

Quantitative Metrics to Assess and Manage Business Contracting Risk Using Risk-O-Meter Software

Mehmet Sahinoglu¹, David Ang², Scott Morton¹, Preethi Vasudev¹, William Kramer¹

Informatics Institute¹, Department of Information Systems and Management²,
Auburn University at Montgomery, Montgomery, AL 36117, USA
msahinog@aum.edu, dang@aum.edu, smorton1@aum.edu, pvasudev@aum.edu, remark@gmail.com

ABSTRACT

The risk factors that affect business operations are many. Identifying and managing those vulnerabilities and threats scientifically is a key to conducting successful business operations. Failure to identify and manage these sources of risk will have very real consequences ranging from poor financial performance to business collapse. In this work, a software tool to facilitate assessment and management of business risk is proposed. The Business Risk-O-Meter provides this critical tool for management and high level decision makers. Using game theory and statistically-driven methodologies, it provides objective, quantitative risk assessment, and unlike any other tool available today, guidance for allocating resources for cost-effective risk mitigation. Management and decision makers in commerce and industry will be thus aided in their efforts to achieve optimal business operations by the use of a rational and objective tool for assessing and managing risk.

Keyword: Business Contracting Risk, Quantitative, Risk-O-Meter, Cost, Game Theory

1. INTRODUCTION

The sources of business operation vulnerabilities and threats can range from the quality of personnel to macro-economic factors. The consequences to those corporations and organizations that fail to identify and manage vulnerabilities and risks results in diminished financial performance if not business failure. Indeed, the Census Bureau puts the survival rate of new firms founded in 2005 through 2010 at only 43 percent [Census Bureau, U.S. Dept. of Commerce, 2014]. To minimize and avoid such threats and potential business failures, a rational, scientific approach that identifies, assesses, and manages business risk is required.

The identification and management of risk is a key aspect of successful business operations. The Business Risk-O-Meter tool proposed here provides a unique and objective methodology that is critically needed. This pioneering work represents a paradigm shift in risk assessment. The Business Risk-O-Meter provides a quantitative risk assessment, unlike the subjective high-medium-low or red-yellow-green scales commonly seen in other assessment methodologies. While there are other approaches to identifying and managing risk as detailed in the Institute of Management Accountants' Enterprise Risk Management: Tools and Techniques for Effective Implementation [Institute of Management Accountants, 2014], none provide a means of allocating risk mitigation expenditures. In contrast, the Business Risk-O-Meter provides objective and scientific guidance in allocating monetary resources for managing risk in accordance with

budgetary constraints. Additionally, the Business Risk-O-Meter provides a means to shift from often subjective and crude risk evaluation mechanisms to a verifiable, quantitative approach to risk management, resulting in an optimized expenditure of risk remediation dollars.

In this research, a model of business risk that quantifies the respondent's experience with ten crucial aspects of business risk is adopted. Those responses are subsequently used to calculate the business risk index through a designed algorithm by the principal author. To accomplish this task, numerical and/or cognitive data was collected from 40 respondents to supply the input parameters to calculate the quantitative business risk index. This paper will not only present a quantitative model but also provide a remedial cost-optimized game-theoretic analysis about how to bring an undesirable risk down to a user-determined "tolerable level". Lastly, it is an adaptable framework that can be customized and configured by the analyst with no custom coding (XML inputs).

2. METHODOLOGY

This applied research implements a methodology on how to reduce business risk. A software-centered holistic approach is proposed to aid management and decision makers in identifying, assessing, and managing business risk. Ten vulnerabilities are assessed: Personnel Quality, Cost Factors, Delivery Time, Client Perceptions, Local Service Reps Missing, Communication Problems, Hardware Deficiency, Software Deficiency, Management Quality, and Macro Economic Factors. Within each vulnerability category, questions pertain to specific threats and countermeasures. For example, within the Delivery Time vulnerability, respondents are asked questions regarding Logistics, Delivery Companies, Adverse Events, and Alternate Delivery Methods threats and countermeasures. Within the Communication Problems vulnerability, respondents are asked questions regarding Language Barriers, Customs Barriers, Legal System Differences, and Technology threats and countermeasures. See Figure 1 below for the Business Risk Diagram detailing vulnerabilities and threats. The respondents' answers are then used to generate a quantitative Business Risk Index.

The primary author's innovation, i.e. Business Risk-O-Meter (an automated software tool), will provide management and decision makers a measurable assessment of their current business risk as well as detailing associated cost and risk mitigation suggestions for identified vulnerabilities and threats. The Business Risk-O-Meter will be demonstrated to provide such assessment and guidance for the allocation of resources for mitigating that risk. The business risk metric out of 100% will be assessed and a remedial cost-optimized game-theoretic analysis provided to bring an undesirable risk down to a user-determined "tolerable level". The approach the authors propose here is a game theoretical-based approach that emphasizes the quantitative analysis of vulnerabilities, threats and countermeasures shown in Figure 1 below.

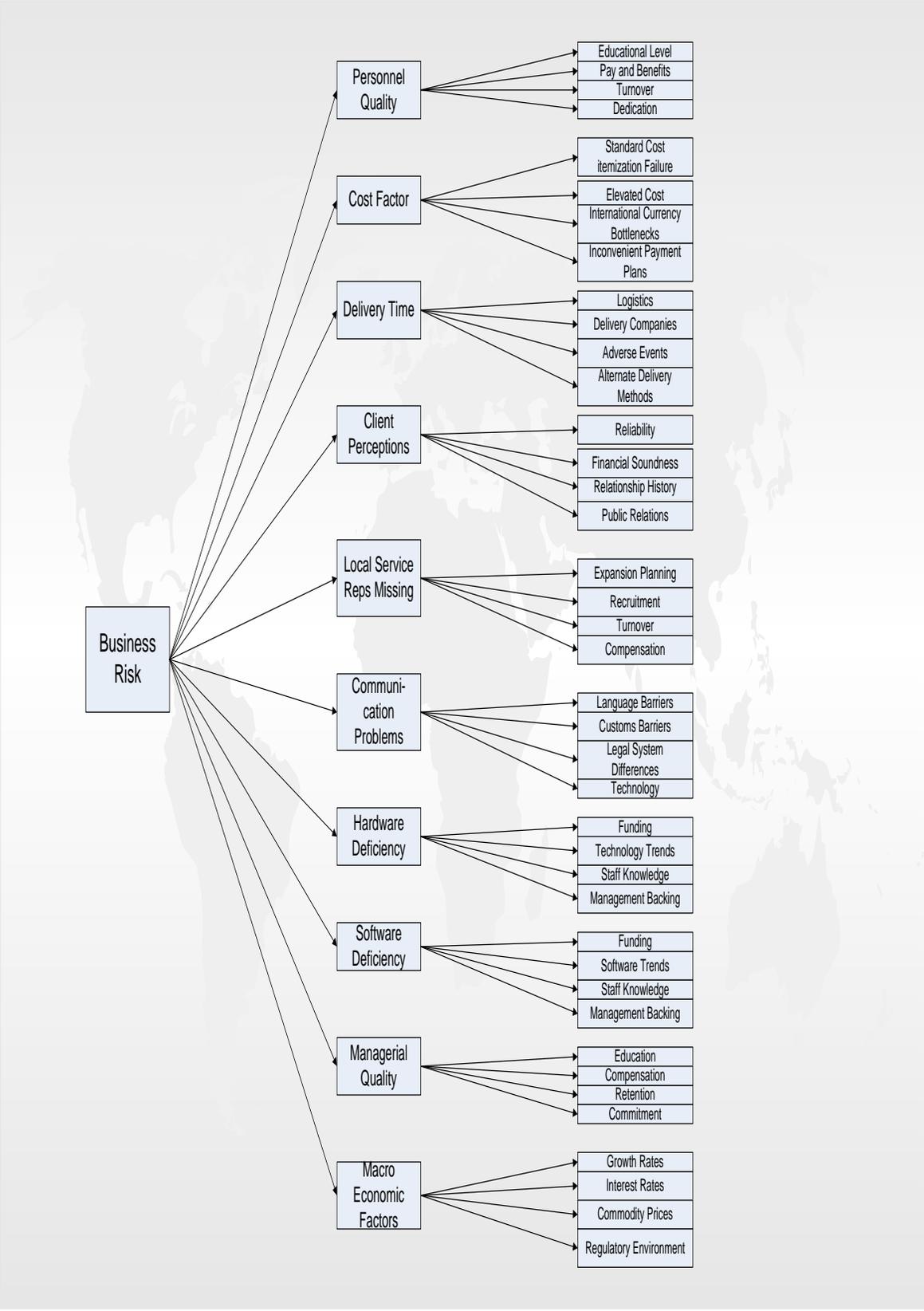


Figure 1: Business Contract Risk Tree Diagram.

The theoretical framework behind the Business Risk Diagram shown there is a tree diagram with vulnerability branches, threat twigs, and countermeasure branches that calculates total residual risk as elaborated by Sahinoglu [2007], Sahinoglu [2008]. This framework allows for the quantitative analysis of vulnerabilities and threats and the cost-optimal allocation of resources to countermeasures to mitigate or lower the risk from those vulnerabilities and threats. The framework is used by the Business Risk-O-Meter software tool described in the next section to output total residual risk. Note that RR (residual risk) = Risk of Vulnerability * Risk of Threat * Risk of Lack of Countermeasure. TRR (Total Residual Risk) is sum of RRs as in Figure 2 below.

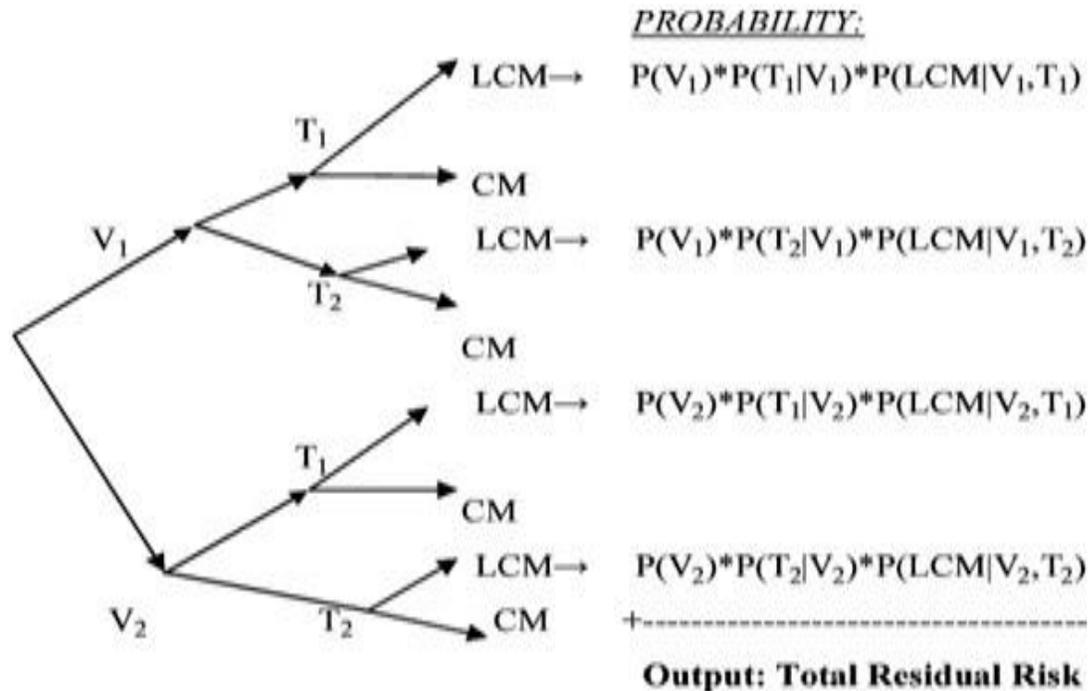


Figure 2: General tree diagram (V-branches, T-twigs, and LCM-limbs) used for Business Risk-O-Meter.

While the Business Risk-O-Meter can be utilized on virtually any business process, this particular implementation focuses on ten key areas critical in ensuring optimal business operations.

- **Personnel Quality:** Fundamental to daily operations as well as long term success, the need to employ the highest quality personnel is critical. This key area focuses on Educational Level, Pay and Benefits, Turnover, and Dedication. Each of these areas must be addressed to ensure the selection and retention of the highest quality personnel.
- **Cost Factor:** This area focuses on the costs and revenue streams integral to doing business, i.e.: Standard Cost Itemization Failure, Elevated Cost, International Currency Bottlenecks, and Inconvenient Payment Plans.
- **Delivery Time:** Critical to modern commerce, this key component must be optimized to prevent delays and subsequent customer dissatisfaction. This key

area focuses on Logistics, Delivery Companies, Adverse Events, and Alternate Delivery Methods.

- Client Perceptions: Assuring positive perceptions by the public and the goodwill of clients is critical to continued business success. This key area focuses on Reliability, Financial Soundness, Relationship History, and Public Relations.
- Local Service Reps Missing: Critical because of potential market share loss, the need to have a business presence should be ensured. This key area focuses on Expansion Planning, Recruitment, Turnover, and Compensation.
- Communication Problems: Critical to international business, this key component is a must in today's global economy. This key area focuses on Language Barriers, Customs Barriers, Legal System Differences, and Technology.
- Hardware Deficiency: Essential for keeping up in today's tech driven economy, this key area focuses on Funding, Technology Trends, Staff Knowledge, and Management Backing.
- Software Deficiency: Also essential for keeping up in today's tech driven economy, this key area focuses on Funding, Software Trends, Staff Knowledge, and Management Backing.
- Managerial Quality: The quality of a company's leadership often makes or breaks it. This key area focuses on Education, Compensation, Retention, and Commitment.
- Macro Economic Factors: This key area provides the environment in which businesses must operate and focuses on Growth Rates, Interest Rates, Commodity Prices, and the Regulatory Environment.

While these ten areas are not exhaustive, they are relatively comprehensive of and critical to business risk. This research focuses on the areas vital to business operations and provides management and decision makers with an analytical framework they can use to more efficiently structure their business operations. For more details on the Security Meter tree diagrams, see ref. [Sahinoglu, 2005, 2007, 2008, 2010, 2012] by the primary author who invented "Security Meter".

3. ASSESSMENT QUESTIONS

Questions are designed to elicit the user's response regarding the perceived business risk from particular threats, and the countermeasures the users may employ to counteract those threats. For example, in the Communication Problems vulnerability, questions regarding Legal System Differences include both threat and countermeasure questions. Threat questions would include:

- Does the country lack a well established legal system?
- Is the legal system based on something other than English common law?
- Are judicial decisions based on other than the rule of law?
- Does litigation take several years if not a decade?
- Do you lack a clear sense of what the legal system is in a particular country?

While countermeasure questions would include:

- Did the parties agree to outside arbitration or adjudication in a third country?
- Has the company hired local legal representation?
- Did the company purchase political risk insurance?
- Did the company require prior payment?
- Did the company have staff familiar with the legal systems of other countries?

Please see Appendix B for a list of threat and countermeasure questions.

4. A CASE STUDY FOR THE BUSINESS CONTRACT RISK ASSESSMENT AND MANAGEMENT

Essentially, the users are responding yes or no to these questions. These responses are then used to calculate a residual risk index. Using a game-theoretical mathematical approach, the calculated risk index is then used to generate an optimization or lowering of risk to desired levels [Sahinoglu 2007, 2008]. Further, mitigation guidance will be generated to aid management and decision makers in resource allocation decisions for lowering risk. That is, in what areas can the risk be reduced to optimized or desired levels such as from 47.6% to 37.6% in the screenshot representing the median response from the study participants? See Figure 3 below for a screenshot of the Median Business Risk-O-Meter Results Table displaying threat, countermeasure, and residual risk indices; optimization options; as well as risk mitigation advice. For this study, a random sample of 40 respondents was taken and their residual risk results are tabulated and presented in Appendix A at the end of this paper. Respondents' familiarity with business risk was comprised of corporate experience. See also Figure 3 which depicts the median information.

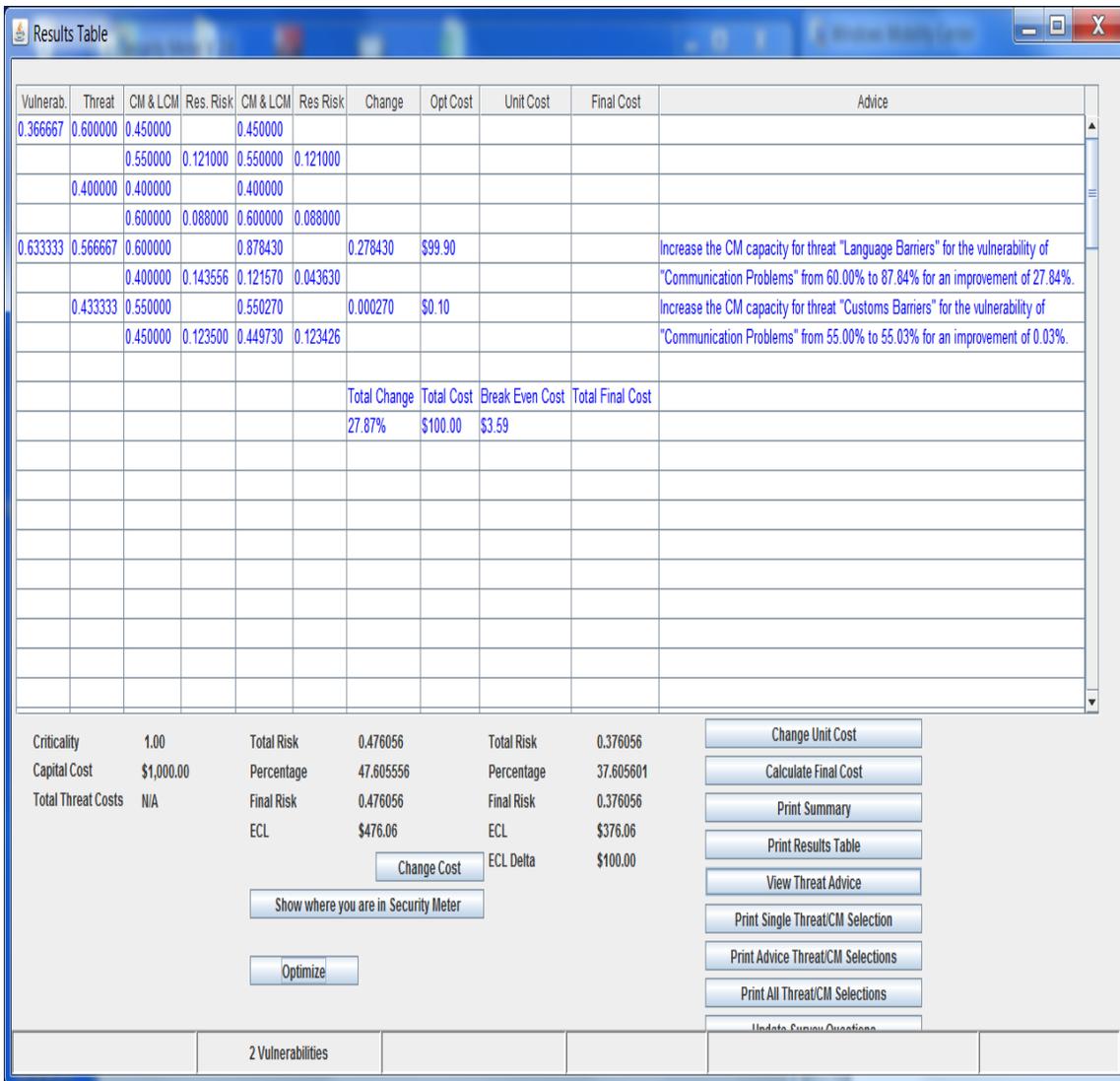


Figure 3: Median Respondent's Business Risk-O-Meter Results Table

5. CONCLUSION AND DISCUSSIONS

The Business Contracting (Loss of) Risk-O-Meter breaks a new ground in that it provides a quantitative assessment of risk to the user as well as recommendations for mitigating that important corporate life-line risk. As such, it will be a highly useful tool for management and decision makers seeking to minimize and mitigate business risk in an objective, quantitatively-based manner. Future work will involve the incorporation of new vulnerabilities and additional questions so as to better refine user responses and subsequent calculation of risk and mitigation recommendations. Minimization and mitigation of business risk will greatly benefit not only the companies deploying the tool, but society at large through greater prosperity and economic stability. The Business Contracting Risk-O-Meter tool and its future refinement provide the means to do so.

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ABOUT THE AUTHORS

Mehmet Sahinoglu is the founder director of the Informatics Institute, and the Cybersystems and Information Security (CSIS) graduate program at Auburn University in Montgomery. As an Institute of Electrical and Electronics Engineers senior member and a Fellow of the IEEE Signal Processing Society, he authored 120 conference proceedings, 50 journal articles, Trustworthy Computing by Wiley (2007), Cyber-Risk Informatics by Wiley (2015), and managed 15 grants. Dr. Sahinoglu holds a PhD from Texas A&M and an MS from University of Manchester Institute of Science and Technology in Electrical and Computer Engineering, respectively.

Dr. David Ang is an industrialist, a business professor, a department chair of Information Systems at Auburn University Montgomery. He has 20-plus years of experience in many facets of business from both a pragmatic perspective and real-life

applications. He has published more than 70 articles in academic business research journals and conference proceedings. Dr. Ang holds a PhD in Industrial Management and Systems Engineering from the University of Alabama in Huntsville

Scott Morton is a Program Associate at AUM and CS Instructor at Troy University Montgomery and South University. He holds a M.S. in Computer Science from Troy University, a M.A. from Georgetown University, and a B.A. from Johns Hopkins University.

Preethi Vasudev has been a part-time graduate research assistant at AUM (Auburn University Montgomery) since 2013 January. She graduated from AUM's CSIS graduate program with a Master's degree (Sum Cum Laude) in August 2014. She holds a B.E. in Computer Science from Bangalore University, India. Preethi has worked in investment banking domain as senior consultant with Blackrock Inc. in London, England from 2008 to 2012. She is currently employed by UP&RUNNING Inc. as a software developer.

William F. Kramer has over 25 years in the Information Technology field. He has developed, sustained, and operated military information systems. His experience includes application design, development, software life-cycle management, and systems engineering. His education includes a BS in Computer Science from Chapman University, an MS in Management Science from Faulkner University, and an MS in Cybersystems and Information Security from Auburn University at Montgomery. Mr. Kramer is retired from the U.S. Air Force, with 20 years' active duty. He is currently employed with the U.S. Air Force as a federal civilian.

APPENDIX A

Respondent Residual Risk Results Table 1: Survey Results for the Business Risk-O-Meter study (rounded to two decimal places), ranked overall, where Median: 47.61% (Respondent20) and Average: 48.14% (Respondent21: 48.22% is the result that comes the closest).

SURVEY TAKER	RESIDUAL RISK %	RANKED FROM LEAST TO GREATEST RISK (OUT OF 40)	REMARKS
Respondent1	28.92	1st	
Respondent2	33.65	2nd	
Respondent3	34.36	3rd	
Respondent4	36.19	4th	
Respondent5	39.15	5th	
Respondent6	40.35	6th	
Respondent7	42.08	7th	
Respondent8	42.86	8th	
Respondent9	44.61	9th	
Respondent10	44.94	10th	
Respondent11	45.21	11th	
Respondent12	45.63	12th	
Respondent13	45.69	13th	
Respondent14	46.63	14th	
Respondent15	46.75	15th	
Respondent16	47.08	16th	
Respondent17	47.13	17th	
Respondent18	47.23	18th	
Respondent19	47.57	19th	
Respondent20	47.61	20th	OVERALL MEDIAN
Respondent21	48.22	21st	OVERALL AVERAGE
Respondent22	49.03	22nd	
Respondent23	49.10	23rd	
Respondent24	50.22	24th	
Respondent25	50.24	25th	
Respondent26	50.34	26th	
Respondent27	50.78	27th	
Respondent28	50.78	28th	

Respondent29	50.82	29th	
Respondent30	51.27	30th	
Respondent31	51.40	31st	
Respondent32	55.08	32nd	
Respondent33	56.13	33rd	
Respondent34	56.75	34th	
Respondent35	57.45	35th	
Respondent36	60.22	36th	
Respondent37	60.22	37th	
Respondent38	62.46	38th	
Respondent39	63.39	39th	
Respondent40	83.24	40th	

APPENDIX B

Table 2: A List of Vulnerability, Threat and Countermeasure Questions.

Business Risk Survey

This survey has 10 main categories of vulnerabilities. Please identify the areas below where you have observed vulnerabilities while involved with Software Development Lifecycle activities within your organization.

* A minimum of 2 categories must be chosen:

Vulnerability Area	Reference Page
<input type="checkbox"/> Personal Quality	3
<input type="checkbox"/> Cost Factor	5
<input type="checkbox"/> Delivery Time	7
<input type="checkbox"/> Client Perceptions	9
<input type="checkbox"/> Local Service Reps Missing	11
<input type="checkbox"/> Communication Problems	13
<input type="checkbox"/> Hardware Deficiency	15
<input type="checkbox"/> Software Deficiency	17
<input type="checkbox"/> Managerial Quality	19
<input type="checkbox"/> Macro Economics Factors	21

Directions:

This Page:

- Select all vulnerability areas that apply
- Proceed to appropriate pages to complete survey for each vulnerability area.

Survey Page(s):

Vulnerability

- Rate **Vulnerability** (0.1-10) with 10 being **most** vulnerable and 0.1 being **least** vulnerable
- Select all vulnerability statements that apply (**must choose at least one**)

Threat

- Rate **Threat** (0.1-10) with 10 being **greatest** threat and 0.1 being the **least** threat.
- Using square check box, select all threat statements that apply to each threat category chosen. (**must choose at least one**)

Countermeasure

- Rate associated **Countermeasure** for each threat category chosen above (0.1-10) with 0.1 being **least** effective and 10 being the **most** effective countermeasure.
- Using square check box, select all countermeasure statements that apply (**must choose at least one**)

Rate (0.1-10) if vulnerability applies

EXAMPLE 1

Must select one (minimum) for each vulnerability selected

Vulnerability: Legal Aspects <input type="checkbox"/>	
<input type="checkbox"/> Legal authority for forensic examinations is unclear. <input type="checkbox"/> The extent of the authority to search is unstated. <input type="checkbox"/> Courtroom admissibility is not a prime consideration.	Rate (0.1-10) for all Threats that apply
Threat: Jurisdiction <input type="checkbox"/>	Countermeasures <input type="checkbox"/>
<input type="checkbox"/> There is conflicting jurisdiction. <input type="checkbox"/> Multiple jurisdictions are often involved. <input type="checkbox"/> Potential evidentiary data is stored on the cloud or some other distant network resource. <input type="checkbox"/> Cases often cross international borders.	<input type="checkbox"/> Jurisdiction is established among agencies prior to investigations. <input type="checkbox"/> Investigators and other officials from different areas coordinate and cooperate on cases. <input type="checkbox"/> Court orders are obtained when requiring distant service providers to provide potentially evidentiary data. <input type="checkbox"/> There are bilateral or multi-lateral agreements that facilitate cooperation with foreign law enforcement agencies.
Threat: Search & Seizure <input type="checkbox"/>	Countermeasures <input type="checkbox"/>
<input type="checkbox"/> Cases are often challenged for lack of probable cause. <input type="checkbox"/> On-site investigators often proceed without knowledge of a warrant. <input type="checkbox"/> Investigators go beyond warrants originally used to assert search authority. <input type="checkbox"/> The evidentiary chain of custody is often challenged.	<input type="checkbox"/> Forensic investigators unequivocally identify and articulate a probable cause necessary to obtain search warrants. <input type="checkbox"/> Search warrants are obtained prior to investigation on site. <input type="checkbox"/> New search warrants are obtained as new evidence is uncovered to avoid charges of "stale" warrants. <input type="checkbox"/> Full documentation of the evidentiary chain of custody is maintained throughout the investigation.
Threat: Admissibility <input type="checkbox"/>	Countermeasures <input type="checkbox"/>
<input type="checkbox"/> Digital evidence is sometimes changed by seizure. <input type="checkbox"/> Individuals besides forensic investigators access original digital evidence. <input type="checkbox"/> Does activity related to cases come under legal/judicial review. <input type="checkbox"/> The state of evidence is often unknown prior to opening files.	<input type="checkbox"/> Strict measures are taken to ensure that when seizing digital evidence, the action does not change that evidence. <input type="checkbox"/> Only forensically competent persons are allowed access to original digital evidence. <input type="checkbox"/> All activities related to seizures, access, storage or transfer of digital evidence is fully documented, preserved and available for legal/judicial review. <input type="checkbox"/> Evidence is "frozen" prior to opening the files.

Must select one (minimum) Threat for each vulnerability selected

SAMPLE 1

Vulnerability: Requirement Review		7							
<input type="checkbox"/> Are requirements for a new application? <input checked="" type="checkbox"/> Are requirements for new functionalities or specific deficiencies?									
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr style="background-color: #e0e0e0;"> <td>Threat: Requirement Analysis</td> <td style="text-align: right;">9</td> </tr> <tr> <td colspan="2"> <input checked="" type="checkbox"/> Has the customer not approved requirements? <input checked="" type="checkbox"/> Has the customer provided insufficient developmental funding? <input checked="" type="checkbox"/> Has the customer not identified sustainment funding? </td> </tr> </table>	Threat: Requirement Analysis	9	<input checked="" type="checkbox"/> Has the customer not approved requirements? <input checked="" type="checkbox"/> Has the customer provided insufficient developmental funding? <input checked="" type="checkbox"/> Has the customer not identified sustainment funding?		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr style="background-color: #e0e0e0;"> <td>Countermeasures</td> <td style="text-align: right;">3</td> </tr> <tr> <td colspan="2"> <input checked="" type="checkbox"/> Requirements have been approved by Requirements Management Board. <input type="checkbox"/> Development funding is available. <input type="checkbox"/> Sustainment funding had been allotted for future years. </td> </tr> </table>	Countermeasures	3	<input checked="" type="checkbox"/> Requirements have been approved by Requirements Management Board. <input type="checkbox"/> Development funding is available. <input type="checkbox"/> Sustainment funding had been allotted for future years.	
Threat: Requirement Analysis	9								
<input checked="" type="checkbox"/> Has the customer not approved requirements? <input checked="" type="checkbox"/> Has the customer provided insufficient developmental funding? <input checked="" type="checkbox"/> Has the customer not identified sustainment funding?									
Countermeasures	3								
<input checked="" type="checkbox"/> Requirements have been approved by Requirements Management Board. <input type="checkbox"/> Development funding is available. <input type="checkbox"/> Sustainment funding had been allotted for future years.									
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr style="background-color: #e0e0e0;"> <td>Threat: Function Point Analysis</td> <td style="text-align: right;">3.6</td> </tr> <tr> <td colspan="2"> <input type="checkbox"/> Have function points not been created for the requirements? <input checked="" type="checkbox"/> Was the function point analysis not provided by a certified analysis? </td> </tr> </table>	Threat: Function Point Analysis	3.6	<input type="checkbox"/> Have function points not been created for the requirements? <input checked="" type="checkbox"/> Was the function point analysis not provided by a certified analysis?		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr style="background-color: #e0e0e0;"> <td>Countermeasures</td> <td style="text-align: right;">6</td> </tr> <tr> <td colspan="2"> <input checked="" type="checkbox"/> Function point analysis is available. <input type="checkbox"/> Analysis provided by a certified technician. </td> </tr> </table>	Countermeasures	6	<input checked="" type="checkbox"/> Function point analysis is available. <input type="checkbox"/> Analysis provided by a certified technician.	
Threat: Function Point Analysis	3.6								
<input type="checkbox"/> Have function points not been created for the requirements? <input checked="" type="checkbox"/> Was the function point analysis not provided by a certified analysis?									
Countermeasures	6								
<input checked="" type="checkbox"/> Function point analysis is available. <input type="checkbox"/> Analysis provided by a certified technician.									
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr style="background-color: #e0e0e0;"> <td>Threat: Testing Analysis</td> <td style="text-align: right;">7</td> </tr> <tr> <td colspan="2"> <input type="checkbox"/> Have test scripts not been identified? <input checked="" type="checkbox"/> Has test data not been collected? </td> </tr> </table>	Threat: Testing Analysis	7	<input type="checkbox"/> Have test scripts not been identified? <input checked="" type="checkbox"/> Has test data not been collected?		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr style="background-color: #e0e0e0;"> <td>Countermeasures</td> <td style="text-align: right;">7</td> </tr> <tr> <td colspan="2"> <input checked="" type="checkbox"/> Test scripts have been identified by requirements. <input type="checkbox"/> Test data is readily available. </td> </tr> </table>	Countermeasures	7	<input checked="" type="checkbox"/> Test scripts have been identified by requirements. <input type="checkbox"/> Test data is readily available.	
Threat: Testing Analysis	7								
<input type="checkbox"/> Have test scripts not been identified? <input checked="" type="checkbox"/> Has test data not been collected?									
Countermeasures	7								
<input checked="" type="checkbox"/> Test scripts have been identified by requirements. <input type="checkbox"/> Test data is readily available.									

SAMPLE 2

Vulnerability: Design		6							
<input checked="" type="checkbox"/> Has a Business analyst not reviewed the requirements? <input type="checkbox"/> Is an architecture lacking? <input checked="" type="checkbox"/> Do wireframes not exists?									
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr style="background-color: #e0e0e0;"> <td>Threat: Blueprinting</td> <td style="text-align: right;">8.1</td> </tr> <tr> <td colspan="2"> <input checked="" type="checkbox"/> Have data flows not been documented? <input type="checkbox"/> Have user interfaces not been wire-framed? </td> </tr> </table>	Threat: Blueprinting	8.1	<input checked="" type="checkbox"/> Have data flows not been documented? <input type="checkbox"/> Have user interfaces not been wire-framed?		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr style="background-color: #e0e0e0;"> <td>Countermeasures</td> <td style="text-align: right;">7.4</td> </tr> <tr> <td colspan="2"> <input checked="" type="checkbox"/> Data flows are available. <input type="checkbox"/> Wire-frames are available. </td> </tr> </table>	Countermeasures	7.4	<input checked="" type="checkbox"/> Data flows are available. <input type="checkbox"/> Wire-frames are available.	
Threat: Blueprinting	8.1								
<input checked="" type="checkbox"/> Have data flows not been documented? <input type="checkbox"/> Have user interfaces not been wire-framed?									
Countermeasures	7.4								
<input checked="" type="checkbox"/> Data flows are available. <input type="checkbox"/> Wire-frames are available.									
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr style="background-color: #e0e0e0;"> <td>Threat: Architecture</td> <td style="text-align: right;">4</td> </tr> <tr> <td colspan="2"> <input type="checkbox"/> Have the architectural views not been created? <input checked="" type="checkbox"/> Have data transformation requirements not been identified? </td> </tr> </table>	Threat: Architecture	4	<input type="checkbox"/> Have the architectural views not been created? <input checked="" type="checkbox"/> Have data transformation requirements not been identified?		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr style="background-color: #e0e0e0;"> <td>Countermeasures</td> <td style="text-align: right;">9</td> </tr> <tr> <td colspan="2"> <input checked="" type="checkbox"/> Architecture exist. <input checked="" type="checkbox"/> Data transformation requirement exists. </td> </tr> </table>	Countermeasures	9	<input checked="" type="checkbox"/> Architecture exist. <input checked="" type="checkbox"/> Data transformation requirement exists.	
Threat: Architecture	4								
<input type="checkbox"/> Have the architectural views not been created? <input checked="" type="checkbox"/> Have data transformation requirements not been identified?									
Countermeasures	9								
<input checked="" type="checkbox"/> Architecture exist. <input checked="" type="checkbox"/> Data transformation requirement exists.									
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr style="background-color: #e0e0e0;"> <td>Threat: Acceptance</td> <td style="text-align: right;">7</td> </tr> <tr> <td colspan="2"> <input checked="" type="checkbox"/> Have business processes not been properly documented within Blueprinting and Architecture documents? <input checked="" type="checkbox"/> Has an independent cost analysis not been created? </td> </tr> </table>	Threat: Acceptance	7	<input checked="" type="checkbox"/> Have business processes not been properly documented within Blueprinting and Architecture documents? <input checked="" type="checkbox"/> Has an independent cost analysis not been created?		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr style="background-color: #e0e0e0;"> <td>Countermeasures</td> <td style="text-align: right;">3</td> </tr> <tr> <td colspan="2"> <input type="checkbox"/> Detailed business processes have been documented. <input checked="" type="checkbox"/> Independent cost analysis is available and current. </td> </tr> </table>	Countermeasures	3	<input type="checkbox"/> Detailed business processes have been documented. <input checked="" type="checkbox"/> Independent cost analysis is available and current.	
Threat: Acceptance	7								
<input checked="" type="checkbox"/> Have business processes not been properly documented within Blueprinting and Architecture documents? <input checked="" type="checkbox"/> Has an independent cost analysis not been created?									
Countermeasures	3								
<input type="checkbox"/> Detailed business processes have been documented. <input checked="" type="checkbox"/> Independent cost analysis is available and current.									

Vulnerability: Personnel Quality
<input type="checkbox"/> Do certain personnel fail to meet minimal educational standards? <input type="checkbox"/> Is compensation of personnel not commensurate to that of similar workers in the area? <input type="checkbox"/> Is staffing turnover above the norm? <input type="checkbox"/> Are personnel losing enthusiasm due to work conditions or salary?

Threat: Educational Level
<input type="checkbox"/> Do some company personnel fail to meet minimal educational standards? <input type="checkbox"/> Do your personnel fail to receive training? <input type="checkbox"/> Are personnel allowed to substitute experience for education? <input type="checkbox"/> Did the company fail to check educational backgrounds as part of the hiring process? <input type="checkbox"/> Are other than traditional degrees from accredited institutions accepted?

Countermeasures
<input type="checkbox"/> Are your mid to upper level personnel all MBAs and lawyers? <input type="checkbox"/> Are personnel fully trained and oriented before entering the workplace? <input type="checkbox"/> Were personnel allowed to substitute experience only after being evaluated? <input type="checkbox"/> Were prospective hires educational credentials checked prior to employment? <input type="checkbox"/> Were online degrees accepted from only well known, accredited universities?

Threat: Pay and Benefits
<input type="checkbox"/> Does the company fail to pay its personnel the same as equivalent workers in the area? <input type="checkbox"/> Do your personnel fail to receive health insurance? <input type="checkbox"/> Are your personnel not given 401Ks or pensions? <input type="checkbox"/> Do your personnel leave for reasons of pay and benefits? <input type="checkbox"/> Does the company fail to link employee pay to company revenues?

Countermeasures
<input type="checkbox"/> Did company personnel receive equal or better pay than similar workers in the area? <input type="checkbox"/> Was health insurance offered by the company? <input type="checkbox"/> Were pensions or 401K contributions offered as part of the compensation package? <input type="checkbox"/> Was an employee retention program in place? <input type="checkbox"/> Did the company offer profit sharing or incentive based pay?

Threat: Turnover
<input type="checkbox"/> Does the company lack sufficient personnel to carry out its business processes? <input type="checkbox"/> Is personnel turnover above the norm for the company? <input type="checkbox"/> Are personnel underpaid relative to others in the area? <input type="checkbox"/> Does the company lack ties to schools and universities in the area? <input type="checkbox"/> Does the company fail to encourage continuing education of personnel?

Countermeasures
<input type="checkbox"/> Has the company recruited and hired enough personnel to meet its business needs? <input type="checkbox"/> Has the company implemented a personnel recruitment and retention program? <input type="checkbox"/> Were personnel compensated as much or more as others in the area? <input type="checkbox"/> Has the company established ties to institutions that can provide trained personnel? <input type="checkbox"/> Did the company require and pay for continuing education of personnel?

Threat: Dedication
<input type="checkbox"/> Do your personnel lack enthusiasm for their work? <input type="checkbox"/> Do your personnel rarely stay after 5:00 pm?

Countermeasures
<input type="checkbox"/> Were those that seemed lacking in enthusiasm weeded out in the hiring process? <input type="checkbox"/> Did personnel see projects through, staying past 5:00 pm?

<input type="checkbox"/> Do personnel seem to give the company a low priority? <input type="checkbox"/> Are promotions not done solely according to merit? <input type="checkbox"/> Does the company fail to reward high performers?
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<input type="checkbox"/> Did personnel put the welfare of the company above their own needs? <input type="checkbox"/> Are personnel clear that only high performers and dedicated personnel are promoted? <input type="checkbox"/> Is compensation tied to performance?

Vulnerability: Cost Factor

- Was standard cost itemization insufficiently high?
- Are materials prices lacking in stability?
- Is currency exchange hurting the bottom line?
- Do customers complain about inconvenient payment plans?

Threat: Standard Cost Itemization Failure Level

- Does the company fail to use lean production?
- Do your standard cost assumptions fail to be realistic?
- Are standard cost statistical applications insufficiently emphasized?
- Are standard cost estimates in place for long periods of time?
- Are standard costs widely divergent from actual costs?

Countermeasures

- Did the company adopt a lean costing approach?
- Were overhead and indirect costs such as turnover taken into consideration in the costing approach?
- Were objectively analyzed estimated costs taken into consideration?
- Were standard costs estimates adjusted on a timely basis?
- Were materials price variances taken into consideration?

Threat: Elevated Cost

- Are material costs unstable?
- Are administrative costs on the rise?
- Is wage stability lacking?
- Is inflation increasing?
- Are fuel and power costs rising?

Countermeasures

- Did the company use futures contracts to lock in prices?
- Did the company examine its business processes for cost cutting?
- Did the company lock in wages through contracts?
- Did the company pass on higher prices to its customers?
- Did the company utilize bulk purchasing or futures prices to lower the cost of energy?

Threat: International Currency Bottlenecks

- Do clients cancel international orders in mid production?
- Does the company fail to check the credit worthiness of foreign clients?
- Are products shipped without prior payment?
- Does the company lack an Open Account system for its international clients?
- Do currency fluctuations adversely affect the bottom line?

Countermeasures

- Did the company require a down payment on production from its foreign client?
- Are international purchases backed by irrevocable letters of credit in convertible currencies?
- Did the company utilize a Documents Against Payment system?
- Are Open Accounts offered to those foreign clients with excellent payment histories?
- Did the company utilize FOREX futures to mitigate currency fluctuations?

Threat: Inconvenient Payment Plans

- Are clients unable to pay up front?
- Does the company fail to use electronic invoices?
- Does the company receive other than electronic deposits as payment?

Countermeasures

- Did the company offer payment plans?
- Did the company digitize invoicing?
- Did the company accept only electronic payments?

- Are payments irregular?
- Does the company fail to tie shipping schedules to payment?

- Did clients accept monthly debiting of their accounts?
- Are payment plans tied to shipping schedules?

Vulnerability: Delivery Time
<input type="checkbox"/> Does the company fail to utilize logistics? <input type="checkbox"/> Are delivery companies used unreliable? <input type="checkbox"/> Are plans lacking in case of adverse events? <input type="checkbox"/> Are alternate delivery methods lacking?

Threat: Logistics
<input type="checkbox"/> Are shipments not made on a particular schedule? <input type="checkbox"/> Is the company vulnerable to supply chain disruptions? <input type="checkbox"/> Are suppliers sometimes late due to cash flow pressures? <input type="checkbox"/> Are there unprofitable customers driving logistical volatility? <input type="checkbox"/> Are shippers chosen for only cost reasons?

Countermeasures
<input type="checkbox"/> Does the company have a logistics system in place? <input type="checkbox"/> Did the company have multiple suppliers in its supply chain? <input type="checkbox"/> Did the company pay its suppliers promptly? <input type="checkbox"/> Did the company rationalize their customer portfolio and focus on the most profitable and stable? <input type="checkbox"/> Did the company only choose shippers with a superb on time delivery record?

Threat: Delivery Companies
<input type="checkbox"/> Does the company fail to use several companies for its deliveries? <input type="checkbox"/> Are shipments time critical? <input type="checkbox"/> Are only lowest cost shippers selected? <input type="checkbox"/> Do shipments fail to arrive because of localized adverse events? <input type="checkbox"/> Do shipments fail to clear customs quickly?

Countermeasures
<input type="checkbox"/> Did the company differentiate between international and domestic shippers? <input type="checkbox"/> Did the company utilize shippers that guarantee on time delivery? <input type="checkbox"/> Was the companies on time delivery track record the primary reason for selection? <input type="checkbox"/> Did shippers have the ability to route around localized adverse events? <input type="checkbox"/> Do international shippers work closely with customs to avoid delays?

Threat: Adverse Events
<input type="checkbox"/> Are particular delivery companies dependent on certain hub airports? <input type="checkbox"/> Does the company fail to practice JIT manufacturing? <input type="checkbox"/> Is the company dependent on supplies from politically unstable areas? <input type="checkbox"/> Do deliveries fail because of disruption due to political or economic turmoil in clients countries? <input type="checkbox"/> Do shipments fail because of volatile and severe climatic events?

Countermeasures
<input type="checkbox"/> Did the delivery company have the ability to route around adversely effected hubs? < <input type="checkbox"/> Did the company keep a reserve of critical materials in case of supply disruption? <input type="checkbox"/> Did the company diversify its suppliers to avoid disruption due to political instability? <input type="checkbox"/> Did the company purchase political risk insurance? <input type="checkbox"/> Were shipments insured?

Threat: Alternate Delivery Methods
<input type="checkbox"/> Does the company fail to diversify shipment methods for its deliveries? <input type="checkbox"/> Does the company fail to offer customers multiple choices in terms of shipping?

Countermeasures
<input type="checkbox"/> Did the company differentiate between time critical and non time critical shipments? <input type="checkbox"/> Did the company allow customers to select the shipment method?

<input type="checkbox"/> Does the company fail to use multiple shippers for all deliveries? <input type="checkbox"/> Do shipments fail to clear airports or seaports because of disruption? <input type="checkbox"/> Do shippers lack local contacts overseas?
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<input type="checkbox"/> Did the company investigate what shipping companies deliver to their customers destinations? <input type="checkbox"/> Are shippers capable of utilizing overland routes in case of airport or seaport disruption? <input type="checkbox"/> Do international shippers work closely with local delivery companies to provide alternate delivery means?

Vulnerability: Client Perceptions
<input type="checkbox"/> Do clients perceive the company as unreliable? <input type="checkbox"/> Do clients perceive the company as having financial difficulties? <input type="checkbox"/> Have most clients been with the company a short time? <input type="checkbox"/> Does the company lack a positive public image?

Threat: Reliability
<input type="checkbox"/> Do clients fail to receive shipments on time? <input type="checkbox"/> Do clients rarely have to wait longer than anticipated for production? <input type="checkbox"/> Have clients sued the company? <input type="checkbox"/> Do clients sometimes have non standard orders? <input type="checkbox"/> Are clients lacking follow up after receiving orders?

Countermeasures
<input type="checkbox"/> Were only shippers with excellent on time delivery records used? <input type="checkbox"/> Was the company able to meet production schedules as specified? <input type="checkbox"/> Did the company always meet its contractual obligations? <input type="checkbox"/> Did the company make all reasonable efforts to meet clients needs? <input type="checkbox"/> Did the company contact its customers after order fulfillment?

Threat: Financial Soundness
<input type="checkbox"/> Did suppliers have to wait for payment for long periods of time? <input type="checkbox"/> Did clients fail to receive bills when scheduled? <input type="checkbox"/> Were refunds to clients slow to be sent? <input type="checkbox"/> Do clients usually learn of company news from other than company contacts? <input type="checkbox"/> Have clients become aware of company cash flow problems?

Countermeasures
<input type="checkbox"/> Did the company pay its suppliers promptly? <input type="checkbox"/> Did the company bill clients on a regularly scheduled basis? <input type="checkbox"/> Did the company send refunds promptly? <input type="checkbox"/> Did the company have account representatives that are in regular contact with clients? <input type="checkbox"/> Did the company have outstanding lines of credit in case of cash flow problems?

Threat: Relationship History
<input type="checkbox"/> Do most clients lack a long history with the company? <input type="checkbox"/> Are clients rarely contacted? <input type="checkbox"/> Does the company never ask how service can be improved? <input type="checkbox"/> Do clients view the company negatively? <input type="checkbox"/> Does the company have little idea about how its clients feel about it?

Countermeasures
<input type="checkbox"/> Were new clients vetted for credit worthiness? <input type="checkbox"/> Did the company assign an account representative to clients? <input type="checkbox"/> Was service improvement input from long term customers solicited? <input type="checkbox"/> Did the company create goodwill with long term clients through discounts, freebies, personal attention, etc? <input type="checkbox"/> Does the company survey clients for satisfaction?

Threat: Public Relations
<input type="checkbox"/> Does the company make little effort to shape public perceptions of itself? <input type="checkbox"/> Does company news seldom originate from the company itself?

Countermeasures
<input type="checkbox"/> Did the company have a PR campaign? <input type="checkbox"/> Did the company have a corporate relations department providing news releases?

<input type="checkbox"/> Are company spokesmen infrequently heard from? <input type="checkbox"/> Is the company rarely in the public eye? <input type="checkbox"/> Did the company fail to create public good will?

<input type="checkbox"/> Did the company provide speakers or representatives available for interview? <input type="checkbox"/> Did the company engage a PR firm? <input type="checkbox"/> Did the company engage in charitable giving to create public good will?

Vulnerability: Local Service Reps Missing
<input type="checkbox"/> Is corporate expansion haphazard? <input type="checkbox"/> Does the company lack recruitment mechanisms other than want ads? <input type="checkbox"/> Is turnover high? <input type="checkbox"/> Are service reps underpaid?

Threat: Expansion Planning
<input type="checkbox"/> Has the company expanded rapidly recently? <input type="checkbox"/> Has the company's product growth been uneven? <input type="checkbox"/> Has the company's growth come primarily from one region? <input type="checkbox"/> Does the company lack someone in charge of expansion? <input type="checkbox"/> Does the company fail to change its expansion plan as circumstances change?

Countermeasures
<input type="checkbox"/> Did the company have an expansion plan to guide growth? <input type="checkbox"/> Did the company research market demand prior to launching products? <input type="checkbox"/> Did the company research regional market demand? <input type="checkbox"/> Did the company have a department dedicated to research and planning? <input type="checkbox"/> Did planners and analysts meet to periodically review expansion plans?

Threat: Recruitment
<input type="checkbox"/> Has growth outpaced recruitment? <input type="checkbox"/> Are other companies in the sector growing rapidly? <input type="checkbox"/> Has hiring picked up in the economy at large? <input type="checkbox"/> Does the company lack experienced service reps? <input type="checkbox"/> Is growth anemic?

Countermeasures
<input type="checkbox"/> Did the company have a recruitment plan to guide personnel growth? <input type="checkbox"/> Did the company enhance their recruitment program with incentives? <input type="checkbox"/> Did the company recruit at colleges and job fairs? <input type="checkbox"/> Did the company recruit from its competitors? <input type="checkbox"/> Did the company hire service reps part-time?

Threat: Turnover
<input type="checkbox"/> Do service reps seem overworked and tired? <input type="checkbox"/> Do service reps receive little or no training? <input type="checkbox"/> Are service reps underpaid relative to others in the area? <input type="checkbox"/> Do service reps have to work a double shift? <input type="checkbox"/> Are new products or procedures learned on the fly?

Countermeasures
<input type="checkbox"/> Were service rep workloads monitored? <input type="checkbox"/> Did the company provide training for service reps? <input type="checkbox"/> Did the company match area compensation for its service reps? <input type="checkbox"/> Did the company have enough service reps so that double shifts could be avoided? <input type="checkbox"/> Did the company require that reps receive training when new products or procedures are introduced?

Threat: Compensation
<input type="checkbox"/> Are service reps paid less than others in the area? <input type="checkbox"/> Are service reps not given benefits such as health insurance? <input type="checkbox"/> Do service reps lack pensions or 401Ks? <input type="checkbox"/> Are service reps required to work beyond eight hours?

Countermeasures
<input type="checkbox"/> Did the company exceed area compensation for its service reps? <input type="checkbox"/> Did the company ensure that full time service reps receive benefits such as health insurance? <input type="checkbox"/> Did the company ensure that full time service reps receive a pension or 401K? <input type="checkbox"/> Did service reps receive overtime?

<input type="checkbox"/> Do service reps make the same regardless of sales?

<input type="checkbox"/> Did the company tie compensation to performance?

Vulnerability: Communication Problems
<input type="checkbox"/> Do foreign languages create barriers for your company? <input type="checkbox"/> Do local customs impede your shipments? <input type="checkbox"/> Have differences in the legal systems abroad created obstacles? <input type="checkbox"/> Have technological problems prevented communication?

Threat: Language Barriers
<input type="checkbox"/> Is a significant portion of your business overseas? <input type="checkbox"/> Is a significant portion of your business web based? <input type="checkbox"/> Are few staff members familiar with foreign languages? <input type="checkbox"/> Do you receive foreign language documents? <input type="checkbox"/> Do you frequently have to tell locals you don't speak their language?

Countermeasures
<input type="checkbox"/> Do you have translators available? <input type="checkbox"/> Are your web pages in multiple languages? <input type="checkbox"/> Do you have multilingual staff? <input type="checkbox"/> Was a means of translation available? <input type="checkbox"/> Do you have a translation app on your smart phone?

Threat: Customs Barriers
<input type="checkbox"/> Is a substantial portion of your production shipped abroad? <input type="checkbox"/> Do misunderstandings occur? <input type="checkbox"/> Does your staff avoid overseas travel? <input type="checkbox"/> Did the deal seem done and then was later canceled? <input type="checkbox"/> Are bribes needed to facilitate business overseas in some locales?

Countermeasures
<input type="checkbox"/> Is your staff familiar with the local way of doing business? <input type="checkbox"/> Do you have local representatives in place? <input type="checkbox"/> Does your staff receive training or orientation prior to overseas travel? <input type="checkbox"/> Is business undertaken in conformance to local laws and customs? <input type="checkbox"/> Is business undertaken in conformance to US law?

Threat: Legal System Differences
<input type="checkbox"/> Does the country lack a well established legal system? <input type="checkbox"/> Is the legal system based on something other than English common law? <input type="checkbox"/> Are judicial decisions based on other than the rule of law? <input type="checkbox"/> Does litigation take several years if not a decade? <input type="checkbox"/> Do you lack a clear sense of what the legal system is in a particular country?

Countermeasures
<input type="checkbox"/> Did the parties agree to outside arbitration or adjudication in a third country? <input type="checkbox"/> Has the company hired local legal representation? <input type="checkbox"/> Did the company purchase political risk insurance? <input type="checkbox"/> Did the company require prior payment? <input type="checkbox"/> Did the company have staff familiar with the legal systems of other countries?

Threat: Technology Differences
<input type="checkbox"/> Does the country use a different electrical system? <input type="checkbox"/> Do your personal appliances not work there? <input type="checkbox"/> Does your cell phone not work there? <input type="checkbox"/> Does the client use an office suite other than

Countermeasures
<input type="checkbox"/> Did the company have the ability to manufacture for different electrical systems? <input type="checkbox"/> Did you purchase electrical adaptors? <input type="checkbox"/> Did you purchase a global band cell phone? <input type="checkbox"/> Did you have the ability to read and write documents

<input type="checkbox"/> Microsoft Office? <input type="checkbox"/> Is connectivity haphazard or slow?

<input type="checkbox"/> in different formats? <input type="checkbox"/> Did you have an alternate means to connect to the internet such as using your cell phone?
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Vulnerability: Hardware Deficiency
<input type="checkbox"/> Did the company lack funding for hardware purchases? <input type="checkbox"/> Did the company fail to monitor technology trends? <input type="checkbox"/> Did the staff lack hardware knowledge? <input type="checkbox"/> Did management fail to back the acquisition of the latest hardware?

Threat: Funding
<input type="checkbox"/> Does hardware need replacing? <input type="checkbox"/> Is the company new or a startup? <input type="checkbox"/> Is the company facing cash flow problems? <input type="checkbox"/> Does management view the expense of hardware acquisition negatively? <input type="checkbox"/> Is hardware acquisition done sporadically?

Countermeasures
<input type="checkbox"/> Did the company have sufficient funding on hand to replace needed hardware? <input type="checkbox"/> Was the company fully capitalized? <input type="checkbox"/> Did the company acquire interim funding or bridge loans? <input type="checkbox"/> Did management view hardware acquisition as an investment? <input type="checkbox"/> Did the company have a hardware acquisition plan where purchases are done according to schedule?

Threat: Technology Trends
<input type="checkbox"/> Does your hardware seem obsolete? <input type="checkbox"/> Do new technologies surprise you? <input type="checkbox"/> Is hardware replaced only when it's falling apart? <input type="checkbox"/> Are servers built from old computers? <input type="checkbox"/> Are staff tied to their desktops?

Countermeasures
<input type="checkbox"/> Did the company make a point of having up to date hardware? <input type="checkbox"/> Does your IT staff monitor the latest technological trends? <input type="checkbox"/> Was hardware replaced following a predetermined plan and schedule? <input type="checkbox"/> Does your company run the latest dedicated servers? <input type="checkbox"/> Do staff have mobile computing available to them?

Threat: Staff Knowledge
<input type="checkbox"/> Do IT staff pick up knowledge on their own? <input type="checkbox"/> Are IT staff hired without experience? <input type="checkbox"/> Are tasks done as if it is the very first time? <input type="checkbox"/> Do you rarely know who to ask about hardware issues? <input type="checkbox"/> Is staff hardware knowledge diffused?

Countermeasures
<input type="checkbox"/> Did IT staff receive training? <input type="checkbox"/> Did the IT staff mostly consist of experienced personnel? <input type="checkbox"/> Were procedures documented? <input type="checkbox"/> Was there a helpdesk? <input type="checkbox"/> Does someone on the IT staff specialize in hardware?

Threat: Management Backing
<input type="checkbox"/> Does hardware need replacing? <input type="checkbox"/> Is getting management to approve hardware purchases very difficult? <input type="checkbox"/> Does management view hardware purchases as a necessary evil? <input type="checkbox"/> Is hardware purchased because it is the newest

Countermeasures
<input type="checkbox"/> Did the company replace hardware on a pre-planned, schedule? <input type="checkbox"/> Did the company have management aware that hardware generally has a life cycle of less than five years? <input type="checkbox"/> Did management view hardware purchases as an investment that can lower costs? <input type="checkbox"/> Was hardware selected on a cost-benefit basis?

<input type="checkbox"/> available? <input type="checkbox"/> Are business processes slowed down due to a lack of hardware?

<input type="checkbox"/> Did management view hardware acquisition as a means to make business processes faster and more efficient?
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Vulnerability: Software Deficiency
<input type="checkbox"/> Did the company lack funding for hardware purchases? <input type="checkbox"/> Did the company fail to monitor technology trends? <input type="checkbox"/> Did the staff lack hardware knowledge? <input type="checkbox"/> Did management fail to back the acquisition of the latest hardware?

Threat: Funding
<input type="checkbox"/> Is software not up to the task? <input type="checkbox"/> Is the company recently established? <input type="checkbox"/> Is the company facing cash flow problems? <input type="checkbox"/> Is the company facing short term cash flow problems? <input type="checkbox"/> Is software acquisition done on an ad hoc basis?

Countermeasures
<input type="checkbox"/> Did the company have sufficient funding on hand to purchase more functional software? <input type="checkbox"/> Was the company fully funded? <input type="checkbox"/> Did the company acquire temporary funding? <input type="checkbox"/> Did management consider software acquisition an investment? <input type="checkbox"/> Did the company have a software acquisition plan where purchases are done according to schedule?

Threat: Software Trends
<input type="checkbox"/> Is your software an older release? <input type="checkbox"/> Are you unfamiliar with software trends? <input type="checkbox"/> Is software replaced only when it's no longer up to the task? <input type="checkbox"/> Does your IT staff fail to look for more functional software? <input type="checkbox"/> Does inadequate software tie your staff to their desks?

Countermeasures
<input type="checkbox"/> Did the company make a point of having up to date software? <input type="checkbox"/> Does your IT staff monitor the latest software trends? <input type="checkbox"/> Was software replaced following a schedule or predetermined plan? <input type="checkbox"/> Is your IT staff always on the search for new software that can enhance your business processes or lower costs? <input type="checkbox"/> Does your software support mobile computing?

Threat: Staff Knowledge
<input type="checkbox"/> Do IT staff pick up software expertise on their own? <input type="checkbox"/> Are IT staff hired without experience? <input type="checkbox"/> Do non IT staff learn software on their own? <input type="checkbox"/> Do you rarely know who to ask about software issues? <input type="checkbox"/> Is staff software knowledge diffused?

Countermeasures
<input type="checkbox"/> Did IT staff receive software training? <input type="checkbox"/> Did the IT staff consist primarily of experienced personnel <input type="checkbox"/> Were procedures documented and training given on new software by the IT department? <input type="checkbox"/> Was a helpdesk available? <input type="checkbox"/> Do particular IT staff specialize in software?

Threat: Management Backing
<input type="checkbox"/> Is deciding when software gets replaced haphazard? <input type="checkbox"/> Is getting management to approve software purchases problematic? <input type="checkbox"/> Does management view software purchases as a necessary evil?

Countermeasures
<input type="checkbox"/> Did the company replace software according to a pre-determined plan? <input type="checkbox"/> Did company management know that software generally has a life cycle of less than four years? <input type="checkbox"/> Did management view software purchases as an investment that can lower costs?

<input type="checkbox"/> Is software purchased because it is the newest available? <input type="checkbox"/> Are business processes slowed down due to a lack of adequate software?

<input type="checkbox"/> Was software selected on a cost-benefit basis? <input type="checkbox"/> Did management view software acquisition as a means to make business processes faster and more efficient, as well as lowering costs?
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Vulnerability: Managerial Quality
<input type="checkbox"/> Did the company lack highly educated or experienced management? <input type="checkbox"/> Did the company compensate management at the same level as other management in the industry? <input type="checkbox"/> Was there high management turnover? <input type="checkbox"/> Was management committed to superior service and performance?

Threat: Education
<input type="checkbox"/> Do management personnel fail to meet minimal educational requirements? <input type="checkbox"/> Does your management fail to receive continuing education? <input type="checkbox"/> Do management personnel substitute experience for education? <input type="checkbox"/> Are educational backgrounds unverified prior to hiring? <input type="checkbox"/> Are other than traditional degrees accepted?

Countermeasures
<input type="checkbox"/> Is your mid to upper level management MBAs and lawyers? <input type="checkbox"/> Does lower to mid level management attend workshops, seminars, or other continuing education? <input type="checkbox"/> Were management personnel allowed to substitute experience only after being carefully evaluated? <input type="checkbox"/> Were prospective management personnel vetted? <input type="checkbox"/> Were online degrees from only well known, accredited universities accepted?

Threat: Compensation
<input type="checkbox"/> Is your management compensated less than others? <input type="checkbox"/> Does your management fail to receive stock options? <input type="checkbox"/> Does your management fail to receive pensions on leaving or retiring the company? <input type="checkbox"/> Does your management leave for reasons of compensation? <input type="checkbox"/> Is management pay not tied to company performance?

Countermeasures
<input type="checkbox"/> Did your management receive equal or better compensation than same level management workers in the industry? <input type="checkbox"/> Were stock options offered as part of the compensation package? <input type="checkbox"/> Were pensions or 401K contributions offered as part of the compensation package? <input type="checkbox"/> Was compensation not an issue for management personnel? <input type="checkbox"/> Was profit sharing or incentive based pay offered?

Threat: Retention
<input type="checkbox"/> Does the company lack leadership? <input type="checkbox"/> Are management personnel leaving the company? <input type="checkbox"/> Does management lack equivalent compensation? <input type="checkbox"/> Does the company not have ties to business or law schools? <input type="checkbox"/> Does the company fail to encourage continuing education for management?

Countermeasures
<input type="checkbox"/> Has the company recruited and hired superior management? <input type="checkbox"/> Has a recruitment and retention program for management personnel been implemented? <input type="checkbox"/> Were management personnel compensated as much or more as others in the industry? <input type="checkbox"/> Has the company established ties to universities that can provide trained management? <input type="checkbox"/> Did the company require and pay for continuing education of management?

Threat: Commitment
<input type="checkbox"/> Does your management lack enthusiasm?

Countermeasures
<input type="checkbox"/> Were efforts made to hire only those that are clearly dedicated and enthusiastic?

<input type="checkbox"/> Do your management personnel keep banker's hours? <input type="checkbox"/> Do management personnel think it's all about them? <input type="checkbox"/> Are managerial promotions not done on the basis of merit? <input type="checkbox"/> Do high performers make the same as other managers?

<input type="checkbox"/> Did management see projects through regardless of time required? <input type="checkbox"/> Did management personnel put the welfare of the company above their own needs? <input type="checkbox"/> Are management personnel clear that only the profitable and dedicated are promoted? <input type="checkbox"/> Is compensation a function of performances?
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Vulnerability: Macro Economic Factors
<input type="checkbox"/> Is the economy growing slowly or contracting? <input type="checkbox"/> Are interest rates high? <input type="checkbox"/> Are commodity prices fluctuating or increasing steadily? <input type="checkbox"/> Is there an adverse regulatory environment?

Threat: Growth Rates
<input type="checkbox"/> Is the economy contracting or growing slowly? <input type="checkbox"/> Is the company in an industry highly sensitive to growth rates? <input type="checkbox"/> Is business demand low? <input type="checkbox"/> Is consumer demand low? <input type="checkbox"/> Is the company reliant on one country for its primary market?

Countermeasures
<input type="checkbox"/> Did the company reduce costs and overhead? <input type="checkbox"/> Did the company diversify its industry exposure? <input type="checkbox"/> Did the company offer business discounts? <input type="checkbox"/> Did the company offer consumer promotions? <input type="checkbox"/> Did the company diversify its markets internationally?

Threat: Interest Rates
<input type="checkbox"/> Are interest rates high? <input type="checkbox"/> Did the company offer alternative payment plans? <input type="checkbox"/> Are clients payments late or partial? <input type="checkbox"/> Does the company have substantial interest payments? <input type="checkbox"/> Did the company fail to diversify its financing?

Countermeasures
<input type="checkbox"/> Did the company raise capital through bond or stock offerings rather than borrowing? <input type="checkbox"/> Did the company offer a discount for paying upfront? <input type="checkbox"/> Did the company ease payment terms? <input type="checkbox"/> Did the company use forward contracts to mitigate interest rate rises? <input type="checkbox"/> Did the company raise capital in overseas markets or privately?

Threat: Commodity Prices
<input type="checkbox"/> Is the company vulnerable to commodity price rises? <input type="checkbox"/> Is the company dependent on a very small number of suppliers for its commodities? <input type="checkbox"/> Is the company reliant on a particular commodity? <input type="checkbox"/> Does the company fail to cut costs in other areas when commodity prices rise? <input type="checkbox"/> Did the company fail to investigate new production technologies?

Countermeasures
<input type="checkbox"/> Did the company lock in commodity prices through forward contracts? <input type="checkbox"/> Did the company diversify its commodity suppliers? <input type="checkbox"/> Was the company able to substitute one commodity for another in production? <input type="checkbox"/> Did the company pass on increased commodity prices to its customers? <input type="checkbox"/> Did the company explore new technologies that can lessen its reliance on particular commodities?

Threat: Regulatory Environment
<input type="checkbox"/> Is the industry facing increased regulation? <input type="checkbox"/> Does the company have a predominant position in the industry? <input type="checkbox"/> Will pending legislation have an adverse impact on the company? <input type="checkbox"/> Are new ventures hard to launch due to regulatory measures?

Countermeasures
<input type="checkbox"/> Did the industry hire lobbying and public relations representation? <input type="checkbox"/> Did the company spin off corporate entities? <input type="checkbox"/> Did the company present its case in Washington? <input type="checkbox"/> Did the company have foreign subsidiaries in less regulated markets?

<input type="checkbox"/> Did the company fail to monitor regulatory events?

<input type="checkbox"/> Did the company have legal and corporate staff monitoring regulatory events?
