XCELERATOR GROUP

Software Engineering Services

www.xceleratorgroup.com

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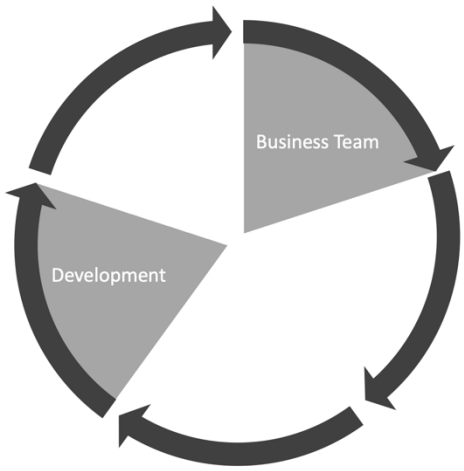
SOFTWARE ENGINEERING

When confronted with business problems or inefficiencies, companies often turn to technology as the solution. When done well, these solutions can achieve remarkable results and transform, evolve, or even create entire businesses.

However, the reality is that these projects very often end in failure, develop huge cost overruns, or fail short of meeting actual business needs. The Standish Group reports that "**66% of IT projects end in partial or total failure". "Research from McKinsey in 2020 found that 17% of large IT projects go so badly they threaten the very existence of the company".** The cost of these failures account for trillions of dollars in waste every year.[1]

Most organizations lack the resources and the ability to create a complete and cohesive team that is capable of both assessing the issues and developing a solution to address and solve its problems. Companies generally try to use internal development teams to create or enhance their technology solutions while assuming that their business teams can adequately articulate and explain what they need while also managing and tracking the project goals, budgets, and timelines. The reality is that these business teams consist of experts in the domain of the business and its current processes and procedures. It does not consist of experts in technology development or process improvement, nor do these business experts possess the skills to translate these needs and problems into actual business solutions. Specifically, there is a real need in these types of projects for true Product Management specialists to provide these types of expertise.



In most companies, there is also a lack of project management talent. As with the Product Management tasks, Project Management takes specific skills that are generally not found within the development, or the business expert groups. Project Management is a skill that most companies overlook or undervalue. But one of the keys to a successful project is successful project management. Development is responsible for building a solution. The business is responsible for defining the problem. Product Management is responsible for creating the blueprints for the solution that solves that problem. But without a foreman to pull these elements together and form a cohesive team, then the project is destined to fail. With microservices, the project manager is also key to ensuring the services are delivered to production when needed. On smaller projects a single Technical Delivery Manager can be used to play both the Product and Project Management role. To do this successfully that person needs to possess experience in both disciplines.

Finally, you need specialists on the team for Test Automation and Dev Ops. The Development team should take responsibility along with the Product Manager for not only writing the software but testing it as well. This eliminates just throwing things over the wall and pointing fingers from one group to the other. As the system grows and gets more complex automated tests are required to ensure that new changes do not negatively impact the existing code. Without this type of automation, each release of the software represents a risk of significant issues. In addition, a Dev Ops (Development Operations)

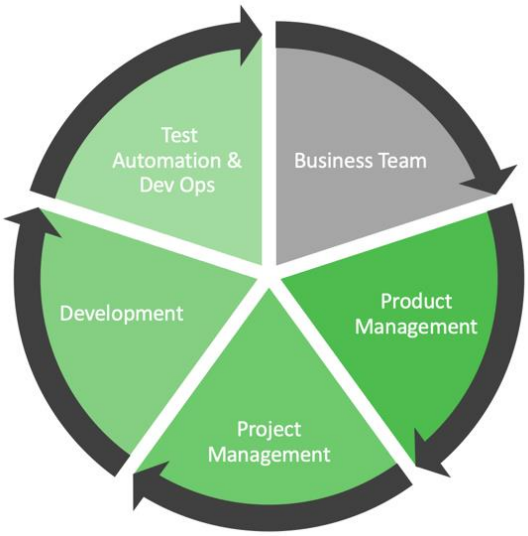
[1] Faeth Coaching: IT Project Failure Rates: Facts and Reasons

specialist is needed to ensure that the release process is smooth and has minimal impact on existing customers.

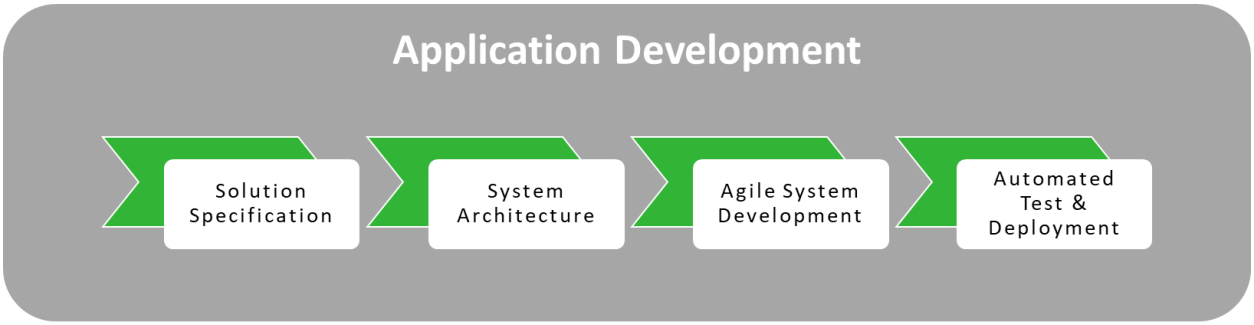
The Xcelerator Group specializes in providing experienced staff in supporting these roles. In summary, the cornerstones of a complete Software Engineering solution are:

- **Business Team:** Defines goals and objectives and ensures that developed product is meeting the business needs.
- **Product Management:** Taking a customer's problems (requirements) and designing a technology solution to solve them in a way that provides greater benefits than they can envision themselves.
- **Project Management:** Monitoring and tracking the project to ensure that it stays on track, on budget and continues to meet an ever-evolving set of objectives.
- **Development** – Architecture and implementation of the actual solution using Agile Development Techniques.
- **Testing Automation and Dev Ops:** Ensuring that new releases of the software can be introduced without introducing new problems and with minimal impact to existing customers.

Once the team has been identified, we can leverage both our business knowledge and software



development experience to navigate around the issues that cause software project failures. We specialize in turning your business goals and objectives into actual software solutions that will meet your needs today while providing a platform that can evolve with your business. The steps we will go through are define below.



Solution Specification

The process starts with a combination of up-front planning and analysis. This is a key step in ensuring:

- expected business improvements are met and recognized;
- realistic expectations are set; and
- time to delivery is efficient and cost effective.

We then work with the business team to define the problem to be solved and the business goals and objectives to get there. Without proper business goals and objectives to address that problem, how can the solution be expected to fulfill its purpose?

The next step in the Solution Specification is to define the high-level system requirements. How can the people building the solution be expected to know what to build?

Why do companies often find that requirements are difficult to define? The two biggest issues are that the wrong people are creating them and there is poor oversight in managing the process. The people who do the day-to-day business of an organization are the true experts in their job, but they are not experts in defining software solution requirements. Most software solution end-users have an "I'll know it when I see it" way of thinking. If they are the ones defining the requirements, this can leave large requirements gaps and if the project is not managed properly, these gaps can lead to scope creep, unexpected budget, and time overruns, and ultimately project failure. Proper business analysis coupled with proper project management can help to avoid this common pitfall.

This is the Project Manager's job. Most companies make the mistake of trying to fit a developer or a businessperson into this project manager role. However, project management is its own science requiring its own expertise.

Fully understanding our customers' needs and translating them into system requirements and specifications is one of the most important aspects of our work. To clearly understand what our clients need, our Solution Application process includes **Joint Application Design** (JAD) process. This process entails in-depth discussions about the business problem and the constraints to be considered in the project design and implementation. The JAD sessions result in the internal processing (functional) requirements and system interface definitions. Our JAD methodology also includes a review process to evaluate end-user expectations and requirements with other system level requirements. Therefore, any disparities can be resolved early in the development cycle before they become major, and potentially costly, issues. One thing to keep in mind though is at this point we do not want to get into detailed requirements definition. This is better done in iterative steps during the Agile System Development.

If there is an existing system, then we also need to evaluate what it does and how it currently works so we can identify shortfalls and further define what is required in the new system.

System Architecture

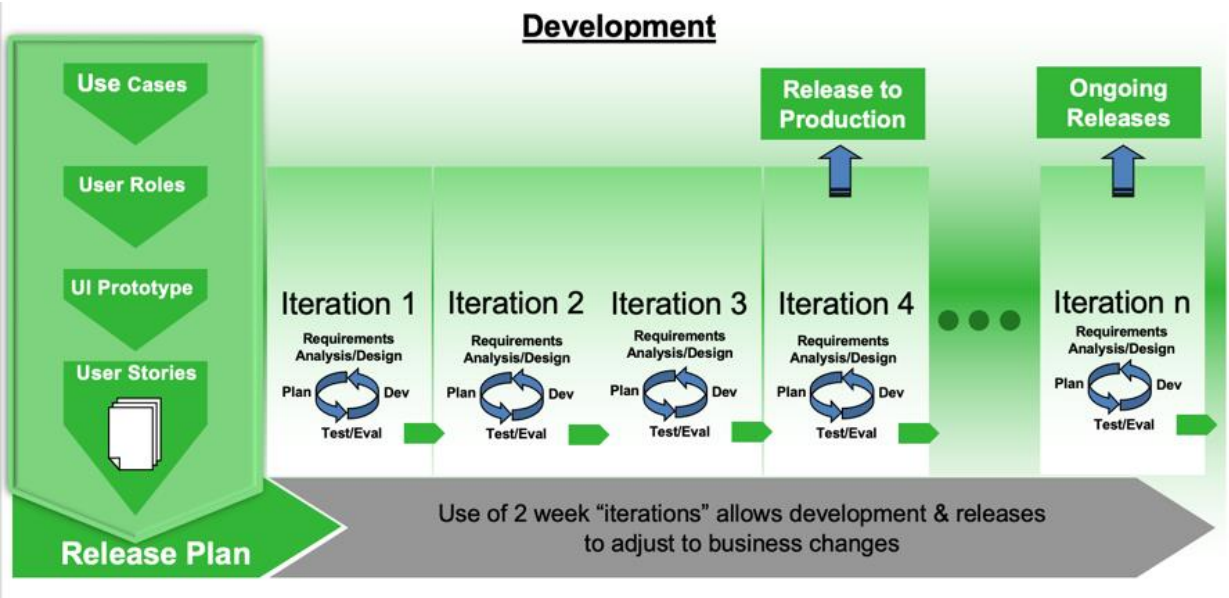
Before we begin the development process, we need to develop a high-level architecture for the system. During this phase, we will evaluate technology options and determine and overall approach for the system. Among other things, this will include:

- Operations environment or environments,
- Major System Components to help with breaking the solution down into manageable pieces,
- Platforms, Languages and Frameworks that will be used to build the system,
- Databases and other tools include open-source libraries,
- Internal interface across the defined set of components,
- External interfaces to other systems.

Next, we will go through an Envision process just prior to beginning the development cycles. During this process we will

- Develop high-level Use Cases
- Define User Roles in the system
- Develop a User Interface (UI) prototype so that feedback from clients and end users can be gathered
- Develop the User Stories in the first iterations (others will be generated as we go through the Iteration steps)

Finally, we will develop an initial high level Release plan for the initial releases to Production. As with the User Stories, this will be monitored and updated as we move through the development process.



Agile System Development

The *Xcelerator Group* development process is based on the Agile software development methodology. An Agile process uses an iterative approach to the project implementation using short 2 week "iterations" that allow business requirements to evolve collaboratively within a cross-functional team. This process allows us to provide actual components of the solution quickly while also ensuring that insight from management and end-users can be continuously gathered and rolled into subsequent iterations. Additionally, this provides all stakeholders the ability to continuously evolve the solution and the process together in a highly adaptive fashion. It allows the team to interact with the application to determine if the solution will meet the business needs and uncover changes that are needed early in the

implementation cycle. Many times, the team can uncover features that are not needed and can change priorities early to focus on features that have a higher ROI.

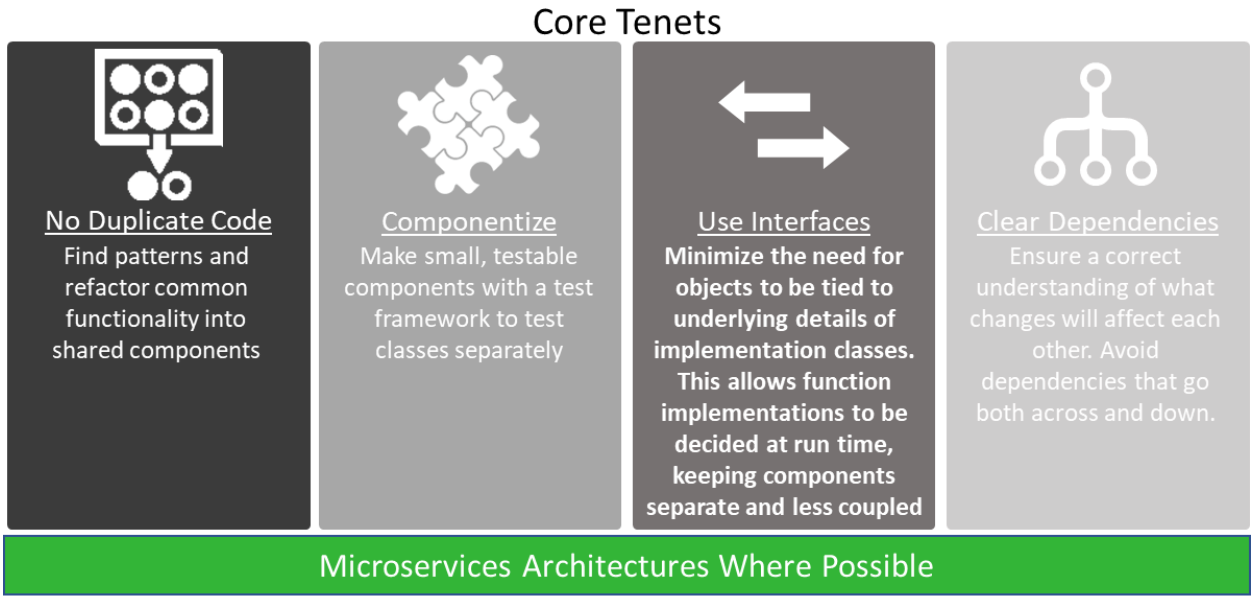
From the beginning to the end of the development lifecycle, detailed project management is a key element to success.

The following Core Tenets to our development process allows us to provide the best possible foundation of a manageable and maintainable solution.

Automated Test and Deployment

As the system grows, iteration by iteration, the development team can continue to test new functionality but will not be able to keep up with regression testing. Thus, an additional testing step is required. To test adequately, automation tools must be used, or the coverage will not be complete.

The Dev Ops team must ensure that process for rolling out releases is well defined and where possible automated. Deployments will get complex as the number of users of the system increases. Automation and well documented processes are required to ensure that users are not negatively impacted as new releases are put into production.



Summary

The final key to a successful implementation is continuous interaction between the *Xcelerator Group* and the Client. We provide complete transparency to project deliverables, status, issues, decisions made and when the inevitable issues arise, we work together to find effective solutions.

The *Xcelerator Group* focuses on using our software development expertise together with our business knowledge to provide effective solutions to complex business problems. Through close and collaborative interaction, we meet our clients' needs by delivering high quality software systems that provide optimal solutions for real business problems. This combined with our proven methodologies provides our customers with the best solutions achievable.

For more information, please contact us at info@xceleratorgroup.com