JURASSIC PARK

CAN ENTERPRISE ARCHITECTURE SAVE THE DINOSAURS?

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May 29, 2018
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EXECUTIVE SUMMARY

While in the final stages of opening Jurassic Park®[1] nearly thirty years ago, catastrophic disasters with the primary computing and physical security systems caused an indefinite closure in operations. To reopen Jurassic Park, owner John Hammond asked Adolphson Consulting Services (ACS) to provide a full Enterprise Architecture Appraisal. The resulting report summarizes ACS's findings, especially concerning four architectural issues that Jurassic Park must address before the reopening of the park. These issues are:

- A poorly defined operating model.
- Poor alignment in the process, technology, data, and applications used by all business units that make up Jurassic Park's core operations.
- Misalignment between IT Solution Design and business intent.
- Lack of disaster recovery and contingency plans.

By establishing an Architecture Vision, Hammond was able to give ACS important information to assess each of the issues by baselining the existing architecture and establishing a target architecture to suit the needs of the organization, while ensuring operations have been optimized to provide the park with a strategic advantage in its business sector.

This report proposes a formal Enterprise Architecture practice for Jurassic Park, as well as a three-phase approach to implementation. The phased model will reduce the shock to core operations and spread the financial impact of such an enormous undertaking over the course of a year. Additionally, this report reviews alternatives that were considered by ACS when making a final recommendation to Mr. Hammond for how to proceed with reopening the park.

[1] "Jurassic Park" is a registered trademark of Universal City Studios LLC

BACKGROUND

REOPENING JURASSIC PARK

International Genetic Technologies, or InGen, owner John Hammond has hired Adolphson Consulting Services (ACS), a consulting firm specializing in Enterprise Architecture assessment and implementation plans, to perform a full Enterprise Architecture appraisal for Jurassic Park. Hammond has requested ACS pay particular attention to the points of failure on the previous Jurassic Park opening. He wishes to avoid past mistakes. Additionally, ACS will recommend a method for addressing these pain points so a safe reopening of the park, with a focus on employee and visitor safety, can be accomplished.

ACS outlined the method of performing such an appraisal as follows:

- ACS to review the current state of affairs for Jurassic Park to establish a baseline: the present state of the organization's Enterprise Architecture.
- ACS to aid the leadership team with the establishment of an Architecture Vision.
- ACS to present the result of the Enterprise Architecture appraisal as "Issues" that Jurassic Park must address before the Grand Reopening of the park.
- ACS to provide a recommendation for a phased implementation plan for Jurassic Park to follow to optimize the future state Enterprise Architecture.

Since Jurassic Park's abandonment was nearly thirty years ago, Adolphson Consulting Services will use information about Universal Studios®[2] and SeaWorld®[3] to provide a basis for analysis where information about Jurassic Park is unknown; ACS will utilize information about

[2] "Universal Studios" is a registered trademark of Universal City Studios LLC
[3] "SeaWorld" is a registered trademark of Sea World LLC

these similar companies to help identify core operational functions and business units that would exist at a theme park or zoo. Universal Studios operates at a similar scale to Jurassic Park under the Comcast Corporation (Reuters 2018b). SeaWorld cares for animals in their daily operations and will make for an interesting point of comparison; this park is owned and operated by the Blackstone Group LP (Reuters 2018a).

BASELINED "BIG PICTURE"

InGen and Jurassic Park owner, John Hammond, has expressed his vision for the park as "the most advanced amusement park in the world, combining the latest electronic and biological technologies" (Crichton 1990, 67). Geneticists must create "attractions so astounding they will capture the imagination of the entire world" to make Hammond's vision a reality (Crichton 1990, 67-68). Jurassic Park will need to invest strategically in Information Technology to automate multiple business processes, such as genetics research and development, theme park operations, and physical security. Keen attention to how these processes are linked to their supporting technologies and utilized by their associated business units will be critical to the realization of the desired profitability of Jurassic Park (Bernard 2012, 123-124). Further, Jurassic Park must pay particular attention to security and risk management practices (Bernard 2012, 223).

The park will aim to grow its revenue stream to fund further genetics research by entering the theme park business sector. By showcasing the dinosaurs in their natural habitat, park admissions will generate the financial means necessary to care for the animals and fund additional research to create new ones. By patenting the discoveries geneticists have already

uncovered, Jurassic Park has more than a twenty-five-year head start on research and development activities. Additionally, research and development will continue to be a focus for the organization to differentiate Jurassic Park from other amusement parks like Universal Studios and SeaWorld.

ARCHITECTURE VISION

A contributing factor to the previous park's shortcomings was the lack of a formal Enterprise Architecture practice. To ensure Jurassic Park does not repeat the same mistakes of its past as the park reopens, ACS has aided park management in detailing an architecture vision. The goal of this Enterprise Architecture (EA) assessment will be to help Hammond and his leadership team ensure any organizational changes and all future business decisions are made in support of Jurassic Park attaining a strategic advantage over competitors and optimizing its EA practice.

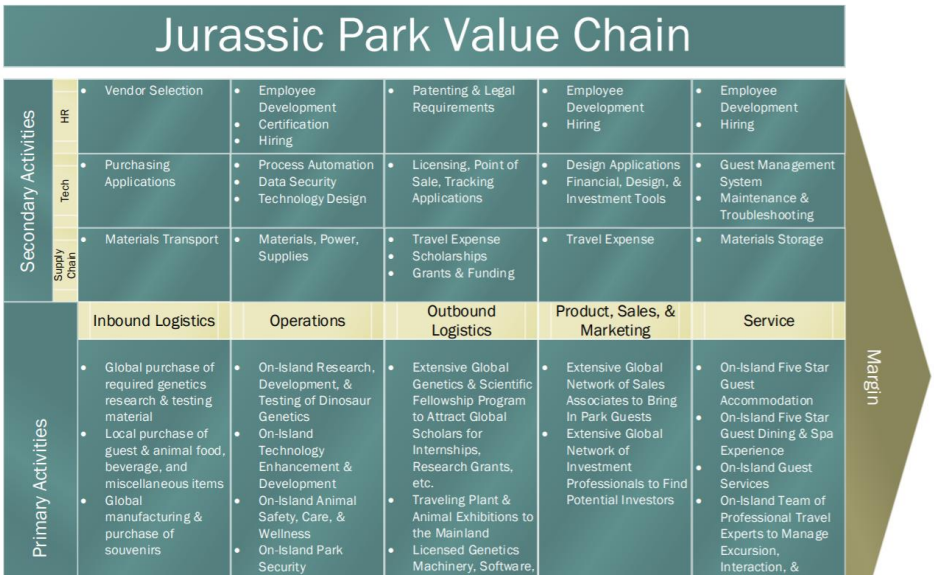


Figure 1

Jurassic Park's Value Chain Diagram
(Barnes 2001, 50-59), (MindTools 2016)

To aid Hammond and his associates with the definition of Jurassic Park's Architecture Vision, ACS recommended the development of a Value Chain Diagram, which is pictured at left in Figure 1. This diagram will detail

the primary activities required for Jurassic Park to engineer, design, and care for its dinosaurs (Barnes 2001, 50-59). The Value Chain diagram will provide a single page summary of all the activities Jurassic Park undertakes to realize a competitive advantage within its business sector. From this diagram, Hammond and his leadership team can build a robust set of architecture goals for Jurassic Park and define how progress against those goals will be measured.

The goals of Jurassic Park's Architecture and how the return on investment for those goals will be measured is defined as follows:

1. Foster greater leadership involvement in new genetics research and development activities and technology, software, and tools selection, which will enable flexibility and adaptability for Jurassic Park in its business segment within the market.
    a. Jurassic Park will introduce five new species into the park in 2018: Ankylosaurus, Parasaurolophus, Spinosaurus, Dimorphodon, and Allosaurus.
    b. Jurassic Park will ramp up sales and promotional activities to drive 10% more guests into the park than competitors Universal Studios and SeaWorld.
    c. Jurassic Park will focus efforts on technology projects that will bring the park closer to its Target Architecture; variance between the Baseline and Target Architectures will reduce by 25% in 2018.

2. Provide a streamlined set of processes, supported by linked technology, tools, and applications, to enable Jurassic Park to automate fundamental park processes.
    a. Jurassic Park will keep operating expenses 30% below competitors Universal Studios and SeaWorld through automation.
    b. Jurassic Park will staff 45% fewer employees in the park operations space than competitors Universal Studios and SeaWorld.

The architecture vision described above was used by ACS to provide a foundation for the establishment of all recommended target architectures to address the vital architectural issues identified in the report.

PRESENT STATE ENTERPRISE ARCHITECTURE ISSUES

There are four issues that must be addressed by leaders to avoid the events of the failed first-opening of Jurassic Park. By addressing these issues with a formalized Enterprise Architecture program, Jurassic Park will achieve the overall architecture vision, and the park will be able to return to full operation.

- **Poorly Defined Operating Model:** Without a clearly defined operating model at the time Jurassic Park first opened, the leadership team failed to prioritize which park operations processes would become the focus of optimization to drive differentiation of Jurassic Park from other competing amusement parks (Ross, Weill, and Robertson 2006, 43-44).

- **Deficient Alignment in Process, Technology, Data, and Applications:** The former park inevitably collapsed as a result of an inadequate understanding regarding how park operations processes, technology, data, and applications were aligned and related to each other.
- **IT Solution Design Misaligned with Business Intent:** The Information Technology (IT) and Business Management teams were not aligned when making decisions about topics such as park security, staffing, and daily operations; such misalignment resulted in the IT team designing solutions that were not optimal for the processes they were meant to support.
- **Lack of Disaster Recovery or Contingency Plan:** Jurassic Park did not have a sufficient plan for dealing with security breaches, weather disasters, and other unplanned risks (Bernard 2012, 222-223).

ANALYSIS OF IDENTIFIED ISSUES

Perhaps one or two of the identified issues would not have caused the eventual failure of the first Jurassic Park but, combined, the adverse effects of not correctly committing to an Enterprise Architecture program exposed extreme security concerns, improper alignment of process, technology, and data, as well as a disconnect between InGen leadership and Jurassic Park staff.

For each issue, ACS has outlined the benefits Jurassic Park can realize if steps are taken to capitalize on or correct the identified opportunity. ACS documented the current state of the problem, and a target architecture has been proposed to help Jurassic Park align with its

architecture vision. Finally, a Gap Analysis revealed relevant business objectives for each issue, which Jurassic Park can execute in a phased implementation approach. The items identified in the Gap Analysis will become business objectives ACS will address in the recommendation for a solution (Maul 2011, 74-85).

POORLY DEFINED OPERATING MODEL

Without a well-defined operating model, Jurassic Park struggled to identify the critical business processes that would be standardized to produce integrated data for use both in the park and at InGen corporate headquarters (Ross, Weill, and Robertson 2006, 27-28). The lack of a proper operating model for the park led to the standardization of virtually every business process, rather than the strategic selection of methods that could lead to differentiation and increased profitability for the amusement park. Further, Hammond called for the isolation of all park data to the island of Isla Nublar, which created security concerns and made it difficult for the park to remain agile when developing an on-the-fly strategy for guest safety.

By adopting a formal operating model, Hammond and his executive team will enable the park to strike an appropriate balance between innovation and standardized business processes (Ross, Weill, and Robertson 2006, 27). Standardization will help leaders determine which of these processes should be automated to drive additional efficiency throughout the organization. Additionally, Jurassic Park will be able to integrate data more effectively between the island of Isla Nublar and InGen headquarters; the greater transparency awarded through shared data would provide a failover arrangement that would prevent park staff and visitors from being stranded in the park again (Ross, Weill, and Robertson 2006, 28).

Additional benefits InGen could look to seize via a Jurassic Park run more efficiently and transparently include:

- A Jurassic Park that emerges as an industry leader in the amusement park business sector due to the unique attractions, exceptional customer experience, and a continued focus on innovation (Ross, Weill, and Robertson 2006, 26).
- An enhanced ability to respond to competitive threats in the amusement park business sector by enabling Hammond and his leadership team to feel confident their competitive responses remain in line with Jurassic Park's strategic business objectives (Ross, Weill, and Robertson 2006, 27).

To make a recommendation for how Jurassic Park can restructure its operating model to realize the benefits of enhanced efficiency and transparency, ACS documented the existing operating model. A future state operating model was then drafted based on the strategic vision for the company, as outlined by Hammond. A gap analysis was performed to understand what initiatives Jurassic Park must place on the roadmap to help achieve the target Enterprise Architecture.

BASELINE ARCHITECTURE

As there is no current operating model for Jurassic Park, ACS designed a standard organizational chart, highlighting the various business units and how they are related to one another. Jurassic Park has three primary business silos: Genetics Research, Park Operations, and Corporate Operations. These silos operate in mostly separate capacities; for example, the Genetics business silo generates their technology solutions for standard processes such as

automated DNA sequencing, Extraction, and Fertilization (Crichton 1990, 103-123). Park Operations designed the security fences, transportation systems, and animal tracking mechanisms (Crichton 1990, 141-149). These silos within Jurassic Park were creating their solutions without intent to share information, data, or knowledge outside of their silos.

The creation of many isolated solutions created a problem with integrating data. Additionally, these one-off solutions were never intended to talk to one another, and engineers set no technology standard for use within the park (Ross, Weill, and Robertson 2006, 72-74).

TARGET ARCHITECTURE

ACS recommends Jurassic Park adopt a Unification Operating Model because it offers a high degree of both unification and standardization (Ross, Weill, and Robertson 2006, 29). This model, pictured in Figure 2 below, will enable increased efficiency, reduce variability, integration of the amusement park with the home office for InGen (Ross, Weill, and Robertson 2006, 37). As John Hammond has been the owner and CEO of InGen

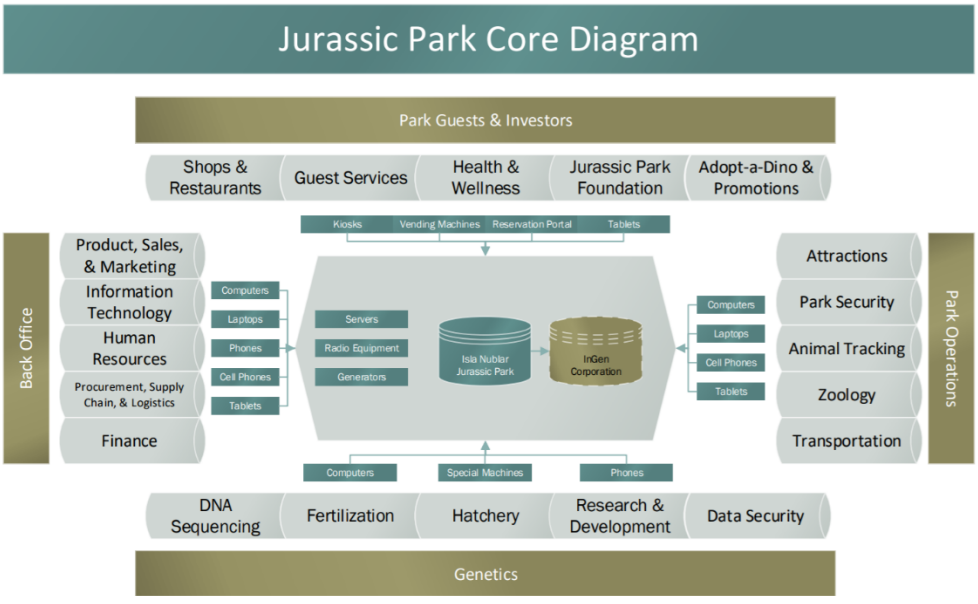


Figure 2

Jurassic Park's Unification Operating Model and Core Diagram (Ross, Weill, and Robertson 2006, 54)

since its creation in 1993, the organization has enjoyed a high degree of centralized management, which bodes well for the adoption of a Unification Operating Model (Crichton 1990, 66). Additionally, admission to Jurassic Park would be considered a commodity for only the most curious and wealthy guests (Ross, Weill, and Robertson 2006, 38).

GAP ANALYSIS

Fortunately, the Unification Operating Model already complements the organizational structure of Jurassic Park. There are still many gaps that will need to be addressed by Hammond and park leaders:

- Standardization of business processes.
- Integration of knowledge, data, and information into a centralized repository.
- Standardization of technology standards and the establishment of principles to guide the selection of technology throughout the park.
- Establishment of a centralized decision-making body to ensure process, technology, application, and data decisions support strategic objectives.

DEFICIENT ALIGNMENT IN PROCESS, TECHNOLOGY, DATA, AND APPLICATIONS

Jurassic Park's leadership team did not prioritize which business processes would be optimized to provide the organization with a competitive advantage within the amusement park and genetics research and testing industry segments. The organization did not utilize existing technology and information systems investments to help streamline and enhance core

business processes; this disconnect between processes and the tools supporting them has hindered the organization's ability to adopt change, respond quickly to dangerous situations, and remain competitive in the market. It is evident that Jurassic Park wanted so badly to be at the forefront of technology, the leadership team invested in all technology rather than taking the time to invest in the right technology. Since Hammond and his team made these investments without consideration for the overall scheme of the technology landscape, the result is a cobbled-together nightmare of technology that isn't working to enhance park operations or genetics research and testing activities.

ACS recommends Jurassic Park adopt a formal Enterprise Architecture (EA) program. With this framework in place, the organization can quickly see the alignment of business processes, technology, and data; with a precise EA in place, the organization can ensure alignment of incremental changes with helping the organization achieve its strategic objectives, and small changes are in support of the overall architecture vision.

A well-defined business architecture provides for a strategic vision, a visual representation of processes throughout the organization, and will aid in the demonstration of how the organization achieves business value through the subsequent architecture enhancement Jurassic Park chooses to undertake (Harrison 2011, 79-80). To achieve alignment on data standards and an understanding of how data within the park can be used to guide strategic decision making, Jurassic Park must ensure data are readily available, reliable, and up to date (Harrison 2011, 81-88). Additionally, through the documentation of Information Technology Systems, Jurassic Park will have a visual depiction of the relationship between

operational processes and the technologies, systems, and applications supporting them. Clear documentation of the Technology Architecture will help Jurassic Park measure the value added by the needed architectural changes and ensure the organization achieves the target architecture (Harrison 2011, 84).

BASELINE ARCHITECTURE

Very few existing models were readily available within the organization at the beginning of the assessment period. ACS led an initiative to document the current business silos at their highest level, which are illustrated below in Figure 3. This model shows how information flows from the highest level of leadership, John Hammond, down to the various business units that support the three primary business pillars: Genetics, Park Operations, and the Back Office. Databases are highlighted to illustrate the business silos and lack of existing information sharing. Additionally, boxes are drawn around crucial pieces of the process to highlight the business unit responsible for performing those parts of the process. Operational back-office

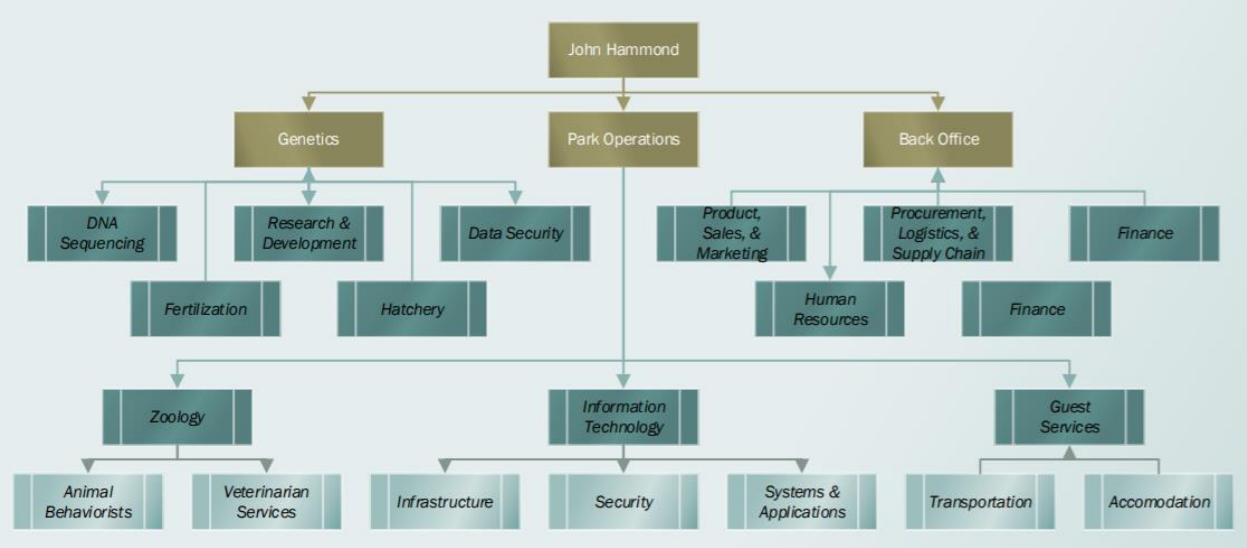


Figure 3

Jurassic Park's Business Silos
(Crichton 1990), (Reuters 2018a), (Reuters 2018b)

processes are documented apart from core park functions, and the park houses much information in separate databases.

As a transitional step, ACS helped Hammond and the leadership at Jurassic Park develop vision and mission statements for the company, both of which were discussed in the Baselined "Big Picture" section of this report. Many essential artifacts ACS would have used for baselining the existing architecture were missing, including any references to:

- Industry Architectures (Harrison 2011, 80)
- Common Systems Architectures (Harrison 2011, 80)
- Governance Standards (Harrison 2011, 80)

ACS assisted Hammond and his team of associates in drafting a few diagrams that depict existing operational processes, data, and technology practices across each of the business units. These diagrams can be found in Appendix A.

TARGET ARCHITECTURE

The target architecture for Jurassic Park will consist of a formal Enterprise Architecture practice detailing a central database, connected to the off-island corporate headquarters for InGen. A firewall will be present to ensure data security is maintained. Listed as headers above the common architecture for the company are each of the core business units within the organization; listed beneath these business units are the technologies, applications, and systems utilized to increase efficiency within the business units completing these functions. A diagram depicting the target architecture described above is provided as Figure 4 on the next page.

This architecture boasts a shared infrastructure, built around a common database, that effectively enables the organization to share information, knowledge, and data among business units. Additionally, the target architecture will remove complexity from the business.

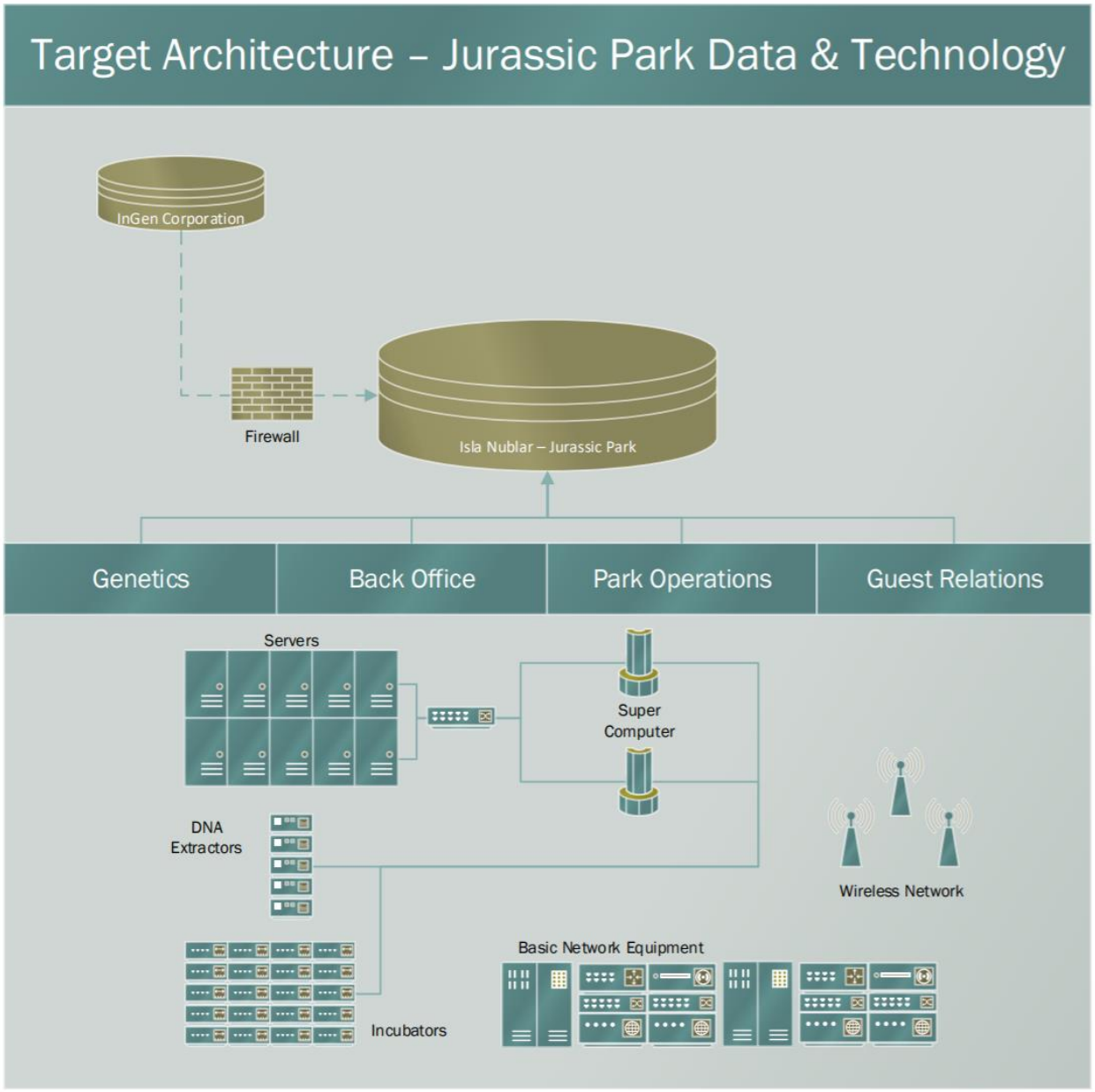


Figure 4

Jurassic Park's Target Architecture

GAP ANALYSIS

There are many gaps that the park needs to address for Jurassic Park to achieve the target architecture. They are summarized as follows:

- Merge the existing, isolated databases into a centralized database with appropriate security parameters to ensure proper access rights for this information throughout the organization.
- Connect the database on Isla Nublar to the InGen corporate office.
- Encourage a higher degree of information, data, and knowledge sharing across business units within Jurassic Park (e.g., knowledge the zoology business unit gathers about how the dinosaurs behave in the wild can benefit the genetics research and development team, shared information could have identified the dinosaurs were breeding earlier in this cycle, etc.).

IT SOLUTION DESIGN MISALIGNED WITH BUSINESS INTENT

Due mostly in part to the extreme secrecy Jurassic Park necessitated at the time of its inception, Project Supervisor Dennis Nedry was kept in the dark about many important aspects of his project to “design park control systems” (Crichton 1990, 115). Nedry was, instead, given vague requirements to build the system with features like “data records with 3 x 109 fields” that could support “RM-intensive algorithms” (Crichton 1990, 115-116). Jurassic Park leadership never told Nedry “what the subsystems were for” (Crichton 1990, 116-117). Without context to aid the design and development efforts for Jurassic Park’s high-end park control systems, the project struggled, and Nedry became embittered with the organization. Further complicating matters was the lack of access he and his team of off-shore developers had to information

about other technology, software, and data within the organization. The result was an extreme disconnect between Jurassic Park leaders and employees in the Information Technology business unit. This disconnect contributed tremendously to the realization of systems defects, which resulted in utter catastrophe for the amusement park.

By developing standards around project selection, change management, and overall architecture decisions, Jurassic Park can promote greater transparency between leadership and employees within the organization (Walker and Pagano 2008). Further, the presence of a governance committee will inherently foster more effective communication and promote stronger change acceptance throughout the organization. Employees will feel more empowered as they receive greater access to the information needed to do their jobs; more visibility will enable them to understand how their efforts are contributing to the organization's realization of its business objectives (Gallo 2011). Further, management can feel confident the work undertaken by different business units will be built collaboratively and tie to the overall Enterprise Architecture.

BASELINE ARCHITECTURE

As with the process, technology, and data documentation referenced earlier in the report, there was not existing material to reference how fundamental techniques were being developed to support business processes. ACS referenced the previously created organizational chart that depicts the various business units and the stakeholder matrix. ACS used this information to determine a likely process flow for how leaders pass requirements to developers.

Over time, multiple one-off requests stacked up, which resulted in a confusing web of custom applications and processes for Jurassic Park to manage. Each business unit developed its own solutions, which were not tied together, making it difficult for Jurassic Park to adapt quickly to change. Additionally, leaders were not engaged in reviewing how well these solutions achieved their desired business intents.

TARGET ARCHITECTURE

To achieve greater transparency between leaders and employees, formal architecture governance procedures are recommended to be established to foster better leadership and information technology engagement. Standards will be used to guide project selection, architecture changes, and other important decisions for the organization.

GAP ANALYSIS

There are three significant gaps identified between the existing baseline and the target architecture:

- Establishment of project selection criteria, adherence to data and technology governance throughout the park, and post-implementation project reviews to ensure projects are delivering the expected outcome.
- Establishment of a centralized architecture review board to review project selection and assure adherence to architecture standards.
- Outlining a communication plan to foster greater transparency among business units.

LACK OF DISASTER RECOVERY OR CONTINENCY PLAN

Before the planned first opening of the amusement park, once things within Jurassic Park started to go wrong, a snowball effect of problems ensued; issues compounded, and it was virtually impossible to stop the negative impact on park operations, human and dinosaur safety, and park property. There was no contingency plan developed in any capacity to outline what would need to occur in the event of a major disaster such as loss of park power, ceased functionality of core computing systems, natural weather events, and other possible risks.

Jurassic park must introduce a network “failover” process, which will push all park operations, genetics procedures, and computing processes to a second network instance in the event of a natural disaster or another unpreventable catastrophe. Proper failover procedures would enable the park to be run remotely from an off-island location, which Jurassic Park could accomplish through a connection to InGen corporate headquarters via physical line or the cloud.

An added benefit of connecting to InGen headquarters is the additional security measure of a secondary site monitoring park health and operations. If InGen loses the connection to Isla Nublar, someone off the island will know there is a need to initiate a planned safety and contingency protocol. Additionally, there must be a remote start function for the island’s system of generators to prevent negative implications in the event of a loss of power.

Further complicating the issue of not having proper failover and security contingencies, Jurassic Park never performed a risk assessment for the park. A risk assessment would help leadership assess probability and impact for potential risks in a uniform and consistent manner

(Bernard 2012, 222-223). Additionally, the team could determine which risks require a full contingency plan, rather than wasting cycles planning for those risks least likely to happen or with the lowest potential for adverse impact on core operations (Project Management Institute 2013, 309-354).

BASELINE ARCHITECTURE

At this time, there is no failover plan in place for park operations. If the park loses power, or any other unplanned event occurs, park employees must manually restart the generators, which poses elevated risk due to raptors. Additionally, a loss of power results in the loss of all communications both within the park and off the island. There is no connection to the mainland for park health and monitoring, which could be a workaround to the power loss issues defined above. Further, the park has performed no formal risk management or assessment activities; there could be additional catastrophic scenarios park leaders have not identified and, therefore, for which they have no planned responses.

TARGET ARCHITECTURE

A formal risk management assessment needs to be performed by all business units within the park to determine if any scenarios require formal risk planning and response. At the conclusion of this activity, the Architecture Repository will house all of these contingency plans, so all impacted personnel know how to respond in the unfortunate event one of the identified risks should occur. There will be an approved scale for measuring the probability and impact those risks might occur. Jurassic Park will assess those risks with the highest likelihood and highest impact; formal plans for how Jurassic Park will respond if those risks should happen can

be developed and maintained. ACS has proposed a scale for measuring the probability and impact of a risk in Figure 5, below.

Probability	Probability Threshold		Impact	Impact Definitions	
Remote	<10% likelihood the risk will occur	1	Negligible	No impact to project	1
Conceivable	10-49% likelihood the risk will occur	2	Minor	Slight impact to project	2
Possible	50% chance the risk will occur	3	Serious	Impact could be mitigated	3
Likely	51-90% likelihood the risk will occur	4	Critical	Significant impact to project	4
Most Likely	>90% likelihood the risk will occur	5	Catastrphic	Risk would cancel project	5

Figure 5

Jurassic Park's Risk Probability and Impact Assessment Model (Project Management Institute 2013, 309-354)

Above, the definitions are provided for probability and impact to keep thresholds consistent within the organization. At right is a visual table to detail the likelihood and severity of a possible risk.

		1	2	3	4	5
	Likelihood/Severity	Negligible	Minor	Serious	Critical	Catastrophic
1	Remote	2	3	4	5	6
2	Conceivable	3	4	5	6	7
3	Possible	4	5	6	7	8
4	Likely	5	6	7	8	9
5	Most Likely	6	7	8	9	10

GAP ANALYSIS

Between the Baseline Architecture and Target Architecture are three significant gaps that must be addressed to help Jurassic Park ensure compliance with the Architecture Vision. These gaps are defined as follows:

- Develop a proper failover plan for natural disasters and catastrophes to include how the park will safely address a loss of power.

- Establish a connection to InGen corporate headquarters on the mainland, either via a physical link or the cloud to include a full park health monitoring plan and address the need to meet stringent security requirements.
- Establish a formal risk management program and ensure proper protocols are in place to respond to unplanned scenarios.

SOLUTION

ACS recommends a formal Enterprise Architecture program for Jurassic Park to ensure the theme park can achieve peak operational excellence. The Enterprise Architecture program would serve to enable Jurassic Park to maximize returns on existing technology investments. It would also provide park leaders confidence future decisions allow Jurassic Park to utilize technology to optimize business processes and drive toward a strategic advantage within the industry. Such a program would also enable the organization to respond quickly to changes in the industry sectors of genetics research and testing and the amusement park market segment.

RECOMMENDED SOLUTION

A formal Enterprise Architecture program will help Jurassic Park realize the target architectures outlined to address each of the issues ACS identified in the architecture appraisal. Each of the target architectures was developed to ensure Jurassic Park would be able to achieve its architecture vision.

To reduce the financial impact to the park a large-scale implementation would introduce to the business, ACS recommends a phased implementation approach for Jurassic Park. This approach will enable park operations, genetics research and testing, and other activities

necessary to maintain operational viability; further, park operations can proceed as usual while smaller, incremental steps are taken to help drive toward the Target Architecture. The three-phase approach will be adopted to incrementally introduce changes to Jurassic Park in a focused, organized manner. ACS has outlined the goals of each phase below:

- **Phase One:** establish a baseline for core business processes, technologies, systems, applications, and data.
- **Phase Two:** create a foundation of policies, standards, and governance structures to help guide Jurassic Park's architecture implementation.
- **Phase Three:** begin undertaking project initiatives that will build toward the desired architecture vision.

ACS organized the business objectives identified as a result of the Gap Analysis into the phases mentioned above. Those objectives that are suited for finalizing the establishment of a baseline for the organization comprise Phase One. Phase Two contains any business objectives that will support the creation of a solid foundation upon which the organization can undertake new initiatives or that develops standards to guide the implementation of the architecture and encourage greater governance. Finally, the third phase will address the remaining business objectives, for which the organization can measure effectiveness and adherence to the architecture vision because of the work completed in Phases One and Two.

ACS has outlined a model for the distribution of business objectives, below. Additionally, ACS provided the issue number for each business objective for reference. As a reminder, the issues are:

- **Issue #1:** Poorly Defined Operating Model
- **Issue #2:** Deficient Alignment in Process, Technology, Data, and Applications
- **Issue #3:** IT Solution Design Misaligned with Business Intent
- **Issue #4:** Lack of Disaster Recover or Contingency Plan

Distribution of Business Objectives by Architecture Implementation Phase	
Phase One *Setting the Baseline*	• **Issue #1:** Standardization of Business Processes. Integration of existing knowledge, data, and information into a centralized repository. • **Issue #2:** Fully map all existing IT services, systems, and applications. • **Issue #3:** Document a formal communication plan.
Phase Two *Establishing a Foundation*	• **Issue #1:** Development of technology standards. Establishment of architecture principles. Establishment of a centralized Enterprise Architecture team to guide architectural changes and ensure adherence to the architecture vision. • **Issue #2:** Encourage information and knowledge sharing across all business units within the organization. Fully document all data migration requirements. • **Issue #3:** Establish project selection criteria. Establish a process, data, and technology governance model. Establish post-implementation project reviews to ensure all projects deliver upon intended architecture returns. Established a centralized architecture review board.

Phase Three *Building Toward Target Architectures*	• **Issue #2:** Merge 5+ isolated databases into a centralized database. Develop common systems architectures for all processes and technologies utilized across business units. • **Issues #2 and #4:** Connect Jurassic Park's database and monitoring systems on Isla Nublar to the InGen Corporate Headquarters. • **Issue #4:** Develop a true park-failover and disaster recovery strategy. Establish a formal risk management practice. • *Additional projects and initiatives to be added to Phase Three, based on business needs and changes necessary throughout the architecture implementation process.*

ANALYSIS OF ALTERNATIVES

The first alternative ACS considered was to suggest Jurassic Park follow the established status quo, meaning the park would maintain all of the existing baseline architectures identified for each of the architectural issues. Although the most cost-effective alternative analyzed, this solution would not solve any of the organization's problems, ensure past mistakes are not repeated, or help the organization obtain a competitive advantage over competitors. ACS recommends Jurassic Park dismiss this alternative, as it is not a solution.

Additional methodologies were considered to address Jurassic Park's architectural issues including Six Sigma, Project Management Methodology, and Agile Development practices, among others. ACS decided that, while each of these methodologies could address a portion or subset of the organization's issues, none would have provided a comprehensive

solution to the problems. Further, each of the methods that were considered to address the architectural issues experienced by the firm could still offer a benefit when combined with a formal architecture framework for Jurassic Park.

There were no examples already within the organization of any other methodologies, frameworks, or practices that would have provided an alternative solution to address the identified architectural issues. ACS has recommended an Enterprise Architecture program to Jurassic Park's leadership team because the EA program will offer a tailored, holistic approach to suit the organization's needs. Additional methodologies, including those ACS did not consider as a part of this appraisal, can be included with the EA program as this program develops and matures.

ROADMAP

The business roadmap view outlined in Figure 6, below, offers a view of all project initiatives being undertaken by Jurassic Park over the next year. Additionally, this view will

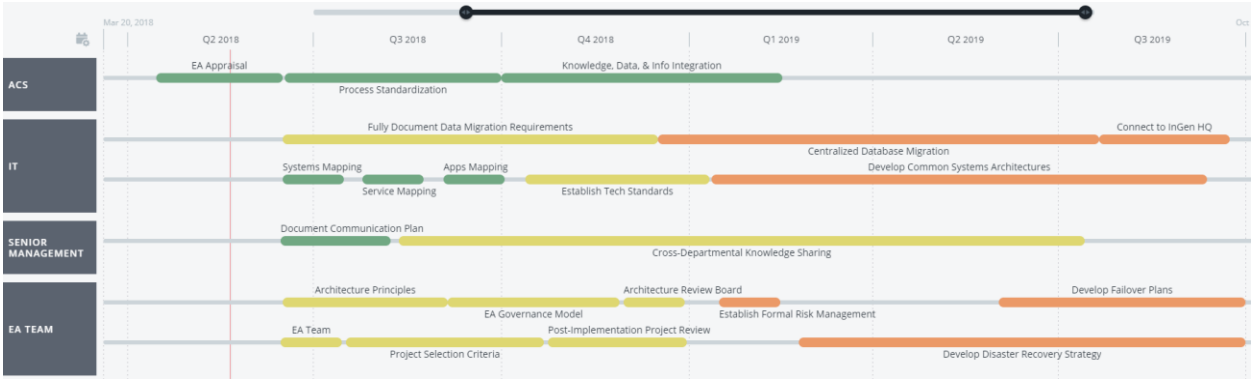


Figure 6

Jurassic Park's Enterprise Architecture Implementation Roadmap, which was created using Roadmunk's Roadmap Tool.

enable Hammond and his associates to see how these activities mix with the steps necessary for enabling Jurassic Park to achieve its optimized Enterprise Architecture.

CONCLUSION

Despite the insurmountable challenges that prevented the opening of the previous Jurassic Park, Adolphson Consulting Services (ACS) would recommend the implementation of the proposed Enterprise Architecture program, described in the preceding report. The full Enterprise Architecture Appraisal revealed four issues in a poorly defined operating model, poor alignment in the process, technology, data, and applications, misaligned IT solution design, and a lack of disaster recovery and contingency plans. Jurassic Park can address each of these issues by leveraging the phased implementation plan.

The EA Team can maintain the Enterprise Architecture and ensure it continues to provide the desired strategic benefits to the organization. Before Jurassic Park readmits guests to the park, ACS recommends that the park complete all phases of the Enterprise Architecture's implementation plan in full. Additionally, a comprehensive legal audit should be performed by a third-party legal team that has no prior affiliation to Jurassic Park. ACS will take no responsibility for any negative implications that should occur if Jurassic Park does not complete the implementation plan as outlined before admitting guests to the park.

APPENDIX

Figure 1 – Jurassic Park's Value Chain Diagram

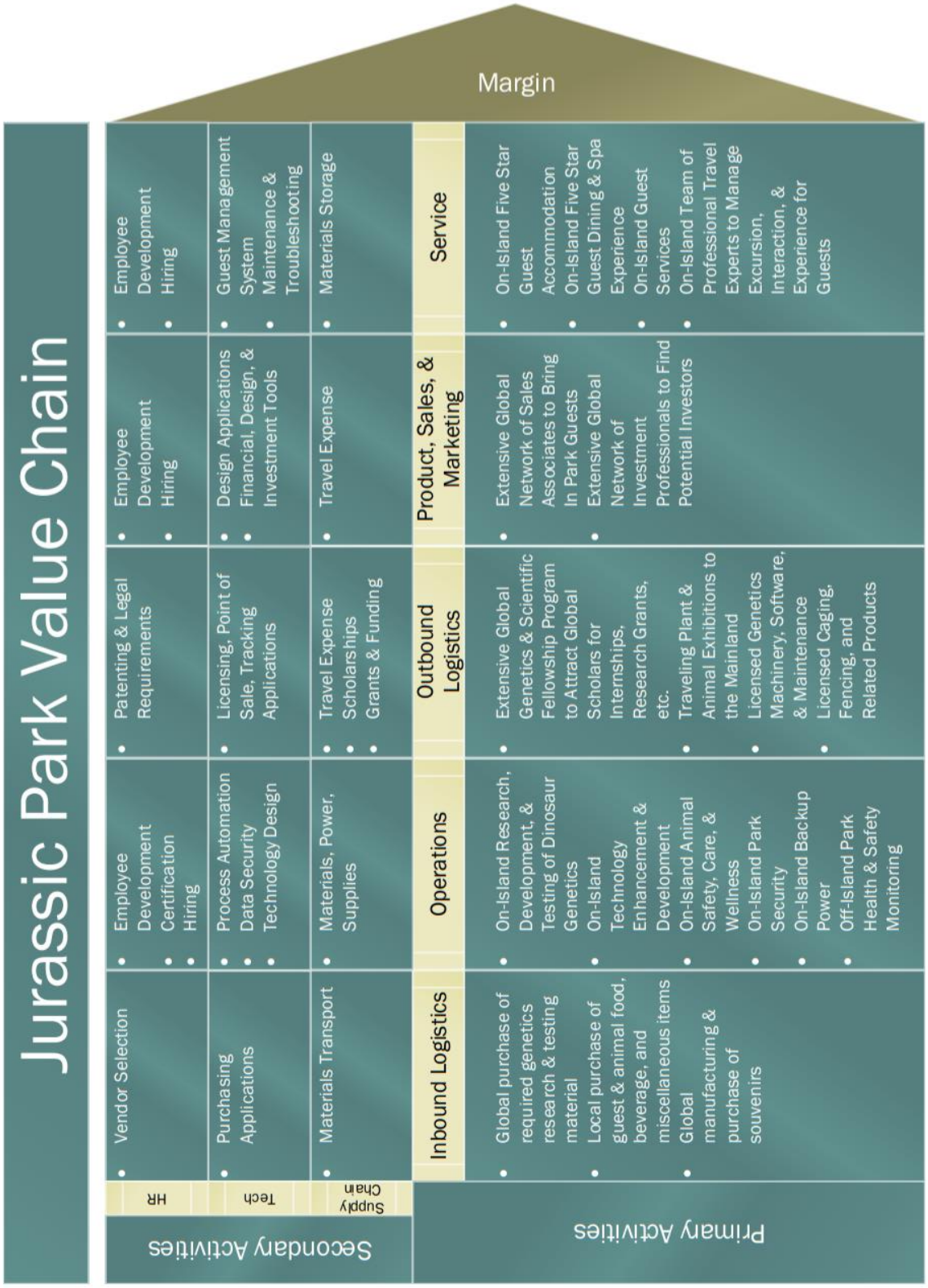


Figure 2 – Jurassic Park's Unification Operating Model and Core Diagram

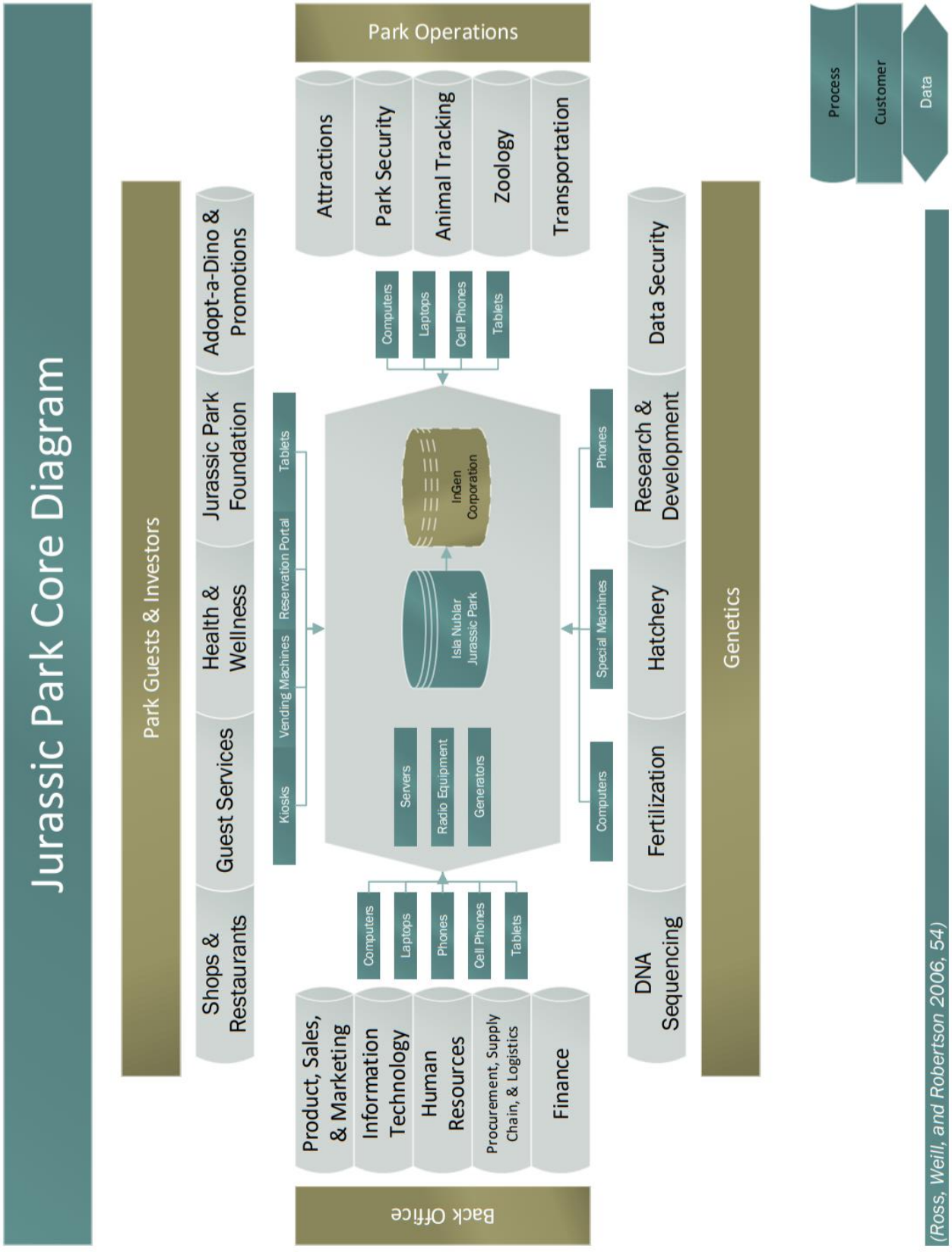


Figure 3 – Jurassic Park's Business Silos

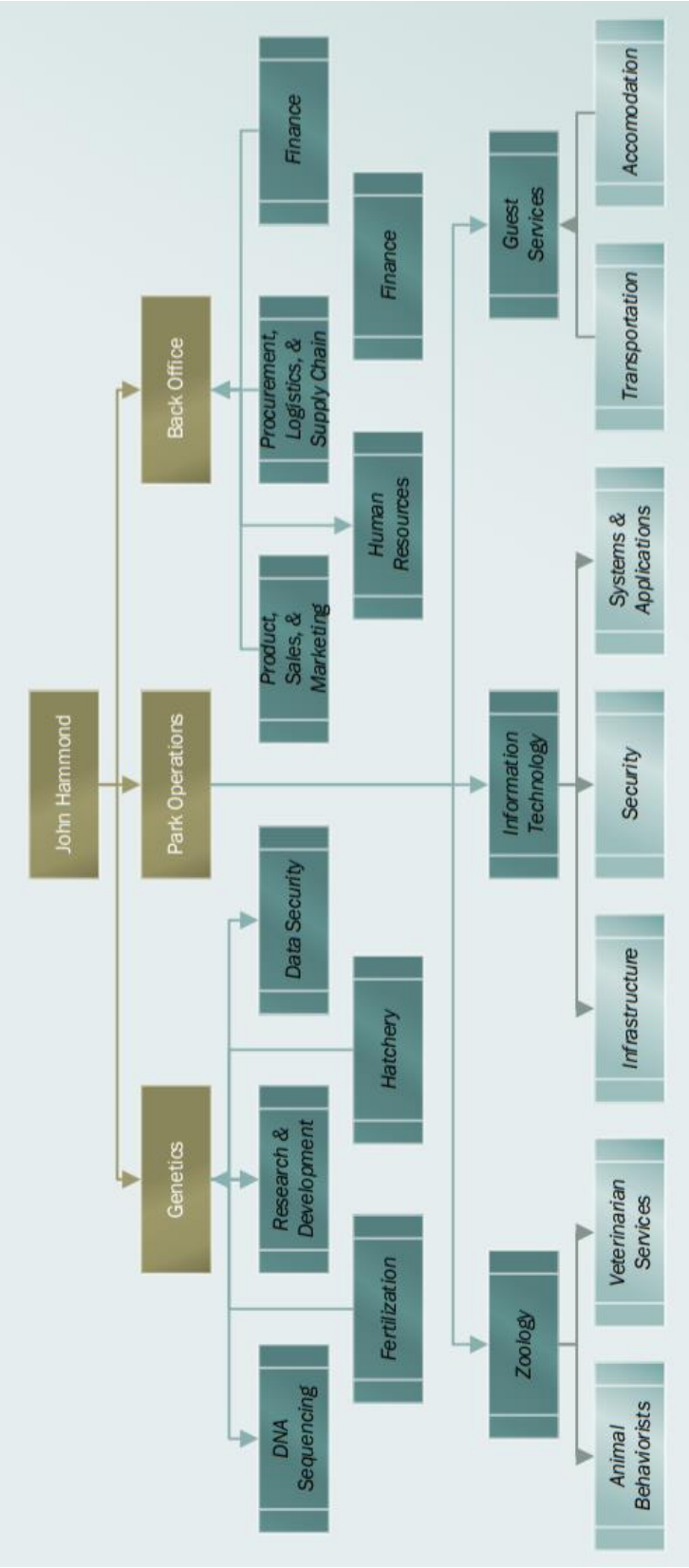


Figure 4 – Jurassic Park's Target Data and Technology Architecture

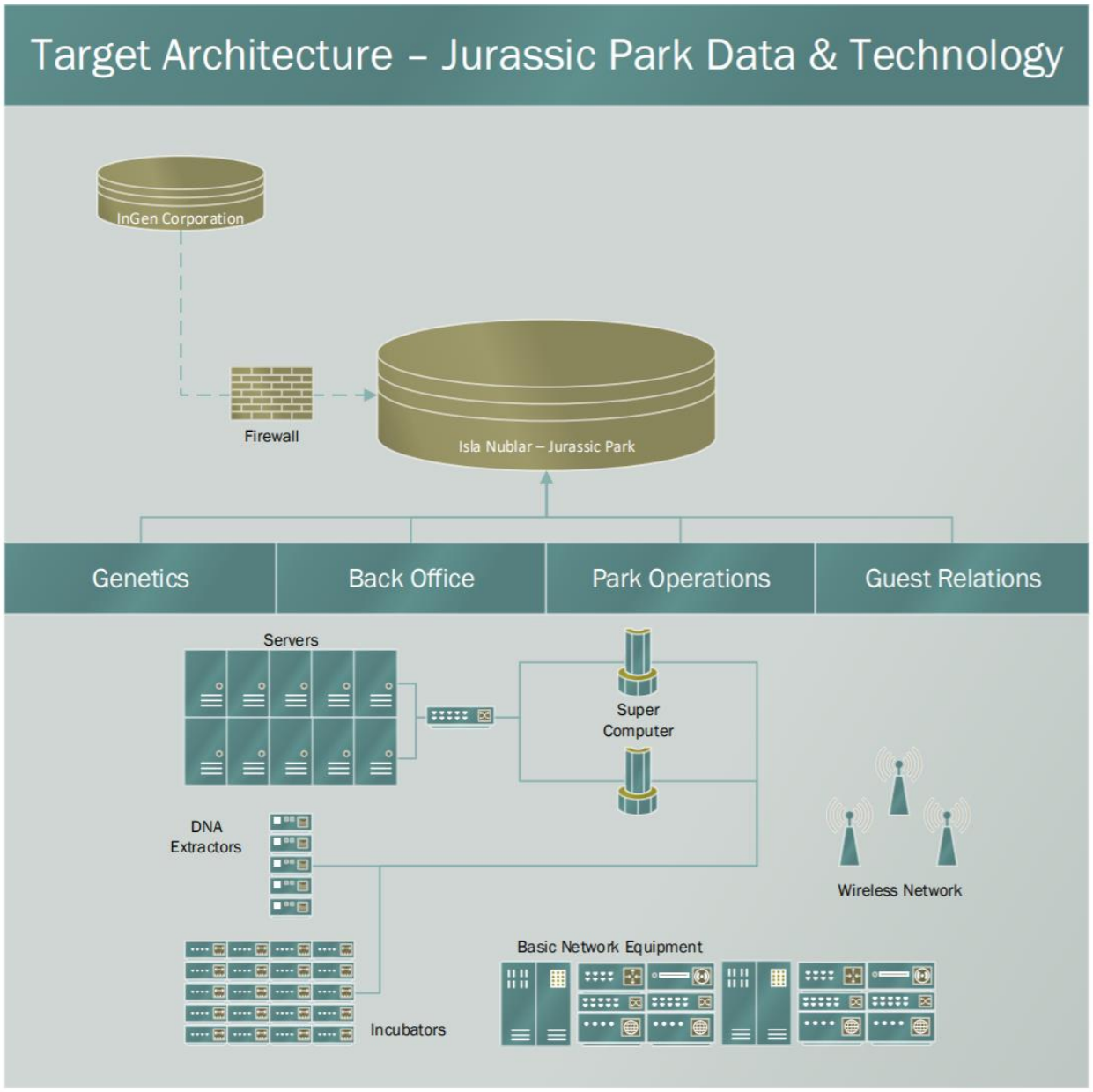
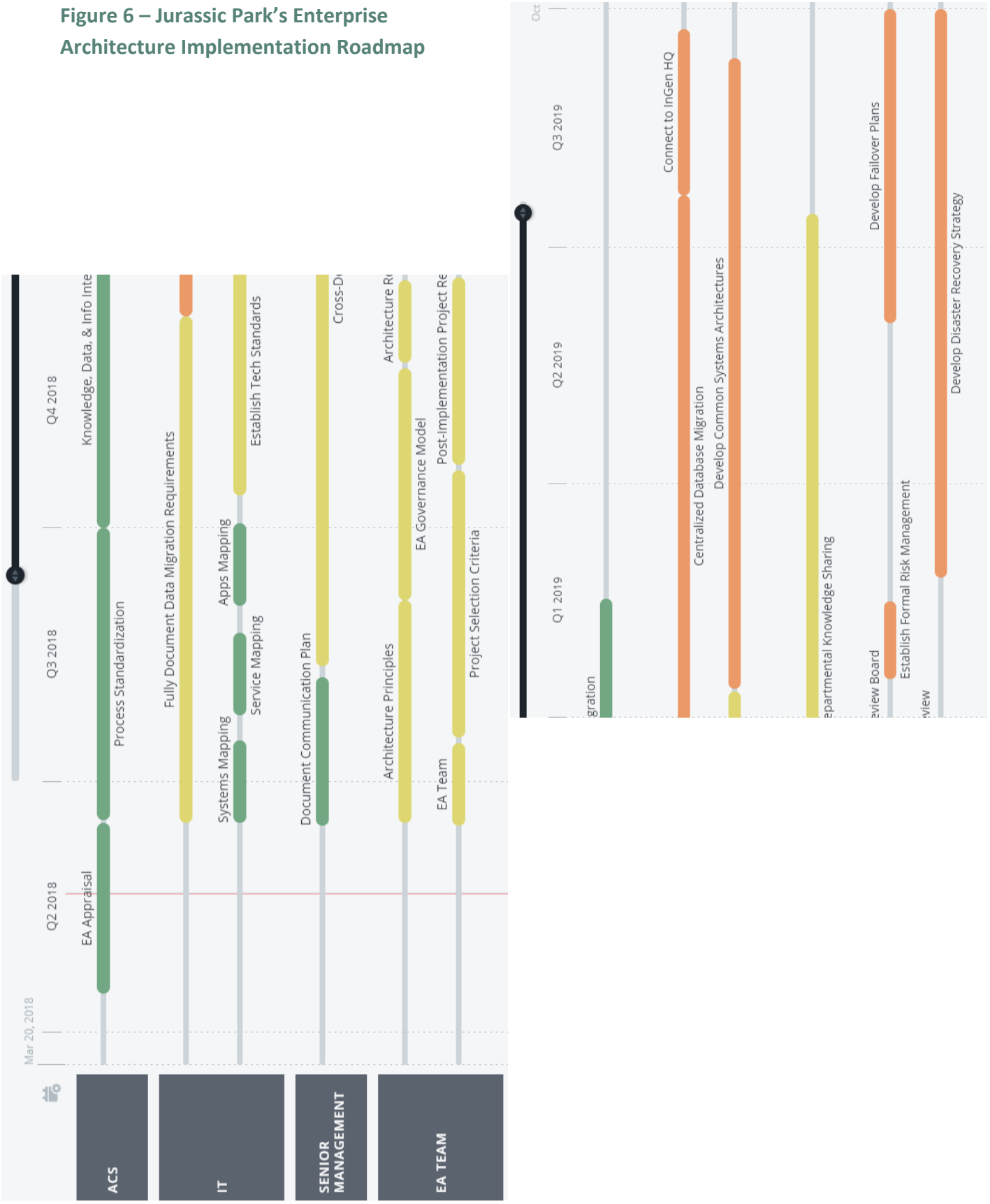
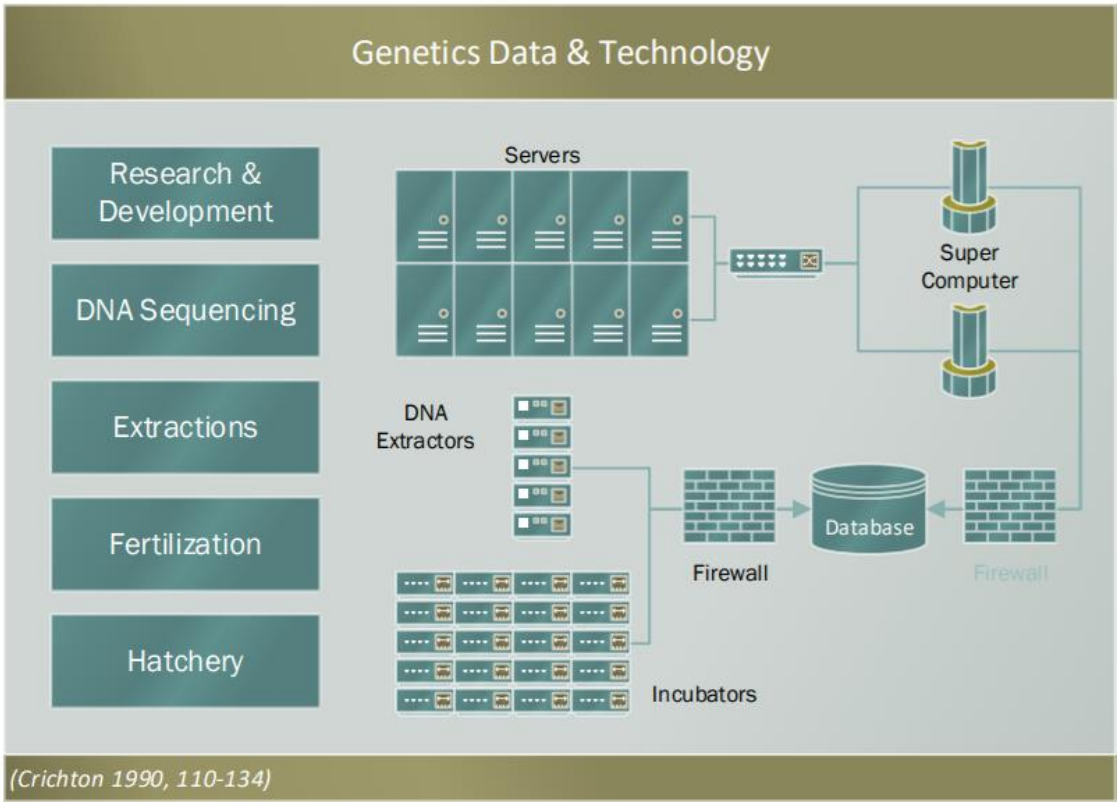
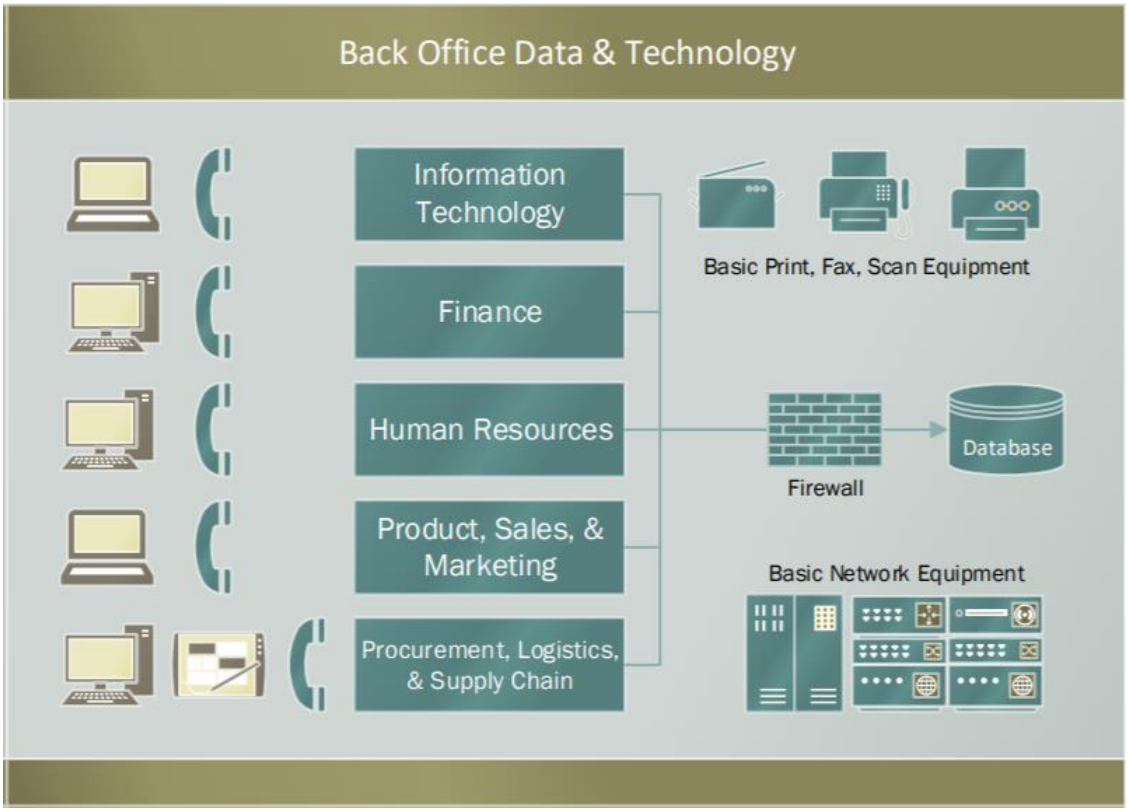


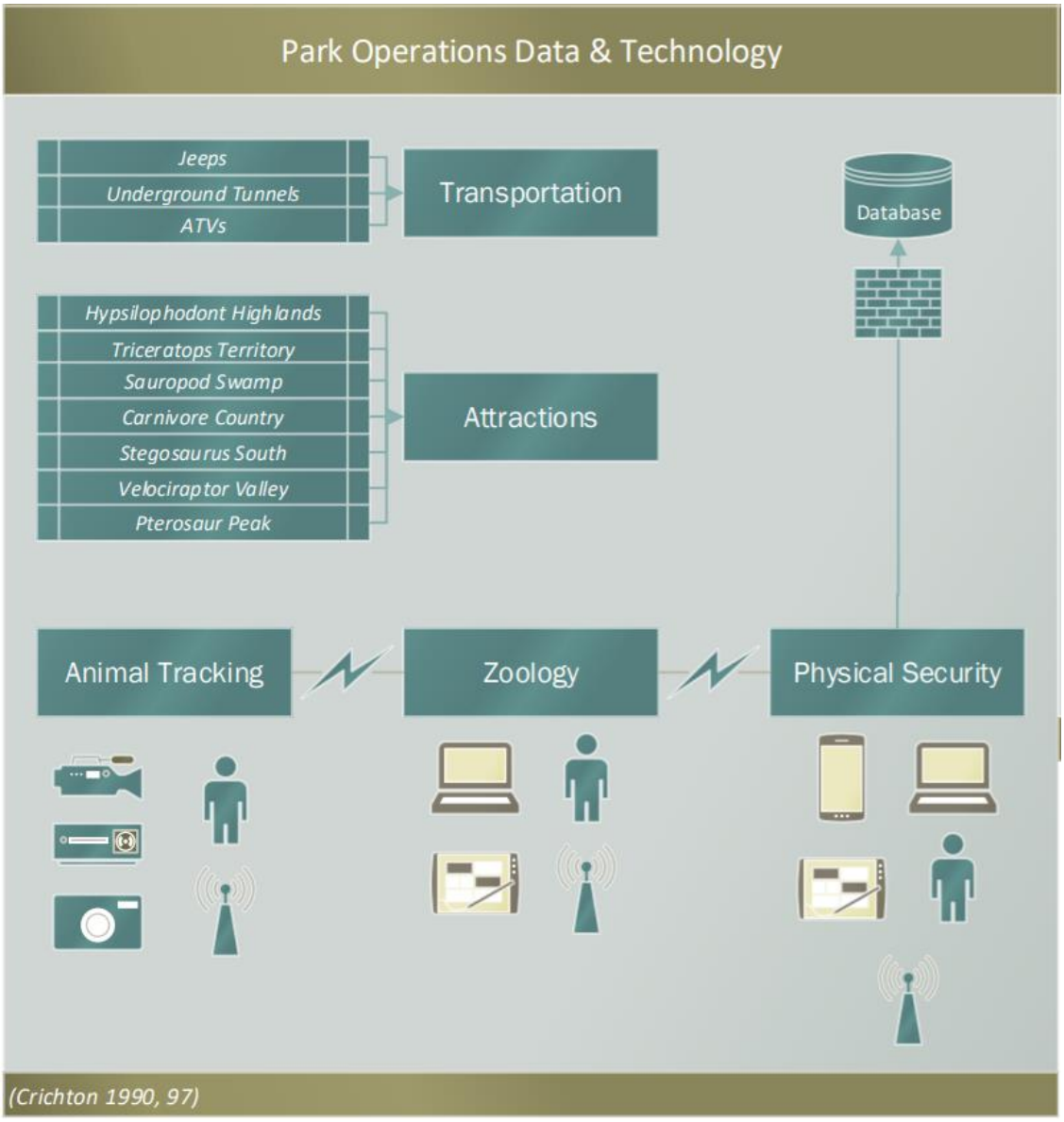
Figure 6 – Jurassic Park's Enterprise Architecture Implementation Roadmap

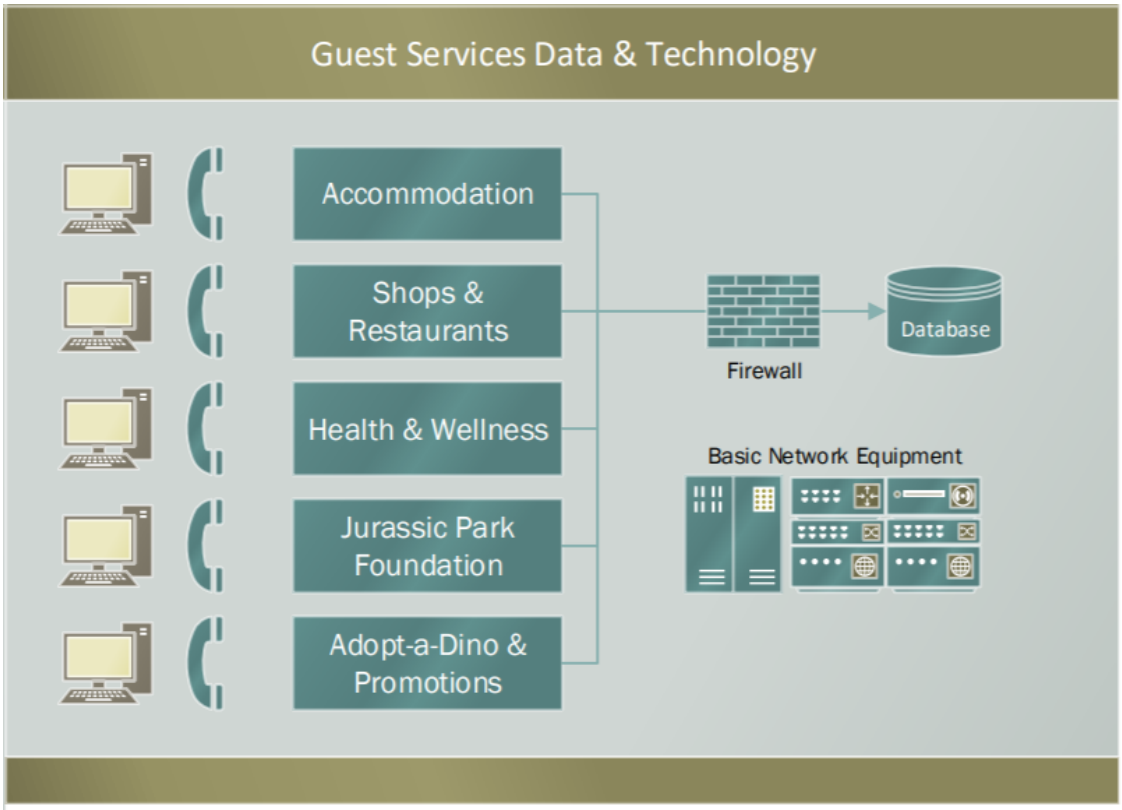


Appendix A – Baseline Process, Data, Technology, and Applications Diagrams






Park Operations Data & Technology
Jeeps
Underground Tunnels
ATVs
Transportation
Database
Hypsilophodont Highlands
Triceratops Territory
Sauropod Swamp
Carnivore Country
Stegosaurus South
Velociraptor Valley
Pterosaur Peak
Attractions
Animal Tracking
Zoology
Physical Security
(Crichton 1990, 97)


Guest Services Data & Technology
Accommodation
Shops & Restaurants
Health & Wellness
Jurassic Park Foundation
Adopt-a-Dino & Promotions
Firewall
Database
Basic Network Equipment

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