UniverseIT
BEYOND THE CLOUD

IT Strategy

(281) 817-4004
9711 S Mason Rd. Ste 125 #261
Richmond, TX 77407
www.universeit.com


universeIT
BEYOND THE CLOUD

UniverseIT
BEYOND THE CLOUD

Contents

1 Executive Summary

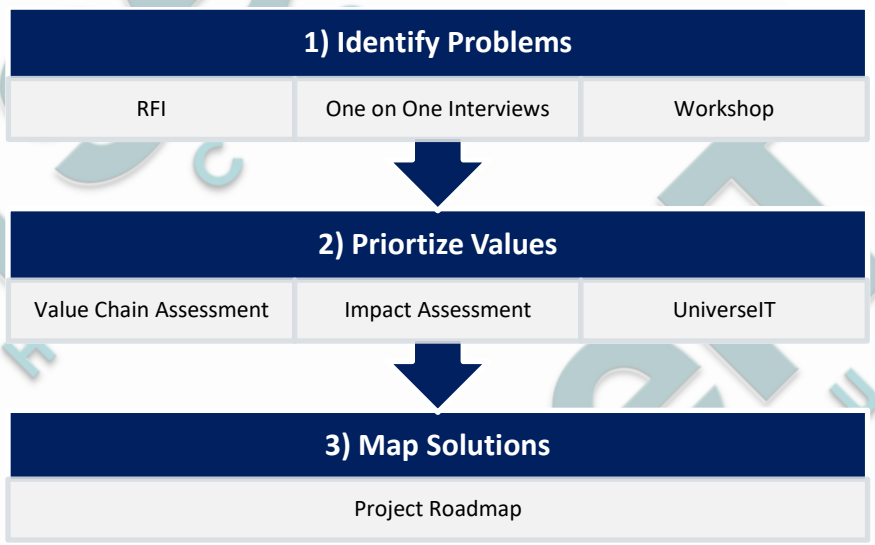
CO_2 company. ("CO_2 company") has engaged UniverseIT to create an IT Strategy. CO_2 Company has a goal of growth and found they do not currently have the IT infrastructure and strategy to support a growth-centric plan. CO_2 Company also has motivation to modernize and take advantage of consolidation where appropriate to achieve their goals.

Initially, UniverseIT was contracted to perform a business intelligence engagement, but after further inquiry, an IT Strategy became the recommended course of action.

In accordance with the IT Strategy engagement, UniverseIT has generated this document containing the IT problems, solutions, and roadmap to success. The purpose of this document is as follows:

- To provide CO_2 Company with an outline of the general and specific issues identified within CO_2 Company's current IT implementation by UniverseIT
- To layout recommended IT approaches with the goal of eliminating or reducing the impact of the general issues
- To provide CO_2 Company with a roadmap to assist in succeeding with its growth plans going forward containing both additions and enhancements to current IT practice

UniverseIT exercised the following strategy to align business problems with IT solutions according to an executive value chain assessment. UniverseIT collected feedback on IT problems during 20+ one-on-one interviews. Afterwards, the executives prioritized organization values through the Value Chain Assessment. The two sets of information were used to prioritize projects along with an evaluation of the impact of each project and UniverseIT's expertise and experience with relation to IT Strategy.



By assessing CO_2 Company's IT budget and needs, as part of the IT Strategy process, UniverseIT has formed the conclusion that CO_2 Company should both consolidate the IT budget and expenditures into the IT department itself and realign IT expenditure with the goals of the organization. CO_2 Company is in the "Underspending" category with relation to IT when compared with industry standards. The consensus among key CO_2 Company personnel is that IT expenditures should average those of Safety on a year-to-year basis, totaling between 2-2.5% of expenditures. In addition, the industry average for restaurant and retail ranges from 2-7%. CO_2 Company is nearly a $70 million company. Due to the expenditures being near 1% or lower in the past IT deficits have accumulated. Resolving the issues caused by underspending demands increasing expenditures for a period of time, initially 6-7% annually, decreasing until the backlog of deficits is accounted for. This will have long-term positive effects which will work hand-in-hand with predictable year over year expenditure.

Section 6 is the Recommended Budget and Timeline section. In this section, a tabular view of all projects placed on year-to-year timeline and in UniverseIT's suggested priority order is shown with estimated time-to-completion and approximate expected budget for the project. The estimated timeline and project descriptions do take dependency on another project's completion into account.

2 IT Strategy Overview

2.1 Summary of Findings

2.1.1 IT Strategy Development Process

This IT Strategy document and all following findings are the result of multiple interactions with the key personnel at CO_2 Company that included:

- A request for information sent by UniverseIT, study of responses, clarification questions, and understanding of CO_2 Company's current state
- One-on-one interviews to identify perceived issues, barriers, and constraints
- A one-day structured exploratory workshop conducted with CO_2 Company, followed up with additional correspondence for clarification as necessary
- One-on-one follow-up interviews both in-person and by phone, which examined the current issues each member of CO_2 Company's key personnel highlighted and their preferences for the ideal future state
- Financial impact analysis of the IT Strategy
- Vetting of IT Strategy plan
- Final Deliverable— This document

Only after all of the above steps were completed was a final report drafted. After document delivery, in order to solidify the recommendations contained herein, UniverseIT will meet with CO_2 Company to discuss options and review approaches.

2.1.2 Structure

CO_2 Company is a holding company located in [Redacted] that contains the following divisions:

- **CO_2 Company Distribution/Metro.** Offers a complete line of beverage grade CO_2 services to restaurants, convenience stores, and other beverage dispensaries throughout the southwestern United States. Distribution and Metro are both Bev Carb divisions that service disparate regions.
- **CO_2 Company Dry Ice.** While CO_2 Company Dry Ice service different portions of the United States, both dispense dry ice in its various forms.
- **FrackingCO_2.** Predominantly provides the CO_2 fracturing, enhanced oil recovery, and Huff n' Puff services. FrackingCO_2 sells its services internally as well as externally.
- **Crude Oil.** Contract crude hauling division.

- **CO2 Company Gases.** Similarly, to Distribution/Metro, Gases provides CO2 in its liquid form to enterprise level and large scale customers.
- **CO2 Company Processing.** Owns and operates the plants that supply the various other divisions in CO2 Company with CO2.
- **CO2 Company Manufacturing.** Designs, builds, and installs the plants and specialized equipment that the CO2 Company divisions need to produce, pump, and transport CO2.
- **CO2 Company Transportation.** Supports the other CO2 Company divisions in transportation asset and operational areas to move the product on time to customers.

2.1.3 Currently Implemented Systems

UniverseIT has identified the following systems, software or otherwise, in place at CO2 Company for current IT and business practices:

- **Fleetmatics.** Provides GPS information in the smaller trucks for FrackingCO2, Distribution, Metro, and Ices.
- **GP.** ERP and accounting system. Also integrated are the 3rd party add-ons:
    - EPay advantage (Nodus)
    - Nodus CCA
    - Greenshades online (Greenshades Software, Inc.)
    - Greenshades employee (Greenshades Software, Inc.)
    - Greenshades center (Greenshades Software, Inc.)
    - MFP (Binary Stream Software)
    - Smartlist Builder (eOne Integrated Business Solutions)
    - Kwiktag (Image Tag)
    - Intercompany postings (Nolan business solutions)
    - Dynamics Zip (Kamp-Data)
    - Smartfill (Rockton Software)
    - Dynamics Report Manager (Rockton Software)
    - Collection Management (Professional Advantage)
    - Company Data Archive (Professional Advantage)
    - MICR Payables and Payroll (Mekorma)
- **Mechanics Workstation.** Repair order software for mechanics
- **PCMiler.** Mapping software that TMW relies on to calculate mileage between two points

- **PDQ/HMS. Phasing out –** Direct delivery software used by Distribution, Metro, and Ices' drivers while making deliveries. Invoice generation on site. Integrated with GP
- **Prism. Phasing in –** Software solution to replace PDQ/HMS
- **Peoplenet.** Onboard computers used by FrackingCO_2, Gases, and Crude. Used for drivers to enter eLogs, also tracking GPS, odometer readings, and various other functions related to transportation compliance
- **Rapidlog.** Driver log tracker
- **SSRS.** Reporting tool
- **TMT.** Truck maintenance software tracking all units, shop inventory, and creates RO's and completes them as necessary
- **TMWSuite.** Suite of software used by FrackingCO_2 and Gases. Simplex integration with GP from TMW to GP. Allocations based on mileage and products sold, includes the following packages:
    - File Maintenance
    - Order Entry
    - Dispatch
    - Rates
    - Settlements
    - Billing Desk
- **Totalmail.** Software used to communicate between TMW-Dispatch and the Peoplenet units in the trucks
- **Wolfepacke.** Oil and Gas software used by E&P. May be adopted by Crude
- **Evault.** Backup and disaster recovery
- **Barracuda.** Spam filter solution
- **KnowBe4.** Phishing software
- **SmartTraining.** LMS for safety
- **Kace.** IT support and device management
- **Shoretel.** Phone system

2.1.4 Objectives

Based on the feedback gathered from the one-on-one interviews, workshops, and value chain assessment desired placement and priorities, CO_2 Company and UniverseIT have come to a consensus that CO_2 Company's objectives over the next 1-3 years (short term) and up to 10 years (long term) are:

Short Term Objectives:

- Increase margin of all profit centers to be safely in the black even when affected by unexpected losses
- Increase productivity
- Eliminate the vast majority of manual processes currently in use
- Change from reactionary to strategic decision making organization
- Improve capital planning and forecasting beyond the capabilities granted by SSRS, such as near real time cash flow monitoring
- Optimize transport route density and efficiency
- Modify company culture and increase adoption and trust of IT systems
- Minimize manual and multiple entry of data
- Implement standards of strategic thinking, such as 4dx
- Track accountabilities
- Manage change efficiently
- Executive communication cadence

Long Term Objectives:

- Increase gross annual revenue to $500M over the next 5 to 10 years
    - This requires ~22.5% growth year over year to reach in a 10-year timeframe
    - This requires ~45% growth year over year to reach in a 5-year timeframe
- Lay the foundation for an acquisition plan that will work towards achieving the above annual revenue goal
- Improve ROI

2.1.5 IT Strategy Alignment

One of UniverseIT's conclusions is that IT is not aligned to anything in the organization, and is currently a smaller piece of CO2 Company's pie than is healthy for a company looking forward to growth. During the discussion with key CO2 Company personnel, it was agreed that the IT Strategy would be aligned to CO2 Company's mission statement:

> *"To safely seek and establish win-win solutions in the supply and services of CO_2 and associated products for our customers, employees, and partners here at CO2 Company where Family and Community count."*

To support this, the IT Strategy going forward will keep in mind the company's core values.

This IT Strategy document lays out a plan that will address the issues facing CO2 Company and their potential impacts on its future and provides a path to bring IT in alignment with the organization's mission. CO2 Company will have to undertake a series of capital projects to implement systems and practices that will allow it to be positioned to achieve the desired growth rate going forward. For the remainder of the document, the IT Strategy identifies what UniverseIT considers to be a prioritized order of issues, actions, items, and projects, some of which can be run in parallel, to achieve this goal.

2.1.6 Assumptions

The following are the assumptions made by UniverseIT with respect to the content and recommendations contained herein:

- CO2 Company has no Global IT department, strategy, or CIO
- CO2 Company will continue to acquire and assimilate other entities
- Identifies as restaurant and retail industry
- A portion of the current IT budget is obfuscated in multiple divisions
- The Prism project currently underway at CO2 Company has hit the point of no return (PNR). It will be completed by CO2 Company and in concordance with the themes of this document
- The Fleetmatics project currently underway at CO2 Company has hit the point of no return (PNR). It will be completed by CO2 Company and in concordance with the themes of this document
- The Nodus project currently underway at CO2 Company has hit the point of no return (PNR). It will be completed by CO2 Company and in concordance with the themes of this document

2.2 General IT Strategy Themes

The following is a list of 5 themes that summarize the recurring issues mentioned during discussions on CO2 Company's current state both through the one-on-one interviews, workshop, and internal discussions.

2.2.1 Standardization

One of the general issues found within CO_2 Company's current IT implementation is a lack of company-wide standardization. The standardization problems found revolve around a few core points: Intra-company standards are not in place or upheld, customer-facing views currently fragment CO_2 Company's brand, and common tasks across the organization are not running on standard workflows.

2.2.2 Governance

While Standardization is the plan put in place by the company to bring all divisions into alignment, Governance is the force responsible for ensuring standards are kept. CO_2 Company currently has a governance deficiency for a few reasons: lack of personnel to perform various governance tasks and policies to enforce governance.

2.2.3 Excel Hell

The term "Excel Hell" was frequently heard during UniverseIT's interviews with CO_2 Company. This refers to the amount of custom Excel templates and custom Excel work being carried out company-wide approaching 70% of all documents, reports, and data. This begins to happen in most organizations that are growing that do not have scalable implemented systems in place. As the amount of demands on the data grow, custom Excel work becomes the go-to when infrastructure is missing. Excel Hell also creates a number of "Shadow Systems", which are systems or templates in place that are neither supported or understood company-wide nor in alignment with the current IT strategy. This causes disarray in data handling and processing as well as breaking down the ability of divisions and CO_2 Company to communicate effectively and execute on data.

2.2.4 Scalability

Scalability refers to a company's ability to scale to size. Issues with scalability relate to both standardization and governance issues, but they also relate to the ability of a company's plan to accommodate a greater volume of work effort. Currently, neither CO_2 Company's IT budget

nor team has the capacity to handle much growth. Systems and procedures needed to sustain the desired increase in scale are currently not in place. Thus, growth is currently cumbersome and results in company standardization falling apart and governance to falter.

2.2.5 The Cloud

Moving towards the cloud is the future for data. The cloud is a somewhat complicated and nebulous concept, so to simplify and visualize, the following metaphor has been provided. Back at the dawn of the industrial revolution, if a factory needed power, it had to generate its own power, either via water wheels, turned crakes, or other sources. Now, we rely on power plants to generate power, and instead of generating our own we subscribe to their service, purchasing their power at a fraction of the cost it would take to generate our own. In addition, the power plant is a more reliable way to have power available, as even if a line goes down, the plant itself is still able to push power to all other available lines.

Cloud computing is the power plant of cyberspace. Computational power, application hosting, data storage, and more are all being hosted on the cloud, no longer on premise. Instead, your data or services are stored remotely, and can then be accessed from anywhere— even if one site goes down, the cloud is still up and able to continue service. This is currently a problem at CO_2 Company where the cloud is rarely, if at all, relied upon for its data and services. [Redacted] has frequent electrical storms that can take down HQ, preventing all remote sites from contacting any data or services maintained on premise in [Redacted]. With the cloud, if [Redacted] goes down, all other sites are still able to interact with the services and data on the cloud, and only [Redacted] would not be able to gain access.

Many CO_2 Company personnel do not believe they have a strong example of the cloud to relate to, but there is a simple example that can assist with grasping the concept— an email server. If a service like Gmail has ever been used, your emails are stored in the cloud. This is why you can log in on any computer or device at any time and see your emails in the same state you left them. They aren't stored on premise, but rather in Google's or the email server owner's cloud.

2.3 Review of Industry Challenges

2.3.1 Industry Tech Trends

As technology itself improves, so does the technology being utilized in the day today across all market sectors. Those companies that choose not to or are unable to keep up with the evolving technological landscape in their industry tend to fall behind on efficiency, productivity, and customer relations. The following tech trends have been identified in CO_2 Company's industry areas that have a potential to affect both growth and staying power.

- **Driverless Vehicles.** Driverless vehicles have become more commonplace than ever before on our roadways today. With regard to driverless trucks, they are currently being tested by major players across the transportation industry. Driverless vehicles have the benefits of being able to drive continuously and without human error, needing human interaction only when uncertain scenarios arise or for loading/unloading and refueling assistance. When switching to driverless trucking, costs related to maintaining a cadre of drivers is reduced, while fleet cost may increase slightly due to capital and maintenance costs of acquiring newly outfitted trucks. Overall costs are reduced by the efficiency, reliability, and control given to the fleet owner by the power of artificial intelligence (AI) in the vehicles. Companies that remain entirely supported by a manned transport fleet are likely to fall behind in transportation costs, efficiency, time, and reliability compared to those that invest partially or fully.
- **Cloud Reliance.** As will be discussed later in this document, there is little tolerance among modern consumers for the pitfalls of on premise systems. On-premise systems are prone to failures, outages, and shutdowns due to high traffic, while cloud systems either lack or mitigate these issues dramatically. Those businesses whose customer-facing and exclusively internal systems both are supported by the cloud instead of on premise have more power, space, and reliability available to them, adding value and reducing frustration for customers and increasing efficiency and reliability internally.
- **Data Delivery.** More frequently now than ever, data itself is a commoditized division. As technology increases in power and ease-of-use, consumers become increasingly tech-savvy and accessibility to their data as collected by their vendors becomes increasingly simple and vital to their operations. With respect to CO_2 Company's Distribution/Metro divisions, being able to accurately gather client usage data from deployed CO_2 tanks and then sell a subscription service to access that data in a structured report and/or dashboard format customizable with alerts and other options

is both an immediate and significant value-added proposition. This concept can be applied across all divisions where a quantifiable good is delivered. Companies that offer this data subscription service have the ability to give their customers a view into their product consumption and related data, allowing them to potentially reduce costs and losses based on incorrect usage assumptions, while themselves make money by simply aggregating and displaying data.

2.3.2 Disruptive Events

A disruptive event is any change in place that acts as a catalyst to completely rewrite an industry's standards and expectations. A simple example of a disruptive event for the livery industry is the launch of Uber. Uber's lower price point, availability and flexibility offered to both drivers and riders alike, and a more technologically savvy platform rewrote the consumer expectations of what a livery company should offer overnight. Taxi companies have been unable to compete and the new model has forced them to try to adapt. Even still, they continue to falter while services like Uber and Lyft capture an increasing percent of market share in the livery industry. UniverseIT and CO_2 Company have identified the following pertinent disruptive events and their possible effects on the industry and CO_2 Company's business:

- **Legislative Barriers.** Legislation regarding the extraction of oil and gas along with legislation pertaining to manufacturing or transportation are of particular importance to CO_2 Company. As a vertically integrated business, being forced to comply to a new set of rules can affect the entire company. Some types of legislative barriers have been outlined in the sub-bullets below. Due to the volatility and unpredictability of these types of events, it is often considered best practice to insulate against them, especially if they're visible on the horizon for a significant time frame before being enacted.
    - **Taxes and Permits.** New taxes placed on the acquisition and sale of CO_2 or other products CO_2 Company deals in or permits newly required to continue operation cause CO_2 Company to incur new and often unexpected costs that can tip a margin from black to red. Currently, CO_2 Company's contract model places the burden of any such changes on the consumer, locking CO_2 Company in to the approximate margin settled on at the contract's inception.
    - **EPA Regulations.** New EPA regulations can place a burden especially on acquisition, manufacturing, and transportation. Any changes that have to be made to comply with new regulations can put financial strain on a company, especially if the methodology of material acquisition and equipment owned

and utilized for both acquisition and manufacturing processes do not meet the new standards.

  - **Tax Credits to Ethanol Producers.** There are currently tax credits in place that subsidize the production of ethanol. CO_2 Company, while not in the ethanol business, is affected by these tax credits. Currently, CO_2 Company purchases the by-products of ethanol production, namely CO_2, for a fraction of the cost of obtaining it from other sources. If these tax credits were to be repealed, then ethanol production might falter or halt entirely, closing one of CO_2 Company's avenues of product acquisition.
  - **Corn Production.** Related to above is the growth of corn— required for ethanol production. Any changes to the yield of harvest or the cost of harvest can significantly reduce supply or increase the cost of supply, leading to plant shutdowns.

- **Driverless Transportation.** As mentioned above in the Industry Tech Trends section, driverless transportation has the potential to reshape the transportation industry. If this trend sweeps and reshapes the industry, companies that are unable to adapt will quickly be at a significant disadvantage when compared with their competitors that do adapt.
- **CO_2 Alternatives.** While CO_2 remains popular for a number of reasons as a material across a number of industries, there is a risk that an alternative that is cheaper, more efficient, or more effective for any given use may not be found. Nitrogen or nitrous oxides have been used in place of CO_2 for certain drink applications that continue to be increasingly popular, somewhat due to the "fad" factor, but also due to the effects of Millennialization, discussed below, where the social perspectives of nitrogen versus CO_2 differ wildly, favoring nitrogen. Any significantly large adoption of or migration to a different material in any industry can have a marked impact on CO_2 Company's bottom line, being a vertically integrated company with a focus primarily on CO_2.
- **Gorilla Mergers.** CO_2 Company is currently not an industry gorilla when compared alongside its competitors. But when two of these gorillas merge into an even larger one, smaller companies can feel squeezed out of industry space as the sheer size and capital of the larger companies allows them to be more competitive on price and availability. Recently Air Liquide and Airgas underwent a $15B merger and another $70B merger between The Linde Group and Praxair is going to finalize in May of this year, 2017. As these larger companies continue to merge, smaller companies such as

'jpn CO_2 Company are burdened with the responsibility to both grow and offer something unique to stay relevant.

2.3.3 Risk Factors

In addition to the risks incurred via disruptive events, there are other risk factors to consider in business. The additional risk factors for CO_2 Company have been identified as:

- **Weather Patterns.** Due to the location of CO_2 Company's holding company's headquarters, it is a likely event that lightning storms take down the office. This is unfortunate for all divisions within the company due to the housing of on premise systems at headquarters. When the power goes out, so do those systems.
- **Human Fleet.** Another risk factor in the divisions especially pertaining to or containing transportation elements is driver error. One accident or even delay can cause a chain reaction that ripples through all divisions that would have handled the cargo and can cause major losses.

3 Current IT Strategy Elements

3.1 Customer Acquisition Model

The following issue affects all divisions within CO_2 Company that interact directly with and are searching for customers. Divisions that work exclusively internal to CO_2 Company are not affected.

As understood by UniverseIT, CO_2 Company's current customer acquisition model is not based on a company standard or set of best-practices used to optimize customer acquisition. As certain divisions of CO_2 Company's business are done on a 1-to-5-year contract, it is especially important to consistently grow the customer base to support company-wide growth initiatives. CO_2 Company's current acquisition model has deficiencies grouped into the following categories:

3.1.1 Reliance on Source to Acquire New Customers

Due to the contract model present in certain CO_2 Company divisions, namely Distribution/Metro and Gases, and high renewal rate, CO_2 Company's individual divisions are capped in growth by acquisition of new accounts. Unfortunately, CO_2 Company divisions are

currently limited by the sourcing of the product. As each division needs more accounts on file to individually grow and thus they need more source, having a source problem prevents growth through an increase in sales. This has caused CO_2 Company to rely primarily on the acquisition of new entities and divisions in order to grow as an organization.

3.1.2 Focus on Contract Renewal

Currently, CO_2 Company spends a tremendous amount of time and energy keeping current customers satisfied with their products and services. This is an exceptional goal for a company to have and customer retention is an important aspect of growth. The issue is, however, due to the current lack of expenditure and customer acquisition systems and standards. This tends to be the only major focus in revenue generation.

In the arbitrary case where CO_2 Company has 100% of its current clientele, if CO_2 Company adds 2% customers per year via its current acquisition methods, it must keep 98% of current customers satisfied and renewing contracts to even stagnate. While customer retention is important, the retention-first strategy is one that does not promote growth to achieve the five-year revenue goals.

In order for rapid growth to be possible, CO_2 Company needs to retain clients at the same or better rate at the same time implementing a rapid customer acquisition strategy and plan.

3.1.3 Cold Calling V. Targeted Acquisition

One of CO_2 Company's main avenues through which new customers are acquired is simply by cold calling businesses and inquiring if they need any products or services provided by CO_2 Company. While this can generate new leads, cold calling itself has a number of issues:

- **Unproductive Effort.** Cold calling, especially with the Millennialization of our society, has by and large become considered an ineffective practice. These days, consumers are accustomed to being able to research and choose the product or vendors that best suits their needs through a simple google search.
- **Low Returns.** Cold calling has in-part ceased to be a common practice because of the poor public perception issues, but also because the rise of alternative targeted advertising methods has proven much more effective at increasing brand and product awareness. According to Forrester Research Inc., ecommerce will eliminate 1 million B2B sales jobs by 2020.
- **Marketing Statistics.** Buying behaviors have changed and businesses are seeing a significant decline in the effectiveness of traditional marketing methods. With 44% of

direct mail never opened, 86% of skipped television ads, and 91% of email users unsubscribing from company emails they previously opted into, the landscape has changed. According to research done by Forrester in 2016, 59% of B2B buyers and sellers prefer not to interact with a sales rep and 74% find buying from a website more convenient. Today, sales and marketing departments need to be closely aligned in order to deliver the personalized, on-demand experience that buyers want.

- **Search.** Google has become the tool of choice when any consumer is searching for any service or product, with 67% of market share. In order to be found through search engines and meet the self-education demands of your customers, your website needs to be optimized with best practices including a consistent user experience, compelling content, and search engine optimized (SEO).
- **Content Marketing.** Once a visitor arrives on your website, you need compelling content that touches all stages of the buying cycle in order to convert your visitors into leads and leads into customers. By creating and distributing valuable, relevant, and consistent content to attract and acquire a targeted audience, you have the ability to build your client base and drive profitable customer action.
- **Easy to do Business with.** Being user friendly applies to everything from website design and offering multiple forms of communication methods like email, chat, and mobile to facilitating an easy and efficient purchasing transaction. This should also include the after-sales customer service experience, where a CRM system proves its value by storing all past data and allows you to deliver a personalized interaction.

3.1.4 Company Standardization

A strong brand identity and compelling value proposition across all subsidiaries is essential to reflect the value of CO2 Company's service offering and how the company is perceived by customers. There is currently a disconnect between CO2 Company and its separate divisions. The brand name, logo, content tone, tagline, and typeface are not consistent across each website which impacts the company's ability to fully optimize its value proposition. It is recommended that CO2 Company and its subsidiaries keep a consistent look, feel, and navigation across all websites in order to maximize visitor experience and customer satisfaction. A standard architecture across divisional websites and tools to reduce time to update content and minimize website management will help to maintain the brand's integrity, appealing to new and existing customers and highlighting the strengths of the company.

Consider a scenario when a night club opens that uses dry ice for special fog effects and also requires CO2 for their beverages. That customer immediately sees the value of convenience

able to acquire both products from CO2 Company using the same purchasing system and ideally having them delivered at the same time? That is the ultimate power of a consistent brand and being able to deliver on that brand.

3.2 Common Task Workflows

This issue affects all divisions within CO2 Company, especially those with an inordinate quantity of manual processes.

Business processes that effect multiple departments at CO2 Company are not in alignment with the company's growth goals. There is a lack of communication between departments and divisions within CO2 Company. Best practices are for the company to generate and enforce a set of common business practices at the executive level to disseminate amongst its various divisions for both intra and inter division communication.

For example, HR and IT department heads have often found themselves the last to know when someone is hired or terminated. As it relates to IT, if an employee is hired, they will need certain hardware and permissions to various repositories. If an employee is terminated, IT needs to know in order to retract the hardware and permissions. The risk is employee not having enough access at the time of hire or having too much access to vital business information post termination. A disgruntled employee could wipe all information from a database or remove files from the network share. In this example, a simple behavior modification such as the manager informing a group of people, including HR and IT of hire before orientation and of termination before the employee is made aware, so they can prepare the necessary procedures would reduce risk to CO2 Company. Business processes such as these should be written out and enforced from the executive level.

A subset of identified common task workflows that lack implementation and governance are as follows for the purposes of outlining areas of future improvement:

- Acquisitions – no common process
- Change Management – no common process
- Onboarding – no common interdivision communication process
- Accounts Receivable – each division uses a unique process
- Dispatch, Billing, and Payroll in TMW – Each of these does not have a common automated process and is handled manually from the paper BOL provided by driver

- Crude Division – does 100% of work tasks in spreadsheets, no common or automated processes
- Plant Loadouts – no common or singular process, entered manually on the website and to spreadsheets
- Budgets – no common process
- Training programs – no common process
- Documentation – no common process
- Allocation – no common process, each department/division must make manual changes each month
- ELD's for Distribution/Metro and Ices – no common process, completed manually

3.3 Document Control

These issues related to document control affect all divisions within CO_2 Company.

Document control, tracking and maintaining business processes and transactions, is one of the most vital systems an organization can enact. Over the last few decades, they have evolved from paper-based manual processes to automated software systems. Even still, document control is one of the more complicated systems to implement and maintain governance over. Without adequate document control, information is difficult if not impossible to find and business processes that hinge on the availability of said information can slow to a halt, creating both a time waste and either delayed decision making or decision making based on imprecise or incomplete information. The current issues with regards to the document control systems in place at CO_2 Company have been broken down into the following categories.

3.3.1 Communication

The current methods for communication are via email, phone, the M drive (CO_2 Company's network share), and face to face. When given a choice, CO_2 Company's personnel gravitate towards face to face meetings. Unfortunately, this predilection is in conflict with sound document control principles. Electronic maintenance and tracking of documents in conjunction with communication is necessary, and more viable when meeting via phone or email and referring to electronically stored documents.

3.3.2 Storage Methods

Due to the disparate and disorganized nature of the current document control strategies in place, divisions such as safety, manufacturing, and processing have begun looking for their own independent document control systems. Distribution/Metro has already adopted Dropbox as their storage method, mostly abandoning the M drive. A governance breakdown has occurred due to the lacking nature of the currently available document control systems, fracturing the organization as a whole and reducing the capability to transfer and access information, especially between divisions. Without a decisive and swift intervention with regards to shadow systems for document control and implementation of a robust and organized standard document control system, the organization will have a communications breakdown, preventing future growth without accepting an undue amount of risk. The following storage methods and their respective uses have been identified at CO2 Company:

- **M Drive (Network Share).** The company standard seems to be that documents are stored in the M drive. Unfortunately, the M drive lacks a clear organizational structure and contains a significant amount of duplicated information.
- **Website.** Another company standard is to host document on the website. Employees have the capability to log in to access expense, inspection, and other forms and templates.
- **Dropbox.** Adopted by Distribution/Metro as their document control system. Dropbox is a cloud-based file repository that allows users to share files with one another in a semi version controlled environment. They currently store route documents, contract information, and compensation information in Dropbox.
- **Paper.** A number of documents at CO2 Company are kept in hard-copy form and not digitized in any way. For example, the safety department has inspections to complete and often are not on-site for every inspection. This results are mailed to safety approximately twice weekly. Keeping documents in hard copy form is not a scalable or sustainable practice. Furthermore, most of the file cabinets in use are not fireproof, and one natural disaster could disintegrate all eminence of company data.

3.3.3 Version Control

Version controlling a document is just as important as archiving when it comes to a document control system. Version control is the practice of using a software package or server system to track all changes made to a document without having to manually maintain copies documents with appended version numbers. This allows admins to restrict or allow access on a read and/or

write basis to any document in the system as well as tracking all changes made with the ability to perform a number of common version control tasks such as:

- Reverting to an earlier version when necessary
- Tracking changes in a changelog fashion
- Comparing old and new versions side by side
- Allowing multiple users to work on a file simultaneously and merging changes together

3.4 Dispatch System

This element affects primarily those divisions within CO_2 Company that are involved in the transportation of goods and dispatched services.

Dispatch systems run the mechanisms by which goods and services flow between internal divisions and customers. Due to the sheer quantity of moving parts and complex interactions with the environment, infrastructure, personnel, and other divisions, such systems must be sufficient in a number of categories including automation, efficiency, uptime, and standardization in order to be effective and affordable. While an upgrade to TWM can eliminate or ameliorate some of them, the present issues in the current dispatch system element can be broken down in to the following categories.

3.4.1 Reliance on hard copies

While using hard copies is the technically simplest way to work with documents, the overuse of paper outside of very specific scenarios is inefficient for business processes. Almost all filling of forms can be handled automatically or semi-automatically, reducing time to completion per form, and can help prevent costly errors in the handwritten process. In addition, each form that can be delivered electronically is a save on expenditures on printing, which adds up quickly. Less use of paper also means less physical space required for copy storage and less chance of a loss of files due to error or natural disaster.

The process for bills of lading specifically requires the driver to fill out a paper BOL before delivery then sends the BOL to the dispatcher who manually reviews that data and inputs it into TMW (retroactively). Then the BOL is sent to the AR for review and manual invoice creation in GP, then to Payroll for review and input again into GP for payment. Finally,

transportation receives the BOL to update the IFTA taxes and this is manually entered into COMDATA for fuel tracking. At least 5 different people manually review and enter the data into a system. Other than being a cumbersome and time consuming process, the main problem is hard copies are both not as easily catalogued and maintained and also introduce a high risk for human error in handling and processing the information. UniverseIT understands that the paper BOL issue will be resolved by Phase 2 of the TMW implementation, but is used here as an example of reliance on paper, workflow management, and document control.

3.4.2 Lack of Automation

Continuing from the use of paper, sometimes documents must be printed and delivered in hard copy form. However, when this is necessary, the documents should be printed in their complete form and require no changes, additions, or blanks filled other than a possible signature. In addition, applications like DocuSign can enhance the automation of completion and delivery of documents, which reduce the time spent on document completions and delivery.

3.4.3 Streamlining and Standardization

The theme of standardization becomes ever present in a company looking forwards to growth and dispatch systems are no exception. Lacking both streamlining and standardization in dispatch can become cumbersome and cause delays that reduce customer perception of CO_2 Company's brand and internally delay important systems and processes. When all dispatch systems are united, streamlined, and automated cross company, it becomes somewhat trivial to dispatch and track shipments and services in route and coordinate them around each other and other possibly disruptive activities and events.

3.4.4 Uptime

Dispatch systems must have at or near 100% uptime to be functional on a large scale. Dispatched drivers that lose connection to an on premise system due to an outage are then left waiting, burning both money and creating impactful delays, until the system recovers. When a system is cloud-based, even if headquarters has an outage, as long as the system is sufficiently automated, business will continue as usual.

3.5 Reporting and Budgeting

All CO_2 Company divisions are affected by reporting and budgeting issues, especially those that have reported they are more entrenched in "Excel Hell".

After reviewing the reporting and budgeting elements in place at CO_2 Company, UniversalIT found the majority of reporting and budgeting needs were being taken care of by generating a large number of SSRS reports that were similar to one-another and partitioned by division or department. IT holds the responsibility for inputting and updating budget data for the company. In addition, these SSRS reports were time consuming to maintain and update. This has caused some users to dump their SSRS report data into excel to get the output they desire, creating the aforementioned Excel hell problem. IT creating the budgets for the various companies and departments is an immediate opportunity. The current issues with CO_2 Company's budgeting and reporting can be broken down into the following categories.

3.5.1 Reliance on SSRS

While SSRS is a powerful tool for generating reports, it has a number of shortcomings that make it unreliable as a reporting strategy when used on a larger scale. Firstly, the reports require a deeper knowledge of both T-SQL and the source databases to be able to generate. Secondly, unless design time is taken to create robustness and single access points, the reports become difficult to change, often requiring as much work to modify the report as was spent generating it initially. And lastly, SSRS reports' budgeting piece is not a robust and complete tool compared to other industry offerings.

3.5.2 SSRS: Source V. Endpoint

"Excel hell" and SSRS typically feed off of one another. SSRS reports that are not immaculately conceived typically fall just shy of meeting the reporting needs of the target audience, so the data is pulled into Excel and used further, thus turning SSRS into a data source instead of a reporting tool. Then because of the reliance on Excel to complete SSRS reports, issues may not be brought up or prioritized to bring the SSRS reports in line with the expectations of the end user.

SSRS reports are intended to be used as-is and not pulled as a source into another platform. Alternate reporting tools are available that increase the simplicity of both designing and maintaining reports that better lend themselves to serving a large organization with complex needs. SSRS is best reserved for template-type report generation that is capable of being managed with relatively little change, otherwise either "Excel hell" is a near inevitability.

3.5.3 Report Consolidation and Standardization

Another item of note in CO_2 Company's current SSRS implementation is there are numerous reports that are nearly identical save some department specific changes and fields. When any of these reports needs a change that does not pertain to one of the department specific fields, then the change must be made to the general fields across all copies of the report across all departments and divisions, resulting in a large amount of wasted effort. For example, adding one account to PNL reports took 2 IT personnel 3 days to complete.

In addition, the control systems in place by the company to segregate reports can sometimes have a negative impact on the bottom line. While some divisions and departments may want their information to be seen only by them, there is the trade-off that a report that binds parameters to draw only from their department fragments the report set further. It is up to the governing body in a company regarding decisions like this whether it is worth fragmenting reports and increasing report upkeep work by 100% per fragment applied to a report to purchase the ability to lock data visibility by department or division. Other tools besides SSRS may be able to simultaneously reduce both of these burdens, but in the end, the decision must be made where in-company proprietary data or upkeep work is the focus.

3.5.4 Shadow Systems

With respect to both standardization and governance, consolidating reports when possible is a large improvement. However, Excel hell will still remain if policies are lacking that justify the use of consolidated reports, be they implemented via SSRS or other reporting tool. Other systems used like Excel to accommodate the specific needs of an division or department without company support and foreknowledge, or "shadow systems" as previously defined, can be harmful to a company's ability to share actionable data in a timely fashion or at all. As shadow systems may be understood by only the author, they tend to obfuscate data and end results are questionable when related to data across the organization. It is in any company's best interests to reduce and even eliminate the use of the majority of shadow systems. One example within CO_2 Company of shadow systems are Dropbox, found at the [Redacted 2], with no centralized IT involvement.

3.5.5 Budgeting

Especially with regards to scaling an organization, a comprehensive financial planning and analysis (FP&A) tool is a priority. Currently, CO_2 Company uses the budgeting piece within SSRS for its budgeting needs, and while that may be effective and affordable for a smaller organization, for one looking forward to growth, a more powerful and comprehensive

budgeting tool is required. Without such a tool being implemented in an organization, expenditures and budget tracking will have a difficult time growing to scale, causing money to be lost on imperfect budgets.

3.5.6 Reforecasting Period

The current reforecasting period at CO_2 Company is annual. The industry standard, especially in the faster paced industries such as restaurant and retail and the volatile industries of oil and gas require a more frequent reforecasting period to stay on track. The industry standard is monthly, with quarterly being the upper limit for time between forecasts. Forecasting more frequently than monthly in most industries is considered a poor use of time. When increasing the frequency of forecasting, having and efficient and standardized method to review data from across a number of divisions becomes increasingly important as the time cost of reforecasting will increase approximately 12-fold when going from annual to monthly reforecasting. Reforecasting more frequently can also allow for allotted overspend or underspend to be revaluated and redistributed each period.

3.6 Project Accounting

The issues related to project accounting affect primarily the processing and manufacturing divisions within CO_2 Company.

CO_2 Company is not currently utilizing the project accounting module present within GP. Currently, projects are used by the processing and manufacturing divisions. The numbers are created and stored in an excel workbook and personnel manually place the numbers on their timesheets. Without a controlled project accounting system that automates the process of number generation, tracking, and utilization, the processing and manufacturing divisions have been unable to accurately track actuals in their budgets. This division is working towards becoming a profit center, but to determine true profitability and pricing, the actuals metric is of vital significance. The amount of possible human error currently introduced by the project accounting practices makes all budget and tracking numbers related to a project unreliable and unactionable at best.

3.7 Fixed Asset Tracking

The issues related to fixed asset tracking affect all divisions within CO_2 Company.

CO_2 Company is not currently utilizing the fixed assets module present within GP. Currently, fixed assets are maintained manually in an excel workbook by accounting. Fleet management tracking is currently handles in TMT, which tracks the truck or trailer, inspection dates and expiration. However, the data does not integrate with GP and creates a need for manual double entry. Double entry of data is already an unreliable method, but in this case two different teams each enter data in to two disparate systems— invoices are manually entered by accounting in to GP and by transportation into TMT. The vast majority of fixed assets are being tracked manually and those that are being tracked semi-automatically are done so in a non-integrated system. This causes an issue with data reliability and visibility, as the data is spread out amongst various systems and duplicated.

3.8 IT Practices

While these practices primarily affect the IT team within CO_2 Company, the effects trickle down through all divisions.

A number of IT principles and practices are in place currently at CO_2 Company, but they do not ascribe to a consistent and defined list of IT practices and principles. Lacking adherence to a best-practice set of guidelines requires generating a set of governance, accountability, and responsibility rules where this time could be better spend implementing, learning, and adhering to tried and true sets of best-practice principles in IT. IT practices of note are detailed below.

3.8.1 ITIL

ITIL (Information Technology Infrastructure Library) is a set of best-practices for managing IT services that focuses primarily with aligning IT strategy to the needs of the business. ITIL is the standard for IT across the majority of industry segments and is a powerful and robust library of IT practices that contribute to a successful company. Lacking this or another robust set of IT best-practices can cause an IT infrastructure collapse in which items, tickets, budgets, and

tasks are forgotten or misplaced. This will also break clear rules and responsibilities as well as allow a true headcount justification of IT expenditure based on the ITIL services that are lacking.

3.8.2 WIGS – 4DX

Currently, CO_2 Company ascribes to the book "The 4 Disciplines of Execution" (4DX) and the concepts contained therein. One of the more notable concepts is that of WIGs (Wildly Important Goals) and BHAGs (Big Hairy Audacious Goals). It is important for an organization to understand goal setting based on principles such as these or the standard SMART goal system in which goals must meet five criteria (Specific, Measurable, Attainable, Realistic, and Time-constrained). Any organization that sets and prioritizes goals without a set of principles such as those in 4DX or SMART will stray from their long term directions. Setting and identifying goals and milestones to work towards a final destination without getting distracted by hubris or overreaching is the keystone of success in business growth.

3.9 IT Budget

While this issue primarily affects the IT team within CO_2 Company, the effects trickle down through all divisions.

One of the major considerations of an IT strategy is the IT budget. This budget, however, must be able to account for all of its elements to be an accurate and relevant measure of expenditure. There are a number of considerations to be made and items left out when it comes to consolidating the IT expenditures in to a single number in CO_2 Company's organization detailed below.

3.9.1 Lack of Formal IT Budget Process

There exists a lack of formal Budget structure and process within CO_2 Company's IT department due to a number of the following factors, but also with respect to the general themes of standardization and governance. Having a formal and predetermined budgeting process for IT and even for the company as a whole becomes increasingly important with growth as tracking money becomes more important and budgeting failures become costlier with scale.

3.9.2 Capital Vs. Operational Expenditures

CO2 Company's current IT Budget does not account for the distinction between capital expenses (CapEx) and operational ones (OpEx). This distinction becomes increasingly important with scale as CapEx and OpEx tend to grow disproportionately depending on the other practices in place and the industry segment occupied by the company. Without this distinction, it becomes increasingly difficult to determine where savings can be made or costs can be cut on expenditures and separating CapEx and OpEx is not possible without some pre-determined identifying attribute on the line items in a budget. Also, some divisions and locations ([Redacted 2]) spend their own CapEx when the need arises. They stick to the company standard, but the CapEx spending is often done via corporate credit card or other expense mechanism rather than the central supplier. UniverseIT recommends a central supplier for all hardware and we recommend working directly with the manufacturer when possible.

3.9.3 IT Budget Split across Divisions

Currently, the IT Budget at CO2 Company is desired to support all IT expenditures across all of CO2 Company's constituent divisions, however, IT currently has a budget obfuscation occurring in which costs are exported from IT into CO2 Company's divisions. The current system in place calls for IT to purchase supplies, software, and other IT needs for the divisions and the divisions themselves to carry the cost-burden, thus becoming a line-item across each division. This is not necessarily a poor practice, but this scenario falls apart if all line items are not appropriately aggregated into the IT budget. A simpler scenario would include reclaiming the budget for expenditures on behalf of the divisions and keeping track of which division each line item is purchased on behalf of.

3.9.4 Data Center Costs

Data centers are costly and require a various number of different expenditures to stay operational. In addition to software, hardware, maintenance, and personnel costs, one cost that typically is forgotten is that of power. Running a data center consumes an inordinate amount of power and the cost of this power adds up very quickly. The cost of data center operations is another reason that the cloud is becoming an increasingly popular platform— it is much cheaper to subscribe to a cloud data service than operate your own, and this discounts the other benefits of cloud solutions. The power cost is so high mainly because of the cooling required.

3.10 Expense System

This issue primarily affects HR and accounting, but the effects trickle down through all divisions within CO2 Company.

CO2 Company uses a homegrown credit card expense system. Twice a month the controller downloads expenses from MasterCard. There exists an integration service built in-house to import data into a database so users can review their own expenses. Employees log in to the CO2 Company website, verify expenses, add descriptions, and submit. The employee then prints out a form, staples receipts, and submits the package to HR. HR then relates the receipts to the descriptions. This methodology is both antiquated and time consuming.

In addition, there is a time burden placed upon CO2 Company personnel by the current expense system. Twice monthly, the controller downloads data into an excel file. This is then forwarded to IT, who massage the data using various methods such as scripts and formatting changes. The Comdata Expenses are then imported via Visual Studio and a query is used to extract the receipts-needed list which is then sent off. A somewhat similar process is followed for Comdata Fuel.

In the past there have also been issues with credit card abuse. Unfortunately, because of the expense timeline, employees have ample opportunity to purchase something work-unrelated on their credit card, and it will be paid before the purchase has gone through the expense verification process. If there is credit card abuse, the practice is to withhold the money from the employee's paycheck to compensate. At CO2 Company, payroll is executed every 2 weeks, which means an employee can use their credit card on a personal vacation, go back to work, and then quit, and receive their last check before there is verification of those credit card expenses.

3.11 Capital

This issue affects all division within CO2 Company but is of particular impact to accounting.

CO2 Company distribution/Metro noted specifically that a lack of capital was a significant barrier to increasing sales and growth. The company raises the capital. Capital (CapEx)

requests are made by each division and department as part of the budgeting process. The executive committee reviews all requests and approves or denies the requests. It is UniverseIT's understanding that this process happens once each year. In addition, operational expenses (OpEx) are currently impossible to distinguish from CapEx in CO_2 Company's systems. An example of this lack of tracking is that the tanks in distribution/metro have 5-year depreciation. After those 5 years, they are still collecting rental fees on the tanks.

UniverseIT also noted conflicting views of paying off and accruing debt. Those who felt the negative effect of the oil and gas bust view paying off debt the most favorably.

Overall, the divisions shared a sentiment that capital requests were denied more than they were approved. The executive team felt they needed better tools for capital planning and forecasting to make good business decisions.

3.12 Allocations

This issue primarily affects the budgeting process implemented by the holding company, but all profit centers within CO_2 Company are affected.

Due to the scale on which CO_2 Company was operating when the allocations policy was implemented it has since fallen into a state of dysfunction. Currently, all expenditures from all profit centers to a single cost center are aggregated into a single number and redistributed evenly as a cost burden amongst each profit center. As an example, if profit centers A, B, and C spend $1M, $2M, and $0 on cost center X, the allocation of those costs is then aggregated into the total value of $3M and then split evenly across all profit centers, $1M each. This poorly reflects the actual usage of the cost centers by each profit center, B now only showing half of its true expenditures on X and C eating the burden of $1M it did not spend.

A budget aligned as such may work with only two profit centers, but at CO_2 Company's current number of profit centers, this "peanut butter instead of science" approach is unsustainable and will obfuscate the margins and performances of each profit center until rectified. With incorrectly allocated costs, scalability is risky and impractical as scaling a profit center such as B from the example above will result in a massive increase in expenditures to X while scaling C would result in none, but this fact would be obfuscated post allocation.

3.13 Digital Presence

This issue affects all divisions within CO_2 Company.

Now more than ever a company's web presence is vitally important for continued survival. See the Millennialization section below for a look at what modern consumers expect. A company's digital presence includes not only its websites, but its portals, applications (Apps), and online advertising and communication avenues. Each of the elements of CO_2 Company's digital presence are discussed in the subsections below.

3.13.1 Website Performance

To understand CO_2 Company's current website performance, we completed an analysis for CO_2 Company Gases. The detailed analysis compares CO_2 Company Gas with two of its main competitors: Airgas and Praxair. The results of this comparison are included below.

Search Engine Optimization (SEO) - To track the strength of the CO_2 Company Gas website, a comparison was conducted to identify the Domain Authority (DA) ranking for each website. DA is a score on a 100-point scale that predicts how well a website will rank on search engines. The results show a significant divide between CO_2 Company Gases and its competition.

1. CO_2 Company Gases – 7
2. Airgas – 57
3. Praxair – 63

With high DA scores, both Airgas and Praxair consistently show up first for keywords nationally and locally. That means that their websites are fully optimized for search engines. Without on-page search engine optimization (SEO), CO_2 Company Gas has a low DA and does not appear on the first page of common search engines. See below for an example of common keywords searched for in this industry:

Keyword	Avg. Monthly Searches (exact match only) **USA**	CO_2 Company Gases appears on First Page? (Nationally)
welding gas	4400	No
welding gas supply	1300	No

welding gas near me	880	No
food grade co2	480	No
welding gas cylinder	480	No
beverage co2 tank refill	260	No
co2 suppliers near me	210	No
co2 supplier	170	No
welding gas bottles	170	No
co2 gas suppliers	140	No
food grade co2 cartridges	140	No
beverage grade co2	110	No
food grade co2 refill	90	No

Mobile Optimized - With mobile devices being a staple in everyday living, websites that are not optimized for mobile are at a large disadvantage in terms of sales, usability, and engagement. The websites for both Airgas and Praxair are fully optimized to be viewed on any mobile device, whereas CO_2 Company Gas is not.

User Experience - In addition to being accessible, Airgas and Praxair offer additional value to prospects and customer retention for clients on their websites. Both companies have customer accounts and portals available, as well as an option to be added to their mailing list to receive regular communications from the company. CO_2 Company Gas has a limited portal on the website with no vehicle for customer interactions or inbound lead generation.

Website Management - All of CO_2 Company's websites are run independently, maintained and hosted in-house with the exception of the CO_2 Company Dry Ice websites. Managing each website separately not only has an impact on the brand consistency and user experience, it also impacts the regular maintenance and effort required to keep each website current.

3.13.2 Portals

The only true portal currently in use by CO_2 Company is its ePay site. While this is an expected luxury among modern consumers. More information is generally expected through a customer portal. This could be either a premium or default service but modern consumers expect to see it as an option. In addition, the current "call-in" policy requires customers to interact with CO_2 Company during office hours and not at their convenience. In contrast, if CO_2 Company were able to offer the client a guided portal experience to kick off common and simple workflow items or access CO_2 Company-customer relevant data, this would result in happier customers,

able to interact with CO2 Company 24 x 7 x 365 at their convenience, and increased productivity for CO2 Company operations as the customers is self-serving.

In addition, the use of internal portals has become a more common practice, allowing a cloud hosted portal to service employees and divisions within the company to give them access to all data, documents, and other items they need in a structured, standardized, efficient, and controlled environment – accessible at their convenience day or night

3.13.3 Apps and Mobile

The modern consumer expects all websites and portals to be mobile friendly. This goes beyond having portals and sites that are viewable on mobile— they must be optimized for viewing on all mobile devices to truly satisfy their demands.

3.13.4 Demand Generation

Over the last 5 years there has been a fundamental shift in buying behavior, where over 75% of the buying cycle is completed online, before a sales team gets involved. CO2 Company is not currently taking advantage of these digital techniques. Although lead generation is not a priority at this time, Pay Per Click (PPC) advertising and other targeted advertising methods should be used to strengthen the brand's identity, drive thought leadership, build a network, and engage with prospects and customers alike. Ultimately, investment in these techniques will support CO2 Company's growth goals for new customer acquisition.

3.14 Security

Security affects all divisions with CO2 Company.

While the majority of personnel at CO2 Company felt relatively secure, security is still an important aspect of any business. Identified security concerns are listed below

3.14.1 Phishing/Ransomware

CO2 Company IT uses training software called KnowBe4 to simulate phishing attacks. Currently, CO2 Company receives a large quantity of ransomware and malware via email. The firewall in place is a Barracuda appliance called the Barracuda Spam and Virus filter (Model 300), which is blocking approximately 80% of incoming emails daily.

3.14.2 Credit Card Information

CO_2 Company does collect credit card information and follows PCI compliance. However, due to company culture, there are still instances of emailing, faxing, and storing documents that have sensitive credit card information within. IT is working hard to communicate the PCI compliance rules regarding sensitive information across the organization. CO_2 Company has already begun to implement a system by which credit card information is no longer stored, even as a hash, and instead tokens are stored.

3.14.3 Folder Structure Security

Currently, the M drive's security is managed on both a document and folder level, putting additional strain on IT, who manages all file permissions.

3.14.4 Backup of Information

On-premise servers are currently backed up daily using Evault. This on premise server sends data to the cloud. Backed up data includes GP, ePay, PDQ, Rapidlog, the report server, TMW, TMT and more. CO_2 Company currently pays a recurring backup and storage fee to use Evault. In the past, lightning storms in [Redacted] have caused a loss of on premise data that can take up to an entire day to restore from their respective backups.

3.14.5 Device Encryption

Currently, IT has no access to devices out in the field. If an employee is terminated and the computer is taken or a computer is lost or stolen, IT has no way to clear the computer. In addition, an encryption lock is not in place on company hardware. While these encryption locks are not an industry standard, they are an added layer of security to insulate from cyber attacks.

3.14.6 Surveillance

The majority of CO_2 Company's physical sites do not have surveillance or security in place. This leaves CO_2 Company open to the risk of a break-in with no way to account for the details. In one example, a site is located next door to a gentleman's club, which puts the CO_2 Company facility at risk of drunk patrons breaking in.

3.14.7 Product Quality

CO_2 Company has a responsibility to preserve the quality of the product they offer. There is a need to ensure that no tampering of the product has taken place, such as tank seals from filling to delivery.

3.15 Industry Perception

This societal attitude affects all divisions with CO_2 Company, especially those that deal with more socially present and negatively seen services and products such as crude oil, manufacturing, and fracking.

A large problem for all company's today that deal in oil and gas products and services is the growing negative societal outlook on oil, fracking, pollution, and more. With regards to a company such as CO_2 Company that has divisions that work directly on extraction of CO_2, oil, and other gasses and refinement, devices and means must be implemented to change public company perception.

CO_2 Company also contains, by a large margin, a set of businesses that are for supplying CO_2 for food and beverages and dry ice, which are seen in a much less negative light. Even though these products are directly related to the extraction and manufacturing methods before, the product itself creates a disconnect with the source methods that are negatively looked on. For a vertically integrated company such as CO_2 Company, there is no way to focus exclusively on a single aspect of the business to eliminate controversy, but it can and should be mitigated when possible. There exists a potential opportunity for a number of CO_2 Company's divisions to rebrand themselves or CO_2 Company as a whole to rebrand itself into an environmental company. Much of CO_2 Company's CO_2 is acquired through effectively recycling a by-product of other processes. In some cases, this is the production of ethanol fuel, which is already regarded as a more eco-friendly alternative to standard gasoline. With regards to providing CO_2 for other services such as through FrackingCO_2, the difference made by using CO_2 instead of other materials in fracking can be highlighted.

3.16 Millennialization

This trend affects all divisions within CO_2 Company, especially those that interact with outside personnel, be they clients, partners, or vendors.

Millennialization is a term that defines the trend in our society to desire the things in any industry that align with the desires of millennials, a generation that is roughly bounded to

include those born between the years of 1980 and 2000 (now 17-37), and also the similar generation Z, those born more recently than 2000 (now as old as 16).

It is important to understand and be sensitive to the effects of millennialization as they are currently the largest customer segment and outpace every other generation in internet use. In addition, between 35-45% of new bar and restaurant owners are millennials. It is also important to understand that the values encompassed by millennialization affect the majority of modern consumers and not just those in the generational namesake and younger. These trends keep increasing and growing in saturation level as the population ages and more millennials and gen-Zs enter the workforce causing businesses that are not keen to millennialization to falter.

With respect to IT, millennialization has the following effects:

3.16.1 Ease of Use

Millennialization demands that all technologies interacted with for business are as simple to use and as intuitive as something such as Facebook. If any element of your business cannot be interpreted intuitively by even the most unknowledgeable of outsiders, they will simply look elsewhere for the products/services they need. Elaborate forms, complicated sites, text-heavy interfaces, long load times, and non-optimized interfaces are immediate turn offs for the majority of consumers today.

3.16.2 Computer Illiteracy Intolerance

Simply put, any interaction or experience between a company and a modern consumer that fails to meet expectations on technology will immediately be a loss, and the consumer will look elsewhere. Poor website, portal, or app design and websites that do not optimize to mobile are a common cause of this consumer interest loss.

3.16.3 Availability

Modern consumers expect that access to their information about a company's product or services is always available. This entails not only all information being easily accessible on a mobile platform, but also though a mobile-optimized site, portal, or free app. Consumers affected by millennialization expect convenience in all they do, business or leisure. In addition, the availability of a company's sites and services can be increased by moving to the cloud. If a modern consumable attempts to log on to CO_2 Company's site or portal and there is an outage, then irreparable damage has been done to the brand in the mind of the consumer as access is expected as a given.

3.16.4 Brand Awareness

Now more than ever, a brand can be sold independently of the quality of a product. The importance of brand to today's consumer demands conformity across all divisions of a company they interact with. If their portals or points of contact for two different divisions are wildly different, this damages the perception of the brand as it appears fragmented. In addition, brands that align with the consumers' styles, personalities, and beliefs are more important now than ever, so keeping abreast of social trends and staying relevant in society has become vital in the process of acquiring and retaining clients.

3.16.5 Choice Paralysis

This is a widely discussed psychological phenomenon that heavily affects the modern consumer. In short, offering more choices to a modern consumer is not always a value add proposition. Studies that offer a choice of only one of 30 types of jellybeans to participants often return results of dissatisfaction with the choice made, while when offering only a binary choice, few to no participants returned with dissatisfaction in their choice.

3.16.6 Millennial Advertising Avenues

Just as the newspaper industry is dying, newspaper ads reach fewer and fewer consumers. To target the large consumer segment that is the modern consumer, specific focus must be made in advertising to them. Search advertising, website banner adds, YouTube, and social media channels allow for a highly targeted experience so a company only has to pay for the ads that are consumed.

4 Value Chain Assessment

During the workshop, UniverseIT conducted an exercise known as the Value Chain Assessment. The Value Chain Assessment is a review of business areas ranked on a scale from 1 (Marginal), 2 (Competitive), 3 (Best in class), to 4 (Transformative). CO_2 Company's current State is defined by both looking into what CO_2 Company has in-place in each area as well as a comparison with the industry standards for each area. The following table is the Value Chain Assessment complete with the business areas, an explanation of what each rank on the scale entails, and example benefits of moving up the ranks in each area. In addition, highlighted are CO_2 Company's current positions within each business area.

	(1) MARGINAL	(2) COMPETITIVE	(3) BEST IN CLASS	(4) TRANSFORMATIVE	EXAMPLE BENEFITS
E-Commerce	Legacy Ecommerce, Limited Presence	Simple Search, Basic Check Out, Disconnected and Disjointed Data	Single Platform, B2B & B2C, No Mobile	Omnichannel, Real-time, Scalable, Single-data Model, Responsive Design	Nearly double industry averages for Average Order Value (AOV)
Marketing	Limited Customer Data and communication, brochure, website	Customer Lists, Unified Messaging, Drip Marketing Knowledge Base	Promotions, Business Intelligence, Workflows, Unified Messaging	Lead Scoring, Segmentation, SEO, Real-time Metrics and ROI	Increased capacity of customer cross-sell and upsell with 50-75% increase in actionable insights
Sales	Basic Contact Information	Centralized Contact, Management, Forecast Planning	Pipeline, Forecasting, Commission Management, Variable Pricing	Sellers' Scorecards, Real-time Visibility, Dynamic Pricing	Improved 40%-60% Sales pipeline and productivity
Orders	Quantity and Price	Accept Orders from Multiple Sources (EDI, Phone, Fax, Web)	Landed Cost Tracking, Workflows, Pricing Models	360 Degree View, Reporting, Automation manage by exception	Improved 45%-75% Order Processing Efficiency
Sourcing	Manual, Spreadsheet-centric, Time consuming	Demand Planning, Consolidated Views, Multiple Locations	Messaging, Exception Flagging, PO Tracking, Consolidated Procurement	Vendor Portals, Supplier Collaboration, Buyers' Scorecards, Contracts	20-40% reduction in sourcing costs
Warehouse	Paper-based workflows, Operator Driven, Basic Inventory Tracking	RF/Mobile Barcode Scanning, Manual Replenishment and Cycle Counting	Inventory Allocation by FIFO/FEFO, Dynamic Putaway, Integrated ASN	Wave Planning, Cartonization, Labor, Planning, Dynamic Slotting	Improved fulfillment rates and backorders by 75-85%
Support	No Issue Tracking, Customer Data in Silos	Non-Collaborative, 1:1 Issue Tracking	Central Customer Data Repository, Team Collaboration	Complete Customer View, Customer Portal, Workflow, Automation, Infrastructure	30%+ improvement in customer service efficiency
Financials	Receivables, Payables, Monthly Reporting	Multi-company, Management, Budgeting, Credit Services	Payroll, HR, Sales Tax, EFT, Audit, Compliance, Currencies	Real-time, Multi-book, Multi-company, Multi-national, Consolidated Audit	1-5% improvement in gross margin
Technology	Fragmented Systems, Poor Data	Multiple Tools and Technologies, internally Managed	Single Data Model, Customized Frameworks, Optimized for Scale	Multi-tenant Real-time Cloud, Automatic Updates, Embedded Intelligence	50-75% reduction in IT Support Costs

With CO_2 Company's position on the value chain assessment known, the next step is to review the priority of each area to assist CO_2 Company with prioritizing projects and expenditures going

forward. This can also help further align CO_2 Company as an organization with the goals that drive it. The following table is a view of each business area, all the responses collected with regards to the value chain priority activity, and the decided priority going forward. Note both that 1 is the highest priority while 9 is the lowest and that during discussions. It was agreed that due to the nature of the implementation of technologies, Sales and Financials would tentatively both be placed at 1 and 2.

Value	Concensus	Responses						
Financials	**1/2**	1	1	2	2	3	3	4
Sales*	**1/2**	1	1	1	3	3	4	4
Sourcing	**3**	2	2	2	2	2	3	7
Technology	**4**	1	1	4	5	5	6	7
Orders	**5**	3	4	4	4	5	5	6
Support	**6**	3	6	6	6	6	7	7
Marketing	**7**	5	7	7	8	8	8	9
Warehouse	**8**	5	6	7	8	8	8	9
E-Commerce	**9**	5	8	9	9	9	9	9

Looking at CO_2 Company's numeric responses to the value chain priority activity, it can be seen that the final agreed-upon priorities closely match the sentiment of the responders as a whole. In addition to the numeric priority a verbal explanation of why each item was placed at each priority was collected. These responses are aggregated and displayed below in Addendum A for the purposes of better understanding and relaying the sentiment of the value chain priorities.

Using the gathered responses to the value chain assessment as a filter to iterate across discovered issues at CO2 Company, UniverseIT is able to provide the following prioritized list and tables of recommendations.

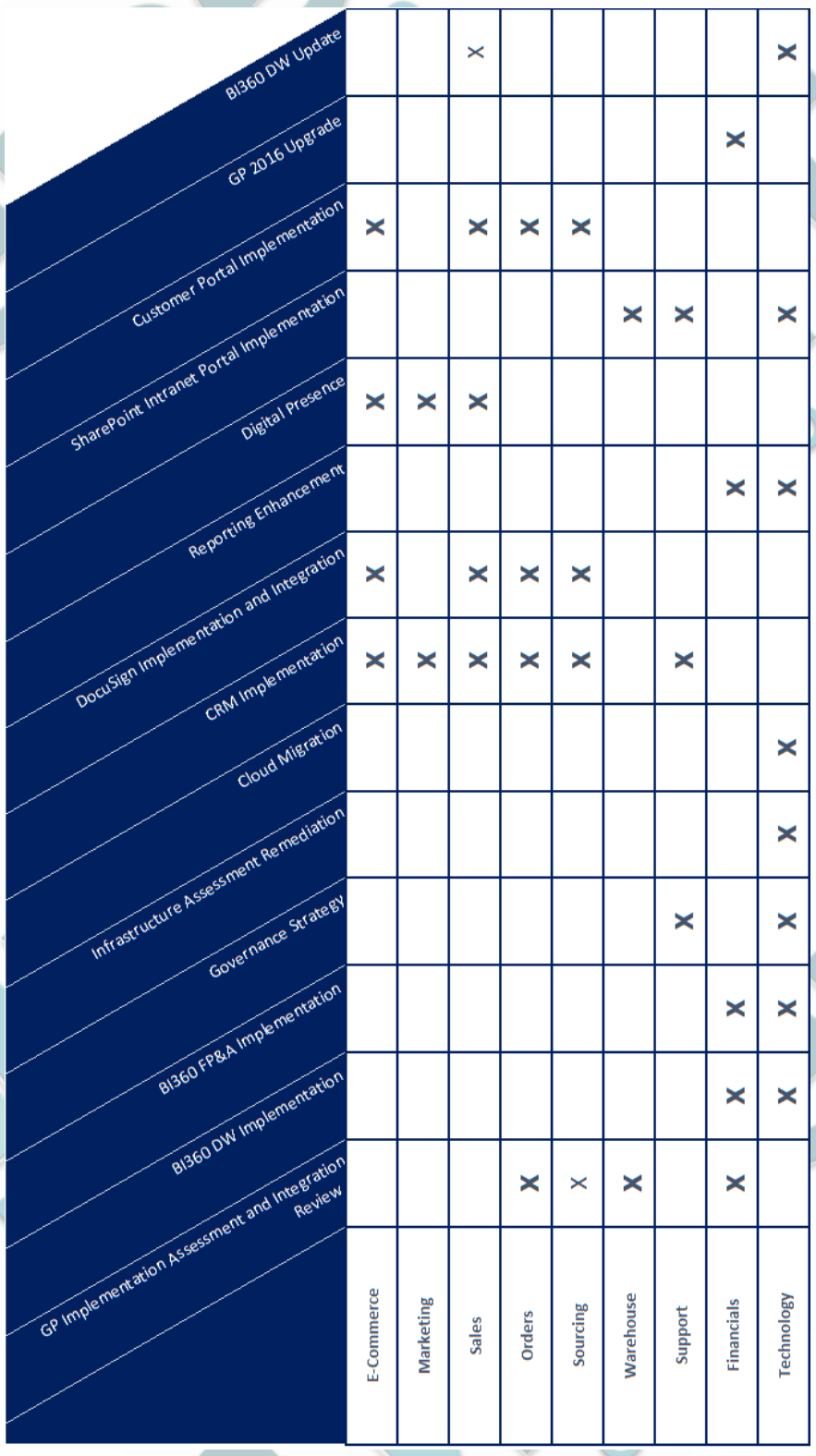
5 Recommendations Summary

With regards to each project, a recommended owner will be provided. CO2 Company should identify a single person within each department to be the primary owner and partner-facing resource for the implementation of the project. Having project ownership places the responsibility on said person to ensuring that CO2 Company's interests are met throughout the project's lifespan and both take leadership internally regarding the direction of the project and externally regarding interactions with the contracted partner if any.

The following is a list of recommended projects for CO2 Company to complete in approximate priority order. While all projects need not be completed, note that UniverseIT has provided these recommendations based on feedback from interactions with CO2 Company and is suggesting them in good faith that the "Correct" implementation of these projects will align IT with CO2 Company's expectations, goals, and needs going forward. In addition, some projects cannot or should not commence until the completion of a prior project. If this is the case, then this will be noted in the header for said project.

The next major section will represent these projects in a tabular format, maintaining the currently shown priority order. There will be 3 tables, one for each of the next 3 years with the following projects split across the timeline.

Directly below is a table showing the interconnections between the list of recommendations and items on the value chain assessment:



	BI360 DW Update	GP 2016 Upgrade	Customer Portal Implementation	SharePoint Intranet Portal Implementation	Digital Presence	Reporting Enhancement	DocuSign Implementation and Integration	CRM Implementation	Cloud Migration	Infrastructure Assessment Remediation	Governance Strategy	BI360 FP&A Implementation	BI360 DW Implementation	GP Implementation Assessment and Integration Review
E-Commerce			X		X		X	X						
Marketing					X			X						
Sales	X		X		X		X	X						
Orders			X				X	X						X
Sourcing			X				X	X						X
Warehouse				X										X
Support				X				X			X			
Financials		X				X						X	X	X
Technology	X			X		X			X	X	X	X	X	

5.1 GP Implementation Assessment and Optimizations

Primarily those personnel that work with GP will be impacted, but the impact of this project will be felt company-wide.

5.1.1 Project Summary

This project contains two major phases, the first of which is a GP assessment that must be completed prior to the second, GP optimizations. The assessment will allow a consulting partner to review which changes are possible and necessary and provide a detailed time and budget estimate for the optimizations phase of the project.

5.1.2 Expected Outcomes

The expected outcomes of the assessment are as follows:

- **Defined Problem Statement.** Through the assessment, a partner will work with CO2 Company to determine and make mutually clear both the foundations of their GP infrastructure and the problem statement to be focused on in the optimization phase.
- **Partner Understanding of Current State and Desired Future State.** Based on the problem statement, gaining both an understanding of current state and desired future state allows a partner to recommend a clear path of best-results changes as they align to the needs of the organization.
- **Details of Optimizations.** The assessment will provide a budget and timeline estimate for the optimization phase as well as a detailed list of recommended optimizations to implement.
- **Integration Assessment.** Currently, the integrations between them and the features of each are not up to the standard that CO2 Company needs going forward. A review of 3rd party integrations and add-ons will be conducted.
- **GP Infrastructure Assessment.** An initial infrastructure assessment was conducted on April 4th, 2017. The results can be found in Addendum D.

5.2 BI360 Data Warehouse Implementation

This solution works to set up reporting and budgeting solutions that have a significant impact on all CO_2 Company divisions, both those that need dynamic reports with actionable and assuredly truthful data and those that work to generate and maintain the reports.

Please see Addendum B for more information on BI.

Note that this project relies on inception of the following projects:

- 5.1 GP Implementation Assessment and Optimizations

This dependence is due to the nature of data warehousing and the cost of making changes to a designed schema in the future. Some of GP's optimizations and integrations should be complete before the commencement of this project, namely those that change the underlying table schema in some way. Once all schema changes have been completed, either by adding, removing, or altering tables, then work on the data warehouse can begin.

5.2.1 Project Summary

This project is a large undertaking and relies on the GP optimizations and integrations being complete before commencement. This is due to the required generation of a data model, discussed further below. The following are the proposed phases of the project and a brief summary of each.

- **Requirements Gathering.** Like all well-conceived projects, the first phase revolves around gathering all requirements on reporting. This informs the consultant implementing the Data Warehouse what data, sources, and modules are necessary for project completion. This is one of the two most important phases of this project and all following BI projects. The decisions made herein are near-permanent and both costly and difficult to change later.
- **Data Model Design.** This is the second of the two critically important project phases. While BI360 itself has a default data model to connect to GP, all data outside of the GP base package must be handled manually and with care. In this step, the consultant will generate a model of related tables to best incorporate all necessary data as gathered in the Requirements Gathering phase. This data model will then be used as the basis for all integrations performed into the data warehouse.
- **Data Warehouse Installation.** In this phase, the data warehouse is installed, permissioned, and configured. The default GP connector will be used to build the initial data model skeleton that will be filled and completed by the data model designed in the previous phase.

- **Custom ETL Packages.** In this phase, all data sources other than GP and GP customizations necessary will be added to the data warehouse through custom ETL (Extraction, Transformation, and Loading) packages. These packages will be compliant to the pre-designed data model and will round out the data warehouse with all necessary data to begin reporting and budgeting.
- **BI360 and OSR Training.** In this phase, key CO2 Company personnel are to acquire training on both the BI360 data warehouse and the OSR (One-Stop Reporting) tool built-in. Through this training, determined personnel at CO2 Company will acquire the ability to administrate and control the data warehouse, as well as a look into the fundamentals of generating reports and budgets with BI360. In addition, a functional report will be created in a hands-on learning fashion, setting the stage for all reports to follow.

5.2.2 Expected Outcomes

The expected outcomes of the above project are as follows:

- **Data Warehouse Finalized.** The key deliverable from this project is a functional data warehouse on which reports and budgets can be levied. This data warehouse will be based on the default GP connector with all GP modules and other data sources required for reporting aggregated into the warehouse in concordance with the pre-designed data model.
- **BI360/OSR Knowledge Acquisition.** In addition, those personnel at CO2 Company who will interface with the data warehouse admin tools and report design tools will acquire the knowledge necessary to properly administrate the data warehouse and will have a solid understanding of the fundamentals of reporting with BI360.
- **Report Framework.** The final deliverable of this project is a report generated in a hand-on fashion during the training acquired by CO2 Company. This should allow CO2 Company to have both the fundamentals for generating reports and a jumping off point to continue report design.

5.3 BI360 FP&A Implementation

This solution assists accounting, all division heads, and the holding company in financial planning and analysis (FP&A), a.k.a. budgeting.

Note that this project relies on completion of the following project:

- 5.2 BI360 Data Warehouse Implementation

This dependence is due to the requirement that the BI360 data warehouse be designed, installed, configured, and populated before budgeting can begin. In addition, it is recommended that 5.3 **Error! Not a valid bookmark self-reference.** has also reached or is nearing completion. This is to ensure that CO_2 Company personnel have the familiarity with and understanding of the fundamentals of the BI360 reporting and budgeting appliance before the commencement of a budget template, as the complexity of a budget template dwarfs that of the reports.

5.3.1 Project Summary

The FP&A tool present within BI360 extends the report tool in a few ways. Firstly, the reports generated are read-only, while budgets have a write-back enabled. Secondly, a scenario system allows for a proposed budget to be saved to a scenario and reviewed later. Data warehouse administrators would have the ability to spool up more scenarios at will as needed and clear old or unneeded scenarios. In addition, this allows for comparing the planned budget year over year or quarter over quarter. Finally, the budgeting tool allows for a proposed budget that has been written back to a scenario to be taken through and approval process via an in-built workflow engine, reducing the need for paper or manual transmission of this data.

5.3.2 Expected Outcomes

The expected outcomes of the above project are as follows:

- **Standard Budgets Company-Wide.** Clever implementation of the BI360 data warehouse and robust FP&A template design will enable CO_2 Company to have a single standard budget which all divisions can use internally and executives in the holding company can use to plan and budget. While in the case of extreme differences between divisions this may not be entirely possible, BI360 will at least allow for near-perfect standardization of the budget template.
- **Robust Budgeting Tool.** Once implemented, the BI360 budgeting template will allow those at CO_2 Company to generate budgets, save them to the data warehouse, compare with previous saved scenarios, and eventually finalize and accept a budget based on a built-in workflow infrastructure. This will allow CO_2 Company to have actionable intel on how much money is allocated and necessary in each division down to the desired level of detail.

5.4 Governance Strategy

This solution will affect all divisions within CO2 Company, but has a more profound impact on IT, HR, and Accounting.

5.4.1 Project Summary

One of the more straightforward changes that could be implemented at CO2 Company is a strict governance plan and company-wide adherence to the practices laid out therein. While each division in a company may have its own tried and true method of performing certain tasks, in a company looking to scale, standardizing and streamlining these tasks company-wide is of importance. The following items have been recommended as part of a comprehensive governance strategy:

- **ITIL.** The IT governance plan at CO2 Company should incorporate the best-practices laid out in ITIL. While this can be achieved in a number of ways, UniverseIT's summary of ITIL and items of note are provided in 7.3 Addendum C: ITIL Overview.
- **IT Governance.** Includes software and services maintenance and upgrades. Typically, IT will be in charge of this because it involves Installation of service packs or cumulative updates, and tracking installations, addressing performance issues/concerns as well as data protection (backup and recovery), load balancing, and failover strategies.
- **Information Management.** Includes content and information stored by users. Information architecture determines how information in that site/solution – its webpages, lists, data, and documents – is organized and presented to site users. Information architecture is often recorded as hierarchical list of content, search keywords, data types, and other concepts. This area of governance focuses on management of content and information stored by users. Security configurations and permissions must also be updated and maintained.
- **Application Management.** Includes the application itself and custom solutions. This area of governance should provide guidance on how to manage applications that were developed for the environment, application customization, and process of managing the applications.

5.4.2 Expected Outcomes

The expected outcomes of the above project are as follows:

- **ITIL Strategy.** In addition, CO_2 Company should focus on aligning to the items of greatest need first including: creating a Service Design Package (SDP), change management plan, and capacity management. As it relates to Capacity management, each ITIL component should be assigned to a IT employee. In most cases this means each person will own multiple areas of ITIL. As personnel are hired, their skills should align with CO_2 Company's needs according to ITIL.
- **Governance Area Owners.** These are the owners of each of the governance areas mentioned. In general, any change requests that will impact the designated area for these governance owners will become the responsibility of these owners. It will be their role to evaluate, provide recommendations, set up governance around the new features etc.
- **Steering Committee.** This would be the team of decision makers who can approve or reject the recommendations made by the governance owners. Having a central governance committee not only helps reduce bureaucracy, but also creates a common platform on which to bring all ideas and process.

5.5 Infrastructure Assessment Remediation

This solution will affect all divisions within CO_2 Company, but has a more profound impact on IT.

5.5.1 Project Summary

During the course of the IT Strategy information gather process, UniverseIT commenced and completed an infrastructure assessment, the results of which with regards to GP environment are detailed in Addendum D. This is in order to both be able to assist in an ad-hoc basis and also generate a project plan with the following recommendations:

- **Storage & Host performance assessment.** to identify compute and storage tiers that are running at or near capacity, identify and potentially remediate bottlenecks, and general misconfigurations that could lead to reduction in performance, compliance, or stability. This would include evaluating options within the storage and VMWare environment to improve performance
- **Configuration Review.** Review of configuration of switches, storage, and servers
- **Net Expansion.** Expand data VLAN/subnet to accommodate additional devices

- **Best Practices Standardization.** Standardize upgrade best practices for critical servers as well as VMWare hosts, firmware on network devices, and storage array
- **Domain services review.** DNS and DHCP server placement, configuration, VPN tunnel and firewall configurations
- **Security assessment.** Identify security accounts and privileges, and other items to ensure the protection of data
- **Storage Solution.** Recommend a solution to secure the contents of a hard drive for company computers in order to prevent stolen, lost, or otherwise vulnerable devices from being hacked and causing an information leak.
- **Change management strategy.**

5.5.2 Expected Outcomes

The expected outcomes of the above project are as follows:

- Implementation of best-practices security and infrastructure possibilities
- Configuration and sizing management
- Standardization of equipment and devices
- Expansion of network
- Domain service configuration for improved performance

5.6 Cloud Migration

This solution will affect all divisions within CO_2 Company, but has a more profound impact on IT.

5.6.1 Project Summary

CO_2 Company currently does not utilize the cloud to its fullest potential. It is recommended by UniverseIT that the power of the cloud is leveraged in order to solve certain CO_2 Company business problems. The project contains the following items:

- **Azure AD Adoption.** UniverseIT recommends that CO_2 Company both migrate all user, group, and domain setups, rights, and permissions to Azure AD. In addition, it is recommended that all applications capable of integrating with Azure AD are integrated. As part of an assessment, an implementing partner may or may not

encourage consolidating CO_2 Company to a single domain for the purposes of cost, complexity, and management effort reduction.

- **Leverage Azure.** In addition to possibly hosting GP pending review and migrating to Azure AD, UniverseIT recommends leveraging the power of Azure when possible and feasible in the future. This includes but is not limited to, hosting all VMs in Azure and dilapidating VMWare, utilizing Azure to create and host integrated web applications, and utilizing Azure for DB and storage purposes.

5.6.2 Expected Outcomes

The expected outcomes of the above project are as follows:

- **Azure AD Adoption**
  - Consolidation of user access control to a single location
  - Ease of user and group management
  - One sign-on per user across all applications
  - Token-based logon options available
- **High Availability for Production Applications**
  - Recommend a solution for SQL server failover
- **Cloud Benefits**
  - Cost Reduction
  - Dynamic Scale
  - Improved performance and security
  - Always-on capability
  - BCDR (Business continuity / disaster recovery) plan

5.7 CRM Implementation

This project primarily impacts sales, account management, and customer support.

5.7.1 Project Summary

As CRM is a powerful system that like a data warehouse is cheaper to set up properly once than make incremental changes, this project includes both a requirements gather and implementation phase.

The CRM project should begin the engagement by ensuring that all necessary infrastructure is in place at CO2 Company and then creating an agenda for the requirements gather phase. This phase may include an envisioning workshop intended to assist the implementing partner with ascertaining CO2 Company's needs and a design workshop to review and iterate on the design of CRM to be implemented towards.

After sign off on the above phases, the build phase can begin in which the implementing partner should prepare and ensure the specifications documentation is correct and then implement against it. CRM will be configured in this phase including the system settings, custom entities and fields, system views, forms, process flows, and dashboards.

After the build a UAT document will be prepared and agreed-up then UAT will commence. After the build is verified then deployment can begin. This will migrate the built CRM solution to production servers, provide support in the process, and test their production functionality.

Finally, the project will ensure that CO2 Company has the tools and training to utilize and adopt CRM.

5.7.2 Expected Outcomes

The expected outcomes of the above project are as follows:

- **CRM Deployed.** The main deliverable of this project is the implementation and adoption of CRM.
- **Sales Processes in Place.** CRM can help solidify a formal sales and account management process, bringing both standardization and ease of governance to CO2 Company's current processes.
- **Automation of Systems.** Certain systems such as lead generation can be automated or semi-automated to reduce the labor burden on individuals to drive sales over the company.

5.8 DocuSign Implementation and Integration

This project primarily impacts sales, account management, and customer support.

Note that this project relies on inception of the following project:

- 5.7 CRM Implementation

This dependence is due to the way in which UniverseIT has prioritized these projects. It is recommended that DocuSign be integrated with CRM, and it is more efficient to implement CRM and then implement and integrate DocuSign, than splitting the implementation and integration of DocuSign across the CRM implementation. Note that it is both possible and recommended to run this project concurrently with the build phase of the CRM project, integrating DocuSign during the build process.

5.8.1 Project Summary

DocuSign is a quick implementation with minimal cost with implemented with no customizations. Customization may increase both the time and budget cost of such an implementation. This project would involve implementing and integrating DocuSign into CRM as well has providing preliminary training on how to use and roll out DocuSign.

5.8.2 Expected Outcomes

The expected outcomes of the above project are as follows:

- **DocuSign Implemented.** The primary purpose of this project is to implement and integrate DocuSign with CRM.
- **Reduction of Hard Copies.** DocuSign will allow CO2 Company to collect binding signatures on various documents without having to print and archive hard copies, allowing important information to be stored digitally, without redundancy, and automatically.

5.9 Reporting Enhancement

This solution would generate reports that service all CO2 Company divisions but also has an impact on the amount of upkeep required by IT.

Note that this project relies on completion of the following project:

- 5.2 BI 360 Data Warehouse Implementation

This dependence is due to the requirement that the BI360 data warehouse be designed, installed, configured, and populated before reporting can begin.

5.9.1 Project Summary

This project involves an iterative approach of examination and migration. CO_2 Company or an engaged consultant will inspect all SSRS reports in use by CO_2 Company and determine which need to be kept in SSRS, which need to be migrated, which need to be consolidated, and which need to be dropped.

In addition, it is worthy to note that a governance plan regarding how reports should be handled company-wide should be defined using ITIL best practices. While currently there exist divisions that have reports only they can see, this requires IT to maintain a copy of that report individualized for each division that wishes its data to remain internal to itself. There is a decision that must be made on an executive level whether this behavior is sustainable or not—most reporting tools require some level of modification to keep data hidden between divisions. Either the decision is made to support offshoots of reports on a per-division basis, in which a control plan using master templates will be enacted to reduce upkeep effort, or the decision is to either open report access to all divisions, thus consolidating all relevant reports into one entity, or restrict it to the executive levels.

5.9.2 Expected Outcomes

The expected outcomes of the above project are as follows:

- **Report Consolidation.** Based on the executive decision made on report access, the level of report consolidation will change. In either case, migrating to BI360 as the main reporting platform will reduce the upkeep required to maintain even division-fragmented reports.
- **Report Migration.** With the main reporting system being BI360 instead of SSRS, a number of benefits will be conferred to CO_2 Company. The first of which is that designing new reports will be more simple than the previous process. In addition, maintenance of the reports will require less effort as describe above. Also, the reports will be directly integrated with Excel, allowing for all of the customization, calculation, and ease and familiarity of Excel to be of use in reporting.
- **Actionable Data.** Due to the nature of a data warehouse, all reporting data will be drawn from a single source of truth. Assuming the data warehouse was designed and implemented with expertise and the reports were generated in-kind, all data visualized will be actionable, accurate, and as to-date as the warehouse is designed to accommodate.

5.10 Digital Presence

This solution affects all divisions within CO2 Company.

5.10.1 Project Summary

This project involves re-branding, re-designing, re-positioning, search engine optimizations, and consolidation of all CO2 Company ' web properties into a unified website content management system. The content management system will allow for a single administrative interface for CO2 Company staff to update webpage content, manage job postings and publish blog posts, news posts, media and resources.

5.10.2 Expected Outcomes

The expected deliverables of the above project are as follows:

- **Brand DNA.** Documented brand positioning for CO2 Company and all its subsidiaries. CO2 Company customers will be interviewed to identify the drivers that resulted in those customers choosing CO2 Company . Unique value propositions will be uncovered and translated into cascading messaging, which will be used to strengthen the websites and all sales initiatives, along with reinforcing customer retention.
- **Logo and Brand Identity.** This project involves developing a modern, professional brand identity including a new logo with umbrella logo schema for subsidiary branding. This will include brand and style guidelines documentation, print-ready logo files. Out of scope: Business card templates, letterhead, etc.
- **Website Development and Design**. Based on current website performance and company goals, UniverseIT recommends building a unified, mobile-first, modern, professional website design for all CO2 Company websites. This project will structure all websites to be mobile friendly, responsive and adaptive in design, with a built-in navigational mechanism to allow customers to move between all CO2 Company websites with ease.
- **Content Management System (CMS)**. In order to easily manage all web properties within a single interface, this project will implement a centralized, best-in-class CMS. A CMS platform for all websites will reduce ongoing CMS software maintenance costs and facilitate website maintenance and updates.

- **On-page Search Engine Optimization (SEO).** Based on results from the audit, this project will provide completely refreshed, professional, search engine optimized (SEO) copy within all of CO2 Company ' websites.
- **Off-page SEO Strategy.** Delivery of comprehensive strategy with Domain Authority building campaign for future implementation.
- **Integrated Job Posting Management.** This project will implement an integrated job posting platform for simple posting management, with integration to major job website platforms. This will provide a single interface for managing all job posting with the ability to syndicate job postings to job sites and manage job applicants. Out of scope: Integration with an HR management system (HRMS)
- **Content Strategy.** This project will provide full direction and strategy on which pieces of thought leadership content to create to maximize brand perception and predispose potential buyers to CO2 Company ' subsidiaries. This strategy will include guidelines on exactly what content (whitepapers, videos, etc.) to create for maximum impact as well as an editorial calendar directing how frequently to create and publish content.
- **Training.** Training sessions to relevant CO2 Company staff which will be recorded and archived for future reference and new staff onboarding.

5.11 SharePoint Intranet Portal Implementation

This solution affects all divisions within CO2 Company.

5.11.1 Project Summary

UniverseIT recommends SharePoint Office 365 as the platform for the company Intranet to solve the communication and document control problems within CO2 Company. SharePoint is best in class for content management and organization. Compared to other document management solutions such as DropBox and Google Drive, SharePoint is more flexible and feature rich. SharePoint is not only a tool for document control but also for Collaboration, Content Management (Documents, Records, and Web), Business Intelligence, Enterprise Search, and Business Process Automation.

CO2 Company currently owns SharePoint 2013 on premise licenses but are not utilizing them. UniverseIT recommends exchanging the licenses for Microsoft credit for O365 licenses. Office 365 is a suite of productivity software from Microsoft that are cloud hosted taking the

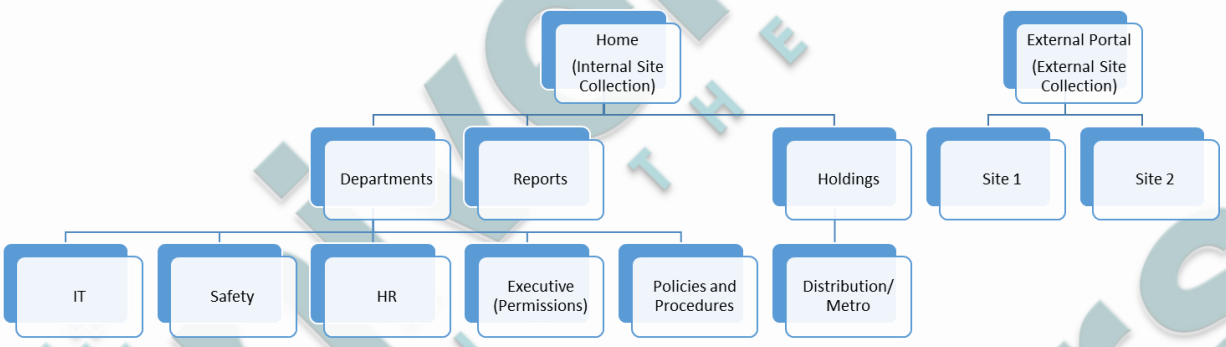
infrastructure management away from CO2 Company. O365 as well as other tools such as Exchange online, Office applications, Skype for Business, and OneDrive.

The SharePoint project would include, architecture of site, building of capabilities, branding, security, search customization, and workflow.

5.11.2 Expected Outcomes

The expected outcomes of the above project are as follows:

- **Site Architecture**. SharePoint architecture typically revolves around optimizing navigation between sites. Typically, there are 2 schools of thought on architecture: 1) departmental sites and 2) business methodology sites. This means each department or each methodology step has its own site. Organizations typically implement a hybrid model. For CO2 Company this would mean having department sites, division sites, and best practice sites. An example of site navigation is shown in the image below.



SharePoint also has the capability to share sites/documents with users external to the organization. This is depicted in the image above through the "External Portal".
At the same time, not everyone needs a site. It is important to prioritize which departments and divisions need to have a site and/or will be able to manage content. This is another area where governance comes into play.

- **Content and Document Control Strategy**. In order to easily manage all web properties within a single interface, this project will implement a centralized, best-in-class CMS. A CMS platform for all websites will reduce ongoing CMS software maintenance costs and facilitate website maintenance and updates.

- **AD Sync**. SharePoint syncs with Active directory. This means users can sign on to the site with their Windows account and IT can manage the users /groups from Active Directory.
- **Workflows**. SharePoint has the ability to automate workflows for document libraries or lists of information. The most common workflow is the approval workflow. For example, when a document is uploaded, an approver will be notified and asked to approve or reject. The response will dictate what happens to the document. Workflows are not always required during the initial release of SharePoint but are usually incorporated as the organization scales.
- **Security.** A security matrix allows for logical organization and governance of permissions. SharePoint has security on the site collection, site, library, and document level. Permissions can be given to an individual or a group of people.
- **Design Package.** SharePoint allows for branding customizations to make the site look like it is truly part of CO2 Company. The consulting partner will lead the design, development of code, and implementation of the design package.
- **Training.** It is important to allot time for power user training on how to manage and use the site. While sites are designed around business cases, training and governance is helpful to ensure user adoption.

5.12 Customer Portal Design and Implementation

All divisions with customers outside of CO2 Company have an opportunity to be affected.

5.12.1 Project Summary

This project involves designing a portal for CO2 Company customers to get current and historical purchase data. It is important to understand what information the CO2 Company is able to show the customer as well as what types of data the customer would benefit from seeing such as digital files and services. In addition, clients should be able to purchase and pay from their portal. The goal is to give the customer extra value from working with CO2 Company.

5.12.2 Expected Outcomes

The expected outcomes of the above project are as follows:

- **Design requirements.** This project will provide direction and strategy on which pieces of content should be made available to clients. This strategy will include guidelines on exactly what content to include for maximum impact.
- **ePay Recommendation.** CO2 Company currently has an ePay system that integrates with GP from Nodus. By the start of this project there will need to be a decision to stay with the current ePay system, upgrade, or change.

5.13 GP Upgrade to 2016

Primarily those personnel that work with GP will be impacted, but the impact of this project will be felt company-wide.

5.13.1 Project Summary

Upgrade to the latest version of Microsoft Dynamics GP to take advantage of new features and maintenance fixes.

5.13.2 Expected Outcomes

The expected outcomes of the above project are as follows:

- CO2 Company IT will conduct the upgrade in house and reach out to consultants if assistance is needed.

5.14 BI360 Data Warehouse Update

This project updates the data warehouse increasing its viability for future plays and allows the reporting on data coming from CRM. Small impact on IT and report users.

- Note that this project relies on completion of the following projects:5.2 BI360 Data Warehouse Implementation
- 5.6 CRM Implementation

5.14.1 Project Summary

Simply put, this project involves adding a schema section to the existing DW while not changing or attempting to not change the original schema. The new ETL packages will be designed to import CRM and any other necessary system's data into the DW.

5.14.2 Expected Outcomes

The expected outcomes of the above project are as follows:

- **Reporting Enhancements.** BI360 reports and budgets will be able to pull data from all new sources added to the data warehouse.
- **Future Data Play.** Adding sales and customer data to the data warehouse sets CO2 Company up for a data aggregation and sales play in the future. For more information, refer to the Non-Project / Horizon Recommendations section.

5.15 Non-Project / Horizon Recommendations

The following is the summary of recommendations that fall outside the scope of completing either as a project or within the next 3 years. As such, they are detailed on a separate table in the tabular view in the following section. Herein is the textual description for each recommendation.

5.15.1 GP Trained Personnel

Currently, CO2 Company does not have any personnel with significant GP experience. As CO2 Company uses GP as their ERP system, it is recommended that going forward, CO2 Company look towards hiring personnel that have expertise with GP and also acquiring training for those personnel less savvy with GP.

5.15.2 Unify Ownership of Assets

Each division within CO2 Company owns and uses its own trucks, while simultaneously that is the purpose of the transportation division. UniverseIT recommends that assets, such as trucks, that are used across the company are consolidated into a single division for future scalability and accountability. Having trucks across the different divisions also obfuscates the costs incurred by the transportation cost center as each division eats some of the burden.

5.15.3 Nitrogen as a Product

Some establishments that CO2 Company services, namely coffee houses and breweries, are starting to experiment with using nitrogen in their beverages instead of CO2. Entering in to the business of providing Nitrogen services as well as CO2 to these establishments can assist in client acquisition as Nitrogen-only customers will now be a potential sale and those customers that need both have CO2 Company as a single avenue for their product needs.

5.15.4 Data Aggregation and Sales

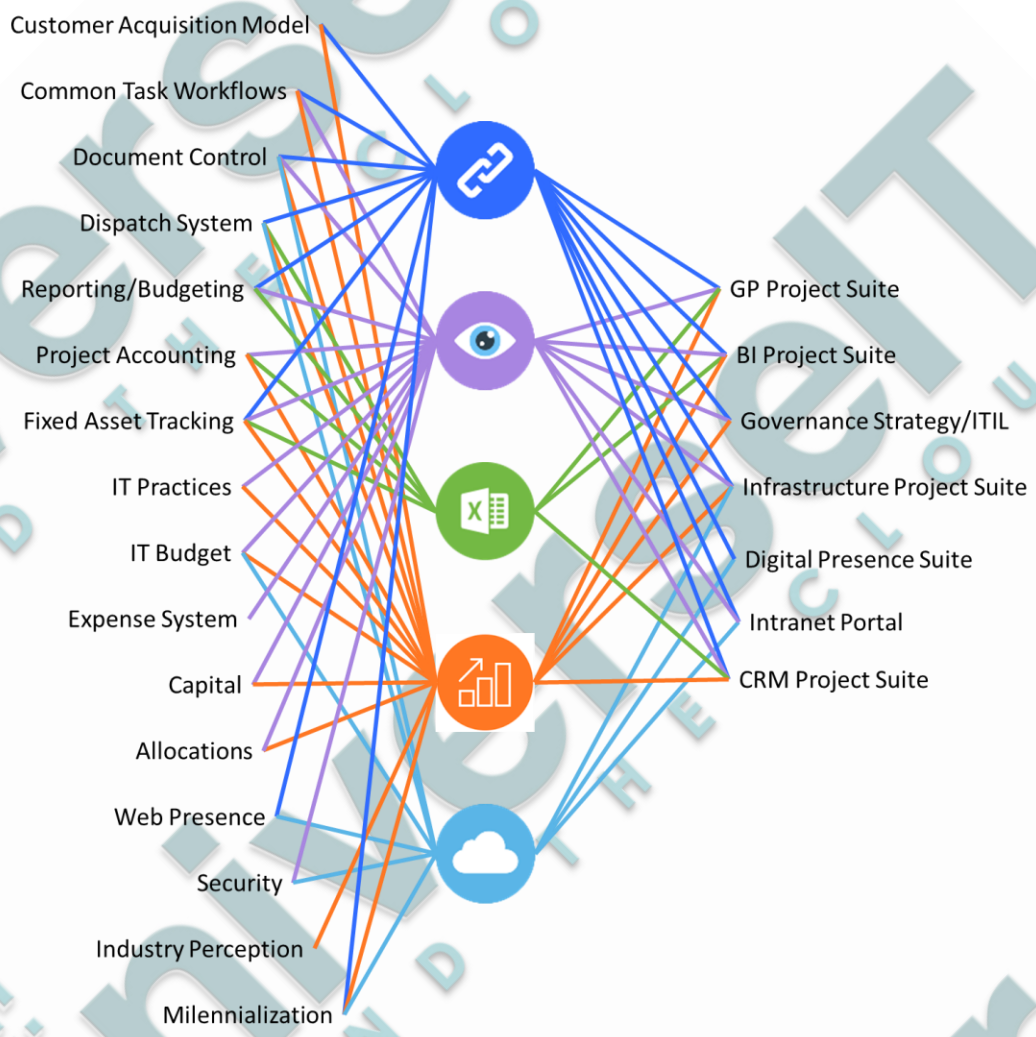
If the data warehouse is implemented as recommended, it can be expanded in the future to allow for a data sales play. CO2 Company can begin collecting constant data from tanks, trucks, plants, or any other service or measurable item of interest, aggregate that data, and sell it back to consumers both utilizing the service and interested in the data as a whole. This can be accomplished using IOT sensors on the tanks to track product remaining, as only a Wi-Fi connection is needed at the source. This opens up the possibility of enhancing a customer portal or building an app for customers that lets them track and monitor their usage, which can help them be more efficient, increasing the perceived value of CO2 Company's services.

5.15.5 Commoditize Cost Centers

One possibility to look forward to in the future when in a more ideal IT state is to commoditize cost centers. CO2 Company has expressed interest in being able to sell the services of the divisions that currently only provide service internally. UniverseIT recommends moving forward with this plan when and only when IT is in a stable, functional, and governed state.

5.15.6 Summary

The following visualization shows the mapping between Current IT Strategy Elements/Issues at CO2 Company (Section 2), Themes (Section 1.4), and Recommendations (Section 4).



6 Recommended Budget and Timeline

Starting on the next page are the tables detailing the projects from the previous section. The Title, Summary, and Impact Areas are relayed in this table in addition to information pertaining to the recommended CO_2 Company owner, estimated time to completion, estimated budget, and next steps. These tables are broken down by year, but the above priority is preserved.

[Tables Redacted]

[Tables Redacted]

[Tables Redacted]

7 Addenda

7.1 Addendum A: Value Chain Assessment Responses

The combined sentiments pertaining to each area are summarized below:

- **E-Commerce (9)**
  - **Responses**
    - (5) "Ease of use; Reliability"
    - (8) "Continuation of enhancing marketing and sales"
    - (9) "Don't see some divisions needing e-commerce"
    - (9) "Little applicability for online internet sales"
    - (9) "Important – but feel like we have so many other priorities that come first"
    - (9) "I guess I am old fashioned"
    - (9) "Not a big application for our services"
  - **Summary**
    - Does not apply completely to the business
    - Lack of exposure to and understanding of e-commerce
- **Marketing (7)**
  - **Responses**
    - (5) "Can't grow without it"
    - (7) "Market is well defined"
    - (7) "Goes hand in hand with our sales growth targets"
    - (8) "Acquisitions are important; Digital targeting?"
    - (8) "Marketing will not mean much if other things fail"
    - (8) "Hate it's an eight, but had to go somewhere"
    - (9) "Play into future growth"
  - **Summary**
    - Necessary and vital to success, but too many other high priorities currently
    - Lack of exposure to and understanding of digital marketing
- **Sales (1/2)**
  - **Responses**

        - (1) "We do not exist without them"
        - (1) "To grow the business we have to be efficient in our sales processes"
        - (1) "Top line performance dictates all others"
        - (3) "Market structure of customer base to establish revenue"
        - (3) "Need [marketing] if growth is to continue"
        - (4) "Need sales to stay alive"
        - (4) "Can't grow without it"
    - **Summary**
        - Sales is the lifeblood of the business
        - Relies on marketing
- **Orders (5)**
    - **Responses**
        - (3) "Must be able to route delivery effectively and efficiently"
        - (4) "Billing drives cash flow"
        - (4) "Must provide the service when needed"
        - (4) "Delivery to customer cost efficient and on time"
        - (5) "Efficiency and effectiveness of deliveries affects customer satisfaction"
        - (5) "Must be able to support what is sold"
        - (6) "Have to manage sales"
    - **Summary**
        - Delivery is a vital process that endcaps sales
        - Delivery must be scaled and driven by sales
- **Sourcing (3)**
    - **Responses**
        - (2) "Must have product; Make vs. buy it"
        - (2) "Production and services available to provide"
        - (2) "We must have something they want"
        - (2) "Need product to drive strategy/performance"
        - (2) "Without product to sell there is no revenue growth"
        - (3) "Need source to complete sales"
        - (7) "Can't have sales and growth without it"
    - **Summary**
        - Currently, sales are bounded by supply
        - Acquisition of new and cheap sources drives sales
- **Warehouse (8)**

- **Responses**
  - (5) "Keep up with available supply and delivery system"
  - (6) "Must protect assets"
  - (7) "Sourcing and sales are more important"
  - (8) "Metrics and availability"
  - (8) "Need to be able to optimize spend"
  - (8) "Inventory small; Part of supply chain telem.?"
  - (9) "Important, but really put insourcing in my mind"
- **Summary**
  - Important, but a background process at CO_2 Company
  - Needs to be trackable and accountable

- **Support (6)**
  - **Responses**
    - (3) "Have to be able to support our programs"
    - (6) "Important for support but not top 5"
    - (6) "Very important – but we have equally important priorities"
    - (6) "Systems should tie to strategy"
    - (6) "With established growth optimize overall performance with IT"
    - (7) "Adequate support is needed from back office to support"
    - (7) "Critical to being out in front, but almost reactionary today"
  - **Summary**
    - Support needs to be more robust and ahead of the curve
    - IT must align with and support the goals of the organization

- **Financials (1/2)**
  - **Responses**
    - (1) "Critical for continued growth"
    - (1) "Solid economic evaluation going in and sustaining"
    - (2) "Have to have metrics to measure results"
    - (2) "Have to know our current financial position to make good decisions"
    - (3) "Need to measure performance of [sales and sourcing] first"
    - (3) "We need real data to analyze and plan"
    - (4) "Need ability to analyze the data real time"
  - **Summary**
    - Current lack of ability to ascertain key financial data metrics
    - Critical business process for growth

- **Technology (4)**
  - **Responses**
    - (1) "Too many unresolved and underutilized programs"
    - (1) "Technology drives all facets"
    - (4) "Need technology to support [financials, sourcing, and sales]"
    - (5) "Efficient systems increase margin"
    - (5) "Need to be able to stay ahead and grow with technology innovations"
    - (6) "Supports it all"
    - (7) "Adds to overall efficiency"
  - **Summary**
    - Foundation of other business processes
    - Increasing efficiency and effectiveness while reducing waste can increase margin

7.2 Addendum B: Business Intelligence Overview

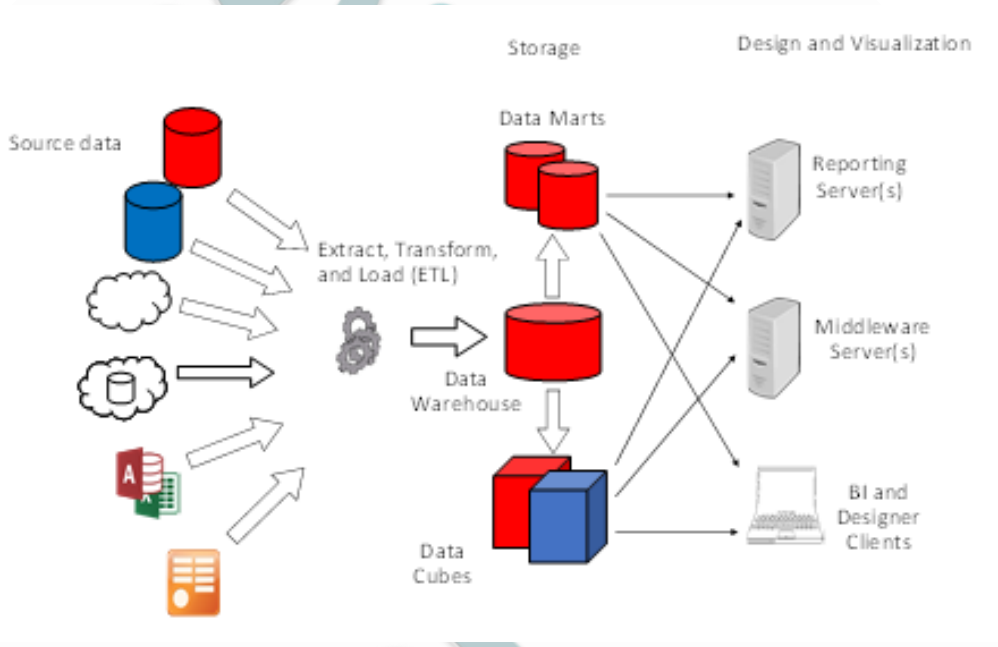
The following will provide a brief overview of business intelligence (BI) technology and opportunities as it relates to CO2 Company as identified by UniverseIT.

Business Intelligence (BI) technology has evolved considerably over the past few years, with "big data", cloud computing, machine learning and an array of dashboarding tools making a lot of noise. But these technologies can often create more problems than they solve. The tools and technologies don't create a foundation for meaningful analysis – methodology and architecture does. The recommended approach for building a BI capability at CO2 Company as presented below is based on starting with classical BI architecture and expanding in the future, such as when CRM is implemented.

The Classical BI Approach:

The fundamental challenge of creating a robust BI function is ensuring data ***relevance and reliability***. If different people show up at a meeting with different data and conclusions, discussion often degenerates into debates over the underlying validity of the data rather than focusing on the decision at hand. If this happens regularly, the credibility of the entire BI function can be permanently damaged.

This was often the case in the 1980's when people would gather data from mainframe downloads, and other sources and then compile models in spreadsheets. In the 1990's, as mini and client server databases became more accessible, methodologies for managing the data emerged. Notable among these was the concept of a "data warehouse", proposed by Bill Inmon and Ralph Kimball. As this concept gained traction and successful implementations grew, and these concepts became established architecture and remain core to business intelligence today:



Key components in the above illustration:

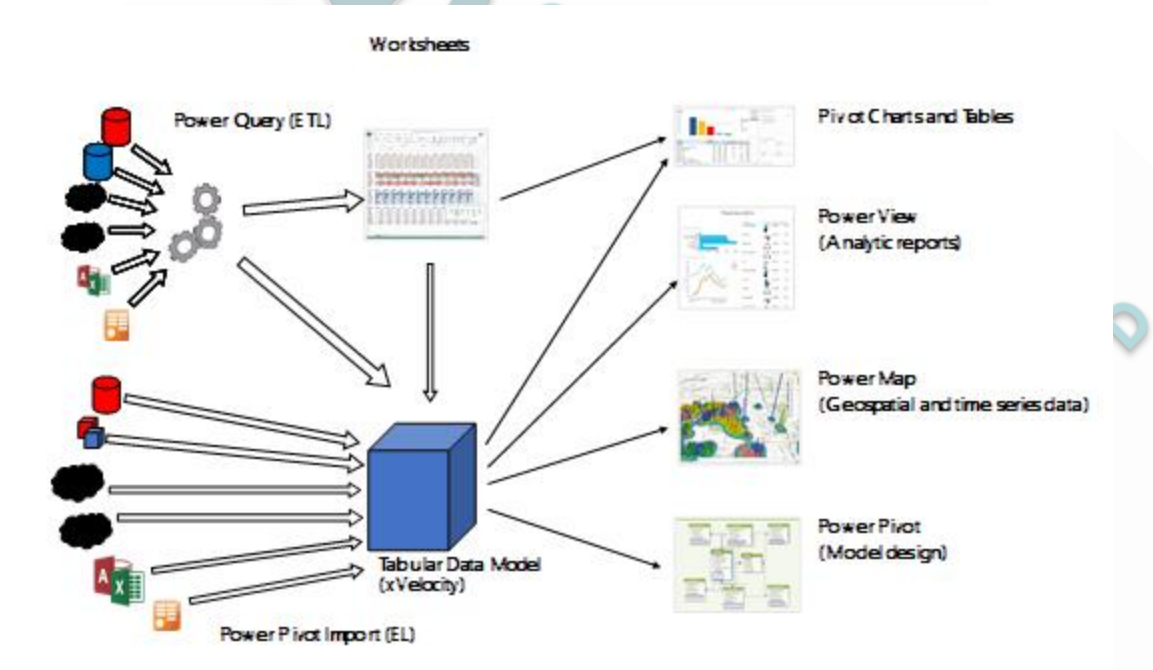
- **Extract, Transform and Load (ETL) tools**. When data is brought into the Data Warehouse (DW) using ETL tools, data is validated against global criteria (e.g., does this project exist in GP?) and transformed (e.g., change the project name from these SharePoint lists to equal the project name in GP) to be relevant to a global model. There are two important points here:
    - **ETL tools vs. "Connectors".** ETL tools have evolved over decades now and they have a very rich set of transformation functions that will address most requirements. People are often surprised by the extent of data transformation that is required to get data across an organization in a comparable and consistent state. And while transformation functionality is often available in "data connectors" and "in memory" technologies, there are limits in function and performance. ETL tools, in contrast, are functionally rich and are high performance. Using connectors for isolated data sources, or for "one off" analyses, can often be an appropriate solution, but we have yet to see a connector based data layer support an enterprise platform.
    - **Global Criteria.** We can do a "one off" analysis of an exhibition or event, and prepare a predictions and forecasts. But eventually, we'll want to relate that logic back to historical transactions and master data. To achieve consistency

and comparability in analysis, we need to apply a global semantic model to all data where possible. ETL tools, along with good DW design support this type of master data management.

- **Data Warehouse (DW).** The data warehouse design enforces relevance, as the dimensions of the business (e.g., division, time period, customer, location…) are defined and consistent with the mission of the organization, and data are related to those dimensions in meaningful ways. The dimensions often reflect the master data of the organization, which should be consistent with the primary system of record – usually the ERP. This is a best practice: the DW should be designed around the ERP first (or a consolidated model of multiple ERPs), and then extended out from there. The ERP hosts transactional history of the organization, and while business intelligence is usually forward looking, forecasts become history and without a granular mapping of forecast to history, the relevance of forecasting becomes questionable.
- **Data Cube.** Another component of classic BI is the data cube. Cubes are consumed by clients (e.g., Excel, Dashboards), and they host the aggregation and functional logic that data must go through in the path from data to meaningful information. Much of this can get complex, so it should come as no surprise that, without this centralized logic store, people would get very different results if they construct their own functions and operations on the data. Another benefit of these cubes is security. Cube security is centralized and integrated with the directory. So, a user that can see revenues cannot see payroll data unless authorized, even if an analyst who can see payroll shares their spreadsheet. In fact, the whole classic BI architecture has established security practices that are well tested and easily administered.

Self-Service BI Approach:

BI technology has rapidly advanced in the last decade, increasing the ability to analyze very large data sets (i.e., "big data and parallel processing"), from more places (using "connectors", "data feeds" and "cloud services") with more power (e.g., "in-memory models and cloud based analytic engines"), in different places (e.g., "cloud based tools"), for less money (cloud based solutions are "pay as you go"). Major platform companies (SAP, Microsoft, Oracle) are all on board, as well as an array for second tier software companies. Microsoft's self-service BI architecture is shown below:



Power Query (above) is a "connector" technology. It can integrate fairly large datasets from a wide range of sources, transform the data, and deliver the data to a range of interfaces and tools. In the right context, these new tools can add a lot of power, and implementations of "self-service" BI can create flexibility and responsiveness that add a great deal of value. It can also free up IT resources that are often committed to designing reports and cubes.

However, there is application of governance in a "self-service" model here. If not managed, the problems of relevance, reliability and security that we addressed in the classic BI architecture persist.

Hybrid Model:

Often the best architecture for BI is a hybrid: where users have access to structured and semi-structured data within a classic BI structure, with complimentary self-service tools connectors for one-off analysis and unstructured data (e.g., social media). With the appropriate governance in place, this can yield a relevant and reliable BI system, while also a flexible and responsive analysis capability that doesn't require IT resources for every request.

The following presents UniverseIT's recommendations for building out a BI architecture:

1. **Set up an Enterprise Data Model**

Reliable data and relationships should be available to the whole analysis environment, which can be accomplished with an Enterprise Data Model. The data model should begin with the AX data model and extend out from there. The following steps should be considered:

Begin with the ERP. To an earlier point, the ERP hosts the history of the enterprise, and forecasts will eventually become history and the relevance of forecasts depends on how well it transitions to history. So the ERP is still the base model. The good news is: this is already in process as part of the BI360 implementation, which is built on a classic DW design. An enterprise data model is already started. This simply needs to be extended.

This model should then be extended to include data from other systems, structured and semi-structured (e.g., CRM and SharePoint) into the EDM. This gives users an easy way to combine and merge data across the major transactional systems.

2. **A governance model should be developed**

   Develop a high level governance model to start, with broad taxonomies, or classifications of data and policy regarding management of that data.

3. **Add a Self-Service toolset for analysis**

   With some training, users can use a self-service toolset to analyze this data. The self-service tools from Microsoft are Excel based, so most users understand the tool – they just need to understand the data and relationships.

   The Self-Service toolset can then be extended to other data sources and tools. Users can then begin to add additional data sources on their own (e.g., Social Media, Cloud Data Service Providers), and potentially other tools (e.g., Cloud based analytics – Note: the classic BI architecture and Excel already includes an impressive array of analytic tools). This can be accomplished all within the Governance Model.

Based on our initial analysis, UniverseIT recommends the above 3-step plan for building a BI capability at CO_2 Company. This can all be done on a Microsoft platform, so it uses existing infrastructure (with some added licenses along the way) and stays on a single platform. This will minimize complexity and costs. The BI360 project lays the foundation for an enterprise data warehouse that can easily be extended.

With Microsoft investing billions in the BI platform, and consistently included in Gartner's annual magic quadrant there is no reason to change course.

If CO_2 Company follows the 3 steps outlined above, the path to building a solid BI capability is not difficult.

At CO_2 Company, GP will be the primary system of record and BI 360 will be the foundation of the data warehouse (DW). We recommend that additional data that is structured and semi-structured be integrated with that DW such as CRM once it is implemented.

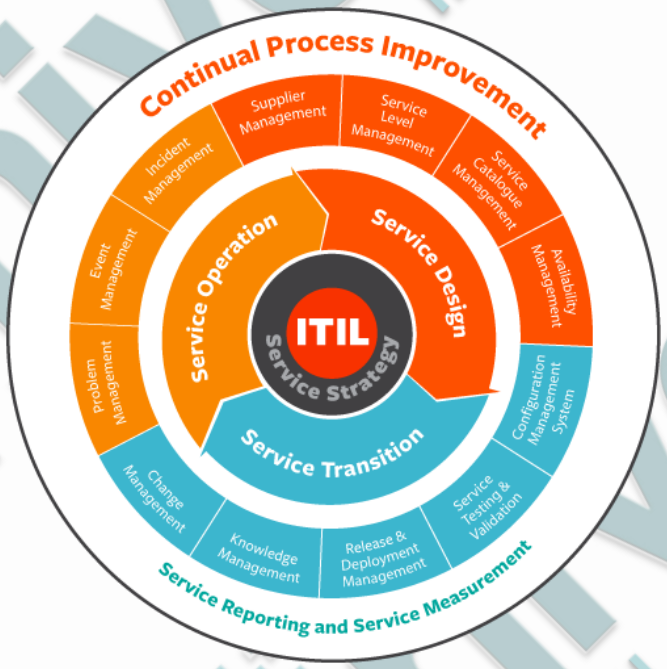
7.3 Addendum C: ITIL Overview

The following will provide a brief overview of ITIL (Information Technology Infrastructure Library) and its facets as they relate to CO_2 Company's governance strategy as identified by UniverseIT.

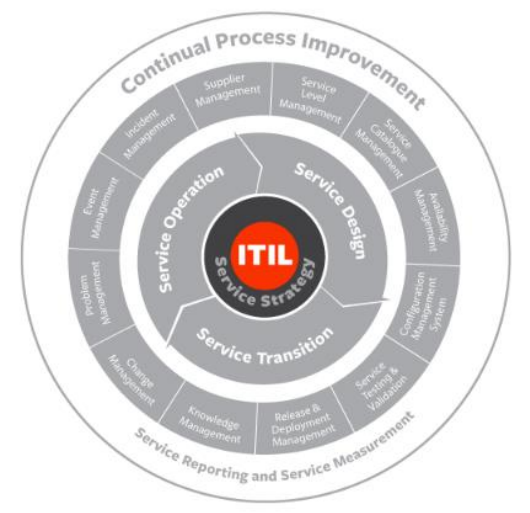
This addendum is paraphrased and individualized towards CO_2 Company's needs from bmc.com/guides/itil-introduction.

ITIL is, to reiterate in short, a set of non-prescriptive IT service management practices that focuses on aligning IT services with the needs of a business. For every service and product delivered by an organization, the ITIL framework helps manage delivery, industrialization, support, and consumerization from inception to retirement. ITIL includes a number of stages containing its list of best practices in a process area. Each stage and process area will be outlined below as well as UniverseIT's recommendation on items of note from each as they pertain to CO_2 Company. The ITIL section in the main body of this document contains the entire list of recommended strategies and implementation paths.

ITIL can be represented as a lifecycle in the following graphic, in addition, each stage in the lifecycle supports all of the other stages.



7.3.1 Service Strategy



Service Strategy is the core of ITIL, resting at the center of the lifecycle. The ITIL service strategy helps organizations understand the merits of and adapt to a market-driven approach. The service strategy process areas are as follows:

- **Service Portfolio Management.** (SPM) is a governance strategy by which an organization can dynamically and transparently govern resource investment. The goal of SPM should be to maximize value while minimizing cost. SPM is a process that lasts from inception to retirement and requires a number of tasks. SPM requires monitoring services in the pipeline, monitors operational services and products to ensure the organization is achieving expected returns, and finally works with Service Transition processes to ensure an orderly retirement of a service or good.
- **Financial Management for IT Services.** ITIL best-practices include tracking and associating IT investment and spending with provided services. In order to do this, ITIL outlines the ABC's of IT financial management:
    - **A**ccounting. Involves applying cost accounting principles to IT expenditures. Answers the question: "What does it cost to provide a given service?"
    - **B**udgeting. Shows the funding both required and allocated to support the various services.
    - **C**harging. Assurance that IT services capture their values. That is to say that the consumers of the services are always aware of the costs of said services, whether these consumers are internal or external, raising their perceived value.

- **Demand Management.** Demand management is the process by which a business can understand and predict both internal and external customer demand for a given service. As businesses are subject to cyclical behavior, providing the right services at the right time is key. Inadequate capacity is important to avoid, but it is also important to avoid excess capacity. IT should be able to use patterns and forecasts to assess future and present service needs and remain adaptable.
- **Business Relationship Management.** This process involves the practice of IT service providers interfacing with service users both internal and external to understand their needs and wants. By ensuring that the services are delivering perceived value, understanding the user environment enough to predict and identify opportunities for service additions or evolutions, and being aware of industry changes that may affect service needs, the personnel involved in this process can feed the demand management process the information necessary to gauge demand.
- **Strategy Management for IT Services.** This process exists because it is not enough for IT to simply align to and support a business— IT must integrate with the business and become a valuable strategic asset. This process seeks to answer questions such as: "What business outcomes do our differing customers need?"; "How can we position ourselves to be the only logical option when seeking a provider for their needed services?"; "How can we expand our current service offerings into new markets?"; "Can we develop services for unmet needs in our current market spaces?".

  With respect to the processes and practices contained with the Service Strategy stage of ITIL, UniverseIT's recommendations of items of note to consider are as follows:

  - **Apply Financial Management Strategy.** It is recommended highly that CO_2 Company take heed of the ITIL financial management strategy processes. In an organization looking forward to growth and dedicated to increasing IT expenditures, this is of utmost importance.
  - **Catalogue Business Relationships.** Due to CO_2 Company's focus on providing excellent service, cataloguing user needs and understanding the users on a deeper level, this can assist with feeding information to the demand and budgeting process decisions.
  - **Modulate Service Demand to Service User Needs.** Based on the inputs from budgeting and business relationships and user requests, CO_2 Company should always be focused on adapting their IT service offerings to their users' needs.

7.3.2 Service Design

Service Design encapsulates the fundamentals of process and service design, allowing for an organization to improve the quality of its services. The process areas of service design are as follows:

- **Service Level Management (SLM).** The SLM process focuses on researching and understanding the requirements of a service. This process area includes defining and iterating towards and agreeing upon IT services as well as documenting them accurately. In addition, monitoring and reporting on how the service provider delivered the service and how it was received are included.
- **Service Catalog Management.** Ensures that a catalogue of provided services is maintained and up-to-date for all permissioned users to view. Accuracy and availability of this catalog are essential. In addition, the view to the IT personnel and customers should differ, showing only necessary information to external viewers.
- **Capacity Management.** Capacity management is a large process that ensures that adequate capacity is available at all times to meet the service needs of the business and its customers as well as ensuring that excess capacity is not being spent where undue. Gathering data based on service quantity, quality, and time as well as the strain on capacity can help towards managing capacity in the future.
- **Availability Management.** Ensures that the services provided are appropriate and available to the consumers of the services at all times. This includes both prevention and recovery. Managing risk can help prevent services from becoming unavailable and

having a set of action plans can assist with bringing them back online in the case they do become unavailable. This applies to both manual and automated services.

- **IT Service Continuity Management.** This is a plan that is put in place that allows IT to continue supporting the business when serious risks come to fruition and threaten the survival of the business or one of its entities. IT personnel must be trained and familiar with all contingency plans regarding risks and methods of adapting.
- **ITIL Information Security Management.** One of the possible aforementioned risks is a breach in data security. This is one of the most continual and integral processes to the longevity of a modern business. An organization should have a framework in place to ensure that data is available and accurate when needed but inaccessible to non-permissioned users. In addition, security controls such as encryption software or remote decommissioning services can protect against intrusions into a company's systems.
- **Supplier Management.** This process ensures that all contracts made with suppliers are aligned to the needs of the business. At contract renewal, contracts should be renegotiated to work towards alignment with the current direction of the organization.
- **Design Coordination.** Design coordination is an overarching process that ties together all of the above processes. With all of the available data and strategies gathered and curated by the above processes, a coherent service design package (SDP) and be produced. The SDP is comprehensive description of service management, including design, build, testing, deployment, operation, and change management. This also includes planning capacity to be able to execute on SDPs.

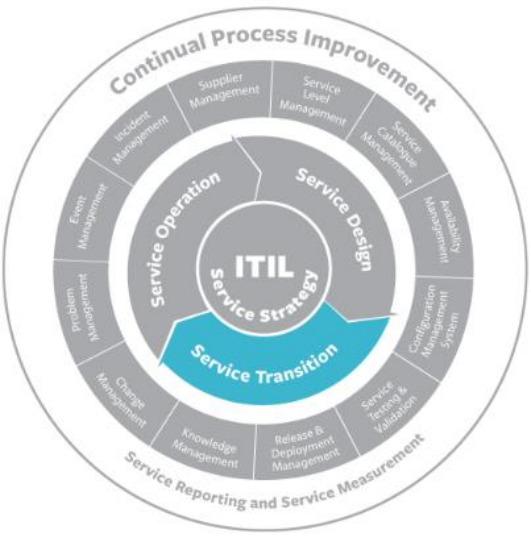
With respect to the processes and practices contained with the Service Design stage of ITIL, UniverseIT's recommendations of items of note to consider are as follows:

- **Capacity Management.** CO_2 Company IT is consistently overwhelmed with cases. In this case, managing capacity in accordance to ITIL involves taking on additional personnel to handle the load, especially in a company looking forward to growth. As more services become automated, the burden on personnel will reduce. It is important to monitor and forecast necessary services and their level of involvement form personnel to generate a capacity management strategy.
- **Security Management.** Due to the current implementation of security both physical and cyber, CO_2 Company is at risk to a breach. ITIL Information

Security Management principles should be read, understood, and acted upon to prevent such an event. The Bitlocker project above is a prime example of a small first step.

- **Contract Alignment.** CO_2 Company needs to ensure that in their period of growth and turmoil that all contracts are aligned with the new direction and focus of the organization. One example is the contract drivers in Atlantic Dry Ice, who need to be able to integrate with the changing systems going forward.
- **Continuity Planning.** Due to the nature of CO_2 Company's business and locations, downtime is a significant possibility. CO_2 Company needs strict and robust contingency plans to ensure services can continue operating during outages. This involves moving services towards automation and the cloud as well as having plans to report, fix, and continue working through outages.
- **SDP Protocol Implementation.** CO_2 Company should draw up a formal SDP with a list of instructions pertaining to the management of services. All changes made in accordance with the SDP should also be documented. The SDP should be available in a central location to everyone involved in service management and all changes should be documented in a single location.

7.3.3 Service Transition



Service Transition helps to plan and manage changes to the state of a service throughout its lifecycle. A number of elements must be supported when changes occur in order for the

change to be successful and impactful: The service itself; People; Processes; Technology; Suppliers; Organizational Culture; Governance strategy; Risk Management. The process areas of service transition are as follows:

- **Change Management.** Discussion on the topic of change management alone could complete an entire text this size. To keep this bullet brief, change management involves creating a change management strategy to be followed when changes are made to a service (to be included in the aforementioned SDP). IT services both have to be stable, reliable, and predictable, as well as being capable of rapid change and evolution. These ideals are in direct opposition to one another and a functional change management plan must strike a balance between stability and agility. It is recommended to refer back to bmc.com and review their section on change management to fully understand the principles therein.
- **Change Evaluation.** Change evaluation is a segment of change management in which changes are evaluated based on the intended effects of the change, the estimating the unanticipated effects of the change, identifying risks incurred by the change, and presenting a final management on whether or not to proceed with the change.
- **Release and Deployment Management.** In organizations that provide iterative services with new versions, managing each release, or version of a service, is vital. It is important to understand the distinction between your organization's types of service iteration releases and catalogue them properly, always keeping track of the functionality of the service at each release.
- **Service Validation and Testing.** While testing can take place at any point in a service's lifecycle, it generally occurs in the service transition stage. The test cases should be outlined in the aforementioned SDP and this process should include supporting, planning, scheduling, designing, preparing for, and performing tests to ascertain the viability of a change to or a new service. These tests should focus on ensuring the functionality, capacity needs, security, capacity requirements, and usability are all manageable, understood, and within expectations.
- **Service Asset and Configuration Management.** According to ITIL, this process (SACM) is the process responsible for ensuring that the assets required to deliver services are properly controlled, and that accurate and reliable information about those assets is available when and where it is needed. This information includes details of how the assets have been configured and the relationships between assets.
- **Service Transition Planning and Support.** The responsibilities in this process area include ensuring that adequate resources are available as deemed by capacity

management, scheduling those resources when capacity is under or over provided, standardizing the framework of all processes, and overall improving the performance of the service transition lifecycle stage.

- **Knowledge Management.** Responsible for maintaining the litany of service knowledge across the organization. Briefly, the knowledge management process involves archiving all service knowledge and information into a single source of truth that is kept accurate and up-to-date at all times. Having this store of data available outside of the personnel that perform them can prevent disastrous work stoppages or loss of continuance of service in the case of personnel or organizational changes as the knowledge is now external to the personnel and internal to the organization itself.

With respect to the processes and practices contained with the Service Design stage of ITIL, UniverseIT's recommendations of items of note to consider are as follows:

- **Change Management Plan.** CO_2 Company should ensure that an ITIL-oriented change management plan is in place from envisioning and design through evaluation, testing, and deployment.
- **Knowledge Management.** In accordance with ITIL principles, CO_2 Company should begin to compile all service knowledge and wisdom into a single repository that is kept accurate and up to date as part of the above change management process.

7.3.4 Service Operation

While service strategy, design, and transition create value and ensure that services are optimal, accessible, and meet the needs of the consumer, no work is actually performed. In Service Operation, services are executed in such a fashion that all day-to-day services are handled without issue and all extraneous issues are handled based on business priority. The process areas of service operation are as follows:

- **Problem Management.** While incident management below is about handling cases or incidents that are reported, problem management primarily focuses on the resolution of each problem. This involves detecting the cause of the problem, logging this in a record for future reference with respect to both its priority and category, and discovering and logging the resolution for the problem.
- **Incident Management.** Typically closely aligned with service desk, a single point of contact for any user communicating with IT. While the service or help desk is an important function of this process area, it is only intended to provide first tier support— primarily focused on logging, prioritization, and quick resolution of an issue. More pressing issues are elevated to a second tier, wherein personnel become more concerned about the why of the issue. The overarching goal of this process area is to ensure that all incidents are identified, logged, categorized, prioritized, and then resolved or escalated to the next tier as necessary.
- **Event Management.** The local definition of the use event is necessary to understand this process area. With regards to ITIL, an event is any change that happens in an organization. This could simply be a server moving from online to idle or a regular server script executing up to and beyond system changes. Events, simply put, are changes in the state of an organization's services or infrastructure. It is important to understand the types of events as well to prioritize and tailor responses: Information events typically don't' require a response and are basic status update type events; Warning events are indicators of activity outside the norm that should be monitored; Exceptions indicate something has gone wrong and requires action. Being able to log, categorize, detect, and either act upon or observe events is a key step in event management.
- **Request Fulfillment.** Involved handling standard service requests from users, such as a password change or new software they need installed. Each possible standard change handled needs to be pre-approved, low risk, and have a standard fulfillment procedure laid out. It is important to ensure that users are aware of what services are available, how to request them, and how long fulfillment will take. An organization should have automation approval and efficient processes in place for handling these

requests as they are typically frequent and can consume inordinate capacity otherwise.

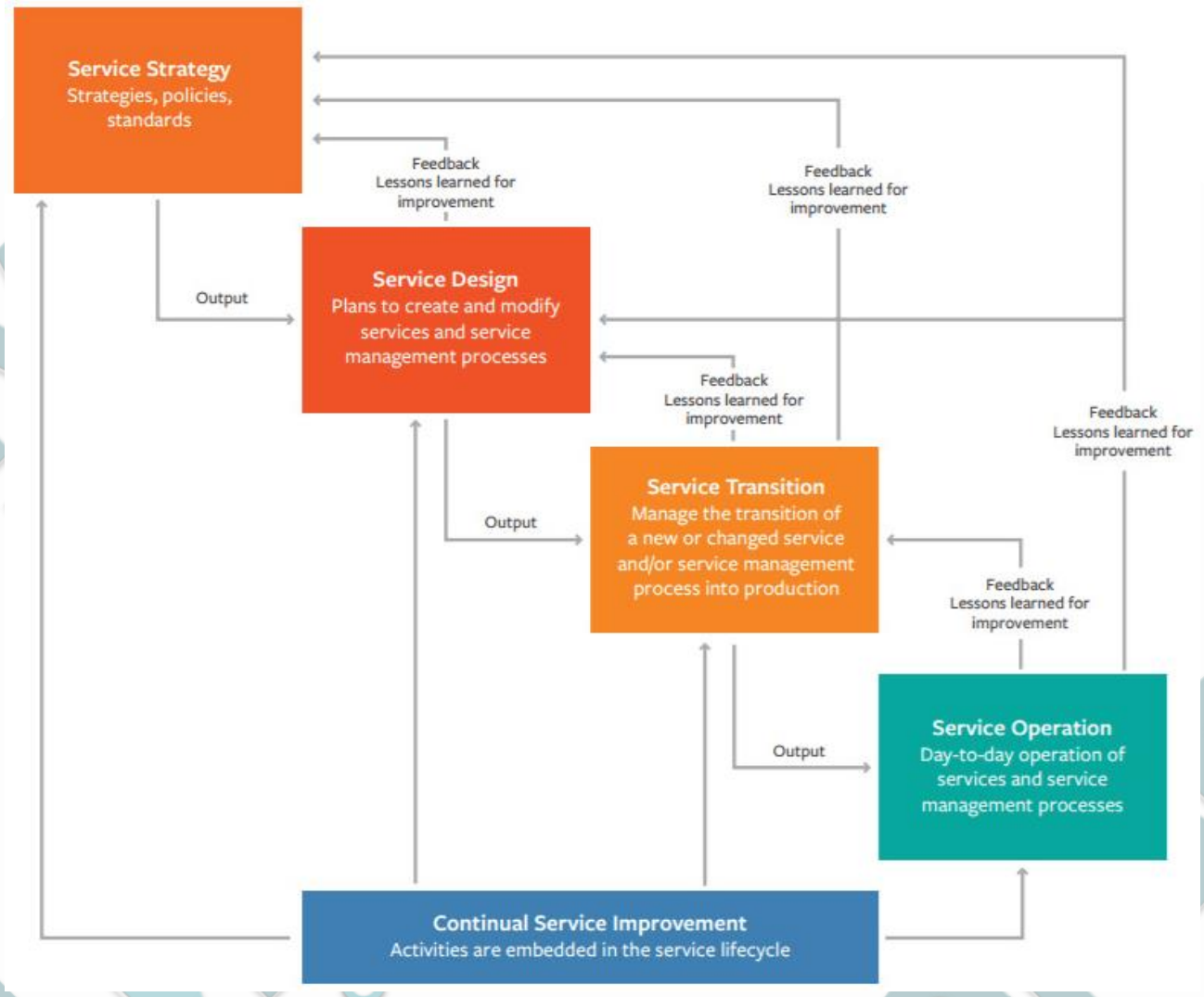
With respect to the processes and practices contained with the Service Operation stage of ITIL, UniversalIT's recommendations of items of note to consider are as follows:

- **Standard Semi-Automated Request Fulfillment Procedures.** CO_2 Company should strive to have standard requests enumerated, semi or fully automated, and each given a strict procedure to follow. This should increase standardization and efficiency with regards to handling requests. In addition, service users need to be aware of the standard methods for requesting such services and those requested outside of official channels should be redirected for cataloging and efficiency purposes.
- **Catalog of Events, Issues, Problems, and their Resolutions.** All events, issues, and problems should be kept in a single catalogue that tracks each by their category and priority. This allows for all items logged to be reviewed at a later date and helps build and inform a set of company standards with regards to services.

7.3.5 Continual Service Improvement

While all previous stages of the lifecycle have process areas and sub processes, continual service improvement (CSI) is a pervasive effort that should be integrated across all above states in the lifecycle. Using the logs and records from the above stages, information about services can be aggregated and acted upon to improve both the offerings and efficiency of a given service. If CSI is performing properly, a number of suggestions will arise from all parts of service delivery, which will need to be separately cataloged, prioritized, and categorized as an organization will only be capable of acting upon a subset of all received suggestions.

As a final item to note with regards to this ITIL addendum, please see a flow chart further visualizing the roles and integrations between each process and how CSI ties in:


Service Strategy
Strategies, policies, standards
Feedback
Lessons learned for improvement
Feedback
Lessons learned for improvement
Output
Service Design
Plans to create and modify services and service management processes
Feedback
Lessons learned for improvement
Feedback
Lessons learned for improvement
Output
Service Transition
Manage the transition of a new or changed service and/or service management process into production
Feedback
Lessons learned for improvement
Output
Service Operation
Day-to-day operation of services and service management processes
Continual Service Improvement
Activities are embedded in the service lifecycle

7.4 Addendum D: GP Environment Assessment

7.4.1 Network Topology

[Tables Redacted]

7.4.2 Server Configuration

ODSSQL01

Server Type	SQL
O/S	Windows Server 2012 R2
RAM	96GB
Proc	32-Core
Software	SQL Server 2012 SP3 11.0.6020
	Dynamics GP 2015R2 with 2016 YE Updates 14.00.1010
	Management Reporter 2012 CU14 (Client and Server components)

MIRDS02

Server Type	RDS
O/S	Windows Server 2012 R2
RAM	16GB
Proc	8-Core
Software	Dynamics GP 2015R2 with 2016 YE Updates 14.00.1010
	Management Reporter 2012 CU14 (Client components)
	Nodus CC Processing
	GP Web Services 14.00.0726
	Dynamics GP eConnect 14.00.0726

MIDTRM01

Server Type	RDS
O/S	Windows Server 2012 R2
RAM	15.6GB
Proc	16-Core
Software	Dynamics GP 2015R2 with 2016 YE Updates 14.00.1010
	Management Reporter 2012 CU14 (Client components)
	Nodus CC Processing
	GP Web Services 14.00.0726
	Dynamics GP eConnect 14.00.0726

7.4.3 GP Information

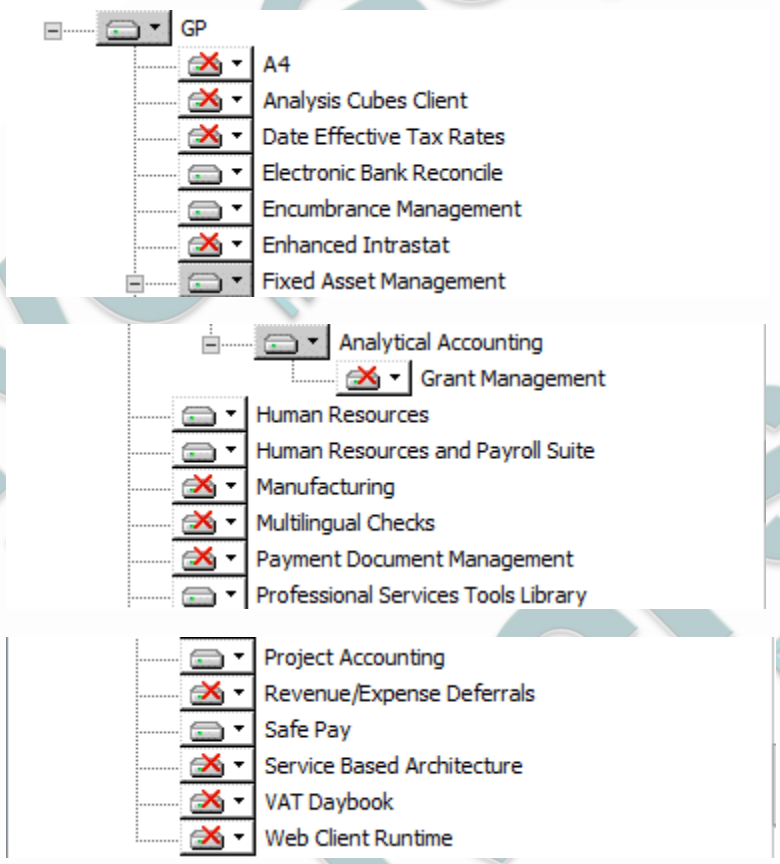
GP Version Information

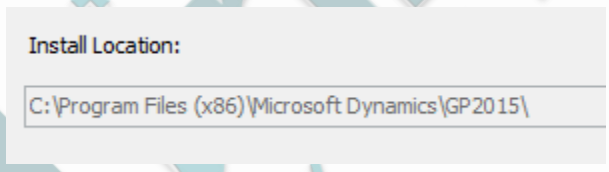
GP Version:	GP2015R2 with 2016 YE Update
GP Build:	14.00.1010

Databases

Name	Company	Size (MB)
ARCRH	**Archive - CO2 Company Companies**	**17119**
[Redacted abbrev.]	**CO2 Company Companies**	**37262**
TEST	**<TEST>**	**37262**

Features


GP
A4
Analysis Cubes Client
Date Effective Tax Rates
Electronic Bank Reconcile
Encumbrance Management
Enhanced Intrastat
Fixed Asset Management
Analytical Accounting
Grant Management
Human Resources
Human Resources and Payroll Suite
Manufacturing
Multilingual Checks
Payment Document Management
Professional Services Tools Library
Project Accounting
Revenue/Expense Deferrals
Safe Pay
Service Based Architecture
VAT Daybook
Web Client Runtime


Install Location:
C:\Program Files (x86)\Microsoft Dynamics\GP2015\

Registration

[Redacted image]

7.4.4 SQL Server Recommendations

Memory Configuration. Best practice is to restrict the total amount of memory used by SQL Server to 85% of the total. This allows other processes such as the O/S to function properly without running out of memory. CO_2 Company has this value currently set to 65,536 which is 66% of total. UniverseIT recommends setting this value to 85,558MB (98,304 * .85)

Backup Compression. UniverseIT recommends turning on Backup file compression by default. This will save space on the backup drive.

TempDB Files. UniverseIT recommends adding an additional MDF file to the TempDB system database. Best practice is to install one file per CPU core, up to eight.

7.4.5 Dynamics GP Recommendations

Shared Customization Dictionaries. UniverseIT recommends creating a shared folder for customization dictionaries, letters, and other shared components within the Dynamics GP environment. This will help maintain consistency across installations and make administration easier.

Upgrade to latest version. UniverseIT recommends upgrading GP to the latest version to take advantage of new features and maintenance fixes.

System Issues. There were a number of performance issues mentioned during the discovery call such as GP Login time and screen freezes. UniverseIT recommends setting up a time to discuss details and possibly set up some SQL Profile traces to aid in narrowing down causes.

7.4.6 Management Reporter Recommendations

Apply latest CU. UniverseIT recommends applying the latest Cumulative Update (CU16 as of this writing) to the Management Reporter environment. This will allow CO_2 Company to take advantage of bug fixes and performance improvements.