THE PRACTICAL GUIDE TO SAFELY NAVIGATING THE PITFALL PACKED PATHWAY TO THE DIGITAL REJUVENATION OF YOUR INFORMATION SYSTEMS

LEAVING YOUR LEGACY

THE LEGACY SYSTEMS REPLACEMENT HANDBOOK

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ACKNOWLEDGMENTS

This book is the product of my experiences working closely with several hundred amazingly talented folks during my 25 year career in the field of information technology. A special thanks to those among you who so kindly applied your knowledge to the task of reviewing and providing feedback on early drafts of this book: Ian Wright; Joey Silva; Larry Isaacson; Sandy Kemsley; Scott Waterman; Tracey Cunningham; Trevor Copeman; and, Vern Cunningham.

The methodology I set out in Leaving Your Legacy is based on the many hard earned lessons I've gained working with some very astute professionals across more than 30 organizations. My career has been as intense and enriching as it has, in large part, because of the incredible cast of characters that I've been fortunate enough to work with. Sometimes we took home the trophy, and sometimes we walked away with more scars - both had value. I thank you all for what you've taught me - the good and the bad - and I wish you all every success in leaving your own professional legacies.

This book would not have been possible but for the trust placed in me by my many Clients. Thank you all for the confidence you so generously showed me. It was a privilege to work with you.

Writing this book has been a journey of reflection - sometimes delightful with memories of shared successes, and at other times more sobering as past trials are re-lived. But every step of this inner examination has been worthwhile. I've revisited, in effect relived, my past projects, and that has provided many new insights. I've re-examined things from my own vantage point, namely that of someone who now has the benefit of many years of experience upon which to ponder and divine patterns, and I've tried to see things from the perspectives of my Clients, Colleagues, Suppliers, and Friends. I'd like to believe I've succeeded in distilling a mountain of data into the truly essential lessons that will have the greatest contribution to the success of any legacy replacement.

You're truthfully holding a work of love, and I hope it's one in which you will find tremendous value of your own.

"The only true voyage of discovery, the only fountain of Eternal Youth,
would be not to visit strange lands but to possess other eyes,
to behold the universe through the eyes of another, of a hundred others,
to behold the hundred universes that each of them beholds,
that each of them is."

- Marcel Proust -

PREFACE

This is not a scholarly work. Rather, it is the result of my observations working on legacy systems replacements and modernizations since the early 1990's. Over that span of time I've learned many lessons working on these risk laden initiatives. From these learnings, I have created a set of broadly applicable best practices for legacy replacements. In this Handbook, I've set out my knowledge, approaches, processes and procedures in a comprehensive methodology for making the transition away from legacy enterprise information systems.

Why "Leaving Your Legacy"? Well, two reasons. In the literal sense, this book is for those who are seeking guidance on replacing, modernizing, and very possibly decommissioning, their legacy systems. But metaphorically, one way or the other, these kinds of projects have a way of leaving their own *legacy* within the enterprise. If the job was well done, it's a positive legacy, and everyone walks away healthy, happy and whole. Perhaps the enterprise has been transformed, given new vigor, and is now reaping multiple benefits. However, if the job was not well done, the legacy left is one of failure, which has potentially long term negative consequences for the sustainability of the enterprise, and for the careers of those involved.

Successfully completing a legacy replacement requires expertise in many dimensions - to name but a few: project management, architecture, systems development, information technology, and procurement. Each of these has an existing body of knowledge that sets out approaches proven to work within their area of focus. The Handbook brings together many areas of practice into a cogent whole. The level of detail I could provide faced the practical limitation of what could, or perhaps should, fit in one book, and frankly, there's no need to duplicate what has been more than adequately documented elsewhere. So, whatever your background, you're sure to see many familiar artefacts discussed, at a high level, as part of the Leaving Your Legacy methodology.

WHY DO WE NEED THIS BOOK?

Legacy systems replacements, depending on how they are approached, have an acute risk of failure. Failure meaning, in the worst case, that the intended replacement system is simply not fit for use, but also arising when a project is late, over budget, or doesn't deliver on the full scope of what was promised. Yet despite the danger, we are at a crossroads where there is increasing urgency to replace legacy systems within the public and private sectors. Consumers and constituents alike now expect to be able to interact with an organization anywhere and anytime, through low-cost channels that are fast, intuitive and secure. Many legacy systems don't currently enable this level of interaction.

A legacy replacement has many moving parts, and problems arise with product, with process, and with people. The traditionally multi-year timelines of these projects exacerbates the problem - an organization's needs may change before the replacement meets acceptance criteria and is ready to implement. Each and every stage of the replacement affords multiple points-of-failure. To successfully navigate them requires a great deal of knowledge and expertise. To

execute successfully, at a minimum, you need to do an exceptional job with: setting out your future state vision; gathering your requirements; conducting any necessary procurements; managing multiple parallel work streams to construct the replacement system, to test it, to train people on it, to migrate data into it, and then to put it into productive use. All the while ensuring promised benefits are delivered, and negative consequences or disruptions to service are minimized. Assuredly not an undertaking for the faint of heart.

I've found many of my clients were unaccustomed to all the process and methodology rigmarole necessarily entailed in a legacy replacement program. This book is written in an introductory manner to allow similar organizations to more fully comprehend how such programs can be run effectively and efficiently. By understanding the life cycle and methodology I've set out, I hope the reader is able to make assessments about whether they will take on a legacy system replacement, and if they are going to attempt it, which aspects of such an endeavor their team is genuinely capable of handling themselves.

This book seeks to make the reader aware of the perils involved in attempting a legacy system replacement. Frankly, it is foolhardy in the extreme to undertake the replacement of an enterprise information system upon which an entire organization depends without first educating oneself on best practices, informing oneself of the risks and fully evaluating the human impact, the costs, benefits, and the timeline for such an endeavor. To be honest, in the first part of this Handbook, I may very well persuade you not to replace your legacy system outright. It's truly that risky for the uninitiated.

WHY A HANDBOOK?

Full disclosure - as an engineer, I like to *dream* that the world and the people in it can be sorted, organized, and governed by effective and efficient repeatable processes. As it relates to legacy systems replacements, I firmly believe to maximize your chances of a successful outcome, you need a methodology that is a blend of art and science. Leaving Your Legacy tries to capture both - it is structured, yet it should be flexibly applied to the unique needs of each project.

In this Handbook, an *entirely fictional* narrative entitled "The Story Of A Recovering Replacement" is used to kickoff Chapters 2 through 12. For my Clients, you can look, but you won't find yourselves within the story. The narrative tries to provide richer insight into our methodology by using a more personal context to show why certain approaches are proposed, and the likely pitfalls if they aren't followed. In effect, I've given you a chance to experience the flavour of a legacy replacement before you attempt the real thing. The story conveys to the reader the *art* of the legacy replacement. The remainder of the chapter content following the narrative provides practical guidance on the specific activities you need to follow - this is the *science* of the replacement.

The Handbook is based on my work, and the insights I've gleaned as a practitioner. I've had successes and I've had failures. So, please forgive me if at times you find this work opinionated and blunt. With the benefit of seeing what both success and failure look like, I've formed strong beliefs on what needs to be done, and I've tried to make sure these points hit home with the reader.

The Leaving Your Legacy (LYL) methodology applies to legacy system replacements that involve buying new systems, building entirely new systems, and even enhancing your existing systems. Admittedly, some of the content applies primarily to procuring solutions as the replacement. The Handbook can be applied to replacing single elements of your enterprise solution architecture, or to the whole kit and caboodle. The methodology is organized into four stages:

- **Stage 1** - Justification;
- **Stage 2** - Architecture & Requirements;
- **Stage 3** - Procurement & Requirements Finalization; and,
- **Stage 4** - Implementation.

There is extensive interrelation between the stages. Many deliverables produced in one stage will be inputs to the steps and activities in another stage. Stage 1 is where we start, and much of the work is conducted prior to the other stages, whereas much of the work in Stages 2, 3 and 4 occurs in parallel.

The Handbook is meant to provide the reader as much practical advice as is possible, without knowing the specifics of their situation. The intent is to enable immediate application of the methodology by providing:

- **Steps** that *need* to occur within the process flow of each Stage;
- **Activities** that *may* occur within a step depending on the type and size of the replacement;
- **Documents** that are inputs or outputs to a step depending on the type and size of the replacement; and,
- **Checklists** that summarize the steps, activities and document artefacts discussed in each Chapter.

Absent from the Handbook are the specific line item tasks your organization will need to perform to complete the prescribed activities. As touched on above, these nitty-gritty tasks will heavily depend on the specifics of your replacement and therefore, can't be covered in as relevant a manner here. You will have to fit your tasks within the provided framework based on the particulars of what you have in front of you, and how your organization and the leads you assign to the activities wish to approach such work.

If you are contemplating, or are currently engaged in, replacing your legacy systems, I strongly encourage you to read this Handbook as it provides the benefit of many lessons learned. While it is not a replacement for firsthand experience, the Handbook will help you avoid pitfalls, while ensuring you don't miss opportunities. The Handbook provides accelerators, yet advises you on where you should never cut corners. The Handbook is your friend.

"Nothing in life is to be feared, it is only to be understood.
Now is the time to understand more, so that we may fear less."
- Marie Curie -

STAGE ONE:

JUSTIFICATION

"Time is a sort of river of passing events, and strong is its current;
no sooner is a thing brought to sight than it is swept by
and another takes its place, and this too will be swept away."

- Marcus Aurelius -

1 OVERVIEW OF LEGACY SYSTEMS REPLACEMENTS

Let's start with an overview of legacy systems replacements. It's important to be clear on what they are, and to know something of how, over the last 20 or 30 years, the manner in which these projects are undertaken has changed. This Chapter includes an overview of when you most typically should proceed with replacing a legacy system, and what kind of investment you'll need to make to try and pull off a successful replacement.

1.1 WHAT IS A LEGACY SYSTEM REPLACEMENT?

In the context of this Handbook, when I'm talking about a *legacy system*, I simply mean an existing information system that has historically served the business transaction processing needs of an enterprise or organization. This system most probably holds extensive amounts of transactional data, possibly reaching back decades. A legacy system in almost all cases won't be considered as either all good or all bad. If you've gotten 20 years use out of a system, chances are it had, and may still have, some redeeming qualities.

For the purposes of the Leaving Your Legacy methodology, when we are talking about a legacy system that appears to be a contender for replacement, it is likely one that has been around long enough that folks are starting to consider it a bit long in the tooth, and perhaps not worthy of the large continuing expenditures necessary to keep it running. The general sentiment will typically be that such a legacy system isn't adequately meeting the organization's needs, or that the system is holding the organization back from transforming the way it does business. Finally, the system may be of an age where the organization no longer has a thorough understanding of the system's technical underpinnings. While many will agree there are shortcomings to a legacy system, as counterpoint, there will almost certainly be an overwhelming sense of fear that the legacy system is so integral to the operations of the organization that retiring it, or even significantly changing it, would be very costly and would cause extensive, perhaps even catastrophic, disruption.

A legacy system may be one originally developed specifically for the organization, the source code of which is now maintained by the organization itself, or for it by a Supplier. Such a custom system may have become a candidate for replacement because it has been enhanced and patched over the course of decades without appropriate architectural guidance, may now be

quite costly to operate, and may have reliability issues. Alternately, the system may have originally been a purchased packaged solution, which now has its own checkered past of modifications and enhancements.

This Handbook focuses on legacy systems that are enterprise information systems used across a department, or an entire organization. These are systems that provide functionality to users, and that persist your organization's transactional data and client records. The Handbook doesn't directly talk about embedded systems, though the concepts still apply in this case, as do the justifications for addressing these legacy aspects of your infrastructure.

When talking about a legacy system *replacement*, or simply a legacy replacement, what is meant is the all encompassing process of transitioning from the current state /status quo usage of a legacy system to a new future state system to achieve stated benefits, with all that such an initiative entails. Moving your systems in effect from an as-is to a to-be state. Benefits of a replacement come in many flavours, but as an example, can include providing enhanced ways to engage with your organization's stakeholders or clients, or may provide much greater ability to analyze data across your enterprise. Migration from current to future state doesn't always mean the legacy system is replaced and decommissioned, as in some cases, the best option is to significantly enhance a legacy system to meet the organization's future state vision.

1.2 A SHAMEFUL LEGACY

Historically, many legacy replacement projects can best be described as unmitigated disasters. Oftentimes the plug wasn't pulled on a failing replacement until tens of millions, hundreds of millions, and in extreme cases, more than a billion dollars, had been burned through. Now, that's a legacy that's hard to live down! Legacy replacement projects that were labeled as failures typically suffered from one or more of the following shortcomings:

- The replacement system was not fit for use... period;
- The replacement system was of such low quality that, when implemented, the business required significant additional manual work by users to perform everyday functions and to address manifold errors;
- The replacement system provided no more value to the business than did the legacy system;
- Crushingly low user and customer satisfaction;
- Failing to deliver all required and funded scope;
- Badly failing to meet promised timelines;
- Being way over budget; and,
- The project gave rise to litigation.

1.2.1 Historical Approaches to Failed Replacements

If there is a way to fail at replacing a legacy system, it's been tried, and done, again, and again. We are talking about disappointments, big failures, and outright house-on-fire disasters. Some of the proven ways to fail at a legacy replacement are discussed below.

Failing To Let The Business Drive The Replacement:

- Making the replacement foremost about the technology, with the needs of the business a second consideration or an afterthought most often puts you on a road to nowhere.
- Ramming a replacement down users' throats is a rookie, though oft repeated, organizational change management mistake. When a replacement is a push rather than a pull, challenges begin immediately out of the gate. But this often happens when the replacement is seen as being primarily about getting new technology instead of being about delivering on strategic business goals and objectives.
- Failing to intensely involve the best and the brightest from the business is an effective way to hamstring any legacy replacement. Many organizations miss out on the opportunity, and the benefit, of having business staff participate from the inception of a replacement, through to the realization of promised benefits. Instead, resources are often deployed in dribs and drabs, and the stars are held in reserve.
- There are key points on any replacement where an experienced user or subject matter expert can clearly see that things have gone off the rails. These are critical junctures where shortcomings can be seen, and can still be resolved... if only they were heeded. By not having an organization's most trusted employees in the trenches on a replacement, warnings from the team are often overlooked, or dismissed out of hand. It's quite instructive to read Auditor's Reports on failed replacements, in particular the comments on how go-live decisions are often made by governing bodies over the hue and cry of the users. The fallout that results from these wrong-headed decisions, both in human and financial costs, is often hard to stomach.
- The points where a trusted team with sufficient expertise can find critical issues, thereby potentially averting failure, include: requirements gathering; gap-fit analysis; design; data migration; testing; training; and, the ultimate go-live readiness assessment.

Building Systems Without Sufficient Maturity & Capability:

- From the 1960's onwards, a lot of organizations undertook to build their own internal enterprise systems. When it came time to replace these in-house systems, often building the replacement system was deemed to be the most suitable course. After all, they'd done it before, they had the people, the knowledge and the know-how didn't they? If they needed to

contract a third party developer for some assistance, they could do that easily enough. Couldn't they?

- The era of in-house builds was characterized by large cost, time, and quality failings. If an organization even had the maturity to have a repeatable software development process, they were likely following a waterfall style methodology. This meant for a large system, there were years between gathering Requirements and having a testable product.
- Looking back, the methodology of the day, and the knowledge and know-how organizations wound up deploying on their builds weren't up to the challenges of such large and risky undertakings. In-house builds had, give or take, about a 50% rate of never getting to the finish line.

Buying & Force Fitting Inflexible Packaged Solutions:

- Salvation was waiting in the wings - or was it? A growing number of enterprise information systems were developed and marketed as solutions that organizations could buy, unwrap, maybe close a gap or two, and then implement. These packaged systems were represented as being rigorously proven solutions that were developed by much larger teams of developers than any organization developing in-house would ever be able to field. These products were already built. What major risks were left? Scope, schedule, cost? All these things were known. Buying your enterprise information system seemed ideal for organizations that didn't want to be in the business of building such software - organizations that were now afraid of undertaking new builds.
- The pendulum swung to buying packaged solutions. The challenge every organization faced with a packaged solution was whether they would adapt their business to meet the solution, or whether they would take the reverse approach and customize the technology so it would dance to the tune of the business.
- In the case of a product that provided highly standardized functionality that met generally accepted practices, customers might get away with minimal, or even no, modifications to their procured solution. These were the rare successes.
- The wheels came off where each client had unique and divergent approaches to how business functions were to be provided. As examples, this would occur with localized regulatory requirements, and with niche offerings that a business saw as strategic differentiators. In such environments, the buyer would either extensively customize the software, or they'd significantly reengineer their business for no reason other than that the technology required it. In the case of the former, the customizations were costly, they oftentimes "broke the product", and they drastically increased the cost and complexity of sustaining the product over the long haul. In the case of the latter, the replacement system and the redesigned business didn't necessarily reap much in the

way of a benefit - you can see why change was resisted. For these reasons, more than half of the replacements that relied on buying and then largely customizing the product were declared failures.

- In hindsight, the approach of choosing to buy a packaged solution, because you weren't confident in building (i.e. programming) one, and then proceeding to customize (i.e. programming) the purchased product to the point where it becomes unrecognizable, unstable, and unfit for any useful purpose doesn't seem entirely well reasoned.
- Looking at the root cause for high failure rate for procured solution implementations, one element worth focusing on is the gap between what the products could do out-of-the-box, and what the organizations had wanted them to do. It was simply startling how many gap-fit studies concluded there was a "20% gap" between the Requirements and the product's capabilities. In actuality, organization with specialized Requirements were often looking at 30% to 40% gaps. But no one wanted to admit it. Because otherwise they'd have to do a build - which would fail. So, one challenge that was endemic was drastically understating the extent of change that would be required on the technology side or the business side to bridge the gap. This factor alone meant from day-one the project would be twice as disruptive, costly and lengthy as had been promised.
- Now, when it came to closing the gap, whatever size it actually was, the estimates of what would be required were every bit as rosy. When the information technology team was tasked with analyzing the required effort to design, develop, interface, migrate data, test and train, they chronically underestimated what it would take.
- In the final analysis, these mature products championed by industry were not truly flexible solutions, they needed to be tailored to a Client's specific needs through customization that cost an arm and a leg to perform and maintain, took forever, and often rendered the product unstable and sometimes, unsupported.

Lackluster & Limiting Enhancements - The Last Resort:

- After all the fumbling around with building and buying, and blowing a pile of cash with nothing to show for it, organizations would often fall back to enhancing their legacy system - hey, what other options did they have? This approach came with the proviso that no one was ever again to talk about replacing the legacy systems - never ever.
- These enhancements often worked. Legacy green screens were auto-magically screen-scraped and bleeding edge client-server technologies provided back-end data through slick windows based graphic front-ends leveraging document management and workflow solutions. Nirvana!
- Alas, in many cases, the legacy systems weren't viable long term

solutions, and the enhancements were little more than stop gaps. Continuing to operate their legacy systems, the business continued to become less nimble - less able to respond to changes in their operating environments. The enhanced client-server screen-scraping front-ends were really only window dressing - they gussied up rather bland, or even dismal, core systems, but did so in a very constraining manner.

- These enhancements were very often band-aid solutions which came with increased complexity, increased cost to extend or support or maintain, and which often introduced challenges to identifying the source of truth for key organizational data. Organizations had begun creating their own *Frankenstein's Monster*.

Looking back at many failed or challenged replacements, regardless of whether they were a build, buy, or enhance, we can see a common thread that the initiative was considered in isolation, and was often the result of poorly informed and rushed decisions. The replacements were seldom based on a long term architectural roadmap approach to conducting the replacement as a series of milestones towards a well defined and achievable future state vision that was aligned with the organization's strategic goals. What we had instead was a pattern of taking a one-size fits all single-solution big-bang approach. These problematic replacements weren't approached with the rigor and candor to ensure they were well justified, well architected, and well managed.

1.2.2 Leveraging What We've Learned

With such a track record of failure, why bother attempting to replace legacy systems? Why waste the time on this Handbook? Two reasons for starters. Foremost, the careful consideration of whether to replace legacy systems is an inescapable recurring stage in every organization's evolution. Secondly, a lot of smart people have spent the last 20 or so years figuring out better ways to conduct large combined business / technology projects, and in particular legacy replacements. The legacy replacement body of knowledge is an ever expanding universe that has brought new approaches, new tooling, and new products that allow us to more capably take on the replacement of legacy information systems. We have observed, we have learned, and we have adapted. What follows are some of the key elements that can be used to differentiate today's approach to legacy replacement from yesteryear's. Many of these elements are foundational to the Leaving Your Legacy methodology, and you will find them discussed in detail throughout the Handbook.

- We realize a legacy replacement, like any large project, should foremost be about delivering value to the business. The disciplines of portfolio, program and project management have bodies of knowledge that help us structure these initiatives in a way that we can conduct project activities with a focus on delivering a product that is able to realize the promised business benefits. Legacy replacements are framed in business terms, with technology seen as playing a supporting role - we make technology investments commensurate with the business value they will deliver.

- We have learned a lot about agile approaches to rapidly deploying solutions that deliver value. We now recognize some aspects of a legacy replacement benefit from agile approaches, especially when there are large unknowns and requirements may be changeable. And yet, some steps of a large enterprise legacy replacement still benefit from moving in a more waterfall fashion. We will always look for the right balance.
- For organizations that want to 'buy' their information systems there have been many positive developments. Critically, with respect to methodology, we now universally agree that a gap-fit analysis must be conducted impartially and with rigour, and its findings must be openly communicated and used to paint an accurate picture of the true impacts, the costs, and the timelines for the business if they undertake to procure and implement a packaged solution. The procured software is often referred to as commercial-off-the-shelf (COTS). While most commonly a commercial offering, there is nothing saying a COTS can't be an open source software solution provided under a non-commercial licence - therefore in the Handbook COTS is used as an all encompassing term. With respect to the COTS products we can now select, there are a wealth of proven solutions for the standardized business functions of the modern enterprise that range from case management, to customer relationship management, to finance and accounting, to human resources. We now also find a proliferation of COTS solutions in the most unusual of niche business delivery functions. Our COTS 2.0, if you will, is more intelligently, and less arrogantly, designed to reflect the need for organizations to achieve business value by being able to cost-effectively control a meaningful degree of their own information systems destiny. Today's well designed COTS is more richly configurable for both its initial implementation and its subsequent adaption to changing operating environments in the out years. A good COTS now provides configuration capabilities that have: flexible workflow / processes / business rules / objects and data models / communication and collaboration / presentation layer / data importing and exporting. Fortunately, the staff we task with our Configuration need not be PhD's - they use integrated point and click tools that require days of training, not months or years. From first-hand experience, I'll assure you this is not simply marketing hype - there are highly flexible COTS products penetrating niche markets. It doesn't mean Configuration is a slam dunk - managing reams of Configurations comes with some of the very same issues you encounter with software builds - but the point is, we have much more viable options to choose from in considering how best to replace our legacy systems.
- We recognize that by listening to what the business needs and carefully considering our technical options, we can intelligently design an optimal solution architecture roadmap. Such a roadmap may chart a transition from legacy systems over a span of many years. To enhance our ability to deliver value incrementally, with appropriate investment, we can

expose business logic layers through modern middleware layers and let the legacy back-end function as more of a robust and secure data persistence layer. At various points on the replacement journey an organization may operate in concert elements of legacy systems with newly built and bought elements - effectively integrating them and allowing rich interoperability. We right-size our solutions: we build only what differentiates us; we procure and integrate building blocks for foundational components (e.g. electronic document repository, workflow system, business process and rules engines, authentication services); and we procure feature rich COTS solutions where it doesn't make sense to reinvent the wheel - choosing COTS that provide the degree of configurability that the specific line-of-business needs imply.

- When we buy a COTS solution we do so knowing we never want to Customize its source code - we want to stay on the code base that is maintained by the vendor for the benefit of its entire customer community. We are resolute that we only authorize Customization in the most carefully considered and ultimately warranted of circumstances. We listen to the best practice recommendation from our Suppliers for how customers similar to us have gained business benefit using the COTS product out-of-the-box.
- We embrace evolving approaches to how we provision the infrastructure layer of our information systems. Where possible, we replace costly legacy infrastructure that challenges our maintenance capabilities and wallet using approaches that include virtualization, and infrastructure as a hosted or cloud service.
- In summary, we have learned much about our 'frenemy', the wild and dangerous legacy systems replacement. We know: its strengths and weaknesses; the twists and turns of its project life cycle; its key risks; and, its likely outcomes. While legacy replacements haven't been tamed, we are better informed about the rules for how you play this game to win. With experienced and expert teams: we vision; we investigate; we evaluate; we consider options; we analyze, design, architect, construct, test and train; we manage; and, by doing so, we succeed.

1.3 YOUR LEGACY REPLACEMENT OPTIONS

There are effectively three broad approaches to replacing a legacy system - ENHANCE, BUILD, or BUY. From this point on, to make them pop, these options are used in block caps. These options are detailed below, and are sequenced in the general order of how great an impact, or potential for disruption, they may have on how your organization conducts its operations. As you read about these options, keep in mind that the actual path a legacy replacement takes may include aspects of more than one option, depending on the number, type and size of the legacy systems that are to be replaced. If your replacement is of any size, it's likely to have a blend of several of these approaches. For your back-end systems, you might wind up choosing to

ENHANCE, while going with a BUILD for your customer facing front-end. Alternately, perhaps one of your lines of business that isn't a strategic differentiator for your organization might choose to BUY and integrate a replacement, while a truly unique line of business that is well served by the legacy system may choose the status quo. An architectural approach may be to BUILD truly unique aspects of your business as services and expose these to a variety of components you BUY and integrate. The variations on this theme are many. The more differentiated are your lines of business, unique in their own needs, the more likely the ultimate solution architecture will be composed of multiple systems integrated together - perhaps some built, and some bought.

1.3.1 Option: Enhance Existing

The ENHANCE option is all about salvaging elements of your legacy systems, and extending the system in new ways. For this to be a viable option, there needs to be a sufficiently strong argument that the legacy system represents a valuable enough foundation that it deserves further investment and a continuing place in your systems portfolio. With that being granted, the ENHANCE is often undertaken as the option that can best minimize disruption to people, processes, and the technology. A well designed ENHANCE will strive to minimize risk, staffing changes, cost and schedule. You really are trying to get the most bang for your buck without botching the project or damaging the business. About half of legacy replacements have historically chosen this path.

An ENHANCE can genuinely be a great approach to lowering risk of *project* failure. However, in deciding to pursue this option, you must consider whether you are best serving the business interests of the organization - you do not want to choose a technology strategy that leads to the *organization's* failure. The ENHANCE option may ultimately be chosen at a point-in-time because it represents the best compromise to dealing with a failing system, while balancing that critical issue against others of the organization's priority undertakings that are also competing for attention and resources. Accordingly, when you choose to ENHANCE, it may be with an explicit agenda that this is something of a band-aid and that the whole legacy replacement issue will need revisiting in say the next five years, when perhaps the organization will then have the ability to undertake a more drastic shift.

When you choose to ENHANCE, you want to find the balance between improving the technology only where it makes the most sense, and refining the business where it most needs it. Instead of replacing your existing system in its entirety, you enhance or modernize it in significant ways, and combine that with the alteration of processes to better align the business and the system with the organization's strategy. In some cases, this path will require that you look at skilling-up or swapping out some of those who have been maintaining and supporting your legacy systems.

Although the ENHANCE option is effectively a modernization of your legacy system, for our purposes we will still call this a replacement since the as-is system will be replaced with an enhanced (AKA modernized) target system. Enhancements come in a few shapes and sizes, and they might include one or more of the following:

- Building out anywhere from minor to major new functionality;
- Building greater systems interoperability capability (e.g. web services);
- Retiring minor technical debt;
- Retiring major technical debt - potentially refactoring parts or all of the legacy system; and,
- Upgrading a packaged solution to a major new release, porting over any modifications you'd previously made which are still needed.

ENHANCE EXISTING - Typical Approach:

- You don't throw the baby out with the bathwater. Your plan is to keep the good aspects of the legacy system, eliminate the bad, and enhance as needed to fill your gaps.
- You achieve specific targeted improvements that need to be made to the legacy system through focused enhancements, avoiding gold-plating.
- You leverage the stability and integrity of your legacy system, allowing it to provide a foundation for automating transactions and persisting data, and you enhance this core back-end with wrappers that enable greater interoperability with web-based applications, mobile applications, business process and decision management tools. Providing more open access to a back-end legacy system through secure wrappers that allow reading, and ideally updating, data within your legacy systems allows you to cost effectively and flexibly deliver significant benefits to the organization through ongoing front-end enhancements.
- If your system earned the label of legacy system because it was neglected, starved for investment, and accumulated significant technical debt, a conscious roadmap of investing in the product allows you to refactor the application and modernize the technical underpinnings, with the intent of buying you many more years of use.
- Where large issues with the legacy system derive from the infrastructure layer, you preserve the application layer and use virtualization to ditch old hardware platforms that were pain points.

ENHANCE EXISTING - Advantages:

- Allows reuse of things that already work, and that have already been proven. Where the business hasn't changed, the supporting technology needn't be changed. As a result an ENHANCE can be much less disruptive, which is a huge advantage in simplifying the management of the organizational change. When it comes time to deploy your enhanced system, often you require less training of end users given they will be familiar with those portions of the system that remain unchanged.
- Typically you don't need to migrate your data to a different physical data model with an ENHANCE. So long as you aren't fundamentally altering

your data model, you'll likely be faced with a small and manageable data conversion that doesn't need you to jettison older historical data.

- Given the scope of the ENHANCE may be less than doing a wholesale BUILD or BUY, less testing time and effort should be involved.
- If your IT department is championing the need for a legacy replacement because one or more of the components of the legacy platform have reached vendor end-of-life, a carefully designed ENHANCE can preserve the elements the business values, while porting the unsupported components to newer technology.
- Although we shouldn't let the tail wag the dog, in many public sector organizations, there is no getting away from a lengthy procurement cycle on a BUY replacement, and perhaps even for a BUILD. With an ENHANCE, you may avoid a lengthy procurement cycle.
- In summary, when an ENHANCE is kept humble in scope, staying true to what an ENHANCE should be, it can be lower cost and have a lower overall risk exposure than either a BUILD or a BUY.

ENHANCE EXISTING - Disadvantages:

- At some point there is a fundamental limit to how far you can extend the legacy system without it becoming cost prohibitive or overly risky.
- The less you understand how your legacy system was architected and built, the greater your cost and risk to do an ENHANCE. If you don't have this knowledge retained, either in reliable documentation or, less desirably, in someone's head, you are going to need to spend enough money reverse engineering your systems to regain this knowledge so that you lower, to a tolerable level, the risk of altering the legacy system.
- You are sinking money into old technology that, unless you significantly refactor it, may hinder your ability going forward to adapt and innovate in a changing environment. Put another way, it's doubtful you can turn your legacy system into a highly flexible solution that is going to grow with you over the next decade or two.
- You play a guessing game on how long all of the critical components of your technology platform will be able to be well supported by your staff and product vendors. You run the risk of reaching end-of-life for parts of the platform, meaning you'll be unsupported by the vendor. You also run the risk of losing your knowledgeable and experienced resources who have the necessary skills to sustain your legacy system.
- The older the technology platform your legacy system runs on, the greater the likelihood of significant cost increases to support the platform in the coming years.
- In summary, an ENHANCE is often a band-aid, and you will reconsider your legacy replacement in a few short years.

ENHANCE EXISTING - Most Applicable When:

- You have the resources, the time and the money to enhance.
- The enhancements you feel you can make support the organizational strategy with no critical gaps.
- You are trying to buy yourself another five years. As a rule of thumb, your analysis tells you the enhancements you are targeting, in broad strokes, will retain 70% or more of the existing code base.
- Any legacy system shortcomings like stability, integrity, performance, scalability or security issues can be cost effectively addressed - put another way, your plans include addressing rather than ignoring these issues.
- In the case where the drivers for the replacement arise from the cost of maintaining legacy system(s) code that has grown unwieldy down the years, an ENHANCE may focus to a large part on retiring technical debt.

ENHANCE EXISTING - Cautions:

- Always keep in mind that too much enhancement means you are drifting into the realm of a BUILD. When you sense this is happening, you have to objectively assess whether a fresh BUILD is the better option. At a minimum, consider whether a large ENHANCE effort should be accompanied by a refactoring. Does your legacy system provide a stable foundation on which to build? Or is it a house of cards. If the base isn't solid you have to question whether it's advisable to add more weight onto it. Building extensively on top of a shaky legacy system compounds cost, time and risk.
- Depending on how significantly your business wants to transform, you may just have to admit that the legacy system may not be able to come along for the ride, and even if you chose to call it ENHANCE, you'd really be doing a BUILD. Typical indicators of this occur when your *enhancements* include: changing the full technology infrastructure stack, changing the database, changing the development tools, fundamentally changing your data model and wide swathes of the presentation layer. You might as well call this an ENHANCED-BUILD as you'll have all the drawbacks of both the ENHANCE and the BUILD - namely, complexities of extending old technology that doesn't want to be extended, and acts as a development strait jacket, with the issues of needing to have a full-on build team that you retain in the out years. In any event, if you are pursuing this option, one of your guiding principles should be to ensure strong oversight of architecture and design work to minimize the extent to which you are creating a *Frankenstein's Monster*.
- Watch your scope creep on an ENHANCE. Just because you have flexibility in what you can develop, don't go overboard.

1.3.2 Option: Build

The BUILD option comes into play when an organization isn't willing to alter its vision in order to shoehorn itself into a commercially available solution, or to conform to the strictures of a legacy system that can be minimally enhanced. Those who choose to BUILD want a solution crafted to precisely meet all of their detailed needs including supporting to-be business processes and organizational structure, and to meet their system requirements. Choosing a BUILD means you want to hold the reins, you want full control over designing and deploying business and technology solutions.

When you replace a legacy system under a BUILD, the sky really is the limit. You are pursuing maximum potential return from your investment in an information system. It's very likely you won't be constructing a target system that functions identically to your legacy system. It's also very probable you may introduce some element of business transformation which will see business processes redesigned. Both the technology and business changes on a BUILD mean that this option can bring a significant amount of disruption. A strength of the BUILD however is your organization controls the extent of the disruption, and can create a roadmap for when they wish to introduce truly disruptive change over a longer time horizon.

Back-in-the-day, a BUILD usually meant handcrafting every line of code. That's not so much the case nowadays. Under a BUILD, it's possible the *majority* of the new system may be constructed specifically for your organization. However, certain packaged software components will surely be procured and integrated to provide some generic out-of-the-box functionality, and these might typically include an electronic document repository, a workflow system, business process and rules engines, authentication services, and the like. Today we try to right-size any BUILD. You should plan to only construct what is truly essential, and then BUY and integrate generic framework components that can be extended to meet your needs.

Just because it's a build doesn't mean it's your current staff doing it. Your current team may not have the requisite development expertise to undertake a large system construction project. Most often for medium and large systems, you are going to need to skill-up your current staff, make some new hires, and supplement your development team, at least in the short term, with third party providers. Accordingly, a BUILD may involve a significant service procurement.

The BUILD is meant to be the option that allows the organization to maximize the realization of its future state vision, reaping the largest potential rewards by delivering on a strategy of differentiation. Accordingly, the organization under this option is prepared to invest significant money, time and staff effort, in getting exactly what they want - a bespoke solution that will provide them with returns over the next decade or two. Having said that, it's worth again emphasizing that a well designed BUILD will be right-sized and will only take on development that is truly necessary, since once you build it, you get to sustain it.

BUILD - Typical Approach:

- Construct only the truly niche portion of your system requirements. Every organization's enterprise information system requirements include vanilla elements - don't build those - build the things that would be a stretch for any packaged solution.
- Time has taught that when it comes to software development, shortening release cycles and delivering elements of value early and often is the best approach. Look for ways to incrementally implement your constructed system, cutting over from your legacy in stages.
- In the case where the replacement is fundamentally driven by IT based on end-of-life of one or more components of the legacy systems, the business may be strongly averse to disruption and may insist the new system duplicates much of the legacy system's existing functionality. A procured solution will not allow this, but a built solution can replicate the behaviour of the legacy system. End-of-life is a weak justification for a replacement, but when it happens, a BUILD can mitigate disruption.

BUILD - Advantages:

- You can create a system that precisely fits your needs and allows you to differentiate yourself from other organizations.
- You control your destiny with the new system - you can throttle the degree to which leaving your legacy will disrupt your organization.
- In designing your target system, given the degree of control you have, you are able to design a data model that doesn't orphan any of your required legacy data. This can lead to a less contentious and less complex data migration. You may not choose to do this, but it's a choice you get to make as to what data can be easily migrated, as opposed to a product vendor calling the shots.
- As noted for the ENHANCE lengthy procurement cycles can significantly delay time to delivery of the replacement. Depending on the extent to which your BUILD requires procuring professional services, you may be able to avoid the lengthier procurement cycle that comes with a BUY.
- No ongoing, nor as is typical, escalating, annual licence maintenance and support costs are paid to outside vendors. Your sustainment monies go directly to whatever you identify as business priorities.

BUILD - Disadvantages:

- Broadly, without a team that has deep expertise in software development. you have a high likelihood of an overly costly and lengthy construction cycle, only to wind up with a product that may prove to be unfit for use.
- Of all the options, this one has the highest likelihood of having initial

stability and integrity problems - you are going to take the leap of faith and run your business on a net-new totally unproven system.

- There is a high likelihood that you won't make the necessary upfront investment to build a highly flexible solution. You will shoot straight for today's requirements. Going forward, this reduces how nimble you will be, and how much it will cost you, to adapt to change.
- The high one-time and ongoing software development effort means you are in the information system software development business. Does that align with your organization's strategy?
- Testing a net-new unproven software product requires the highest amount of testing of the options. To avoid an unmitigated disaster you need to be extremely diligent - get the necessary expertise, invest the requisite time and money - only implement when confidence has been thoroughly established.
- Part of your BUILD will most often include creating a significant amount of training material, which you then need to deliver with extensive end user participation. Don't underestimate the investment this requires.
- This option requires the largest commitment to sustaining the solution, which can be the lion's share of the total cost of ownership of an information system - you are funding this entirely from your pocket - it's not spread across a wide customer base. This means you also need continued access to a high performing development team - either on your staff or by retaining a provider. Ongoing access to a consistent level of expertise that can continue to keep your solution delivering the differentiation you sought is a challenge. When you go-live, you can NOT let all the knowledge from the construction team walk out the door - not under any circumstance.
- By its nature, the BUILD has the lowest schedule predictability and highest likelihood of overrun. Your development methodology can help here - but where product functional scope is equivalent, the BUILD is typically the lengthiest of the three options.
- Accurately predicting the one-time costs and total cost of ownership for a BUILD is much more challenging than for a BUY. Your likelihood of overruns are higher, and they may mean the Business Case for a BUILD, in the long run, proves to have been without justification. You can mitigate this by right-sizing the BUILD. But if you are attempting to build a whole enchilada target system versus just niche elements, you may anticipate challenges in providing reliable initial estimates and you should anticipate high variability in the actual cost to complete.
- In summary, the BUILD, properly managed, can get you most precisely what you want, but very often, your product will arrive much later than desired, and at a much higher total cost of ownership.

BUILD - Most Applicable When:

- The legacy system is used in a line-of-business that is a significant differentiator for your organization, and you stand to gain significant strategic benefit and reward for investing in a solution that precisely fits with your vision and requirements.
- If your requirements are truly niche, meaning deep data model complexities, intricate business rules and mandatory functional requirements, then any packaged solution is very likely going to have some significant gaps out-of-the-box.. If you know with a high degree of certainty that your business owners are not prepared to flex in any meaningful way on how they work in order to accommodate a procured information system, then BUILD or ENHANCE are your choices.
- The BUILD becomes achievable when you've got a strong history of constructing solutions and of retaining talented developers (or you already have a proven third party development services provider), and maintaining this competency is part of your long term IT strategy.
- The BUILD becomes much lower risk when you only construct the niche element, and you choose to integrate that with off-the-shelf components for industry standard vanilla functionality (i.e. a BUILD-BUY hybrid).

BUILD - Cautions:

- Be honest. How good are you at designing, building, testing, and implementing and sustaining large new software systems? Do you have staff who are skilled in software product management? Depending on your answer, your ability to successfully manage the schedule, cost and quality of a BUILD is very much in question. A quality system is built by a qualified and motivated team. Are you going to be able to retain the best product architects, designers, developers and testers?
- How adaptable a system are you really going to construct? Meaning, once you've built your dream system, how easily will it be able to adapt to changing requirements? Unlike packaged solutions, the best of which nowadays are designed with extensive configuration capabilities, your bespoke system isn't necessarily going to have been constructed in a way that lets you make changes as easily. Will you keep a large internal development team on staff permanently, or will you be paying through the nose to a 3rd party provider? Alternately will you simply not allow the business the luxury of rapidly adapting the technology to support their needs? I'd argue that you subject the organization to unacceptable risk if you don't have the capacity to effectively and efficiently adapt the target system - in the final analysis, all your replacement will have done is transition you from one legacy system to what will soon be another. This pitfall needs to be factored into your evaluation of long term cost of ownership, and your ability to be nimble in the face of change.

- Watch your scope creep and gold plating! Just because you can develop pretty much whatever you want, don't go overboard.
- As a final caveat, organizations often think they can recoup the costs of a BUILD by selling their internally developed product on to others, or by generating revenue through allowing other parties to co-tenant their infrastructure. This is a dream, and an implausible one. Unless your core business is in fact commercial software development, do yourself a favour and forget this idea. Personally, I've never seen revenue generation from an internal information system ever pan out. It wastes a lot of time and muddies the waters to talk about this being part of a viable BUILD option.

1.3.3 Option: Buy

There are companies and organizations (e.g. open source) that exist solely to develop, implement, and sustain class leading information systems software. The best amongst these product vendors are characterized by the following:

- They have a proven product that can be effectively and efficiently configured to the needs of each Client implementation;
- Leading edge development methodologies are their stock-in-trade;
- Their product is built by the industry's top-tier developers and is implemented by seasoned professionals;
- They have multi-year product vision roadmaps that see them making heavy annual investments in research and development; and,
- Experience with a diverse customer base has evolved an array of best practices for reliably getting the most from their product.

An organization needing an information system to support its business, that feels they don't have the capabilities described above, will often consider buying a solution. With the BUY option, you procure a packaged solution from a third party provider and you implement their solution in the manner that best meets your needs. Whether or not the packaged solution is targeted at vanilla (i.e. generic) Requirements (e.g. a financial system) or niche (i.e. specialized) Requirements (e.g. a licensing and regulatory system), it will typically be configured prior to deploying it at a Client site in order to dial it in to the Client's specific needs. Whether or not the solution is customized is a topic we'll touch upon below.

While buying a solution has many advantages, and is certainly something an organization not strong in developing enterprise software must consider, the BUY option is not without significant drawbacks. Foremost of these is the buyer doesn't have strong control over the current, nor the future, functionality of the product. The Client is not master, the product vendor is. While a well chosen packaged solution will certainly be able to meet the majority of your stated goals for transforming your business and technology, you will find gaps that force you to change the business in order to meet the paradigms of the

purchased solution. For some organizations this is a pill they won't swallow, and the BUY is just not for them. Historically it is this *change the business* or *customize the solution* conflict that has tanked many a legacy replacement that chose the BUY. However, if you will show flexibility in your business processes and procedures, the BUY option may be the best for you - you won't need to be in the full-scale information systems development business anymore.

Before you ever buy a solution there are many elements that must be scrutinized in order to manage the large risks that come with putting your information systems future in a vendor's hands. After all, this type of replacement is one you'll not want to repeat for at least 10 years, and hopefully more like 15 plus. Your in-depth evaluation is most often done within a formally managed procurement wherein you'll dig deeply into the following:

- What are the gaps between the product and your Requirements?
- How flexible is the product to closing gaps via Configuration versus Customization?
- How healthy is the vendor? Is the product they offer nearing end-of-life - signaling either a potential exit from the market, a significant re-architecting, or a stagnant product (all bad)? Or, is the vendor up and coming, taking market share, but doing so with an unproven product? Or, are you looking at a stable industry player who holds dominant market share and sells a mature, but always improving, product?

One of the hallmarks of a BUY is the extent of the disruption its implementation can bring. How you run your business and how your technology works are both changing. You will have both *desired* and *required* changes you'll be making to business process and procedures. You'll also likely be changing your organizational structure, at a minimum for certain job roles and responsibilities. The technology won't look the same - it won't work the same - some favourite functionality in the legacy system may be unavailable. This functionality gap is going to be particularly apparent in the case of a niche solution where generally accepted practices may not exist, which means each product in the marketplace may have a very different approach to how it provides the required functionality. Accordingly, for a BUY, putting a lot of effort into organizational change management is a necessity if you are to have a chance at succeeding. With a BUY, you'll need to spend lots of time communicating with and training your staff - probably more than you are originally contemplating.

Although the BUY option is predominantly about purchasing large components of the target architecture, you may find that it makes sense to retain some legacy elements as-is, or in an enhanced manner. When you choose to BUY, you want to do what you can to minimize disruption to the business, so you want to strike a balance between what you purchase, what you keep, and how you change the business. You will purchase solution components that provide benefits your legacy systems can't, and that implies you'll redesign the business where it is required to avoid Customization. You can throttle the scale of disruption by deciding what further desired business

redesign you'll undertake as part of the transition, and by deciding that instead of replacing your existing legacy systems in their entirety, that you can either make do with some status quo components, or can enhance or modernize the legacy in a way that it retains a place in your future roadmap.

Of all the options, the BUY requires perhaps the most intense resource management exercise. You will be managing a large Project Team, you will be providing oversight to third party vendor staff who are providing implementation services, you'll have advisors, you will need to call on existing legacy systems resources, and you may wind up doing a fair bit of hiring for your future state organizational model. The *people* dimension is huge on a BUY.

If developing information systems isn't core to your organization's strategy, then a BUY can often prove to be your best choice over the long haul. But the BUY comes with perhaps the broadest management challenges, in ways that the other options don't. To succeed at a BUY, you will have to be at the absolute top of your game on the business and technology sides of your house.

BUY - Typical Approach:

- One or more systems is procured and, as needed, modified to meet the needs of the organization.
- Most typically, a procured solution needs to have the out-of-the-box software changed or adjusted in the following ways in order to meet the Client's Requirements: presentation layer; data definition; object definition; process definition; workflow definition; business rules definition; interfaces to external systems; document outputs including reports; logging; security; and, access control.
- Each COTS has its own approach to undertaking the kinds of modifications noted above, and therein lies a problem. The basic concern we must address is how easily modifications to any given COTS can be requested, designed, constructed, tested, managed, and ultimately maintained without disruption (or additional effort) from version-to-version of the software. The standard labels used when discussing these concepts are Configuration and Customization. When we confidently purchase a COTS it is predicated on a belief that we have chosen a product that allows us to control some of our own destiny through rich Configuration capabilities - capabilities that don't require us to retain technical experts, either internally or as a third party.
- Whether a modification you make to a COTS should be referred to as a Configuration or as a Customization, what really matters is the ease with which the modification may be made and managed. A key factor in this determination is the amount of in-depth technical knowledge of programming languages and scripts, and of the COTS product's internal functional, object and data design, that is required to make the initial modification, to test it, and to manage versioning of the change. A Configuration is generally contemplated as something a non-programmer could achieve, while a Customization is something a

programmer would typically be required to undertake. Both Configurations and Customizations should be made, tested and maintained according to a detailed design specification.

- To be more precise, in the context of the procured COTS software, Configuration means using already integrated and documented capabilities of a COTS that are part of the software released to all Clients (of the same licensed modules or components), to modify, and maintain in an integrated manner, the behaviour of the COTS to satisfy a specific Client's Requirements. Configuration does not involve changes to source code of the software product itself, nor does it involve creating new source code that is not already part of the general release. A good practice in evaluating a COTS is to ask the software provider to describe each of their already integrated mechanisms and parameters that control and manage Configuration of their product. Providers should be asked to warrant that these integrated capabilities have been architected, designed, implemented and tested as part of the COTS prior to supplying them to the Client.
- A Customization on the other hand does involve writing source code to meet Requirements. A Customization becomes necessary when the integrated capabilities for configuring the COTS aren't sufficient to make modifications that would fully meet a Requirement. Examples of Customization would include writing source code that accesses elements of the COTS via, for example, an application programming interface (API), web service, etc. To function properly through subsequent releases of the COTS, such source code relies on the COTS providing stable interfaces that don't remove the methods the source code relies upon.
- The distinction between Configuration and Customization gets blurry when it comes to things like no-code, low-code, and scripting languages. An argument can be made as to whether a non-programmer could undertake such modifications. As an example, would writing SQL scripts qualify as a Configuration? Ask yourself these questions. How does the person performing the modification explore the underlying data model? What knowledge of the data model do they need? In creating the script, are they facilitated by a point-and-click user interface that is provided with the COTS Configuration tools? What amount of training does the person using the modification toolset require? Where will the SQL scripts be stored? How will they be versioned? How will they be promoted from environment to environment alongside other modifications as a package? How will the COTS trigger execution of the script? Answering these questions in respect of any given COTS will give better insight into how that COTS is Configured versus Customized.
- There is something of a conceptual continuum of architectural approaches for a legacy replacement through a BUY. The key thing to note about this continuum is it provides a tradeoff between how much

the control of the product, including the effort of modifying it to meet Requirements, rests on a vendor's shoulders versus on a Client's. The next three bullets talk about three points on the continuum.

1. Procure a single COTS that is purpose built to already meet all of today's specific needs for a narrow market niche. The product unfortunately is characterized by limited Configuration capabilities. Here, think holus-bolus, does-it-all, single turnkey solution. Best for a Client willing to, perhaps significantly, change its business processes to meet the dictates of the solution, and to compromise on some solution functionality that might not be deemed best-of-breed.
2. Procure a single COTS that ships as a pre-configured platform for a vertical market niche and includes strong Configuration capabilities to meet a Client's exceptional and changing Requirements. Here think of a balanced solution that gives the Client a reasonable degree of control, but doesn't force them to be in the software development business. Best when there are agreed upon standards or best practices within the industry vertical that will evolve in concert from Client-to-Client - this lets the product vendor continue to meet the majority of the market's Requirements.
3. Procure multiple COTS generic framework components to create a highly configurable platform that, given the investment of significant time and effort, can be made to meet pretty much any niche Requirements, after a fashion. Here think of an extensible scaffolding, or skeleton framework, composed of elements handling things like document management, workflow, business processes, decision management, enterprise messaging and services middleware. This approach gives the Client significant control to a point that may amount to investing as much effort as a BUILD. Best when an organization operates in a continually changing environment where their Requirements may not be common with those of others in the same sector - for such an organization it will be enough of a challenge to get a COTS initially implemented, let alone to hope that a product under tight vendor control will stay aligned with the organization's evolving operating Requirements over a decade or two.

- If you are looking at replacing both vanilla and niche aspects of your systems portfolio, a common approach is to procure multiple COTS. One approach is to procure purpose built COTS, each for a portion of the Client's Requirements, and integrate them to provide best-of-breed solutions for all parts of the organization.
- In the case where an organization is not interested in integrating multiple COTS, a couple of trade-off scenarios can play out. If internal

management business functions (which often are quite vanilla) are deemed higher priority than the niche delivery business functions, an enterprise skeleton framework solution would be chosen - it may already sufficiently handle the vanilla and it can be configured to passably provide for the niche. Should the organization's niche delivery business functions take precedence, a solution targeted at capably meeting their Requirements would be chosen at the expense of perhaps being considered best-of-breed on vanilla management functions.

- As noted earlier, to minimize disruptive and unwarranted change, procure only the components that the legacy systems can't effectively provide. If your legacy systems still have a lot to offer, the BUY may take the form of procuring only a targeted portion of a hybrid future state that includes both legacy and new systems. Alternately, if the legacy systems are pretty much failing all the way around, the BUY should encompass a fulsome procurement of all functionality of the legacy systems, and the legacy systems would ultimately be decommissioned.
- Given that most BUY replacements typically take multiple years, you should plan your approach in terms of stages of implementing the target solution to replace legacy components. As an example: you may choose to keep your back-end system running for several years; your first implementation opens up the back-end and provides an interoperability layer; your second implementation adds a procured package that flexibly offers a lot of functionality through a front-end to web and mobile clients; and, a number of subsequent implementations undertake to add new functionality and other procured components. In this way, you subsume the legacy system in a measured way until it is redundant and is decommissioned. Such an architecturally phased implementation allows you to mitigate the amount of disruptive change you subject the organization to within any given period, and accordingly, reduces the overall risk of project failure.
- Many factors contribute to forming the strategy you take to approaching a BUY: whether to buy a lot or a little; whether to buy a single product or go the piece meal route; whether a purpose built or a configurable solution is most appropriate; and what to implement when. A big part of a BUY is developing a strategy informed by: an understanding of the available architectural approaches; the insights gained by conducting an evaluation of what existing COTS are available, affordable, and responsive to the Requirements; and, a firm conviction on the amount of control and responsibility you ultimately want to directly take on for maintaining and supporting the replacement system(s).

BUY - Advantages:

- Compared to a net new BUILD, with a BUY, the target system already exists. Invariably it has gaps with the Requirements. But the product exists. Don't underestimate the advantage this provides over a BUILD.

- There are now a wealth of COTS products in diverse market sectors, both vanilla and niche, that allow for significant Configuration capabilities. Meaning there is less need to change a business to conform to the technology than was historically the case with the BUY.
- Depending on the out-of-the-box fit with Requirements, a BUY can have the lowest construction effort, including detailed design, development and testing. This can, depending on the nature of the project, lead to shorter timelines to the go-live for part, or all, of the target system. Less effort, and less time to implementation means less risk.
- Depending on the type of COTS procured, fewer development and support resources within your organization need be assigned to the care and watering of the COTS, since ongoing product troubleshooting, fixes and enhancements, are provided under an annual support and maintenance licence. In effect, you needn't be in the software development business any longer.
- Provided the COTS is neither a brand new product, nor the re-architecting of an older product, nor in your cross-hairs for extensive Configuration and Customization, you can reap the benefits of a stable and scalable product whose codebase has been proven at multiple Client implementations. A good product manufacturer makes continual investments in research and development, and has a progressive vision and product roadmap that ensures the product is viable for many years to come. These are key benefits you gain in return for your annual product maintenance fees.
- The BUY can be lowest total cost of ownership. This is particularly true when it comes to resources since, over the long haul, you don't need large numbers of development staff, and you may also require fewer IT administration and support personnel. As part of a BUY replacement, you may be able to move off of older infrastructure that has become costly to maintain. Unlike with an ENHANCE or a BUILD where you shoulder all costs of sustaining the new system, with a BUY, your total cost of ownership is a fraction of the costs that would typically be incurred to sustain a similar product since the product vendor collects "dues" from all their customers to cover their, research and developments costs, plus their profit margin.

BUY - Disadvantages:

- You don't necessarily get exactly what you want - what you BUY may not perfectly meet your *going-in* Requirements.
- With a BUY, you aren't the only passenger on the bus, and your wishes for how the product evolves won't necessarily be heard. You are part of a broader community, with each member having a varying degree of say in the product roadmap.

- In the case of a privately owned solution (i.e. not open source), typically you are totally dependent on the manufacturer of the product for its ongoing maintenance and enhancement (e.g. future fixes, patches and releases). In some cases you may also need to rely on the vendor for implementation and support services. Your fate becomes intertwined with the product provider. What happens if they go out of business? If they abandon the product outright? Or if they starve it by failing to make further investments?
- If the product is not open, you may require the manufacturer to make any complex Customization you need to undertake. This can be costly, and it makes you highly dependent on the vendor.
- The BUY typically requires extensive training for end users - the procured software will look and function very differently from the legacy.
- Pursuing a BUY involves the same development life cycle activities as the other options, though ideally with much less effort entailed. The BUY option however adds several large activities to your replacement that are usually only minor notes for the other options. These include a large procurement effort and a large Requirements Finalization effort.
- You may be unable to migrate all your legacy data in a structured form.

BUY - Most Applicable When:

- You embrace the concept that your organization needn't reinvent the wheel, and that your Requirements can be reasonably met by leveraging the work of those who develop top-tier software for a living.
- Your review of the marketplace tells you that there are several mature solutions that appear to already largely match your Requirements, and which will be configurable to meet any gaps today and tomorrow.
- For a niche system replacement, you have found products already in use in similar operating jurisdictions that have very similar Requirements to your own, where the product is being used by a similar number of users.
- To have a high likelihood of succeeding at replacing a niche system via a BUY, your stakeholders must agree to a fundamental principle which goes as follows: "where feasible, we will undertake to change any business process to eliminate the need to Customize the COTS." Of course in this principle, everything hinges on the word *feasible*. Make your own call on whether your organization will push what is feasible to the limit, or whether it will crumble at the first resistance and wind up asking for a Customization. In effect, to succeed with a BUY, you must be willing to take on the management challenge of pushing an organizational change agenda. It's best then if the replacement is being driven from the desire to conduct a business transformation, and to BUY the necessary supporting technology for whatever that future state

transformed business model looks like. This isn't an all-or-nothing position, since as noted earlier, buying a more highly configurable solutions is appropriate for areas of an organization that can't show as much flexibility in their business processes.

- For a vanilla system replacement where there are many competing products in the market, you'd have a hard time convincing me you should do a BUILD. Depending on the size of the vanilla system, the complexity of the integration points and data migration that would be entailed, you might convince me ENHANCE would be required so as not to be too disruptive - but I doubt it. For vanilla, all signs point to BUY.
- The BUY supports an organizational strategy to not have a large development team in the long run. The BUY also is appropriate when an organization would be unable to, in a timely manner, staff up a temporary development organization, of the size required, with sufficiently talented people, for a cost that can be afforded.

BUY - Cautions:

- If you want a BUY to succeed, your first approach to closing a gap between your Requirements and the product must never be to insist on Customization of the COTS. Customization is anathema. To maximize your chance of successfully implementing the product, you need to be willing to alter your business processes and procedures to try and use the COTS, as much as possible, in an out-of-the-box fashion. This means you must confront the harsh reality of whether your users will accept a system that does things differently from the one to which they are accustomed, and perhaps differently from what they had envisioned a new system should be capable of. Without user buy-in to the principle of adapting the business before the product, and your conviction to keep them honest in this regard, you should not undertake a BUY.
- If your project is about a rip-and-replace of a legacy system, your users are very likely going to expect to have a target system that looks and functions much like the old one did. That is likely not possible with a niche system, while it may be achievable, to an extent, with a vanilla system. However, for a procured vanilla replacement, the gold standard approach is to not Customize the solution in any way. Under a BUY, you must be particularly cautious with any IT driven rip-and-replace scenario. If you can, it's much better to spend time identifying target business benefits which can form a much more worthwhile and motivational purpose for your legacy replacement.
- Once the honeymoon is over (and this after what will invariably be a long and challenging courtship), the owner of a procured solution runs into the issue of performing a major release upgrade. Such upgrades really put to the test how effectively the Configuration framework of the COTS product was built, and how stable were the data, object, and interface underpinnings. Very often a major release upgrade comes with

the expectation that major effort will be involved to port over modifications, adapt them, and re-test them. As part of evaluating any given COTS, you need to understand what challenges are relevant for such an upgrade, and whose resources are responsible for what.

- If your detailed evaluation of a COTS indicates that to implement it would require an extensive array of modifications, you may be getting awfully close to doing a net new BUILD, but with the additional nasty drawback that you'd be making modifications to a foundation that wasn't necessarily built in a manner that dreamt of being extended in the wonderful new directions your organization wants to take things. When faced with this situation, return to one of the big reasons to choose a BUY, namely because, for whatever reason, the risks of undertaking a BUILD are seen as too great. With an overly modified COTS, the construction risk is even greater because of the additional constraints, and you are exposed to ultimately having a product that is unproven and not fit for productive use, combined with the additional benefits of a badly blown schedule and budget. Lose-lose-lose.
- The degree to which you need to perform testing during a COTS implementation varies based on how mature the product version is that you will be implementing and how extensively you have modified it. Do NOT skimp on your testing effort.
- Your project cost overruns on a BUY will arise from the implementation services component of the project. Your operating cost overruns on a BUY will occur as a result of needing more staff to administer the solution than you'd estimated.

1.4 HERE BE DRAGONS... STILL

Nowadays, when you undertake a legacy systems replacement, you should still expect to fail. What I mean is, manage a replacement for what it is - a dragon sitting on a golden hoard - namely, a dangerous beast that promises untold riches, yet which can easily destroy organizations and careers. Take to heart the lessons we've learned on how to conduct a replacement and your project can succeed - ignore the lessons at your peril.

Even with applied learnings that led to improvements in the field of legacy systems replacements (e.g. better methodology, more highly configurable COTS solutions), these are still large complex projects, and as such, they always come with risks. You're probably aware of a variety of statistics on the failure rate of projects. At the time of the Handbook's printing, depending on who you ask, the general rate of project failure is from 35% to 65%. When failure is defined as missing any aspect of either scope, time, or cost, the rate is at the upper end of the range. When failure is defined as failing to deliver promised value or missing objectives, the rate is at the lower end of the range. Assuredly a legacy replacement doesn't afford any better odds than that. It's fairly horrifying to think of the time, money, blood sweat and tears, that goes into these undertakings, only for them to be deemed failures - in big or in small.

There is still an array of pitfalls that most legacy replacements will come up against. Let's summarize the big ticket challenges we continue to face, and take note of where in the Handbook you'll find the help you need.

THE CHALLENGE	WHY YOU ARE GOING TO FAIL	HANDBOOK SECTION
Articulating Promised Benefits And A Comprehensive Consistent & Clear Future State Vision	If you don't take a rigorous approach to identifying promised benefits, aligning them to the organization's strategy, and managing project delivery to ensure the outputs of the project will deliver on the promises, then you have greatly diminished the degree to which your legacy replacement will deliver valuable outcomes. You will have missed your opportunity. Integrating benefits management in your project and product life cycles is not rocket science, and it doesn't need to be overly burdensome. Never forget, projects are promises - when put into productive use, the promised outcomes of a project will deliver benefits (i.e. business value) - the job of the project team is to keep their eyes on the prize - the promised benefits - these should form their *pillars of purpose*. Purpose comes before *on time*, it comes before *on budget*, and it comes before *in scope*. Focusing on benefits management not only means you'll deliver what you promised, but in fact you'll do it faster, more cheaply, and with a minimum of waste.	Stage 1 is all about properly justifying your replacement. Take a look at: • [LYLS-J1] Assess Current State; • [LYLS-J2] Future State Vision; • [LYLS-J5] Business Case. Stage 2 is about elaborating on your Future State Vision. All of Ch. 4 & 5 is highly relevant. Stage 4 tells you how to deliver on the promises of your project. Take a look at: • [LYLA-PM3-7] Benefits Management Plan; • [LYLS-PM10] Update Business Case Costs & Benefits; • [LYLS-GO6] Ongoing Benefits Measurement.

THE CHALLENGE	WHY YOU ARE GOING TO FAIL	HANDBOOK SECTION	
People	At the end of the day, people are people, and they are the biggest reason replacements continue to fail. We've got legacy replacement processes and products that, while not perfect, are much improved over what they used to be. Now, when you look for the root cause of a recent replacement failure, it's pretty much always a people issue. You are going to fail when: • You hold your best and brightest in reserve, and you staff key roles with the wrong people (meaning they have neither the requisite expertise, experience nor qualifications); • Your organization has a culture where decision making and accountability is vested only in the uppermost layers; • Secrecy and misrepresentation are allowed to go unchecked; • Politics and personal agendas rule the day; and, • Client and Supplier don't work as a team - they aren't open, transparent and honest with one another.	Every step of the LYL methodology discusses key resources. Stage 4 covers project management and organizational change management. Take a look at: • [LYLA-PM3-6] Human Resources Management Plan & Key Resource Qualifications; • [LYLS-PM3-8] Project Governance; • [LYLS-PM11] Manage Human Resources; • [LYLS-OC1] Plan organizational change; • [LYLS-OC3] Communicate.	☐
Insufficient Internal Maturity, Capability & Capacity	Legacy replacements are resource intensive, requiring high allocation of people with a profusion of skill sets, and levels of experience. The risk of a failed replacement is much higher without maturity, capability and capacity in the areas of: governing and controlling large organizational changes; project management; requirements gathering; IT procurements; and	The LYL methodology is broken down into steps & activities that set out the work that must be undertaken as you proceed through your replacement. Take a look at: • Chapter 4 & 5	☐

THE CHALLENGE	WHY YOU ARE GOING TO FAIL	HANDBOOK SECTION
	modern systems development methodologies. Those who have failed at legacy replacements all too often underestimated the level of qualification, and the degree of allocation needed for resources. Your project will be headed towards the rocks if you come up short on any of the following: • Skilled PM's who have managed organizational change projects as large and complex as yours, and most preferably, who have managed legacy replacements; • A mature Project Management Office (PMO) that consistently achieves successful project outcomes with a minimum of wasted resources; • Strong and engaged executive leadership who are active participants in the legacy replacement; • Skilled functional leads including for: Requirements; Procurement & Legal; Construction; Data Migration; Information Technology; Testing, and Training.	Architecture & Requirements; • Chapter 6 for Procurement; • Chapter 7 for Requirements Finalization; • Chapter 8 for Project & Organizational Change Management; • Chapter 9 for Construction; • Chapter 10 for Data Migration; • Chapter 11 for Testing.
You Don't Trust Your Team	When you don't trust your teams, you've got a seriously nasty problem. Anything other than the smallest replacement can NOT be managed and delivered by a single person. You MUST rely on great teams with strong leads. Replacements have calm stretches punctuated by moments of terror, and when peril arises you need a team you can rely on. A trusted team guides early decisions around	Chapter 2 describes how to assess whether your organization has the required capabilities including: • [LYLA-J1-2] Executive Management; • [LYLA-J1-3] Project Management;

THE CHALLENGE	WHY YOU ARE GOING TO FAIL	HANDBOOK SECTION	
	options, Requirements, and design, right through to advising on when you are ready to go-live. Often executives gets caught between trusting what the team says and what outside pressures demand. Bowing to external realities against plaintive opposition from your team typically ends poorly, or even tragically. Lack of trust arises for many reasons including: • You didn't assign the right people to the team - you didn't deploy your experts who would make the team credible; • You don't have adequately skilled team members, and therefore teams aren't competent; • You haven't secured adequate allocation for your key team members, and therefore they underperform; and, • Your organization has a culture of not delegating authority to teams - instead operating in a command and control mode.	• [LYLA-J1-4] Organizational Change; • [LYLA-J1-5] Legacy Replacement; • [LYLA-J1-6] Information Technology. Key to establishing trust is effect ongoing management of risk and the health of the replacement: • [LYLS-PM8] Monitor Risk; • [LYLS-PM9] Monitor Project. Also look at: • [LYLA-PM3-6] HR Mgmt. Plan & Key Resource Qualifications; • [LYLS-PM3-8] Governance; • [LYLS-PM11] Manage Human Resources.	
Your Success Relies Heavily On A Supplier Delivering What They Promise	When the success of your replacement rests largely on the shoulders of an outside Supplier, you can be in a precarious situation. Ensuring the Supplier can successfully deliver is all about identifying problems when they are big enough to see and small enough to solve. You are setting the Supplier up for failure in the following circumstances:	A crystal clear understanding of what is to be delivered is developed in: • Chapter 4 & 5 Requirements (you develop the idea of what you want); • Chapter 6 RFP	☐

THE CHALLENGE	WHY YOU ARE GOING TO FAIL	HANDBOOK SECTION
	• Without well written and approved Requirements the Client and Supplier will fundamentally disagree on what is to be delivered; • Without well thought out and contractual acceptance criteria the Supplier will expect payment while you are still expecting defect fixes; • Without frequent inspections of work-in-progress you'll be left guessing if the Supplier truly understands the Requirements and the Acceptance Criteria; • Without effective defect management, including lean and transparent processes, you will waste time with back-and-forth discussions; and, • Without daily vigilance for warning signs of a failure, small problems become fatal problems (e.g. repeatedly receiving unstable or underperforming releases, or ones that miss the mark in terms of functional behaviour).	(Supplier thinks they know what you want); • Chapter 7 Requirements Finalization (common understanding of who delivers what, when, at what cost). Solution is jointly constructed and validated through several steps: • [LYLS-CO1] Joint design; • [LYLS-CO9] Proof-of-Concept; • Chapter 11 Testing; • [LYLS-GO3] Pilot; • [LYLA-GO4-1] Go-Live Readiness Assessment. Formal project management contributes as discussed in Chapter 8.
Sufficient & Timely Availability Of Qualified Supplier Resources	Suppliers routinely suffer from poor resource management - including most particularly the availability of skilled resources who can understand and solve your problems. A common root cause for Suppliers failing to deliver on a replacement is their	Early awareness of a Supplier's bench strength is developed in: • [LYLS-PR5] Proposal Evaluation; • [LYLA-PR5-2]

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	inability to deploy sufficiently qualified resources in sufficient volume in a timely manner. Vendors, big or small, have a limited set of great resources - you will find only the outlier has exceptional people across the board. Supplier resource issues will be exacerbated when: • You fail to get an early in-depth understanding of the true breadth and depth of the Supplier's resources by observing and questioning during your evaluation, including at the presentations, demonstrations and reference checks; • Your lack of knowledge leads to unrealistic expectations of what a Supplier can deliver when; • Without naming specific resources on the Supplier's team who must participate in your project, lower calibre employees will be swapped in, hurting quality and schedule; and, • You rely on a Supplier who, concurrent with your project, begins taking on more work than anticipated with other Clients.	Reference Checks; • [LYLS-PR6] Presentation & Demonstration. As discussed in Chapter 7, Requirements Finalization plays a fundamental role in creating a realistic schedule for the Supplier's delivery. In particular, look at [LYLA-RF6-4]. A strong master agreement is negotiated in [LYLS-PR10]. Chapter 8 covers monitoring of performance and risk which can uncover Supplier resource challenges.
You Are Trying To Overly Customize A COTS Product	When you buy a COTS to replace a niche system, there are going to be gaps that arise in localizing the COTS to your operating environment - to its unique business workflows and rules (business or regulatory specifics), terminology (business or regulatory specifics), multi-lingual interface requirements,	Requirements Finalization, Chapter 7, ensures that the organization has its eyes wide open through truly extensive stakeholder participation. ☐

THE CHALLENGE	WHY YOU ARE GOING TO FAIL	HANDBOOK SECTION
	etcetera. It is in the handling of how we close gaps between what the original Requirements ask for and what a COTS product currently does that large challenges arise: • The first challenge arises when you select a COTS that is not highly configurable - the more specialized your Requirements are, the more this will lead to a profusion of stakeholder requests to close gaps by Customization; • The second challenge arises when the organization proves unwilling to adapt how it operates to accommodate the solution with a minimum of modifications; and, • The coup de grâce occurs when you move forward with the purchase of a COTS without an accurate picture of the true impacts and tradeoffs, the costs, and the timelines.	An agreement in principle to zero Customization need be enforced in several ways. Foundational is agreeing on the purpose for the replacement (Chapter 2 & 3), then using governance to steer the organizational change (Chapter 8). Make-or-break construction activities include: • [LYLS-CO1] Business & Solution Design; • [LYLS-CO5] Prototype; • [LYLS-CO9] Proof-of-Concept.
Complexity Of Large IT Goods & Services Procurement	You are likely replacing your legacy system because it won't meet your to-be Requirements. The longer the timelines on your replacement, the greater the risk what you deliver won't be fit for use - the organization's needs will have changed. One area that has particularly challenged BUY replacements is the length of their procurement cycles - especially in the public sector. Without sacrificing effectiveness or fairness of your procurement,	Chapter 6 deals extensively with how to effectively and efficiently manage a large IT procurement.

THE CHALLENGE	WHY YOU ARE GOING TO FAIL	HANDBOOK SECTION	
	you must look for ways to streamline, and must avoid costly mistakes that would require cancellation and reissuance of your RFP.		
You Are Pursuing A Large & Complex System Build	Complex builds fail upfront, based on poor performance of well established methodologies including SDLC and PMLC (cost and time being the deemed failure points), and they also fail after go-live when the target system proves to be no more capable nor flexible than the legacy systems it replaced. We can consider these technical failures because they don't face the same organizational issues as does force-fitting a COTS into a niche. Of course it's possible for a complex BUILD to get you what you want. But, you're much less likely to succeed if you: • Fail to develop a crystal clear Future State Vision; • Fail to develop excellent Requirements; • Prolong construction and implementation of the target system by failing to use agile approaches; • Fail to rigorously manage the quality of the target system; and, • You fail to retain a highly qualified team to construct and sustain the target system.	Take a look at: • Chapter 4 & 5 Architecture & Requirements; • Chapter 9 for Construction; • Chapter 11 for Testing.	☐
Your Timelines Are Unrealistic	In anything other than the smallest legacy systems replacements, pushing for a start-to-finish replacement within one year is far too aggressive. Not only does such	The key steps for planning a realistic and achievable implementation schedule include:	☐

THE CHALLENGE	WHY YOU ARE GOING TO FAIL	HANDBOOK SECTION
	haste make waste, it also leads to realizing significantly reduced benefits. Too often project funding for a replacement forces a *sandwich-schedule* mentality onto the Project Managers - namely, by giving them guesstimated start and finish dates between which they are expecting to *sandwich* the fillings. It's much better if you take an architectural view to the transformation of your business and solution and create a multi-year architecture roadmap and implementation strategy that plots out key milestones that you will progressively implement.	• [LYLS-AR7] Conceptual Reference Architecture; • [LYLS-GO1] Implementation Strategy; • [LYLS-PM4] Work Breakdown Structure; • [LYLS-PM5] Project Schedule.
Failing To Properly Prepare For Sustaining The Product	Failing to consciously and diligently prepare for sustainment of the product of the project is foolhardy. You'll be going from the frying pan to the fire. It is not difficult, even at the project outset, to envision at a high-level what resources will be required to sustain the target system once operational. By failing to think ahead, not only will you be unprepared for go-live, you will have also missed the tremendous wealth of knowledge transfer opportunities that occur during the project. Failing to involve your product sustainment resources from the early stages of your replacement says quite clearly that you really aren't at all serious about achieving long term benefits from replacing your legacy systems.	As early as the Options Analysis [LYLA-J4-4] you need to identify the roles that will be needed to implement and to sustain the target system. Chapter 12 discusses sustaining the target system to maximize the realization of benefit.

1.5 WHEN TO SERIOUSLY CONSIDER A REPLACEMENT

A legacy replacement is going to keep a lot of people really busy for a long time. Generally speaking, large projects often entail a lot of floundering towards fuzzy targets and busy work as people make mountains out of mole hills. A well run legacy replacement is instead based on *pillars of purpose* that focus the overarching strategy and tactical work of the project teams. Your replacement's *purpose* will be established by answering the fundamental question: why are you replacing your legacy systems? Answering this question lets the organization concretely establish the benefits a replacement promises to achieve and the harms a replacement warrants will be avoided. Only when you've set this foundation can you identify, at the macro and micro level, the most efficient options for effectively delivering on your stated needs.

Without a sound imperative for replacing your legacy system, you are going to struggle to achieve and sustain strong executive support, which is a critical factor in any successful replacement. Given that form follows function, without a strong justification, a replacement can't be effectively steered. It becomes a case of, if you don't know where you're going, any road will take you there. This makes you vulnerable to choosing options and approaches based on personal biases and agendas.

If the primary reason you are considering a replacement is because IT says your legacy systems will no longer be supported, you face an uphill, though not insurmountable, battle - here's why. Projects should be undertaken to ultimately deliver on strategic goals. How many organizations have a strategic goal that says "change out IT systems when Suppliers stop providing support and maintenance." I've never seen one. That's a bit tongue in cheek. Most organizations have at least an interest, if not a strategic goal, to ensure their operations are supported by a sound and cost-effective information technology. But starting out with this as the singular driver means you are likely not going to have support from the business, which means they will ask for the new system to simply duplicate what the existing legacy system does. The worst case then occurs when you BUY a COTS solution and insist on it being customized extensively to meet the status quo requirements of the business. I encourage you to think differently. You need to look at an external driver, like a product end-of-life, as an opportunity to do some broad investigation, to see if there are legitimate business benefits that could be achieve if you replaced your legacy systems. I caution you that only sizeable business benefits ultimately justify the turmoil, pain, suffering, and cost that arises from a replacement.

Despite my pessimism about the success rate of these kinds of projects, there are of course many high stakes valid reasons and drivers for embarking upon a replacement or modernization. Many organizations, public and private sector alike, are placing an increasingly urgent emphasis on digitally transforming their enterprises in order to meet the demands of citizens and customers. Undeniably, technology is continuing to irreversibly alter how people interact: person-to-person; with business; and, with government. It is from this sea change that you may find the strongest motivation for changing your legacy systems. Some of the top level strategic drivers for making a

significant change to your legacy systems are noted below. They are suggested as a starting point as you think intensely about why exactly your replacement may be justified.

TO GAIN BENEFIT:

Broadly speaking, replacing or modernizing an information system should deliver on large strategic goals to realize benefits. Benefits may accrue through:

- *Greater engagement and collaboration* - Introduce new capabilities, or enhance existing ones, to engage clients, constituents, and stakeholders, in your workflows - the future organization is only going to become more collaborative internally and externally, offering more active participation and greater visibility to those outside the enterprise.
- *Increase convenience* - Enable an *anyplace* and *anytime* operating model whereby mobile users are able to have rich interaction with your information systems using devices of their choosing - if you can't do mobile today, you've got a huge opportunity, which if not exploited, will soon become a threat to your organization.
- *Increase transparency* - Enhance your ability to easily analyze and openly share data in novel and ever changing ways - the public sector is increasingly supportive of open data initiatives.
- *Improved decision making* - Enhance your system of record so that it can reliably form the basis for advanced data analytics and decision making capabilities. Look for opportunities to reduce human error and to improve the availability and quality of data. Nowadays you should expect an information system to easily afford visibility, exploration and analysis of accurate real time data and performance measures.
- *Work faster* - Automating key steps of a business process can reduce the time to complete business transactions - providing improved workflow capabilities allows effective management of transactions to ensure service levels are met. Elimination of non-value added work is also key.
- *Do more* - Accommodate a growing volume of transactions by implementing a robust scalable technical architecture that provides a high degree of automation, eliminating manual work where possible.
- *Grow the business* - Flexibly and cost effectively incorporate new service offerings - a suitably configurable solution framework allows you to use and extend standardized building blocks to implement anything from the atomic transaction level up to an entirely new line-of-business.
- *Save money* - Often when the business wants to make a significant business transformation, they question whether the required investment in a legacy system is warranted. With a transformation strategy as the impetus, taking a broad and deep look can identify opportunities to reduce the cost of ownership of enterprise information systems.

- *Increase organizational efficiency* - This one doesn't need to be wrapped in platitudes. Frankly, a new system may automate many manual tasks and a replacement is therefore often considered when an organization is undertaking a strategy to reduce or reassign staff - often maximum efficiency is only gained if business processes are also redesigned as part of the transformation in order to eliminate duplicated effort, to eliminate non-value add work, and to allow external users to rightly perform their portion of a transaction.

TO ELIMINATE HARM:

Continued use of a legacy system may engender concrete harm or may give rise to enterprise level risks. Broadly speaking, implementing a replacement or modernized system may address key deficiencies with how your legacy systems operate. These harms may include:

- *Insufficiently secure* - Can you cost-effectively ensure your legacy systems provide appropriate security and safeguards that are proportional to the sensitivity of the data they house? Do your legacy systems meet security compliance Requirements? Do your systems have a litany of issues identified by auditors, in particular with respect to privacy and security of data that may pose a risk to human welfare? The legal liability and reputational risk that arises from operating insufficiently secure systems is unacceptable for most organizations.

- *High cost of bad decisions* - Poor decision making ensues when your legacy system of record fails to provide the ability to reliably access and analyze high quality real time data. Your bad decisions harm your stakeholders which ultimately harms your organization - tangibly (e.g. lost revenue, cost of rework, legal action etc.) and intangibly (e.g. reputation). All organizations should have a system of record that is stable, available, and provides the requisite level of data integrity. You should actively seek to avoid the harm that arises when your legacy systems are islands of information, without a definitive source of truth, that don't support the level of data analytics and openness (both internally across lines-of-business, and externally to stakeholders or clients) that a modern organization requires.

- *Fragmented service offerings* - Are your services offered to clients, constituents, and stakeholders in a fragmented manner? If so, are you forcing external users to take on extra work (e.g. learning multiple systems, duplicating data entry)? Is your organization without a coherent set of enterprise data definitions and performance measures? Are you, on a large scale, duplicating cost and effort to separately support and maintain systems for each line-of-business? This often arises when an organization operates in silos. In this case, each line-of-business will have met their functional and data Requirements by either having their own captive stand-alone system, or by adding onto a patchwork enterprise system that was built over multiple eras and

which met needs differently each time it was extended based on whatever that era's team felt was best. Of course there are cases where systems need to function differently for a line-of-business. But on the whole, when an organization fails to adopt a "the same except where they NEED to be different" model, they are harmed by paying to reinvent the wheel multiple times, and by offering differing service levels to their stakeholders. Where things can be the same, they should be the same.

- *Insufficiently flexible* - Unless you operate in an unchanging environment, flexibility is likely an area your executives are keenly interested in. Do you have the ability to easily and cost effectively meet the demand for change and enhancement of your back-end and front-end systems? Or is your system a *Frankenstein's Monster* that has grown beyond all reasonable measure? Has your legacy source code spread business processing logic willy-nilly, tendril-like, through whatever tiers your system uses to handle data persistence, business logic, and presentation? Such monsters carry with them heavy technical debt, acting as millstones around an organization's neck, and in a changing business and regulatory environment they hinder: innovation; streamlining; adapting; complying; and even basic survival. Living with these monsters means the organization is stuck doing things more slowly and at greater cost than is necessary, and in some cases is prevented entirely from certain undertakings. If your systems are not flexible, then neither is your organization. Keep in mind that flexibility isn't a one-size fits all requirement - back-end transaction processing systems can be less needful of frequent change than front-end systems.

- *System too costly to sustain* - Perhaps you can't cost-effectively support your legacy system, and you wish to undertake a replacement to lower total cost of ownership and get better value for money. Is the lion's share of your information technology spend allocated to maintaining legacy systems? If so, you're not alone - that's the norm in mature organizations. This typically means the level of technology innovation an organization requires in the long term is underfunded. You're a decade behind if your legacy systems can't be virtualized and remotely hosted.

- *System not reliably supported and maintained* - Obviously, a legacy system your business depends upon should be supported and maintained to continuously meet expected service levels. Where sustaining the legacy system is the responsibility of in-house staff you need to ensure you have a reliable supply of resources - this means having administrators, developers and testers with deep knowledge of how the legacy system works. This can be challenging as people retire and when labour markets for IT professionals tighten. Where you rely on an outside Supplier for support and maintenance of a COTS legacy system you need to deal with any imminent product end-of-life issues (e.g. no further system fixes / security patches / enhancements, no support). You may be faced with a scenario where your COTS Supplier

will only continue to enhance or support your system if you implement a major version upgrade. Similarly, in order for your infrastructure stack to continue to be supported, you may be forced to perform a major upgrade of the COTS system. Depending on the COTS, upgrades can be costly, time consuming, and risky. When you can't find resources or alternate providers to support and maintain your legacy system you need to consider whether a replacement is justified. The next major change to your business Requirements will likely push the agenda.

- *Low user satisfaction* - User satisfaction rates take a hit when legacy systems aren't easy to use, when they aren't reliable, and when they are slow. Users expect to use modern systems built with human factors and the user experience top of mind - systems that are intuitive, streamlined, reliable, secure, and have snappy performance. When user satisfaction rates are low it translates into a variety of ills including: limited system use, and therefore limited realization of benefits; high employee turnover; and, low employee productivity. Sometimes user satisfaction plummets to the point where it becomes a case of "enough is enough" - either you face a revolt, or you address the shortcomings of the legacy system.
- *Limited system interoperability* - Legacy systems can be hard to integrate with external systems in an effective and efficient manner. When your systems have weak interoperability you may end up duplicating functionality and data across multiple systems to get around not being able to appropriately couple them. Today, systems talk to one another. If yours don't, the writing is on the wall. Making your legacy system interoperable can be one of the best ways to extend its useful life.
- *Incompatible with Technology Roadmap* - Is the legacy system based on technology you don't want as part of your future technical operating environment? Is it already incompatible with your mandated technology stack (e.g. virtualized and cloud hosted infrastructure, operating system, database, middleware, development tools)? While not the be all and the end all, technology standards are chosen for a reason, and by failing to conform your legacy system will subject the organization to unnecessary cost and risk.

1.6 WHAT YOU NEED TO BE PREPARED TO INVEST

The point of this Handbook is to present a practical approach to getting you to a successful outcome that is defined as:

- Business goals, objectives and delivery success measures are met by constructing a high quality solution that fully delivers the requested scope;
- Organizational impacts are considered thoughtfully, minimized where appropriate, and managed at all times;

- The replacement is delivered and put into productive use on time; and,
- One-time project costs and ongoing operating costs are within budget.

So, let's say you've got what seems, at first blush, to be a valid reason to replace your legacy system(s). To ultimately achieve a successful outcome from a legacy replacement, you'll need to be able to ante up table-stakes which for **any** enterprise replacement include mature capability in ALL of the following:

- Business Architecture & Requirements gathering;
- Information technology goods and services procurement (applies in big or in small depending on the chosen replacement option);
- Information system construction and sustainment; and,
- Project and organizational change management.

You will see from the Handbook that maturity in these requisite capabilities is required to effectively deliver on the many steps and activities involved in replacing a legacy system. One of the main takeaways for you when reading this book should be to accept that a replacement is a large scale team effort that requires expertise in a variety of highly specialized domains - it is not business as usual. If you are directing a replacement, a big part of your responsibility is ensuring you have strongly qualified team members in sufficient allocation to get the necessary work done in a professional and timely manner. Even as voluminous as this Handbook is, it only scratches the surface of many topics. You'll need to staff your replacement with qualified leads who are able to design, plan and execute at a more granular level. A replacement is a giant onion, and if you have to peel it by yourself, you are going to cry. Guaranteed.

With the required basic maturities noted above in place, you will invest in people, processes, governance and tooling to deliver on the following key work elements of any legacy replacement:

- *Future State Vision* - Why on Earth are you doing this? You need to create and maintain an attainable vision of the desired to-be state of the business and the technology. This forms the team's pillars of purpose.
- *Options Analysis* - You must fully consider and evaluate the many permutations available to transition the business and technology to a future state. To choose the best approach, you'll need to assemble a cross-functional working group and sift through a goodly pile of data in order to diligently compare the options in an objective manner.
- *Business Case* - You need to formally document what justifies the decision to invest in the replacement. Your Business Case needs to be vetted for strategic alignment, prioritized in light of your current portfolio of projects, and fine tuned to ensure maximum benefit is delivered as early as possible. Furthermore, you'll need to update the

Business Case as the project unfolds (e.g. when assumptions and estimates come up against reality) - does the justification hold up as the project progresses and more information comes to light?

- *Architecture & Requirements* - You will create and maintain up-to-date crystal-clear future state Requirements that ensure common understanding between what the business wants and what the construction team thinks they are supposed to deliver. As your replacement progresses, your team will elaborate your high-level business Requirements into the target system's detailed functional and non-functional, data, and technical requirements. You need to have a rigorous framework and tooling in place to manage your Requirements, including to provide traceability back to the promised business benefits.
- *Information Technology Procurement* - Virtually all legacy replacements involve a degree of IT Procurement, minimally including infrastructure and professional services. In the case of a BUY, you're also procuring all, or significant parts of, your target solution. In any event, your interests are best served when you secure the expertise necessary to run open, fair, and transparent large IT procurements. A well planned procurement is designed to solicit multiple responsive proposals, and to include multiple stages to allow impartial and objective evaluation of written Proposals, product demonstrations, and Requirements Finalization. Up-front investment in running a good procurement ensures that you effectively and efficiently select the best the market has to offer, and that you negotiate and execute agreements with your Suppliers that set the stage for success, rather than an interminable flood of change requests, arbitration, and ultimately, litigation.
- *Business Design* - Legacy replacements that are part of a business transformation deliver the greatest business benefits. Business design is a critical stage of your project where you need to concretely model and specify how your organization is going to work in the future. To do that, you need people experienced in designing lean processes and high functioning organizations. You will spend significant time designing and gaining buy-in for new: processes and rules; policies and procedures; decision making models and authorities; performance measures; and organizational structure including job roles, responsibilities and accountabilities.
- *Solution Design* - You will task experienced architects with building a cohesive solution blueprint that encompasses application, data, security and infrastructure domains. Remember from the learnings discussed earlier that an architectural approach to designing and phasing in your replacement solution is one that more often leads to successful outcomes.
- *Construction* - Your solution is built according to its design, but also importantly, by following systems development methodologies you put in

place. Investing time, effort, and yes, expertise and brainpower, in coming up with optimal development methodologies can get you benefits faster, can lower overall costs, and can reduce key risks. It's prudent to invest time and money in design walkthroughs, prototyping, proof-of-concepts, and pilots. To some folks, these may seem like extravagances, but it's a well known fact that system deficiencies and defects are drastically less expensive to fix the earlier in the systems development life cycle they are addressed. Trust me, finding critical shortcomings during your go-live readiness assessment or, worse yet, a few months after go-live, will make you wish you'd spent a few hundred thousand dollars to do the job right. The construction stage also sees you investing in infrastructure for the to-be technical architecture. Depending on the replacement, the infrastructure investment may be quite large (e.g. greater than 10% of the overall budget).

- *Data Migration* - Going live on the replacement system will be dependent on all necessary data being migrated from your legacy source databases to the target database. Data migrations are technically complex, and they involve wrangling with stakeholders over the multi-factor decision on precisely what data should be migrated. Data migrations require significant planning, analysis, development, cleansing and testing effort to ensure each go-live is achieved with a minimum of disruption to the business. Despite their complexity, you'll only have yourself to blame if data migration is what tanks your legacy replacement. As it pertains to data migration, what the organization primarily needs to do is put in place a team with the necessary expertise, provide them suitable tooling, and then let them get on with their job. I've never seen, firsthand, a well staffed data migration derail a replacement. Furthermore, if you're prepared to invest a bit more time and effort, there is a huge opportunity to de-risk your implementation of the target system by enabling *round-tripping* of data between legacy and target systems. This goes beyond the conventional paradigm of one-way flow of data from legacy to target, but if successfully put in place, it provides you with a variety of approaches to incrementally constructing and phasing in the new system (e.g. by business function, by region, by team, by legacy system). Depending on the replacement, another area that becomes worthy of investment is taking a more holistic view of the enterprise data architecture - rather than just moving data from one transactional system to another, as is traditionally done, implementing a consolidated or conformed enterprise data repository may be something that will pay dividends in the long term (e.g. data analytics, data management, data quality, integration and interoperability).
- *Testing* - Inadequately testing a target system is something that will cause a legacy replacement to fail in a spectacular and highly visible fashion. What often occurs is the go-live of the new system is green-lighted by executive management against the expressed opposition of the test team's leadership. Looking at this dispassionately, executives

can only be justifiably confident in approving go-live of a new system when they have sufficient visibility to know, for a fact, that their testing, business and technical experts have diligently verified the target system meets Requirements and any known defects and their impacts have been properly assessed, communicated, and accepted. While some of your replacement testing budget should go towards having a dedicated professional Test Lead and Testers, you should dedicate more towards securing the highly involved participation of your business and technical staff in hands-on testing. The upshot is when the test team tells your governance bodies the system isn't ready for go-live, they will be believed, and the responsible executives will take on the challenge of resetting expectations for when go-live can realistically occur. Depending on which replacement option you are taking, varying degrees of test tooling need to be procured and implemented.

- *Training* - Inadequate training in support of implementing the future state business and target system can: prolong the pain and suffering that occurs around a go-live, making it more disruptive than necessary; slow the realization of benefits; and even lead to outright failure. So, you're going to invest in training. But given training is going to be quite disruptive, requiring a significant time commitment from attendees, it behooves you to put in place the people, tools and facilities necessary to deliver the highest quality training possible. The cost of doing training well is often underestimated. A high quality training program, encompassing both business and technical stakeholders, is: consciously and innovatively designed based on the needs of adult learners and reflective of their geographic location; well planned and coordinated; and, tested for effectiveness prior to mass delivery.
- *Sustainment* - As you undoubtedly are aware, a large portion of the cost of ownership for any enterprise information system is dedicated to sustaining the solution during its productive life. However, this investment shouldn't be viewed as simply the cost of keeping the lights on, but rather should be seen as a steady source of funding to continue to deliver innovation and improvement in order to maximize the realization of the promised benefits of the replacement and to maximize the useful life of the system. Don't let a disconnect occur between those who develop and implement the product and those who sustain it over the long haul. Properly investing in sustainment of the solution can result in significant gain, and should take the form of ongoing benefits measurement, usage assessment, lessons learned, opportunity identification, feasibility studies and future project proposals.
- *Project & Organizational Change Management* - To properly manage the risks to a successful outcome and to ensure a smooth transition with a minimum of negative impacts you'll need to invest in qualified Project Managers and Change Leaders, and equip them with appropriate tools.

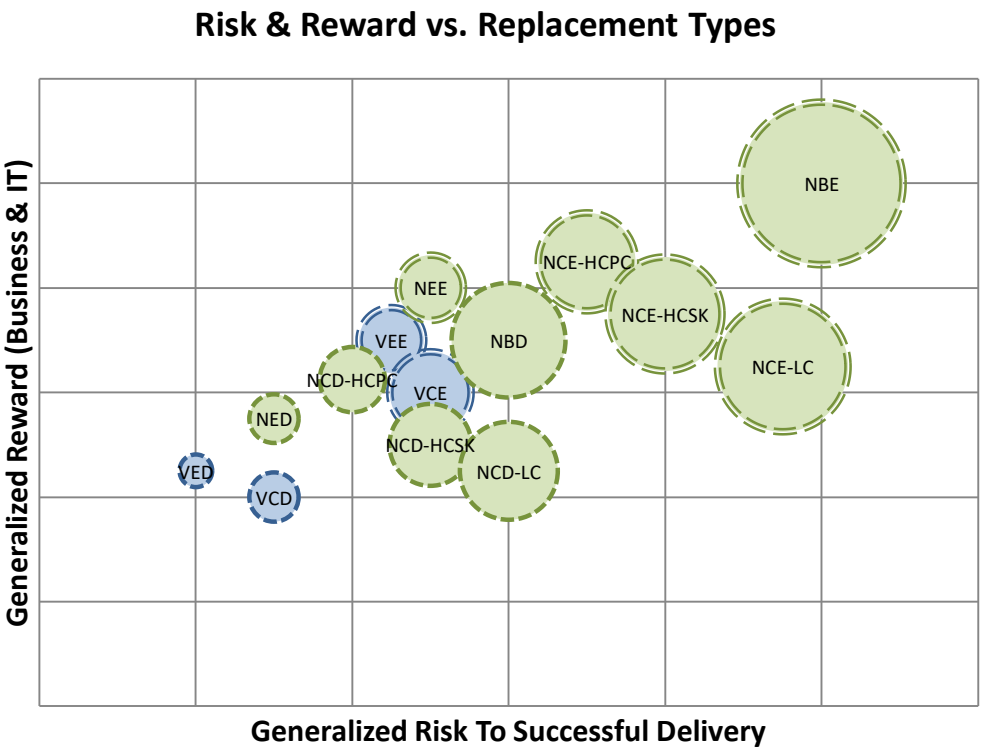
Legacy system replacements come in many forms - they range in type and in size. The methodology described in this Handbook should be considered as a *one size fits none* body of knowledge. The specific steps, activities, and documents you choose to utilize on your replacement need to be specific to the needs of your project. To help you dial-in the level of rigour that should be applied to your replacement, the following parameters will help you in right-sizing the content of the Handbook. When assessing the size of your replacement, the table below is a little loosey-goosey, but my suggested approach is to consider your replacement to be of the largest size where you meet even a single one of the listed criteria.

REPLACEMENT SIZE	"VANILLA" SYSTEM • Supports standardized business management functions • Things your organization does just like any other to organize and support internal work • E.g. accounting, email, payroll, time-keeping • Applicable replacement options: ENHANCE, BUY	"NICHE" LINE-OF-BUSINESS SYSTEM • Supports your core / strategic business delivery functions • Things that make your organization's operations truly unique - "differentiators" • E.g. licensing, regulatory, social services, healthcare • Applicable replacement options: ENHANCE, BUILD, BUY
Small	# of Legacy Systems: 1 Total User Count: < 100 Scale: Department Project Duration: < 1 year Project Budget: < $1M Jurisdictional Variation: No	# of Legacy Systems: 1 Total User Count: < 100 Scale: Department Project Duration: 1 to 2 years Project Budget: < $1M Jurisdictional Variation: No
Medium	# of Legacy Systems: 1 or more Total User Count: 100 to 500 Scale: Department / Enterprise Project Duration: 1 to 2 years Project Budget: $1M to $5M Jurisdictional Variation: Maybe	# of Legacy Systems: 1 Total User Count: 100 to 500 Scale: Department / Enterprise Project Duration: 2 to 4 years Project Budget: $1M to $20M Jurisdictional Variation: Maybe
Large	# of Legacy Systems: 1 or more Total User Count: > 500 Scale: Enterprise Project Duration: > 2 years Project Budget: > $5M Jurisdictional Variation: Maybe	# of Legacy Systems: 1 or more Total User Count: > 500 Scale: Enterprise Project Duration: > 4 years Project Budget: > $20M Jurisdictional Variation: Maybe

As an example of a large sized NICHE replacement:

- A national system that provides for the management of medical transportation benefits - therefore the system is NICHE and given the system operates across a national enterprise, it should be considered at least a MEDIUM sized replacement;
- Each region (e.g. provincial, state, district) has some element of variation in jurisdictional Requirements - variation in Requirements increases effort all the way around (e.g. analysis, design, construction, data migration, testing, organizational change management), so at least a MEDIUM sized replacement;
- 450 national users - within the bounds for MEDIUM sized;
- The options analysis estimated project duration to be three years with a budget of $15 million - therefore within the bounds for MEDIUM sized; and,
- Several legacy systems are currently being used across the country which will be replaced and decommissioned - each legacy system will add effort to the analysis, data migration, testing and cutover, and so in the final analysis, this bumps us to a LARGE sized replacement, meaning pretty much all of the steps and activities in this Handbook would be considered to be applicable to some degree.

When we consider our broad replacement options (i.e. ENHANCE, BUILD or BUY) against these types of replacements (e.g. vanilla vs. niche, small vs. large), we can generalize the risk-reward tradeoffs. As discussed earlier in this chapter, legacy replacements can be richly rewarding, but depending on the path you take, can come with significant risk. You need to be mindful of the level of risk you are signing your organization up for when you choose your replacement approach. The following diagram simplistically conveys how risk-reward correlates with each replacement option. A legend is provided following the diagram.



The concept of reward is highly generalized in the chart above, and the diameter of each circle is used to represent the relative uncertainty in terms of the size of reward that may be achieved and the degree of risk each type of replacement may be exposed to. For example, if the sole focus of a given replacement we were undertaking were on getting out of being a development shop and thinning the total cost of IT ownership of a system, proportionately we would want to place greater emphasis on the reward a COTS solution offers, since that's what's most relevant to this undertaking. I've used a more balanced middle-ground view of reward in the chart by weighing both business and IT benefits relatively equally - with a bit more emphasis on the business side. The scenarios contemplated in this diagram include:

- **VED:** Vanilla ENHANCE - departmental system;
- **VEE:** Vanilla ENHANCE - enterprise system;
- **NED:** Niche ENHANCE - departmental system;
- **NEE:** Niche ENHANCE - enterprise system;
- **VCD:** Vanilla COTS - departmental system;
- **VCE:** Vanilla COTS - enterprise system;

- **NCD-HCPC:** Niche COTS (highly configurable - pre-configured for niche - e.g. pre-built business specific configurations) - departmental system;
- **NCD-HCSK:** Niche COTS (highly configurable - "skeleton" framework / platform - e.g. you build the majority of your configurations yourself) - departmental system;
- **NCD-LC:** Niche COTS (limited configurability - e.g. much of the configuration is done via hard-coded values) - departmental system;
- **NCE-HCPC:** Niche COTS (highly configurable - pre-configured for niche) - enterprise system;
- **NCE-HCSK:** Niche COTS (highly configurable - "skeleton" framework) - enterprise system;
- **NCE-LC:** Niche COTS (limited configurability) - enterprise system;
- **NBD:** Niche BUILD - departmental system; and,
- **NBE:** Niche BUILD - enterprise system.

There are large replacements, and then there are LARGE replacements - ones that meet most or all of the criteria I noted above that help differentiate the size of the replacement. If you are replacing multiple legacy systems that are used across several lines of business, where at least one of the systems is large (>500 users), and there are external system interfaces, and in scope is some significant redesign of business processes, then you need to up the ante. To give you a VERY rough starting point, on such a LARGE replacement, you should expect to meet **ALL** of the following:

- 1.5 years minimum timeline for Stage 1 to the end of Stage 3, and 2 years minimum timeline for Stage 4;
- $20 million approved budget including one-time project costs, including staffing, 5 years of operating costs, and management and contingency reserves;
- Expert Business Analysts and subject matter experts in high allocation working on Requirements, business & solution design, data migration, testing and training (e.g. think a dedicated team of 6 to 10 at 100%);
- Project Manager(s) with experience in legacy systems replacement allocated 100%;
- Strong Architects - Application, Data, Security, and Infrastructure;
- An experienced Data Migration Lead allocated 100%;
- An experienced Test Lead allocated 100%; and,
- You need invested, accountable executives who are going to take an active leadership role - at times this could amount to a 25% weekly allocation.

1.7 THE LEAVING YOUR LEGACY HANDBOOK

In the event that you've not already been dissuaded from seriously considering a legacy replacement, it's worth summarizing the knowledge areas contained in the Handbook that you'll need to master.

It is hoped that digesting the Handbook content will provide the reader with a broad appreciation of the scope and complexity of legacy systems replacements, and a more detailed understanding of the elements of work that they entail. The reader should come to understand the kinds of people that need to be assigned to these types of projects, and the allocation levels that may be required for any given size of replacement. The reader should gain insight into the extent of the investment that is required to successfully pull off a replacement, and just how long it may take to realize envisioned benefits. And finally, the reader must come to appreciate the many significant risks that attend a legacy replacement, so that they may rationally consider whether the rewards they are trying to achieve are really worth the organizational disruption a replacement will cause, given that success is by no means assured.

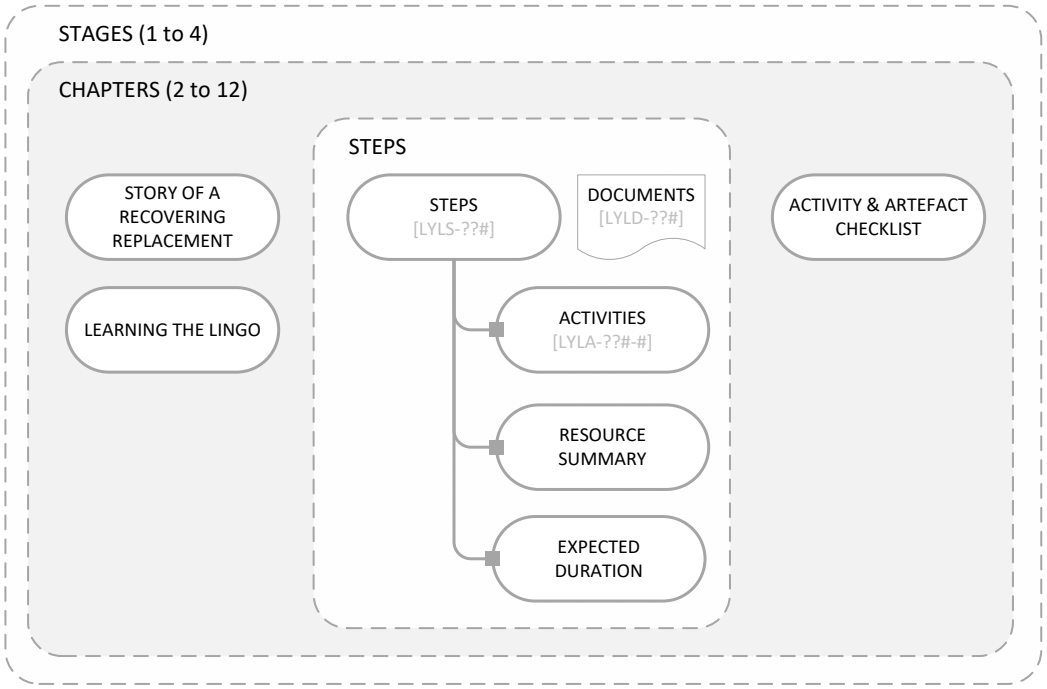
The Leaving Your Legacy (LYL) methodology has been organized into four Stages, and the body of the Handbook is structured accordingly. The table below describes the four Stages that apply to legacy systems replacements.

STAGE	OVERVIEW OF KEY STEPS	APPLICABILITY
1. Justification	Formal upfront justification steps apply whether you are agile or waterfall	Applies equally to ENHANCE, BUILD, and BUY, because until the Business Case is approved you haven't formally approved your replacement approach
Chapter 2 [LYLS-J#] [LYLA-J#-#] [LYLD-J#]	• Current state assessment • Create Future State Vision	
Chapter 3 [LYLS-J#] [LYLA-J#-#] [LYLD-J#]	• Market scan • Formal Options Analysis • Business Case and funding approval	
2. Architecture & Requirements	Steps described in Ch. 4 & 5 done partially in parallel	
Chapter 4 [LYLS-AR#] [LYLA-AR#-#] [LYLD-AR#]	• Elaborate on the Future State Vision • Preliminary process design • Requirements Management tooling	ENHANCE: Light BUILD: Full BUY: Full

STAGE	OVERVIEW OF KEY STEPS	APPLICABILITY
Chapter 5 [LYLS-AR#] [LYLA-AR#-#] [LYLD-AR#]	• Requirements gathering • Preliminary privacy impact assessment	ENHANCE: Medium BUILD: Full BUY: Medium
3. Procurement & Requirements Finalization (RF)	3rd party components, infrastructure or services typically are procured under all options. RF is most applicable to COTS BUY	☐
Chapter 6 [LYLS-PR#] [LYLA-PR#-#] [LYLD-PR#]	• Plan procurement process • Construct RFP • Conduct evaluation • Negotiate agreement	ENHANCE: Light BUILD: Medium BUY: Full
Chapter 7 [LYLS-RF#] [LYLA-RF#-#] [LYLD-RF#]	• Requirements Finalization • High-level design • Agree to methodology and implementation strategy • Refine Future State Vision	ENHANCE: Light BUILD: Medium BUY: Full
4. Implementation	To the maximum extent possible, look for ways to construct and implement in a phased manner	☐
Chapter 8 [LYLS-PM#] [LYLA-PM#-#] [LYLD-PM#]	• Ongoing project planning • Project delivery • Monitoring & controlling • Project closeout	ENHANCE: Full BUILD: Full BUY: Full
Chapter 8 [LYLS-OC#] [LYLA-OC#-#] [LYLD-OC#]	• Plan organizational change management • Communications • Training	ENHANCE: Light BUILD: Full BUY: Full
Chapter 9 [LYLS-CO#] [LYLA-CO#-#] [LYLD-CO#]	• Business design • Detailed solution design • Construct / prototype • Proof-of-Concept	ENHANCE: Medium BUILD: Full BUY: Full

STAGE	OVERVIEW OF KEY STEPS	APPLICABILITY
Chapter 10 [LYLS-DM#] [LYLA-DM#-#] [LYLD-DM#]	• Data migration feasibility • Data migration tooling • Data profiling and cleanup • ETL construction & testing	ENHANCE: Light BUILD: Full BUY: Full
Chapter 11 [LYLS-QM#] [LYLA-QM#-#] [LYLD-QM#]	• Test planning • Test tooling • Test authoring & execution	ENHANCE: Light BUILD: Full BUY: Medium
Chapter 12 [LYLS-GO#] [LYLA-GO#-#] [LYLD-GO#]	• Implementation strategy • Limited pilot rollout • System go-live(s) • Benefits realization	ENHANCE: Medium BUILD: Full BUY: Full

Chapters 2 to 12 of the Handbook use a common structure to set out the Leaving Your Legacy (LYL) methodology, as shown in the diagram below.

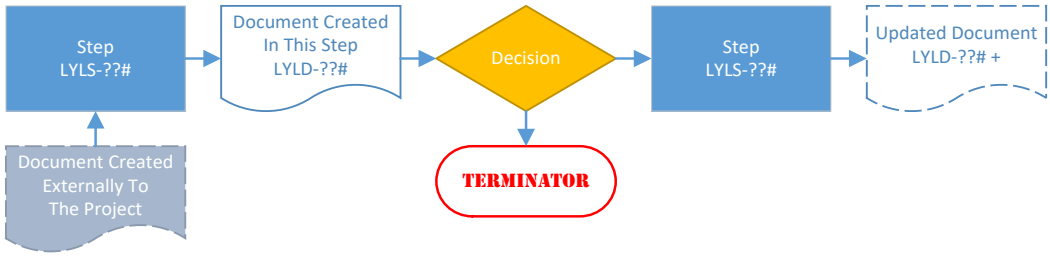


- *Story Of A Recovering Replacement* - This section provides fictionalized narrative content relevant to the subject matter of each Chapter. The hope is for the narrative to convey to the reader something of the art and the experience of a legacy replacement before they actually live it.
- *Learning The Lingo* - For some readers, part of the early challenge of participating in a legacy replacement is trying to grasp all the new terminology that gets thrown around. Before diving into the detailed steps and activities in each chapter some of the fundamental terms that may be new to the average reader are given a light introduction.
- *Steps* - The LYL methodology includes approximately 90 steps. The purpose of each step, and how it fits into the broader context is provided, along with tips on what to focus on, how best to tackle the work, and how to avoid common pitfalls. In order to lend structure to the methodology, each step is given a unique identifier. The naming convention for a step is LYLS-??# - where the "??" are alpha characters representing the subject matter as noted in the table above, and the "#" are incrementing integers. Example: LYLS-RF6 is the unique ID for the sixth step of Requirements Finalization, which is named "Conduct Requirements Finalization Workshops".
- *Activities* - The LYL methodology includes approximately 300 activities. Activities are subordinate within a specific step. Approaches for conducting each activity are provided including, where appropriate, dependencies with other activities. You need to understand each activity well enough to assess which elements will add the most value for the least effort in the context of your replacement. The naming convention for an activity is LYLA-??#-# - where the "??" are alpha characters representing the subject matter as noted in the table above, and the "#" are incrementing integers. Building on the example above: the second activity that must be completed within step LYLS-RF6 is activity LYLA-RF6-2 which is named "Finalize Functional Requirements & Use Cases".
- *Documents* - There are about 100 documents referenced within LYL. The naming convention for a document is LYLD-??#a - where the "??" are alpha characters representing the subject matter as noted in the table above, the "#" is an integer corresponding to the step, and the "a" denotes documents within a step. Building on the example above: second document created within step LYLS-RF6 is document LYLD-RF6b, which is named "Use Cases". In general, documents have been assigned to the step within which they are created, but it's worth noting that most documents then become inputs to other steps. Templates are provided in the Appendices for each of the LYL documents.
- *Resource Summary* - With the success of a legacy replacement being so dependent upon the calibre and availability of resources, each step concludes with a summary rolling up the resource requirements for that steps activities. To simplify management of a replacement, you should

be able to form a broad assessment of whether you have available the necessary resources to successfully complete the step.

- *Expected Duration* - As we've noted, every replacement is different in terms of scope, size, and challenges. However, for each step an attempt is made to either give a general sense of how long the activities can take (i.e. duration), or give a sense of the amount of effort involved so the reader can estimate the likely duration based on how they would allocate resources to the work.
- *Activity & Artefact Checklist* - A summarized checklist of activities and artefacts is provided at the end of each chapter. For the two types (i.e. niche and vanilla) and three sizes (i.e. small, medium, large), the checklist indicates for each item whether it should be considered as a *Must-Have*, a *Should-Have*, or a *Could-Have*.

It's worth highlighting the conventions used throughout the Handbook in the workflow diagrams included at the start of the section for each LYL step.



- A blue rectangle denotes a step of the LYL methodology.
- A yellow diamond denotes a decision point.
- The document shape (rectangle with a curved bottom line) has a few variations. The dashed line around a document shape denotes it was created significantly in advance of the step it connects to, either externally or in a much earlier step. Grey fill indicates an external document that is required as an input to a step - namely a document that should be viewed as something created externally to the project scope. No fill indicates a document created as part of the scope of the legacy replacement project. When you see the "+" character appended to a document name, it reflects the fact that the step has updated (or added to) a document that had been created in an earlier LYL step.
- The pill shape denotes a termination point
- The arrows show how activities and documents become inputs to other activities or documents. As noted previously, to varying degrees, the work performed in the steps and activities in the four LYL Stages can

overlap and run in parallel. The nature of these dependencies isn't typically finish-to-start, but strictly speaking are more finish-to-finish. While generally you won't start a later item until you've started the earlier, work on the items may overlap, but the successor can't be completed until it reflects the work completed in the predecessor.

1.7.1 How To Read The Handbook

It's not intended that you read and memorize all of the content in the Handbook in one go. Some advice is given below on how to most appropriately digest the material.

- *All Readers* - You are strongly encouraged to read all of the Introduction and all of Chapter 1. Next, please spend five minutes reading the Table of Contents as it effectively provides a broad perspective of the four Stages and the ninety steps involved in the LYL methodology.
- *Anyone New To Legacy Replacements* - If you have never participated DIRECTLY in a legacy replacement before, I'd suggest you then spend an hour or two reading the narrative portions included in each chapter.
- *Leads* - If you are tasked with leading the daily activity of a team working on a legacy replacement you should finish your first read of the Handbook by moving on to the chapter(s) and Appendix content related to your assignment. This first going-over will give you the broad perspective on the methodology that you need to start participating in a legacy replacement. As your replacement moves forward to planning and then delivery, you should frequently refer to the detailed information on the steps and activities you are responsible for. Although it's not mandatory, it is good if you develop an understanding of the content found in the remainder of the Handbook - if for no other reason than to better understand the dependencies that exist between work streams.
- *Team Members* - If you are participating in a legacy replacement you need only refer to the detailed information on the steps and activities you are assigned to. If you are creating a deliverable, you should also refer to the Appendix for relevant deliverable templates. If you've got the time, skimming the chapters isn't going to hurt.
- *Project Managers* - Chapter 8 is all about project management and organizational change management, and is a must read for those accountable for ensuring successful delivery of the legacy replacement. In addition, PM's on their first read of the Handbook should, at a minimum, review the step flow diagrams in all chapters, since you'll have to understand that work well enough to facilitate work breakdown sessions with the project team, and you'll need to map out key dependencies when creating a project schedule. As well, review the Activity & Artefact checklists in each chapter with the responsible Leads to help plan out the scope of work that will be undertaken.

You may have already noted there are checkboxes in the rightmost column of many tables in the Handbook. You'll also find such checkboxes in the Table of Contents, in the title page for each section, in the title for each chapter, and next to the page numbers throughout the Handbook. These checkboxes are meant for you to quickly make note of that which is relevant to you (✓), that which is not (×), and perhaps that of which you're still uncertain (?). So, wherever you see these checkboxes, mark 'em up! Add some handwritten notes on the challenges you feel are relevant to your legacy replacement. The Handbook is meant to be annotated and scrawled upon - and as things have a tendency to change frequently on a legacy replacement journey, I'd suggest you use pencil (it's an agile and iterative medium that can even work in zero gravity). When your replacement is done, I envision a dog-eared, sticky-note-laden, pencil-marked, tattered and stained copy of Leaving Your Legacy. Save it as a souvenir of your odyssey.

▢ WHERE YOU ARE VS. WHERE YOU WANT TO BE 2

Why are you replacing your legacy systems? That question must absolutely be answered in a fulsome manner at the initial stage of any legacy replacement. In this Chapter, our work will see us uncovering the legitimate drivers for replacing a legacy system through a formal business justification process that includes conducting a Current State Assessment, and creating a Future State Vision. This information on where you are and where you want to be is critical to understanding what will be required to transition your organization from their *as-is* state to their desired *to-be* state.

This Chapter provides a detailed discussion of the following steps of the Leaving Your Legacy methodology:

- [LYLS-J1]: Perform Current State Assessment; and,
- [LYLS-J2]: Create The Future State Vision.

This is the first Handbook chapter that starts with a serialized narrative section entitled: "The Story of a Recovering Replacement". This story, as noted earlier, is intended to provide you with a chance to experience the flavour of a legacy replacement before you attempt the real thing. As a work of fiction, the narrative is probably most useful in conveying something of the *art* of the legacy replacement. The remainder of the chapter content following the narrative focuses on methodology, and will provide the necessary practical guidance on the specific activities you need to follow - which is the *science* of the legacy replacement.

2.1 THE STORY OF A RECOVERING REPLACEMENT

October 24, 2016 - 9:17AM

I looked at the placard beside the frosted glass door. '**Ultimately Digital - Lair of the Digital Hero**'. I felt certain I was about to have an interesting conversation. I knocked firmly. The unlatched door swung slowly open.

"Ummmm.... hello in there?"

"Hi there!" said the shockingly dressed man seated behind the single large wooden desk that took up much of the small office.

"So, it's true... that you, errrr, wear a costume?"

"It's a sometimes thing. And who might you be?"

"I'm Mary Ross, from MegaConsulting and I've just been assigned to work on replacing the Ministry of Good Services' Bloatron and Longtooth systems. My Managing Partner Fred Malone said you'd likely have some sage advice you'd share with me."

"Well, if Fred said so, it's certain to be true. And because Fred and I go way back, I won't even charge you... this time." He smiles widely and continues on. "It's so simple. In fact, I'm sure you've already done it. But for what it's worth, my advice is to get the Ministry to answer one simple question." He leans all the way forward and clasps his hands on his desk blotter. "Why?"

"Okay. I'll play. Why what?"

"Why are they considering replacing their legacy systems?"

"They aren't *considering* replacing their systems, they are definitely *going* to replace them."

He leans back in his chair. "Why? Is it a particular passion of theirs? A capability at which they excel? Do they have a surplus of money and of staff sitting idle? Perhaps they have an appetite for risk? Or was this simply a Friday afternoon CIO brain fart?"

"Hah hah. You're a funny guy. Does the sense of humour come with the cape? No. As I understand it, it's because the database software that Bloatron runs on will stop being supported next year, and the Ministry's last two remaining developers who built Bloatron are retiring within the next two years. And Longtooth, well, it's a commercial product, but it's been stagnant for a while, losing market share, and doesn't seem up to the challenge of doing some of what the Ministry really wants to do."

"Ahhhhh. Interesting. So, with respect to Bloatron, we might not be talking about replacing it wholesale, but rather going with a simpler and lower risk approach of enhancing and modernizing it. To be honest, end-of-life and retiring developers, while obstacles, aren't really that high on the list of drivers for why you'd want to replace a legacy system outright. Now, when you talk about systems that don't meet the Ministry's wants, or can I say, strategic goals? Now, that sounds juicy. Tell me more about that."

"Well, I've only had a one hour telecon with the two business owners at the Ministry, but one of them talked a lot about how the public can't access their *Good Services* via the internet. So, since we're talking about the *why*, what I think she really wants, Andrea, is to add a nice public portal that is accessible pretty much anywhere and anytime."

"Now we're getting somewhere. By the way, is that Andrea Chu?"

"Yes. You know her?"

"I've worked peripherally with her. She heads Parks & Recreation. She really seems to know what she's doing. Now, it goes without saying they'll be concerned about ensuring their anywhere-anytime services are delivered securely, so they'll want something robust." I notice he is looking off into space somewhere over my right shoulder. "I gather they are doing this because they are required to move on the digital government strategy? Which means they are also probably considering open data. Sharing government data with any and with all? Have you sensed if they have any interest in that?"

I hold up a hand. "Well, yes. We did touch briefly on that. But... they want to walk before they run. Their data is in somewhat questionable shape from what I gather."

"I see. And not to prejudge, but just one more quick question. By any chance, are Andrea's service lines working in silos today?"

"Absolutely. You didn't need a site visit to figure that one out, eh? No surprise if you've been around the block a few times I guess. In fact, as part of my onboarding package, Fred gave me the latest auditor's report that soundly criticized the Ministry, including Parks & Recreation, and Hunting & Fishing, for their lack of coherent service offerings. Apparently, the general public has to go through a markedly different process for each. You've got your counter service, you've got your call center, you've got your fax machines, you've got your snail mail... pretty much the only thing they have in common is a lot of paper being physically moved around. They've got pretty much every combination, except what people want, which is mobile and web. Not much advanced from the old 'fill it out in triplicate' school of thought."

"Mary, these reasons you just described for Longtooth, they start to form a solid basis for seriously look at doing a legacy replacement. You're not just talking about technology now. You're talking about changing how the Ministry services the public in some pretty fundamental ways - collaborating with constituents, and integrating and standardizing business processes. One of my big things, Mary, is to always remember that technology is only there to support the business - at the end of the day, it's an enabler."

He turns his chair and looks out the window. "Mary, you said Hunting & Fishing. Is your business owner on that Vincent Le Baron?"

"Yes. You also know him?"

"Just by reputation Mary. I'll reserve comment." He swivels back to look at me, somehow managing to keep his cape from binding in the chair.

"So... Bloatron. I said maybe that was an enhancement play. Like modernizing the technology layer by porting it to a new database, and getting new developers onboarded to build long term capacity during that transition. But, tell me more about why Bloatron might benefit from a full on replacement. Is Vincent onboard with the digital government strategy? He should be - the Government has clearly signaled its intention to put a priority on allowing the public to collaborate directly through offering their services online."

"No. I wouldn't say he is fully onboard. He sees his group as being responsible for licensing and for compliance and sees that as benefiting from an arms-length relationship with the participants. When Andrea started to get excited about digital government he cut her off and said his group didn't want to get too 'chummy with the locals'. He suggested he'd consider 'dipping his toes in the waters', 'do the bare minimum to make people happy upstairs', but that he wants to focus on making sure Bloatron is effectively supported."

"Well, I agree with about half of what he said. Care and watering of information systems is pretty important. So he wants to invest there. I get it. How long has Bloatron been around?"

"Bloatron was built in house and went into production 10 years ago. Vincent was on the team that built Bloatron. I think he considers it his baby."

"Well, I'm sure it wasn't an inexpensive build, and amortizing costs of a build is best done over a longer horizon. But, I expect his maintenance costs are getting up there, especially if the thing relies on a laggard database. Anyhow, I'm in the weeds a bit here. Back up to the *why* level. Vincent is going to have to face the reality that digital government is coming. Part of your job is going to be assessing whether investing in enhancing a legacy system is money well spent since all the Government's systems will soon be expected to more than dip their toes into the online waters."

He drums the edge of his desk for a few beats, then says "All right Mary. Thanks for answering my questions. So, here's where any legacy replacement needs to start. You need to formally document the needs we've been talking about, and any others you uncover - they form the Future State Vision. You also need to assess where the Client is at today in terms of people, process, and technology. You might find, that what they believe about their business and their technology, is more fictional than it is factual. Once you truly know where they are starting from, and clearly where they want to go, you'll analyze what it will take to get them there. It's this *business justification* that you need to document, socialize and ultimately get approval on. You're going to make the case for either approving, or, I know you don't want to hear it, not approving these legacy replacements.

"Why so formal? Sounds a bit, don't be offended, but, *old school*?"

"Because these are the cornerstones on which you are going to run your project. Every project is a promise. For a given investment, you are offering a specified outcome. The promise you make will guide and constrain your work in very fundamental ways, and will be used to define your delivery success measures. The promise is going to be your touchstone for the coming years to ensure you provide what is required, nothing more, and that you always make delivery decisions that maximize the chances of being able to successfully realize and sustain the benefits the Ministry is ultimately trying to achieve."

"Ummm... rewind. You just said years. What you say about justification and project purpose makes good sense, and if we had the luxury of time, this sounds like a good way to go. But the Ministry wants their legacy systems gone, and the new system in by December 2017."

"Hmmmm.... If you don't know where you're going, any road will take you there. You ever hear that saying before Mary?"

"No. But I get your point. But they already know exactly where they want to go. Vincent wants to just modernize, and Andrea says they've already picked out a suitable system."

Looking down, he rubs his forehead with one hand. And then his face with both hands. Just before the silence becomes uncomfortable, he smiles at me and speaks. "Maybe they've already divined the best option for approaching this project Mary. What do I know? I've asked you a bare handful of questions. Once you get on board there, maybe you'll find this type of analysis is done and dusted. But as a project manager, Mary, you know that progressive elaboration is what happens on any large project. We uncover progressively greater detail as we move forward. That's how large projects run. We get clear on our requirements. We see which estimates and assumptions were correct. We

explore, we iterate, we innovate. But for today, at the starting line, you need to know what you're being asked to achieve, so that you can have the best shot at choosing the approaches that have the best odds of achieving a successful outcome. This doesn't mean you need to give in to analysis paralysis - far from it - your Client has already told you to move fast, so fast it should be. And this doesn't mean things are set in stone from the outset. Just the opposite in fact - as you run the project you have to continually adapt to any change in the desired Future State Vision, revising your planned approaches, and revisiting your business case justification for the legacy replacement."

I raise my hand, and he nods. "I just honestly don't think I should be telling the Ministry what they want to do."

"Nor do I, Mary. Nor do I. But *you* need to manage a process that ensures that *they* clearly state what they want to do, and then help them understand what is achievable, and what they'll need to invest in following the best approach that will get them what they want. Simple?"

"Okay. I'll digest what you've said. It challenges a few aspects of how I typically approach a project. There's probably one more thing I ought to mention. They've already done a funding submission to the Treasury Board, and as I understand it, they may get a bit of a fast-track approval if there is confidence they can prudently spend the bulk of funding before fiscal year end, which is six months away."

"Excellent. Unrealistic timelines out of the gate. Okay Mary, you'll want to accelerate your early analysis because the sooner you start managing timeline expectations the better. When are you meeting with the Client?"

"Tomorrow."

He chuckles. "Fantastic Mary. Good luck as you start things up. My door is open. I'd be more than happy to talk about this project as you move it forward."

"You're willing to help me out?"

"Of course. But my first ask is, before we speak again, that you do your ground work and sift through all the materials they've prepared thus far. Find out where their heads are at."

"Super. Homework" I find myself smiling back at him.

"And my second ask Mary?"

"Yes", I said one hand still on the doorknob and my body already in the hallway.

"Next time we meet, please bring something to nibble on. I work cheaply, but not for free. And by the way, you can call me DH."

I closed the door and walked away wondering what I'd gotten myself into.

October 25, 2016 - 11:09AM

I'm sitting in Andrea Chu's seventh floor corner office in what is called 'The Tower' - a monolithic edifice located in the downtown core that houses much of the Ministry of Good Services, including the Outdoors & Wildlife Branch. I smile politely at Andrea Chu as she hangs up her phone.

"Vincent will be here in two minutes. His assistant says he's just coming out of his last meeting."

Three minutes later, a tall suited man steps into the office, sets a steaming coffee on the edge of the desk, and drags the chair that had been next to me around to the other side of the desk where he seats himself next to Andrea, effectively marking his territory.

"Can we get started Ladies? I'd like to wrap this in 30 minutes."

"Well, now that you've graced us with your presence, let's see what we can do. Mary, this is Vincent Le Baron, Executive Director for Hunting & Fishing. Vincent, this is Mary Ross, MegaConsulting's Project Manager who is being assigned to the MGSWeb2017 program."

Vincent nods at me and says "Where's our dear Fred Malone? Is this engagement too small to warrant his attention?"

"As far as I know, he wasn't invited" I reply.

Vincent raises an eyebrow. "Does that mean he shouldn't be here?"

"Fred has fully briefed me, Vincent. I'm good to run things from here on. But I'll bring Fred in from time-to-time as I require."

Andrea smiles and says "I haven't prepared anything formal for this initial meeting, Mary. It would have been ideal if the Program Manager that MGS is assigning could have been here to kick things off, but it looks like that assignment is just clearing its final approvals. So, for today, I thought it best if we just have an open discussion, and get to know one another a bit better. Perhaps you'd like to start us off Mary?"

"Well, let's start with Longtooth. Andrea, can you prioritize for me the goals behind why you are replacing Longtooth?"

Andrea opens her mouth to speak, but Vincent interjects "Ohhhh. It's ladies first is it? I get it. No problem."

Andrea blinks once, slowly, before speaking. "First, and foremost, as my division primarily exists to offer services to the public, it's long past time when we did so in a streamlined manner, using the internet. So, that most definitely is priority one. I entirely support the rationale, and the need, for digital government. I want to allow the public to securely interact with us, from any device, at any time of the day, making bookings, reservations, making payments, you name it. Full on collaboration. It's important to me to do these things to increase the public's levels of satisfaction with our services. Automating a lot of manual processes is also going to let us redesign our staffing model to put people where they can most meaningfully improve service levels. To be clear, Mary, this isn't an efficiency exercise aimed at headcount reduction."

"Priority number two is to take this opportunity we are being handed here, where we are fundamentally changing how we deliver services, to look for ways to standardize our different lines of business. Ideally, whether someone is booking a camp site, a picnic site, or are travelling on the waterways, I'd like to offer them a unified one-stop-shop. You may not know this, but things at the moment are so silo'd that we actually have two versions of Longtooth, each being used somewhat differently for each of our lines-of-business. It's a long story, and I'll let others tell it to you. But you should dig into the cultural reasons behind why that happened, and understand what it's going to take to bring people together on a standardized way of doing business, and on one

single system. There will be no more Longtooth Land and Longtooth Water. This isn't just the right thing to do, it will also serve to address recent criticisms in the Auditor's Report. So, that's number two."

Vincent snickers, which earns him a sidelong look from Andrea.

"I'm going to just give you three priorities Mary. Third is to get our inventory being used in optimal and sustainable ways - which means I want better data than Longtooth currently gives me about who is making use of all of our facilities, our fees and costs, our staffing, and what the long term trends are. I'm not what you would call a technologist, but to me this speaks to having better data analytics tools, and maybe even a so called GIS. Though maybe GIS is something we could do in a later phase. Is that good enough for now Mary?"

"Fantastic Andrea. That gives me a lot to go on. Thank you. Vincent, thanks for your patience. Same question to you."

"Andrea, you sure used a lot of words there. I'm going to make this simple. In Hunting & Fishing we don't need first time applicants using the web. What we need is Bloatron ported to a modern database platform on which we actually get product support when things break. And I also need to get some Developers who aren't a hundred years old. That's it. Boooooom."

"So, you're primary focus is KTLO Vincent?"

"Jargon Mary. Jargon."

"Sorry. Your priorities at this time are to 'keep-the-lights-on'? To keep Bloatron meeting service levels in production?"

"Bingo."

"Well, Vincent, if I can ask, the program is called MGSWeb2017, but in our telecon, and today with your two priorities, you really didn't seem that keen on embracing the web aspect. Can you elaborate on whether you see any benefit at all being gained from allowing web-based interaction with Bloatron?"

"What is it with this 'web, web, web'?! Mary, excuse me if I seem a bit annoyed. But I've been pushed to buy in to this digital government boondoggle for the last three years and it's wearing thin. The one compromise I'll make, and it's simply so we can say Hunting & Licensing offers web services, is to try and do renewals of existing licences on the web. Fair enough?"

Andrea turning to Vincent says "Vincent, we've had many chats about this. The Minister isn't going to be satisfied with that approach."

Vincent furrows his brows and rocks back in his chair. I glance at the coffee. I think it's gotten closer to the edge of the desk.

"Andrea, as you well know, I helped build Bloatron. I understand its inner workings very well. It is a solid foundation. When digital government is a real thing, we'll be ready to layer on a fully functioning web layer. But for the time being, I just want to move fast on shoring up Bloatron. We should be able to do this on a shoestring budget with internal staff."

"As you say Vincent. So, what are the next steps Mary?"

"Wellllll, I think it's really going to be worth investing a few weeks of time to make sure we understand where we are at with our existing systems, and then to summarize a concise statement of where we want to be at the end of the year. Let's call that our Future State Vision. I'll then work on planning out a course of action that will get us there. But for now, let me do some digging."

Vincent leans forward with both forearms on the table. "Mary, I'll tell you one thing I've learned in my many years as a seasoned and well respected leader. The person thinking about doing something is usually passed by the person doing it. I hope you are going to look at doing this project in an agile way, because I'm all about agile. Just tell me what you need, and let's get this show on the road. Andrea here," he jerks a thumb in her direction. "She knows me. She knows what I'm capable of. She knows how fast I can move things. I'll move mountains Mary."

Andrea looks at me, and I have a feeling there's a twinkle in her eye as she responds. "Yes Vincent, I'm familiar with your body of work. And I'll agree with you on the time pressures we are under. As the program name implies Mary, we need to deliver something in 2017 So, recognizing we have a lot of work in front of us, I'd ask that you move this forward as quickly as you can."

I stand up, push in my chair, and turn to go, but Vincent holds up a hand.

"Look! Mary! You're going to love me. Project Bloatron is going to be like nothing you've ever seen before. Trust me! You are in for an eeeeeeasy ride. We are going to keep things trim. T-R-I-M... trim. Lean and mean. No fat. Short and sweet. Slam dunk!!!" He emphasizes his last cliché with the thump of his fist on Andrea's desk, which is all the encouragement his coffee needs to make a break for it.

I offer a parting wave as I head for the door. "Open or closed?"

"Closed please Mary," Andrea nods. As I shut the door I see Andrea pass Vincent a napkin and can just make out her words. "Let's have a chat Vincent."

October 25, 2016 - 3:41PM

To: dh@digitalhero.com
From: Mary.Ross@MegaConsultingCo.com
Subject: Today's Business Owner Face-to-Face
==========

DH:

Well, I had 30 minutes of face time with the MGSWeb2017 owners / sponsors. It left me with a few concerns, but I'll talk to you about those in person.

Right now I'm just trying to ensure I have pulled together all the materials they've created so far. And then I'm going to work up a current state assessment. I will pop in to "The Lair" when I've done that so we can chat.

Mary

November 11, 2016 - 2:27PM

To: dh@digitalhero.com
From: Mary.Ross@MegaConsultingCo.com
Subject: Current State Assessment
==========

DH:

I've enclosed a copy of the Current State Assessment for Longtooth and Bloatron. In case you aren't fond of reading long documents, here are the highlights:

Longtooth:

- Longtooth is a packaged client server solution implemented 15 years ago.
- Longtooth provides the following functionality: data entry for site inventory (e.g. camping spots, picnic spots, docks, long term parking); site reservations; operating schedule entry; work orders; fee calculations and payment.
- There is currently no web access to Longtooth. The vendor does have a web portal module that could be purchased. The customizations to Longtooth would need to be reviewed to see how well they'd work with the portal, and what it might cost to make them work.
- The vendor has no solution for mobile devices.
- Both Land & Water were customizations of the product, and are maintained as customized products for the Ministry by the vendor. Every time they upgrade to a new release they have to reapply the customizations. It's costly and they've fallen behind a few versions because they don't see a big benefit to upgrading.
- The vendor, by all accounts, are a good bunch. But they're small and the owners are nearing retirement age. Rumour is they may sell or just close shop. They've been steadily losing market share and are no longer investing in the product.
- Apparently the data is in half way decent shape.
- Two instances are running in production: Longtooth Land & Longtooth Water.
- Longtooth users include those at sites, and back-end users at the Tower
- Longtooth runs on an older mid-range server.

Bloatron:

- This is a homegrown client server solution implemented 10 years ago.
- Bloatron provides the following functionality:
  - Application entry including payment receipt (payment is made with the application)
  - Eligibility review (but business rules are all manual - apparently hunting rules are super complex, and fishing is getting more complex)
  - Approval and licence issue

    - Inspection reports / tickets / fines
    - Rudimentary geographic data. Doing GIS with home built code. Lots of manual data entry. And quite slow to use apparently.
- There is currently no web access directly to Bloatron, but they do publish some reports on their website.
- The application is coded in OldVisual. Bloatron is client server architecture insofar as they have a fat client which incorporates all of the presentation and business logic, and a back-end database just for persistence.
- Bloatron is primarily maintained by two developers who have been there since the start, but who are retiring soon. They sometimes draw on the Government's shared pool of developers.
- Apparently the data may be in fairly grim shape. It appears that the developers are able to manually modify production data to address issues. Not only has this caused data integrity problems, but the Auditor called this out as a serious security flaw - there was no logging of the data changes they were making.
- They've got a massive file room where they store applications, tickets, fines etc.
- Bloatron runs on a hierarchical database that is end-of-life Dec. 31, 2017.
- Bloatron users include counter service, and back-end users at the Tower.

See you tomorrow afternoon at 2PM?

Mary

November 11, 2016 - 4:39PM

To: Mary.Ross@MegaConsultingCo.com
From: dh@digitalhero.com
Subject: Re. Current State Assessment
==========

Hi Mary.

Thanks for emailing me your Current State Assessment. After reading your summary, and skimming through the attachments, it's clear to see that the current legacy systems are doing harm, and they would be quite constraining for the organization going forward. I am looking forward to seeing your Future State Vision as nicely laid out.

I'm at my desk all day tomorrow. 2PM is fine.

DH

November 11, 2016 - 2:01PM - The Lair

"Good afternoon Mary! And, what have you brought me?"

I offer up a crinkly paper bag of donuts. "Fred told me you are well known for your sweet tooth and are frequently spotted next door at Frannie's. So, I got you an assortment."

"Confirmation that my opinion of you was well founded Mary. Just so you know, they also have fantastic pie. Especially the fruit ones. Please grab a seat."

DH closes his laptop, takes the proffered bag, unrolls it, inhales deeply, then reaches in and comes out with a treat. He's in shirt-sleeves today.

"My kids call these 'Princess Homers'. Let me just take a selfie here. You want one? You look a bit squirrely" He nods at the bag as he takes his picture.

"Yes please!" I help myself and enjoy the donut.

"Thanks DH. Much better. I've been at a keyboard in the zone all day. This is a nice break. But, let's get into it. As the Current State Assessment shows, things are in a poor state, which is I guess why we are doing this project. The legacy systems have a lot of shortcomings, there's no doubt of that. But now that I have more information, I have some concerns about both Bloatron and Longtooth. If you don't mind, I'll start with Bloatron." He nods.

"All right DH, what I want to talk about is my growing concern about being able to successfully move Vincent's group forward. Reviewing the history of Bloatron was shocking. I'll start at the beginning. Vincent was on the team that built Bloatron. It came in late, way over budget, and really didn't deliver nearly the benefits they'd hoped for. It covered the basics well enough, but it didn't do much to support the role of anyone working out in the field - it's kind of written for desk jockeys. So, it has its detractors, as you can imagine."

DH is nodding along, so I keep going. "That level of dissatisfaction bubbled over about five years back. Field staff were able to convince someone higher up that Bloatron should be replaced. So, apparently with a lot of kicking and screaming on Vincent's part, they launched a project to procure a packaged solution to replace Bloatron. Vincent didn't make the Supplier's life easy. Someone I spoke to said a fairly common view was Vincent was actively doing everything he could to sabotage the project. As an example, he and his team constantly changed requirements, then balked at change requests, and ultimately, they refused to accept the deliverables saying they weren't fit for use. Would it surprise you to hear three years in, they terminated the project, held back payment, and wound up in a lawsuit that's still being litigated?"

"No Mary. It doesn't surprise me a bit. Obviously they failed, because we've still got Bloatron. And when the wheels come off on large public sector projects, the gloves also come off. I've spent my time giving testimony. These things drag on. They consume you. They age you. That's the part of the job I really hate." DH takes a deep breath. "Well, as much as we won't be able to understand what really happened in the same way someone who was there on the ground could, what are your takeaways?"

"Well, for right or for wrong, Vincent has people believing that for Hunting & Fishing, buying a solution is off the table. But even though he's really got a limited vision for the enhancements he wants to take on, I'm wondering about

our odds of succeeding. I think there are going to be a lot of issues with the players on this project. From Vincent on down. Even the developers are against any real changes. I think those guys just want to quietly coast into their respective finish lines and then be done with the Ministry. It just seems that with the exception of the field workers, most of Vincent's crew don't want change, and they don't have a track record of supporting and achieving change.

"I think your assessment is accurate Mary. And if Vincent isn't being cajoled into achieving strategic goals in a meaningful way, it's not your role to push him any further on that. Pushing a change no one wants usually ends quite poorly. Having said that, I imagine the field staff are still looking for improvements, so they should be part of visioning the future state. Next steps then, get a Future State Vision for Hunting & Fishing crisply documented, and then you'll be able to plan what it will take to make the transition. When you are doing your planning, pay particularly close attention to resource gaps, and be sure you take into account how you're going to manage all of the risks you identify. I predict an uphill battle."

"Funny. Vincent told me this would be an easy ride. He said Project Bloatron would be like nothing I've ever seen before."

"I think he's half right Mary. But, enough of that. Tell me about Longtooth."

"Okay. Longtooth has me a lot less concerned. At the executive level, they've firmly bought into digital government, and can state pretty clearly why this project is being done. On the surface it seems like the legacy system isn't going to get them to where they want to go. But I'm concerned they jumped the gun with the recommendation they put forward in their Treasury Board Submission. I've been allowed to see parts of the submission. They just went straight to recommending they buy off-the-shelf because they saw one promising solution at a trade show. That's the extent of their market research. They haven't really mapped out how the capabilities of a solution would support their business goals. It all seems a bit loose."

"Well Mary, that's one sure fire way to get your funding submission rejected. When is Treasury Board making its decision?"

"This coming Tuesday. DH, I'm actually hoping the submission gets turned down, because I'm not sure they've done the due diligence to create an achievable approach. Or maybe I should say, I don't know if they've hit on the *best* approach yet. Does that make me a bad person?"

"Not at all Mary. As a Project Manager, it's your duty to ensure plans are realistic and are reflective of your Client's prioritization of project purpose, scope, cost, and schedule. Anything else for today?"

"If you've got time, the last thing I want to talk about is broadly around management of the program and the projects."

DH gives an elaborate hand flourish, "my time is your time."

"Thank you. So, Monday of this week, the Program Manager assigned from MGS started. I'll be formally reporting to him, though I've been building a pretty good rapport with Andrea Chu. Anyhow, before he landed, I had prepared a summary of my findings thus far, as well as my source materials, for him. I wanted to help him get up to speed more quickly than I did..."

Holding up a hand, DH interjects. "What's his name?"

"Lawrence Thin. Heard of him?"

"Never. New to MGS?"

"He's been at MGS for less than a year. Before that he was with the Federal Government program managing their payroll system implementation."

"Ohhhh... You know how that went, yes?"

"I think most of us do DH. So, that was a data point. But I was keeping an open mind. Anyways, we met midweek for a sit down, and I walked away fairly underwhelmed. He hadn't read any of my background material. And when I asked about that he got a bit prickly and said a Program Manager's job is not to get into the weeds. That would be *my* job. His job is going to be making sure he provides a lot of visibility to the upper levels on how things are going so they don't have surprises, and they can turn us whichever way they want, when they want. And I get that. But when I talked about what I'm working on now, namely trying to queue up some workshops on the Future State Vision he immediately put the brakes on that. His view is if our Treasury Board Submission is approved, that's plenty of vision for us to green light Bloatron, and for us to start writing functional requirements for a Longtooth RFP. He said he needs to impress on me that we are implementing by December 31, 2017..."

"SANDWICH SCHEDULE!" DH blurts.

"Pardon me? Are you hungry?"

"Fixed start and end dates, with no understanding of what is required to deliver. Your job as PM is simply to stuff all the filling between those two pieces of bread. Sandwich schedule - favoured by mature project management organizations everywhere." DH bares his teeth smiling like a maniac.

"I've not heard that term used before, but, yes, that seems to be what Lawrence's approach is. Time is going to be non-negotiable, and our schedule will trump scope, cost and quality. So, he's asked that until we hear back from Treasury Board, I spend my time creating a Project Charter and I start giving him weekly status reports in this one page slide template he gave me."

"Let me guess. The template has two sections - one for bullets on what you did last week, and one for what you plan to do next week?"

"Bingo. Well, it also has a box he wants to ensure is always shaded green."

"Okay. Another data point Mary. Who else has he been meeting with?"

"As far as I know, not a soul. He mainly sits in his office on the phone."

"Underwhelming indeed. Well, I guess you have a charter to write Mary. Keep me posted."

November 15, 2016 - 6:12PM

To: dh@digitalhero.com
From: Mary.Ross@MegaConsultingCo.com
Subject: Treasury Board Submission
==========
DH:

FYI - I just heard from Andrea Chu, and Treasury Board didn't approve the submission.

> They had two main criticisms. One, they apparently feel the submission talks too much about technology without a clear linkage showing how strategic goals and objectives are going to be met by the recommendation. Two, they feel the level of analysis that has been done to date is superficial, and highly subjective. They want more rigour.
>
> Treasury Board asked us to prepare a formal analysis of options in support of the recommendation to replace Longtooth. With respect to Bloatron, because the BUY is still in litigation, and because Vincent didn't promise a lot of enhancements, they are okay with the recommendation of just patching up Bloatron - they see it as lower risk. However, they have mandated that the code be ported from OldVisual to NewVisual.
>
> Mary

November 18, 2016 - 10:19AM - Frannie's Bakery

Turning to see who is tapping me on the shoulder, I see DH has joined the line behind me. "Good morning DH. Second breakfast?"

"Indeed. And you?"

"Just wanted to grab a coffee and do some thinking. Do you want to grab a booth and have a chat? Yes? What can I get you?"

As I settle into the booth, DH is waving out the plate glass window at a young girl who is pointing at him. Passing him a plate of cherry pie and a mug of coffee earns me a big smile as he leans in and says "Come to Poppa."

"It's been super busy this week, as you can imagine. I think Treasury Board turning down the submission was the best thing that could have happened. Andrea, Lawrence and I, sat down to sketch out what our revised submission needs to look like. Andrea and I both agreed that the current submission, as business cases go, is pretty flimsy and is based on a lot of assumptions. Lawrence huffed and puffed and said it should have been adequate. In any event, Andrea said she had been willing to take a chance on trying to get approval on something half baked, because she'd hoped to buy us more time for project execution, and she knew there was money to be had."

"So, she's okay with doing things in a more fulsome manner now?"

"Oh yes. She said the resources hadn't been in place to do a rigorous analysis before. But now that a team is coming together, she says we're ready to do this right. So, our next step is to assemble our key stakeholders to clearly define a Future State Vision and show how it aligns to the Ministry's strategic plan. Andrea is good with my suggestion of creating a register of promised benefits. She's even twisted Vincent's arm to participate. I think she implied that we're going to do something that is going to turn heads, and that if he didn't get on board, well, his team would look like they were coming up short."

"Nicely played. I'm very happy for you Mary. By knowing where you're going, you'll be able to choose the best road to get you there. I'd say Longtooth is already headed in a better direction. I've got to get back to the Lair now, but do you want to walk with me? I'd like to chat about some of the other work you could start to advance."

November 28, 2016 - 7:39AM

To: dh@digitalhero.com
From: Mary.Ross@MegaConsultingCo.com
Subject: Future State Vision
==========

Hi DH.

Last week was intensive workshops, resulting in the attached Future State Vision. The following will bring you up to speed and give you the "behind the scenes" view:

- We were able to really elaborate and crisp up our Longtooth Future State Vision including uniquely identifying all of the promised benefits
- This was my first chance to work with the MGS Enterprise Architect (Emily LaFrance), but she was instrumental in helping to convey the need for establishing traceability from benefits into all of the project deliverables.
- The Longtooth Requirements Lead (Leah Sharp) performed very strongly. It's a bit of, be careful what you wish for though, because now that the future state vision is clearer, it looks like the option recommended to Treasury Board of buying a single integrated solution may in fact not be the best option. Emily and Leah are both thinking that for some of the system capabilities our future state would require (e.g. content management, and business intelligence), that maybe loosely coupling a few purchased components may better meet product and project needs. Some of those components could be rapidly procured through standing agreements which is great. But I think we will have to do a good job explaining why the change in direction.
- And with Bloatron, the "tale of two projects" theme continues. Their Requirements Lead (Kurt Flash) barely said five words each day, so, caution flag there. That may have been because Vincent was sitting in on the sessions. He put a gloom on the room, which I was only partially successful in lessening. Unfortunately, he also said his field staff were not able to attend.
- The Bloatron Future State Vision, as you'll see, is pretty thin. The one page diagram I've included is the sum total of Mr. Flash's contributions. Vincent continues to downplay needs and benefits. He's quite fixated on just porting the database, doing the source code migration to NewVisual, and writing a few web pages to handle renewals. He wasn't buying into the content management or BI capabilities. For handling electronic documents, he'd like to just store them as objects in the database.
- On a final note, we also have started the data migration assessment for both systems which should feed nicely into costing out the data migration work for the Options Analysis.

Mary

November 28, 2016 - 5:17PM

To: Mary.Ross@MegaConsultingCo.com
From: dh@digitalhero.com
Subject: Re. Future State Vision
==========

Hi Mary.

Thanks for emailing me your Future State Vision. Looks strong. I particularly like how your benefits register includes an accountable Benefit Owner for each benefit. That's a great first step. If you'd like, we can talk later about how governance should come into play on ensuring the project stays focused on delivering against these benefits.

One of the things I learned in my career is, by unflinchingly focusing on the purpose of a project, namely to deliver outcomes that allow the realization of promised benefits, we alter the whole approach to how we manage projects. As a small example, on a project that truly focuses on benefits, when sequencing project activities, we start looking at putting things first that allow realization of the most important benefits early on. And building on that, once we deliver against those most significant benefits early on, we take stock of where we are at, we look down the road and say, based on what we've invested so far, and what we've got left to invest, do we really need to continue the project? Have we already enabled the Client to realize the majority of benefit for the minimum of investment? Having a project that maintains a daily focus on its purpose lets things unfold in almost magical ways. :-)

Regarding the thoughts on procuring and integrating multiple components, I really think you should do a Request for Information (RFI) to fully inform yourselves. You need to find out if there are already integrated products in the marketplace that have adequate / good enough BI, ECM, GIS (if still desirable), capabilities. There's nothing wrong with loosely coupling best of breed solutions. But you need hard data to allow you to properly compare both options. To minimize the timeline impacts from doing an RFI, since you have to get the Longtooth requirements together soon, maybe now is a good time to quickly sketch out some complete (i.e. go broad), and concise (i.e. not deep) high level requirements that you could publish in an RFI. You need to share just enough so that vendors can accurately determine if their products are in the ballpark for the full scope of what is contemplated, and what, if any, are the big ticket gaps.

In the meantime, get cracking on the options analysis so you can craft a realistic Business Case that provides an objective recommendation for how best to transition the Client from their current state to their envisioned future state! You can plug your RFI results into that when they become available.

DH

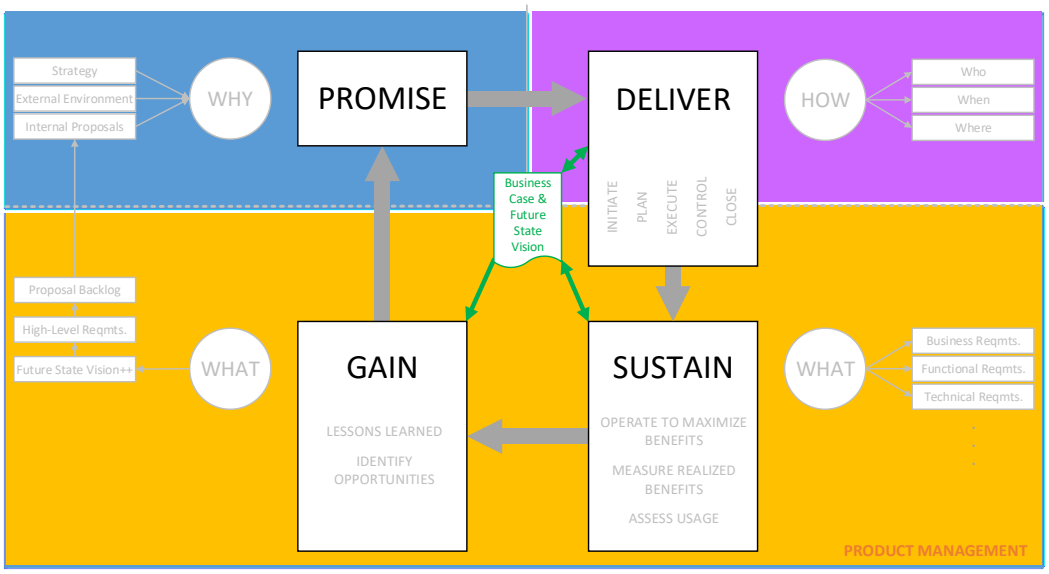
PS. You're very fortunate having Leah Sharp as Requirements Lead. I've worked with her and she's fantastic. Pay heed to what she tells you - I put great faith in her opinion.

2.2 LEARNING THE LINGO

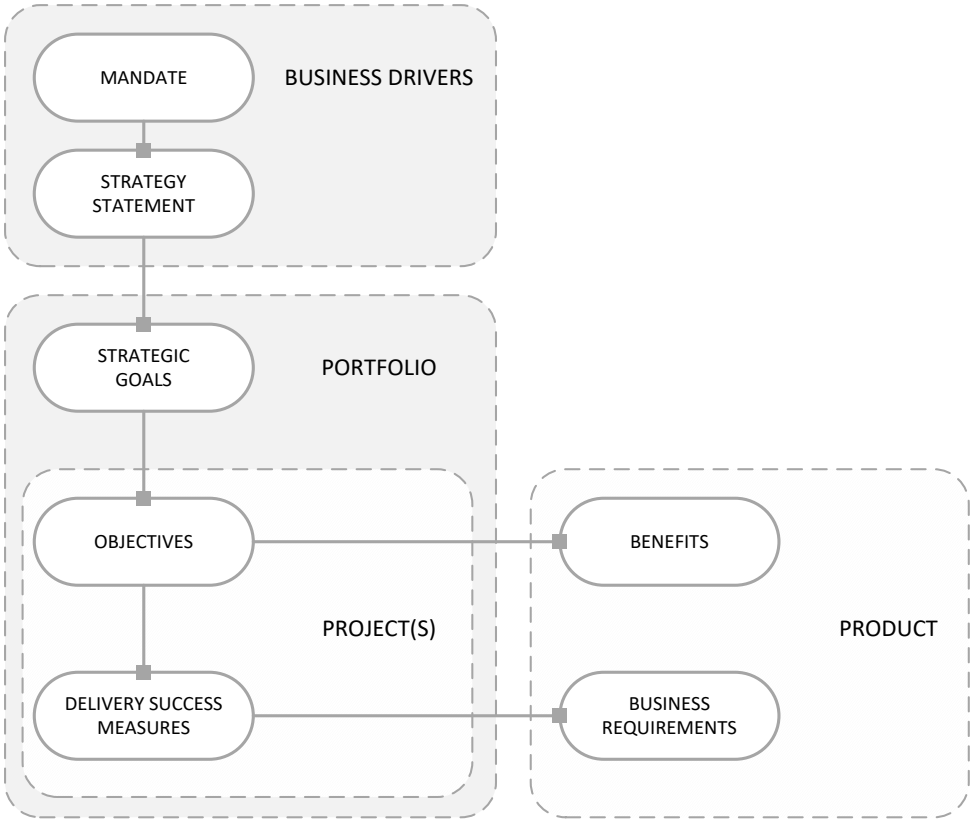
Throughout the remainder of the Handbook, each chapter will contain a "Learning The Lingo" section. In this section, key terms or concepts discussed in the chapter are highlighted to the reader. Aside from the explanation given in this section, key terms are also included in the glossary. Diagrams are sometimes used to depict relationships between terms to provide greater context around how the terms fit within the legacy replacement life cycle.

In Stage 1 - Justification, an organization is operating one or more legacy systems, but is trying to identify opportunities to make improvements on its current state operations. By identifying opportunities for gain, they will paint a picture of a desired to-be state - we call this the *Future State Vision*. In seeking approval to conduct the replacement project, we put forward a proposal in a Business Case outlining what needs to be invested to achieve the future state. With a documented Future State Vision and Business Case, we can clearly, consistently and confidently explain why we wish to replace the legacy systems, and what we hope to achieve with the replacement.

This early analysis is a foundational part of the broader life cycle of any information systems implementation. Looking at the following diagram, you can see how the Future State Vision and Business Case are central to portfolio management ("why should this project be approved?"), program & project management ("how can we successfully deliver against objectives?"), and product management ("what precisely do we need to deliver?"). The concepts in this diagram will be expanded on throughout the Handbook.



The ultimate purpose of your legacy system replacement should be to realize the promised benefits set out in your Future State Vision and your Business Case. Your promised benefits should be aligned to your organization's strategy. The following diagram depicts a hierarchical relationship showing how the concept of benefits fits into a portion of the project and product life cycles.



- Organizations exist for a reason, they are subject to drivers, and they have a *mandate* that governs their very existence. The mandate may be profit driven, or may arise from a motivation to serve the public interest.
- In fulfilling its mandate, an organization may design a strategy that will be used to consciously inform how they conduct their affairs - a strategy most often contains multiple elements or planks, and we refer to these as *strategy statements* - they are concise statements of strategic direction.
- To deliver on a given strategy statement, one or more *strategic goals* may arise. Achieving a strategic goal may require managing a portfolio consisting of multiple projects.
- To deliver on a given strategic goal, one or more specific *objectives* may

arise. Projects exist to meet a collection of objectives. The scope of a project centers on the work required to meet objectives. Fulfilling on its objectives is why a project is initiated.

- An objective is met when certain desired outcomes are achieved. We are now shifting from setting out *why* the project exists to *what* the project must deliver to be considered successful. Why to what. To allow ourselves to accurately describe what the desired outcomes are, we must specify in detail the project's *delivery success measures*. These are the specific measures that will be used to determine whether the project has ultimately delivered on, and met, its objectives. Delivery success measures will include things like: what needs to be delivered (i.e. scope), and, what constraints delivery must occur within (e.g. time, cost, resources, customer satisfaction, regulatory compliance).

- Although the above diagram only touches upon this, as we move on to designing both the future state business and target solution, we elaborate on each delivery success measure by noting specific *business requirements*. These business requirements are not restricted to technology, and may include process and organizational requirements depending on the scope of business transformation your organization is seeking to undertake. The tasks performed by the project team, and deliverables they create, are in support of delivering against the business requirements. Further on in the Handbook, I'll expand on this diagram to show how other artefacts are related to the business requirements.

- Returning to where we started, a *benefit* arises through the sustained use of the outcomes of the project. I often call these delivered outcomes the product of the project. It's an important distinction to make - the project itself doesn't deliver any benefit, per se. In the context of a legacy replacement, we only achieve benefit when we put into productive operational use the business processes and information systems that we first dreamt of in our Future State Vision, and which were delivered by virtue of the project. By operating the product of the project for multiple years, we incrementally realize benefit. Benefits may be measured quantitatively or qualitatively.

In an ideal legacy replacement project, everything happens for a reason. It is my belief that the reasoning, or rationale, behind our everyday project activity can best be guided by setting out a shared Future State Vision that encompasses all of the elements in the diagram shown immediately above. This shared vision is what the project team must pull towards every day.

Given this fairly inclusive definition of the Future State Vision, it should be abundantly clear that changes in one area will likely have an effect on the whole. Accordingly, you must carefully monitor any changes to the organization's mandate, strategy statements, and strategic goals. This is especially important since these items typically lie outside the direct control of the legacy replacement project. Should any of these elements change, you will need to analyze precisely how the change impacts your project. One of the ways

to ensure such monitoring happens in practice is to assign accountability for the realization of benefits to specific Benefit Owners. A Benefit Owner may be accountable for ensuring one or more identified benefits are ultimately realized. Benefits are where the rubber hits the road.

To allow you to meaningfully measure progress and to understand the impacts that arise from change to the Future State Vision, we need to talk about *traceability*. One of the key things this hierarchical representation of the Future State Vision should make clear is relationships exist between the objects at the different levels of the hierarchy. If we uniquely identify each object, typically by assigning it an identification number, and then make a relationship (e.g. a cross-reference) from one object ID to another, we are now able to unambiguously traverse the dependencies that exist within the vision.

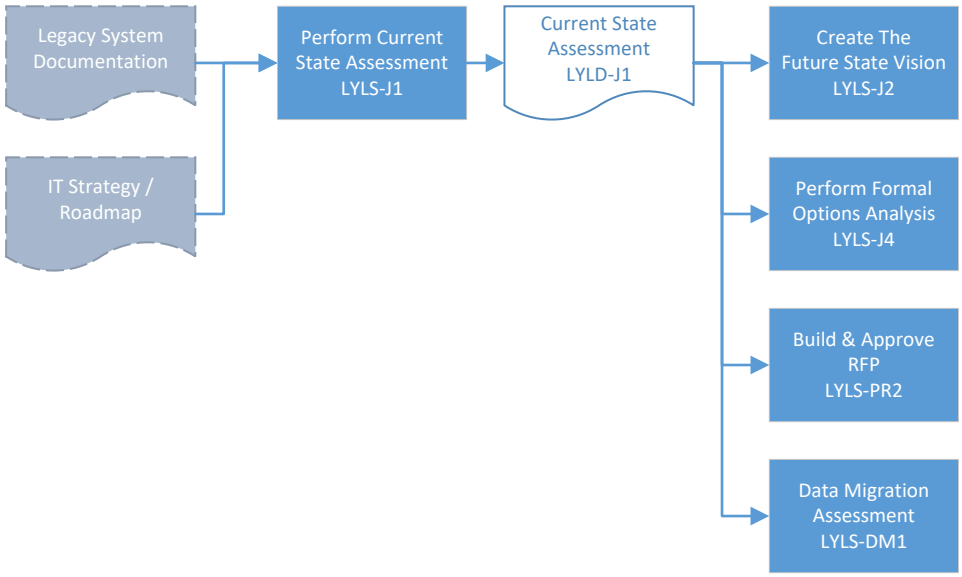
With this type of *traceability matrix* in place, we are able to effectively analyze the impact of changes and risks while we are delivering the project and then sustaining the product. In order to be able to quickly adapt, we need to be able to easily understand the ripple effect when a business driver is changed or eliminated, or a promised benefit seems unlikely to be realized based on performance to date or on extenuating circumstances.

The concept of *traceability* is ingrained in the Leaving Your Legacy methodology. It isn't really that hard to maintain unique identifiers and linkages right from the business mandate and strategy statements, down into the most granular level of a work item. Furthermore with the right kind of tooling, you can have automated traceability that encompasses not only the objects in the Future State Vision, but also the product artefacts (e.g. functional requirements, technical design, use cases, test cases). It's pretty awesome to see this kind of traceability in action. Imagine that at the click of a button you can explore the impact of upstream and downstream changes allowing you to in near real-time answer the question: “If we change Strategy X, what moving parts does it affect?”

2.3 PERFORM CURRENT STATE ASSESSMENT [LYLS-J1] ▢

As you should have already gathered from the earlier sections, no legacy replacement should move forward without adequately articulating a soundly reasoned justification. Part of the job of developing a strong basis for why you want to replace your legacy systems comes from formally assessing your current state. The Current State Assessment determines in clear terms why the legacy systems should be replaced, but importantly, it also highlights the organization's capability and capacity to conduct a replacement. Without a common understanding of the rationale for replacing the legacy systems, there is a low chance the project will be run effectively and efficiently. Without an honest assessment of the capability to conduct a replacement, perceived risk exposure, budgets and schedules will all be highly subjective and questionable.

The following diagram provides context for how this step fits into the Leaving Your Legacy methodology.



The assessment activities described below will evaluate your organization's capability and capacity in respect of the things we now know contribute materially to the success of a legacy replacement. Going beyond assessing whether a raw capability exists, you must evaluate the depth of your team's experience and the maturity of their processes and supportive tooling. As well, you must quantify your capacity by considering the internal availability of suitably experienced resources.

Perhaps it goes without saying, but, be honest in identifying your capability and capacity - your assets and your liabilities. These types of assessments need to be conducted with sensitivity, and you'll need to design an appropriate consultation process. But, only by setting out an objective understanding of what the organization can currently contribute to a replacement will you be able to create realistic estimates for the investment of people, time, and money that will be required to transition from your current state to the documented Future State Vision. This analysis is described in the Perform Formal Options Analysis step, but, establishing the baseline for that analysis is done in this step, and it is necessary so that you can ultimately develop a sound Business Case.

2.3.1 Assess Your Legacy Systems [LYLA-J1-1]

Obviously we're going to start our assessment of the current state by examining why you landed on "Legacy Replacement Lane". What brought you to this lowly place? So, your assessment should look at the functionality the legacy systems provide. Look for things the systems provide, but which are problematic, error prone, issue plagued - these are your current challenges. Look for things the system doesn't provide, but which the business currently needs, or is shortly

expecting to need - these are your gaps. As well, an important part of assessing your legacy system is to also identify what it does well. It's doubtful your legacy system is ALL bad. By working with your current users to identify things that your legacy system does well, you can set out what needs to be protected, preserved, and maybe even enhanced - these are your opportunities. Assessing this last dimension can go a long way to addressing your users concerns about what they are going to lose in the legacy replacement, and as such, it is an important early step you should take to help manage the organizational change. The challenges, gaps and opportunities your Current State Assessment documents are the needs that are going to shape your Requirements for the target system.

In addition to assessing legacy system functionality, also examine:

- Baseline functional assessment;
- Application architecture assessment;
- Data architecture assessment;
- Security architecture assessment;
- Implementation history lesson;
- Operational sustainment metrics;
- Business performance metrics; and,
- Prior assessment findings.

In conducting your assessment of the legacy systems, you should use multiple modes, including: source documentation review, and involving your internal and external stakeholders (which includes Users) in a combination of structured interviews and workshops. Excellent candidates for source documentation review include:

- Business Context and System Context diagrams;
- Business Function Model / Business Capability Model / Business Classification Scheme;
- As-is Business Processes / Business Events;
- As-is Business Scenarios;
- As-is Business Rules;
- As-is Conceptual Data Model / Data Dictionary;
- System Requirements Specification / System Design Specification / Interface Specification;
- Description of current technical operating environment;
- Current system operating costs;

- Test Cases;
- Training Materials (e.g. User Guide, Systems Operations Manual);
- Glossary;
- Organizational Charts;
- Organization's Strategic Plan;
- Information Technology Strategic Plan;
- Governing Acts / Regulations / Standards / Directives / Policies & Procedures;
- Auditor's Reports;
- Privacy Impact Assessment; and,
- Threat Risk Assessment.

Provided below is a table of common areas that should be part of assessing your legacy systems. For each, remember to identify challenges, gaps, and opportunities.

ASSESSMENT CATEGORY	LEGACY SYSTEM ASSESSMENT ITEM
Baseline Functional Assessment	
Applications	Provide a listing of the various applications that form a part of the legacy system(s) (e.g. application name, description, version number).
Functionality	Provide a decomposition of the primary modules and functions comprising the legacy system(s).
Current Users	Examine the following for the legacy system(s) users: • Identify the various User roles; • Number of Users per role; • Whether the Users are internal or external; • What legacy functionality the role uses; • What types of application / network connection, connectivity speed applies to the role; • Geographic location of usage; and, • Pain points unique to the role.
Standardized Service Channels	If there are multiple service channels, to what extent are the services offered to clients, constituents, and stakeholders standardized across channels?
Silo'd Lines-of-Business	To what extent is there duplication of cost and effort to separately support and maintain relatively similar legacy systems for each line-of-business?

ASSESSMENT CATEGORY	LEGACY SYSTEM ASSESSMENT ITEM
Detailed Functionality - Challenges	Examine, in detail, the functionality provided by the legacy system. Include the following details: • What are the main functions provided? • For each main function, how many screens, interfaces, documents and reports? • What functionality doesn't work well? Either identify issues, or consider using a point scale to assess relative strength of each function. • Identify recurring problems, issues, and errors, including any identified root causes.
Detailed Functionality - Gaps	Identify gaps between the functionality provided by the legacy system(s) contrasted with the current business needs. Repeat for anticipated business needs.
Detailed Functionality - Opportunities	Examine, in detail, the functionality provided by the legacy system(s) to identify areas of strength (i.e. its best features), as well as areas where enhancement could deliver large benefits.
Change Request Log	To identify opportunities for enhancing the legacy system(s), try sifting through the change request backlog. Look for the big change requests that haven't been implemented and identify what could have been delivered, and why the change wasn't made.
Nightmares	What legacy system(s) issues keep your Business Systems Manager awake at night?
Application Architecture Assessment	
Front-end or Back-end	Depict how the legacy system(s) is composed of front-end and back-end applications.
n-Tiered	For each application contained within the legacy system(s), not whether the architecture is multi-tiered.
Development Languages	If you are responsible for maintaining the source code of the legacy system, what development languages and tools are used?
Configurability	Assess the extent to which the legacy system(s) is configurable versus requiring Customization.
Interfaces & Interoperability	Describe current system interfaces. Assess how well they serve the needs of the business. Is the legacy system(s) relatively open / easy to interface messages and data with (e.g. API's, web services)? Are there any significant interoperability gaps with other systems?
Usability	Assess the usability strengths of each application. Are the applications intuitive, streamlined, responsive, perceived as fast enough?
Accessibility	Determine whether each application meets accessibility compliance requirements.

ASSESSMENT CATEGORY	LEGACY SYSTEM ASSESSMENT ITEM
Technical Debt	Identify any known areas of technical debt which are hindering the ability to enhance the legacy system(s).
Documentation	Assess the degree to which standard systems development life cycle documentation exists, is up-to-date / accurate, and is of sufficient quality to support ongoing sustainment of the product.
Data Architecture Assessment	
Data Sources	Identify the primary data sources comprising the legacy system(s), and provide details (e.g. database platform and version number, stored volume metrics, database storage size).
System of Record	If acting as a system of record, assess the stability, availability and integrity of the legacy system.
Islands of Information	To what extent is data duplicated across multiple systems? Is there a single source of truth, or golden record?
Data Governance	What data governance structure is in place?
Data Quality	What are the known data quality issues? Anticipated data quality issues? To what extent is data "trusted"?
Data Analytics	To what extent does the legacy system provide for advanced data analytics capabilities?
Data Capture	Identify the various means of data entry for the legacy system(s) (e.g. manual, automated, data validation).
Technical Architecture Assessment	
Environments	Examine how the legacy system(s) is provisioned in terms of environments (e.g. development, test, training, production).
Network	Review the network architecture (e.g. topology, remote access, communications lines, providers).
Storage	Review the storage architecture (e.g. directly accessed, hot-sites, backup / restore, providers).
Servers	Review the server architecture (e.g. application servers, web servers, database servers, mainframe). To what extent is virtualization being used for the servers? Examine details of the current version of operating systems.
Hosting	To what extent is legacy software, platform and infrastructure provided and managed by a third party?
Desktop & Peripheral Devices	Identify the desktop and peripheral requirements of the legacy system(s).
Mobile Devices	How well does the legacy system(s) support mobile devices versus laptops and workstations (e.g. in terms of usability, functionality, access to data)?

ASSESSMENT CATEGORY	LEGACY SYSTEM ASSESSMENT ITEM
Technology Roadmap & Standards	Is the legacy system(s) based on technology you don't want as part of your future technical operating environment? Is it already incompatible with your mandated technology stack (e.g. virtualized and cloud hosted infrastructure, operating system, database, middleware, development tools)? Are you compliant with applicable technology standards and directives?
Technology Challenges	Identify the challenges arising from the legacy system(s) technical architecture. Does capacity monitoring and planning indicate any challenges meeting current or anticipated loads? Ensure you identify the degree to which the technical architecture, as a whole, can be scaled to meet increased loads.
Security Architecture Assessment	
Safeguarding Information	Does the legacy system provide security and safeguards that are proportional to the sensitivity of the stored data?
Compliance Requirements	Does the legacy system comply with all legislated or mandated acts, regulations, standards, directives, etc.?
Security Incidents	What security incidents, including breaches of information have occurred?
Identity Management	Review how identity management is being implemented (e.g. access, authorization, federation).
Implementation History Lesson	
Concept & Development	What is the early history of the legacy system(s)? How did it come into being? Who participated?
Initial Implementation	Were there any big challenges out of the gate with the initial implementation?
Subsequent Phased Implementation	Were there any big subsequent phases of delivery after the first go-live?
Major Recent Enhancements	How smoothly have recent enhancements been delivered? What was delivered? Was this a major version upgrade for a COTS? How much effort was involved in the development and testing? How costly was it to make the enhancements? Were there any significant impacts to operations?
Operational Sustainment Metrics	
Outage History	Identify what outages have occurred. What is an average outage (provide % availability)? What are the largest outages? What were the impacts of outages? How were they resolved?

ASSESSMENT CATEGORY	LEGACY SYSTEM ASSESSMENT ITEM
Hours Of Operation & Support	Are the legacy system(s) mission critical? What are the hours of operation and support by: application, function, access channel, etc.?
Most Common Support Issues	What are the most common reasons for support calls?
Sustainment Resources	To what extent are deeply knowledgeable resources available to support the legacy system(s) (e.g. administrators, developers, testers)?
COTS Sustainment	For COTS legacy system(s), to what extent is there effective maintenance of the product (e.g. upgrades, patches, fixes)?
COTS End-of-Life	For any COTS components of the legacy system(s), identify imminent product end-of-life issues (e.g. no more system fixes / security patches / enhancements, no support)? Are there any cases where the COTS Supplier will only continue to enhance or support the legacy system(s) if you implement a major version upgrade of the COTS or of your infrastructure stack?
Operating Costs	Identify annual costs (e.g. product licences, support, maintenance, infrastructure, staff) and annual escalation percentages. You will want to be able to show total cost of ownership for the legacy system(s) for a 5 or 10 year period for use in the Options Analysis.
Business Performance Metrics	
Peak Usage	Provide a breakdown of peak usage by period or cycle (e.g. time-of-day, time-of-year, business cycle) in terms of transaction metrics or concurrent user counts across module or business function.
Key Performance Indicators	Identify target performance measures or KPI's and the recorded measures for the legacy system(s). Consider: • Time based KPI: end-to-end times to outcome for relevant business transactions, specific turnaround times, other relevant wait times; • Volume based KPI: how many business transactions performed per period / cycle; and, • Effort based KPI: how much effort is being spent per business transaction, step, activity, etc.
Processing Backlog	Examine whether the legacy system(s) contributes to any processing backlog.
Prior Assessment Findings	
Auditor	Review Auditor's Reports for issues.
Threats / Risks	Review Threat Risk Assessments for issues.
Privacy Impact	Review Privacy Impact Assessments for issues.

2.3.2 Assess Executive Management Capability [LYLA-J1-2]

It's probably worth stating at the outset, that this activity isn't a broad assessment of your Executive team's fitness for managing the organization. Not at all. What we want to assess here is the extent to which the responsible Executive Management team has the requisite capabilities to effectively lead, govern, champion and support a legacy replacement. To do this, we can examine capability in the context of: prior experience with legacy replacements; large IT projects; and, large IT procurements.

Remember, at the end-of-the-day, this assessment of capability is intended to help us set out our plans for how we will conduct the replacement. In this case, we are trying to understand whether there is any supplementation (e.g. new processes, methodology, approaches, tooling, resources, advisory services) required to ensure the legacy replacement will have sufficient executive governance. An important early risk to monitor is lack of capability and maturity. So at the stage, we identify how large our risk is, and then we can make suitable plans to mitigate it so that we have an acceptable residual risk exposure.

This assessment can be conducted effectively and efficiently using primarily structured interviews with the participating Executive Managers.

For the assessments items below, ensure you evaluate your Executive Management capability in terms of the depth of their experience and the maturity of their processes and their use of supportive tooling. As well, you must quantify your capacity by considering the internal availability of suitably experienced resources.

Provided below is a table of common areas that should be part of assessing your Executive Management capability to conduct the legacy systems replacement. For each, remember to identify challenges, gaps, and opportunities.

ASSESSMENT CATEGORY	EXECUTIVE MANAGEMENT CAPABILITY ASSESSMENT ITEM
Project Sponsor	
Project Sponsor Capability	Have one or more Project Sponsors been identified? If so, assess the extent to which each is: • An experienced executive manager; • Highly affected by the outcomes of the replacement; • Experienced in the role of Project Sponsor on either legacy systems replacements, large IT projects, or large IT procurements; • Experienced with both successful and failed projects;

ASSESSMENT CATEGORY	EXECUTIVE MANAGEMENT CAPABILITY ASSESSMENT ITEM
	• Possessed of strong, relationships, reputation, and ability to influence, with the project's key stakeholders; • Likely to solicit and consider viewpoints of all key stakeholders; • Able to commit five to ten hours per week; • Planning to delegate appropriate authority to those on the project team; • Able to be highly responsive to escalated issues arising from the replacement - quickly assessing situations, rendering well reasoned / realistic / unbiased decisions, and taking action as needed, in a timely manner; • Able to negotiate for, and secure, necessary resources in a timely manner (e.g multi-year funding, skilled resources, reasonable schedule); • Committed to, and capable of, removing roadblocks to the project team's progress; • Able to, for non-delegated items, provide timely and transparent decisions, approvals, and comments, that are informed and guided by the Business Case, the Future State Vision, and any changes to the organization's strategy; and, • Planning to champion, nurture and protect the project team's ability to deliver on promised benefits, including sheltering the project team from noise and distractions that would risk throwing off timelines.
Project Sponsor Areas of Greatest Concern	Identify the Project Sponsor(s)' greatest areas of concern. For example: the organization's history of success or failure; overall readiness to undertake the replacement; and, any extreme sensitivities or hot button issues.
Project Sponsor Guiding Principles	Identify the guiding principles the Project Sponsor(s) will use to govern the legacy replacement.
Project Sponsor Overarching Priorities	Ask the Project Sponsor(s) to rank in order of importance: meeting project purpose; delivering all project scope; meeting project schedule; and, meeting project budget.

ASSESSMENT CATEGORY	EXECUTIVE MANAGEMENT CAPABILITY ASSESSMENT ITEM
Governance Bodies	
Legacy Replacement Steering Committee	Has a Project Steering Committee already been formed? Either specifically, or generally, assess the extent to which the Project Steering Committee: • Is aware and supportive of the legacy replacement's goals and objectives; • Is able to articulate how they see the legacy replacement aligning with and supporting strategy - including relative priority of project; • Understands how best to steer and support the legacy replacement; and, • Understands which decision points are a priority, and is able to help ensure these are addressed in a timely manner at the appropriate stage of your replacement. For context, this is critical because once you staff up and get the replacement engine running, you are going to have a fairly large burn rate (i.e. daily cash outflow) and decision making delays will, in most cases, be a body shot to project delivery.
Benefits Management	Assess the maturity of the organization in formally managing the realization of benefits. Examine: governance; processes; people; and, tooling. Is there any agreement on the prioritization of project purpose over on-time, on-budget, and in-scope?
Portfolio Management	Assess the maturity of the organization with respect to managing a portfolio of concurrent key initiatives. Examine the extent to which the organization has accurate and timely visibility into its enterprise portfolio (e.g. schedules and dependencies, performance actuals and trends, resource allocation and consumption).
Change Control	Assess the maturity of the organization with respect to using formal change control practices on large projects.
Management Culture	
Degree Of Control	Identify where the management culture resides on a continuum from command-and-control, to collaborative, to highly delegated / hands-off.
Leadership Styles	What leadership styles are modeled or championed?
Cohesion or Conflict	Is the executive management characterized by cohesion or conflict and in-fighting?

2.3.3 Assess Project Management Capability [LYLA-J1-3]

What we want to assess here is the extent to which the organization's Project Management team has the requisite capabilities to effectively and efficiently manage a legacy replacement. To do this, we can examine capability in the context of: prior project management experience with legacy replacements, large IT projects, and, large IT procurements; track record; and, relationship with the business.

This assessment of capability is intended to help us set out our plans for how we will conduct the replacement. In this case, we are trying to understand whether there is any supplementation (e.g. new processes, methodology, approaches, tooling, resources, advisory services) required to ensure the legacy replacement will have effective project management. To be clear, this is not intended as a comprehensive assessment of your project management maturity.

In conducting this assessment, you should use multiple modes, including: source documentation review, and structured interviews. Excellent candidates for source documentation review include:

- Project management methodology - including project governance, gating processes, and, standing meetings;
- Sample: Project Charters;
- Sample: Project Management Plans - in particular risk management;
- Sample: Lessons Learned;
- Sample: Work Breakdown Structures (WBS) & WBS Dictionaries;
- Sample: Project Schedules;
- Sample: Project Budgets;
- Sample: Change / Risk / Action Item / Issue & Decisions Logs; and,
- Sample: Project Status Reports.

For the assessments items below, ensure you evaluate your Project Management capability in terms of the depth of the team's experience and the maturity of their processes and their use of supportive tooling. As part of your assessment of the qualifications of the available resources, refer to step [LYLA-PM3-6] which sets out key qualifications for the recommended roles on a legacy replacement. In addition, you must quantify your capacity by considering the internal availability of suitably experienced resources.

Provided below is a table of common areas that should be part of assessing your Project Management team's capability to manage the legacy systems replacement. For each, remember to identify challenges, gaps, and opportunities.

ASSESSMENT CATEGORY	PROJECT MANAGEMENT CAPABILITY ASSESSMENT ITEM
Project Management Office (PMO)	
PMO Type	Does your organization have a Project Management Office (PMO)? Does the PMO provide templates and/or resources (e.g. Project Managers)? Is the PMO responsible for, and focused on, delivery of projects that the business has prioritized and that it values?
Performance Mandate	Does the PMO have a formal mandate that it routinely measures itself against? Does the PMO routinely meet its mandate?
PMO Track Record	Does the PMO have a record of successfully managing risky and challenging projects, of similar complexity, budget, and timeline, to a legacy replacement, through to successful delivery of promised business value?
PMO Reputation	Does the PMO enjoy a strong reputation? Is the PMO's continued existence generally embraced?
Project Management Processes	
Standardized Processes	Do you have standardized repeatable project management processes and procedures that cover the project management life cycle? How are the processes enforced (e.g. mandatory, recommended)?
Pace	There are a few aspects to assess with respect to the pace projects are typically executed in the organization. • What pace do projects typically achieve? • How does achieved pace compare with estimated, expected, or promised pace? For context, it's important to know this to pick realistic timelines during Options Analysis, and in addition, if you procure services, it's very important that Proponents are given realistic, target dates upon which to base schedules. • Does the organization consistently achieve fast turnaround cycles for reviewing, revising, and approving, project deliverables? For context, this is a key competence given the deliverable intensive nature of any legacy replacement, and the fact many of the deliverables are dependencies for completing other activities.
Handling Complexity	How experienced is the organization with managing complex projects? How does the organization typically approach complex projects? Is there any tendency to overly simplify, cut corners, fail to address the big head on challenges (e.g. competing initiatives contending for resources and with conflicting visions and agendas)?

ASSESSMENT CATEGORY	PROJECT MANAGEMENT CAPABILITY ASSESSMENT ITEM
Performance Measurement	How does the organization typically measure and report on performance measurement? Do they use quality inspections to ensure compliance with process and procedure? Do they frequently measure the performance of projects against defined goals, objectives and delivery success measures?
Continuous Improvement	Does the organization continuously improve its processes? Are lessons learned completed for most projects? How are lessons learned shared?
Your Project Management Team	
Program Manager	For context, a legacy system replacement is most typically managed as a program consisting of multiple projects, as opposed to being managed as a single project. Has a Program Manager been identified? If so, assess the extent to which they are: • Experienced in the role of Program Manager on either legacy systems replacements, large IT projects, or large IT procurements; • Experienced leading large teams, including vendor teams, on successful and failed projects; • Possessed of strong, relationships, reputation, and ability to influence, with the project's key stakeholders; • Likely to solicit and consider viewpoints of all key stakeholders; • Able to commit 20 to 40 hours per week; • Planning to delegate appropriate authority to those on the project team; • Able to be highly responsive to escalated issues arising from the replacement - quickly assessing situations, rendering well reasoned / realistic / unbiased decisions, and taking action as needed, in a timely manner; • Able to negotiate for necessary resources in a timely manner (e.g. multi-year funding, skilled resources, reasonable schedule); • Committed to, and capable of, removing roadblocks to the project team's progress; • Able to, for non-delegated items, provide timely and transparent decisions, approvals, and comments, that are informed and guided by the Business Case, the Future State Vision, and any changes to the organization's strategy; and,

ASSESSMENT CATEGORY	PROJECT MANAGEMENT CAPABILITY ASSESSMENT ITEM
	• Planning to champion, nurture and protect the project team's ability to deliver on promised benefits - including ensuring the team is fully aware of the project's pillars of purpose, and sheltering the team from noise and distractions that would risk throwing off timelines.
Project Manager(s)	Have one or more Project Managers been identified? If so, assess the extent to which they are: • Experienced in the role of Project Manager on either legacy systems replacements, large IT projects, or large IT procurements - particularly, risk management, experience with project management and development life cycles; • Experienced with successful and failed projects; • Formally educated or certified as PM; • Able to form (or already have formed) positive relationships with the business; • Able to be fully allocated; • Committed to identifying roadblocks to project team's progress, clearly communicating recommended action, and seeking resolution; • Able to, for non-delegated items, provide timely and transparent decisions, approvals, and comments, that are informed and guided by the Business Case, the Future State Vision, and any changes to the organization's strategy; and, • Planning to champion, nurture and protect the project team's ability to deliver on promised benefits - including ensuring the team is fully aware of the project's pillars of purpose.
PM Modus Operandi	Assess the degree to which Project Managers operate as the *managers* versus rolling up their sleeves and becoming the *doers*.
Project Coordinator(s) / Administrator(s)	Has the organization anticipated the need for project administration or coordination roles to support the Project Managers? Identity availability of resources.
Project Management Tooling	
Tooling	Identify any tooling that is consistently used for project management - for example: project scheduling; managing shared pools of enterprise resources; cost tracking; and, issues management. How long has the tooling been in productive use? Are there any plans to change the tooling during the course of the legacy replacement, or shortly thereafter?

2.3.4 Assess Organizational Change Capability [LYLA-J1-4]

What we want to assess here is the extent to which the organization has the requisite capabilities to manage the organizational change that would attend the legacy replacement. To do this, we can examine capability in the context of: prior organizational change management experience with legacy replacements, large IT projects, and, large business transformations; and, change readiness / change fatigue.

This assessment of capability is intended to help us set out our plans for how we will conduct the replacement. In this case, we are trying to understand whether there is any supplementation (e.g. new processes, methodology, approaches, tooling, resources, advisory services) required to ensure that all organizational changes aspects of a legacy replacement will be effectively managed.

In conducting this assessment, you should use multiple modes, including: source documentation review, and structured interviews. Excellent candidates for source documentation review include:

- Organizational change management methodology;
- Sample: Stakeholder Analysis;
- Sample: Organizational Change Management Strategy or Plan;
- Sample: Communication Management Strategy or Plan;
- Sample: Change Readiness Assessment;
- Sample: Project Communications;
- Sample: Training Strategy or Plan; and,
- Sample: Training Material.

For the assessments items below, ensure you evaluate your Organizational Change Management capability in terms of the depth of the team's experience and the maturity of their processes and their use of supportive tooling. As part of your assessment of the qualifications of the available resources, refer to step [LYLA-PM3-6] which sets out key qualifications for the recommended roles on a legacy replacement. In addition, you must quantify your capacity by considering the internal availability of suitably experienced resources.

Provided below is a table of common areas that should be part of assessing your Organizational Change Management team's capability to successfully manage the organizational change that will attend the legacy replacement. For each, remember to identify challenges, gaps, and opportunities.

ASSESSMENT CATEGORY	ORGANIZATIONAL CHANGE CAPABILITY ASSESSMENT ITEM
Organizational Change Readiness	
Nature of Anticipated Changes	Identify at a high-level the extent of the currently envisioned organizational changes. Consider: • To what extent will business transformation and process redesign accompany the technology change? Are processes and procedures changing? Are job functions changing? • Where is the change coming from? Is it a push or a pull (e.g. asked for by the Users or mandated by the higher-ups)?
History of Recent Change	Identify the significant recent changes over the last several years. Assess whether the organization is suffering from change fatigue.
Anticipated Concurrent Change	Identify any significant organizational changes from other key initiatives anticipated to occur concurrently, or shortly after, the replacement.
Attitudes Toward Replacement	Identify current awareness, attitudes, perceptions, and beliefs (positive and negative) towards the legacy replacement: • Within segments of the User community; and, • Amongst the key stakeholders.
Understanding of Resourcing Implications	Identify whether key stakeholders are aware, and prepared to support, the intense demand for highly allocated qualified internal resources that will occur through the replacement's life cycle? Are the anticipated resource demands something the organization is well accustomed to dealing with, or will this be a new experience?
Biggest Obstacles	What are currently identified as the biggest obstacles to successfully achieving the change?
Organizational Change Management Experience	
Experience Managing Change	Does the organization have a track record of successfully managing organizational change similar in size and complexity to the replacement?
Experience Delivering Training	Assess the organization's training delivery experience. • Are they experienced delivering training to a similarly sized, similarly composed, and similarly geographically located body of Users? • Are they experienced delivering end User and Technical training? • What modes of training is the organization experienced using? Instructor led? Self-paced? Computer-based?

ASSESSMENT CATEGORY	ORGANIZATIONAL CHANGE CAPABILITY ASSESSMENT ITEM
	• Do they have dedicated training facilities? How big are they? How well equipped are they?
Standardized Processes	Assess whether the organization has standardized repeatable organizational change management processes and procedures, including for: • Organizational change management; • Stakeholder analysis; • Communications; and, • Training.
Your Organizational Change Management Team	
Organizational Change Management Lead	Has an Organizational Change Management Lead been identified? If so, assess the extent to which they are experienced in leading organizational changes similar in nature to the replacement. Identify availability.
Communication Lead	Has a Communication Lead been identified? If so, assess the extent to which they are experienced with communications for projects similar in nature to the replacement. Identify availability.
Training Lead	Has a Training Lead been identified? If so, assess the extent to which they are experienced in leading training delivery for projects similar in nature to the replacement. Identify availability.
Trainers	Has the organization anticipated the need to draw on business subject matter experts to support, or fully deliver, User training? Identity availability of resources.
Organizational Change Management Tooling	
Tooling	Identify any tooling that is consistently used in support of delivering organizational changes - for example: communications tools (e.g. push and pull), and training tools. How long has the tooling been in productive use? Are there any plans to change the tooling during the course of the legacy replacement, or shortly thereafter?

2.3.5 Assess Legacy Replacement Capability [LYLA-J1-5]

What we want to assess here is the extent to which the organization has the requisite capabilities to effectively and efficiently complete the work necessary to successfully achieve a legacy replacement. To do this, we can examine capability in the context of: prior experience with legacy replacements; large IT projects; large IT procurements; enterprise architecture; requirements gathering / management; systems design and development; data migration; testing; training; and, implementation.

This assessment of capability is intended to help us set out our plans for how we will conduct the replacement. In this case, we are trying to understand whether there is any supplementation (e.g. new processes, methodology, approaches, tooling, resources, advisory services) required to enact a legacy replacement.

In conducting this assessment, you should use multiple modes, including: source documentation review, and structured interviews. Excellent candidates for source documentation review can be found under the following categories.

- Architecture & Requirements:
    - Sample: Enterprise Architecture Management Plan;
    - Sample: Business Processes;
    - Sample: Business Rules;
    - Sample: Business Scenarios / Use Cases;
    - Sample: Functional Requirements;
    - Sample: Conceptual Data Model (CDM); and,
    - Sample: Technical Requirements.
- Procurement:
    - Sample: Procurement Management Strategy or Plan;
    - Sample: RFP;
    - Sample: Evaluation Planner / Scoring Guides / Master Scoring Spreadsheet;
    - Sample: RFP Recommendation Report; and,
    - Sample: Negotiation Plan.
- Construction:
    - Sample: Construction Methodology;
    - Sample: Technical Architecture;
    - Sample: System Design Specifications;
    - Sample: Threat Risk Assessments;
    - Sample: Privacy Impact Assessments;
    - Sample: Build Books; and,
    - Sample: Release Notes.
- Data Migration:
    - Sample: Data Migration Assessment or Feasibility Study;

    - Sample: Data Migration Strategy or Plan; and,
    - Sample: Data Mapping.
- Quality Management:
    - Sample: Quality Management Plan;
    - Sample: Test Strategy or Plan;
    - Sample: Test Execution Schedule; and,
    - Sample: Test Cases / Test Result Documentation / Defect Reports.
- Implementation & Go-Live:
    - Sample: Implementation Strategy or Plan; and,
    - Sample: Go-Live Readiness Assessment.

For the assessments items below, ensure you evaluate your legacy replacement capability in terms of the depth of the team's experience and the maturity of their processes and their use of supportive tooling. As part of your assessment of the qualifications of the available resources, refer to step [LYLA-PM3-6] which sets out key qualifications for the recommended roles on a legacy replacement. In addition, you must quantify your capacity by considering the internal availability of suitably experienced resources.

Provided below is a table of common areas that should be part of assessing your legacy replacement capability. For each, remember to identify challenges, gaps, and opportunities.

ASSESSMENT CATEGORY	LEGACY REPLACEMENT CAPABILITY ASSESSMENT ITEM
Organization's Legacy Replacement Experience	
Legacy Replacement Experience	Identify what experience the organization has with conducting legacy systems replacements. For previously undertaken replacements, review: • Achieved outcomes and realized benefits; • Implementation approach (e.g. big-bang versus phased); and, • Lessons learned.
Legacy Replacement Processes	
Standardized Processes	Assess the degree to which the organization already has experience using standardized repeatable processes and procedures that cover the life cycle of a legacy replacement, including: • Architecture & Requirements; • Procurement;

ASSESSMENT CATEGORY	LEGACY REPLACEMENT CAPABILITY ASSESSMENT ITEM
	• Requirements Finalization; • Organizational Change Management & Project Management (dealt with in above assessments); • Construction; • Data Migration; • Quality Management; and, • Implementation & Go-Live.
Your Legacy Replacement Team	
Experience and Availability Scan: Architecture & Requirements	To form a preliminary understanding of capability, conduct a high-level assessment of: • The availability of experienced resources in the following roles: Business Analyst, Business Architect, and, Business Content Providers (i.e. front-line business staff who are highly knowledgeable in the use of the legacy system). • The maturity of processes for: conducting any mandated architecture gating reviews, business architecture, requirements gathering, business process design, organizational design, and, privacy impact assessment.
Experience and Availability Scan: Procurement	To form a preliminary understanding of capability, conduct a high-level assessment of: • The availability of experienced resources in the following roles: Procurement Lead, and Legal Lead. For context, the lack of available resources with IT procurement / legal experience can cause significant schedule delays. • The maturity of processes for: product procurement (generally for IT and specifically for COTS), IT services procurement, IT goods and services contract creation / negotiation, and, fairness.
Experience and Availability Scan: Construction	To form a preliminary understanding of capability, conduct a high-level assessment of: • The availability of experienced resources in the following roles: Solution Architect, and Programmers. • The maturity of processes for: software solution design and prototyping (including as appropriate - usability, accessibility, multi-language) / development (in particular agile) / deployment (including walkthroughs and proof-

ASSESSMENT CATEGORY	LEGACY REPLACEMENT CAPABILITY ASSESSMENT ITEM
	of-concepts), and, conducting threat risk assessments.
Experience and Availability Scan: Data Migration	To form a preliminary understanding of capability, conduct a high-level assessment of: • The availability of experienced resources in the following roles: Data Migration Specialists, Data Analysts, Data Stewards, ETL Programmers, and, Legacy Programmers / DBA's. • The maturity of processes for: data modeling, data profiling, data cleansing, data integration, and, data movement (i.e. extract / transform / load).
Experience and Availability Scan: Quality Management	To form a preliminary understanding of capability, conduct a high-level assessment of: • The availability of experienced resources in the following roles: Test Leads, Testers - Technical, and, Testers - User Acceptance. • The maturity of processes for: test planning, test design, test case authoring / inspection, test data management, test environment management, defect tracking, and, test status reporting.
Experience and Availability Scan: Implementation & Go-Live	To form a preliminary understanding of capability, conduct a high-level assessment of: • The maturity of processes for: implementation planning (including go-live readiness assessment, contingency planning, decommissioning planning), piloting, and, time and motion performance studies.
Relevant Tooling	
Requirements Management Tooling	Identify any tooling that is consistently used for requirements management. How long has the tooling been in productive use? Are there any plans to change the tooling during the course of the legacy replacement, or shortly thereafter?
Development Tooling	Identify any tooling that is consistently used for software development - for example: development languages, development environments, versioning control, automated builds, debugging, and issues reporting and tracking systems. How long has the tooling been in productive use? Are there any plans to change the tooling during the course of the legacy replacement, or shortly thereafter?

ASSESSMENT CATEGORY	LEGACY REPLACEMENT CAPABILITY ASSESSMENT ITEM
Data Migration Tooling	Identify any tooling that is consistently used for data management, data integration, data quality, and data migration / movement - for example: data modeling, data profiling, data cleansing, data merging, change data capture, and extract / transform / load (ETL). How long has the tooling been in productive use? Are there any plans to change the tooling during the course of the legacy replacement, or shortly thereafter?
Test Tooling	Identify any tooling that is consistently used for testing - for example: test case authoring, test scheduling, test data management, test execution, recording test results, and defect tracking. How long has the tooling been in productive use? Are there any plans to change the tooling during the course of the legacy replacement, or shortly thereafter?

2.3.6 Assess Information Technology Capability [LYLA-J1-6]

Again, a proviso at the outset. This activity isn't a broad assessment of your Information Technology team's fitness as the ongoing visionaries, designers, developers and sustainers of the organization's information technology. What we seek to assess here is twofold. Firstly, to identify any capability issues which may be the root cause for the perceived legacy systems deficiencies, and secondly, the capability of the IT team to appropriately support the demands of a legacy replacement project while "keeping the lights on" for their existing product information technology portfolio. To do this, we can examine capability in the context of: track record; relationship with the business; prior experience with legacy replacements, large IT projects, and, large IT procurements.

This assessment of capability is intended to help us set out our plans for how we will conduct the replacement. In this case, we are trying to understand whether there is any supplementation (e.g. new processes, methodology, approaches, tooling, resources, advisory services) required to ensure the IT team can effectively support both its current portfolio and the demands imposed by a legacy replacement project.

In conducting this assessment, you should use multiple modes, including: source documentation review, and structured interviews. Excellent candidates for source documentation review include:

- Information Technology Strategy;
- Sample: Technical Architecture;
- Sample: Build Books; and,
- Auditor's Reports;
- Privacy Impact Assessment; and,

- Threat Risk Assessment.

For the assessments items below, ensure you evaluate your Information Technology capability in terms of the depth of the team's experience and the maturity of their processes and their use of supportive tooling. As part of your assessment of the qualifications of the available resources, refer to step [LYLA-PM3-6] which sets out key qualifications for the recommended roles on a legacy replacement. In addition, you must quantify your capacity by considering the internal availability of suitably experienced resources.

Provided below is a table of common areas that should be part of assessing your Information Technology team's capability to support the legacy systems replacement, as well as their "keep the lights on" duties. For each, remember to identify challenges, gaps, and opportunities.

ASSESSMENT CATEGORY	INFORMATION TECHNOLOGY CAPABILITY ASSESSMENT ITEM
Information Technology (IT) Overview	
IT Strategy	Is there a current multi-year IT Strategy or Roadmap? If so, assess whether the IT Strategy: • Is strongly aligned with the overall strategy of the organization; • Has a digital transformation themed agenda, or if it is more of a keep the lights on imperative; • Focuses on mobile and cloud (or notes those as already largely achieved); • Is aligned with replacing the legacy system(s); and, • Sets out any large upcoming IT focused initiatives (if so, assess scale of effort and impact on the technical infrastructure).
General IT Resource Availability	Assess the extent to which current IT resources have capacity to support both their current technology portfolio and the additional work entailed by a legacy replacement project. Identify key resource challenges.
Resourcing Model	Determine whether IT resources are typically embedded on the project teams for projects that have a large IT component, or if instead their effort is approved on a request basis per discrete need (e.g. log a request for small - user setup and permissions, to big - build an environment).
IT Track Record	Does IT have a track record of successfully delivering for projects with a large technology component like a legacy replacement?
IT Reputation	Does IT enjoy a strong reputation within the organization?

ASSESSMENT CATEGORY	INFORMATION TECHNOLOGY CAPABILITY ASSESSMENT ITEM
IT Processes & Procedures	
Standardized Processes	Assess the degree to which standardized processes are in place to support large IT project needs.
Building Infrastructure & Environments for the Project	Assess IT's capability to implement new infrastructure and environments including: design, review, procure, setup, configure, inspect, commission, and administer (e.g. user admin, support, backups, restores).
Development to Operations	Identify if appropriate release management processes are in place. Assess the degree to which automation is used to deploy software releases from development to operations. Identify approximate cycle times.
Development Freezes	Review whether IT has been successful implementing development freezes on the legacy system(s).
Remote Environment Access	Assess the ease with which an external Supplier can be provided with secure remote access to environments.
Infrastructure & Environments	
Infrastructure Readiness to Support Future State Technology	Assess the extent to which the current infrastructure has the capacity to meet the demands of the envisioned target system(s). Identify any anticipated infrastructure renewal or upgrades that would be required: • Data centre (including power provisioning and conditioning, racking, etc.); • Communication lines; • Network hardware (e.g. load balancers, firewalls, routers); • Storage; • Servers; • Desktop, mobile, and peripheral devices; • Middleware; • Database; and, • Operating system.
Performance	Identify any known performance issues or significant limitations (e.g. communication lines, network, server).
Infrastructure Providers	Identify details for all parties who are providing and managing elements of the technical infrastructure, including: • Who they are; • What they provide; • Where the infrastructure is located; • Rules of engagement for infrastructure changes, including promised service levels /

ASSESSMENT CATEGORY	INFORMATION TECHNOLOGY CAPABILITY ASSESSMENT ITEM
	turnaround times; • Approximate operating costs; and, • Any changes planned for their provisioning of infrastructure during the legacy replacement, or shortly thereafter.
Your IT Team	
Experience and Availability Scan	To form a preliminary understanding of capability, conduct a high-level assessment of the availability of experienced resources in the following roles: Business Systems Manager, Database Administrator (DBA), Infrastructure Administrator (e.g. network, servers, storage), Security Manager, Support Desk Manager, Support Desk Analyst, System Administrator (e.g. application), and, Technical Lead.
Legacy Resources	Identify any resources who have been around since the implementation of the legacy systems.
Team Readiness to Support Future State Technology	Assess IT's readiness to manage the assets and processes that will come with the envisioned target system(s). As an example: if your target system will be your first foray into direct web-based access to your systems by external users, do your IT staff have the necessary security and technical expertise to properly design, test, implement and sustain such a solution? Another example: will the target system introduce any new foundational components which would require extensive training (e.g. a new database platform, a new web-services interoperability layer, or a new payment system)?
IT Tooling	
Tooling	Identify any tooling that is consistently used within IT that would support the replacement project - for example: incident reporting, change request, and, automated deployment. How long has the tooling been in productive use? Are there any plans to change the tooling during the course of the legacy replacement, or shortly thereafter?

2.3.7 Assess Other Large Concurrent Initiatives [LYLA-J1-7]

What we want to assess here is the extent to which the organization's other large concurrent initiatives may impact on a legacy systems replacement project. As examples, typical impacts can include: forcing the project to contend for resources, creating scheduling dependencies, and, possibly altering documented requirements at some point in your replacement journey.

Legacy replacements draw a tremendous amount of resources, and you'll be trying to draw the same resources as your other key initiatives. If the legacy replacement is not one of the top three priority initiatives, you will likely have significant problems with staffing qualified internal resources on your project in a timely manner with sufficient allocation. After completing this assessment, you may decide it's prudent to put a hold on any legacy replacement plans until it can be made a higher priority.

In conducting this assessment, you should use multiple modes, including: source documentation review, and structured interviews. Excellent candidates for source documentation review include:

- Portfolio Dashboard;
- Enterprise Architecture Roadmap;
- Future State Vision and Business Case for each initiative;
- Project Charters for each initiative;
- Scope statements and work breakdown structures for each initiative;
- Project Schedules for each initiative; and,
- Resource Management Plans for each initiative.

Provided below is a table of common areas that should be part of assessing other large concurrent initiatives.

ASSESSMENT CATEGORY	OTHER LARGE CONCURRENT INITIATIVES ASSESSMENT ITEM
Summary of Key Initiatives	
Priority	Identify all other large initiatives that will happen concurrently with the legacy replacement - include initiatives that immediately precede or follow the replacement. Rank the relative priority of each initiative, including the legacy replacement.
Status	Review performance reporting for the other initiatives for implications related to the accuracy of their planned schedule and resource utilization.
Portfolio Management	Are the organization's key initiatives being formally managed as a portfolio? • What is the organization's portfolio management capability? • Is the consolidated forecast demand for the available pool of enterprise resources being effectively managed?

ASSESSMENT CATEGORY	OTHER LARGE CONCURRENT INITIATIVES ASSESSMENT ITEM
Potential Impacts	
Resources	Review the planned resource draws for the other initiatives at as detailed a level as is feasible (e.g. department, team, role type, or named resources). It is worth getting down to the level of named resources for internal subject matter experts because you can seldom effectively supplement this capability in the short term. So figure out what the demand is for those experts who have been around for years - the ones who all project teams try to recruit. Broadly, ensure you are considering resources need for work related to: • Business analysis (e.g. Business Analysts, Business Content Providers); • Data (e.g. data quality, data integration, data migration); • Technical infrastructure (e.g. Administrators); • Testing (e.g. Test Lead, Testers); • Project management; and, • Organizational change management.
Requirements	Identify any significant potential impact on business requirements that may arise from the other initiatives.
Schedule Dependencies	Identify any significant schedule dependencies that will exist between the legacy replacement and the identified key initiatives.

2.3.8 Assess Operating Environment [LYLA-J1-8]

What we want to assess here is the extent to which the organization's operating environment poses risks, threats, or challenges, that would impact on a legacy systems replacement project. The assessment should include factors related to both the internal and external environment.

In conducting this assessment, it is most efficient, and should be sufficient, to rely on structured interviews with executive management.

Provided below is a table of common areas that should be part of assessing your operating environment.

ASSESSMENT CATEGORY	OPERATING ENVIRONMENT ASSESSMENT ITEM
Internal Environment	
Vital Services	Identify any vital products or services the organization offers to external parties (e.g. customers, the public). Assess the areas where services exceed, and where they fail to meet, the expectations of the consumers.

ASSESSMENT CATEGORY	OPERATING ENVIRONMENT ASSESSMENT ITEM
Requirements Volatility	Gauge the extent to which the Requirements for the legacy replacement may be volatile by considering: • Large recent changes that have impacted the organization's operating model; • Significant changes anticipated to the operating model in the next three to five years; • The typical pace of change across the internal departments; and, • Whether there is a history of requirements changing mid-course during your large projects.
Assured Funding	Assess the likelihood that an appropriate funding envelope for the replacement is assured. Where the project is funded, in part or in whole, by external bodies (e.g. government, partners), identify risks and challenges to securing multi-year funding.
Threats	Identify existing and emerging threats to the organization's ability to meet its mandate. Identify any trends that are increasingly of concern.
Labour	Identify sensitivities or restrictions pertaining to the internal labour force. For example, identify restrictions on acquiring staff during the project, or in the future.
External Environment	
Economy	Identify any broad changes in the economy that would significantly impact the replacement.
Regulatory Environment	Assess the likelihood that acts, regulation or directives that have bearing on a legacy replacement will change within the next five years. Identify any regulatory and compliance requirements that are likely to come into effect during the replacement, or shortly thereafter. Assess the extent of regulatory reporting that will be entailed as a result of replacing your legacy systems.
Political Climate	Identify any significant anticipated changes in government direction. For context, this is particularly relevant for public sector organizations.
External Stakeholder Issues	Identify any large strategic initiatives your external stakeholders are undertaking. Identify any significant technology modernization initiatives for these stakeholders. Assess the extent to which their initiatives will consume the stakeholder's resources and focus? Identify any environmental changes that could significantly affect your external stakeholders.
Competitors	Identify how competitors may influence your organization's pursuit of strategic initiatives (including the replacement).

ASSESSMENT CATEGORY	OPERATING ENVIRONMENT ASSESSMENT ITEM
Synergies	Identify any synergies that exist between your organization and other related/similar organizations. Are there other organizations who are currently addressing, or have recently addressed, similar or overlapping undertakings as your legacy replacement? For context, this may uncover opportunities to partner, share investment / effort, or, share outcomes.

2.3.9 Compile Drivers & Constraints [LYLA-J1-9]

Now it's time to pull together the findings from the various assessment activities into a coherent whole, and package them for release as your finalized Current State Assessment [LYLD-J1]. By design, there was overlap amongst the assessment items included in the tables for the assessment activities above. By coming at your assessment from a variety of perspectives, you are best able to form a comprehensive and balanced assessment.

The Current State Assessment should present both the detailed findings, and the resulting evaluation of the finding, including the following.

- *Risk Exposure* - Based on continued operation per the current state - summarized risks arising from continued use of the legacy systems, as well as risks arising from capability related issues.
- *Business Needs* - Guided by the identified issues, challenges, gaps, and opportunities, summarized key findings as they relate to the organization's overall business needs that should be served by any planned legacy system replacement.
- *Technical Needs* - Summarized key findings as they relate to the organization's overall technical needs that should be served by any planned legacy system replacement.
- *Legacy Replacement Readiness* - Summarized key findings as they relate to the organization's overall readiness to undertake a legacy system replacement, and go-forward recommendations for the replacement.

Your finalized Current State Assessment is a critical input into Perform Options Analysis [LYLS-J4]. The identified risks, needs, and recommendations, will be used in completing the Options Analysis. Aside from the obvious aspects related to the target system, your Options Analysis will draw on the assessment in regard to any noted shortfall in the requisite capabilities to run a successful replacement project (implies short-term staffing), and importantly, to sustain its outcomes through to the long-term realization of promised benefits (implies long-term staffing).

2.3.10 Resource Summary For This Step

Properly conducting the assessment activities hinges upon having access to the organization's retained knowledge. This means a team composed of internal staff with the requisite knowledge in each domain area will need to be assembled, and then taken through the exercise by a qualified lead. Ideally the Assessment Lead will be an impartial person who has no stake in the outcome of the assessment. The Assessment Lead should be further qualified by having expertise in all aspects of the assessment, including most particularly, in conducting legacy systems replacements.

The following table summarizes the key resource roles for this step and provides a rough estimate of how many **days effort** will be required per role. Where multiple resources are required for a consultation, such as for workshop attendees, the effort shown is per person, and based on your own organization, you'll have to determine the number of likely participants, and whether they would attend all workshops or interviews.

KEY ROLES	KEY RESPONSIBILITIES	"NICHE"			"VANILLA"		
		Sm	Md	Lg	Sm	Md	Lg
Assessment Lead	• Analyze source materials • Conduct structured interviews and workshops • Evaluate findings • Prepare Current State Assessment [LYLD-J1]	16	18	20	14	16	18
Project Admin	• Providing documentation • Book meetings	1	1	2	1	1	2
Project Sponsor	• Participate in structured interviews • Approve Current State Assessment	½	½	1	½	½	1
Project Steering Committee	• Design and approve consultation process	½	½	½	½	½	½
Legacy System Assessment Workshop Attendees	• Provide information per assessment activities [LYLA-J1-2] through [LYLA-J1-8]	1	2	3	1	2	3
Structured Interview Participants	• Provide information per assessment activities [LYLA-J1-2] through [LYLA-J1-8]	1	1	2	1	1	2
Subject Matter Experts	• Shadowing • Workshop & interview follow-up	1	1	2	1	1	2

2.3.11 Expected Duration For This Step

For a large project, as a rough estimate, assume **20 to 40 days duration** to produce an approved Current State Assessment.

Provisos:

- Duration depends in large part upon how compressed a schedule of workshops and interviews the organization can achieve.
- The organization can up or down the number of workshops and interviews to balance calendar availability, keep number of attendees manageable, and, ensure there is broad stakeholder participation.
- As with any step that involves a significant document deliverable, duration will be affected by the turnaround times between parties that occur in the hand-offs from creation, to review, to revision, to final approval, as well as the number of review / revise / approve cycles the organization wishes to conduct. With slow turnaround times and multiple cycles, you can double the duration that would apply to a leaner approach. On the Current State Assessment, err on the side of too much rather than too little. This is not a document where you should cut corners.
- As with any project work, it goes without saying that dependencies and resource availability will play a significant role in determining the specific duration for this replacement step, which should be something you manage in your Project Schedule.

2.4 CREATE THE FUTURE STATE VISION [LYLS-J2] ▢

In the previous step, we examined where the organization currently stands. Now in this step, we cast our eyes to the future and think about where the organization wants to be. No one willingly would replace a legacy system and disrupt the associated business processes unless they thought that in so doing, they would find themselves in a better position than when they started. So, one of the key things the Future State Vision must do is explicitly identify how the legacy replacement will deliver on strategic goals and objectives. We must be LOUD and CLEAR on how a replacement will deliver significant business value.

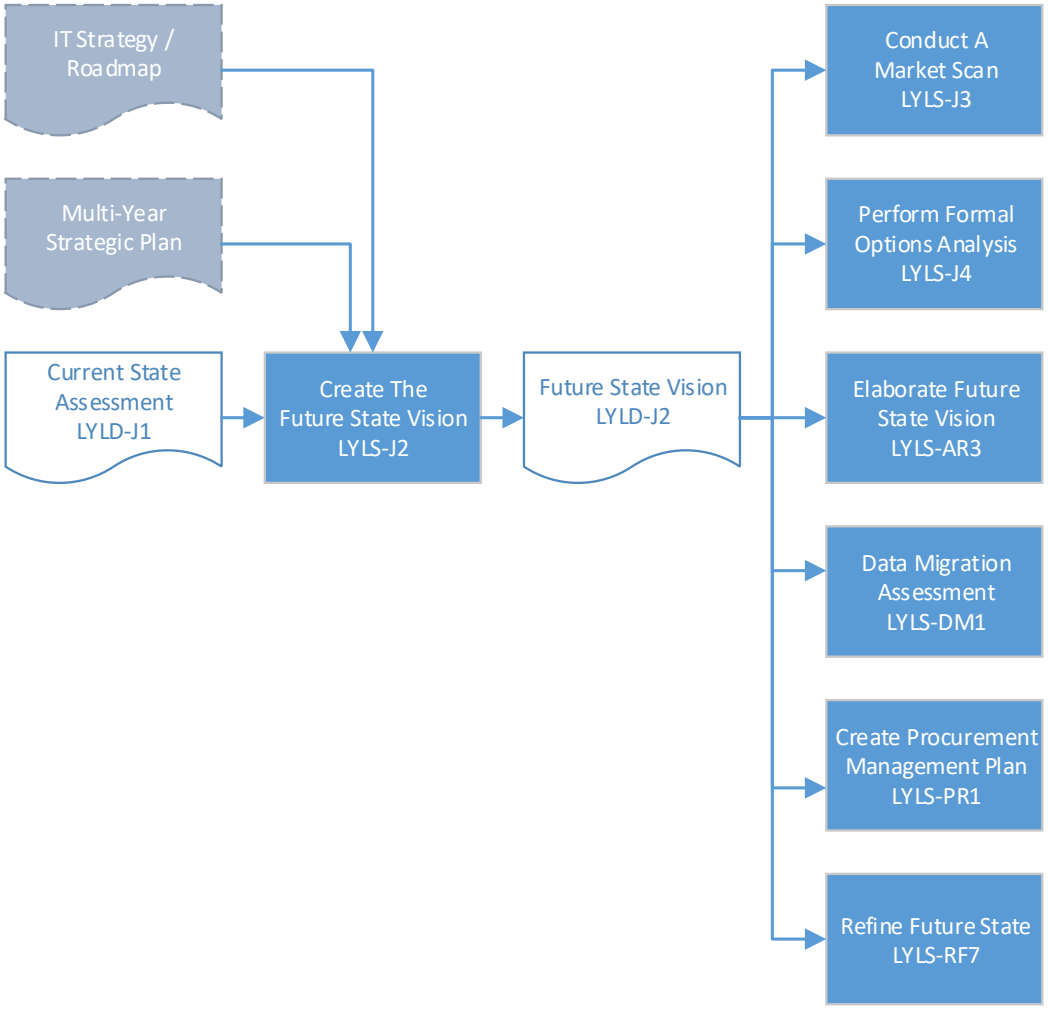
Given how disruptive a legacy replacement is, the executives responsible for authorizing such a course should do everything in their power to ensure a clearly articulated Future State Vision is set out. Such a vision should seek to maximize positive impacts to the business, while minimize unnecessary or negative change impacts. You need to be crystal clear on what you desire, what you require, and where you don't wish to tread.

Without a common understanding of what the replacement must achieve, there is a low chance the project will be run effectively and efficiently. One of my favourite sayings is, "if you don't know where you're going, any road will take you there". It's a simple adage, but it means so much in the context of a legacy systems replacement. Done properly, the Future State Vision will be

consistently used by your project team members to guide them in their everyday actions as they inch towards replacing the legacy systems. By accurately describing what will be achieved by replacing the legacy systems, the Future State Vision becomes the touchstone that tells your team, when they're confronted with choices, which road they should take.

Perhaps it goes without saying, but, it's important that your Future State Vision sets out an *attainable* vision of the desired to-be state of the business and the technology. In order to realize the promised benefits, there does need to be a reasonably strong likelihood that the project team can actually deliver on the vision. Don't set yourselves up for failure.

The following diagram provides context for how this step fits into the Leaving Your Legacy methodology.



A key approach I recommend when creating the Future State Vision document, is to note any key elements of change from the current state. These changes may include additions to the current state, changes to the current state, and even deletions from the current state. These areas are worth highlighting in the relevant sections of the Future State Vision as many of them will result in work under business process reengineering, organizational design, and organizational change management. When documented in this way, you can easily review the Future State Vision, as a whole, to effectively assess the scale of organizational change that will arise from the replacement.

At this early stage of your replacement, the Future State Vision will admittedly be high-level. As you move forward on your replacement journey, the Future State Vision will be treated as a living document. The more information you gather, the more refined will become the vision. In particular, the Future State Vision can be significantly clarified in the following steps: Elaborate Future State Vision [LYLS-AR3]; and Refine Future State [LYLS-RF7]. This elaboration introduces progressively more detailed layers, exploring all the moving pieces, and in effect, will turn your vision into an operating model. In addition, your Future State Vision must be monitored to ensure it remains aligned with any changes in your organization's strategic plans, and this will be explicitly done in Monitor & Control Project [LYLS-PM9].

2.4.1 Create Vision Statement [LYLA-J2-1]

Your Future State Vision should include a clear and concise vision statement that describes the organization's desired to-be state at a high-level. It should convey a sense of the scope of what will be undertaken as part of the legacy systems replacement, and should set out what the organization hopes to gain.

The first crack at the vision statement is typically created with the Project Sponsors and other key executive stakeholders. With their participation, narrow in on those of the organization's strategic statements that apply to the legacy replacement. A replacement is going to align with only a portion of an organization's strategy. It will align strongly with some elements, and more peripherally with others. By identifying in our vision statement the key strategy statements that the replacement will support, we are better able to align goals, objectives, and delivery success measures in the next activity.

In creating the vision statement, very early on, you need to make clear whether the replacement is driven from a business, or a technology agenda. On balance, is this a strategic, or a tactical undertaking? To answer these questions, think about the scope of what the replacement will deliver - does it run the gamut from new operating model (e.g. business policies, processes, procedures, job functions) to new system? Identify the degree to which you envision transforming the business versus simply replacing legacy systems.

A lot of my Clients talk about doing a legacy replacement to enable a sweeping business transformation. I always ask them if they are contemplating: pull out all the stops "TRANSFORMATION!!!"; capital "T" Transformation; or, little "t" transformation. Other Clients start out their replacement journey with a technology driven rip-and-replace scenario in their minds. Key considerations when crafting a vision for these differing approaches are noted below.

Strategic - Business Driven Legacy Replacements:

- The best scenario for a replacement - here the business is seeking to gain strategically aligned benefits, and to do so, they will require technology that can effectively support their needs.
- Think about how far up the food chain you are considering carving up your business architecture. Are you considering changing only a few processes and procedures? Or is your entire operating model up for grabs? Presumably your mandate and strategy statements are what got you considering a replacement. But going forward consider which of the following are on the table: business services; business functions; business policies; business rules; internal business processes / procedures; key stakeholder interactions, organizational structure; and, job specifications. Knowing the scale of what you are undertaking on the business side begins to shape the scope of what will be affected on the technology side, like systems of record, systems of engagement, and the other elements that make up modern information technology portfolios.
- After thinking about these things, make sure your vision statement gives guidance as to the scope and scale of what should be undertaken.
- Depending on the scale of the business transformation, if you envision having a large impact on external stakeholders, consider how they should participate in crafting the vision statement.

Tactical - Technology Driven Replacements:

- Guess what? I don't want you to consider the kind of replacement where tactical technical imperatives are seen as more important than enabling the realization of core business value. It's about the business my friend, not the technology (having said that, that for some businesses their technology is a strategic differentiator). Yes, sometimes replacements seem justified for technical reasons and risks, like product end-of-life or insufficient security. However, a tactical technical driver, on its own, is seldom sufficient justification for a replacement.
- If your project is seen as simply being a rip-and-replace of a legacy system, your Users are very likely going to expect to have a target system that looks and functions much like the old one did. While this makes it pretty darned easy to state what your vision is, out-of-the-gate, this is going to curtail your available options for replacing your legacy system. Where you are talking about ripping and replacing a niche business system, it is often best handled by building the target system.
- The approach you really need to take when it seems your replacement is just about the technology, is to hit the pause button, and go find the business opportunity. Spend time deeply socializing with your key stakeholders the challenges, risks, impacts and costs the organization will be signing itself up for by doing a replacement. Convince them that,

in exchange for the agony, there'd better be some ecstasy. Then get out of the technical weeds, and take the discussion up a level by deeply exploring whether the investment required by a replacement wouldn't be better spent achieving key elements of the organization's strategy. Turn your replacement into a business driven undertaking. I beg you.

Example: Let's look at the case of a governmental regulatory agency. We'll say their legacy systems don't allow for a strong electronic service delivery capability. They've got no web presence, and no mobile device solutions. As a result, their staff spend a great deal of time answering inquiries on the phone, and rekeying the application data they get from public applicants. This is obviously inefficient, can lead to poor data quality, and may lower satisfaction of the regulated entities based on how long it takes to get their inquiries answered, or to provide info, or to get their application approved. The Agency consistently hears from the public that they really want to be able to manage their applications online. Accordingly, the Agency's strategy was recently updated to include a strategy statement that the organization will adopt a modern "any-time and any-where" model for collaborating with its external stakeholders (e.g. Regulated Entity, Partner, and Public). Clearly the current state is out of step with the new strategy, both in terms of business processes and technology. In this case, a partial vision statement might look something like the following:

> *"The Agency will transform its operating model to greatly enhance its ability to work collaboratively with its Regulated Entities. To do this we will put in place new ways of doing business, which will be supported by modern technology. This will allow the Agency to:*
>
> - *By introducing new service delivery channels, provide its Regulated Entities with the ability to meaningfully participate in the life cycle of their applications in a manner that is both convenient for them, and which allows them to use the technologies they find most accessible.*
> - *Etc."*

In terms of timing, it's best to have a draft, at the very least, of your vision statement before you start the next activities in order to give folks a preliminary sense of the strategic scope and direction. You can finalize the vision statement in parallel with conducting activities [LYLA-J2-2] and [LYLA-J2-3].

2.4.2 Create Goals / Objectives / Success Measures [LYLA-J2-2]

To deliver on the strategy statements set out in the vision statement, we need to identify the strategic goals, the objectives, and the delivery success measures for the replacement. Recall from this Chapter's Learning the Lingo section:

- To deliver on a given strategic goal, we will identify specific objectives;
- The Business Case for the replacement will be approved based on the collection of objectives the project promises to meet;
- The scope of the project revolves around delivering what is necessary to meet the objectives;
- Objectives are met when certain desired outcomes are achieved;
- To accurately describe desired outcomes, we specify in detail the project's delivery success measures - these are the specific measures that we agree will be used to determine whether the project has ultimately delivered on, and met, its objectives; and,
- Delivery success measures include things like what needs to be delivered, and, what constraints delivery must occur within.

Describing the goals, objectives, and delivery success measures is a pivotal activity for every replacement. Everything springs forth from you decisions on these fundamental items. In terms of what the future state should look like, the organization's target enterprise architecture, both for the business and the technology will be driven by the stated goals and objectives. All of the plans and actions you take in the remainder of the project should be explicitly designed to transition the organization from its current state to the described future state. Your chosen replacement approach, the goods and services you procure, your acceptance of the final solution, all will be driven by the Future State Vision.

Strategic Goals:

- The Current State Assessment should have provided a summarized list of needs. Your vision statement will give you a sense of which elements of the organization's strategy the replacement should align with. Spend time reviewing source documentation to help you identify and draft the strategic goals that correspond with both the needs and the vision. Likely documents include: your current strategic plans; forward looking discussion papers; Auditor's Reports; and, current or anticipated governing acts and regulations. It's ideal if your strategic plans cover at least the next five years since from this stage to go-live for the legacy replacement can easily take three years.
- Building on the document scan, conduct interviews and workshops with key stakeholders. Further elicit and document the specific strategic goals for the replacement by reviewing their needs against the vision.
- Prioritize the strategic goals. You could go with the Must Have, Should Have, Could Have prioritization scheme. Or, if you want to get fancy, try a ranked list with no ties allowed, which can really help when everything is considered a Must Have by the stakeholders. You can also do a hybrid of a ranked list, with mandatory goals - this lends itself to things like non-negotiable compliance with mandated regulatory requirements.

- The stated goals for the replacement should directly map to the statements in the organization's strategic plan. Accordingly, you should explicitly document these linkages to provide traceability.

Objectives:

- Your next task is to state the outcomes the replacement will deliver to achieve the identified strategic goals. With so many of the subsequent activities of the project hinging on a common understanding of the objectives, make sure you craft them meticulously. They need to first and foremost be unambiguous, they should be achievable, and, they should be specific enough to enable you to craft corresponding measures to gauge whether you have successfully met an objective. This task is well handled through structured interviews and workshops.

- It really helps in crafting objectives if you can bring an accurate understanding of current business performance to the discussion. When you've got reliable data, it's worth taking the time to analyze business performance in the areas encompassed by a strategic goal. This often allows you to be more narrow in the wording of objectives by focusing only on what will deliver the most value. As an example, simply stating an all encompassing objective like "eliminate non-value added processes" and calling it a day, is much less helpful than conducting an analysis of performance data so you can instead create a targeted objective like "eliminate the following 15 non-value added processes - Process 1, Process 2, etc." Now, this kind of refinement doesn't have to happen at this step - I've already mentioned that you should treat the Future State Vision as a living document. It's up to you to balance how much time you want to spend at this stage in rolling up your sleeves and doing the analysis. This may be a moot point, as it's possible you don't have reliable performance data to do this analysis - maybe that's one of the reasons, in fact, that you're looking at doing a replacement. But know this - the sooner you focus your objectives the better, because the degree to which they drive all project activity means when you refine objectives later on, there can be a lot of downstream impacts, like throwaway work, rework, and missed deadlines.

- Prioritize the objectives. Note that the priority of a goal is discrete from the priority of its objectives. For example, if you have a Should Have goal, it can have a Must Have objective - all this means is, IF you are going to try and successfully achieve the goal, then that objective MUST be met - IF you decide not to pursue the goal, then likewise, you no longer need to work on meeting that objective in support of that goal.

- Explicitly document which strategic goals each objective supports.

Delivery Success Measures:

- Specifying how to measure if objectives have been met, is obviously a task you perform only once you've got stated objectives in front of you.

- Delivery success measures can be readily stated as elements of project scope. They can also be stated as performance standards, and, as constraints within which the project must deliver.
- Deriving realistic and achievable success measures requires careful analysis of your baseline state and your needs. As was noted for the objectives above, you'll have to strike a balance between how much analysis, and therefore direction, you provide up-front, with how much refinement you do later.
- In the case of scope related delivery success measures, until you've done some very detailed requirements analysis, you may have an incomplete understanding of what scope will best deliver the desired business value. Delivery success measures clearly benefit from progressive elaboration - so don't be afraid to start broadly, and later on refine the measures. Your final measures need to be based on a sound understanding of data, and on proper estimation techniques. Make sure you document any key assumptions that were made, and the impact to the measures if the assumption proves unfounded. This makes it much easier to monitor and review whether the assumptions continue to hold up as the project progresses.
- If performance improvement is an important objective for the replacement, and if you don't have accurate benchmarks of your as-is performance measures, you may wish to initiate some time and motion studies now to establish your baseline, as you'll need that to finalize realistic and achievable target performance standards.
- Success measure that deal with constraints are often driven by the current high-level understanding of mandated deadlines and funding envelopes. How much time do you have to achieve the vision? How much money is available to transition to the future state?
- If there are significant time-based constraints, it helps to specify delivery dates against a breakdown of clear and meaningful milestones. Measuring delivery performance against such milestones provides a useful measure of whether the replacement is on track.
- Making it clear that there are serious time-based constraints at this step allows you to reflect this in the Options Analysis. For example, time may be crucial, and your stakeholders may want to achieve frequent early delivery of value - the related success measures would drive the thinking on how to approach many aspects of project delivery, including development, data migration, and implementation approaches - all of which would drive the cost estimates.
- It's important to document the constraints or dependencies used to shape the success measures. Once you complete your Options Analysis, and have an approved Business Case that sets out your cost-benefit analysis, you'll likely need to poke at some of the success measures

based on the outcomes of those steps. As well, as part of ongoing project monitoring, it's much easier to identify impacts to the project if you've explicitly documented your foundational constraints and dependencies.

- Prioritize delivery success measures. The priority of an objective is discrete from the priority of its success measures.
- Explicitly document which objectives each success measure supports.

Example: Okay, that was a lot of words. Let's see if we can solidify those concepts with an example. Let's build on the example from [LYLA-J2-1], of an Agency that envisions using technology to enhance how it collaborates with its Regulated Entities. The table below shows some of the goals, objectives, and delivery success measures in support of the vision statement.

ID	PRIORITY	GOAL	OBJECTIVE	DELIVERY SUCCESS MEASURE & BENEFITS
G1	Must	Implement a full suite of electronic service delivery (ESD) capabilities for our Regulated Entities using web-based and mobile solutions		
O1-1	Must		Provide richer **self-service inquiry** access to key data for our Regulated Entities of types A, B and C	
D1-1-1	Must			Read access to data entities X, Y, Z tested, piloted, and available through production self-service portal via web-browser and mobile device (scope)
D1-1-2	Should			D1-1-1 achieved by June 1, 2017 (time)
D1-1-3	Should			D1-1-1 achieved for $1 million (cost)
B1-1-1	Must			1000 data requests eliminated per month based on data now available via ESD being used instead – savings of 50 person days effort per month to respond to inquiry
O1-2	Should		Our Regulated entities of types A and B can participate as part of an **integrated workflow**	
D1-2-1	Must			Write access to data entities X, Y, and Z via easy to use workflow tested, piloted and available through production self-service portal via web-browser (scope)
D1-2-2	Should			As per D1-2-1, plus access via mobile device (scope)
D1-2-3	Must			The target system can achieve a "Total Internal Staff Touch-Time", from

ID	PRIORITY	GOAL	OBJECTIVE	DELIVERY SUCCESS MEASURE & BENEFITS
				Submission to Outcome, of 6 hours for the normal flow of a standard application for Regulated Entity type A
D1-2-4	Should			The target system can achieve a "Total Internal Staff Touch-Time", from Submission to Outcome, of 3 hours for the normal flow of a standard application for Regulated Entity type B
B1-2-1	Must			500 monthly transactional workflows handled via ESD - savings of 200 person days effort per month to rekey applicant data
B1-2-2	Must			Submission to Outcome cycle time reduced from 15 days to 5 days for Regulated Entity type A
B1-2-3	Should			Submission to Outcome cycle time reduced from 5 days to 3 days for Regulated Entity type B
B1-2-4	Should			Improved data quality on ENTITY X, Y, Z results in…
B1-2-5	Should			Regulated Entity satisfaction survey shows increase of… etc.

2.4.3 Document Business Requirements & Benefits [LYLA-J2-3]

In this activity we take on the topic of Business Requirements and benefits. We gather and document Business Requirements to elaborate on our delivery success measure. If we meet our Business Requirements, we therefore meet our delivery success measures, and in so doing we meet our objectives, which ultimately allows us to start realizing our promised benefits.

Business Requirements:

Knowing the specifics of how to elicit and analyze business requirements is a field of study unto its own, and I won't try to duplicate that here. As it pertains to the Leaving Your Legacy methodology, the important items I want to raise in respect of the Business Requirements are:

- What they are;
- How detailed you should make them, including the rationale behind what I recommend;
- How you should commonly gather them;
- Who should participate in creating, reviewing, and approving them; and,
- How they will drive subsequent activities.

Business requirements represent the high-level capabilities required to support the Future State Vision. The majority of the Business Requirements you should document will describe the capabilities the target system must possess. However, Business Requirements may also include a strictly business capability that is required under the future state operating model - you would typically only document these if they represent significant changes to the operating model that will be delivered through the work of business process reengineering, organizational design, and organizational change management.

At this early stage of a legacy replacement, requirements should be identified broadly and at a high-level, not deeply and in a very detailed and prescriptive manner. We want to elicit the needs and capabilities to describe WHAT we require of our target system. Detailed description of required solution functionality, namely HOW the target system will work, come later in the process. In the Justification stage, you need just enough detail to allow you to support your Market Scan and Options Analysis activities. Keeping the Business Requirements at a high-level description of what the target system must be capable of is especially important in the case where a COTS solution may be procured. When you BUILD any system, you need to move from the high-level concept of WHAT the product should do, through to precise specifications of HOW the system will function, followed by design and construction. But think about our friend the BUY for a moment. In the case of a BUY, we are talking about a packaged solution that already exists, and can be bought off the shelf - it has already gone through its own development cycle and it now exists, and it already functions in a certain manner. If you try to write your Requirements in a prescriptive manner at this stage, there are a few possible paths that might unfold.

- Firstly, you may find upon performing a Market Scan that all of the COTS products have extensive functional gaps with your Requirements. Your assessment indicates no product exists in the marketplace that could, in a timely and cost effective manner, and with an acceptable level of risk be modified to meet your detailed Requirements. So, what do you do? You could decide that you therefore need to do a BUILD, or you might go back to square one, and cut the prescriptive detail of how the target system meets your needs. The former I would argue is prematurely painting your replacement into a corner, and the later is an outright waste of time and money.

- The second path is a variation on the first. Let's say you got the same results from the Market Scan. But on this path you assessed the costs, schedule and risks, and you decided that in fact you could extensively modify the COTS product to meet your detailed Requirements. As noted in Chapter 1, this path leads to Failure Town.

- There is, improbably, a third path. Here, after you prescriptively described the functional behaviour of the target system, your Market Scan confirmed the existence of a COTS product that precisely meets your needs, or at least could be configured to do so without the need for

extensive customization. Jackpot. Well done. But that was a long shot. Or were you simply describing the COTS product that you have pre-wired to win your procurement?

- It's the rare project that this early should prescriptively state precisely how the target system should function. If you have one of those, you most likely are talking about doing a rip-and-replace, or are faced with some form of heavily compliance driven system. In either event, as noted earlier, it would seem like you may be on the path to a BUILD.

In addition to the descriptive statement of the required high-level capability, you should also detail the following for each Business Requirement:

- Unique Identification Number;
- Unique Short Name;
- Categories / Types (come up with some fields to sort and categorize in a way that is meaningful to your stakeholders);
- Priority;
- A description of how this Business Requirement represents a change over the as-is (e.g. a big add, minor add, big change, minor change);
- Cross-reference (e.g. related delivery success measures, business processes, business events, etc.);
- Source (where did the Business Requirement come from); and,
- Assumptions.

As a way of providing an overview of your Business Requirements, you may wish to create a to-be Business Context or System Context diagram to show how the internal and external stakeholders and the target system are envisioned to interact within the future state organization. A context diagram will show, at an ultra-high-level the primary interactions, data flows, and decisions. When it comes to the future state business processes and procedures, that's not something you have to nail down now - those will be created and refined in subsequent steps, namely, Preliminary Process Design [LYLS-AR4] and Finalize Business & Solution Design [LYLS-CO1].

In gathering your Business Requirements, you should use multiple modes, including: documentation review, and involving internal / external stakeholders (which includes Users) in a combination of structured interviews and workshops. Excellent candidates for documentation review include:

- Current State Assessment;
- As-is Business Context and System Context diagrams;
- As-is Business Function Model / Business Capability Model / Business Classification Scheme;
- As-is Business Processes / Business Events;

- As-is Business Scenarios;
- As-is Business Rules;
- As-is Conceptual Data Model / Data Dictionary;
- System Requirements Specification;
- Organization's Strategic Plan;
- Information Technology Strategic Plan;
- Governing Acts / Regulations / Standards / Directives / Policies & Procedures;
- Auditor's Reports;
- Privacy Impact Assessment; and,
- Threat Risk Assessment.

In your source documentation review, go over the things the legacy systems provide, but which are problematic, error prone, issue plagued - these are your current challenges. Look for things the system doesn't provide, but which the business currently needs, or is shortly expecting to need - these are your gaps. As well, an important part of assessing your legacy systems is to identify what they do well. It's doubtful your legacy systems are ALL bad. By working with your current users to identify things your legacy systems do well, you can set out what needs to be protected, preserved, and maybe even enhanced - these are your opportunities. Now identify how these challenges, gaps, and opportunities fall under your objectives and delivery success measures. That's one of the approaches to uncovering your Business Requirements.

You'll likely want to organize your interview and workshops according to business functions, processes or scenarios. You will want to get people discussing requirements in the context of the identified goals, objectives and success measures. It typically takes multiple rounds of back-and-forth to draft and polish the Business Requirements. Depending on the size of the replacement, if you're looking at more than a couple of months, you might be well served to use time-boxed sprints to iteratively create the requirements until you meet your acceptance criteria. Ensure you have broad participation from:

- Business Knowledge / Subject Matter Experts;
- Business & Project Analysts;
- Key Internal & External Stakeholders;
- Executive Managers (Business & IT); and,
- Strategic Planner.

As with the goals, objectives, and success measures, you should prioritize the Business Requirements. As noted earlier, there are many prioritization schemes. One of the key issues that arises when pursuing a COTS procurement

for a legacy replacement is the need to be particularly careful in how many requirements are categorized at the highest level of priority. Too many mandatory requirements for example, and you'll find there isn't a system in the marketplace that can submit a responsive bid for your RFP. Too many high priority requirements, and you'll lose the ability for an evaluation to discern between solutions that best provide the things the business TRULY depends upon. If a COTS procurement is a possibility for your replacement, try to achieve something of a normal distribution curve for your priority values. This is discussed in greater detail in Prioritize Requirements [LYLA-AR8-7].

Benefits:

As we have discussed, if we deliver on our promised objectives, the organization will realize benefits through the sustained use of the outcomes of the project. By transitioning the business to its future state operating model, and by operating the target system over the course of (ideally) many years to come, the organization will incrementally realize benefit.

I recommend you take a two-stage approach to documenting the benefits. First off, go broad, identify all possible benefits. Then go deep, try and quantitatively describe each benefit, and try to qualitatively describe each intangible benefit. As always, use clear and unambiguous language.

There are a few ways to ensure you've identified all of the benefits that could be realized by the replacement. One way is to go through each objective, line-by-line, look at its related Business Requirements, and then review the information that notes what is changing from your as-is state. It's these identified areas of change that are going to deliver benefit. Another way to make sure all benefits have been identified is to brainstorm using a list of standard goals for legacy replacements through which benefits can be realized, or harms can be avoided. These have been detailed in Chapter 1, section 1.5 When To Seriously Consider A Replacement, and are summarize below. Use this goals checklist to make sure you've identified any applicable benefits.

- *Greater engagement and collaboration* - Introduce new capabilities, or enhance existing ones, to engage clients, constituents, and stakeholders, in your workflows; become more collaborative internally and externally, offering more active participation and greater visibility to those outside the enterprise.
- *Increase convenience* - Enable an anyplace and anytime operating model whereby mobile users are able to have rich interaction with your information systems using devices of their choosing.
- *Increase transparency* - Enhance your ability to easily analyze and openly share data in novel and ever changing ways.
- *Improved decision making* - Enhance your system of record so that it can reliably form the basis for advanced data analytics and decision making capabilities; reduce human error to improve the quality of data; improve availability of data; provide visibility, exploration and analysis of accurate real time data and performance measures.

- *Work faster* - Automate key steps of a business process to reduce the time to complete business transactions; provide improved workflow capabilities to allow effective management of transactions to ensure service levels are met; elimination of non-value added work.
- *Do more* - Implement a robust scalable technical architecture that provides a high degree of automation, eliminating manual work where possible.
- *Grow the business* - Flexibly and cost effectively incorporate new service offerings.
- *Save money* - Identify opportunities to reduce the cost of ownership of information systems.
- *Increase organizational efficiency* - Automate manual tasks; business process redesign to eliminate duplicated effort, to eliminate non-value add work, standardize service offerings, and to allow external users to perform their portion of a transaction.
- *Increase customer or user satisfaction.*
- *Improve employee morale / retention.*

Once you've identified your benefits, it's time to quantify and qualify them as appropriate. This is a good time to talk about the role of a Benefit Owner. It's my firm belief that a lot of the challenges projects face in successfully delivering products that ultimately deliver the desired benefits boils down to an issue of governance. As was mentioned earlier, benefits are realized by using the product of the project. Benefits accrue (if you're lucky) long after the replacement project has rolled up its carpets and closed its doors. Typically, there is a lot of confusion about who is therefore accountable for the realization of benefits. Was it the folks who defined them as part of the project? Or are the folks who use the product on the hook? I believe we can go a long way to resolving this issue by assigning Benefit Owners to each and every benefit at this early stage of the project. With an assigned Benefit Owner, you immediately can establish buy-in and ownership by having them be the ones to drive the work of quantifying and qualifying your benefits. With that being said, for tangible benefits, quantifying target improvements is best done when you have solid performance data for your current environment. If you don't have solid data now, consider getting your Benefit Owners to conduct time and motion studies to get it, or if that can't happen, clearly document the assumptions that were made in the absence of hard data.

Just as with the goals, objectives, success measures, and Business Requirements, finish off your documentation of benefits by assigning unique ID's and a priority to each benefit.

2.4.4 Confirm Strategic Alignment [LYLA-J2-4]

As has been discussed, your legacy replacement should be strongly aligned to your organization's strategies. Firstly, because programs and projects are the means by which you successfully implement your strategy, and secondly, because starting out your replacement with a vision that is linked to your strategy allows you to more easily identify and manage impacts arising from changes to strategy that occur during the replacement.

If you've done [LYLA-J2-1] through [LYLA-J2-3] according to the Handbook, you won't have much of a challenge ensuring you've created a Future State Vision that is very well aligned with the organization's strategy. The framework recommended for the Future State Vision clearly establishes traceability between strategic goals, objectives, delivery success measures, and benefits.

This activity really then becomes a quality control inspection before you move your Future State Vision forward to [LYLA-J2-5] for approval. In conducting this inspection, the tasks to focus on include:

- *Follow the linkages top-down* - Confirm that each goal has one or more objectives. Confirm that each objective has one or more delivery success measures. While it's not mandatory that each objective has linked benefits, and you may have some cases where it was felt there weren't explicit benefits for each objective, do some final reflection to confirm benefits have been thoroughly identified.
- *Follow the linkages bottom-up* - Confirm that each Business Requirement support one or more delivery success measures.
- *Identify superficial linkages* - sometimes a Business Requirement, benefit, or, delivery success measure will trace to more than one objective. That's fine. But when a single item supports multiple objectives, assess how superficial the linkage is. It's possible to go overboard with traceability, which can eliminate the efficiency of identifying impacts later on in the project, and can muddy design discussions by lessening focus. If you find a superficial linkage and you think it likely it could strengthen later, then leave it. Otherwise, consider dropping it.
- *Review each item's priority* - Confirm that goals, objectives, delivery success measures, benefits, and the Business Requirements have all been assigned a priority that is appropriate in the context of the organization's strategy.
- *Review overall priority of the replacement* - Assess whether the Future State Vision activities help to establish the priority of the replacement relative to the organization's other key strategic initiatives.
- *Review for clarity* - Identify problems with clarity or ambiguity as later on these may make it difficult for the project team to understand precisely how their work traces back to the organization's strategy.

Noted in the earlier activities around crafting the Future State Vision was a suggestion that, if you have one, your organization's Strategic Planner should have been a participant. If you in fact had such a resource participating, they are ideally positioned to conduct a final review to confirm the Future State Vision is aligned with the strategy. Otherwise, your lead and the Project Sponsor should likely take on this task.

As a final point, since the Future State Vision is a living document, whenever any activities [LYLA-J2-1], [LYLA-J2-2], or [LYLA-J2-3] are revisited during the project, you'll need to identify the specific changes that are made, and ensure that the revised Future State Vision remains aligned to the, then current, strategy.

2.4.5 Approve Future State Vision [LYLA-J2-5]

At this point, you now have in hand a shiny new Future State Vision [LYLD-J2] that has been tightly aligned with strategy. You are ready to seek approval so that you can get on with determining the best approaches for transitioning to the future state, and how much that is going to cost.

This is truly a critical and a foundational stage of the project as the Future State Vision forms the basis for scope and Requirements, which will affect your choice of replacement approach. The Future State Vision also forms the basis for the final acceptance of a replacement system and determination of whether the organization's needs were ultimately met. Your team needs to deliver against the Future State Vision, and if they do, the organization should get what it wants. It is imperative that you do not proceed any further with your replacement until you have a clearly defined and approved Future State Vision.

You can seek approval for the Future State Vision in several ways. The most effective is typically to ensure that the work of creating the vision allowed participants to contribute their feedback in multiple review cycles. At the end of those review cycles, participants can be asked to confirm their acceptance of the Future State Vision. With your participants standing behind you, move forward to seeking approval from your Project Sponsor and other key executive stakeholders. It's helpful for these folks to receive a preliminary walkthrough of the document as they may not have participated in a hands-on manner. Give these senior approvers a few days to review the Future State Vision on their own, and then solicit any comments or concerns. In the event that your Future State Vision contains any bombshells for your approvers, it's in your best interests to make sure these concepts are well socialized in-person with the approvers.

On the topic of bombshells, one thing the approvers should seriously reflect upon as they consider approving the Future State Vision is the balance that was struck between whether the Future State Vision is driven by business strategy or by technical imperatives. It's not improbable that, in conducting the Current State Assessment and in crafting the Future State Vision, it became apparent that the legacy systems weren't as awful as they'd been made out to be. There may have been a realization that the legacy systems were unfairly demonized, when the bigger problems were being caused by the business architecture. Accordingly, you may be pitching a vision that is less about

changing systems, and is much more about changing the business. It's therefore possible in such a situation, that after you analyze your options, you wind up recommending significant business transformation, with only minimal modification of your existing legacy systems. This can be a difficult pill to swallow when the earlier thinking was proceeding in a different direction. But remember, the Leaving Your Legacy methodology tries to cut through biased beliefs and subjectivity, and instead identify best courses of action to achieve successful outcomes, based on objective and rationale analysis. If your approvers already had set their hearts on a BUY, ask them to look at it this way - buying a COTS solution, minimally modifying it, and then changing your business processes to avoid making big changes to the COTS has much in common with minimally enhancing your existing system (call it "Legacy-Off-The-Shelf" or LOTS if you like), and then again, changing your business processes as needed. Clearly a case of trying to be happy with your LOTS in life.

Immediately following approval of the initial Future State Vision, the options for how the legacy system can be replaced will be analyzed in steps [LYLS-J3] and [LYLS-J4]. Those steps will in turn support the creation of a Business Case for the legacy systems replacement project in step [LYLS-J5].

As mentioned earlier, the Future State Vision is a living document, and will be maintained throughout the Implementation stage to reflect any approved changes. Determining whether the Business Case remains justified will therefore also be an ongoing activity. Once approved, your Future State Vision should be subject to formal change control procedures.

2.4.6 Resource Summary For This Step

It takes a great deal of time and effort to create an aligned and achievable Future State Vision. If you want to do the job right, you need many folks to collaborate in analyzing, exploring, and refining the vision. Whether or not you charge-back for staff participation, and whether or not you use consultants, there's a pretty big human cost involved in doing this work properly. Accordingly, review and communicate the resource requirements below and ensure you have whatever approvals, including funding, that you need.

You should assemble a diverse group of internal and key external stakeholders to collaborate on this work. Create a cross-functional team composed of the most capable staff within each discipline or domain. Your team should also invite the active participation of executive and senior management. By creating a widely shared vision, that was built on a solid understanding of needs, challenges, and expectations, you will establish early support and commitment for the legacy replacement project which will in turn facilitate acceptance of the organizational change.

While this early stage of a replacement is primarily about clarifying the purpose and justification with key stakeholders, you should consider for a moment how your user groups should participate throughout the legacy replacement lifecycle. Many of the steps of the Leaving Your Legacy methodology build on the work done in earlier steps. The most effective and efficient approach to staffing your replacement will be to look at the full scope of the work, and identify key resources who can participate throughout. This

will ensure they build all the necessary capacity as they progress, and it will minimize the need for hand-offs and knowledge transfer.

A key individual who should participate is the keeper of the organization's Strategic Plan. Their participation in crafting the Future State Vision will ensure that from the outset, the vision is tightly aligned with strategy.

Ideally you will appoint someone to lead the team in creating the Future State Vision. This lead should have expertise in conducting consultations to develop business architectures.

The following table summarizes the key resource roles for this step and provides a rough estimate of how many **days effort** will be required per role. Where multiple resources are required for a consultation, such as for workshop attendees, the effort shown is per person, and based on your own organization, you'll have to determine the number of likely participants, and whether they would attend all workshops or interviews.

KEY ROLES	KEY RESPONSIBILITIES	"NICHE"			"VANILLA"		
		Sm	Md	Lg	Sm	Md	Lg
Future State Vision Lead	• Conduct structured interviews and workshops • Analyze source materials • Requirements analysis • Prepare Future State Vision [LYLD-J2]	25	30	35	15	20	25
Project Admin	• Providing documentation • Book meetings	1	1	2	1	1	2
Project Sponsor	• Create vision statement • Confirm strategic alignment • Review and approve Future State Vision	½	½	1	½	½	1
Project Steering Committee	• Create vision statement • Review and approve Future State Vision	½	½	½	½	½	½
Business Requirement Workshop Attendees (Incl. Strategic Planner)	• Participation per [LYLA-J2-2] through [LYLA-J2-3]	6	8	10	3	4	5
Subject Matter Experts	• Workshop follow-up	1	1	2	1	1	2

2.4.7 Expected Duration For This Step

For a large project, as a rough estimate, assume **30 to 50 days duration** to produce an approved Future State Vision.

Provisos:

- Duration depends in large part upon how compressed a schedule of workshops the organization can achieve.
- The organization can up or down the number of workshops to balance calendar availability, keep number of attendees manageable, and, ensure there is broad stakeholder participation.
- Duration depends on turnaround times between parties that occur in the hand-offs from creation, to review, to revision, to final approval, as well as the number of review / revise / approve cycles. With slow turnaround times and multiple cycles, you can double the duration. On the Future State Vision do not cut corners.
- Dependencies and resource availability will play a significant role in determining the specific duration for this step.

2.5 ACTIVITY & ARTEFACT CHECKLIST

The following table provides a checklist of the activities and artefacts that can be completed for the steps detailed in this Chapter. As discussed previously, when looking at legacy replacements, they come in different types and sizes. We need to factor in these parameters to determine the degree to which your replacement should get the full Leaving Your Legacy treatment. You don't want to add additional work and complexity to your initiative if it isn't warranted. To that end, for the two types of replacements (*niche* and *vanilla*) and three sizes (*small*, *medium*, *large*), the table below indicates whether each checklist item should be considered as a *Must-Have* (M), a *Should-Have* (S), or a *Could-Have* (C). This determination wasn't made based on whether you could get away without doing something, or limp along without it, but rather it was based on experience that says which of the activities and documents are most important in ultimately contributing to the successful outcome for these replacement categories. So, based on experience, a Must-Have is truly a key element and shouldn't be foregone if you want to succeed. In the case of a Should-Have, if your project team is well staffed, then do it - only skip this if you feel you are under-resourced and you'd rather the team have some breathing room to focus, think and plan, rather than yet another activity sapping their time.

At the end-of-the-day, it is you who will ultimately determine, based on the specifics of your replacement, which of the items below your project will undertake. For any items you do plan to take on, you may wish to use the checkboxes in the table below to indicate your progress. The checkboxes could be used to note: whether you've planned out the work for the item in your project plans; whether you've completed any necessary preparation work; and whether you have performed the primary work of executing on the item.

LYL STEP	ACTIVITIES & ARTEFACTS	Plan	Prep	Execute	"NICHE" Sm	"NICHE" Md	"NICHE" Lg	"VANILLA" Sm	"VANILLA" Md	"VANILLA" Lg
Perform Current State Assessment [LYLS-J1]	Current State Assessment (LYLD-J1)	☐	☐	☐	M	M	M	M	M	M
	Assess Your Legacy Systems [LYLA-J1-1]	☐	☐	☐	M	M	M	M	M	M
	Assess Executive Management Capability [LYLA-J1-2]	☐	☐	☐	S	M	M	C	S	M
	Assess Project Management Capability [LYLA-J1-3]	☐	☐	☐	M	M	M	M	M	M
	Assess Organizational Change Capability [LYLA-J1-4]	☐	☐	☐	S	M	M	C	S	M
	Assess Legacy Replacement Capability [LYLA-J1-5]	☐	☐	☐	M	M	M	M	M	M
	Assess Information Technology Capability [LYLA-J1-6]	☐	☐	☐	M	M	M	M	M	M
	Assess Other Large Concurrent Initiatives [LYLA-J1-7]	☐	☐	☐	S	M	M	S	M	M
	Assess Operating Environment [LYLA-J1-8]	☐	☐	☐	S	M	M	S	M	M
	Compile Drivers & Constraints [LYLA-J1-9]	☐	☐	☐	M	M	M	M	M	M

LYL STEP	ACTIVITIES & ARTEFACTS	Plan	Prep	Execute	"NICHE" Sm	"NICHE" Md	"NICHE" Lg	"VANILLA" Sm	"VANILLA" Md	"VANILLA" Lg
Create The Future State Vision [LYLS-J2]	Future State Vision [LYLD-J2]	☐	☐	☐	M	M	M	M	M	M
	Create Vision Statement [LYLA-J2-1]	☐	☐	☐	S	S	S	S	S	S
	Create Goals / Objectives / Success Measures [LYLA-J2-2]	☐	☐	☐	M	M	M	M	M	M
	Document Business Requirements & Benefits [LYLA-J2-3]	☐	☐	☐	M	M	M	M	M	M
	Confirm Strategic Alignment [LYLA-J2-4]	☐	☐	☐	M	M	M	M	M	M
	Approve Future State Vision [LYLA-J2-5]	☐	☐	☐	M	M	M	M	M	M

APPENDIX A: GLOSSARY

"We may change the name of things;
but their nature and their operation on the understanding
never changes."

- David Hume -

APPENDIX B: TEMPLATES

"Let no act be done at haphazard,
nor otherwise than according to
the finished rules that govern its kind."

- Marcus Aurelius -

If I've shown you nothing else, I trust you now see legacy replacements, done well, are document intensive exercises. What follows are the templates referred to throughout the body of the Handbook. The templates have been separated into sections based on the work category they belong to. In the sample template immediately below, instructions are given on how to use the templates.

	☐ TEMPLATE ID	Unique LYL Methodology ID (e.g. LYLD-DM6) Use the checkbox to the left to indicate if this document is relevant to your replacement
	WBS CATEGORY	Work breakdown category (e.g. Data Migration)
	NAME	Name of the document (e.g. Data Migration Plan)
	PURPOSE	The purpose of this document within the context of the LYL methodology
	IMPORTANCE	Why you need to do this document well, and what might happen if you don't
USAGE PER STAGE	Justification	Summary of how the document is used within this stage
	Architecture & Requirements	Summary of how the document is used within this stage
	Procurement & Reqmts. Finz.	Summary of how the document is used within this stage
	Implementation	Summary of how the document is used within this stage
	REQUIRED INPUTS	• Specifies inputs required to create the document
	OUTPUT OF	• Specifies the activity that produced the document
	INPUT TO	• Specifies the activities that use the document
	REQUIRED AUTHOR SKILLS	• The key skills, knowledge and experience that will be required to competently author the document
SECTIONS & PRIORITY	Must Haves	• Names the "must have" sections of the document, and briefly indicates why each is important
	Should Haves ☐	• Names the "should have" sections of the document, and briefly indicates why each is important • Use the checkbox to the left to indicate if you plan to use these sections
	Could Haves ☐	• Names the "could have" sections of the document, and briefly indicates why each is important. • Use the checkbox to the left to indicate if you plan to use these sections
	ACCEPTANCE CRITERIA	• Specifies key criteria to use in determining whether to approve or accept the document

The 100 included templates are listed in the following table:

CATEGORY	DOCUMENT
Justification	Current State Assessment
	Future State Vision
	Request For Information
	Market Scan Results & Responses
	Options Analysis & Recommendation Report
	Business Case
Architecture & Requirements	Enterprise Architecture Management Plan
	Requirements Traceability Matrix
	Future State Model
	Business Processes (To-Be)
	As-Is System Document Catalog
	Business Scenarios (To-Be)
	Target Reference Architecture
	Functional Requirements
	Target Conceptual Data Model (CDM)
	Technical Requirements
	Glossary
	Privacy Impact Assessment (Preliminary)
Procurement	Procurement Management Plan
	Advanced & Final Notices of Posting
	RFP Content & Fillable Forms
	Vendor Briefing Presentation
	Responses To RFP Questions
	Evaluation Planner
	Evaluation Orientation Guide
	Scoring Guides & Forms
	Reference Check Script
	Master Scoring Spreadsheet
	Reference Check Summary
	Demonstration Facilitation Planner
	RFP Recommendation Report
	Requirements Finalization Agreement & Statement of Work
	Negotiation Plan
	Master Agreement
	Debrief Script

CATEGORY	DOCUMENT
Requirements Finalization	Requirements Finalization Workshop Guide
	Impact Assessment
	Use Case
	High Level System Design Specification
	Threat Risk Assessment (Preliminary)
	Technical Architecture
	Construction Methodology
Project Management	Project Charter
	Project Document Style Guide
	Scope Management Plan
	Schedule Management Plan
	Cost Management Plan
	Risk Management Plan
	Human Resources Management Plan
	Benefits Management Plan
	Project Governance
	Work Breakdown Structure (WBS) & WBS Dictionary
	Project Schedule
	Project Budget
	Risk Register
	Issue & Decisions Log
	Action Item Log
	Change Requests
	Change Orders
	Project Status Reports
	Lessons Learned
	Project Closeout Report
Organizational Change Management	Stakeholder Analysis
	Organizational Change Management Plan
	Communication Management Plan
	Change Readiness Assessment
	Project Communications
	Training Strategy
	Training Plan
	Training Material

CATEGORY	DOCUMENT
Construction	Threat Risk Assessment (Final)
	Policies & Procedures (To-Be)
	Business Rules (To-Be)
	Detailed System Design Specification
	Privacy Impact Assessment (Final)
	Build Book
	Job Specifications & Access Control List
	Release Notes
	Operating Procedures Manual
	Proof-of-Concept Performance Study
Data Migration	Data Migration Assessment
	Legacy System Logical Data Model (LDM) & Physical Data Model (PDM) & Data Dictionary
	Data Migration Tool Procure / Implement
	Data Migration Feasibility Study
	Data Migration Strategy
	Data Migration Plan
	Data Mapping
Quality Management	Quality Management Plan
	Quality Assessment Reports
	Test Strategy
	Test Plan
	Test Execution Schedule
	Test Cases
	Test Runs & Result Documentation
	Defect Report
Implementation & Go-Live	Implementation Strategy & High-Level Schedule
	Implementation & Decommissioning Plan
	Pilot Performance Study
	Go-Live Readiness Assessment
	Production Performance Study

JUSTIFICATION TEMPLATES

☐	TEMPLATE ID	LYLD-J1
	WBS CATEGORY	Justification
	NAME	Current State Assessment
	PURPOSE	Assess why the legacy systems should be replaced, and the organization's capability to conduct a replacement.
	IMPORTANCE	Without common understanding of the rationale for replacing the legacy systems, there is a low chance the project will be run effectively and efficiently. Without an honest assessment of the capability to conduct a replacement, perceived risk exposure, budgets and schedules will all be highly subjective and questionable.
USAGE PER STAGE	Justification	The identified risks, needs, and recommendations, are critical inputs for the Options Analysis
	Architecture & Requirements	Business Requirements and Technical Requirements will be created based on the identified needs
	Procurement & Reqmts. Finz.	Useful for informing Proponents of the underlying rational and high-level need for the legacy replacement
	Implementation	To effectively create plans for the transition, need to have clarity on where you are at, and where you want to be
	REQUIRED INPUTS	• Legacy systems documentation; IT Strategy
	OUTPUT OF	• LYLA-J1-1 to LYLA-J1-9
	INPUT TO	• Directly To: LYLS-J2; LYLS-J4; LYLS-DM1; LYLS-PR2 • Informs: Project management plans and organizational change management plans
	REQUIRED AUTHOR SKILLS	• Broad experience in IT and legacy replacement • Experience leading consultations
SECTIONS & PRIORITY	Must Haves	• Current State Business and System Context • Current State Assessment Detailed Finding • Summarized Risks • Summarized Business and Technical Needs • Summarized Legacy Replacement Readiness
	Should Haves ☐	• Sign-off & Record of Participants
	Could Haves ☐	
	ACCEPTANCE CRITERIA	• All must have sections comprehensively addressed based on findings from LYLA-J1-1 to LYLA-J1-8

☐	TEMPLATE ID	LYLD-J2
	WBS CATEGORY	Justification
	NAME	Future State Vision
	PURPOSE	Sets out an attainable vision of the desired to-be state of the business and the technology. Delivering on the vision allows targeted benefits to be realized.
	IMPORTANCE	Forms the project team's pillars of purpose, and guides their everyday actions. Answers *what* will be gained by replacing the legacy systems. Recall, if you don't know where you're going... any road will take you there.
USAGE PER STAGE	Justification	Created in the Justification stage, as the basis for analyzing options and approving the Business Case.
	Architecture & Requirements	Target architecture and Requirements must be highly aligned, and traceable, to the Future State Vision.
	Procurement & Reqmts. Finz.	The goods and services you procure are driven by the gaps between your current state and future state, and by the approved replacement approach.
	Implementation	All plans and activity during the Implementation stage are designed to transition the organization from its current state to the future state.
	REQUIRED INPUTS	• LYLD-J1; Organizational & IT Strategy
	OUTPUT OF	• LYLA-J2-1 to LYLA-J2-5
	INPUT TO	• Directly an input to: LYLS-J3; LYLS-J4; LYLS-AR3; LYLS-PR1; LYLS-RF7; LYLS-DM1 • Indirectly informs many of the LYL activities
	REQUIRED AUTHOR SKILLS	• Experience in Enterprise Architecture, most specifically Business Architecture • Experience leading cross-functional consultations
SECTIONS & PRIORITY	Must Haves	• Strategic Goals / Objectives / Delivery Success Measures / Benefits • Business Requirements
	Should Haves ☐	• Vision Statement (Business & Technology) • Assumptions / Dependencies / Constraints • Sign-off & Record of Participants
	Could Haves ☐	• Glossary of Terms
	ACCEPTANCE CRITERIA	• All must have sections comprehensively addressed based on findings from LYLA-J2-1 to LYLA-J2-4

ABOUT THE AUTHOR

Todd Howard, P. Eng., PMP, is an acknowledged thought leader in the art and science of successfully procuring, implementing, and gaining maximum benefit from, commercial-off-the-shelf (COTS) enterprise information systems.

As an independent expert with no product affiliations, Todd has worked with many Clients to evaluate their legacy systems replacement programs in order to provide solid objective and unbiased advice to senior decision makers. He leads the development of strategies and plans; creates business cases; manages requirements gathering; manages formal procurement processes; and, manages large programs / projects.

The successes and scars from a 22+ year IT management consulting career with over 30 public and private sector clients lets Todd know when legacy replacements are on track, and when they are going sideways – he adeptly identifies and manages risk to maximize the chance of successful outcomes.

Todd is consistently recognized as a seasoned leader who hits the ground running - he quickly understands business needs; devises appropriate strategies; introduces methodology and best practices as needed; builds and leads high performing teams through to successful delivery.

Most recently, as an expert advisor, Todd has provided strategic advisory and management services for Canadian public sector organizations replacing their legacy enterprise information systems with COTS solutions at the federal, provincial and municipal levels.

If you need an advisor with deep expertise in legacy systems replacement, you can find Todd through www.digitalhero.com.

"Failure is only the opportunity more intelligently to begin again.
There is no disgrace in honest failure; there is disgrace in fearing to fail.
What is past is useful only as it suggests ways and means for progress."

- Henry Ford w. Samuel Crowther -

In our era of digital transformation there are many justifications and drivers for replacing existing legacy systems. However, legacy replacements are hugely risky endeavours that bring massive disruption. Replacing your aging information sys tems will be one of the largest changes your organization will ever tackle. Historically, most replacement projects either fail outright, or end up being drastically over budget and behind schedule.

Are you caught between those who want your legacy systems thrown on the trash heap of history, and those who tell you it's likely your reputation that will be trashed if you attempt a replacement? Are you at a loss for how to even begin to objectively assess whether your organization should be starting a legacy replacement journey? If so, the Legacy Systems Replacement Handbook was written for you. This book provides a comprehensive introduction to the beginner, and is intended to identify everything they'll need to maximize their chances of a successful replacement.

Having built a career of procuring, implementing, and gaining maximum benefit from information systems, Mr. Howard's position on legacy replacement is simple and resolute - do it right, or don't do it! That's where his handbook comes in. The handbook will teach you everything you need to know to understand the scope and the scale, the means and the methods, to replace a legacy system. The handbook steps you through the four stages of a well run replacement - justification, architecture & requirements, procurement & requirements finalization, and implementation. The methodical approach behind the Leaving Your Legacy methodology was created over the last fifteen years through hands-on practice, learning what works and what doesn't, when it comes to replacing aging information systems in large organizations.

If you have a stake in ensuring your organization gains maximum benefit from its information systems, do your organization, and your legacy, a favour and read this book.