	Med
			Availability	10.00%		13.00%	2000%	Low
	Bug Zapper	Direct Cos	alta					
			Producement	nia	\$	600,00	n'a.	
			Mainten and elyeau/computer	n/a.	\$	-	n'a.	
			Training/year/sys_admin	n/a.	\$	1,000,00	n'a.	
		Factors						
			User Productivity	-11.00%		-8.00%	000%	Med
			Conidentiality	500%		25.00%	3000%	Med
			Integrity	7.00%		25.00%	31.00%	Med
	F () F (D 10	Availability	11.00%		13.00%	2000%	Ned
	Enterprise Stamper	Direct Cor	in the second seco			00000		
			Procurement	nía.	\$	30000	n'a.	
			Turte to a local de la computer		P.	100000	n 2.	
		Earless	mannigiyearisys asmin	n a	Þ	1,00000	n a	
		- actors	User Productive-	.90%		-4.00%	00095	Mad
			Confidentiality	20.009		25008-	30008-	Mad
			histority	900%		2000%	28.00%	Med
			Availability	11.00%		1300%	1900%	Lew
	Enternise Fooder	Direct Cos	ala i					
			Producement	n/a.	\$	400.00	n/a.	
			Mainten and elve automouter	n/a.	5		n'a.	
			Training/year/sys_admin	nia	5	3,000,00	n/a.	
		Factors	w/ /				-	
			User Productivity	-11.00%		-8.00%	0.00%	Med
			Conidentiality	500%		25.00%	30,00%	Med
			Integrity	7.00%		25.00%	31.00%	Med
			Availability	11.00%		13.00%	20,00%	Med

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	System its er	Lirect Cos	in the second seco					
			Procurement	n ia.	\$	25000	nia.	
			Maintenance/year/computer	n ía.	\$	-	nia.	
			Training/year/sys_admin	n da.	\$	75000	nia.	
		Factors						
			User Productivity	-11.00%		-5.00%	0.00%	Med
			Confidentiality	2008-		1000%	20.00%	Mad
			Level by	5000		0.000	24.000	
			needity	500%		0.00%	21.00%	need
			Availability	200%		3.00%	11.00%	Low
	System Doctor	Direct Cos	ala de la constante de la const					
			Procurement	n da.	\$	300.00	n'a.	
			Maintenance/year/computer	n ía.	\$	-	nia.	
			Training/year/sys_admin	n (a	\$	1.500.00	n'a.	
		Factors	a, ,					
			User Products to	-600%		-2.00%	0.00%	Law
			Contraction	4000		10.000	15000	
			Consolentiality	400%		7,000%	1500%	Low
			Integrity	500%		7.00%	1500%	Low
			Availability	1.00%	_	5.00%	1300%	Low
	BlueSky	Direct Cos	ala di la					
			Procurement	n (a.	\$	400.00	nia.	
			Maintenand elyeau/computer	n (a	\$	-	nia.	
			Training/year/ava admin	nia	\$	200000	nia.	
		Factors						
			Ib - Burdardada	E AVR		2.000	1.000	1
			o sa Productivity	-500%		-200%	-1.00%	Low
			Conidentiality	300%		0.00%	1400%	Low
			Integrity	1.00%		2.00%	800%	Low
			Availability	1.00%		1200%	1300%	Low
	Ader Security	Direct Cos	ala di seconda di second					
			Procurement	n (a	\$	300.00	n'a.	
			Maintenant elveaukorrouter	n (a	8		nia.	
			Trate in characteria admin	n la		1,000,00		
		F	nanng yearsys asmin	n a	÷	1,00000		
		Factors						
			User Productivity	-900%		-5.00%	000%	Med
			Confidentiality	500%		10.00%	20,00%	Med
			Integrity	500%		10.00%	20,00%	Med
			Availability	1.00%		5.00%	1300%	Low
	Protection	Direct Cos	da .					
			Broownerst			250.00	e la	
			Matching and all social strengths	- in		23400		
			manter and e year componer	n na.	*			
			Training/year/sys admin	n ía.	\$	1,00000	n'a.	
		Factors						
			User Productivity	-11.00%		-9.00%	000%	Med
			Coniid entiality	400%		10.00%	20,00%	Med
			Integrity	200%		10.00%	1900%	Med
			Availability	0.00%		5.00%	1500%	Med
			,		_			
Network-bared								
Interview								
Detection								
Detection								
system								
	Data Watcher	Direct Cos	e de la companya de la					Π
			Procurement	n la	\$	19,000,000	nia.	
			Mainten and elyeau komputer la s	n (a	\$	50.00	nia.	
			Training/year/ava admin	n/a.	8	500000	n/a.	
		Eastern						
			Ib - Burdardada	10.008		5 me	0.000	1
			o ti u u	-10.00%		-3.00%	000%	Low
			Conidentiality	10.00%		2000%	3000%	Med
			Integrity	18.00%		20.00%	30,00%	Low
			Availability	10.00%		20.00%	30.00%	Med
	Data Inc	Direct Cos	da da					
			Procurement	n (a.	\$	20,000,00	nia.	
			Marken and a second second second	n (a	8	10000	n/a.	
			Nampenance year computer as		-			
			Tutoto cherariano adotto	n/a		700000	a la	
		Easter	Training'yearbys admin	nia.	\$	7,000.00	n'a.	
		Factors	Traininglyearbys admin	nia.	\$	7,000.00	nia.	
		Factors	Training/year/sys.admin User Productivity	nia. -11.00%	\$	7,000.00	nia -200%	Med
		Factors	Training year by admin Use Productivity Confidentiality	n/a -11.00% 10.00%	\$	7,000.00 -9.00% 20.00%	nia -200% 40.00%	Med High
		Factors	nanomane yvancompuentas Trainingiyearisys admin User Productivity Confidentašty Integrity	nia -11.00% 10.00% 10.00%	\$	7,000.00 -9.00% 20.00% 20.00%	nia -200% 40.00% 3500%	Med High High

Constant and the second	Dist C	h		_			
Correlation Inc	Lifed Ca	• <u> </u>		~			
		Procurement	n ía.	\$	15,000,00	n'a.	
		Maintenance/year/computer/as	n (a.	\$	-	n'a.	
		Training/year/sys admin	n da.	\$	6,000,00	nia.	
	Factors						
		User Productivity	-10.00%		-5.00%	0.00%	Med
		Confidentiality	3,00%		9.00%	42,00%	Hich
		htereit.	4008		11.000	41.008	
		h and a link link	0.000		12,009	41.00%	nign LL-L
		Availability	000%		1300%	3800%	High
Detect IT	Direct Co	ata a					
		Procurement	n (a.	\$	8,000.00	n'a.	
		Mainten and elyear/computer/ast	n ía.	\$	50.00	n'a.	
		Training/year/sys_admin	n da.	\$	500000	n'a.	
	Factors						
		User Productivity	-15.00%		-10.00%	0.00%	Med
		Confidentiality	500%		15.00%	2500%	Med
		Integrity	500%		15.00%	2500%	Med
		Availability	500%		15.00%	2500%	Med
Security Association	Durat Co	+					
		Procurement	n/a.	8	900000	n/a.	
		Mata has a set of some determined by the set		÷			
		Testable and an electric	n la		400000		
	Eastern	maning yearsys asmin	1114	÷	400000		
	Paciers						
		User Productivity	-12.00%		-8.00%	000%	Ned
		Contidentiality	500%		1500%	2000%	Ned
		Integrity	500%		1500%	1800%	Low
		Availability	500%		15.00%	17.00%	Low
Network Traffic ID	Direct Co	ete					
		Procurement	n (a.	\$	800000	n/a.	
		Maintenancelyear/computerias	n da.	\$	7500	n'a.	
		Training/year/sys_admin	n da.	\$	5,000,00	n'a.	
	Factors						
		User Productivity	-15.00%		-10.00%	0.00%	Med
		Confidentiality	500%		16.00%	30,00%	Med
		Integrity	500%		18.00%	28.00%	Med
		Availability	500%		20.00%	2600%	Med
United	Direct Co	de					
		Procurement	n la	\$	500000	n/a.	
		Mainten and elvear komputer las	n (a		20.00	n/a.	
		Testa ta al una se al una se al una se		÷	700000		
	Earless	nanigyeansys asian		*	1,000,000		
		I have Brockretter 4-	-30,0095		-20.009	-2008	M-4
		User Productivity	-30.00%		-20.00%	-200%	Med
		Use Productivity Confidentiality	-30.00% 500%		-20.00%	-200% 2000%	Med Med
		User Productivity Confidentiality Integrity	-30,00% 500% 7,00%		-20.00% 18.00% 17.00%	-200% 2000% 2000%	Med Med Med
		User Productivity Confidentiality Integrity Availability	-30,00% 500% 7,00% 10,00%		-20.00% 18.00% 17.00% 17.00%	-200% 2000% 2000% 2000%	Med Med Low
Network Eye	Direct Co	Use Productivity Conidentiality Integrity Availability ats	-30,00% 500% 7,00% 10,00%		-20.00% 18.00% 17.00% 17.00%	-200% 2000% 2000% 2000%	Med Med Low
Nebwak Eye	Direct Co	Use Productivity Confidentiality Integrity Availability ab Procurement	-20.00% 500% 7.00% 10.00% n/a	\$	-20.00% 18.00% 17.00% 17.00% 4,000.00	-200% 2000% 2000% 2000%	Ned Ned Low
Network Eye	Dred: Co	Us er Productivity Conidentiality Integrity Availability dis Procurement Maintenancelyear/computerias	-30,00% 500% 7,00% 10,00% n/a,	\$ \$	-20.00% 18.00% 17.00% 17.00% 4.000.00 35.00	-200% 200% 200% 200% nia nia	Ned Ned Low
Netwok Eye	Drect Co	Us e Productivity Coni dentaality Integrity Avanfachtly Procurement Naintenance dyeau foompuleriaa Training yearbys admin	-30,00% 500% 7,00% 10,00% n/a n/a	\$ \$ \$	-20.00% 18.00% 17.00% 17.00% 4.000.00 35.00 2.000.00	-200% 200% 200% 200% nia nia nia	Ned Ned Low
Network Eye	Drect Co Factors	Us er Productivity Conii dentaality Inhegity Availability Availability Procurement Maintenanc elyear icomputer ias Training yearriges admin	-30,00% 500% 7,00% 10,00% n/a n/a n/a	\$ \$ \$	-20.00% 18.00% 17.00% 17.00% 4,000.00 35.00 2,000.00	-200% 2000% 2000% 2000% nia nia nia	Med Med Ned
Network Eye	Drect Co Factors	Us e Productivity Coni d entaility Integrity Availability Joan Procurement Maintenance eyear foompulerias Training/year/bys.admin Us er Productivity	-30.00% 500% 7.00% 10.00% nia nia nia	\$ \$ \$	-20.00% 18.00% 17.00% 4.00000 3500 2.00000	-200% 200% 200% 200% nia nia nia	Med Med Low
Network Eye	Dred Co Factors	Us e Productivity Coni d entaility Integrity Availability Bio Procurement Maintenance sysauricomputerias Training yearitys admin Us e Productivity Coni d entaility	-30.00% 500% 7.00% 10.00% n/a n/a -30.00% 500%	8 8 8	-20.00% 18.00% 17.00% 17.00% 4.000.00 35.00 2.000.00 -10.00% 20.00%	-200% 200% 200% 200% 1/a n/a 00% 250%	Med Med Low Med Med
Netwolk Eye	Dred Co Factors	Us e Productivity Coni dentality Integrity Availabithy Procurement Maintemance elyear/computer/az Training/year/bys admin Us e Productivity Coni dentality Integrity	-20.00% 500% 7.00% 10.00% n/a n/a -30.00% 500% 7.00%	\$ \$ \$	-20.00% 18.00% 17.00% 17.00% 4,000.00 35.00 2000.00 -10.00% 20.00% 21.00%	-200% 200% 200% 200% 10 10 10 10 10 200% 250%	Nied Nied Low Nied Nied Nied
Network Eye	Dredt Cor Factors	Us a Productivity Conit dentaility Integrity Availability Joan Procurement Maintenance elyean (computerias Training) year (computerias Training) year (computerias) Training) year (computerias) Us ar Productivity Conit dentaility Integrity Availability	-20,00% 500% 7,00% 10,00% n/a n/a -30,00% 500% 7,00%	\$ \$	-20.00% 18.00% 17.00% 17.00% 4.000.00 35.00 2.000.00 -10.00% 20.00% 21.00%	-200% 200% 200% 200% 10 10 10 10 10 10 10 10 10 200% 250% 250%	Med Ned Low Med Med Ned
Network Eye Watcher	Direct Co Factors	Us = Productivity Conit dentaility Integrity Availability Procurement Namiemance elyeau/computerias Training/yeau/cys admin Us = Productivity Conit dentaility Integrity Availability de	-20.00% 500% 7.00% 10.00% n/a n/a -30.00% 500% 7.00% 10.00%	\$ \$ \$	-20.00% 18.00% 17.00% 17.00% 4.000.00 35.00 2.000.00 -10.00% 20.00% 21.00%	-200% 200% 200% 200% nia nia 00% 250% 250% 250%	Med Med Low Med Med Med Med
Network Eye Watcher	Dreet Co Factors	Us a Productivity Conit dentaility Integrity Analidetity als Procurement Naintenance/year/computerias Training/year/ops admin Us a Productivity Conit dentaility Integrity Analidetity Procurement	-20,00% 500% 7,00% 10,00% nia nia nia nia -20,00% 500% 7,00% 10,00%	\$ \$ \$	-20.00% 18.00% 17.00% 17.00% 4.000.00 3500 2.000.00 -10.00% 20.00% 21.00% 22.00% 22.00%	-200% 2000% 2000% 2000% 10a 10a 10a 000% 2500% 2500% 2500%	Med Med Low Med Med Med
Network Eye Walcher	Direct Co Factors Direct Co	Us e Productivity Coni d entaility Integrity Availability ada Procurement Maintenance/year/computer/as Training/year/sys.admin Us e Productivity Coni d entaility Integrity Availability als Procurement Maintenance/year/computer/as	-30.00% 500% 7.00% 10.00% n/a n/a -30.00% 500% 7.00% 10.00%	\$ \$ \$	-20.00% 18.00% 17.00% 17.00% 4.000.00 35.00 2.000.00 -10.00% 20.00% 22.00% 3.000.00	-200% 200% 200% 200% 1/a n/a n/a 000% 2500% 2500% 2500%	Nied Nied Low Nied Nied Nied Nied
Network Eye Watcher	Dred Co Factors Dred Co	Us e Productivity Conit dentaality Integrity Avail dottity Procurement Maintenance ei yeaar (computer lass Training (yeaarloys admin Us e Productivity Conit dentaality Integrity Avail dottity dis Procurement Maintenance ei yeaar (computer lass Training computer lass	-30.00% 500% 7.00% 10.00% nia nia -30.00% 500% 7.00% 10.00% nia nia	\$ \$ \$ \$	20.00% 18.00% 17.00% 17.00% 4.00000 3500 200000 10.00% 20.00% 20.00% 10.00% 20.00%	-200% 2000% 2000% 2000% 10a nia nia 2500% 2500% 2500% 2500% 2500%	Med Med Low Med Med Med
Network Eye Watcher	Dred Co Factors Dred Co	Us e Productivity Conit dentaility Integrity Analidetity als Pocurement Maintenance/year/computerias Training/year/op admin Us e Productivity Conit dentaility Integrity Analidetity Piccurement Maintenance/year/computerias Training/year/ops.admin	-30.00% 500% 7.00% 10.00% n/a n/a 5.00% 7.00% 10.00% 10.00%	\$ \$ \$ \$ \$	20.00% 18.00% 17.00% 4.00000 2.00000 10.00% 21.00% 22.00% 22.00% 1.000% 2.00% 1.000% 1.00000 1.00000	-200% 2000% 2000% 2000% 2000% 2000% 2000% 2500% 2500% 2500% 2500%	Med Med Low Med Med Med
Network Eye Walcher	Direct Co Factors Direct Co Factors	Us a Productivity Conit dentaility Integrity Availability Availability also Procurement Maintenance eyear/computer/as Training/year/cys also Procurement Maintenance eyear/computer/as Training/year/cys also Procurement Maintenance eyear/computer/as Training/year/cys also	-30.00% 50% 7.0% 10.0% 10.0% 10.0% 10.0% 10.0% 10.0%	\$ \$ \$ \$ \$	20.00% 18.00% 17.00% 4.00000 3500 200000 10.00% 22.00% 22.00% 22.00% 22.00% 20.00%	-200% 200% 200% 200% 200% 200% 200% 250% 25	Med Med Low Med Med Med Med
Network Eye Walcher	Dred Co Factors Dred Co Factors	Us = Productivity Conit dentasity Integrity Availability Procurement Maintenance elyean/computeriase Training/year/sys.admin Us = Productivity Conit dentasity Integrity Availability Integrity Procurement Maintenance elyean/computeriase Training/year/sys.admin Us = Productivity Conit dentasity	-30.00% 500% 10.00% 10.00% 10.00% 10.00% 500% 7.00% 10.00% 10.00% 10.00%	5 5 5 5 5 5	20.00% 18.00% 17.00% 4.00000 35000 10.00% 20.00% 20.00% 20.00% 1.00% 20.00% 1.00% 20.00%	-200% 2000% 2000% 2000% 2000% 2000% 2000% 2500% 2500% 2500% 2500% 2500% 2500% 2500%	Med Med Low Med Med Med Med
Network Eye Watcher	Direct Co Factors Direct Co Factors	Use Productivity Confidentiality Integrity Analidetity als Pocurement Maintenance/year/computerias Training/year/op admin Use Productivity Confidentiality Integrity Analidetity Procurement Maintenance/year/computerias Training/year/sys.admin Use Productivity Confidentiality Internet Productivity Confidentiality	-30.00% 500% 10.00% 10.00% 10.00% 10.00% 500% 10.00% 10.00% 10.00% 500% 500%	5 5 5 5 5 5	20.00% 18.00% 17.00% 17.00% 200000 200000 10.00% 2000% 20000 1.000% 200000 1.000% 20000 1.000%	-200% 2000% 2000% 2000% 2000% 2000% 2500% 2500% 2500% 2500% 2500% 2500% 2500% 2500%	Med Med Low Med Med Med Med
Network Eye	Dred Co Factors Dred Co Factors	Us a Productivity Conit dentaility Integrity Availability Availability ada Procurement Maintenance eyear/computer/as Training/year/cys admin Us a Productivity Conit dentaility Integrity Availability ada Procurement Maintenance eyear/computer/as Training/year/computer/as Training/sear/computer/as Training/sear/computer/as Conit dentaility Integrity	-30.00% 50% 7.00% 10.00% nia nia -30.00% 50% 7.00% 10.00% nia nia -30.00% 50% 7.00%	\$ \$ \$ \$ \$ \$	20.00% 18.00% 17.00% 4.00000 3500 200000 10.00% 20.00% 20.00% 10.00% 10.00% 10.00%	-200% 200% 200% 200% 200% 200% 200% 200%	Med Med Low Med Med Med Med Med Med

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Network-based								
SPAM Filter								
	S 0	Durit Co	-	<u> </u>				
	opani bioper	cired co.	Boowartert			4500000	n /a	
			Maintenant elveaukornouler	n/a	ŝ		n'a	
			Trates a character address			1 000 00		
		Eatlers	nanigyaansys asian		*	1,000,000		
		1 22 24 3	User Productivity	-010%		-0.10%	-0.10%	Lew
			Conidentiality	0.00%		0.00%	0.00%	Law
			heath	0.00%		0.00%	000%	Law
			Availability	15.00%		1500%	1500%	Low
	Mail Control	Direct Cor	ala .		_			
			Broowertent	n in	8	3000000	n /a	
			Maintenant elveaultorripuler	n/a	ŝ	-	n'a	
			Training/yeau/sys_admin	n/a	\$	1.500.00	n/a.	
		Factors						
			User Product//thy	-010%		-0.10%	-0.1 0%	Low
			Confidentiality	0.00%		0.00%	0.00%	Low
			Integrity	0.00%		0.00%	0.00%	Low
			Availability	-50%		2.00%	1500%	Med
	Postman	Direct Co	,					
			Procurement	nia	\$	3,000,000	n/a.	
			Maintenand elyeau/computer	n/a.	\$	-	n/a.	
			Training/yearbys admin	nia	\$	200000	nia.	
		Factors	**					
			User Productivity	-50%		-1.00%	-0.1 0%	Low
			Confidentiality	0.00%		0.00%	0.00%	Low
			Integrity	0.00%		0.00%	0.00%	Low
			Availability	-800%		1.00%	7.00%	Med
	Mail Scrubber	Direct Co	ele					
			Procurement	nia	\$	500000	n/a.	
			Maintenance/year/computer	nia	\$	-	n/a.	
			Training/year/sys_admin	nia	\$	1,000,000	n'a.	
		Factors						
			User Productivity	-030%		-0.20%	-0.1 0%	Low
			Confidentiality	0.00%		0.00%	0.00%	Low
			Integrity	0.00%		0.00%	0.00%	Low
			Availability	0.00%		1.00%	500%	Low
	Sparn Metseber	Direct Co	ele					
			Procurement	nia	\$	1,500.00	n'a.	
			Mainten and elyeau/computer	nia	\$	-	n'a.	
			Training/yeau/sys_admin	n/a.	4	80000	n/a.	
		Factors						
			User Product/sty	-500%		-1.00%	-0.1 0%	Low
			Confidentiality	0.00%		0.00%	000%	Low
			Integrity	0.00%		0.00%	0.00%	Low
			Availability	-10.00%	_	-3.00%	1000%	Med
	Email Valve	Direct Co	de					
			Procurement	n/a.	\$	10,000,000	n'a.	
			Mainten and elyeau loomputer	n/a.	\$	-	n/a.	
			Training'year/sys_admin	n/a.	\$	500.00	n'a.	
		Factors						
			UserProductivity	-0.20%		-0.25%	-0.1 0%	Low
			Coniid entiality	0.00%		0.00%	000%	Low
			Integrity	0.00%		0.00%	000%	Low
	-		Availability	0.00%		3.00%	500%	Med
	Email Filter	Direct Co	ete					
			Procurement	n/a.	\$	5,000,00	n'a.	
			Mainten and elyear/computer	nia	\$	•	n'a.	
			Training'year/sys admin	n/a.	\$	1,000,00	n'a.	
		Factors						
			User Product#v#y	-030%		-0.25%	-0.1 0%	Low
			Conidentiality	0.00%		0.00%	000%	Low
			integrity front database	1 000%		0.00%	000%	Low
1			Avaliability	-1.00%		3.00%	500%	Med

				_				
	Ader INC	Direct Cos	h					
			Procurement	n ía.	\$	10000	nia.	
			Mainten and elyeau (computer	n/a.	\$	-	nia.	
			Training/year/sys_admin	n la	\$	1,000,000	nia.	
		Factors						
			User Productivity	-0.20%		-0.25%	-0.1 0%	Low
			Confidentiality	0.00%		0.00%	000%	Low
			Integrity	0.00%		0.00%	0.00%	Low
			Availability	-15.00%		-5.00%	500%	Med
Network-based Vulnerability Scanning								
	Hole Plugger	Direct Cos	h					
			Procurement	n/a.	\$	75,000,00	nia.	
			Mainbenand elyear	n/a.	\$	25,000,00	nia.	
			Training/year/sys_admin	nia	\$	10,000,00	nia.	
		Factors						
			User Productivity	-1.00%		-0.50%	000%	Low
			Confidentiality	0.00%		0.00%	0.00%	Low
			Integrity	-1.00%		0.00%	1000%	Med
			Availability	-1.00%		0.00%	10,00%	Med
	Scanner	Direct Cos	, h					
			Producement	nia	\$	60.000.00	n'a.	
			Mainten and elve ar	nia		20,000,00	nia.	
			Training/year/ava admin	nía	5	500000	n'a.	
		Factors						
			User Products to	-1.00%		-0.50%	0.00%	Law
			Conidentiality	0.00%		0.00%	0.00%	Lew
			Integrity	-10.00%		-70.00%	1500%	Med
			Availability	-10.00%		-70.00%	1500%	Med
	Health Check	Direct Cos	b ,					
			Propuertert	nia	8	9000000	nin.	
			Maintenantelvear	n/a	ŝ	2500000	n'a.	
			Turinin chean han addin	n/a	ŝ	900000		
		Eastern	inaning years ye as in		*	1,000,00		
		r actors	I has Bundards to	-100%		0.576	0.008	1 mil
			Confidentially	0.00%		0.00%	0008	Low
			blanth:	0.50%		0.000	5008	Low
			free de de tetre	-050%		0.00%	500%	Low
	Nation month	Durat Co		-0.56%		0.00%	100%	Low
	THE Mas estiment	cired cos	Producement			5000000	a la	
			Mainbergretebeng	n/a	ŝ	20,000,00		
			Testata abaseda as adata			700000		
		Earless	naning yearsys asmin		÷	1,00000		
		1.000	I has Products to	-0978		0.576	0008	1 mil
			Confidentiality	0009		0.008	0009	Low
			blacity	-15.00%		0.00%	10008	Mad
			Ann da bakke	-19.00%		-10.00%	1000%	Med
	90T stand	Durat Car	to the second se	-10.00.0	_	-10.00.0	1000	
	DC Facanne	carea cos	Brochustment			30,000,00	e la	
			Matchenericher			10,000,000		
			Turinin duran burgar	n ra.	е	500000	n'a.	
		Earless	maning yearsys aomin	n ra.	₽	200000		
		1 2001	Ib - Burdarda ta	5000		3.000	0.000	
			California da California	-500%		-3.00%	0.00%	hied
			Contra en talley	20.00%		0.00%	1500%	Low
			nu-grey	20.000		10.000	15000	LA -L
	NaRka	Dur t C	waraany	-20.00%		-10.00%	1500%	ngn
	THE DESCRIPTION OF THE DESCRIPTO	Lifed Cos						
			Procurement	nía.	\$	20,000,00	n'a.	
			Maintenance year	nía.	\$	6,000,00	nia.	
			training/year/sys admin	n fa	Þ	300000	n'a.	
		Factors						
			User Productivity	-1.20%		-0.50%	000%	Low
			Confidentiality	0.00%		0.00%	000%	Low
			Integrity	-20.00%		-10.00%	1.00%	Med
			Availability	-20.00%		-10.00%	1.00%	Med

					_			
1	VulnerScan	Direct Co	ete -					
1			Procurement	n ía.	\$	15,000,00	n/a.	
1			Mainten and elyear	nia	\$	500000	n/a.	
1			Training/wearbox admin	n la		300000	n'a.	
1		Eastern	2) J					
1		1 2010				0.000	0.000	
1			User Productivity	-1.20%		-0.50%	000%	Low
1			Conidentiality	0.00%		0.00%	000%	Low
1			Integrity	-30.00%		-20.00%	900%	High
1			Availability	-30.00%		-20.00%	900%	High
Darla								
Bedundancy								
,	C	D 40		<u> </u>				
1	Sonic Data	Lired: Co	sta					
1			Procurement	n (a.	\$	800,000,00	n'a.	
1			Mainten and elyear/computer	n la	\$	8,000.00	n'a.	
1			Training/year/sys_admin	n/a.	\$	1,000,000	n'a.	
1		Factors						
1			User Product/thy	0.00%		1.00%	10,00%	Med
1			Confidentiable	0.008		0.008	0.008	L mu
1			Contownancy	10,000		0.00%	10,00%	Low
1			negity	10.00%		2000%	4000%	need
1			Availability	10.00%		2000%	4000%	Ned
1	Data Soutions	Direct Co	ata					
1			Procurement	nia	\$	500,000,00	n'a.	
1			Maintenand elyeau/computer	nia	\$	500000	n/a.	
1			Training/yearbyg admin	nia		1.000.00	n/a.	
1		Easters			*			
1		12.015	Ib - Broth the fi	0.000		1.000	20.07	
1			User Productivity	000%		1.00%	2000%	Ned
1			Conidentiality	0.00%		0.00%	000%	Low
1			Integrity	0.00%		10.00%	60.00%	High
1			Availability	0.00%		10.00%	60.00%	High
1	Data RUs	Direct Co	ata					
1			Producement	nia	8	300,000,00	n'a.	
1			Matching and all and distant when			400000		
1			Mantenance year componer	n a	*	400000	na.	
1			Training'year/sys admin	n la	\$	1,000,000	n'a.	
1		Factors						
1			User Productivity	0.00%		1.00%	500%	Med
1			Confidentiality	0.00%		0.00%	0.00%	Low
1			in hereithe	0.008-		10.00%	30.00%	lind
1			frond shakes	0008		10008	20008	line of
1			watabiliy	0005		1000%	3000%	neo
1	Bytes	Direct Co	sta					
1			Procurement	n la	\$	250,000.00	n'a.	
1			Mainten and elye ar idomputer	n la	\$	3,000.00	nia.	
1			Training/year/sys_admin	nia	\$	1,000,000	n'a.	
1		Factors						
1			User Productivity	0.00%		1.00%	500%	Law
1	1		Confidentiation	0.000		0.000	0.000	Law
1			Laboration Contractory	0.000		20.000	000%	Low
1			neighty	000%		2000%	2200%	Ned
1			Availability	0.00%		2000%	2200%	Ned
1	Digital Solutions	Direct Co	ala de	1				
1	1		Procurement	nia	\$	150,000,00	n'a.	
1			Maintenand elyeau/computer	nia	\$	3,000,00	n/a.	
1			Training/yeau/yeau/yeau/	n la	8	1.000.00	n/a.	
1		Easters			*			
1		Paciet's		0.000			0.000	
1			User Productivity	000%		1.00%	200%	Low
1	1		Confidentiality	0.00%		0.00%	000%	Low
1			Integrity	0.00%		10.00%	1500%	Med
1			Availability	0.00%		10.00%	1500%	Med
1	Data	Direct Co	ete					
1			Procurement	nia	\$	10000000	n'a.	
1			Mainhan a ratial second station that	e la		1000000		
1			The second		*	100000		
1			Iraining'year/sys admin	n ía.	\$	1,000.00	n'a.	
1		Factors						
1			User Productivity	0.00%		1.00%	300%	Low
1			Confidentiality	0.00%		0.00%	0.00%	Low
	1							
			Integrity	0.00%		15.00%	17.00%	Med

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Service								
Redundancy								
	WebKing	Direct Co	alta i					
			Procurement	n la	\$	50,000,00	n'a.	
			Mainten and elyean computer	n/a.	\$	10,000,00	n'a.	
			Training/year/sys_admin	n/a.	\$	1,000,00	n'a.	
		Factors						
			User Product/uby	0.00%		1.00%	10,00%	Med
			Coniid entiality	0.00%		0.00%	000%	Low
			Integrity	10.00%		20.00%	40,00%	High
			Availability	10.00%		20.00%	40.00%	High
	Redundant Servies	Direct Co	ata .					
			Procurement	n ia	\$	30,000,00	n/a.	
			Mainten and elyear/computer	n/a.	\$	10,000,000	nia.	
			Training/year/sys_admin	nia	\$	1,000,000	nia.	
		Factors						
			User Product/sty	0.00%		1.00%	2000%	Med
			Coniid entiality	0.00%		0.00%	0.00%	Low
			Integrity	0.00%		10.00%	60,00%	High
			Availability	0.00%		10.00%	60.00%	High
	ServU	Direct Co	ele					
			Procurement	n da.	\$	1500000	n/a.	
			Maintenand elvear/computer	n (a.	\$	1000000	n'a.	
			Training/wearbyg. admin	n (a.	5	1.000.00	n/a.	
		Factors	a),, .					
			User Productivity	0.00%		1.00%	500%	Med
			Confidentiality	0.00%		0.00%	0.00%	Law
			bhanth:	0.00%		1000%	30008-	Hat
			free distribution	0.008		10008	30008	
	Babyat Calutions	Durat Ca	- And a start of the start of t	0004		1 CODE Na	50004	Head
	Fibeura: Dorutions	Lifed Co.	Brannungen			1000000	-	nand
			Matchen and always intertraular	n la	÷	1000000	nia.	
			Testatushanda ayaan compositi			100000		
		Eastern	maning yearsys asmin	n na.	÷	1,00000	na.	
		Pacions	Ib - Burtuttat	0.000		1.008	5000	1
			Citer Productively	000%		0.00%	500%	
			Contidentiality	000%		0.00%	000%	Low
			Integrity	000%		20.00%	22008.	Ned
		B 46	Avarability	000%		2000%	2200%	Med
	Cupildby	Lirect Co	als			1000000	_	
			Procurement	nía.	¥.	1000000	n'a.	
			Mainten and elyeau (computer	n ía.	\$	10,000,00	n'a.	
			Training'year/sys admin	n ía.	\$	1,000.00	n'a.	
		Factors						
			User Productivity	0.00%		1.00%	300%	Low
			Coniid entiality	0.00%		0.00%	000%	Low
			Integrity	0.00%		10.00%	1500%	Med
			Availability	000%		10.00%	1500%	Med
	Dato	Direct Co	ata					
			Procurement	n da.	\$	6,000,00	nia.	
			Mainten and elyeau computer	n ia.	\$	10,000,00	n'a.	
			Training/year/sys_admin	n da.	\$	1,000,000	n'a.	
		Factors						
			User Product#v#y	0.00%		1.00%	300%	Low
			Coniid entiality	0.00%		0.00%	0.00%	Low
			Integrity	0.00%		15.00%	17.00%	Med
			Availability	0.00%		15.00%	17.00%	Med

Policy -Preventive Defensive Measure

Enclosure B

How to read this table: The Qualitative 'share an a judgment based on the assessment from indusity experts on he tools' effective near Both defensive measure has several materiaes that vary increasts and efficiences. The toos, files, and high values are present a characterization of reverse found in different consumer reverse periods calls as hey relate to user productivity, confidentially, unlegaly, and availability. The variability indicates the convention of the data about the mean. The toos and high was thermanium and mean mean possible values, respectively. Costance in U.S. dollars. A todar value of 5.00% indicates an improvement of 3%. A value of 3.00% indicates that the bactor acting and by 3%. These values are modification being tomal. The value of of 3.00% indicates that the bactor acting and by 3%. These values are modification being town. For examplement and confidentially level of a factor value of 25% would result in a new Confidentiability bactor of 0.8 (0.8 % 25)= 0.6. A positive value results in a positive change in the back.

				Quantitative Values		
			Low	Mean	High	Variability
strong Basswords						
222110102	Contra					
	coas	Entry I conference intern		\$45,000	n /n	1 mil
		Transpolyant par Sun Adres	55.000	\$12,000	\$15,000	Lind
	-	Training year per systemme Training year per systemme	\$0,000	\$12,000	\$12,000	Used
	—	Maniary you per con	\$10,000	\$12,000	\$20,000	Ulad
	Partour			7.5,000	400,000	
	r aktions	Liner Freeheringhy	9.00%	25.00%	35.00%	Lind
		Confederate	9.00%	200035	10.00%	Lau
		biantic .	9.00%	28,0025	35.0005	Lou
		Available for	9.00%	150035	25.00%	Lou
No Baseword		(And the start of	1.00/1	10000 / 1	20.00.0	
Policy						
carey						_
	Costs		-			
	<u> </u>	Folicy Implementation	nia	n'a	nia	na
	—	Training year per Sys Admin	nia	n'a	n'a	na
	H	Training year per user	na	 	n/a	na
		Manentance Costs	0.3	n:a	na	na
	Factors					
	L	User Productivity	0.00%	0.00%	0.00%	Lou
		Confidential #/	-75.00%	30.00%	0.00%	High
		iniegni/	-75.00%	-50.00%	0.00%	High
		Availabelity	-75.00%	50.00%	0.00%	High
Audits	Costs					
		Policy Implementation	nia	\$45,000	n'a	Low
		Training year per Sys Admin	\$10,000	\$12,000	\$20,000	Med
		Mantenance Costs	\$10,000	\$12,000	\$20,000	Med
	Pactors					
		User Productivity	-10.00%	0.00%	0.00%	Low
		Confidential by	-5.00%	20.00%	40.00%	High
		in legally	-5.00%	20.00%	40.00%	High
		Ave data by	-5.00%	20.00%	40.00%	High
Disallow Wireless						
	Costs					
		Policy Implementation	nia	\$20,000	n'a	Low
		Training/year per User	\$3	\$10	\$ 30	Med
		Mantenance Costs	\$10,000	\$12,000	\$20,000	Med
	Pactors		_			
		User Productivity	-10.00%	-5.00%	0.00%	Low
		Confidentiality	0.00%	5.00%	10.00%	Low
		iniegniy	0.00%	5.00%	10.00%	Low
		Availability	0.00%	5.00%	10.00%	Low
Allow Wireless						
	Costs					
		Policy Implementation	nia	\$45,000	n'a	Low
		Training year per Sys Admin	\$20,000	\$30,000	\$40,000	Med
		Training year per User	\$5	\$10	\$ 30	Med
		Mantenance Costs	\$10,000	\$12,000	\$20,000	Med
	Pactors					
		User Productivity	40.00%	60.00%	70.00%	Med
		Confidentiality	-60.00%	-30.00%	0.00%	High
		inisaniy	-60.00%	30.00%	0.00%	High
		Availability	-60.00%	30.00%	0.00%	High
	-					

Restrict						
Removable						
Necla						
	Costs					
		Policy Implementation	nia	\$20,000	n'a	Low
		Training/year per Sys Admin	\$10,000	\$12,000	\$20,000	Med
		Training year per User	\$5	\$10	\$ 30	Med
		Mantenance Costs	\$10.000	\$12,000	\$20,000	Med
	Pactors					
		User Productivity	-50.00%	-40.00%	- 30.0 0%	Low
		Confidentiality	0.00%	5.00%	10.00%	Low
		integrity.	0.00%	5,00%	10.00%	Low
		Ave data by	0.00%	5.00%	10.00%	Low
Unmonit ored	-					
Personal Use						
	Costs					
		Data destantatat		# 700 0000		1.00
		The second second second second	50	\$20,000	50	Low
		Transing year per systemmin		50	90 50	Uad
		Lineiron Contr				Line .
	Pastana	Promising Costs	4	- 10	- 20	1/100
	- actions	Line Destatute	-20.000**	4.000%	10.000	Hada
		Confidentiale	- 20,00%	4 0.00%	10.00%	Hah
		b bank	10.000	10001	10.000	11001
		August Au	-19.00%	4 000%	10.00%	Hada
Rectricted	-	(And any	10.001	100011	10.0076	
Resonal Line I						
Personal User						
Teaching Cover						
raciang						
	Costs					
		Policy Implementation	nia	\$45,000	n'a	Low
		Training year per Sys Admin	\$20,000	\$30,000	\$-40,000	Med
		Training/year per User	\$D	\$5	\$10	Med
		Mantenance Costs	\$10,000	\$12,000	\$20,000	Med
	Pactors		_		<u> </u>	
		User Productivity	-40.00%	0.00%	25.00%	High
		Confidential by	-10.00%	28.00 %	38.00%	High
		in legnity	9.00%	25.00 %	38.00%	Med
		Aver date by	9.00%	15.00%	25.00%	Low
Jser Training						
Required						
	Costs					
		Policy Implementation	nia	\$45,000	n'a	Low
		Training year per User	\$5	\$10	\$12	Med
		Mantenance Costs	\$10,000	\$12,000	\$20,000	Med
	Pactors					
		User Productivity	2.00%	15.00%	30.00%	Med
		Confidentiality	10.00%	30.00%	50.00%	High
		in instrity	10.00%	30.00%	50.00%	High
		Ave data by	10.00%	30.00%	50.00%	High
Sys Admin						
Training						
Required						
	Canta					
	- ours	Data deschargentation		1.00		1.00
	—	Prost of Implementation	100 min	\$45,000	n/a t-m.cor	Low
	L	Training (year per Sys Admin	\$20,000	\$30,000	\$40,000	Med
		Mandenance Costs	\$10,000	\$18,000	\$20,000	Med
	Factors					
	L	User Productivity	20.00%	40.00%	60.00%	Med
	L	Controlentical it/	10.00%	30.00%	50.00%	Med
	—	mighty	10.00%	3000%	50.00%	Med
·		La superior de la constante de	10,000	20.00.00	50.00%	1 Bard

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- Only a small amount of sample data should be provided
- The topic of the contest should change from year to year

Benefits of the ICM

- Team building
- Writing and communication skills
- Good concept

Advice

- Take risks (low expectations)
- Food and Sleep!
- Divide work early and often
- Focus on the writing aspect (Showmanship!)
- Interdisciplinary team
- Generalizable code (good programmer on team)

Stories and Questions