



Information Technology (IT) Comprehensive Risk Assessment

Governance & Audit Report No. 2020-12

Report Issued March 4, 2021

EXECUTIVE SUMMARY

Background

The FY 2020 Internal Audit Work approved by the Governance and Audit Committee included a Comprehensive IT Risk Assessment. IndyGo’s current IT leadership has been in place since 2018 and has been making changes to improve IT’s ability to serve the agency. As an example, the Project Management Office was brought under IT in 2019 and has yielded positive results in multiple instances.

Our assessments are performed in accordance with the professional practice standards of the Institute of Internal Auditors. This report was prepared for use by IndyGo’s Board of Directors, Governance and Audit Committee, and management.

Objective, Scope, and Approach

Our intent in performing a Comprehensive Risk Assessment over Information Technology (IT) was to obtain a high-level view of multiple key areas within IT’s scope broad of responsibilities. Our objective was to assess IT leadership’s strategy to meet the needs of the agency as it continues on its aggressive growth journey, as well as the organization’s support of that strategy.

Accordingly, our scope included understanding at a high level the infrastructure environment supporting IndyGo services, such as identity management, server admin and security and endpoint management. Finally, we assessed the application environment, including change management and support of system upgrades, integrations, and implementations, as well as the IT general control environment.

Our approach included performing interviews with members of IndyGo IT management, soliciting feedback through questionnaires and surveys, leveraging self-assessment tools, and comparing current organization, strategy, and practices to leading practices.

Overall Report Rating & Observations

(See Appendix A for definitions)

	Report Rating	Number of Observations by Rating		
		High	Medium	Low
IT Comprehensive Risk Assessment	High	2	1	1

Overall Summary and Highlights

IT at IndyGo has a broad set of responsibilities and touches virtually every aspect of the agency. Overall, we found that IT is moving in the right direction in terms of alignment with IndyGo’s growth and is improving its ability to serve the agency’s needs accordingly.

We leveraged our assessment to place key areas and topics in a heat map, similar to the approach we take with our annual enterprise-wide risk assessment. As shown in Appendix A, we have placed key scope areas and certain notable subtopics in the heat map based upon what we learned during the assessment. Our objective in doing so was to guide future G&A work with respect to IT. We recommend that Change Management and IT General Controls be areas of focus going forward.

Additionally, we performed a high-level assessment of IndyGo IT with respect to ITIL (Information Technology Infrastructure Library) best practices. ITIL is a framework of practices designed around strengthening IT’s service management capacity and capabilities in order to best align with the needs of the business. While IT has only begun standing up ITIL best practices, we assessed the organization, practices, and capabilities in light of ITIL expectations. Reflected in the Maturity Curve in Appendix B is a high-level visualization of where we feel IT falls with respect to ITIL practices. There is opportunity for improvement; however, it appears that the appropriate foundation has been set, initial training has begun, and there is positive momentum.

We would like to thank IndyGo staff and all those involved in assisting us in connection with the review. Questions should be addressed to the IndyGo Department of Governance and Audit at: batkinson@indygo.net.

EXECUTIVE SUMMARY *(CONTINUED)*

OBSERVATIONS SUMMARY

Following is a summary of the observations noted. Definitions of the observation rating scale are included in Appendix C.

Governance and Audit Observations	
Recommendation Title	Rating
1. IT Resource Availability & Change Management	High
2. Systems Development Life Cycle	High
3. IT Strategic Planning	Medium
4. Key Performance Indicators	Low

1. IT Resource Availability & Change Management

Observation:

IndyGo presently has more than 10 significant technology system upgrades or implementations ongoing, which may challenge the IT group’s ability to complete the projects timely and on budget.

Recommendation:

We recommend that IT management work with Operations leadership and overall IndyGo Executive leadership to prioritize projects and explore the need for additional resource support.

Management’s Response:

We are aware of our department’s capacity restraints and will address these contracts through temporary staff and staff positions in FY2022. IT has established standard operating procedures for post-go-live support.

Observation Rating: High

There are currently more than 10 significant IT-related projects in-progress across IndyGo.

Specifically, the following projects are currently in-progress at some point within the project lifecycle:

- Automatic Passenger Counter Replacements
- Bus Camera Replacement
- Microsoft D365 Finance System Implementation
- Flowbird/InComm
- HASTUS Upgrade and Cloud Migration
- Uninterruptible Power Supply (UPS) Upgrades
- VoIP Replacement
- W. Michigan Street design and transition
- Celadon facility design and transition
- Change Management System
- IT Compliance and Controls
- Remote Access Migration

We also noted that the AVAIL implementation, though while complete through the project lifecycle, remains a strain on IT resources as issues are followed-up and users are supported.

IndyGo IT management should:

- Consider formalizing and expanding the strategic planning process. Also, consider working with IndyGo Executive and Departmental leadership to implement a comprehensive, collaborative strategic planning process that is also connected to the annual budgeting process.
- Assess its internal resource assessments to ensure alignment between IT capabilities and business needs and IndyGo’s IT environment evolves over the next 12-24 months.
- Perform post-implementation assessments, which would include seeking business user feedback and would evaluate the implementation project itself as well as the fit of the new technology solution.

Action Plan:

For FY2021, we are procuring two (2) temporary staff members for their expertise to expand resources. IT will recommend additional staff for budgeting to commence in FY2022.

Responsible Parties:

Marcus Burnside,
Chief Information Officer

Due Date:

April 2021 (temporary staffing),
Q1 2022 (staff)

Additionally, both the Celadon and W. Michigan Street facility design and build-out projects are in early design stages but will consume high levels of IT resources throughout 2020.

Given the multiple projects ongoing concurrently, risks may arise related to the stretching of IT's capacity to adequately support every project.

For example, the AVAIL implementation (IndyGo's new Computer-Aided Dispatch/Automatic Vehicle Location, or CAD/AVL, solution) began in 2018. Currently, in early 2021, final questions are still being resolved and the solution is not yet fully operational. If projects are under-resourced or otherwise not managed along a timely lifecycle, service delivery, final deliverable quality or project budgets can suffer.

2. Systems Development Life Cycle

Observation:

IndyGo currently has no formal, tailored program guiding the development, implementation, integration, or upgrade of applications and systems.

Recommendation:

We recommend that IT management consider formalizing an SDLC framework.

Management’s Response:

Although IT does have a change management process, we know the lack of organizational-wide change management and will start addressing this issue beginning in Q2 2021. The PMO process was distributed to all Executives to adopt the approach for all non-construction and non-facilities projects. IT does have a formalized project management process which includes requirements gathering and vetting.

Observation Rating: High

The Systems Development Life Cycle (SDLC) refers to a methodology that focuses on the successful design, development and testing of software applications. The SDLC process has also become a best practice for system integrations and implementations.

Critical components of the SDLC framework include:

- Requirement analysis
- Planning
- Software or infrastructure design
- Software or infrastructure development
- Testing
- Deployment

IT’s support of business needs is an evolving effort. However, having a formal and tailored methodology supporting IT system projects is critical, especially to support IndyGo’s growth.

IndyGo IT management should consider formalizing an SDLC framework, supported by the Change Management System that is currently in the early stages of review. As a number of significant and mission critical systems become subject to meaningful changes over the next 12-24 months, it will be critical that an appropriate system of management and accountability is in place quickly.

In dealing with vendors, given that most applications going forward will be cloud-based and managed by third-party vendors, IT should first adopt standards internally by which it will manage those vendors. IT should also then communicate those standards to their vendors during the procurement process, to manage expectations for service delivery and support. When the business units own the projects, such as the upcoming Microsoft D365 implementation, the PMO can be instrumental in ensuring that these standards

Action Plan:

Champion the adoption of the IT PMO Process organizationally. Implement a more formal change management system organizationally. Explore the viability of an IT Steering Committee and/or Change Control Board.

Responsible Parties:

Marcus Burnside,
Chief Information Officer

Due Date:

Ongoing through Q1, 2022

Our assessment of IT's SDLC disclosed that while the hardware side of the SDLC is well-organized and on-track, the software side is less so. Specifically:

- No guidelines for involving IT in a project
- No formality around capturing the users' business needs prior to a system project plan
- No formal project management process
- No formal change control process
- No oversight body, such as an IT Steering Committee (ITSC)

We did observe two IT initiatives which can further support system implementations:

- **Change Management System (CMS):**
A CMS system is in process of being adopted. The CMS is intended to monitor and manage changes at the server level, tracking where application changes have been made. An effective CMS can help automate currently manual processes, thereby freeing up IT resources for more strategic work.
- **Project Management Office (PMO):**
The PMO function moved to IT in 2019 and has supported successful projects. Recent examples include the Dynaway and Ecolane implementations, both of which finished on time and with positive results. The more that the PMO can be leveraged as an integral part of every IT system implementation, integration or upgrade, the greater the chances of successful implementation.

are integrated into the project and with the vendor relationships.

Additionally, by creating a formal IT Steering Committee (ITSC) or more broadly a Change Control Board (CCB), IndyGo IT could benefit from perspectives outside of projects. Typically comprised of Executives and Management from across the organization, an ITSC is a common practice that IT teams use to help improve their overall service delivery to the business. A CCB is used to help manage change within an organization, and more specifically to help ensure that proper management and culture controls are maintained through and after the change instance. A CCB should be staffed with those who understand change and can effectively champion change.

3. IT Strategic Planning

Observation:

IndyGo IT has an opportunity to enhance its strategic planning process and improve cross-departmental collaboration across the organization.

Recommendation:

We recommend that IT expand its strategic planning process to include a formalized process to solicit input from all IndyGo departments.

Management’s Response:

The IT Department has submitted its 5-year strategic plan to the G&A team, which is updated and distributed to Executives as needed. ITIL is a methodology that will take time for adoption throughout the organization. IT has established standard operating procedures for post-go-live support.

Observation Rating: Medium

As a result of the high volume of IT-related activity across the agency, the IT group needs to move at a rapid pace to:

- Stay aligned with the implementation activity and schedules
- Manage external consulting resources
- Support the business users’ needs

IT engages in a strategic planning process to ensure alignment with IndyGo’s overall strategic plan. However, there is an opportunity for the process to expand and become more comprehensive in the future.

IT’s historical engagement with its business users has been narrow. IT can increase its communication with other IndyGo business units during the build-up of the strategic plan. This would allow IT to broaden a dialogue and better support the users and IndyGo’s future needs.

The benefits of doing so would reach beyond IT and:

Management should expand the strategic planning process to include agency-wide conversations across all departments. IT could establish a strategic planning dialogue following a formal process whereby needs, both short-term and long-term, are discussed. Such conversations would allow for greater information sharing across departments, which in turn would enable more informed decision making.

Additionally, to continue enhancing its service management capacity, IT should consider:

- Accelerating the pace at which team members receive baseline ITIL-training, and
- Create a formal implementation plan, including timelines, milestones, workstreams, and distinct ownership of each.

As part of the ITIL journey for example, the IT group should enhance its communication with, and support of, its user groups, which are its internal customers. The successful implementation of a system should be viewed as consisting of several components:

Action Plan:

Establish and enforce the ITIL methodology.

Responsible Parties:

Marcus Burnside,
Chief Information Officer

Due Date:

Q1, 2022

- Help break down perceived silos that have existed for years.
- Increase the business owners' sense of ownership and participation from the very beginning of project conceptualization.
- Become an IT leading practice for service management, and lead to higher project quality and great efficiency over time.

We did note that IT is moving toward integrating the ITIL methodology within the department going forward. ITIL (Information Technology Infrastructure Library) is a framework of practices designed around strengthening IT's service management capacity and capabilities in order to best align with the needs of the business. The CIO and certain of IT's key managers have been ITIL-trained, with more team members slated for training each year going forward.

- The initial technical go-live of an application
- IT's ongoing support of the hardware, server, cloud or infrastructure environment
- The efficient use of the system by its business users. This typically requires increased support by IT resources after the initial go-live.

To accomplish this, we recommend that:

- The application's primary business owner would designate a User Liaison, who would interface with the IT group on an ongoing basis.
- The IT group devote resources to major systems after the initial go-live date.

4. Key Performance Indicators

Observation:

IT does not currently have a comprehensive set of key performance indicators in place for effective monitoring and business management.

Recommendation:

We recommend that IT continue to work with the Strategic Planning Team and the KPI Committee to ensure proper infrastructure support for successful KPI development.

Management’s Response:

Data warehousing for KPIs will be a long-term ongoing project and will require additional resources to be successful. Performance/KPI initiatives should be managed through the project management process.

Observation Rating: Low

Similar to many other IndyGo departments, IT has supported the effort – led by the Strategic Planning Committee – to gather a list of meaningful key performance indicators (KPIs) to help them monitor and manage departmental performance.

Also similar to other departments, for many reasons the effort has stalled. Contributing factors blocking success in this effort include:

- Unavailability of specific data points within the systems
- Lack of data to support the build-up of certain metrics
- Inability of certain systems to interface with one another to bring together relevant data points

IndyGo has recently added two FTEs as Operations Data Analysts, with the singular near-term goal of developing a meaningful internal KP framework.

IT management should work with those leading IndyGo’s KPI effort to develop and publish a Balanced Scorecard to its internal customers, summarizing its performance.

Examples of potential KPIs in a Balanced Scorecard relating to various IT responsibilities include:

- Strategic: IT Projects Delivered on Budget (%)
- Strategic: IT Feedback and Satisfaction Rates
- Customer: User Support Response Time
- Customer: Critical Bugs Reported by Users
- Process: Average Ticket Handling Time
- Process: Downtime of Network or Website
- Process: Application Backup and Recovery Time, Compared to Plan
- Financial: IT Expense as a Percentage of Total Agency Expense
- Financial: Support Expense per User
- Management: IT Staff Attrition Rate

Action Plan:

Analyze the resources needed for maintaining the KPI/Performance initiative, and staff appropriately.

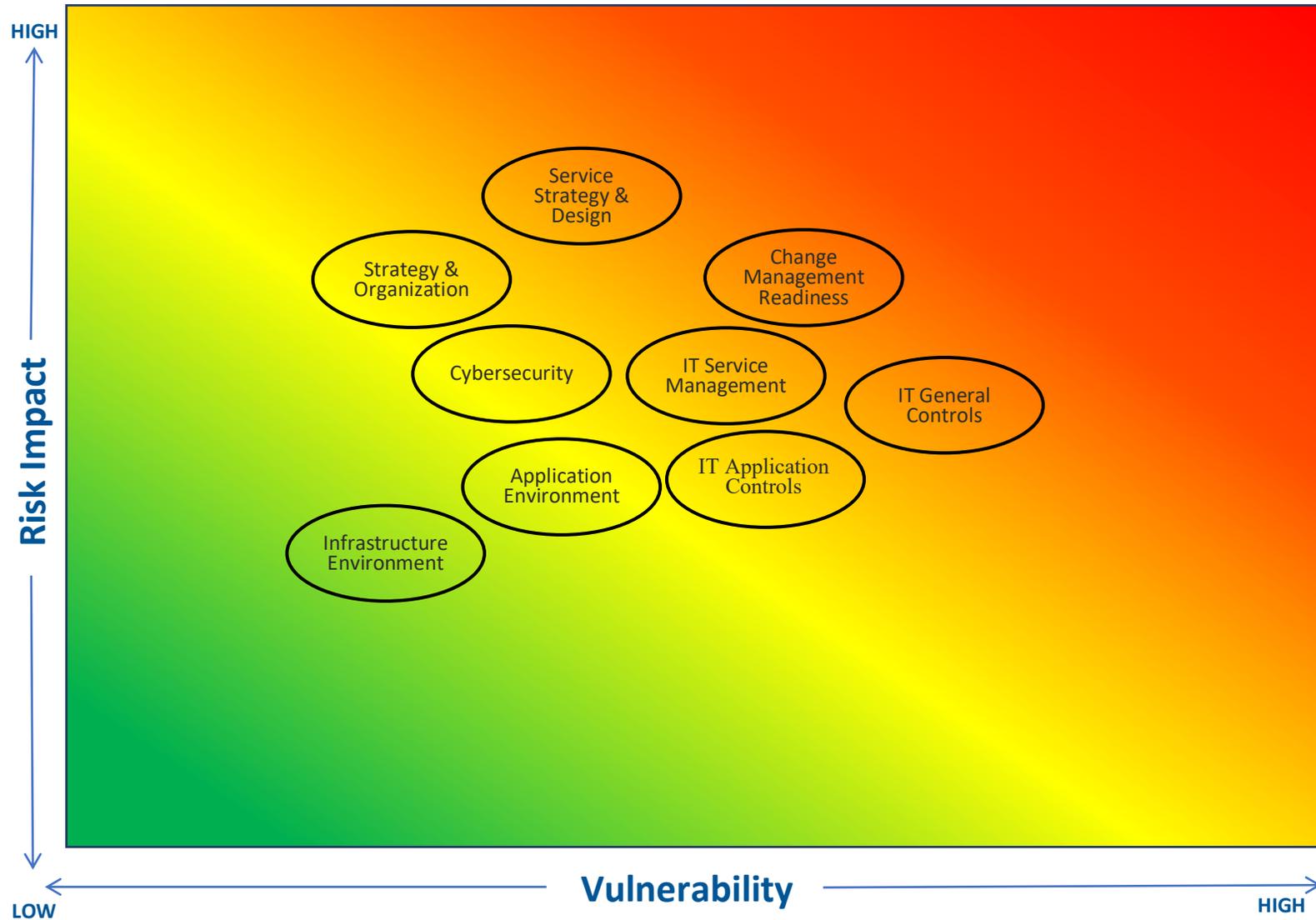
Responsible Parties:

Marcus Burnside,
Chief Information Officer

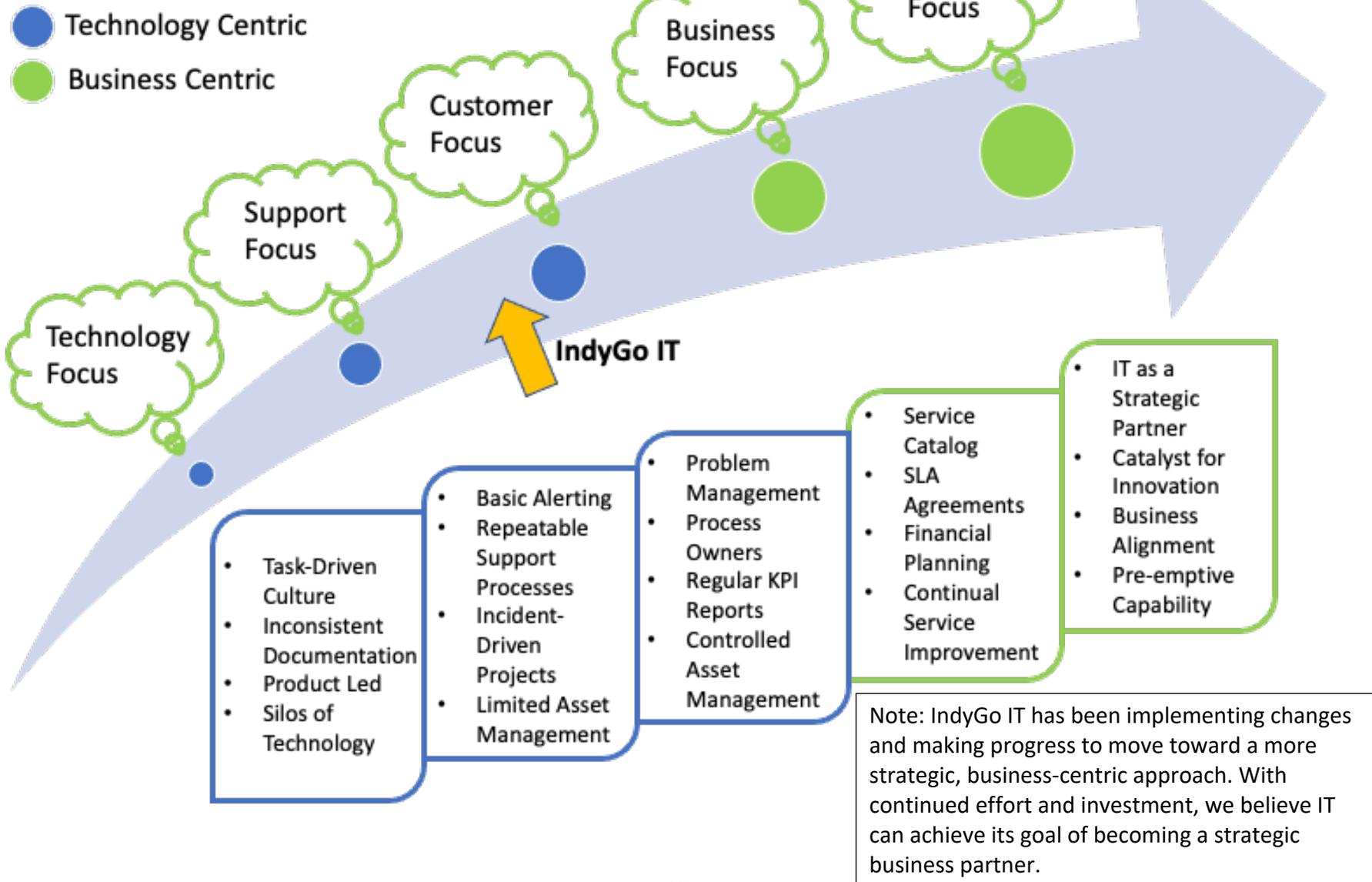
Due Date:

Q1, 2022

APPENDIX A – IT-Specific Heatmap



APPENDIX B – IndyGo IT Maturity Curve



APPENDIX C – RATING DEFINITIONS

Observation Rating Definitions		Report Rating Definitions	
Rating	Definition	Rating	Explanation
Low	Process improvements exist but are not an immediate priority for IndyGo. Taking advantage of these opportunities would be considered best practice for IndyGo.	Low	Adequate internal controls are in place and operating effectively. Few, if any, improvements in the internal control structure are required. Observation should be limited to only low risk observations identified or moderate observations which are not pervasive in nature.
Medium	Process improvement opportunities exist to help IndyGo meet or improve its goals, meet or improve its internal control structure, and further protect its brand or public perception. This opportunity should be considered in the near term.	Medium	Certain internal controls are either: <ol style="list-style-type: none"> 1. Not in place or are not operating effectively, which in the aggregate, represent a significant lack of control in one or more of the areas within the scope of the review. 2. Several moderate control weaknesses in one process, or a combination of high and moderate weaknesses which collectively are not pervasive.
High	Significant process improvement opportunities exist to help IndyGo meet or improve its goals, meet or improve its internal control structure, and further protect its brand or public perception presents. This opportunity should be addressed immediately.	High	Fundamental internal controls are not in place or operating effectively for substantial areas within the scope of the review. Systemic business risks exist which have the potential to create situations that could significantly impact the control environment. <ol style="list-style-type: none"> 1. Significant/several control weaknesses (breakdown) in the overall control environment in part of the business or the process being reviewed. 2. Significant non-compliance with laws and regulations. 3. High observations which are pervasive in nature.
Not Rated	Observation identified is not considered a control or process improvement opportunity but should be considered by management or the board, as appropriate.	Not Rated	Adequate internal controls are in place and operating effectively. No reportable observations were identified during the review.