pGc Paul Garstki Consulting

INDEPENDENT REVIEW

OF A PROPOSED

LOTTERY GAMING PROJECT

For the
State of Vermont
Agency of Digital Services (ADS)
And
Department of Liquor and Lottery,
Lottery Division (Lottery)

Submitted to the
State of Vermont, Office of the CIO
by:

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August 10, 2021

version 5.0a

CONTENTS

TABLES

1 EXECUTIVE SUMMARY

Provide an introduction that includes a brief overview of the technology project and selected vendor(s) as well as any significant findings or conclusions. Ensure any significant findings or conclusions are supported by data in the report.

The Vermont Lottery (the Lottery) was created by legislative action in 1977 to "produce the maximum amount of net revenue consonant with the dignity of the state and the general welfare of the people." In July 1998, the Vermont Legislature mandated that all profits from the Vermont Lottery go to the state's Education Fund. The Lottery's gaming system is the hardware, software, communications infrastructure, data management, and operations that comprise the "back office" of all the Lottery's activity. Like nearly all states which host a lottery, Vermont (the State) employs one of three gaming system providers to provide and operate this system.

The existing system was inaugurated in 2010. The State decided in 2020 to issue a Request for Proposals (RFP) to procure a new gaming system. In response, two compliant proposals and one non-compliant proposal were submitted. Following careful consideration, the State selected Scientific Games International (SGI) for the proposed project.

System providers are compensated on a percentage basis of either Net Sales or Gross Gaming Revenue, and bidders were required to submit pricing on both bases. The Department of Liquor and Lottery, Division of Lottery (the Lottery) is an enterprise fund of the State of Vermont. The Lottery's operations are classified as business-type activities and reported in a manner similar to commercial entities. It is important for the reader of this Independent Review to understand that the proposed project is not a typical State IT acquisition or "build." Aside from some optional features selected by the State for this project, which carry yearly fixed costs, the compensation to the system provider (the selected vendor) will vary from year to year depending on the sales performance of the Lottery.

For this Independent Review, we have attempted to project and estimate the costs of this project in a way that will be understandable to the casual reader and can be compared to existing costs. However, it should not be taken as a report on Lottery finances or financial performance. For this we refer the reader to the Lottery's Annual Audits.

1.1 COST SUMMARY

Table 1 - Cost Summary

IT Activity Lifecycle (years):	**10**
Total Lifecycle Costs:	**$45,724,079.00**
Total Implementation Costs:	**$1,114,191.00**
New Average Annual Operating Costs:	**$4,460,988.80**
Current Annual Operating Costs	**$4,475,030.40**
Difference Between Current and New Operating Costs:	**-$14,041.60**
Funding Source(s) and Percentage Breakdown if Multiple Sources:	**State**

1.2 DISPOSITION OF INDEPENDENT REVIEW DELIVERABLES

Table 2 - Disposition of Independent Review Deliverables

Deliverable	Highlights from the Review *Include explanations of any significant concerns*
Acquisition Cost Assessment	Total acquisition costs are $1,114,191.00. Costs are reasonable for these elected options in a project of this magnitude and reflect *only* implementation costs for optioned hardware, software, and services and internal State costs for services provided by ADS and professional services. Acquisition of the gaming system itself is not borne by the State as separate from the percentage of Gross Gaming Revenue. Ongoing service costs for the overall solution seem reasonably in line with expectations and significantly lower than the other vendor's proposal.
Technology Architecture Review	The proposed system is robust, and highly recoverable. It is well-aligned with the State IT Strategic Plan and with Enterprise Architecture Principles. The vendor manages the entire communications network and provides the hardware (e.g., retail terminals and ticket vending machines). The core system is hosted in 2 geographically diverse data centers, each meeting or exceeding State requirements for protection and recoverability.

	The disaster recovery plan is comprehensive and appropriately proactive. The Service Level Agreement (SLA) is very clear, comprehensively detailed, and includes a schedule for liquidated damages should targets not be met.
Implementation Plan Assessment	The conversion and implementation of the new gaming system would take a year from contract execution. The vendor's implementation plan, project management, and staffing reflect extensive experience and demonstrate industry best practices. We think that this timeline is realistic, particularly on the vendor's side. State stakeholders are enthusiastic about a new system and have had some frustration with the existing vendor. There are a few points of risk here, primarily because the Lottery team is quite small and currently "understaffed" due to the loss of some positions. Loss of personnel or restrictions due to a pandemic resurgence could cause some delay. However, the State's proposed mitigations are good and likely to provide protection. Additionally, the State has the option to extend the contract with the current vendor, so timeline delays can be mitigated after they occur. Project management on the State side is excellent.
Cost Analysis and Model for Benefit Analysis	The RFP required bidders to submit pricing as a percentage of Net Sales and also as a percentage of Gross Gaming Revenue (GGR), the choice of pricing to be made by the State. The State has opted for the GGR percentage, and we concur with this decision. Weekly operational services billed at 8.6050% of GGR would amount to an **annual cost of $3,974,649.50** if we use the State's hypothetical GGR figure from the RFP. Note that this cost will vary from year to year depending on the actual GGR. The optional hardware, software, and services selected by the State together comprise a **procurement cost of $835,000.00 and an annual cost of $562,800.00**. Other project procurement costs include ADS and Independent Review services for a **one-time total of $279,191.00**. Tangible Benefits include: o Retirement of $284,400.00 / year cost for current system vending machines, for a lifecycle total of **$2,844,000.00.** o A decrease in cost to the vendor as a percentage of Net Sales as compared to the current cost, **approximately 0.2%.** Intangible benefits include an extensive list of improvements to Lottery operations and customer service that exceed the original aims of the project and may increase sales and in turn increase the Lottery's contribution to the Education Fund as the project lifecycle continues.

Analysis of Alternatives	We explore 3 options that are deemed unfeasible: o One vendor's proposal, while satisfactory in many ways, was sufficiently higher priced to be apparently financially unfeasible, in our opinion. o Continuing to operate the existing system as-is we deem to be unsustainable, as the 10-year-old system is increasingly uncompetitive. o Building a State designed and hosted "in-house" system is unfeasible, as Vermont does not have the necessary resources to do so in a reasonable way.
Impact Analysis on Net Operating Costs	We conducted two complementary analyses of comparison to current costs over the project lifecycle. The first analysis employs a ***hypothetical* cost of operations using the State's Net Sales figure from the RFP** with the percentage of Net Sales pricing, showing an increased cost of **$973,775.00** over the lifecycle of the project. The second analysis shows **only the fixed costs (for elected options)**, with a cost increase of **$3,898,191.00** over the lifecycle of the project. (Our hypotheticals do not include possible increased sales.) **For about the same overall costs per year, the Lottery would gain significant improvements in retail operations, system management, security analysis, and business intelligence capabilities.** **Ultimately, the impact that the proposed project will have will be best measured by the extent to which the Lottery fulfills its mission, i.e., how much it contributes to the Education Fund each year. The trend over time has been a gradual increase in this contribution. We see no reason why this should not continue, and the improvements implemented in this project may impact that contribution positively.**
Security Assessment	Lottery gaming systems must be secured "like banks" because they are highly attractive targets for bad actors. The State's security analyst assesses the vendor's security stance as very robust. The system protects the State's data and the privacy of its retailers and game players. Statistical Analysis Software acquired as an option by the State will further increase the State's capability to detect possible instances of fraud. We judge that the certifications and audits presented by the vendor are comprehensive and appropriate for a lottery system, reflect industry best practices, and in conjunction with the vendor's implementation and third-party attestation to NIST 800-53 controls are congruent with State requirements for a highly secure system.

1.3 IDENTIFIED HIGH IMPACT &/OR HIGH LIKELIHOOD OF OCCURRENCE RISKS

NOTE: Throughout the narrative text of this document, **Risks and Issues are identified by bold red text**, and an accompanying tag (**_RISK_ID# _0_** provides the Risk or Issue ID to reference the risk, response, and reference in the Risk Register.

The following table lists the risks identified as having high impact and/or high likelihood (probability) of occurrence.

Please see the **Risk & Issues Register, in Section 10**, for details.

Table 3 - Identified High Impact &/or High Likelihood of Occurrence Risks

Risk Description	RATING IMPACT/ PROB	State's Planned Risk Response	Reviewer's Assessment of Planned Response
Project business team is very small and relatively dependent upon one individual for subject matter expertise. The loss of this individual or any other team member for any reason (retirement, illness, personal choice, etc.) could significantly slow implementation progress if vendor must slow implementation waiting for State participation.	**21** **7/3**	**MITIGATE:** **1.) Considering continuing contract with SME consultant during implementation** **2.) Considering replacing up to 3 staff positions which have been recently vacated.** **3.) If project is delayed, contract with existing vendor has available potential extension."**	**Concur**
On June 29, 2021, Scientific Games Corporation (NASDAQ: SGMS), the parent company of the selected vendor, Scientific Games International, announced its intention to divest its Lottery and Sports Betting businesses. This restructuring could potentially create a condition where the vendor cannot or will not perform the contract, during implementation or during operation.	**30** **10/3**	**"ACCEPT:** **If non-performance occurs during implementation, the State could invoke contract termination clause(s).** **If non-performance occurs once the system is in operation, the State would rely on the experience of other states in similar circumstances and request the help of other service providers in maintaining uninterrupted operation of the Lottery. "**	

1.4 OTHER KEY ISSUES

none

1.5 RECOMMENDATION

We recommend that this project proceed as planned, with particular attention to demands on Lottery staff time during implementation.

1.6 INDEPENDENT REVIEWER CERTIFICATION

I certify that this Independent Review Report is an independent and unbiased assessment of the proposed solution's acquisition costs, technical architecture, implementation plan, cost-benefit analysis, and impact on net operating costs, based on the information made available to me by the State.

E-SIGNED by Paul Garstki
on 2021-08-18 16:24:20 GMT

_____ _____

Independent Reviewer Signature **Date**

1.7 REPORT ACCEPTANCE

The electronic signatures below represent the acceptance of this document as the final completed Independent Review Report.

E-SIGNED by Morgan Amell
on 2021-08-19 14:11:45 GMT

_____ _____

ADS Oversight Project Manager **Date**

E-SIGNED by John Quinn
on 2021-08-23 11:18:32 GMT

_____ _____

State of Vermont Chief Information Officer **Date**

2 SCOPE OF THIS INDEPENDENT REVIEW

2.1 IN-SCOPE

The scope of this document is fulfilling the requirements of Vermont Statute, Title 3, Chapter 056, §3303(d):

2.1.1 THE AGENCY SHALL OBTAIN INDEPENDENT EXPERT REVIEW OF ANY NEW INFORMATION TECHNOLOGY PROJECTS WITH A TOTAL COST OF $1,000,000.00 OR GREATER OR WHEN REQUIRED BY THE CHIEF INFORMATION OFFICER

2.1.2 THE INDEPENDENT REVIEW REPORT INCLUDES:

A. An acquisition cost assessment.
B. A technology architecture and standards review.
C. An implementation plan assessment.
D. A cost analysis and model for benefit analysis.
E. An analysis of alternatives.
F. An impact analysis on net operating costs for the Agency carrying out the activity; and
G. A security assessment.

2.2 OUT-OF-SCOPE

- A separate deliverable contracted as part of this Independent Review may be procurement negotiation advisory services, but documentation related to those services are not part of this report.

3 SOURCES OF INFORMATION

3.1 INDEPENDENT REVIEW PARTICIPANTS

Table 4 - Independent Review Participants

Name	Date of First Interview	Employer	Title	Participation Topic(s)
Morgan Amell	10/30/2020	ADS EPMO	IT Portfolio Manager	Project Oversight
Cheryl Burcham	10/30/2020	ADS EPMO	IT Project Manager	Project Management
Gary Kessler	11/12/2020	Division of Lottery	Deputy Commissioner (retired)	Overview
Sabina Haskell	5/25/2021	Division of Lottery	Deputy Commissioner	Overview
Sylvia Buzzell	11/18/2020	Division of Lottery	Lottery Games & Systems Specialists	Staff Assessment of Project
Danielle Jensen	11/18/2020	Division of Lottery	Customer Service & Licensing Director	Staff Assessment of Project
David Kaiser	11/16/2020	ADS Security	Deputy Chief Information Security Officer	Security and Privacy
John Hunt	11/16/2020	ADS Enterprise Architecture	Enterprise Architect	Enterprise Architecture
Brian Mclaughlin	11/18/2020	Division of Lottery	Lottery Director of Security	Security
Linda Vincent	11/16/2020	ADS	IT Administrator	IT

3.2 INDEPENDENT REVIEW DOCUMENTATION

The following documents were used in the process and preparation of this Independent Review.

Table 5 - Independent Review Documents

Document	Source
Draft Contract #20210418 between State and Scientific Games International, Inc., with all attachments, dated April 15, 2021	State
5-26-2021 Waiver Request to include RFP Response in Gaming System Contract	State
Vermont Lottery Audits, 2018-2020	State
Vermont Lottery Annual Report 2020	State
DLL Lottery and Gaming Architecture Assessment	State
Lottery Gaming Project - Project Charter	State
Information Technology Activity Business Case & Cost Analysis (IT ABC form)	State
SEALED BID INFORMATION TECHNOLOGY REQUEST FOR PROPOSAL FOR Lottery Gaming Services, Sales Channels, and Related Systems (July 15, 2020)	State
Lottery Gaming Services, Sales Channels, and Related Systems SUBMITTED To Vermont Lottery BY Scientific Games International, Inc.	Scientific Games International, Inc.
New Hampshire Lottery Commission COMPREHENSIVE ANNUALFINANCIAL REPORT For the Fiscal Year Ended June 30, 2020	New Hampshire
Department of Administrative and Financial Services Bureau of Alcoholic Beverages and Lottery Operations Financial Statements Fiscal Year Ending June 30, 2020	State of Maine

4 PROJECT INFORMATION

4.1 HISTORICAL BACKGROUND

In 2018, the Lottery decided to pursue the acquisition of a new gaming system to replace the existing system which dated from 2010. The aim was to acquire a new system before the existing 10-year contract expired. An RFP was issued, proposals received, and a vendor selection. Successful litigation by an unsuccessful bidder brought that project to a halt.

In 2020, the Lottery began a new process of development acquisition objectives and requirements, developing an extensive Statement of Work (SOW), and issued a new RFP to which all three gaming system providers responded. The project team, including Lottery staff members as well as ADS support for project management, enterprise architecture, security, and IT performed a rigorous and transparent scoring process which resulted in the selection of the proposal by Scientific Games International, Inc. (SGI). The present Independent Review began at the end of October 2020. The State soon began contract negotiations will the selected vendor. In 2021 an unsuccessful bidder again brought suit against the State. This paused the project for some weeks. The State prevailed in the litigation and the contract negotiations continued.

Along with the requirements of the gaming system as described in the SOW, the State also invited bidders to optional services as defined by the State in the RFP. The State elected some of these options, as will be described in this Review.

By June 18, 2021, the State project team had a draft contract which they felt was “almost 100% complete,” and it was that contract draft that is referred to in this Review.

4.2 PROJECT GOAL

The Division of Lottery needs to obtain a new System contract prior to the end of its current expiring contract. The Division of Lottery sells both instant and online tickets and is seeking a fully integrated gaming system that will support the needs of the Lottery for at least the next ten years, to include:

- Provide retailer terminals, support systems, and services which are new, operationally sound, incorporating the highest level of integrity and security, and minimizing risk to the State.
- Provide terminals which lead to a high retail satisfaction for quality and performance.
- Provide a System that is sufficiently flexible to meet the State's changing requirements and maximize the net lottery proceeds for the State of Vermont.

4.3 PROJECT SCOPE

4.3.1 IN-SCOPE

Contract with a vendor that will provide the following for the implementation of a new Lottery gaming system as well as ongoing support and services for the length of the contract:

- Lottery services and a Gaming System including marketing services, operational services and
- associated gaming products, and sales channels.
- Revenue optimization services
- Operational services
- Sales channels, sales channel connectivity, and sales channel support services
- Terminal games
- Lottery gaming system management and operational capabilities for terminal games and
- instant games, and combined instant/terminal game accounting
- Primary and back-up computer systems, operational facilities, and connectivity
- Software updates and maintenance

4.3.2 OUT-OF-SCOPE

- Division of Liquor

4.3.3 MAJOR DELIVERABLES

Table 6 - Major Deliverables

Gaming System Configuration
Gaming System Configuration at the Primary Data Center (PDC)
Gaming System Configuration at the Backup Data Center (BDC)
Lottery, Instant Ticket Warehouse and Acceptance Testing System
Internal Control System Configuration
Retailer and Consumer Interfaces and Peripherals
Retailer Terminals
Privileged Validation Terminals
Retailer Portal
Mobile Terminals
Peripherals
Sales Channel Equipment for Lottery Acceptance Testing
Communications Network Requirements
Communications Network Requirements
Network Design
Network Administration Services

Software Application and Data Management
Revenue Generation Services and Support
Facilities
Primary Data Center
Backup Data Center
Service Centers
Local Administrative Offices
Lottery Business Continuity Site
Operational Services
Project Management, Implementation, and System Conversion
Options Elected by State
Upgrade Vending Machine Bins from 24 to 28
Infuse Premium Software
Statistical Analysis Software
Dual Communications Channels to Retailers
PIN Payment Card Capability for Selected Retailers

4.4 PROJECT PHASES, MILESTONES, AND SCHEDULE

Table 7 - Project Milestones

Project Milestone	Date
RFP Issued	7/15/2020
Question Period Closed	7/30/2020
Prebid Conference	8/13/2020
Proposals Due	9/3/2020
Evaluation of Proposals Complete	10/12/2020
Independent Review Process	10/12/2020
Contract Signed	Summer 2021
Project Starts	Summer 2021
Implementation/Conversion	Summer 2022

5 ACQUISITION COST ASSESSMENT

Table 8 - Acquisition Costs

Acquisition Costs	Cost	Comments
Hardware Costs	**$87,500.00**	*Vending machines upgrade and PCI PIN pad capability*
Software Costs	**$747,500.00**	*SAS enhancement and Infuse Premium*
Implementation Services	**$0.00**	
State Personnel	**$261,422.00**	*ADS Services, Internal to State*
Professional Services	**$17,769.00**	*provided by IR consultant*
Total Acquisition Costs	**$1,114,191.00**	*Vending machines upgrade and PCI PIN pad capability*

The hardware implementation costs in the table above refer to the

- **Upgrading of ticket vending machines from 24 to 28 bins**. There is no recurring hardware cost after this initial cost.
- **PCI PIN pad capability** – Allows ticket vending machines to accept PIN payment cards.

  Note: PCI PIN pad capability also carries recurring monthly fees, as listed in **Section 8 Cost Analysis and Model for Benefit Analysis, *below***.

The software costs refer to implementation costs for the following:

- **Statistical Analysis Software (SAS)** – This system uses statistical methods to identify potential instances of retailer and Lottery/Vendor fraud
- **Infuse Premium** – Business Intelligence (BI) platform to facilitate analysis and reporting by Lottery staff.

  Note: All software packages have recurring monthly fees, as listed in **Section 8 Cost Analysis and Model for Benefit Analysis, *below***.

Note that the acquisition costs shown above can be misleading if taken as an indication of the total cost of the project to the State. This is because the proposed project is not a typical "IT build" or IT system acquisition. Instead, the State is engaging the services of a lottery service provider. A lottery service provider is considered to be a primary business partner.

In this context, "partner" has a meaning different from that in the legal business organization known as a partnership. In the lottery context, a primary business partner means a company that provides technical design, network and communications infrastructure, vending machines and terminals, and operational services, along with various other services, in exchange for a percentage share of lottery proceeds. The more successful the lottery is, the more profitable it is for the vendor. (Another way of viewing this relationship is as a Cost of Doing Business.)

Consequently, although this project will involve significant implementation activities – e.g., deployment of new vending machines, installation of new software and associated training activities and testing – those activities are provided by the vendor as part of its all-inclusive percentage payment. *The above acquisition costs for hardware and software represent only **options** to the base proposal, as elected by the State.*

For a description of the lifecycle total costs associated with this project, please see **Section 8 Cost Analysis and Model for Benefit Analysis, *below***.

5.1 COST VALIDATION:

Describe how you validated the Acquisition Costs.

The State invited the bidders to propose optional features to the proposal. The above list comprises the options that have been decided by the State with associated prices as agreed in the draft contract as it exists at the time of this writing.

ADS personnel costs include actual costs incurred during the procurement phase and the project team's estimate for ADS costs going forward during implementation.

The cost for professional services reflects the SOW for the present Independent Review.

5.2 COST COMPARISON:

How do the above Acquisition Costs compare with others who have purchased similar solutions (i.e., is the State paying more, less or about the same)?

The following states (plus Puerto Rico) employ this vendor's services and platform, although details will vary:

- Arizona Lottery
- Connecticut Lottery Corporation
- Delaware State Lottery

- Iowa Lottery Authority
- Kansas Lottery
- Lotería Electrónica (Puerto Rico)
- Maine State Lottery
- Maryland State Lottery and Gaming Control Agency
- North Dakota Lottery Division
- Oklahoma Lottery Commission
- Pennsylvania Lottery

Nationally and internationally, most lotteries are serviced by a very small number of companies. In the U.S., nearly all lotteries are serviced by three companies. All three of these companies submitted proposals for the present project, but one of the submissions was non-compliant with the State's requirements as put forth in the RFP. The highly specialized nature of lottery service provision and the small number of providers results in an extremely competitive market. The "partnership" nature of the services provided, as described above, means that not only a platform or a component or a service is being provided, but nearly the entire system, with all of the variations that exist between states, including number of terminals, geography, lottery games available, cooperative ventures with other states, age of existing equipment, etc. Consequently, we think it is not particularly useful to compare costs between states.

More useful is a comparison between the prices as proposed by the two vendors addressing the requirements put forth by the State in its RFP. Vendors were required to quote pricing for *both* of two methods:

- Percentage of Total Net Annual Sales, based on a figure of $140,800,000.00.
- Percentage of Annual Gross Gaming Revenue, based on a figure of $46,190,000.00.

(*Note: A description of these terms can be found in* ***Section 8 Cost Analysis and a Model for Benefit Analysis,*** **below**.)

The following shows the pricing proposed by the two vendors. (NOTE: No elected options are included in these figures.)

Vendor	Cost as Percentage of Sales	Cost as Percentage of Gross Gaming Revenue
IGT	4.2313%	13.6150%
SGI	2.7686%	8.6050%

The selected vendor's price is significantly lower than the competing bid, by both pricing methods. However, we point out that **factors than price alone are important in the proposal scoring process**. The State procurement process scored a number of factors aside from price (Qualifications, Ability of

approach and solution to achieve objectives, Experience, Quality) utilizing a transparent scoring matrix, before considering price. Pricing constituted a possible maximum of 1000 points out of a total maximum of 2367 points.

Consequently, the procurement team concluded that the SGI proposal was the best value for the State, weighing all factors. Having reviewed the scoring matrix (and the Architecture Assessment), we conclude that the State project team conducted a rigorous and transparent process.

5.3 COST ASSESSMENT:

Are the Acquisition Costs valid and appropriate in your professional opinion? List any concerns or issues with the costs.

Yes, acquisition costs are reasonable for these elected options in a project of this magnitude and reflect only implementation costs for hardware and software and internal State costs for services provided by ADS and professional services.

Ongoing service costs for the overall solution seem reasonably in line with expectations and competition, significantly lower than the competing price proposal.

Additional Comments on Acquisition Costs:

none

6 TECHNOLOGY ARCHITECTURE REVIEW

The vendor's proposed implementation comprises a standalone solution not directly connected at any point to the State's network. This approach reflects best practice for lottery gaming systems and conforms to the requirements put forth in the RFP. All hardware, software, maintenance, implementation, and overall operations are provided by the vendor; The State lottery staff monitor and operate the system, and run reports, from a limited number of workstations located at the lottery offices. These workstations are separate from the State network. A separate Independent Control System (ICS), acquired by the State, is connected to the solution by the vendor to provide independent and verifiable real-time monitoring, to meet industry and regulatory standards. SG is suggesting the use of either Integrity ICS or Elsym Consulting ICS.

The vendor calls their overall gaming system AEGIS. AEGIS has two subsystems: the core production subsystem and the ancillary support subsystem.

The core production subsystem handles real-time operations and processing for transactions. It has these components:

- Communications frontend
- Transaction-processing engine
- Relational database server
- Games management systems web server

The ancillary subsystem provides non-transactional, administrative functions.

This gaming system is hosted on virtualized servers located at secure, redundant, geographically separate data centers.

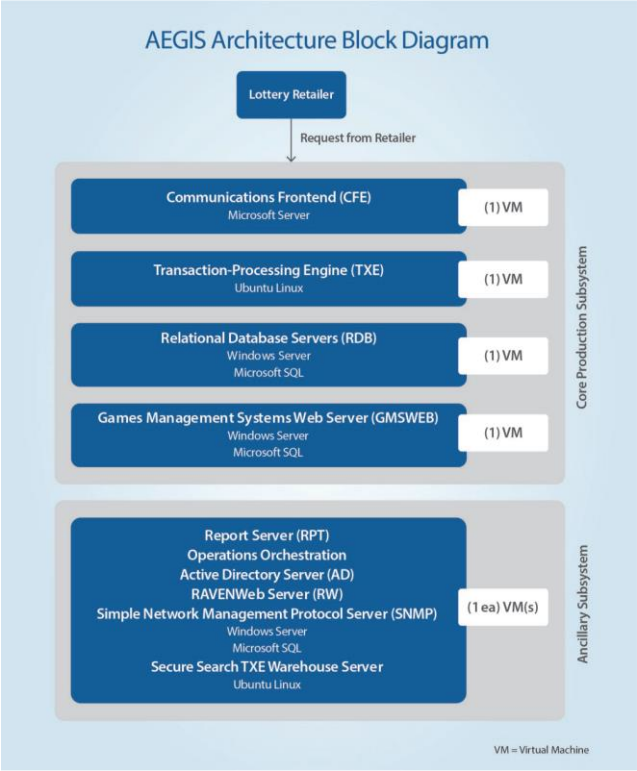
The lottery terminals and vending machines situated at retail locations communicate with the gaming system via networking provided by the vendor. The transport technology for these connections is intended to be about 95% redundant cellular (i.e., multiple carriers to maximize uptime) with alternative connectivity for those locations without adequate cellular service.

The vendor proposes a Software Defined Network (SDN) of their design called the Service-Oriented Network for Gaming (SONG), as the software framework for the network. SDN technology is an approach to network management that enables dynamic, programmatically efficient network configuration to improve network performance and monitoring, making it more like cloud computing than traditional network management.[1] SDN is a relatively new and robust technology that seems highly appropriate to the gaming environment.

The following illustration provided by the vendor illustrates the virtualized software environment. The vendor's proposal includes much more extensive, highly detailed explanations and illustrations of the

[1] https://en.wikipedia.org/wiki/Software-defined_networking

system and network architecture, both logical and physical. Lottery gaming systems are highly specialized, and the amount and type of information provided by the vendor serves to assure the State that appropriate and state-of-the-art technology is employed. It also speaks well of the vendor's competence and confidence. Much of the information provided is proprietary but was shared for the State's evaluation process.



The Multi-State Lottery Association (MUSL), of which Vermont is a member, provides extensive technological and security rules and standards across a variety of physical, logical, security, and operational aspects of the lottery system. The State requires compliance with these standards, and the vendor has helpfully identified multiple instances of compliance with these rules throughout their proposal.

The software platforms providing the basis for the solution (Windows Server, Ubuntu Linux, Microsoft SQL Server, VMWare virtualization engines) and the physical infrastructure (HPE blade servers and storage area networks (SAN)) are familiar and recommended components for State Enterprise Architecture. The vendor's use of them further supports State confidence in the service, and we concur with that conclusion.

After performing an independent technology architecture review of the proposed solution, please respond to the following.

6.1 STATE'S ENTERPRISE ARCHITECTURE GUIDING PRINCIPLES

6.1.1 A. ASSESS HOW WELL THE TECHNOLOGY SOLUTION ALIGNS WITH THE BUSINESS DIRECTION

In creating the RFP, the project team employed external and internal advice and deliberation and produced a document that was meticulously crafted to include the State's business requirements for the project (as well as non-functional requirements). Our review of the team's scoring process and of the Architecture Assessment revealed a very good alignment of the selected proposal with State requirements both functional and non-functional.

6.1.2 B. ASSESS HOW WELL THE TECHNOLOGY SOLUTION MAXIMIZES BENEFITS FOR THE STATE

The proposed solution refreshes the physical and logical technology of the lottery system, providing more recent hardware at the retail level, including newer vending machines with increased functionality and new retail terminals. Mobile-based applications for State marketing personnel provide enhanced sales opportunities and in-the-field real time data. All these provide a basis for continuing and improved lottery sales, with associated benefits via the Education Fund.

The State has also opted to acquire optional software applications:

- **Statistical Analysis Software (SAS)** – This system uses statistical methods to identify potential instances of retailer and Lottery/Vendor fraud.
- **Infuse Premium** – Business Intelligence (BI) platform to facilitate analysis and reporting by Lottery staff.

These options are acquired through the vendor and integrate with the lottery gaming platform. In our opinion, they modernize the Lottery's current reporting system – which has been less than satisfactory – and give the State significant new fraud detection capabilities, protecting the State from potential financial loss and liability.

Other elected options include dual redundant network connections for retailers, increasing system reliability and efficiency, and the acquisition of PIN payment card capability for initially 125 retailers, increasing access for customers who are increasingly reliant on payment cards instead of cash.

6.1.3 C. ASSESS HOW WELL THE INFORMATION ARCHITECTURE OF THE TECHNOLOGY SOLUTION ADHERES TO THE PRINCIPLE OF INFORMATION IS AN ASSET

Generally speaking, an information asset is a body of information that has financial value to an organization.[2] Of course, the information contained in the lottery gaming system is in part financially valuable in the sense that losing that information would represent a grave financial loss to the State.

However, treating information *as* an asset means maximizing its financial value, and in the present project the most valuable information is the body of knowledge that includes, but goes beyond, the information contained as data within the system. To maximize value, the Lottery, with the support of the lottery staff, must use available data in a knowledge context to maximize revenue within the context of the Lottery mission. The business analysis (business intelligence) tools included in the present project's application suite and architecture provide the necessary technological support to accomplish that goal.

6.1.4 D. ASSESS IF THE TECHNOLOGY SOLUTION WILL OPTIMIZE PROCESS

Improved reporting capabilities can improve the analysis and decision-making processes of the lottery staff.

Additionally, we expect that improved software development processes by the proposed vendor will greatly reduce the amount of time expended by lottery staff on testing software upgrades. We learned that the staff often feel that they are like "alpha" testers of requested or required upgrades with the existing vendor, detecting numerous problems and in effect doing work that more properly should be done by the vendor in its development environment. More competent software development should free significant lottery staff time for more appropriate tasks.

6.1.5 E. ASSESS HOW WELL THE TECHNOLOGY SOLUTION SUPPORTS RESILIENCE-DRIVEN SECURITY.

(Please see Section 11, **Security**, *below*)

6.2 SUSTAINABILITY

The "partnership" nature of lottery system procurement (see Section 5, **Acquisition Cost Assessment,** *above*) requires that the vendor be assured of a contract covering a number of years (assuming adequate performance). This is because the vendor is "fronting" (providing) the hardware, software, networking, and services, earning a percentage of sales while the capital investment in the system depreciates over time, resulting eventually in a significant profit for the vendor. The proposed system represents a "technology refresh," as the existing system is largely or wholly depreciated. The new system will be sustainable in the same way, comprising new technology which will slowly age and depreciate. The State expects the new system to be sustainable for at least about 10 years. This is reasonable and usual lottery industry practice.

[2] https://simplicable.com/new/information-asset

6.3 HOW DOES THE SOLUTION COMPLY WITH THE ADS STRATEGIC GOALS ENUMERATED IN THE ADS STRATEGIC PLAN OF JANUARY 2020?

6.3.1 A. Leverage successes of others, learning best practices from outside Vermont.

The project team employed the services of a Subject Matter Expert (SME) consultant, bringing industry best practices to the procurement effort. Consultation with other states via the Multi-State Lottery Association (MUSL) and the North American Association of State and Provincial Lotteries (NASPL), as well as the Tri-State Compact brought an exceptional level of shared state-level expertise and experience to the project.

6.3.2 B. Leverage shared services and cloud-based it, taking advantage of IT economies of scale.

The lottery gaming system is necessarily and appropriately separate from the State governmental network (GovNet). The proposed system is cloud-based and exhibits characteristics that show it to be scalable and expandable to meet future State needs.

6.3.3 C. Adapt the Vermont workforce to the evolving needs of state government.

(Please see **6.1.4**, *above*)

6.3.4 D. Apply enterprise architecture principles to drive digital transformation based on business needs.

ADS Enterprise Architecture staff were involved throughout the project from development of the RFP, including Non-functional Requirements (NFRs), to assessment of the proposals.

6.3.5 E. Couple IT with business process optimization, to improve overall productivity and customer service.

(Please see **6.1.4**, *above*)

6.3.6 F. Optimize it investments via sound project management.

The Director of Project Management proposed by the vendor has an impressive resume with 19 years of direct Lottery/Gaming project management experience. With Project Management Professional (PMP) certification, he meets the desired SOV PM requirement. He will be assisted by junior PMs in supportive roles.

6.3.7 G. Manage data commensurate with risk.

Lottery systems are, by their nature, extremely attractive cyberattack targets. Consequently, security and data management best practices are commensurate with those in the banking industry or other financial sectors. This is described more fully in Section 11, **Security**, *below*.

6.3.8 H. Incorporate metrics to measure outcomes.

As a revenue producing entity for the State, and in keeping with its mission of maximizing revenue for the Education Fund consonant with the dignity of the state and the general welfare of the people, the Vermont State Lottery continues to use primarily financial metrics to measure its outcomes. However, this requires the support of analysis and understanding that comes from analyzing the performance of the lottery system, retailers, marketers, etc.

The proposed system includes a suite of business analysis and report generation tools specifically configured for lottery gaming statistics analysis and management. They seem to us to be well suited to the job and a likely improvement over existing SOV methods.

6.4 COMPLIANCE WITH THE SECTION 508 AMENDMENT TO THE REHABILITATION ACT OF 1973, AS AMENDED IN 1998

In 1998, Congress amended the Rehabilitation Act of 1973 (*29 U.S.C § 794 (d)*) to require Federal agencies to make their electronic and information technology (EIT) accessible to people with disabilities. Vermont.gov has adopted Section 508 and W3C Web Accessibility Initiative standards and guidelines as the benchmark to meet the objectives of the Universal Accessibility for State Web sites policy.[3]

Although Vermont's adoption of the Section 508 amendment applies specifically to web sites, we think this is an appropriate section of the report to discuss the vendor's compliance with the Americans with Disabilities Act (ADA) guidelines for accessibility, as required by the State in the issued RFP for this project.

The RFP requires vendors to demonstrate ADA compliance for all retail and consumer terminals including Full-Service Vending Machines (FSVM). In our opinion, the vendor met these requirements very well, embedding screen shots of the FSVM in various accessible modes within a narrative description of the operation.

6.5 DISASTER RECOVERY

The basis for disaster recovery is a fully redundant primary and backup data center. Operationally, there is not difference between the two systems. Logically, they run identical and synchronized images of the vendor's AEGIS gaming system. Physically, although not identical in all physical dimensions, both data centers are designed around attributes from the Telecommunications Industry Association-942 (TIA)

[3] https://www.vermont.gov/policies/accessibility

standards and the Uptime Institute Tier Standard Topology for a Tier III – Concurrently Maintainable Topology, with a continuously maintainable N+1 system. The table below compares characteristics.

Data Center Facilities	Switch Las Vegas, NV	QTS Atlanta, GA
Uptime Institute Certification for Facility, Operations, and Design	Tier IV	Tier III
Ranked in Top 10 in the World for Size	Yes	Yes
Square Feet of Data Center Space	2,000,000 sq. ft.	970,000 sq. ft.
Connectivity to Carrier Portfolio	Yes	Yes
Multiple Power Feeds	Yes	Yes
Generators Supporting UPS Systems	Yes	Yes
Cooling (Chiller, Pumps and Cooling Towers) Configuration	N+1	N+1
Construction Materials	Concrete and Steel	Concrete, Brick and Steel
Dual-Reinforced Steel Roofing System Rating	200 mph	85 mph
Contains Secure Storage Area for Confidential Equipment	Yes	Yes
Scientific Games Maintains Physical Control of Gaming System Enclosure within Data Center	Yes	Yes
Security Guards On-Site 24/7/365	Yes	Yes
Closed-Circuit Video Cameras Cover Interior and Exterior	Yes	Yes

The two data centers are geographically diverse, and each data center houses two complete instances of the gaming platform (called Aegis). In effect there is four-way redundancy.

The vendor's proposal includes an extensive and comprehensive sample disaster recovery and business continuity plan, with a commitment to providing a final plan tailored to Vermont's needs within 45 days of contract execution.

We assess the vendor's disaster recovery capabilities as meeting the State's needs comprehensively.

6.6 DATA RETENTION

The vendor's Data Management policy and procedures ensure that data is retained for periods designated by the State according to data classification. We find the hosting system infrastructure supporting this Data Management process to be appropriate to the high level of security, reliability, and recoverability required by this gaming system.

6.7 SERVICE LEVEL AGREEMENT

6.7.1 WHAT ARE THE POST IMPLEMENTATION SERVICES AND SERVICE LEVELS REQUIRED BY THE STATE?

In the issued RFP, the State required a description of a Service Level Agreement (SLA), and to that end listed minimum targets in the areas of

- Communications Network Requirements

- Minimum Monthly Availability (99.80%)
- Minimum Daily Availability (99.80%)
- Minimum Daily Availability in all weather conditions for VSAT (99.80%)
- Throughput
- Cellular Performance

And listed as “strongly desirable” a process for statistics collection by retailer terminal.

6.7.2 IS THE VENDOR PROPOSED SERVICE LEVEL AGREEMENT ADEQUATE TO MEET THOSE NEEDS IN YOUR JUDGMENT?

Yes, the vendor meets all the target requirements, and exceeds requirements in both daily availability categories (proposing 99.90%). The vendor agrees that contractually committing to higher levels of network ability than those stated by the Lottery will be evaluated accordingly and that the vendor will be held to that commitment for the corresponding liquidated damages.

The vendor also includes a proprietary system for collecting and reporting retailer terminal statistics and lists other state lottery systems which have employed this system for more than one year.

We find the vendor’s proposed SLA to be appropriate and responsive. The statistics collection process is similarly well-formed and appropriate to the needs of the State.

6.8 SYSTEM INTEGRATION

6.8.1 IS THE DATA EXPORT REPORTING CAPABILITY OF THE PROPOSED SOLUTION CONSUMABLE BY THE STATE?

Yes. The games management and business intelligence features significantly improve reporting and management functions carried out by the Lottery staff. The system natively includes a large menu of reports both current and historical, and cover system management, retail operations, financial transactions, and statistical information. Reports are generated in a form useable by Lottery staff but are not directly interfaces with State data systems.

6.8.2 WHAT DATA IS EXCHANGED AND WHAT SYSTEMS (STATE AND NON-STATE) WILL THE SOLUTION INTEGRATE/INTERFACE WITH?

The Lottery gaming system does not directly interface with State data systems.

Additional Comments on Architecture:

none

7 ASSESSMENT OF IMPLEMENTATION PLAN

After assessing the Implementation Plan, please comment on each of the following.

7.1 THE REALITY OF THE IMPLEMENTATION TIMETABLE

Milestone	Originally Proposed Date*	Responsibility
Contract Signing	10/15/2020	Vermont Lottery
Project Begins	10/19/2020	Scientific Games and Vermont Lottery
Statement of Work Approved	11/16/2020	Vermont Lottery
Quality Control Testing Start	5/26/2021	Scientific Games
Primary Business Site Ready for Occupation	6/3/2021	Scientific Games
Network Infrastructure Completion	6/24/2021	Scientific Games
Quality Control Testing Completion	6/25/2021	Scientific Games
Retailer Equipment and Manufacturing Completion	7/28/2021	Scientific Games
Lottery User Acceptance Testing Start	8/2/2021	Vermont Lottery
User Acceptance Testing Readiness Completion	8/13/2021	Scientific Games and Vermont Lottery
Retailer Terminal Installation Completion	9/7/2021	Scientific Games
Retailer Training Completion	9/7/2021	Scientific Games

Lottery System Acceptance	10/15/2021	Vermont Lottery
Lottery Staff Training Completion	11/3/2021	Scientific Games and Vermont Lottery
Production System Cutover	11/13/2021	Scientific Games

**The start date has been delayed significantly due to delays during the procurement process, but the length of the implementation timetable remains the same.*

The vendor proposes an approximately 1-year long implementation timetable. The vendor's track record and experience, the implementation details in the proposal, along with the State project team's confidence in the vendor's ability to perform convince us that the timetable is realistic. However, there are a few areas of relatively minor concern in this area.

When we began this Review in November 2020, several project team members expressed the opinion that a Covid-19 infection of one of the team members could put the lottery operation "out of business." Staff estimated that approximately 20% of staff work cannot be done remotely. Vermont statute and ethical practice does not allow for lottery operations to cease. We identified this as a risk **_RISK_ID# _R1** and suggested that the State develop a continuity of business plan. The State agreed with this mitigation. At the time of this writing, Vermont is preparing to rescind the state of emergency due to the pandemic. We certainly feel that the likelihood of returning to pandemic conditions is very much diminished; but it is not eliminated, as the pandemic continues worldwide and variants emerge.

Similarly, we noted as a risk **_RISK_ID# _R7_** that State and/or practical restrictions on travel or in-person contact due to the Covid-19 pandemic could impact tasks necessary for implementation. The State informed us in mitigation that the State has the contractual right to extend the contract with the existing vendor, shifting the timetable later. We agree with this mitigation.

7.2 READINESS OF IMPACTED DIVISIONS/ DEPARTMENTS TO PARTICIPATE IN THIS SOLUTION/PROJECT

(Consider current culture, staff buy-in, organizational changes needed, and leadership readiness).

Project leaders and Lottery staff we have spoken to uniformly expressed enthusiasm for the proposed project. In part this stems from frustration with some aspects of the current vendor's performance, but also in part it comes from an understanding that the existing system is aging and needs updating to improve both sales appeal and efficiency of operation.

There is probably not a great awareness of this project among the retailers, but as the changes will improve their operations and likely enhance sales appeal, we expect the transition will be welcomed.

There are a few aspects of the Lottery staff that deserve mention:

The project business team is small and relatively dependent upon one individual for subject matter expertise. The loss of this individual or any other team member for any reason (retirement, illness,

personal choice, etc.) could significantly slow implementation progress if vendor must slow implementation waiting for State participation. We identified this as a Risk **_RISK_ID# _R2_**. The State's response is to mitigate this risk with three strategies:

1. Considering continuing contract with SME consultant during implementation
2. Considering replacing up to 3 staff positions which have been recently vacated.
3. If project is delayed, contract with existing vendor has available potential extension.

We assess these mitigations as appropriate to the risk.

Note: During the latter part of the present Review, one senior project team member resigned, and a new Deputy Commissioner was appointed. However, the resigning Deputy Commissioner has agreed to stay on in a consultative role during the remainder of the procurement process.

Subject matter expertise and operational tasks are often shared among team members. Implementation responsibilities among individual staff members may change from time to time due to practical demands on their time, operating and/or testing the existing system. Critical subject matter expertise resides in an outside consultant (paid for by the Tri-State Lotto Commission), whose services have been crucial in RFP development and contract negotiations (and see R2 above). ADS standards and practice requires ADS project management and oversight. The conditions described here could potentially result in project decisions and implementation tasks being undertaken without adequate consultation and deliberation. We identified this as a Risk **_RISK_ID# _R4_** and recommended implementation of a Responsibility Assignment (RACI) matrix.

The State responded that the ADS Project Manager had already created a RACI, however this document will need to be kept up to date and modified if the current lottery consultant resumes through implementation to reflect roles & responsibilities for that phase of the project. It will also be updated to reflect the roles and responsibilities of selected vendor.

This mitigation is appropriate to the risk, and we concur.

7.3 DO THE MILESTONES AND DELIVERABLES PROPOSED BY THE VENDOR PROVIDE ENOUGH DETAIL TO HOLD THEM ACCOUNTABLE FOR MEETING THE BUSINESS NEEDS IN THESE AREAS:

7.3.1 A. PROJECT MANAGEMENT

The vendor has provided their proposed internal conversion team organization structure, including assigned personnel with individually identified qualifications, experience, resume, and assigned duties. We find this to be especially reassuring, as well as meeting or exceeding State requirements. Project management tools (which are considered deliverables according to State requirements) include familiar and appropriate communication tools such as MS Office, MS Visio, and MS Project, and reliance on the PMBOK guide as the standard for risk logging, mitigation, and communication. This aligns well with State preferences.

Specific Project Management (PM) deliverables include:

- Work Plan
- Project Plan
- Project Specification
- Project Initiation Document
- Security Plan
    - Security Operations Plan
    - Business Continuity Plan
    - Executive Crisis Management Plan
- Status Reports to the State following the State's preferred template for project status (vendor provides an alternative minimum if no template is provided by the State)

The vendor provides information for the following table of Project Management Documents. We find this to be a very useful way for the vendor to confirm to the State that it is conversant with, and conforming to, preferred project management practices. It is normal practice for vendors to share only certain items of internal project communications directly with the client during an implementation process, but to see a list of internal source documentation informs the State of the type and quality of internal vendor project management practice.

Internal Scientific Games Documents	Documents Shared with the Lottery
Project Integration: • **Background of the project** • **Detailing the business case** • **Initial project plan** **Project Scope:** • **Project Scope Statement** • **Objective** • **Project details** • **Deliverables of the project** • **Project details** • **Scope management process** • **Work breakdown structure (WBS)** **Project Schedule:** • **Prerequisites and dependencies** • **Major milestones and deliverables** • **Timeline** • **Milestones and timelines** **Project Cost:** • **Budget and reporting** **Project Quality:** • **Acceptance criteria** **Project Resources:**	• Milestones and timelines • Timeline • Acceptance criteria • Roles and responsibilities • Delivery organization and contact information • High-level project control, reporting and • communication plans

- **Roles and responsibilities**
- **Delivery organization and contact information**

Project Communications:

- **High-level project control, reporting and**
- **communication plans**

Project Risk:

- **Risk management plan and log**

Project Closure:

- **Project closure activities**

The identified vendor project team members include management, supervisory and key technical personnel, with assigned duties and time on the specific project. In particular to the present review, and as required by the State, three project managers are identified, with qualifications, duties, experience and resume:

- Senior Project Manager
- Systems Project Manager
- Field Project Manager

All are professionally qualified. The reporting structure and division of project management labor supports the impression that the vendor is well staffed to manage the multiple, sometimes parallel, activities of system implementation.

The vendor describes in some detail the following communication tools. These are intended for use among various relevant groups, which could include at different points the vendor, the State, the current system vendor, instant ticket vendors, or others.

- Time Management Plan
- Quality Management Plan
- Issue Management
- Reporting and Evaluating Success
- Risk Management Plan

7.3.1.1 SUMMARY

Taken as a whole, these deliverables and the detailed descriptions of process and structure in the vendor's proposal indicate the knowledge and application necessary to meet the business needs of the State in the area of Project Management.

7.3.2 B. TRAINING

Training for this project is proposed by the vendor in two distinct phases, as required by the State:

- Training Retailers

- Training Lottery Staff (Including management, other users, and vendor staff reciprocal training)

7.3.2.1 TRAINING RETAILERS

The vendor proposes an 85-day duration for retailer training, including training planning, documentation production, training scheduling and terminal training. We find the proposed components to be appropriately detailed and, in light of the vendor's significant experience, likely to be efficient and successful. The vendor emphasizes a proactive, encouraging, and useful engagement with retailers, including information not only on operation of terminals, but also marketing tips and other useful information.

We think this component is extremely important to the proposed project, because retailers are the least likely to be enthusiastic about the major changes this project would introduce. If, as the vendor proposes, the training is done in positive and efficient manner that maximizes benefits to the retailers, the transition is more likely to be enthusiastically adopted.

As required by the State, the vendor has identified an individual as the Retailer Training Coordinator for this project. This individual will be the primary point of contact for the Lottery regarding the training of the retailers prior to conversion; and then onsite beginning a few weeks prior to the start of retailer training through the end of retailer training. We find her qualifications and experience appropriate to the role assigned.

Task Name	Duration	Start	Finish
RETAILER TRAINING	85 days	Mon 6/14/21	Tue 9/7/21

7.3.2.2 TRAINING LOTTERY STAFF

Vendor training of the Lottery Staff begins with a training needs analysis survey to target staff trainings and reduce or eliminate time spent by staff on unneeded trainings, and includes training on:

- Retailer terminals, including all information retailers learn
- System management applications
- System reporting and monitoring tools
    - Transaction Inquiries
    - Security Features
    - Sales and Marketing Reports
    - Operations and System Reports
- Key information regarding the implementation process
- Information for Lottery Sales Representatives
- Draw Management
- Lottery sales representatives and retailer information management tools

The State's requirements in this section also include knowledge transfer *from* Lottery Staff *to* vendor staff. This reflects the fact that the vendor must be well familiar with State Lottery operations,

processes, and procedures to efficiently operate the system and to respond to State needs as they arise after implementation. The vendor agrees to this approach.

TASK NAME	DURATION	START	FINISH
LOTTERY AND SCIENTIFIC GAMES STAFF TRAINING	16 days	Mon 10/18/21	Fri 10/29/21
Vermont Lottery Staff Training	3 days	Mon 11/1/21	Wed 11/3/21
Management	3 days	Mon 11/1/21	Wed 11/3/21
AEGIS, Terminals and SciTrak Ultra Users	3 days	Mon 11/1/21	Wed 11/3/21

7.3.2.3 SUMMARY

We find the design and deliverables of the training component of the vendor's proposal to be comprehensive, responsive to State requirements, and likely to be effective in meeting State business needs.

7.3.3 C. TESTING

The vendor's testing approaches conform to NASPL and MUSL standards. The vendor's proposal describes sufficient detail to support testing deliverables for data conversion, new equipment (terminals and vending machines), communication networks, infrastructure, system operation and failover, and user acceptance testing. We find the deliverables in this area to be complete and appropriate.

7.3.3.1 USER ACCEPTANCE TESTING

The vendor's approach to user acceptance testing (UAT) is responsive to State requirements and conforms to NASPL change management process standards. As per State requirements, the vendor assumes all responsibility for damages occurring as a result of software deficiencies.

UAT takes place in an environment which exactly simulates the production software environment and employs production-like data. Quality Assurance Testing takes place before testing proceeds to the UAT phase. The environment, the process, and the controls as described seem to us to be rigorous and likely to assure success.

In this context, we point out that a frequent comment we heard about the *existing* lottery gaming system and its vendor was that Lottery Staff often felt they were asked to perform UAT (for upgrades or requested features) on software that was not sufficiently tested first by the vendor. In a sense they felt like alpha testers instead of beta testers. The proposed vendor appears to have a more robust development process.

In the meantime, during the implementation phase of the proposed project, we note that operational staff who will be required to participate in implementation requirements discovery and testing could have additional demands on their time due to current vendor requiring multiple testing iterations for changes to the existing system. This could result in delay to the implementation timetable of the new system. We identified this as a risk **_RISK_ID# _R3_**. The State responds that they intend to AVOID this risk by declining any changes to existing system that aren't absolutely necessary to implement. If the project is delayed, contract with existing vendor has available a potential extension. We view this as a reasonable response.

7.3.3.2 SYSTEM TEST PLAN

The approach is based on a customizable 15-point template that is adjusted to address the specific component or project being tested. Five component deliverables are intended to verify performance of the whole system:

- Test Plan
- Acceptance Testing Entry and Exit Criteria
- Component-Level Test Cases
- Anomaly-Level Test Cases
- Certification Test Script

7.3.3.3 SUMMARY

The detailed descriptions of testing processes and verifications in the vendor's proposal, greatly expanding upon the brief summaries above, demonstrate a best practices approach to both UAT and systems testing. This meets the business needs of the State, including the additional need of using State Lottery Staff time most efficiently, during the implementation process and going forward.

7.3.4 D. DESIGN

Because of the comprehensive nature of the vendor's role in this project, the vendor's design responsibilities necessarily extend to all aspects of the system: logical architecture, physical architecture, hosting, software platform, software configuration, communications network, terminals and other endpoint hardware, and data conversion. Some of these design processes are internal to the vendor, some involve State participation. The vendor identifies deliverables for these various processes in the Implementation Timeline described in 7.3.7, below. We think these deliverables are appropriate and show a concern for transparency and communication with the State and are likely to meet State business needs.

7.3.5 E. CONVERSION (IF APPLICABLE)

The vendor has significant experience converting from an existing system to their system and presented a table of 16 jurisdictions (states and countries) to this point, including several conversions from the existing Vermont vendor.

We reviewed the vendor's proposed conversion process both as conversion of the entire system (overall platform, terminals, communications network, etc.) as well as data conversion.

The system conversion process in our view is thoughtful, stepwise, engages appropriate stakeholders at appropriate points in the process, and is likely to result in success.

The vendor will convert all gaming, financial, prize payment, tax, operational data, retailer or any other data identified jointly with the Lottery existing at the time of conversion. Typically, data conversions require some coordination between a new vendor and an existing vendor. We have been told that contractual agreements would require the existing vendor to cooperate, and we would expect such cooperation. The Lottery Staff will coordinate with the new vendor to agree on the format and scope of converted data.

The vendor's process employs quantifiable metrics, converting data in batches, daily testing the integrity of the data, providing daily reports of "trial transitions" to the State to confirm that conversion was successful. The vendor claims (as demonstrated in the table mentioned above) that their process has produced successful data conversions in previous migrations with other states.

We find that the vendor's descriptions of data conversion processes are general, yet specific enough to give the State confidence that their processes follow best practices, protect State data integrity and privacy, and ensure as seamless a transition as possible.

7.3.6 F. IMPLEMENTATION PLANNING

The implementation planning stages, occurring at several points in the overall implementation process, and involve significant State and other stakeholder engagement to determine requirements, system testing and UAT requirements, communication network needs and risks, and appropriate planning for terminal manufacture and installation timing. We note with approval an emphasis on early and open engagement with retailers to help ensure a timely and smooth rollout.

7.3.7 G. IMPLEMENTATION

The vendor provided a sufficiently detail timeline in the form of a table listing nearly 700 separate tasks over the period from contract signing to go-live. (Note: the vendor terms this a Gantt chart; although it conveys the same data as does a Gantt chart, it is not in Gantt format.)

The timeline includes the following sections:

- Project Management
- Facility Build Out and Management
- Virtual Systems & Data Centers

- Network Infrastructure
- Software Applications Development & Deployment
- Retailer Equipment and Manufacturing
- Field Service Planning and Installations
- Human Resources / Staffing
- Training
- Conversion Readiness
- System Conversion / Go-Live

This roughly coincides with the table of milestones above. The total duration is 322 days.

The timeline provided contains appropriately detailed and sequenced deliverables. It is a sample and proposed timeline which would be refined in consultation with the State during a Master Project Plan review. We find it to be clear and comprehensive for this initial stage of the project, and very likely to meet State business needs.

7.4 DOES THE STATE HAVE A RESOURCE LINED UP TO BE THE PROJECT MANAGER ON THE PROJECT? IF SO, DOES THIS PERSON POSSESS THE SKILLS AND EXPERIENCE TO BE SUCCESSFUL IN THIS ROLE IN YOUR JUDGMENT?

We have had the pleasure of working with the State's assigned project manager in previous projects and have been impressed with her capability and experience. She is a certified Project Management Professional (PMP) with the requisite skills and knowledge to manage a large and diverse project as part of her assigned duties. We have no doubt of her appropriateness for this project.

Additional Comments on Implementation Plan:

none

8 COST ANALYSIS AND MODEL FOR BENEFIT ANALYSIS

8.1 ANALYSIS DESCRIPTION:

Provide a narrative summary of the cost benefit analysis conducted.

The lifecycle costs for this project two co-existing but essentially separate components of cost to the vendor. One of the components is variable and one is fixed:

Operational Services – Weekly operational services billed at **8.6050% of Gross Gaming Revenue (GGR)**. This includes all of the following, described in detail in the contract and vendor proposal:

- Gaming System Configuration
- Retailer and Consumer Interfaces and Peripherals
- Communication Network for the solution
- Software Application and Data Management
- Revenue Generation Services and Support, such as marketing plans, business analytics support, and marketing services
- Facilities, such as primary and backup data centers, service centers, and facilities for the State local administrative offices and a lottery business continuity site
- Operational services
- Project Management, Implementation, and System Conversion
- Security for the system, following State requirements and industry best practices.

These services are provided at a fixed percentage rate, *not* at a fixed cost. Therefore, the cost to the State each year will vary depending on Gross Gaming Revenue which, roughly speaking, equals total ticket sales minus prizes awarded. Thus, if sales (and resulting GGR) increase in a given year, the State will pay more for these services, but will also realize an increased profit.

Since the cost is tied to sales, there is little risk on the cost side. A downturn in GGR would result in an exactly proportional reduction in cost. More important to the State is the "upside," or the amount of surplus revenue which is paid into the Education Fund. The vendor claims that its system conversions in other states have in many cases resulted in increases in revenue and provides specific examples of those increases. The State's Education Fund would obviously benefit from increased sales, yet this project is not predicated on a reliance on such increases. We would judge that, *all other things being equal*, the benefits of this project might well result in increased sales. However, the ongoing pandemic has taught us all that there is significant uncertainty in the economy: The March 2020 "lockdown" resulted in a sharp downturn in sales, while the CARES Act relief payments were followed by a significant uptick in sales, possibly in response. The point to keep in mind for the purposes of this section of the review is, again, that vendor cost is tied to sales.

Bidders were asked to provide pricing based on two methods: **Annual Net Sales** and **Gross Gaming Revenue**. The State provided dollar amounts for bidders to use for each of these methods, as in the table below, showing the selected vendor's proposed prices and a calculated hypothetical annual cost.

Table 9 - Annual Services Cost Using RFP Figures

Method	RFP Dollar Amount	Rate	Annual Cost
Net Sales	$140,800,000	2.7686%	$3,898,188.80
Gross Gaming Revenue	$46,190,000	8.6050%	$3,974,649.50

The State reserved the right to choose which method will be used for compensation. As stated above, the State has decided to apply the **Gross Gaming Revenue** figure. The State assesses that this method will better incentivize the vendor's performance over the long run because, for example, the vendor will be more likely to propose new lottery games that perform well with prize payouts taken into consideration, rather than ticket sales alone. We were presented with a hypothetical scenario in which this situation could apply, and we concur that the State's decision to use the GGR method.

For purposes of this Review, as tabulated in **Attachment #1 Cost Spreadsheet**, we estimated the annual cost using the Net Sales method, to compare costs more accurately to that of the current vendor, whose percentage rate uses Net Sales.

8.1.1 PROJECT COST COMPONENTS

Optional Hardware, Software, and Services – The RFP invited bidders to propose hardware, software, or services as options for additional cost. Following discussions and contract negotiation, the State is proposed to purchase the following options:

Hardware options elected:

- **Upgrade ticket vending machines** which will be provided by the selected vendor from 24 to 28 bins for a cost of **$87,500**. There is no recurring hardware cost after this initial cost. This upgrade will give the State more flexibility in promoting games that are more popular. We assess this to be a good decision that may increase sales.
- **Payment Card Industry PIN pad capability** – Allows initially **125** ticket vending machines to accept PIN payment cards -- one- time fee for software implementation and third-party integration of **$125,000**, a per unit fee of $260 per PIN-pad payment module, a recurring fee of $6 per unit per month per PIN-pad payment module for a total monthly payment of **$9,000**. This is a reasonable cost for a capability in line with increased card use by

Vermonters.
(*Note: there is additionally a 2.99% plus $0.06 per debit transaction plus processing fee (if applicable) which we have no basis on which to estimate at this time.*)

Software elected include:

- **Statistical Analysis Software (SAS)** – This system uses statistical methods to identify potential instances of retailer and Lottery/Vendor fraud -- One- time fee of **$500,000** and recurring fee of **$18,250** per month for the first ten years.
- **Infuse Premium** – Business Intelligence (BI) platform to facilitate analysis and reporting by Lottery staff -- One- time fee of **$90,000** and recurring fee of **$27,750** per month.

Services elected include:

- **Upgrade retailers to dual communication paths** – Allows 440 retailers increased network reliability.

The above hardware, software and services together comprise a vendor fixed procurement cost of $835,000.00 and a vendor fixed annual cost of $562,800.00, for a **lifecycle total fixed vendor costs of $6,463,000.00.**

Using the RFP Net Sales figure and the vendor's proposed rate, we could estimate an annual percentage-based cost of **$3,898,188.80**, for a lifecycle total percentage-based cost of **$38,981,888.00**.

Internal State costs for ADS Services during procurement and implementation, as well as the cost of the present Independent Review amount to **$279,191.00**.

8.2 ASSUMPTIONS:

List any assumptions made in your analysis.

- Annual Net Sales of $140,800,00.00
- Vendor is paid by their proposed Percentage of Net Sales method (only for purposes of this comparison).
- Current Costs remain as they are.
- Costs for options elected by the State are as listed in the draft contract.
- Actual costs and projected costs for State personnel are reasonably accurate.

8.3 FUNDING:

Provide the funding source(s). If multiple sources, indicate the percentage of each source for both Acquisition Costs and on-going Operational costs over the duration of the system/service lifecycle.

The Department of Liquor and Lottery, Division of Lottery (the Lottery) is an enterprise fund of the State of Vermont. The Lottery's operations are classified as business-type activities and reported in a manner similar to commercial entities.

8.4 TANGIBLE COSTS & BENEFITS:

Provide a list and description of the tangible costs and benefits of this project. Its "tangible" if it has a direct impact on implementation or operating costs (an increase = a tangible cost and a decrease = a tangible benefit). The cost of software licenses is an example of a tangible cost. Projected annual operating cost savings is an example of a tangible benefit.

- **Costs –** Please see Section 8.1, above, for tangible costs.
- **Benefits –**
    - Retirement of $284,400.00 / year cost for current system vending machines, for a lifecycle total of **$2,844,000.00.**
    - A decrease in cost to the vendor as a percentage of Gross Gaming Revenue. Using the above method for comparison, the decrease could be estimated as approximately 0.3%. Please see **Section 10 Impact Analysis on Net Operating Costs, below**.

8.5 INTANGIBLE COSTS & BENEFITS:

Provide a list and descriptions of the intangible costs and benefits. Its "intangible" if it has a positive or negative impact but is not cost related. Examples: Customer Service is expected to improve (intangible benefit) or Employee Morale is expected to decline (intangible cost).

- **Benefits**
    - Replacement of 10-year-old lottery gaming system consistent with system current to industry standards.
    - New terminals for retailers.
    - New and more flexible vending machines for ticket sales.
    - Redundant dual communication paths for retailers to increase Lottery responsiveness and reliability.
    - PIN payment card acceptance ability for high performing retailers.

- Improved reporting to measure and track sales data obtained from the approximately 650 agents throughout the State.
- Improved business intelligence, monitoring, and management tools for Lottery staff.
- Security Analysis Software to implement fraud detection.
- Improved Lottery staff morale and efficiency with a more efficient vendor software development capability.

8.6 COSTS VS. BENEFITS:

Do the benefits of this project (consider both tangible and intangible) outweigh the costs in your opinion? Please elaborate on your response.

Yes. The State gains a greatly improved Lottery gaming system with significant potential for continuing to fulfill the Lottery's mission and very possibly to increase the Lottery's contribution to the Education Fund as the project lifecycle continues.

The software improvements make better and more efficient use of the Lottery staff's time, and improvements at the retail level increase the value and attractiveness of the Lottery for customers.

The costs to the vendor for implementing, operating, and maintaining the core system are lower than current costs, and the initial and ongoing costs for elected options are well within the resources of the Lottery.

8.7 IT ABC FORM REVIEW:

Review the IT ABC form (Business Case/Cost Analysis) created by the Business for this project. Is the information consistent with your independent review and analysis? If not, please describe. Is the lifecycle that was used appropriate for the technology being proposed? If not, please explain.

The IT ABC form estimated the annual operating cost of a new system at $4,250,000.00. Normalizing that figure to the same Net Sales figure used in our cost analysis and in the State's RFP ($140,800,000) brings the IT ABC form cost to $4,475,030.40. Our comparable estimate on the same basis for the annual cost is $4,460,988.80, a decrease in cost of $14,041.60. So, **our estimate for the project cost is very close to the IT ABC estimate.**

The business values outlined in the IT ABC form remain the same in the project as proposed but are enhanced by the options elected by the State.

Additional Comments on the Cost Benefit Analysis:

none

9 ANALYSIS OF ALTERNATIVES

9.1 PROVIDE A BRIEF ANALYSIS OF ALTERNATE TECHNICAL SOLUTIONS THAT WERE DEEMED FINANCIALLY UNFEASIBLE.

Two vendors submitted proposals in response to the State's RFP. One of the vendors (IGT) proposed pricing that was 158% higher than the selected vendor's bid. Using the State's RFP GGR figure of $46,190,000/yr., IGT would charge $6,288,768.50 compared to SGI's proposed charge of $3,974,649.50. Since IGT scored the same or higher than the chosen vendor in all non-price categories, it is clear that their proposed cost was essentially unfeasible.

9.2 PROVIDE A BRIEF ANALYSIS OF ALTERNATE TECHNICAL SOLUTIONS THAT WERE DEEMED UNSUSTAINABLE.

Conceivably, the State could have decided to either extend the contract with the current vendor or award the project to the current vendor, which as we understand it, would largely continue the system as it currently exists, though at a lower price. It is worth noting some of the reasoning the State employed in deciding to issue an RFP. The IT ABC form states, "*The current system is 10 years old, and it is expected that the new gaming system will have customized features to improve the security, ticket inventory, and supporting reports for tax withholding and agent winnings. These features will be requested during the RFP and will modernize the Vermont Lottery's gaming system to ensure that it remains up to industry standards.*"

It is our understanding that a part of the financing realities of a state lottery operations contract is that the vendor "fronts" the significant cost of hardware (retail terminals and vending machines) acquisition, communications system procurement, game and management design and implementation, and hosting. Over time, the capital costs of the implementation are amortized, which is one of the reasons lottery operations contracts often extend over a 10-year period. By the end of this period, it is likely that the capital investments are fully or largely depreciated. This is one possible reason why a given vendor might offer a lower price for continuing the same service. At the same time, a 10-year-old lottery gaming system might in many ways become uncompetitive with more up-to-date gaming opportunities in nearby states.

Additionally, the State must consider its experience with a given vendor. As mentioned in **Section 6.1.4, above**, the State's experience with the current vendor was in some instances unsatisfactory.

For all these reasons, continuing the existing system indefinitely would likely be unsustainable.

9.3 PROVIDE A BRIEF ANALYSIS OF ALTERNATE TECHNICAL SOLUTIONS WHERE THE COSTS FOR OPERATIONS AND MAINTENANCE WERE UNFEASIBLE.

Although we judge it to be *extremely* unlikely, it is at least conceivable that the State could develop and operate its own lottery gaming system entirely, or nearly entirely, without the use of external vendors. At least one other state (Massachusetts) takes this route. In Vermont, this approach is unfeasible for several reasons: Vermont does not have a large internal software and hardware development staff. The State's IT Strategic Plan prefers SaaS approaches over homegrown solutions. The extreme levels of security ("like banks") required for lottery gaming systems require yet another pool of internal expertise. And aside from the significant costs of somehow gaining these internal resources, there is no evidence that the result would be a system that is cost-effective.

10 IMPACT ANALYSIS ON NET OPERATING COSTS

10.1 INSERT A TABLE TO ILLUSTRATE THE NET OPERATING COST IMPACT.

Table 10 - Net Operating Cost Impact WITH Estimated Vendor Net Sales % Cost

	Procurement	FY1	FY2	FY3	FY4
Project Cost Cumulative	$1,114,191.00	$5,575,179.80	$10,036,168.60	$14,497,157.40	$18,958,146.20
Current Costs Cumulative	$0.00	$4,475,030.40	$8,950,060.80	$13,425,091.20	$17,900,121.60
Cumulative Cost Savings / Loss	-$1,114,191.00	-$1,100,149.40	-$1,086,107.80	-$1,072,066.20	-$1,058,024.60

FY5	FY6	FY7	FY8	FY9	FY10
$23,419,135.00	$27,880,123.80	$32,341,112.60	$36,802,101.40	$41,263,090.20	**$45,724,079.00**
$22,375,152.00	$26,850,182.40	$31,325,212.80	$35,800,243.20	$40,275,273.60	**$44,750,304.00**
-$1,043,983.00	-$1,029,941.40	-$1,015,899.80	-$1,001,858.20	-$987,816.60	**-$973,775.00**

Table 11 - Net Operating Cost Impact WITHOUT Estimated Vendor Net Sales % Cost

	Procurement	FY1	FY2	FY3	FY4
Project Cost Cumulative w/o Net Sales %	$1,114,191.00	$1,676,991.00	$2,239,791.00	$2,802,591.00	$3,365,391.00
Current Costs cumulative w/o Net Sales %	$0.00	$284,400.00	$568,800.00	$853,200.00	$1,137,600.00
Cumulative Cost Savings / Loss	-$1,114,191.00	-$1,392,591.00	-$1,670,991.00	-$1,949,391.00	-$2,227,791.00

FY5	FY6	FY7	FY8	FY9	FY10
$3,928,191.00	$4,490,991.00	$5,053,791.00	$5,616,591.00	$6,179,391.00	**$6,742,191.00**
$1,422,000.00	$1,706,400.00	$1,990,800.00	$2,275,200.00	$2,559,600.00	**$2,844,000.00**
-$2,506,191.00	-$2,784,591.00	-$3,062,991.00	-$3,341,391.00	-$3,619,791.00	**-$3,898,191.00**

10.2 PROVIDE A NARRATIVE SUMMARY OF THE ANALYSIS CONDUCTED AND INCLUDE A LIST OF ANY ASSUMPTIONS.

Payment to a vendor providing the lottery gaming system tracks revenue or sales, and revenue in general terms tracks sales minus prizes. When the lottery performs better, the vendor gets paid more, and when the lottery performs less well, the vendor is paid less. This is true of the current system as well as the proposed project. It is important to keep in mind this relationship of cost to performance for the analyses which follow.

We conducted two complementary analyses, as outlined in 10.2.1 and 10.2.2 below:

10.2.1 IMPACT WITH HYPOTHETICAL COSTS

The first employs a hypothetical figure for performance of the lottery along with actual costs for optional hardware, software, and services as delineated in the draft contract. We feel this analysis is important to demonstrate the scale of the project, since the payments to the vendor for operations and maintenance are far greater than other costs for the project. Additionally, it demonstrates some cost savings that are effectively realized as we explain below.

For this analysis, we used the Percentage of Net Sales figure quoted by the vendor in their proposal (2.7686%) rather than the Percentage of Gross Gaming Revenue figure that will actually be employed by the State. We did this in order to have an “apples to apples” comparison with the current vendor’s Percentage of Net Sales figure (2.9763%). These percentages were applied to the hypothetical sales figure employed by the State in the RFP to be used by bidders ($140,800,00.00 / year). We conservatively assumed, for the purposes of this analysis, that this sales figure would remain stable over the lifecycle of the project.

To these calculated hypothetical costs, we added the following actual costs:

- For current costs, ($2,844,000.00 over 10 years) for existing vending machine costs. If the proposed project is implemented, these costs will go away.
- For new costs, we included all the costs of procurement and continued operation of the hardware, software, and service options elected by the State and agreed in the draft contract (total of $6,463,000.00 over lifecycle), as well as internal State and external project costs for professional services during procurement and implementation ($279,191.00).

The resulting comparison is show in Table 10, above, in cumulative form. The last column (FY10) shows a cumulative total of $45,724,079.00 for the proposed project and $44,750,304.00 for the existing project, showing **an increased cost of $973,775.00 over the lifecycle of the project.**

10.2.2 IMPACT CONSIDERING ACTUAL COSTS ONLY

The second analysis is identical to the first, except that we removed the hypothetical percentage of Net Sales costs and only included the actuals. **These are the fixed costs for the project**, representing the costs of the options the State has elected along with procurement/implementation costs. *They are not dependent on the performance of the lottery.* In this analysis, we see **an increased cost of $3,898,191.00 over the lifecycle of the project**.

10.2.3 IMPACT CONCLUSIONS

Employing the first analysis above (10.2.1), which gives the clearest picture of the proposed project, the State would realize a comparative savings of $14,041.60 per year when considering only annual costs. Over the project lifecycle this amounts to 140,416.00, consisting of two parts: a *decrease* in annual cost of $292,441.60, reflecting the 0.02077% difference in percentage of Net Sales costs; and an annual *increase* in fixed costs of $278,400.00 reflecting the new hardware, software, and services optioned by the State.

So, for about the same overall costs per year, the Lottery would gain significant improvements in retail operations, system management, security analysis, and business intelligence capabilities.

As stated several times above, the vendor O&M costs track the performance of the lottery, so that, for the purposes of this hypothetical analysis, O&M for the proposed system will always be 0.20770% of Net Sales less expensive than O&M for the current system given the conditions of our analysis.

However, the proposed project also carries a procurement and implementation (i.e., acquisition) cost of $1,114,191.00. With the annual savings described above, there is still close to $1million cost over the ten-year project lifecycle. While $973,775.00 may seem like a significant cost, in relation to the very conservative estimate of nearly 1.5 billion dollars in sales over the same period ($140,800,000 X 10 = $1,408,000,000.00), the cost is vanishingly small, at about 0.069%.

Ultimately, the impact that the proposed project will have will be best measured by the extent to which the Lottery fulfills its mission, i.e., how much it contributes to the Education Fund each year. This will of course be dependent on sales and prize payouts, and forecasting of that sort is beyond the scope of this review. However, we note that over a period of years the contribution to the Fund, while variable, has generally trended upward. With the improvements promised by the present project, we would expect that trend to continue and perhaps to accelerate.

10.2.4 ASSUMPTIONS

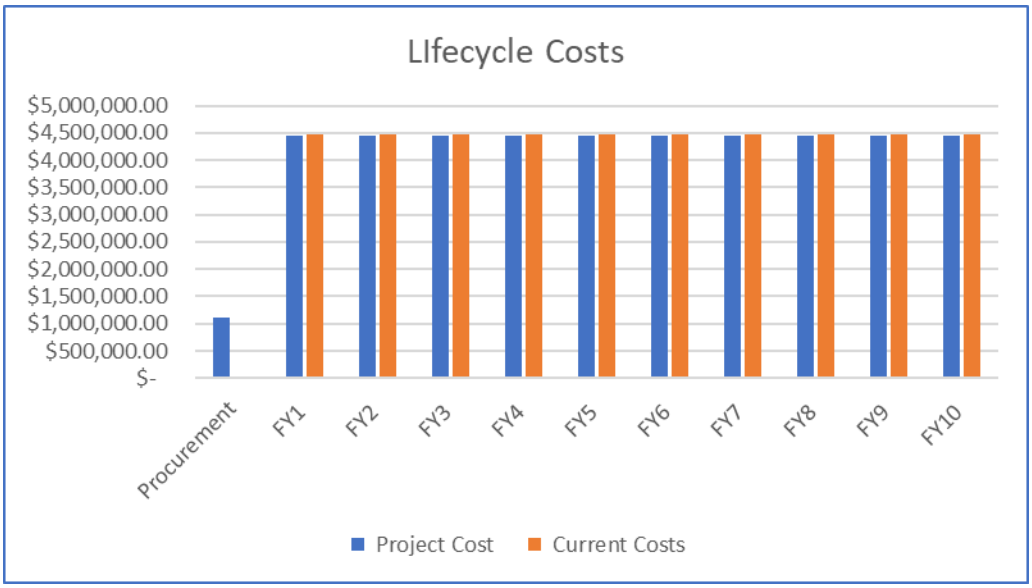
- Annual Net Sales of $140,800,00.00
- Vendor is paid by their proposed Percentage of Net Sales method (only for purposes of this comparison).
- Current Costs remain as they are.

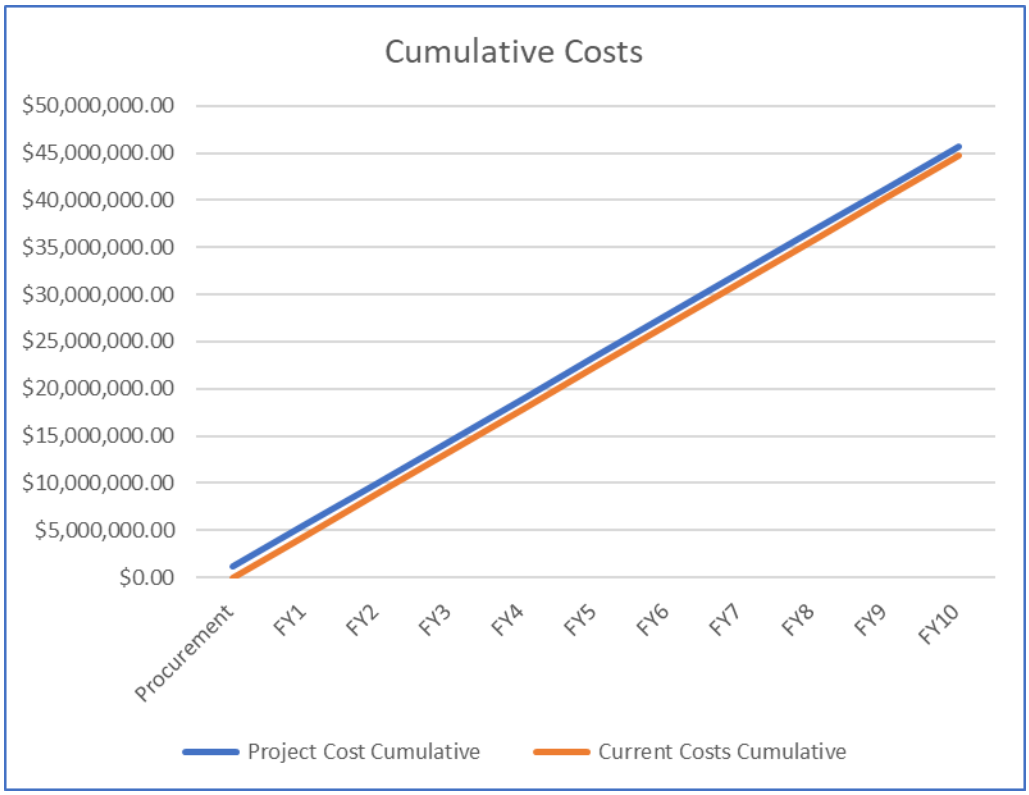
- Costs for options elected by the State are as listed in the draft contract.

10.3 EXPLAIN ANY NET OPERATING INCREASES THAT WILL BE COVERED BY FEDERAL FUNDING. WILL THIS FUNDING COVER THE ENTIRE LIFECYCLE? IF NOT, PLEASE PROVIDE THE BREAKOUTS BY YEAR.

N/A

10.4 WHAT IS THE BREAK-EVEN POINT FOR THIS IT ACTIVITY (CONSIDERING IMPLEMENTATION AND ON-GOING OPERATING COSTS)?





In these analyses, there is no "break-even point" since the State is taking on additional costs for the optional features. In terms of the Operation and Maintenance of the system alone, the State realizes a savings in the first year of operation – for purposes of this analysis, a savings of 0.20770% of Net Sales. The dollar figure would be dependent on Net Sales.

11 SECURITY ASSESSMENT

By their nature, Lottery systems are necessarily highly secure. As one interviewee put it, “They’re like banks.” They offer *potential* access to very large sums of money, and there are a number of schemes a bad actor might employ. These include, but are not limited to, a direct breach of the system’s data, a ransomware attack, compromising an individual with knowledge of and access to the system, or some variety of game fraud.

There are a number of means of defense against such attacks. One way is the State’s standard contract terms in Attachment D, Information Technology System Implementation, Terms and Conditions (rev. 3/08/19), which is included in the present draft contract. Clause 6.2 states in part, “the Contractor shall fully indemnify and save harmless the State from any costs, loss or damage to the State resulting from a Security Breach or the unauthorized disclosure of State Data by the Contractor, its officers, agents, employees, and subcontractors.” This may protect the State from financial losses in the even that a security breach is the fault of the vendor. It may also incentivize the vendor to perform well in this area.

Other portions of Attachment D, along with other contract provisions, set forth the minimum security and privacy requirements the State requires of the vendor. Lottery industry associations further impose strict standards, which the vendor attests to, to bring vendor security controls to the level of financial (“banking”) protections.

Beyond this, the State’s ADS Enterprise Architecture division has been employed through all steps of the procurement process to evaluate and assure that the vendor is meeting the State’s preferences and requirements for security and privacy.

Finally, the Lottery Division’s own internal security and privacy controls provide the “last mile” of protection.

The State has opted to procure and deploy the vendor-provided Security Analysis Software (SAS). This system uses statistical methods to identify potential instances of retailer and Lottery/Vendor fraud.

We assess this multi-layered approach to be appropriate to the needed level of protection and most likely to be successful in the presence of constant vigilance by vendor and State.

Assess Information Security alignment with State expectations. ADS-Security Division will support reviewer and provide guidance on assessment.

11.1 WILL THE NEW SYSTEM HAVE ITS OWN INFORMATION SECURITY CONTROLS, RELY ON THE STATE’S CONTROLS, OR INCORPORATE BOTH?

The proposed system is not connected to the State’s network. It has its own information security controls, as described below, but these are informed by and congruent with the State’s preferences and requirements. See **Section 11.7**, *below*, for the standards and audits employed. Note that data classification, as described in **Section 11.2**, *below*, is defined in cooperation with the State.

11.2 WHAT METHOD DOES THE SYSTEM USE FOR DATA CLASSIFICATION?

Consistent with State preferences and requirements, the vendor cooperates with the State to classify data and protect it based on those classifications, according to appropriate standards.

11.3 WHAT IS THE VENDOR'S BREACH NOTIFICATION AND INCIDENT RESPONSE PROCESS?

The vendor's internal process called SYSCON (system condition) employs 4-levels of clearly defined increasing severity from 4 (minor) to 1 (major). Escalation steps, standard response times, and required follow-up are delineated for each level. All SYSCON level events are captured, documented, and updated for the State.

In the event of a security breach, the vendor will immediately notify the State and follow-up with a formal incident report within 24 hours. The vendor will fully cooperate with the Sate to mitigate any consequences. The vendor's internal operational practices are listed below (note that titles here refer to the vendor's internal organization, e.g., CISO is the vendor's CISO, not the State CISO):

1. When Security notifies them, the Chief Information Security Officer (CISO) performs a preliminary analysis of the facts and assesses the situation to determine the nature and scope of the incident.
2. The CISO informs the legal department and the Chief Compliance Officer that Security has reported a possible data breach and provides them with an overview of the situation.
3. The CISO then contacts the individual who reported the problem.
4. Along with IT, the CISO identifies the systems and types of information affected and determines whether the incident could be a breach, or suspected breach, of personal information about an individual. Every breach may not require participation of all incident response team members (e.g., if the breach was a result of hard copy disposal or theft, the investigation may not require the involvement of system administrators, the firewall administrator and other technical support staff).
5. The CISO reviews the preliminary details with the legal department and the Chief Compliance Officer.
6. If the CISO confirms a privacy breach affecting personal information or company intellectual property, we activate the incident response team. The global risk and security services team will update the incident request with "incident response team activation—critical security problem."
7. The CISO notifies the corporate communications department of the details of the investigation and breach. They keep them updated on key findings as the investigation proceeds.
8. For a confirmed data breach of a Lottery system, the necessary individuals will review the contracts related to the breached system(s) to see if there is a timeline for notification.

11.4 DOES THE VENDOR HAVE A RISK MANAGEMENT PROGRAM THAT SPECIFICALLY ADDRESSES INFORMATION SECURITY RISKS?

The vendor has adopted the NIST 800-53 Cyber Security Framework, which includes a detailed risk management framework in accordance with the security requirements in Federal Information Processing Standard (FIPS) 200, and the baseline security controls established in FIPS 199. The security standard covers prescribed management, operational, and technical safeguards, as well as access controls, incident response, business continuity, and disaster recovery measures necessary to protect the confidentiality, integrity and availability of a system and its information.

The vendor employs a third-party auditor to attest to compliance to the standard.

These practices are consistent with State requirements and preferences, and we concur that they represent the most appropriate approach.

11.5 WHAT ENCRYPTION CONTROLS/TECHNOLOGIES DOES THE SYSTEM USE TO PROTECT DATA AT REST AND IN TRANSIT?

The vendor encrypts data classified to be sensitive enough for encryption at a level no less than AES-256 while at rest or in storage and uses NIST-approved AES-256 – level encryption for data field encryption for all data that contains bank information, FID or SSN, and data otherwise classified as PII.

All data communications outside secured facilities from point of transmission to point of receipt are encrypted. The vendor's system applies encryption to any data transmitted directly from the AEGIS lottery gaming system to the remote backup system, Lottery service centers and any other remote locations. Protected information includes, but is not limited to, plays, validations, security codes, reports and downloaded software.

All data communications between retailer terminals and the primary data center, as well as data exchanged between both data centers and the Lottery are encrypted.

The vendor employs the commercially available advanced encryption standard 256-bit (AES-256) for all data communications that occur outside secured facilities. Internal hardware encryption engines inside all enterprise routers provide the data encryption and decryption functions.

This high level of encryption is appropriate to the level of protection required for this system.

11.6 WHAT FORMAT DOES THE VENDOR USE FOR CONTINUOUS VULNERABILITY MANAGEMENT, WHAT PROCESS IS USED FOR REMEDIATION, AND HOW DO THEY REPORT VULNERABILITIES TO CUSTOMERS?

The vendor employs a variety of standards, methods, and processes, compliant with applicable models (see below) and integrated with their communication plan, ensuring that the State is "in the loop." Their vulnerability management tools are applied to both test and production environments. Reading the vendor's proposal carefully, we find that their description is likely to be adequate and effective, as well as appropriate.

As we mention above, however, the State-specific plan for vulnerability management is a component of the Operational Security Plan required of the vendor by the State 45 days after contract award.

11.7 HOW DOES THE VENDOR DETERMINE THEIR COMPLIANCE MODEL AND HOW IS THEIR COMPLIANCE ASSESSED?

In addition to NIST 800-53 controls, the vendor cites compliance with the following certification and audit practices:

- North American Association of State and Provincial Lotteries (NASPL) Certification
- World Lottery Association (WLA) Responsible Gaming
- WLA Security Controls Standard: 2012
- Multi-State Lottery Association (MUSL) Rule 2
- Payment Card Industry Data Security Standard (PCI-DSS) Data Security Certification
- International Organization of Standards/International Electrotechnical Commission (ISO/IEC) 27001:2013 Information Security Management
- Statement on Standards for Attestation Engagements (SSAE) 18 System and Organization Controls (SOC) 1&2 Type I and II Audits
- ISO 9001 Quality Management
- Information Technology Infrastructure Library (ITIL) and Information Technology Service Management (ITSM) Industry Standards
- ISO 37001:2016 Anti-Bribery Management System

The vendor's game programming department is ISO/IEC 27001:2013 certified.

The vendor lists its corporate-wide security posture "foundation" with the following:

- ISO 27001:2013 certification--the administration systems of Scientific Games online operations in Alpharetta, Georgia, are following management systems, standards and guidelines.
- ISO 27001:2013 certification of the Alpharetta printing plant
- ISO 27001:2013 certification of the Montreal printing plant
- ISO 27001:2013 certification of the Gaming Operations Center in Illinois and the National Data Center in Georgia

MUSL certifies and approves the vendor's data centers under ISO 27002:2013 annually. The vendor regularly undergoes SSAE 18 audits.

We do not see an explicit statement by the vendor that annual audit reports will be shared with the State; however, the State's ATTACHMENT D-Information Technology System Implementation TERMS AND CONDITIONS (rev. 3/08/19) section 6.4 requires the bidder to cause an SSAE 18 SOC 2 Type 2 audit report to be conducted annually and the results to be shared with the State within 60 days. Unless the State grants an exception to this requirement, it will remain in the contract. We therefore expect the vendor to be compliant with this requirement.

We judge that the certifications and audits above are comprehensive and appropriate for a lottery system, reflect industry best practices, and in conjunction with the vendor's implementation and third-party attestation to NIST 800-53 controls are congruent with State requirements for a highly secure system.

11.7.1 ADDITIONAL COMMENTS ON SECURITY

none

12 RISK ASSESSMENT & RISK REGISTER

The risks identified throughout this review are collected below, along with an assessment of their significance, a description of the State response and timing, and our evaluation of the State response.

12.1.1 ADDITIONAL COMMENTS ON RISK

During the course of the present review, on June 29, 2021, Scientific Games Corporation (NASDAQ: SGMS), the parent company of the selected vendor, Scientific Games International, announced its intention to divest its Lottery and Sports Betting businesses stating, *"Scientific Games is evaluating strategic alternatives to execute the divestitures for each business, respectively, including an initial public offering ("IPO") or a combination with a special purpose acquisition company ("SPAC"), or a sale or a strategic combination with another business. The corporation's CEO described these intentions as "key steps to optimize our portfolio and strengthen our balance sheet by significantly de-levering while also targeting investments in our largest growth opportunities."*[4]

This development poses potential risk to the project. We have listed below potential risks and the facts within the scope of this Independent Review that mitigate those risks. Risk **_RISK_ID# _R8_** includes the State's response to this risk.

Potential Risk	Mitigating Facts
A change in ownership could make the vendor unable to deliver on its proposal.	• The vendor is obligated to perform the Contract. • The draft Contract (in Standard Contract for Technology Services) states: ○ *7. Termination for Convenience. This Contract may be terminated by the State at any time by giving written notice at least thirty (30) days in advance. In such event, Contractor shall be paid under the terms of this Contract for all services provided to and accepted by the State prior to the effective date of termination.* • At this time, the State has the contractual right to continue services with the existing Lottery vendor. • When similar situations have occurred in other states, other service providers have, on request, assisted the affected state by continuing operation of the lottery system. This is generally seen as beneficial to the lottery service provider industry.
A new owner might be unacceptable to the State for any of a number of reasons.	• Attachment E.25.D of the draft Contract requires of the vendor:

[4] Scientific Games Announces Decisive Steps as Part of its Strategic Review | Scientific Games

	○ *Notification in writing to the Lottery within ten (10) business days if an person, group of persons, partnership, corporation, associate group of investors, limited liability company or other legal entity acquires directly or indirectly the beneficial ownership (as defined by Securities and Exchange Commission Regulation §240.13d-3) in the amount of five percent (5%) or more of the ownership interest in, or any class of equity securities of, the Contractor or the parent company of the Contractor. Background investigation and licensing may be required for these new owners and if the investigations are unsatisfactory, the Lottery may, at its option, terminate the Contract, after providing thirty (30) days written notice to the Contractor.*
Personnel employed by the vendor might change following divestiture	• Nearly all of the individuals named in the vendor's proposal are currently in the Lottery business arm of the corporation. • Attachment E.44 of the draft Contract gives the State approval of staffing: ○ *The Lottery reserves the right to review and if perceived necessary, disapprove any employee of the Contractor who is assigned to the Lottery Contract, either at Contract inception or during the term or any extension thereof.*
The finances of the divested business might be inadequate.	• The scope of the Independent Review does not extend to evaluating the detailed financial position of the selected vendor. The consultant the Lottery has contracted with for implementation and lottery subject matter expertise for this project performed his own analysis. and the State has concluded that the risk of an inadequate financial position is low.
The intended divestiture as described by SGMS could result in the Lottery and Sports Betting segments becoming two separate businesses.	• The selected vendor's proposal describes the capability to support Sports Wagering if the State desired it. The State did not request this capability in the RFP. At this time, the legislature has not instituted Sports Wagering in Vermont. The Governor has signed legislation authorizing a study "concerning the current state of the regulated sports betting market in the United States."[5] The State's Chief Technology Officer (CTO) instructs us to assume that Lottery Services and Sports Betting Services would not have to be provided by one vendor. Therefore, we do not see this as a risk.

[5] H.313 (Act 70) - An act relating to miscellaneous amendments to alcoholic beverage laws -

12.1.2 RISK REGISTER

The following table explains the Risk Register components:

Risk ID:	Identification number assigned to risk or issue.	
Risk Rating:	An assessment of risk significance, based on multiplication of **(probability X impact ratings)** (*see below*).	
	1-9 = low	See table below
	10-48 = moderate	
	49-90 high	
Probability:	Assessment of likelihood of risk occurring, scale of **1,3,5,7, or 9**, from least to most likely	
Impact:	Assessment of severity of negative effect, scale of **1,3,5,7, or 10**, from least to most severe	
Finding:	Review finding which led to identifying a risk	
Risk Of:	Nature of the risk	
Source:	Project, Proposed Solution, Vendor or Other	
Risk domains:	What may be impacted, should the risk occur	
State's Planned Risk Strategy	Decision to *avoid*, *mitigate*, or *accept* risk	
State's Planned Risk response	Detailed description of response to risk, in order to accomplish decision	
Reviewer's Assessment:	Reviewer's evaluation of the State's planned response	

Risk Rating Matrix			IMPACT				
			Trivial	Minor	Moderate	Major	Extreme
			1	3	5	7	10
LIKELIHOOD	Rare	1	1	3	5	7	10
	Unlikely	3	3	9	15	21	30
	Moderate	5	5	15	25	35	50
	Likely	7	7	21	35	49	70
	Very Likely	9	9	27	45	63	90

Risk ID: R1	Rating:	**9**	
	Likelihood:	**3**	
	Impact:	**3**	
Finding:	Several project team members expressed the opinion that a Covid-19 infection of one of the team members could put the lottery operation "out of business." Staff estimates approx. 20% of staff work cannot be done remotely. Vermont statute and ethical practice does not allow for lottery operations to cease.		
Risk Of:	Project and business halt		
Risk To:	project success, timeline, business success, SOV reputation, SOV liability		
State's Planned Risk Strategy:	MITIGATE: SOV Team agrees with the reviewer recommendation and will develop a continuity of business plan to address how to deal with a mandate of full remote work or several resources out due to the COVID-19 Pandemic.		
Reviewer's Assessment of State's Planned Response	Concur		

Risk ID: R2	Rating:	**21**	
	Likelihood:	**3**	
	Impact:	**7**	
Finding:	Project business team is very small and relatively dependent upon one individual for subject matter expertise. The loss of this individual or any other team member for any reason (retirement, illness, personal choice, etc.) could significantly slow implementation progress if vendor must slow implementation waiting for State participation.		
Risk Of:	Implementation delay		
Risk To:	project success, timeline		
State's Planned Risk Strategy:	SOV Team agrees and will mitigate this risk with all three of the strategies below. MITIGATE: 1.) Considering continuing contract with SME consultant during implementation 2.) Considering replacing up to 3 staff positions which have been recently vacated. 3.) If project is delayed, contract with existing vendor has available potential extension.		
Reviewer's Assessment of State's Planned Response	Concur: These responses are appropriate.		

Risk ID: R3	Rating:	**8**	
	Likelihood:	**2**	
	Impact:	**4**	
Finding:	Operational staff who will be required to participate in implementation requirements discovery and testing have additional demands on their time due to current vendor requiring multiple testing iterations for changes to the existing system.		
Risk Of:	Implementation delay		
Risk To:	project timeline		
State's Planned Risk Strategy:	SOV agrees with the strategy below to avoid this risk. AVOID: Decline any changes to existing system that aren't absolutely necessary to implement. If project is delayed, contract with existing vendor has available potential extension."		
Reviewer's Assessment of State's Planned Response	Concur: This is a practical approach. The lottery staff seem to have a good handle on which changes (that result in SOV testing) could be declined or postponed.		

Risk ID: R4	Rating:	**8**	
	Likelihood:	**2**	
	Impact:	**4**	
Finding:	Subject matter expertise and operational tasks are often shared among team members. Implementation responsibilities among individual staff members may change from time to time due to practical demands on their time, operating and/or testing the existing system. Additional subject matter expertise and possibly also implementation responsibility may reside in an outside consultant, whose continued engagement is being considered (see R2 above). ADS standards and practice requires ADS project management and oversight. The conditions described here could potentially result in project decisions and implementation tasks being undertaken without adequate consultation and deliberation.		
Risk Of:	Inadequate project oversight		
Risk To:	project management		
State's Planned Risk Strategy:	MITIGATE: ADS PM has already created a RACI; however, this document will need to be kept up to date and modified if the current lottery consultant resumes through implementation to reflect roles & responsibilities for that phase of the project. It will also be updated to reflect the roles and responsibilities of selected vendor.		
Reviewer's Assessment of State's Planned Response	Concur		

Risk ID: R7	Rating:	**9**	
	Likelihood:	**3**	
	Impact:	**3**	
Finding:	State and/or practical restrictions on travel or in-person contact due to the Covid-19 pandemic could impact tasks necessary for implementation		
Risk Of:	Implementation delay		
Risk To:	timeline		
State's Planned Risk Strategy:	SOV agrees with the strategy below to accept this risk. There are clauses in the current contract that they have to continue services until the Lottery is able to cutover to the new system. ACCEPT: The project will comply with all pandemic regulations. If project is delayed, contract with existing vendor has available potential extension.		
Reviewer's Assessment of State's Planned Response	Concur		

Risk ID: R8	Rating:	**30**	
	Likelihood:	**3**	
	Impact:	**10**	
Finding:	On June 29, 2021, Scientific Games Corporation (NASDAQ: SGMS), the parent company of the selected vendor, Scientific Games International, announced its intention to divest its Lottery and Sports Betting businesses. This restructuring could potentially create a condition where the vendor cannot or will not perform the contract, during implementation or during operation.		
Risk Of:	operations cease		
Risk To:	project success, business success		
State's Planned Risk Strategy:	ACCEPT: If non-performance occurs during implementation, the State could invoke contract termination clause(s). If non-performance occurs once the system is in operation, the State would rely on the experience of other states in similar circumstances and request the help of other service providers in maintaining uninterrupted operation of the Lottery.		
Reviewer's Assessment of State's Planned Response	Concur.		

13 ATTACHMENTS

Attachment 1 – Cost Spreadsheet

Attachment 2 – Risk Register

Attachment 1: Enterprise VoIP Cost Spreadsheet ver. 3.0a (with Service)

Project Name:	Enterprise VoIP															Lifecycle Total @	
Description	Qty	Unit Price	Monthly Price		Maintenance	Maintenance	Maintenance	Maintenance	Maintenance	Maintenance	Maintenance	Maintenance	Maintenance	Maintenance	Total	Current Annual Cost	Benefit
Fiscal Year				Procurement	FY1	FY2	FY3	FY4	FY5	FY6	FY7	FY8	FY9	FY10			
Hardware																	
Server Hardware				$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -		
Network Upgrades				$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -		
Desktop Hardware				$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -		
UpgradeTicket Vending Machines				$ 87,500.00	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 87,500.00		
PCI Pin Pad Payment Module	125	$ -	$ 6.00	$ 157,500.00	$ 9,000.00	$ 9,000.00	$ 9,000.00	$ 9,000.00	$ 9,000.00	$ 9,000.00	$ 9,000.00	$ 9,000.00	$ 9,000.00	$ 9,000.00	$ 247,500.00		
Hardware Total				**$ 245,000.00**	**$ 9,000.00**	**$ 9,000.00**	**$ 9,000.00**	**$ 9,000.00**	**$ 9,000.00**	**$ 9,000.00**	**$ 9,000.00**	**$ 9,000.00**	**$ 9,000.00**	**$ 9,000.00**	**$ 335,000.00**	**$ 2,844,000.00**	**$ 2,509,000.00**
Software																	
SAS Enhancement	0	$ -	$ 18,250.00	$ 500,000.00	$ 219,000.00	$ 219,000.00	$ 219,000.00	$ 219,000.00	$ 219,000.00	$ 219,000.00	$ 219,000.00	$ 219,000.00	$ 219,000.00	$ 219,000.00	$ 2,690,000.00		
Infuse Premium	0	$ -	$ 27,750.00	$ 90,000.00	$ 333,000.00	$ 333,000.00	$ 333,000.00	$ 333,000.00	$ 333,000.00	$ 333,000.00	$ 333,000.00	$ 333,000.00	$ 333,000.00	$ 333,000.00	$ 3,420,000.00		
Software Total				**$ 590,000.00**	**$ 552,000.00**	**$ 552,000.00**	**$ 552,000.00**	**$ 552,000.00**	**$ 552,000.00**	**$ 552,000.00**	**$ 552,000.00**	**$ 552,000.00**	**$ 552,000.00**	**$ 552,000.00**	**$ 6,110,000.00**	**$ -**	**$ (6,110,000.00)**
Services																	
Increasing dual communications to retailers	440	$ -	$ 150.00	$ -	$ 1,800.00	$ 1,800.00	$ 1,800.00	$ 1,800.00	$ 1,800.00	$ 1,800.00	$ 1,800.00	$ 1,800.00	$ 1,800.00	$ 1,800.00	$ 18,000.00		
Vendor Percentage of Net Sales*	0	$ -	$ -	$ -	$ 3,898,188.80	$ 3,898,188.80	$ 3,898,188.80	$ 3,898,188.80	$ 3,898,188.80	$ 3,898,188.80	$ 3,898,188.80	$ 3,898,188.80	$ 3,898,188.80	$ 3,898,188.80	$ 38,981,888.00		
Services Total			**$ 150.00**	**$ -**	**$ 3,899,988.80**	**$ 3,899,988.80**	**$ 3,899,988.80**	**$ 3,899,988.80**	**$ 3,899,988.80**	**$ 3,899,988.80**	**$ 3,899,988.80**	**$ 3,899,988.80**	**$ 3,899,988.80**	**$ 3,899,988.80**	**$ 38,999,888.00**	**$ 41,906,304.00**	**$ 2,906,416.00**
Consulting																	
Independent Review				$ 17,769.00	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 17,769.00		
Consulting Total				**$ 17,769.00**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 17,769.00**	**$ -**	**$ (17,769.00)**
Training																	
Other				$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -		
Training Total				**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Implementation Services																	
Implementation Services Total				**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Personnel - Additional																	
State Personnel					$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -		
					$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -		
ADS EPMO Project Oversight & Reporting				$ 24,476.00	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 24,476.00		
ADS EPMO Project Manager for Implementation				$ 123,662.00	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 123,662.00		
ADS EPMO Business Analyst for Implementation				$ -											$ -		
ADS Enterprise Architect Staff for Implementation				$ 43,824.00	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 43,824.00		
ADS Security staff for Implementation				$ 45,100.00	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 45,100.00		
Other ADS IT Labor for Implementation				$ 24,360.00	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 24,360.00		
					$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -		
Personnel - Additional Total				**$ 261,422.00**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 261,422.00**	**$ -**	**$ (261,422.00)**
Grand Total				**$ 1,114,191.00**	**$ 4,460,988.80**	**$ 4,460,988.80**	**$ 4,460,988.80**	**$ 4,460,988.80**	**$ 4,460,988.80**	**$ 4,460,988.80**	**$ 4,460,988.80**	**$ 4,460,988.80**	**$ 4,460,988.80**	**$ 4,460,988.80**	**$ 45,724,079.00**	**$ 44,750,304.00**	**$ (973,775.00)**

ATTACHMENT 2 - LOTTERY GAMING SYSTEM INDEPENDENT REVIEW -- Risk and Issues Register -- version 3.0.a 2021/August/09 -- Paul E. Garstki, JD -- Paul Garstki Consulting

RISKS

What is the finding that leads to identifying a risk? (This is a highly condensed version that is explained more fully in the report narrative)

What are the risks implied by the finding?

What aspects of the project are at risk if the risk(s) are realized?

What is the State's response to the risk?

What is the Independent Reviewer recommending? (The Reviewer does not necessarily make a recommendation for each risk)

Is the State's response to this risk adequate?

Latest the response should take place

Reviewer's assessment of likelihood risk is realized 1,3,5,7, or 10

Reviewer's assessment of impact if risk is realized 1,3,5,7, or10

1-9 low

10-48 medium

49-100 high

Note: Risk ID # list may have gaps, in order to maintain consistency with earlier drafts

Risk #	Finding	risk of	risk domains	SOV response	Reviewer Recommendation	Reviewer Assessment of SOV Response	Timing	likelihood 1-10	impact 1-10	total rating
R1	Several project team members expressed the opinion that a Covid-19 infection of one of the team members could put the lottery operation "out of business." Staff estimates approx. 20% of staff work cannot be done remotely. Vermont statute and ethical practice does not allow for lottery operations to cease.	Project and business halt	project success, timeline, business success, SOV reputation, SOV liability	MITIGATE: SOV Team agrees with the reviewer reccomendation and will develop a continuity of business plan to address how to deal with a mandate of full remote work or several resources out due to the COVID-19 Pandemic.	MITIGATE: Develop, approve, and promulgate a practical continuity of business plan	Concur	As soon as practicable	**3**	**3**	**9**
R2	Project business team is very small and relatively dependent upon one individual for subject matter expertise. The loss of this individual or any other team member for any reason (retirement, illness, personal choice, etc.) could significantly slow implementation progress if vendor must slow implementation waiting for State participation.	Implementation delay	project success, timeline	SOV Team agrees and will mitigate this risk with all three of the strategies below. MITIGATE: 1.) Considering continuing contract with SME consultant during implementation 2.) Considering replacing up to 3 staff positions which have been recently vacated. 3.) If project is delayed, contract with existing vendor has available potential extension.	--	Concur: These responses are appropriate. We understand that the current hiring freeze in response to the pandemic means a case would have to be state and an exception made, to hire new personnel.	Beginning of implementation	**3**	**7**	**21**
R3	Operational staff who will be required to participate in implementation requirements discovery and testing have additional demands on their time due to current vendor requiring multiple testing iterations for changes to the existing system.	Implementation delay	project timeline	SOV agrees with the strategy below to avoid this risk. AVOID: Decline any changes to existing system that aren't absolutely necessary to implement. If project is delayed, contract with existing vendor has available potential extension.	--	Concur: This is a practical approach. The lottery staff seem to have a good handle on which changes (that result in SOV testing) could be declined or postponed.	Implementation	**2**	**4**	**8**
R4	Subject matter expertise and operational tasks are often shared among team members. Implementation responsibilities among individual staff members may change from time to time due to practical demands on their time, operating and/or testing the existing system. Additional subject matter expertise and possibly also implementation responsibility may reside in an outside consultant, whose continued engagement is being considered (see R2 above). ADS standards and practice requires ADS project management and oversight. The conditions described here could potentially result in project decisions and implementation taks being undertaken without adequate consultation and deliberation.	Inadequate project oversight	project management	Mitigate: ADS PM has already created a RACI, however this document will need to be kept up to date and modifieid if the current lottery consultant resumes through implementation to refelct roles & responsilities for that phase of the project. It will also be updated to reflect the roles and responsibilites of selected vendor.	MITIGATE: Develop a practical project RACI. Make sure the purpose and application of this tool is clear to team members, including any outside persons engaged. Test RACI function regularly (e.g., project team meetings).	Concur	As soon as practicable	**2**	**4**	**8**
R7	State and/or practical restrictions on travel or in-person contact due to the Covid-19 pandemic could impact tasks necessary for implementation	Implementation delay	timeline	SOV agrees with the strategy below to accept this risk. There is clauses in the current contract that they have to continue services until the Lottery is able to cutover to the new system. ACCEPT: The project will comply with all pandemic regulations. If project is delayed, contract with existing vendor has available potential extension.	--	Concur:	Immediate	**3**	**3**	**9**
R8	On June 29, 2021, Scientific Games Corporation (NASDAQ: SGMS), the parent company of the selected vendor, Scientific Games International, announced its intention to divest its Lottery and Sports Betting businesses. This restructuring could potentially create a condition where the vendor cannot or will not perform the contract, during implementation or during operation.	operations cease	project success, business success	ACCEPT: If non-performance occurs during implementation, the State could invoke contract termination clause(s). If non-performance occurs once the system is in operation, the State would rely on the experience of other states in similar circumstances and request the help of other service providers in maintaining uninterrupted operation of the Lottery		Concur	Going Forward	**3**	**10**	**30**