BUSINESS PROCESS FLOW MAPPING

SUCCINCTLY

BY ERICA L. QUIGLEY

SUCCINCTLY EBOOK SERIES

Syncfusion

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Business Process Flow Mapping Succinctly

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Foreword by Daniel Jebaraj



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The Story behind the *Succinctly* Series of Books

Daniel Jebaraj, Vice President
Syncfusion, Inc.

Staying on the cutting edge

As many of you may know, Syncfusion is a provider of software components for the Microsoft platform. This puts us in the exciting but challenging position of always being on the cutting edge.

Whenever platforms or tools are shipping out of Microsoft, which seems to be about every other week these days, we have to educate ourselves, quickly.

Information is plentiful but harder to digest

In reality, this translates into a lot of book orders, blog searches, and Twitter scans.

While more information is becoming available on the Internet and more and more books are being published, even on topics that are relatively new, one aspect that continues to inhibit us is the inability to find concise technology overview books.

We are usually faced with two options: read several 500+ page books or scour the web for relevant blog posts and other articles. Just as everyone else who has a job to do and customers to serve, we find this quite frustrating.

The *Succinctly* series

This frustration translated into a deep desire to produce a series of concise technical books that would be targeted at developers working on the Microsoft platform.

We firmly believe, given the background knowledge such developers have, that most topics can be translated into books that are between 50 and 100 pages.

This is exactly what we resolved to accomplish with the *Succinctly* series. Isn't everything wonderful born out of a deep desire to change things for the better?

The best authors, the best content

Each author was carefully chosen from a pool of talented experts who shared our vision. The book you now hold in your hands, and the others available in this series, are a result of the authors' tireless work. You will find original content that is guaranteed to get you up and running in about the time it takes to drink a few cups of coffee.

Free forever

Syncfusion will be working to produce books on several topics. The books will always be free. Any updates we publish will also be free.

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Free? What is the catch?

There is no catch here. Syncfusion has a vested interest in this effort.

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Let us know what you think

If you have any topics of interest, thoughts, or feedback, please feel free to send them to us at succinctly-series@syncfusion.com.

We sincerely hope you enjoy reading this book and that it helps you better understand the topic of study. Thank you for reading.

Please follow us on Twitter and “Like” us on Face-book to help us spread the word about the *Succinctly* series!





About the Author

Hi, I'm Erica Quigley. I scale high-growth companies so they can increase their efficiency and profit margin. Rapid growth is a fantastic problem for a company to have (who wouldn't want to have higher sales?), but in that quick-paced atmosphere, often a reactive approach begins to develop instead of a proactive approach. While employees try to keep up with customer demands, it is difficult to take a step back for a holistic overview of the company to implement a consistent foundation. Once implemented, though, that foundation will allow the company to be more agile in their actions and lead to quicker customer response times, transparency around costs and profit, and an overall better experience for both employees and customers.

Using the business process mapping techniques described in this book, I map out company business processes to identify gaps in communication, procedures, and teams. I then create a future state that helps to bridge those gaps, as well as a plan for the next steps to implement the changes. Changes include things such as reorganizing teams, breaking apart or combining job responsibilities, developing standard process documents and rules for process exceptions, and leveraging tools to automate workflow within a system.

While I graduated with my degree in Apparel Design from Virginia Tech, technical measurement and computer design structure appealed to me most. As I established my career in manufacturing, that underlying structure and the aptitude for precise measurement and analysis became the backbone of my career.

My first office job was in 2009 at a manufacturing company—that's where I discovered the Six Sigma methodologies. I loved the approach of applying systematic processes to reduce defects and therefore increase customer satisfaction. I immersed myself in that world and went on to get my Master Certificate in Lean Enterprise Solutions from Villanova University in 2015, which encompassed Six Sigma Green Belt and Lean Six Sigma.

In my career, I've held notable positions at various-sized companies including the Government Contracts Department of Boeing, an Order Fulfillment Manager in the oil and gas industry, and a Director of Supply Chain at FreedomPay, an international commerce platform company. At every step of my career, business process improvement projects have been my main focus.

In 2018, I established Quigley Management Consulting LLC to bring the operational efficiencies and ideas of Six Sigma to small and mid-market companies in a quick, easy, and impactful way that did not require hiring an additional head.

I spend my spare time with my husband in our bustling household of two kids, two dogs, and three cats.

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I like to break business down into simple steps and deliver my content via blog, mailing lists, videos, and social media posts. You can connect with me in any of the following ways:

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Introduction: Business Process Flow

I remember my first day at my first corporate job. The curiosity, fascination, and wonder of being involved in a big company and launching my career was exciting. Here I was setting off into the world with the preconceived notion that I was to be an operator within an already well-oiled machine.

I stocked my desk with the essential supplies and selected a perfect spiral-bound, graph-paper notebook to document the journey of my first day. I sat down with my trainer, dated and titled the first page, and began diligently taking notes as I was shown the ropes of my customer service role. Unfortunately for my "Type A" personality, my notes quickly became littered with question marks. I left blank spaces where the process was unclear or undefined. I was stunned that there were so many open-ended processes and no clear answers for what to do in specific situations. Surely, I had a subpar trainer. But by the end of the week, after meeting with multiple people across departments, I realized that the question marks in my notes were accurate. Most of the company operated with knowledge they inherited from other employees. Documentation was scarce, and most people did not feel confident that they were doing their job in the most effective way.

Unfortunately, this experience is a common reality. The business process is most often built haphazardly around activities that already exist, instead of the other way around. This happens because the business does not often know exactly what product or service will hit or miss the mark for their customers until they begin to book sales. Sales then quickly become more than they can keep up with. As companies grow, their focus first has to be on sales to ensure they have a viable product or service. Then, the business process is built to support sales and fulfillment. What's most frustrating for employees is that they often do not feel empowered to alter the process or make decisions when the process is ambiguous, and unfortunately, that is the way most businesses start.

Imagine what it looks like when the process is undefined. Employees can perform their transactional work—close sales, enter orders, or process invoices to customers—but there is underlying confusion and frustration during the day.

Common points of frustration include:

- Document transfer between departments. Different departments have different goals. Therefore, they will each require unique pieces of information.
- Large quantity of emails, paperwork, or files.
- Receipt of documents to process that contain incomplete information.
- Adherence to a required response time. Without guidelines to help meet that response time, employees often feel like they are pressured to do everything as quickly as possible, which leads to mistakes.

All these frustration points are simply items that cloud day-to-day activities and act as bottlenecks. They can be easily understood, acknowledged, and solved if a defined business process is implemented.

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My mission became clear. As an oldest child, ambassador in college, and natural problem solver, I never developed that sense of boundary that holds employees back, so I did not hesitate to begin documenting the process (or lack thereof) for order entry in my customer service department role. That led me to investigate how to fill in the blank spaces with solid, repeatable steps and identify where the frustrations and bottlenecks were so that we could implement changes. I documented how the orders were received, what prerequisite information was required for us to process the order, the steps of how the order was entered into our computer system, and how we checked availability and shipment dates so the customer received complete information about their order.

The effects of a solid business process are evident in the downstream activities. When the business process is defined, employees feel confident in their roles. They understand expectations and can easily identify when something is amiss or requires escalation. Equally, having the business process mapped out aids anyone in identifying a gap or missing piece and makes it simple to see when a new system, process, or automation can help close that gap.

Bridging the gap

If a company's employees are frustrated by a work process, a common response is for top management to create a directive or project to help their team solve those frustrations. The management's response comes from a good place, because managers do not know all the inner workings, requirements, and changes that will need to happen in order to change work processes. The directive or project is the vehicle to discover all of those items and implement the best solution.

Companies rely on roles such as program managers, software developers, product specialists, and designers to help create and implement solutions to close business process gaps. People in these roles often have conscientious personality traits—they are analytical, reserved, precise, and systematic. These are all important traits to support them in their jobs, because without that attention to detail, projects would not complete on time or within scope.

On the other hand, executives and top management exhibit traits that best support their own dominant roles—they are directive, influential, and objective. The difference in the usual traits of these roles means the technical designers and implementors of a project can often interpret the requirements as vague or incompletely defined when they are handed off to them for execution. This happens because management and executives think in terms of the big picture, while designers and implementors need to be concerned with the details. Without details, it can be tough for employees to interpret exactly what management has in mind.

A business process flow can be used as a design document to bridge this gap.

In this book, we are going to take a step back to learn about the activities that can (and should) occur in order to completely define a business process. We will also learn a simple way to document the process so the project team members can feel confident in what they are being asked to execute.

Chapter 1 Methodology

A development project begins because of a need to fix a problem. In general terms, the problem exists in the business because there is something occurring that either takes too much time or does not create the desired outcome. In other words, there is a disconnect between the way things are expected to work and the way things actually work. This is known as the gap, but for simplicity within this text, I will refer to it as the "problem."

There are often many meetings that occur in which employees talk (or complain) about their frustrations within their job functions or about the company. These frustrations tend to build up, particularly if the company is growing, has high turnover, or is undergoing reorganization. When these frustrations build up to the point that management is constantly being pulled into meetings to solve them, it becomes a tipping point for the organization that needs to be addressed.

This tipping point of awareness is the realization that if multiple people have the same frustrations that are repeatedly expressed, then the problem must be widespread, and it would be beneficial to figure out a solution. That tipping point obviously needs to occur before any action is taken to solve it. If there is a large divide between executives, management, and employees, then it is possible that this tipping point of awareness would never even occur. However, when awareness does occur, and when the decision is made to fix the problem, the correct department heads need to be involved to buy into the decision.

For a project that needs the resources and time of technical development, company leaders should begin by having a preliminary discussion to obtain approval from the appropriate heads of operations, finance, and development.

Communication

Communication is key—not just for the complete success of a project, but for the project to even commence.

Lack of communication often results in teams being unaware of issues such as:

- Other teams that have similar struggles and are working on similar objectives.
- Other teams that have different, even conflicting, objectives.
- Conflicts of priority of workload items among teams.
- Overlapping job duties among teams.
- Absence of job duties within the company.

For an operational team that is generally not involved with technical development—such as supply chain, customer service, or field service—they may not be aware that the development team is already working on projects that could be used (or repurposed) as a basis to achieve its operational goals and fix the problem.

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In very large companies that have multiple operational teams and departments, it is possible that the teams report to different business units, and therefore have different metrics and goals they are supposed to meet. In this instance, the teams could be working on solutions to their own frustrations that completely contradict the other team's goals.

For example, take a company that has a Contracts department and an Order Entry department. The Contracts department needs to ensure that they have a shared system so all the members of their team can access contracts and see changes that have been tracked with amendments, without having to open each document. The Contracts lead begins to work on a project to implement a web-based tool where contracts can be saved, and the amendments show as edits to one document.

Similarly, the Order Entry department needs to access contract information so that they can enter the orders with the correct pricing as it exists on the contract. The Order Entry lead determines they need a place to store contract pricing so that they are able to pull it onto their orders automatically. In this example, it seems like an easy solution is to have these two teams partner together so that the Order Entry team can utilize the pricing from the web-based contracts system. However, imagine that the company overall has around 200,000 employees, and therefore each of these teams consists of thousands of people. And further, in the organizational hierarchy, the Contracts team reports to Finance, and the Order Entry team reports to Customer Service. It becomes clear how the two teams can work on something so similar, yet never connect.

Conversely, there may be an overlap between operational teams. It is possible for two operational teams to process the same information in different ways.

Duplication of work is a shame, but it is possible for two teams to believe the other performs a certain job when no one is performing the work at all. This happens for work that should be confirmed or reviewed. A team might assume the information they receive must be correct, because they do not understand the process that brings the information to them. They then will process the work without any confirmation, and if something seems incorrect, they assume the confirmation of information happened before it came to them.

Team leaders—whether supervisors, managers, or business unit heads—should always have a cadence of communication to share ideas, best practices, and problems.

In a case when a problem has hit the tipping point and there are thoughts of a new project to solve the problem, a preliminary discussion should happen among the team and company leaders. This allows the teams to achieve awareness, alignment, and agreement before any work begins.[1]

The simple fact that communication is present can be the difference between a successful project and one that crashes and burns. When communication is absent in an organization, assumptions are made about workload and projects that cause teams to be misaligned on their

[1] Quigley, E. (2018, November 27). What a Stuffed Animal Taught Me About Business Decisions. Retrieved from https://blog.ericaq.com/2018/11/27/what-a-stuffed-animal-taught-me-about-business-decisions/

work and goals. This type of atmosphere leads to resentment and employees who are not vested in the outcome of their work and projects.[2]

The following sections examine specific aspects that are the foundations of transparent communication.

Awareness

Teams under different leadership, and reporting to different business units, are most likely not keyed in and aware that a problem exists. In fact, one team could have already solved the problem that another team faces. Without awareness among teams, the company is not able to best leverage ideas, processes, and resources that already exist.

A communication cadence and a conversation structured around the identified process problem allows for all teams to become aware of the issue. This could lead to presenting alternate quick-win solutions without the need to engage on a project.

Tactically, a weekly team update that is distributed both to management and peer team leaders is a simple solution that can be easily implemented to help awareness.

Alignment

Different teams have different perspectives. By becoming aware of an issue, teams will naturally discuss, from their perspective, how they would solve the issue, which will allow for a broader discussion to take place so that the teams agree upon the general issue.

During their discussion, they may realize that other teams are affected, at which point they would bring in the heads of those additional teams. The teams may even realize that fixing a problem on one team could relieve pressure on another team.

For instance, implementing a portal to allow customers to enter their own orders could relieve pressure on an order-entry team as well as on an invoicing team, if they are able to leverage that same portal for billing.

Additionally, alignment between the company's goals and any team projects is pertinent to business success. Oftentimes, the business-development side of the company could implement new strategies, but if there is not transparent communication to ensure the operational side of the company is aligned, then the hours and work incurred will be wasted effort.

Agreement

Once aligned, the teams may have different ideas on how the issue can be solved; however, at least they will all agree that there is an issue that needs a resolution. Achieving agreement that

[2] Quigley, E. (2018, November 22). It Doesn't Have to Be Perfect It Simply Has to Exist. Retrieved from https://blog.ericaq.com/2018/11/22/it-doesnt-have-to-be-perfect-it-simply-has-to-exist/

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the problem exists at this point is pertinent to allow for a project to begin so that the business process can be adjusted.

A point of agreement can rarely come to fruition unless there is awareness among teams, so it is a crucial first step to develop that communication transparency among teams. When teams are comfortable with each other and understand each other's goals and struggles, they are able to work together toward a shared solution. Since it is easiest to be close with those that we communicate with the most, achieving comfort among teams can be as easy as ensuring the team leads have a conversation with each other once per week.

The 80/20 principle

The 80/20 principle, also known as Pareto's law, is perhaps one of the most powerful rules of thumb to apply in business processes. The 80/20 principle states that 80 percent of results are from 20 percent of causes.[3] Within a business, it very simply breaks down to mean that, generally, 20 percent of the effort of a team results in 80 percent of the output. So conversely, 80 percent of their time is only resulting in 20 percent of the output. So if the team's efforts are focused on reducing the larger piece of the pie (80 percent of the work) by increasing efficiencies, menial tasks can be reduced or eliminated.

Example of Pareto's law

A familiar reference here is wasted time in a meeting. In about 80 percent of a meeting, you are discussing "what ifs" and hypothetical situations, but in the last 20 percent of the meeting, there is movement to where solutions are proposed, and actions and accountability take place. To prevent the 80 percent of the work that's less productive, ensure that management understands Pareto's law so they can be proactive to prevent wasted time.

For example, those theoretical "what if" situations that surface in meetings are often the reason for not implementing a new procedure or business process that would then allow for business operations to work smoother. Teams often do not take the time to set aside those "what ifs" to understand the bulk of the standard work. It is true that those theoretical situations may occur, but the team only needs to create an exception process for those situations. Since the exceptions are part of the minority of the problem, it is best to set them aside and create the exception processes for them after the majority of the problem is solved. The exceptions can be set aside in the "parking lot."

The parking lot

Of the many personalities encountered in a workplace, there will surely be a few people who are stuck on outlying scenarios that don't directly relate to the scope of a process. For the project to be inclusive and keep momentum and support, it is important for everyone to feel that their ideas are acknowledged and addressed.

[3] Koch, R. (2001), *The 80/20 Principle: The Secret of Achieving More with Less*, London: Nicholas Brealy Publishing

A common way to handle either the seemingly out-of-scope issues or the 80/20 principle items is to use a “parking lot” during meetings and when outlining the process. The parking lot is a metaphor for all the items that people are concerned about, but that are also outside of the most productive work, according to the 80/20 rule, or are outside of the scope of the project.

The parking lot is simply a list that is kept that records all the what ifs and outliers. This ensures that everyone’s comments are heard and recognized as being valid but are not acted on immediately so that meetings are not sidelined to deal with something that is an exception.

While the project is in process, the items from the parking lot are reviewed to see if they can be addressed. Any items that remain in the parking lot are to be closed out at the end of the project.

Key people and departments

When a problem begins to shape into a project, it is impossible to know initially which people and departments could be affected.

During preliminary conversations, if you realize that other people or teams should be involved in making a problem into a project, then another conversation should be scheduled that includes the heads of the other teams. Awareness, alignment, and agreement should take place again with the additional team members.

Additional meetings can be frustrating and feel like a waste of time, particularly for higher-level management; however, in these instances, the mindset should be adopted that planning and preparation support proper execution. Various sources report that time spent planning saves approximately 3–10 times as much effort during the execution phase.[4] While it may seem redundant and cumbersome to involve new people in these preliminary planning stages, imagine the amount of time it would save if the new people said they already had a similar project in process, or if they were privy to information about future company reorganization that may affect the project. Knowledge like this would save hundreds of hours that would otherwise be spent creating and developing a project that would eventually be null and void.

During the initial meetings, there may be teams who feel they do not need to be involved in the project directly but instead just need to receive milestone reports and progress updates. It is acceptable and encouraged to do that, and these people will become stakeholders in the project. This is acceptable as long as these people genuinely do not need to be involved in the decision-making process. However, if not including anyone only causes additional meetings to occur later in order to bring them up to speed due to disagreements or interjections, then that person needs to be involved in the project directly. Again, time spent planning reduces time spent in execution.

[4] Tracy, B. Plan Ahead and Increase Productivity. Retrieved from https://www.briantracy.com/blog/time-management/plan-ahead-and-increase-productivity/

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The project team

The Project Management Institute is the leading resource on complete and detailed best practices for project management, and they even publish the Project Management Body of Knowledge, also known as the PMBOK. This is an extremely comprehensive guide to creating and executing a successful project, which you can consult for any project-specific questions or concerns.

At this point the project is preliminary, so each key person should have enough general knowledge of their department operations or know the appropriate point people that they can leverage as subject matter experts for any questions. The selected key people need to be committed to the project by agreeing to attend and engage in related meetings. These key people become the business project team.[5]

A list of the stakeholders and sponsors is created. The stakeholders are the people who have a vested interest in the project.[6] For the purposes of this text, and to put the project team into context, the following section provides brief descriptions of the key people on the project.

Sponsor

The sponsor leads the general direction of the project as the direct line between the project and the executive team. Often the sponsor is a member of the executive team, so they understand the company and management goals as well as the project. The sponsor helps with any misunderstandings and provides clarification when needed. The project sponsor is essentially the person who is committed to owning the project and ensuring it comes to completion.[7]

Project manager

The project manager is the person directly leading the project and is responsible for communicating updates about the project and keeping the project team on schedule. They will ensure the project has the resources and correct people, and they will be able to count on their sponsor if they have any issues accomplishing that.

Other project team members

The other members of the project team consist of the previously identified key people who have a vested interest in the project and want to help bring the project to life.

Other stakeholders

Everyone on the project team is a stakeholder, but there are also interested people, described previously, who are not involved in every meeting, but would rather be kept in the loop via

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[5] Project Management Institute. (2013). A guide to the project management body of knowledge (PMBOK guide). Newtown Square, Pa: Project Management Institute.

[6] Vogwell, D. (2003). Stakeholder management. Paper presented at PMI® Global Congress 2003—EMEA, The Hague, South Holland, The Netherlands. Newtown Square, PA: Project Management Institute.

[7] Schibi, O. & Lee, C. (2015). Project sponsorship: senior management's role in the successful outcome of projects. Paper presented at PMI® Global Congress 2015—EMEA, London, England. Newtown Square, PA: Project Management Institute.

updates. As the project continues, these stakeholders may vary as people's positions change, or as the project's scope becomes more defined, making it clearer who else has an interest in the project.

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Chapter 2 Business Process Pre-Mapping

After the methodology from the previous section is understood and utilized, the business project team can begin to decide on what they want their ideal future process to look like. After that, they map out their current process. Comparing both the future state and the current state together in the same structure allows the project team to physically see each step and understand what is changing and where efficiencies will be gained.

This technique of comparing present state to future state is particularly helpful for the following reasons:

- It allows the project team members to remain in scope and aligned as to the exact items they are expecting to change.
- It allows the company's top management to see the project team's objectives easily.
- It justifies the costs and manpower for the project by defining a specific case for exactly what the business project team hopes to accomplish, and what benefits their proposed project will have once it is developed and implemented.
- It will eliminate excess meetings and time by serving as the design document, and it can be referred to throughout the project by developers to understand the current and future states.

Pre-mapping activities

Because there are many people, thoughts, and departments involved, process mapping can be intensive. To ensure the least amount of backtracking and reworking possible, a few activities should take place before physically taking pen to paper (or marker to whiteboard) for mapping.

Define process scope and level

The project team must meet to determine the scope of the process and the level at which they need to map it. That is, they will determine the start point, end point, and level of detail. This needs to encompass a broad process while still making logical sense.

For example, let's say the team's project objective is to decrease the number of steps it takes to fulfill a customer order. If they started mapping at the point when the company begins to process the order, then the team has not provided a broad-enough background, understanding, and opportunity for improvement.

In this example, the process that is mapped should extend to at least the point when the order is received in the system. And to make it even clearer, if the process map shows when a customer needs to place an order to the preliminary steps to fulfillment, then there is an even bigger opportunity for the project, and it will be easier to create efficiency and improvement.

In a small or mid-sized company, it is beneficial to show that scope of the departments and that level of detail; however, for large companies, going that broad may not be an option. In that case, the scope would begin at the point that the process map starts, and if it's determined that it would be beneficial, the preliminary activities that occur before the scope of the project can be tabled to the parking lot and addressed later for further process enhancement on future projects.

Phases

Just like projects operate in phases, there should be phases to implement a new process. Therefore, there may be different intermediary processes that should also be mapped in order to show the progression from the current state into the desired future state. The team should decide upon the general idea of the scope of each phase of project creation and implementation to make the intermediary processes align accordingly. Planning for this as a pre-mapping activity will reduce the amount of rework during mapping.

Planning to develop and execute in phases allows the teams to see what is working and what needs to be tweaked before it can be built upon. Working in phases also allows the team to show management its progress and to feel more committed and accomplished in the process transformation as they begin to see changes implemented and taking shape. Quite simply, phases make a large project seem possible and attainable.

When broken into phases, each phase should have its own summary of scope defined so that each is executed correctly. The scope encompasses the main goals and activities of each phase.

For example, if the scope of the entire project is to implement an enterprise resource planning (ERP) system for the finance and operations departments, the first phase would need to be a smaller chunk of that goal. A good first phase to prepare for the ERP implementation could be transitioning the departments from paper to an electronic process. In that case, a good summary of the first phase might look like:

- Phase 1 scope includes identifying the job functions with the Finance and Operations teams that use paper documents to enter information into the computer system. Determine how team members receive documents and who provides the documents to them. Change the output of the document from paper to electronic and update the process so the receiver gets their information from the new electronic location.

- Phase 1 scope does not include vendors or third-party warehouses that provide documents to the Operations team.

- The goal of Phase 1 is to reduce the amount of paper and create a system where information is sent electronically to prepare for the eventual implementation of the ERP system.

The team members who will participate in Phase 1 should also be listed.

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Know your audience

The process map can serve different objectives. As a design document, its objective is to ensure the development team stays within scope. In this case, it is a good idea to create the process map so that it covers every detail of the process in order to reduce any uncertainties during development. The map should cover the level of detail that would be needed for the team members to accurately execute improvements for the project.

However, keep in mind that a process map could also be used as presentation material. If a process map is going to be presented to executives to showcase the project, then a higher-level map should be created. A presentation to executives would be different than a working document for specialists and analysts. An example of a higher-level map would be one that omits the step-by-step procedures of entering a new customer into the system, and instead has a step that would generally read “enter customer information into system.”

Set the baseline (review existing documentation)

Particularly in a larger company, there will not be any one person who understands the entire process or department inter-workings. Each key person involved in the project should review their department’s existing documentation, so they begin the process mapping activity with a complete understanding of their department’s operations.

Define and meet with key people

There may be important people and roles who have intimate knowledge of the company operations. Key roles could be jobs that perform approvals in the business process, whereas key people could be those who have had various roles in the company or have a long tenure and may have a greater understanding or background regarding the process and operations.

Perhaps they were only briefly involved or have not been looped into the project. As a group, decide on and discuss who those people are. The project team member from the related department should schedule time with these people to communicate the project objectives and gain their insight.

While these individuals may often be overlooked, it is a mistake to take their experiences and input for granted. Again, it is important to remember that planning now saves time and rework later, because you don’t know what you don’t know. It is always better to plan and be prepared than to assume.

Set milestones and check-ins

There are certain points in the project when stakeholders and sponsors should be updated on the progress to ensure that the process is being captured properly and is in agreement with the company. The team should set which points of time those should be.

A good rule of thumb is to get initial approval after the pre-mapping activities are completed to ensure that all the key people, stakeholders, and sponsors are aligned. This helps you avoid having to restart anything after spending a lot of time on the project. After the initial check-in, the team could set the schedule to update everyone at determined intervals and project milestones. Project milestones could be set when the phases are mapped.

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Chapter 3 Business Process Mapping

Group process mapping

Now that the scope, detail level, and key people have been determined, and the existing documentation has been reviewed, there is enough background to begin process mapping.

To begin the initial session, assemble the group in a comfortably sized room with a large whiteboard. Plan to spend about two hours together. For those who are unfamiliar with process mapping, it will take about 10 or 20 minutes to get into the frame of mind to allow the flow to happen, so one hour will go by quickly. The process is intensive, so at about two hours, people will begin to become mentally tired of the activity.

The initial session should not be overly concerned with format or detail, but rather with encompassing the entire process idea. Since the idea of a process map is to capture each step that happens along with each decision point, it is natural that the details will fill themselves in during review in subsequent sessions. Therefore, if the team is stuck trying to figure out what happens for more than a few minutes at one step, it is best to skip it and then circle back to fill in the missing pieces at the beginning of the second session, when everyone's mind is refreshed and they have had time to think about it.

One team member should act as the facilitator. This will be the person at the front of the room who keeps the team focused and within scope, records any parking lot items, and physically maps the process onto the whiteboard as it is discussed by the team. The facilitator could be the project manager but does not necessarily need to be. The facilitator needs to have the personality traits to support their responsibilities in order to make the most of the mapping sessions. These personality traits include organization, objectivity, and confidence. A facilitator who does not keep the group on track is setting the team up for failure.

The interactive mapping session is a messy process. There are multiple people who work with different parts of the process, and often the facilitator must go back to previous steps to add in pieces that were missed. There should not be any concern with neatness or formatting at this point— the whiteboard should just be legible enough that it can be transcribed into a document later.

There will be discussions that come up that are outside of the defined scope. It is important to stay within scope because going outside it could cause lost momentum and become overwhelming. Alternately, it would be a shame to ignore these discoveries. This is where the parking lot that was previously discussed comes in handy to hold those ideas until later.

At the end of each session, the facilitator should capture a picture of the work on the board and summarize the meeting, any points of contention, and the parking lot items for an easy and quick start to the next session. A member of the team should be assigned to create the map in a document to ensure it is neat and orderly for the next meeting.

Future state

To begin process mapping, a neat trick is to start with the end point of the ideal process and work your way backward. This reverse engineering tactic is commonly used in development, and using it during business process mapping serves two purposes:

- You will be less likely to create a process flow that mirrors the routine you are already used to.
- You will be more likely to map the easiest way without preconceived notions.

Beginning with the future state allows the team to start the project energized and to develop the possibilities by crafting an ideal business process.

The biggest obstacle to overcome while mapping the future state is the restrictive mindset and preconceived notions that the process can only be performed a certain way. This mindset may prevent the team members from creating the most-desired future state. The project manager should remind the team that this is going to be implemented in phases. There is no expectation that the current state will magically and suddenly turn into the future state. Starting at the end, at the point where the team members would most like the process to work, should help to alleviate some of those concerns.

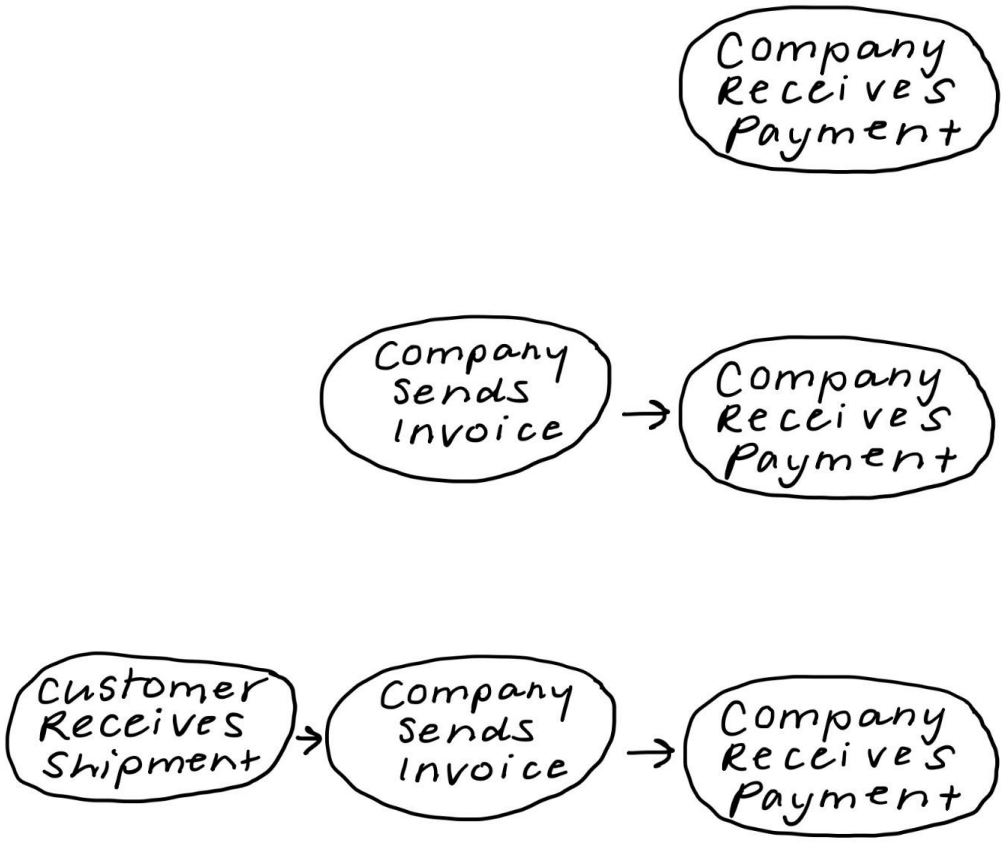


Figure 1: Reverse Process Mapping Example

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Mapping backward, the team will begin with the endpoint of their scope: whatever their last desired step is. In the example from the previous chapter of fulfilling a customer order, the end point would be the customer's receipt of the shipment. Taken to an even larger scope, the end point could be the receipt of payment from the customer. Again, this depends on the scope of the project and size of the company.

Figure 1 shows how the team walks backward to each previous step to define the way they would ideally like their process to work.

Tip: Do not allow preconceived notions to constrain your ideas.

Current state

After the ideal future state is mapped, map the current state. Mapping the current state may take more time than the future state because there are subprocesses currently happening within the teams, and it is important that assumptions aren't made about the way those specifics are currently handled.

For example, a customer order might come through a web-based portal, so the assumption may be that the order is routed to the team that processes the orders. I have experienced a discovery session, though, where we learned that the order was received electronically, but the individual who actually enters the orders did not have access to the location where the orders were received. In that case, a team member who received the order had to email it to the team member who enters the orders. Until we dug into those specifics, we did not know that was how the process was managed.

Unlike future state mapping, current state mapping needs to start at the beginning of the current process because there are many more details and processes that already exist that need to be accounted for. When a team has a tough time getting started with defining their current state, it is often helpful to start with a SIPOC diagram.

The SIPOC diagram

SIPOC stands for supplier, input, process, output, customer. These are written as headings on a white board in a table format, and then the process is listed below each heading. While this is extremely similar to process mapping, organizing the process into a list can make more sense to some people.

Table 1: SIPOC Diagram Example

Supplier	Input	Process	Output	Customer
Customer	Product order	Enters order into website	Order information	Finance department
Finance department	• Order information • Customer database	Checks to see if the customer who placed the order exists in the customer database. Enters the order information against the customer database record.	Order number with processed order information.	Operations department

With the facilitator at the whiteboard, the group will begin with the process start point that was previously defined. The team will talk through each subsequent step as the facilitator writes each one onto the board.

Once the SIPOC diagram helps the team to develop an outline, they can move to process mapping. Split paths, such as decision points and multiple outputs, are documented. One section of the whiteboard should contain the working list of the parking lot items as they arise. The purpose of having them on the whiteboard is to keep them visible, allowing the facilitator to acknowledge an item, put it into the parking lot, and promptly move along.

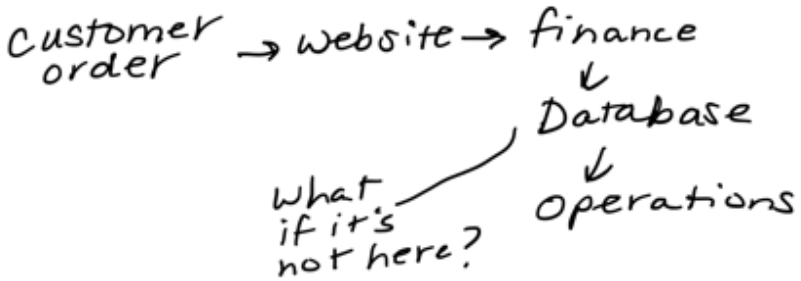


Figure 2: Process Mapping White Board Example

Depending on the size of the company and the scope of the process, mapping could take several sessions to complete, and could possibly lead to additional areas that need to be clarified. For example, during the session, the team could discover that no one in the room understands how a certain business process operates. The area should be noted, skipped, and revisited later. At the end of the session, someone will be assigned to figure out the open issues for the next session.

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At this point, the project team should understand and agree on the current state process and have a basic idea of where the process contains unnecessary steps. Additionally, the parking lot probably has some ideas in it from when the current state was mapped. These should be summarized and documented for review with the project team members to see if any idea is within scope and should be addressed.

Implementation phases

When the process mapping whiteboard sessions are complete, the team then decides on the most logical way to implement the desired future state process. It is easiest to implement in phases, starting within one team and then rolling the project out to other teams. Process map documents should be created for each of the phases so that the development team can use them as design documents, and the project team has a clear picture to communicate to the stakeholders.

To decide on the phases, the project team should start with process steps that remain within the same team and then compare the current state to the future state to pick out the pieces of the process that will be the biggest changes.

Next, the project team focuses on those parts of the process to decide what steps need to happen to go from current state to future state. While the company may want the project completed as soon as possible, it is tough to complete a project with large, sudden changes. Instead, it is more effective to use tiny steps of change to reach the end goal.

Chapter 4 Business Challenges and Risks

Every company experiences similar challenges and risks, just to varying degrees. These challenges and risks are often the reasons for project problems later during the development phase when program managers, software developers, product specialists, and designers create solutions to close business process gaps, which include:

- Alignment of project timeline and goals among executives, managers, and staff.
- Change and re-prioritization.
- Budget.
- Industry compliance.
- Change management.
- Performance management.

Business challenges and risks should be reviewed in order to prevent the development team from incurring changes that will affect the time and cost of the project.

Company alignment and goals

A very common experience, particularly when meetings do not occur or stakeholders are not present, is that the company's goals change without the project team being notified. Therefore, the goals of the company are no longer aligned with the project.

Although the project team may be engaged and working hard on their project, if communication with company stakeholders does not occur, then the company may forget that the project is underway.

In addition, if a stakeholder does not attend meetings or read communications from the project team, then they become oblivious to the activities that occur and will forget about the project in terms of alignment with the company.

In the best-case scenario, the project can be repurposed and still be used to accomplish the company's new goals. However, sometimes goal changes can cause projects to be canceled due to funds or the need to focus on other projects.

Even worse is when the goals change, but the functional project team is not aware of the change. In this case, the project continues until the executive team realizes that the project is still in process. The project is then either canceled partially though development, or the company allocates additional time, resources, and money for it to be reworked.

Change and re-prioritizations

Various changes cause development projects to be re-prioritized. Some of these include:

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- Department reorganization
- Role changes
- Personnel changes
- Changes in business strategy

If a **department is reorganized**, the process steps and tasks could fall within different department responsibilities. New department formation requires staff within the new department to become familiar with their new roles; their priority is now to learn how to complete their jobs rather than focus on the project. This delay can cause the project to take longer to define and execute.

Similar to a department reorganization, if **roles are changed,** the employees need to refamiliarize themselves with their job duties as a first priority. Even when employees have the best intentions to complete their work for the project, if any changes to their roles or responsibilities occur, then often their work is re-prioritized to the point that the project becomes deprioritized.

When **personnel changes** occur, such as employees leaving the company, even if solid documentation exists, there is often a loss of knowledge of their experience and process changes, which can cause any lessons learned to be overlooked.

If the company's **business strategy changes**, even if there is transparent communication from senior executives, the departments will struggle with the way they used to do things and how they think they should do their work to align with the new strategy. This can cause employees not to understand how existing projects fit into the new strategy, as well as believe that new projects that are aligned with the new strategy make more sense. Therefore, existing projects become deprioritized as employees are eager to keep up with the new company direction.

Budget

The project team can spend time designing the most efficient and effective ideal future state, but if the company decides that the benefit of that process does not outweigh the associated costs, then the project team may be restricted to only a phase or single iteration of their intentions. Sometimes the benefit does outweigh the cost, but either the project team is unable to illustrate that to the company, or the company simply cannot spare the funds from its budget.

Without regular oversight and management, development time quickly becomes costly. If development time is used without oversight, it can exceed the company's budget. Without a clear picture of what has been completed and which parts of the project are remaining, the project could be halted.

Additionally, if the company has a different business opportunity and decides it needs to spend funds elsewhere, it may halt or decrease money allocated to the project.

In addition to development and resource time, the project team may need to purchase tools for their new system to maximize efficiency. These could be tools for communication, chat management, web plugins, or other add-ons.

Technology and systems can be costly, so the choice to invest in technology to support a project would need to be approved through the company's appropriate channels. Any technology that is needed to support the project should be considered and disclosed at the beginning of the project with the stakeholders.

If these tools are not outlined in the beginning of the project, it could cause budget problems further down the line. An important tip is to lay out the proposed budget for the project in the beginning so that the team is aligned on expectations. To prevent budget overrun, the budget should have regular oversight as part of the project plan and be included in any project updates.

Industry compliance

While there are common ethical and process standards for business, different industries have their own compliance standards. For example, a toy company might need to meet the guidelines for a Children's Product Certificate, an aircraft designer might need to comply with the Federal Aviation Administration program, and a credit card processor might need to comply with the Payment Card Industry Data Security Standard. Members of the project team need to check with their internal compliance team to ensure that the future ideal state and the methods used in development will meet industry compliance standards.

A process map may appear to be in compliance to members of the project team, not raising any red flags, but without a review from a member of the company who is experienced in industry compliance, the results could be disastrous. Even if the process map appears to comply, the development team could use a technical method to solve a certain issue that results in compliance violation.

Someone who understands industry compliance, and understands the possible risks involved by developing the project, needs to be on the project team initially as a stakeholder to avoid any re-work.

Skill

Just like each person in finance, operations, and customer service has their own special skills, so do those in development and project management. If the correct people who have the desired skillsets are not involved in the project, then the project team has opened itself up to risk. The project could be either completed inefficiently or simply not completed.

Ideally, each person in the company has the skills necessary for their role (and if not, then that is more of a hiring problem than a project problem!). A project should consist of a mix of different development roles so that it can benefit from that mix of skillsets.

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Change management

The project manager needs to closely review and control change management. Failure to handle change management will result in lower morale and decreased commitment of the team members, directly relating to performance on the project. People often have a tough time with change, and their response can be detrimental to the project.

As reviewed previously in this book, transparent communication is a huge contributor to effective change management. The project team needs to receive regular updates, and they should also be able to report their progress to the company on a periodic basis. This helps team members and company employees feel invested in the project's completion and success.

Performance management

All the previous items are contributing factors to staff morale and motivation. The members who make up the project team may initially be excited and happy to create the project and design documents for the new processes.

As the project carries on, though, these emotions begin to fade as the team members continue with their regular work duties in tandem with their new project. If the team experiences frustration completing their regular duties because of their time commitment to the project, then their motivation for the project decreases.

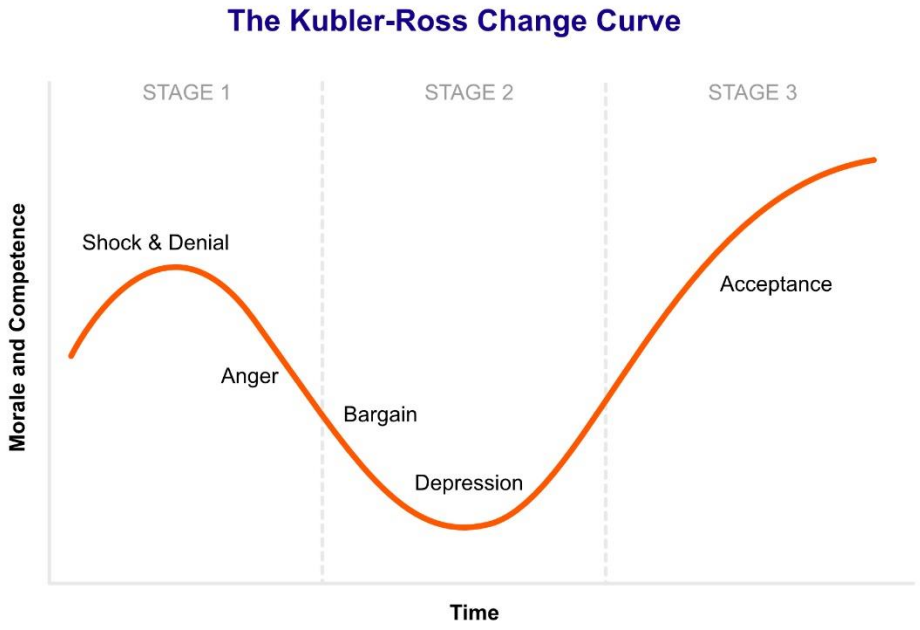


Figure 3: Kubler-Ross Curve

The Kubler-Ross Change Curve, shown in Figure 3, shows how people react to extreme change through the stages of shock, denial, anger, depression, acceptance, and integration. While this

was originally developed to show the stages of emotion for terminally ill patients, it actually applies to any type of significant change.[8]

If team members are pressured to add more work to their plate without realization, support, or acknowledgement from upper management, then their morale will decrease, and they will begin to resent the project and no longer prioritize project meetings or have any desire to reach the project milestones.

It is important for management to identify how the employees are reacting to the project by using the Kubler-Ross Change Curve as their guide. This will help them manage the employees and their performance through the change.

Management can help employees' performance by:

- Communicating intentionally about the project.
- Listening to employee concerns without being dismissive.
- Training on new processes and techniques.
- Remaining positive.
- Celebrating success.

[8] https://www.exeter.ac.uk/media/universityofexeter/humanresources/documents/learningdevelopment/the_change_curve.pdf

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Chapter 5 Business Process Chart Types

Between whiteboard meetings, a member of the team should create an official process map document. Because creating the document in a software program takes some effort, it forces the map to look cleaner and less cluttered. Completing this in tandem with the mapping sessions allows the team to see a cleaner summary of the process they're creating and allows the facilitator to spot any possible gaps.

After each project team mapping session, the software document should be updated to reflect what was covered in the session. The document should be reviewed at the beginning of the next session to ensure that everyone is aligned with the updates. Any possible gaps or misunderstandings can be addressed at this point.

There are standard types of programs to accomplish this, but here we will use Microsoft Visio. The examples shown are generally accepted as standard no matter the program used.

Although there are dozens of different formats and templates for flowcharts, diagrams, and business charts, there are three general types of diagrams that can be used to easily depict business process steps.[9] These are:

- Workflow diagrams
- Basic flowcharts
- Cross-functional flowcharts

The following sections go into more depth regarding each chart type.

Workflow diagrams

The workflow diagram has pictorial icons that represent the process. These pictures indicate departments, objects, and steps. The workflow diagram is best used for a general audience that is not entirely familiar with the business operations. It is an attractive way to allow the audience to visualize the general process steps easily.

For a process improvement project, the workflow diagram is best utilized as an initial overview for a managerial or executive audience. This allows the project team to illustrate the general part of the process they are focusing on.

The following figure shows the most commonly used templates in Microsoft Visio for completing a workflow diagram.

[9] https://support.office.com/en-us/article/process-diagrams-in-visio-f064cd25-d7d5-47b8-87e1-ecb3c39cc165

Tip: To find workflow templates in Visio, select File > New > Welcome to Visio, and then browse the template types.

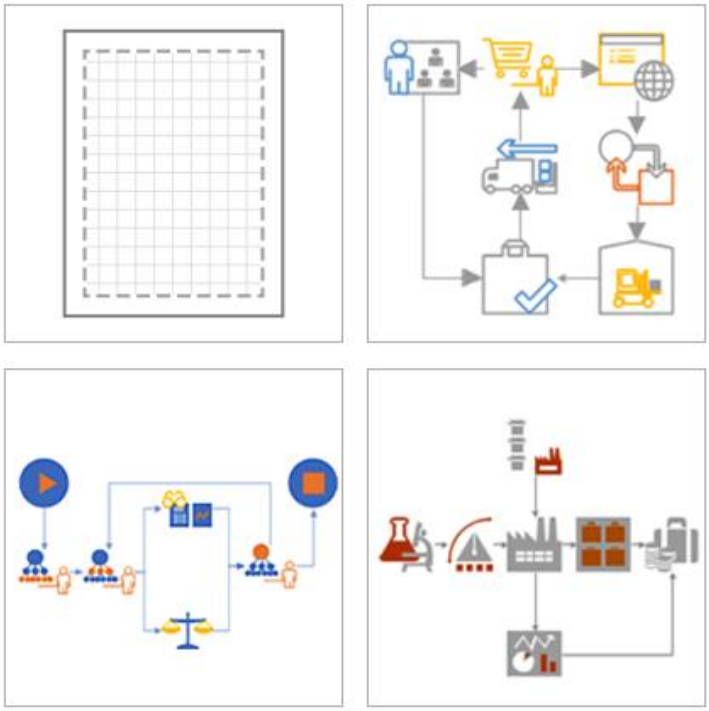


Figure 4: Screenshot of Common Workflow Diagram Templates in Visio

As shown in Figure 4, the workflow diagram shows pictures that illustrate each process step in a chart that is easy to understand and visualize without having to completely understand the specifics of each step. It is also possible to create a workflow diagram freeform without a template, which is indicated by the top-left pane.

Workflow diagram shapes

Since the workflow diagram is high-level, there are three general types of shapes to use. These are:

- Departments
- Objects
- Steps

The most general type of workflow diagram shouldn't be too detailed. Even one that shows just the flow of information among departments can convey the message.

Remember that the diagram depends entirely on the intended audience and method of delivery. An in-person presentation to executives using the workflow diagram as a supporting illustration would likely be created differently than a workflow diagram that is sent over email to department

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managers. If a workflow is being presented in a room to executives, not only would it be difficult to show a step-by-step document, but the executives would not know or necessarily care about all the details. They would be more concerned with the general direction of the process and any changes that process would cause for the organization. Conversely, a department manager would be very interested in the details, and likely would not be able to do much with a high-level directional chart.

Workflow diagram icons should have descriptive text under them to help the audience understand exactly what is happening in the process.

Departments

While there are dozens of different workflow department icons, the following figures are screenshots of the Visio icons that are most commonly used.

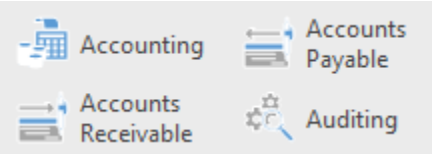


Figure 5: Accounting Workflow Departments

Figure 5 shows accounting-related departments. “Accounting” can be used generically, or “Accounts Receivable” and “Accounts Payable” can be used to illustrate specific activities within accounting.



Figure 6: Bank Workflow Department

The Bank icon is used to show when an accounting department interacts with a bank, such as depositing funds from customers.

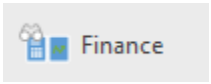


Figure 7: Finance Workflow Department

“Finance” is a broader department than accounting. It indicates an overall view of the financial activities of the organization rather than the daily activities of accounting.

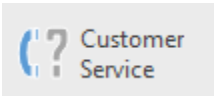


Figure 8: Customer Service Workflow Department

The Customer Service icon can be used to indicate either a call center or the account management system where the customer is being serviced.

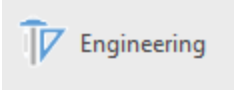


Figure 9: Engineering Workflow Department

The Engineering icon indicates the engineering department.

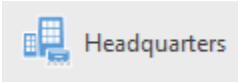


Figure 10: Headquarters Workflow Department

If a company has various offices, the Headquarters workflow icon helps distinguish when the process needs to include the company's headquarters, particularly when the workflow involves a step that needs to be reviewed.



Figure 11: Legal Workflow Department

The Legal Department icon shows when a step needs to include the legal department to review or create a document or contract.

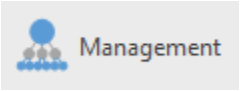


Figure 12: Management Workflow Department

The Management icon distinguishes whether the process is happening between executives, management, or staff.

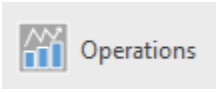


Figure 13: Operations Workflow Department

Operations is a generic department icon that can indicate anything within the operations sector. This generic icon can be used, or specific department icons can be used in its place.

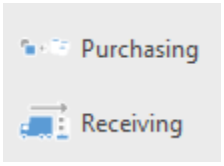


Figure 14: Purchasing and Receiving Workflow Departments

The Purchasing and Receiving icons are examples of specific operations departments. The Purchasing icon is used to indicate when the operations department places an order, whether to replenish physical stock or to drop-ship an item.

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Receiving is therefore used when the company has a warehouse or area to keep inventory in stock and a specific department is responsible for receiving the materials and ensuring the correct materials are received.



Figure 15: Sales Workflow Department

The Sales icon is used when the sales department is involved.

Objects

Workflow diagram objects are people, places, or things involved in the business process.

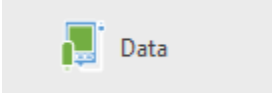


Figure 16: Data Workflow Object

The Data workflow object indicates the point when information, or data, is passed from one department, person, or system to another.



Figure 17: Customer and User Workflow Objects

While the Customer icon is self-explanatory and shows when a customer is involved in the process, the User icon can indicate any user of the system or data.

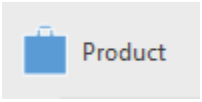


Figure 18: Product Workflow Objects

The Product icon indicates the product that is being sold.



Figure 19: Contract Workflow Object

The Contract icon specifically indicates a contract between either a customer, vendor, or partner and the company.

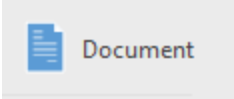


Figure 20: Document Workflow Object

While the Contract icon is specific, the Document icon is generic, and can be used whenever documents pass between departments or people.

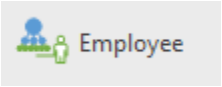


Figure 21: Employee Workflow Object

The Employee icon refers to a person who is employed at the company. It could be used to indicate when an employee needs to complete a specific task. If it is being used in reference to a department, then the assumption is that the employee is a member of that department.

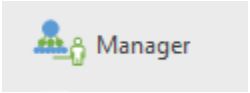


Figure 22: Manager Workflow Object

Similar to the Employee icon, the Manager icon shows any time a manager is involved. This could be either as part of the work, oversight, or approval, and it could be used in tandem with other workflow objects.

If the Manager icon is used in reference to a department, then the assumption is that the manager is the manager of that department.



Figure 23: Vendor Workflow Object

The Vendor object shows when the process goes to a vendor. This could be for purchasing or shipping. It serves as a good reference object when the process transfers to a third party that is outside the company.



Figure 24: Web Page Workflow Object

The Web Page object can be used to show when a customer enters the process flow from the company's website. It can also be used to show when a webpage is used to collect information, documents, or data from a customer or from within the company itself, such as when a staff member accesses the company's intranet.

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Steps

Workflow diagram steps provide granular detail. They can be used in conjunction with departments and objects to show specific actions or steps that occur within the process.

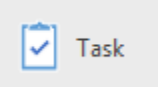


Figure 25: Task Workflow Step

The Task workflow step would be used if a department or person has a specific task they need to complete in order to move to the next step in the process. The specific task should be noted.

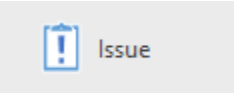


Figure 26: Issue Workflow Step

The Issue icon indicates a path that is followed when a department or person has a problem in their process. The issue step can then be routed back to show the corrective steps that would occur after the issue happens.

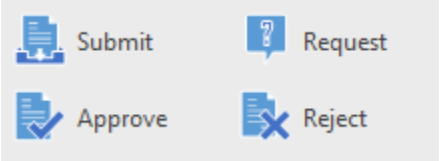


Figure 27: Submission Workflow Steps

The submission workflow steps show when a department or person submits, or requests to submit, something in order to proceed to the next step.

Consequently, the Approve and Reject steps show whether the approving party (most likely the quality department or a manager) either approves or rejects the item. An approval would allow the workflow to continue, while a rejection would show the steps that have to occur in order to submit for approval again.

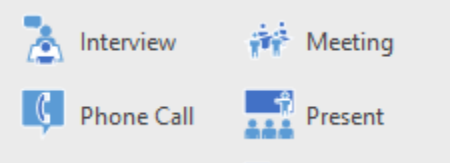


Figure 28: Interaction Workflow Steps

The preceding interaction steps in Figure 28 represent a different, but similar, path to using the approve and reject steps. For example, when onboarding a vendor, perhaps an Interview or Meeting step would be required. The Phone Call icon could indicate when a call needs to be placed to gain approval or to place an order. Present could indicate when an employee or department needs to present to their management, executives, or board of directors.

Basic and cross-functional flowcharts

While the workflow diagram is more illustrative and shows process steps with images, a basic flowchart must contain a title or summary of each process step inside each shape so that the audience understands what each shape indicates in the process.

Basic flowchart

As shown in Figure 29, the style of each template is different; however, the various shapes for the templates are the same. In process mapping, the shapes have standard implications, which will be outlined in the next section. It is also possible to create a flowchart freeform without a template, which is indicated by the top-left pane.

Tip: To find flowchart templates in Visio, select File > New > Welcome to Visio, and then browse the template types.

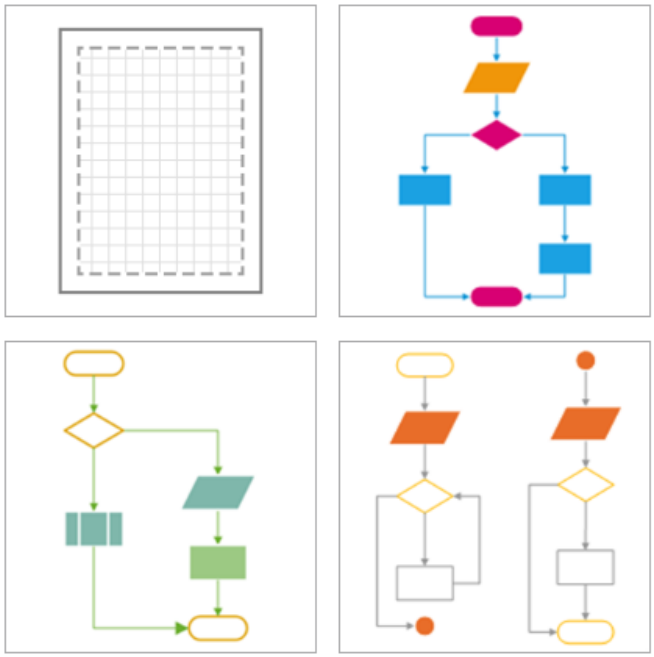


Figure 29: Common Basic Flowchart Templates

A basic flowchart can be created vertically or horizontally and is a good choice to show a simple process. That could be either a high-level process or overview, or a process that remains with one person or department for completion.[10]

[10] Create a Basic Flowchart. Retrieved from https://support.office.com/en-us/article/create-a-basic-flowchart-e207d975-4a51-4bfa-a356-eeec314bd276.

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Cross-functional flowchart

The cross-functional flowchart uses the same foundational idea as a basic flowchart, but also uses columns or rows, known as swim lanes, within the flowchart. The swim lanes are used to show the separation of different individuals or departments to illustrate the movement of steps between functions. The swim lanes can be vertical or horizontal. Examples of both horizontal and vertical swim lanes are shown in Figure 30.

A title or summary of the process step is typed inside the shape, and the department or individual name is typed in each header of the swim lane.

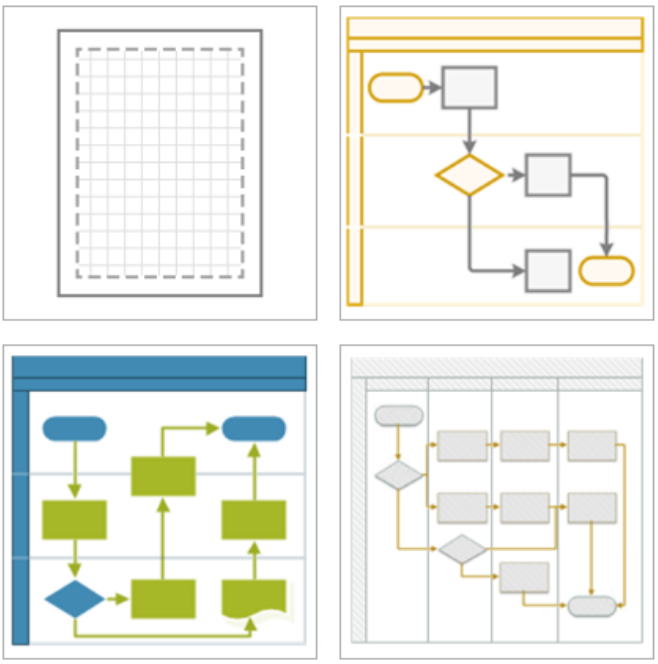


Figure 30: Examples of Cross-Functional Flowchart Templates

Just like a basic flowchart, the screenshot in Figure 30 shows that there are different styles of cross-functional flowcharts, but the basic shapes within them are standard and carry the same implications. Again, it is also possible to create a cross-functional flowchart freeform without a template, which is indicated by the top-left pane.

Tip: To find cross-function flowchart templates in Visio, select File > New > Welcome to Visio, and then browse the template types.

Shapes

There are shapes in process flow mapping that have industry-standard connotations and are typically used in basic and cross-functional diagrams. Unlike workflow diagram shapes, which are self-explanatory, depending on the illustration, flowchart diagrams require background knowledge to completely understand the implications of the shapes.

There are dozens of different shapes with different meanings, but luckily, there are only a few standard shapes that you need to know to understand the basics. The screenshots in the following figures provide the basic background knowledge necessary to interpret a flowchart diagram.

Ellipse

The ellipse signifies the starting and ending points of a process.



Figure 31: Ellipse

Square/rectangle

Squares signify a process step. Depending on the size of the text inside, it is acceptable to resize a square into a rectangle.



Figure 32: Rectangle

Square/rectangle with wavy base

A square or rectangle with a wavy base signifies a process step with a document.



Figure 33: Rectangle with Wavy Base

Diamond

The diamond signifies a decision point or a step in the process that can result in multiple paths based on a decision that needs to happen.

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Figure 34: Diamond

Parallelogram

A parallelogram signifies a process step that has data transfer within a system. An example of this would be an automated step, such as when data automatically transfers from one system to another.



Figure 35: Parallelogram

Chapter 6 Rules of Engagement

Starting point

A workflow diagram begins with the first department, object, or step in a process. However, if you're using a basic or cross-functional diagram, the starting point should always be an ellipse, since that shape specifically indicates a start.

The starting point should be the beginning of the process scope being documented. Remember to take your audience into consideration, and make sure that the starting point makes logical sense to them. The audience should not wonder about preceding steps; they should understand why the starting point is what it is.

Connections

Each shape should connect to the previous and next shapes to show their relations. The connections can be straight, curved, or right-angle.

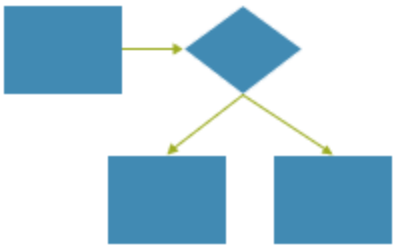


Figure 36: Straight Connections

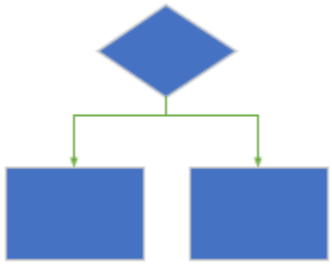


Figure 37: Right-Angle Connections

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Figure 38: Curved Connections

Tip: Read more about creating connections in the "Beginning" section of Chapter 7.

Arrows

As shown in the previous connections' figures, arrows guide the viewer through the chart to make it easier and quicker to understand. When connections are added for a basic or cross-functional flowchart, they will default to show arrows pointing in the direction the connections were applied.

Split paths

A split path, shown in Figure 39, occurs when there are multiple outputs or actions that occur as a result of one process step. For example, if a shipping department receives tracking information, there are often multiple departments or people and subsequent steps that need the information. This results in the shipping department sending multiple outputs. In other words, the information is sent to multiple places or systems.

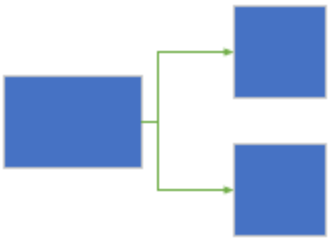


Figure 39: Split Path

Split paths often result in notifications. Or, the path could go to another department that then takes a path outside the scope of the process. In that case, it is acceptable to create a notation saying the process continues elsewhere.

Continuing with the previous tracking information example, a physical product is shipped as a package. The package is picked up by the carrier and scanned. This results in the information being tracked in the carrier's system, as well as an automated email notification being sent to the package recipient. The notification to the package recipient does not have any further steps within the company, but it's good to note on the flowchart that the step occurs.

Note: Split paths are created by attaching multiple connectors (see Figure 47: Connect Icons on Work Flow Diagram) to the beginning selection dot and guiding the connectors to ending selection dots on separate objects.

Decision points

At first glance, a decision point, shown in Figure 40, appears to look like a split path because there are multiple connections off the shape. However, rather than both paths occurring, the user chooses and follows only one of the paths.

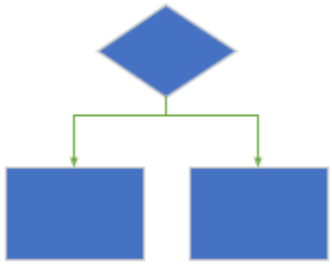


Figure 40: Decision Point

A decision point is any place in the process where a decision has to be made that would cause the process to proceed differently, depending on the outcome of the decision. As mentioned previously, the diamond is the basic shape for a decision point, which easily lends itself to multiple outputs off its edges.

Decision points take a little more diligence because each subsequent path for the various possible decisions needs to be understood and mapped. For this reason, a common mistake is to not recognize decision points and instead assume that the process will always continue forward when, in reality, the process could revert back to a previous step. This mistake of not documenting decision points causes uncertainty around the process because the various possible decisions are not recognized, and therefore, no process to address them is created.

For example, if a vendor submits a partnership agreement, the legal team does not automatically accept it; they review it and decide whether it is accepted or not. In the process map, two paths should be shown: one path if the agreement is accepted, and one if it is rejected. The rejected path would likely go back to the vendor for review and correction, and then re-enter the submission step.

Mapping a decision point is commonly omitted because of the lack of extra thought needed to capture all the scenarios.

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Supporting text

Text indications on headers and process steps should be clear and concise. If there are further supporting rules or guidelines that need to be followed, it is best to make an off-page reference, as shown in Figure 41, and then use that to list the rules and guidelines for the process step.

The purpose of an off-page reference is to make the flowchart more concise and easier to understand. For example, let's say there are three customers who are exempt from the standard process. In this instance, we will say that the flowchart process shows the customer invoices being sent via email, but the three specific customers require their invoices be sent via postal service mail. When invoices are printed and mailed, the process is much different than when the invoices are emailed.

Figure 41 shows how this is mapped. There is a decision point that asks if the customer is X, Y, or Z. These are the customers who require their invoices to be printed and therefore follow a different subprocess. If the answer is "yes," then the off-page reference document indicates Ref: A. On page 2, the rest of the process steps for Ref: A show that a printed invoice is sent in the mail. When that subprocess is complete, that part of the process ends.

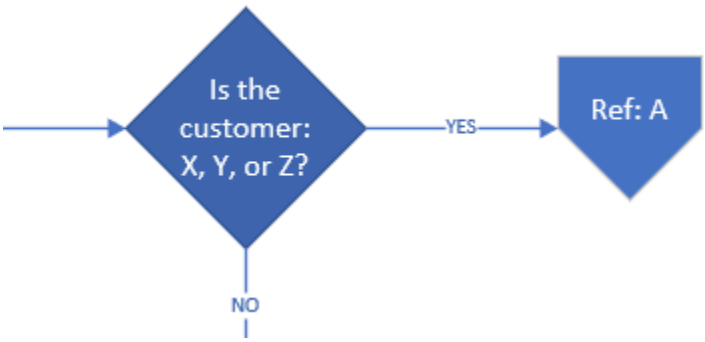


Figure 41: Off-Page Reference Object

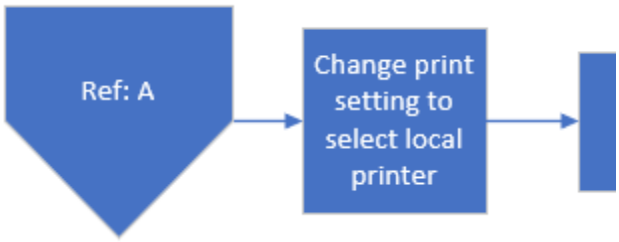


Figure 42: Off-Page Reference on Separate Page

Colors

Unlike shapes, colors in a flowchart do not have specific industry-standard meanings. Some colors are used to:

- Create cohesive branding for the company.[11]
- Show unique values, such as each department having its own color.[12]
- Show a range of values, such as the amount of time each step in the process takes.[13]

Capturing the entire process scope

Just as important as process-mapping on a whiteboard is including the entire process scope in the documented process map. This means to begin the physical process map document at the same point as it was during the whiteboard session. This allows the ultimate consumer of the document to entirely understand where the process begins and how it fits into the company overall.

Output files

Process flow mapping programs are not generally included or installed on a typical user's computer, usually resulting in a file type that cannot be opened. When sharing a process flow, it should be printed to PDF.

To perform this action, click on the **Print** icon and then:

1. Change the printer selection to **Print to PDF**.
2. Select which pages of the Visio file to print.
3. Click **Print**.

[11] Create a Custom Theme. Retrieved from https://support.office.com/en-us/article/Create-a-custom-theme-A3056D0D-9662-46D3-A120-4CA41BDFA216

[12,13] Color Shapes According to Their Data. Retrieved from https://support.office.com/en-us/article/Color-shapes-according-to-their-data-0C2E47A0-68D6-4AFF-B6B2-44252E3C7F1C

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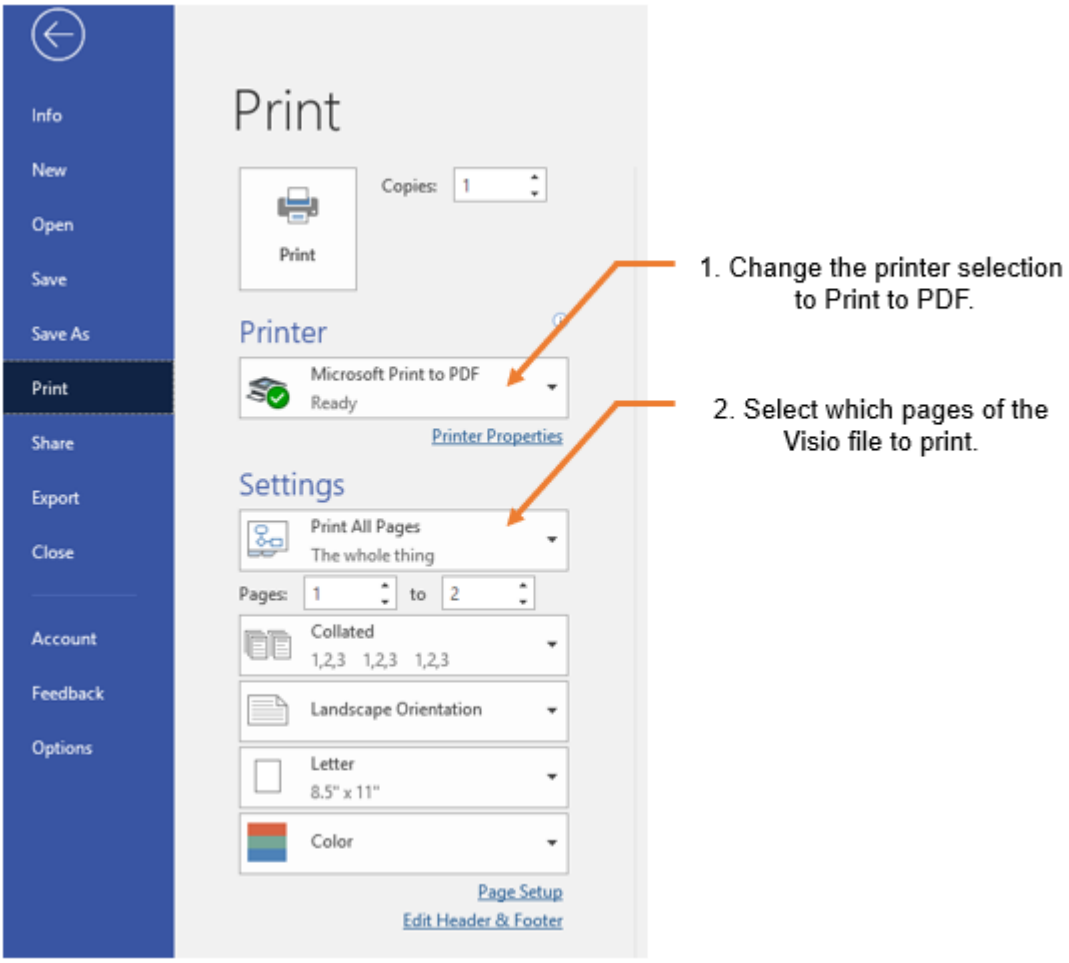


Figure 43: Printing a Visio File as a PDF

Chapter 7 Workflow Diagrams

Beginning

In Microsoft Visio, create a new document by choosing **Work Flow Diagram**.

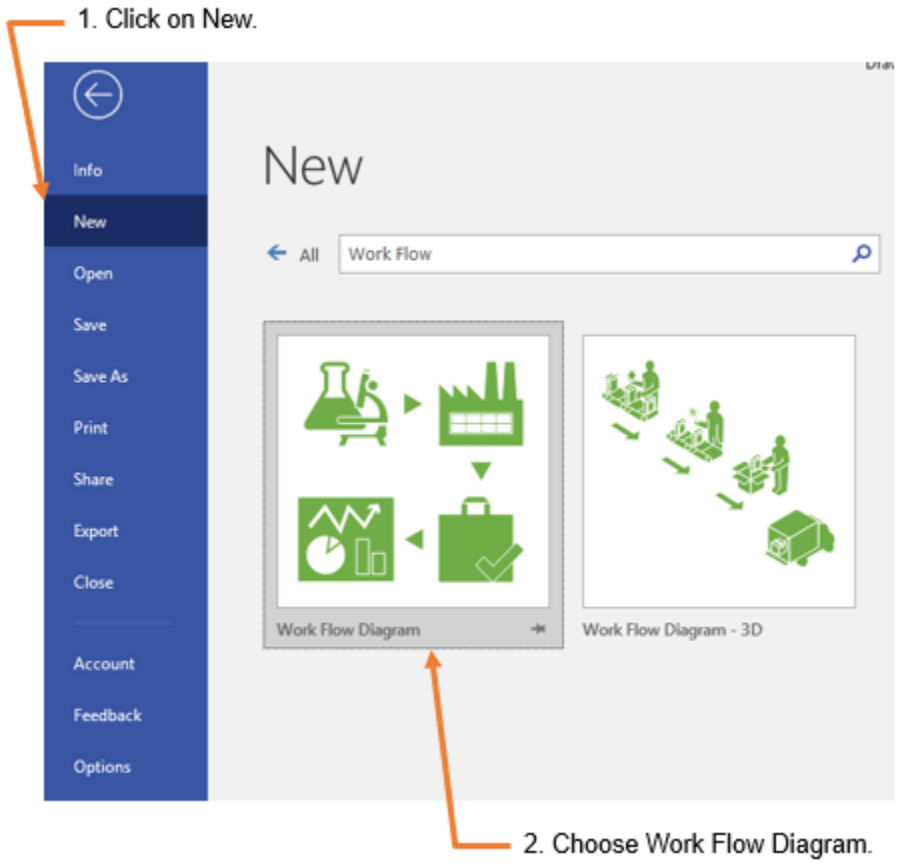


Figure 44: Creating a New Work Flow Diagram

Next, choose a template or a blank page. In the following example, we start with a blank page.

Since the workflow diagram is an overview of the departments, objects, and steps that are involved in a process within a company, the beginning point is the department, object, or step that begins the process. Remember that this is a high-level diagram. So, let's say we are mapping the customer ordering a product from the company's website, and we want to show the management team the steps that occur. In this instance, we would start with the "Customer" as the first step.

Click the **Customer** icon and drag it onto the blank page. Repeat this by dragging the next icon for the **Website** onto the blank page.

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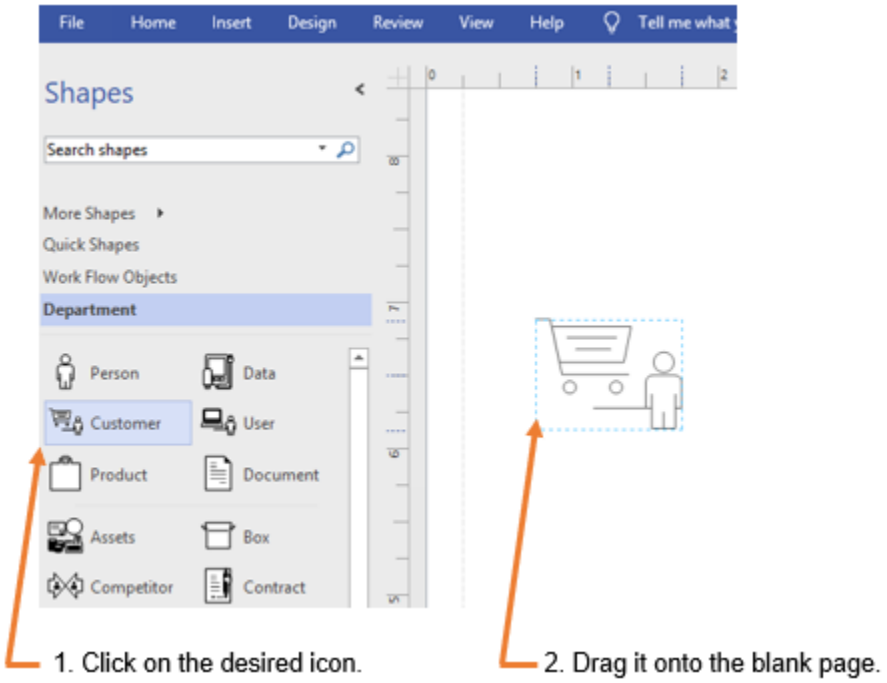


Figure 45: Drag an Icon onto the Work Flow Diagram

To add descriptive text, double-click the icon, and a text box will appear. Once the desired icons are on the page, connect them by clicking **Insert** > **Connector**.

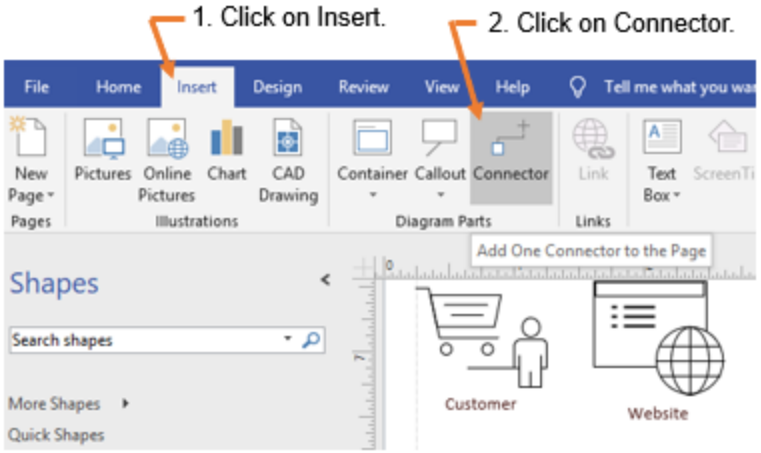


Figure 46: Insert Connector onto Work Flow Diagram

Next, hover the pointer over the icon to be connected; selection dots will appear on the icon's sides. Choose the dot on the side you want to connect, and then drag it over to the next icon. The two will connect.

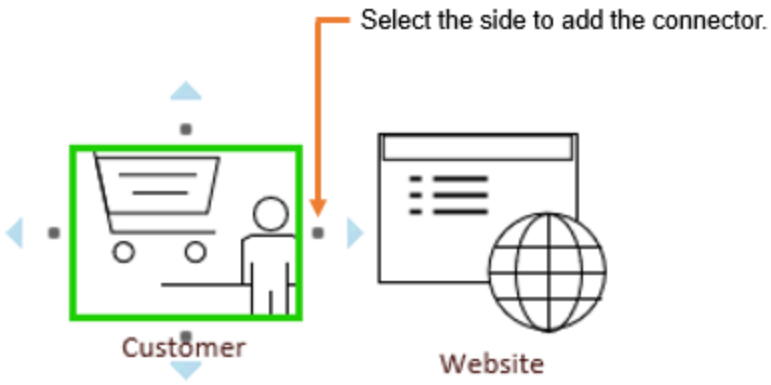


Figure 47: Connect Icons on Work Flow Diagram



Figure 48: Workflow Diagram

For simplicity, Figure 48 shows a three-step process where the customer goes to the website to place their order. The order is then sent to the finance department.

Split paths

The workflow diagram is high-level and illustrates the involvement of different departments and people in the company. A split path occurs if a department or individual has multiple outputs.

The following figure was created by dragging additional icons and adding connectors in the same manner as described previously.

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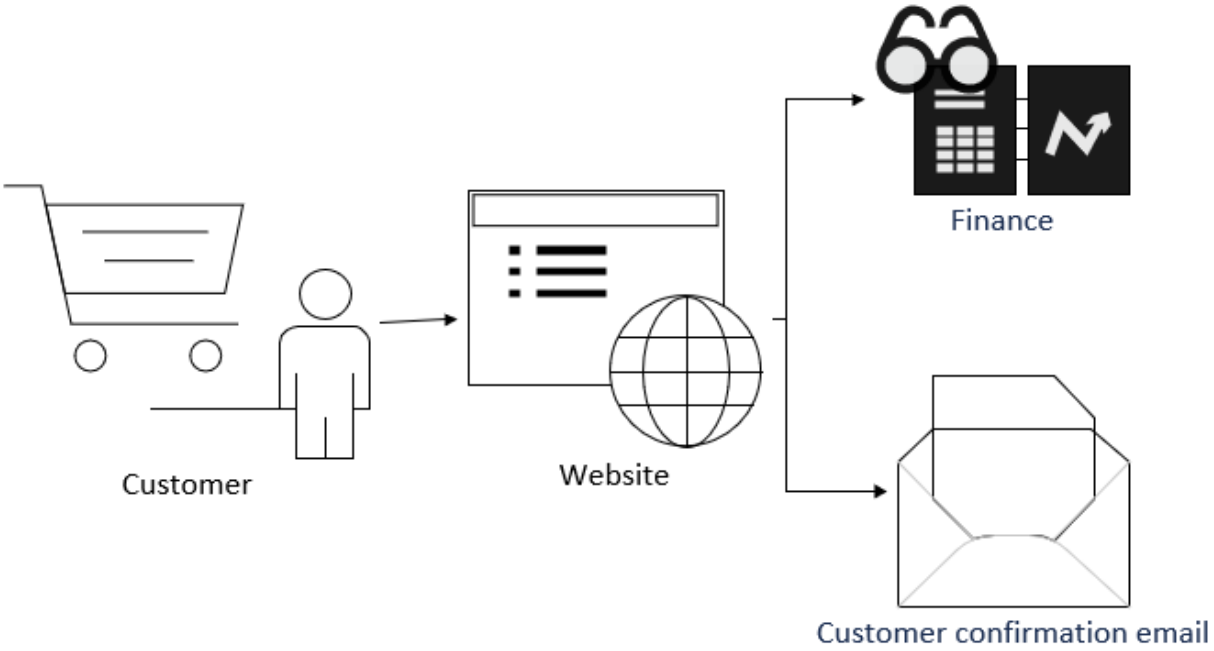


Figure 49: Workflow Diagram with Split Path

Figure 49 shows that the website sends the order information to the finance department, but it also sends a confirmation email back to the customer stating that the order has been successfully received. Both of those outputs should be connected to the Website icon.

Decision points

A decision point is when a department or individual must make a decision that affects the path of the process flow. Continuing along the same example, Figure 49 illustrates the process if the finance department cannot find the customer's information in their system and needs to escalate to management.

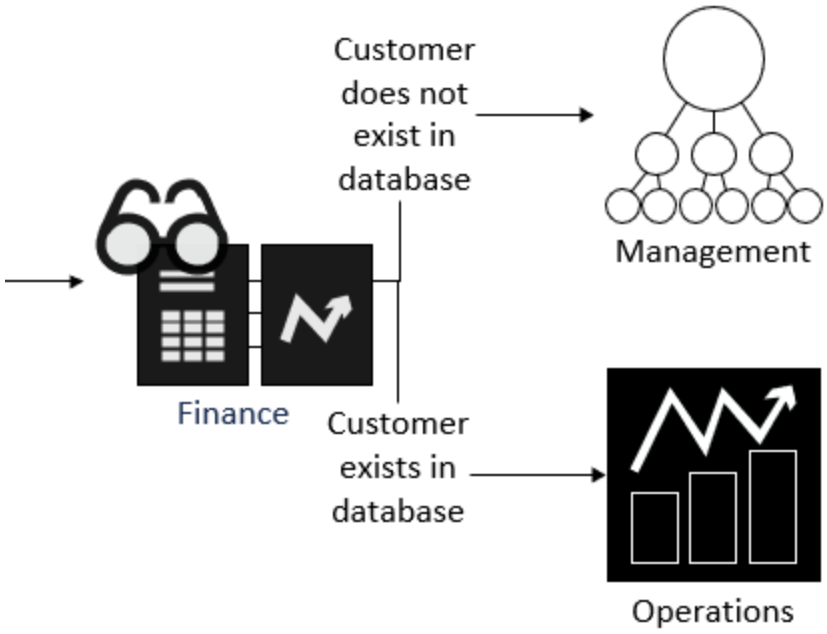


Figure 50: Workflow Diagram with Decision Point

Figure 50 shows two paths that the finance department can take. Either the customer does or does not exist within their database. It is clear in this process flow what action should be taken in either situation, and the workflow diagram is labeled so that the audience can understand that this split represents two different outcomes: The customer information is in the database, or it is not.

This clarity makes it easy for the finance department to complete their tasks without questions, and for the audience to understand why the finance department makes the decisions they do.

To add text to show decision options, double-click the connector where text is to be displayed, and then type a short description of the option into the text box.

Decision points need to show the outcomes of the respective paths. The customer order example shows that management reviews the order if the customer does not exist in the database. If management cannot resolve the issue, they then send the order to the legal department, as shown in Figure 50. If management does resolve the issue, then the process flows back to finance.

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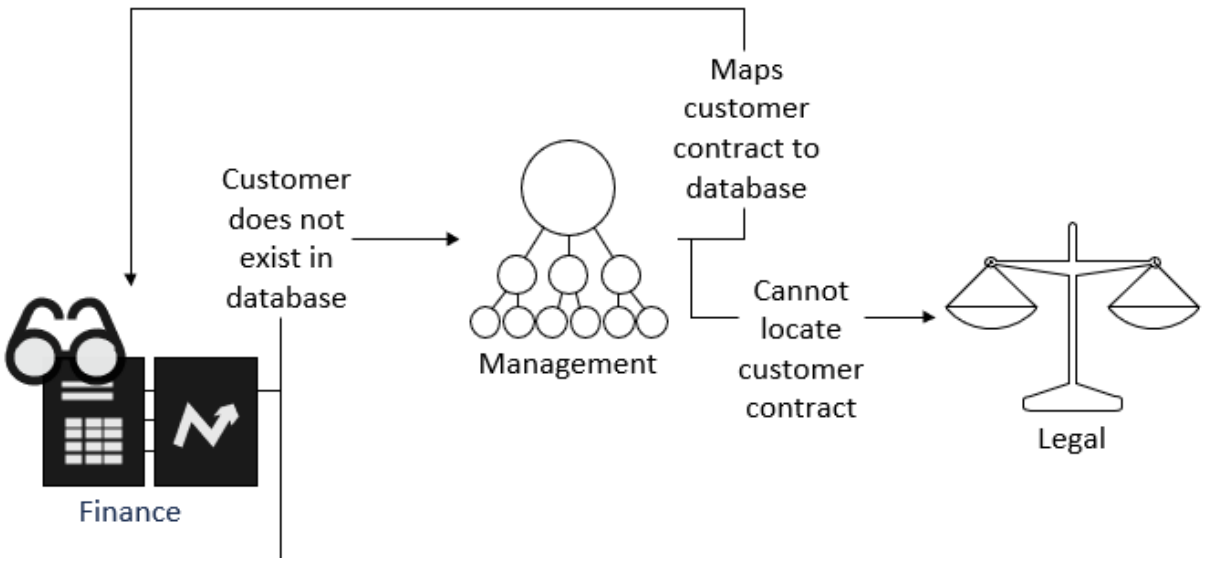


Figure 51: Workflow Diagram with Decision Point

Chapter 8 Basic Flowchart

Beginning

In Microsoft Visio, create a new document by choosing **Basic Flowchart**.

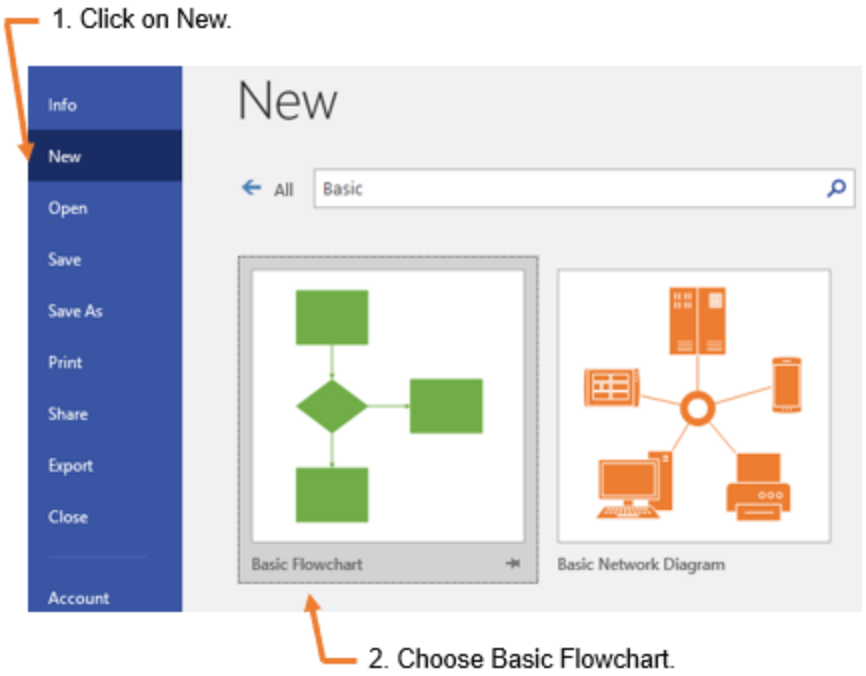


Figure 52: Create New Basic Flowchart

Next, choose to start with a template or a blank page. In this example, we will begin with a blank page.

The basic flowchart is often a high-level or simple process overview of one department. Regardless, the basic flowchart starts with the beginning of the scope of the process and uses an ellipse as the shape to signify that it is the starting point.

Choose the ellipse from the shapes on the left and drag it onto the page. Then repeat the same process with either a rectangle for the next process step, or a diamond if the next process step is a decision point.

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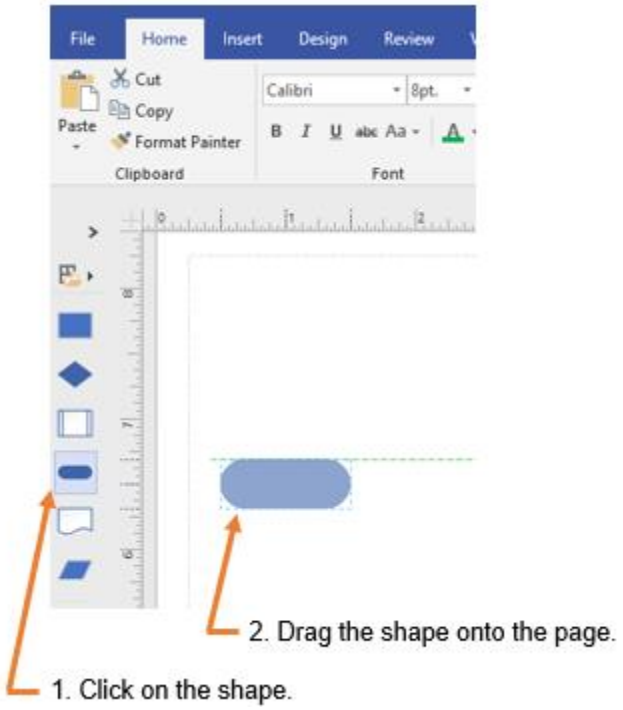


Figure 53: Drag a Shape onto the Basic Flowchart

As you work, add descriptive text to the shapes. This is done by double-clicking the shape so a text box will appear.



Figure 54: Adding Description Text to Workflow Shape

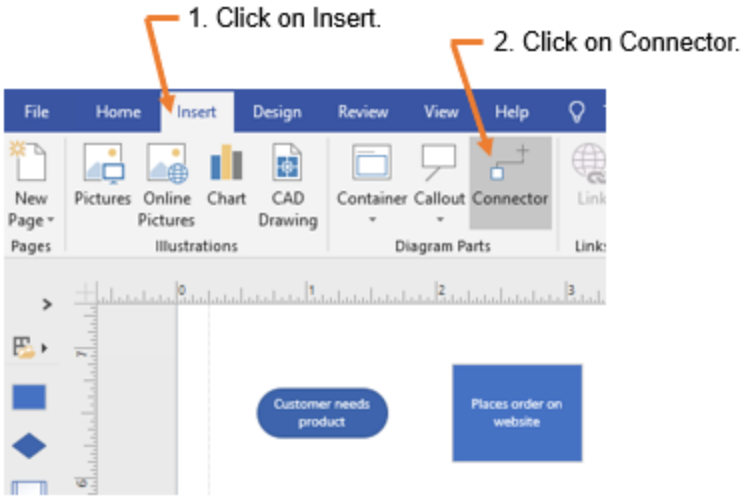


Figure 55: Insert Connector in Basic Flowchart

Next, hover the pointer over the shape to connect. Selection dots will appear on the sides. Choose the dot on the side you want to connect, and then drag it to the next shape. The two will then connect.

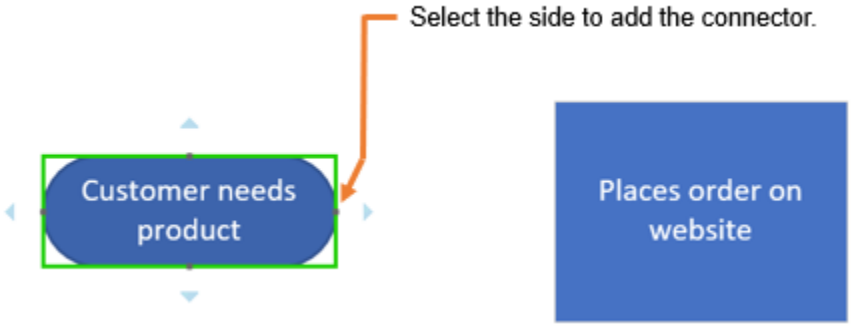


Figure 56: Connect Shapes in Basic Flowchart

Repeat the same steps to connect the remaining shapes.



Figure 57: Basic Flowchart

Using the same example as the workflow diagram, the same process is shown. However, in a basic flowchart format, the appearance is much different.

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Note: Remember that the parallelogram indicates the automatic transfer of data.

Split paths

Continuing with the same example, the following figure illustrates the appearance of a basic flowchart with a split path. The split path is created with the same connections as previously shown. The connections are simply dragged to the desired shapes.

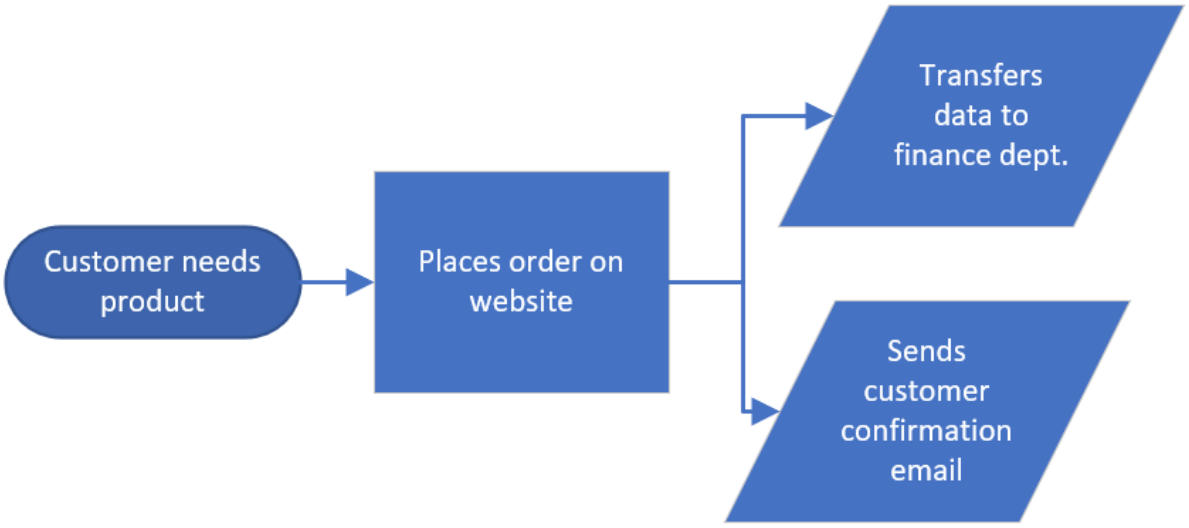


Figure 58: Basic Flowchart with Split Path

Note: Remember that the rectangle indicates a process step with a split path. If there were a diamond instead, that would indicate a decision point.

Decision points

Figure 59 shows that after data is transferred to the finance department, there is a decision point: either the customer exists in the database or not. The diamond shape is used to indicate a decision and the paths are labeled so that the audience understands what actions the finance department will take.

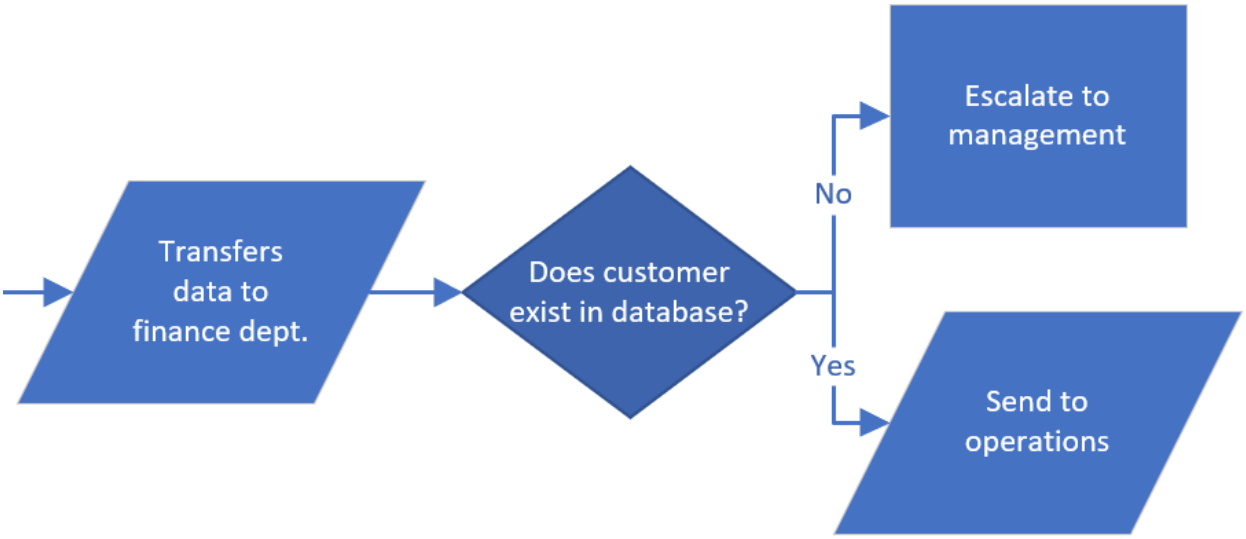


Figure 59: Basic Workflow with Decision Point

Just like the workflow diagram, the decision point paths need to follow through to completion. This often means that the path loops through additional steps and then enters back into a previous step in the process to be reviewed again.

If an incorrect shape was used when creating the flowchart, it is simple to fix. The following figure shows that you click on the shape, and then right-click for a menu to appear. Next, select the drop-down shapes menu, and the menu of additional shapes will appear. Select the desired shape, and the chart will be updated.

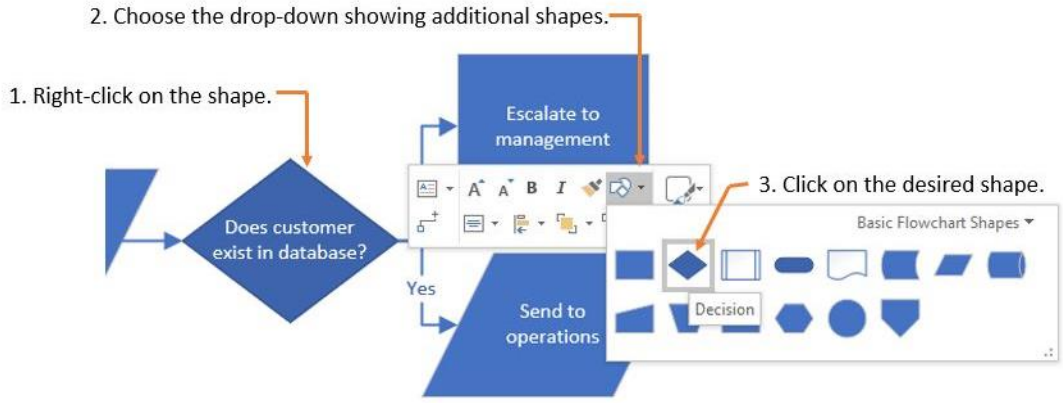


Figure 60: Changing Shape in a Basic Flowchart

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Chapter 9 Cross-Functional Flowchart

Beginning

The information inputted on the cross-functional flowchart is essentially the same as a basic flowchart, but now it's divided by which department does the activity.

Begin by creating a new **Cross-Functional Flowchart** document.

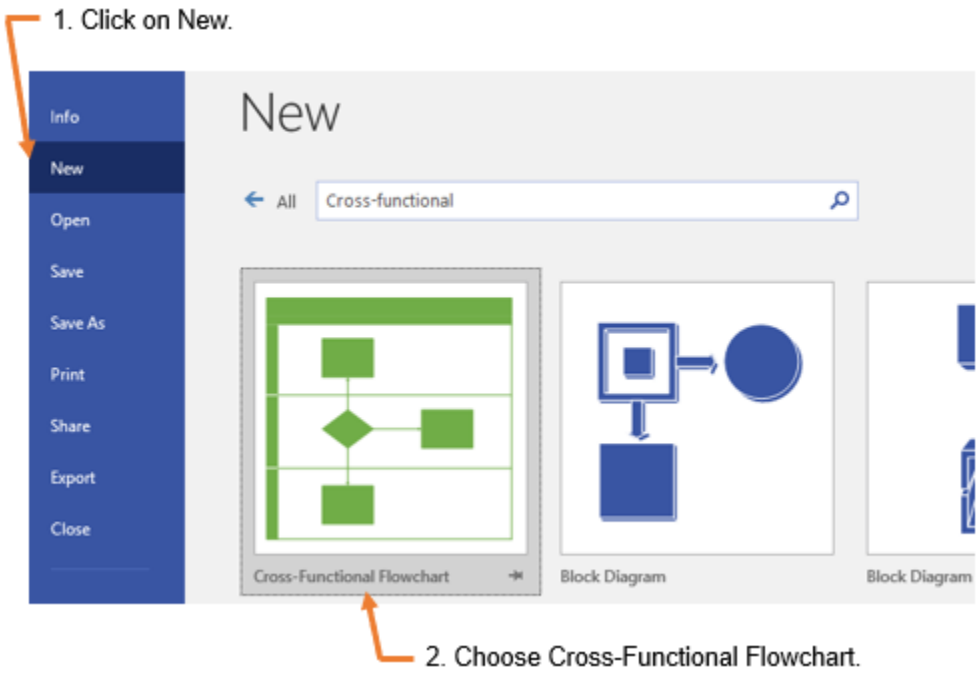


Figure 61: Create New Cross-Functional Flowchart

Next, choose to start with a template or a blank page. In this example, we will begin with a blank page. The following figure shows the prompt to choose either a horizontal or vertical swim lane orientation.

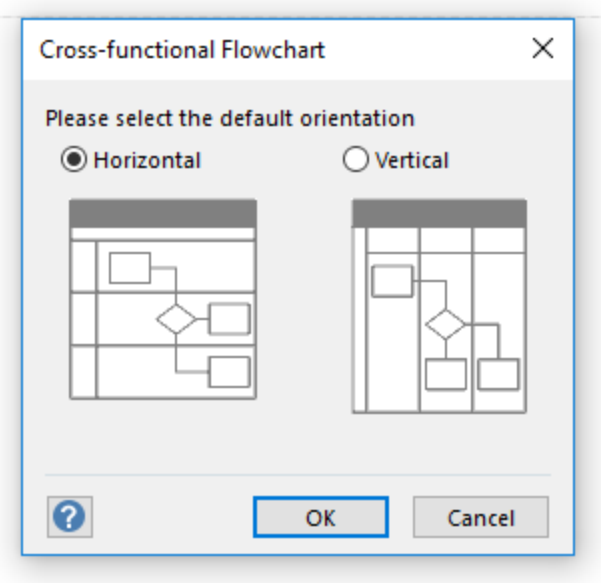


Figure 62: Swim Lane Orientation

Swim lane orientation is a preference. In this example, we use a horizontal orientation.

Swim lanes

When you're starting to create a cross-functional flowchart, it is best to first write down the different categories that will be used. They could be departments, people, or companies, depending on the scope and level of the flowchart.

Once you determine the categories, you'll know the number of swim lanes. Next, set up the swim lanes on the flowchart.

The following figure shows that the swim lanes are added by clicking on the desired swim lane from the bar on the left, and then dragging it into position on the page where you want to add it.

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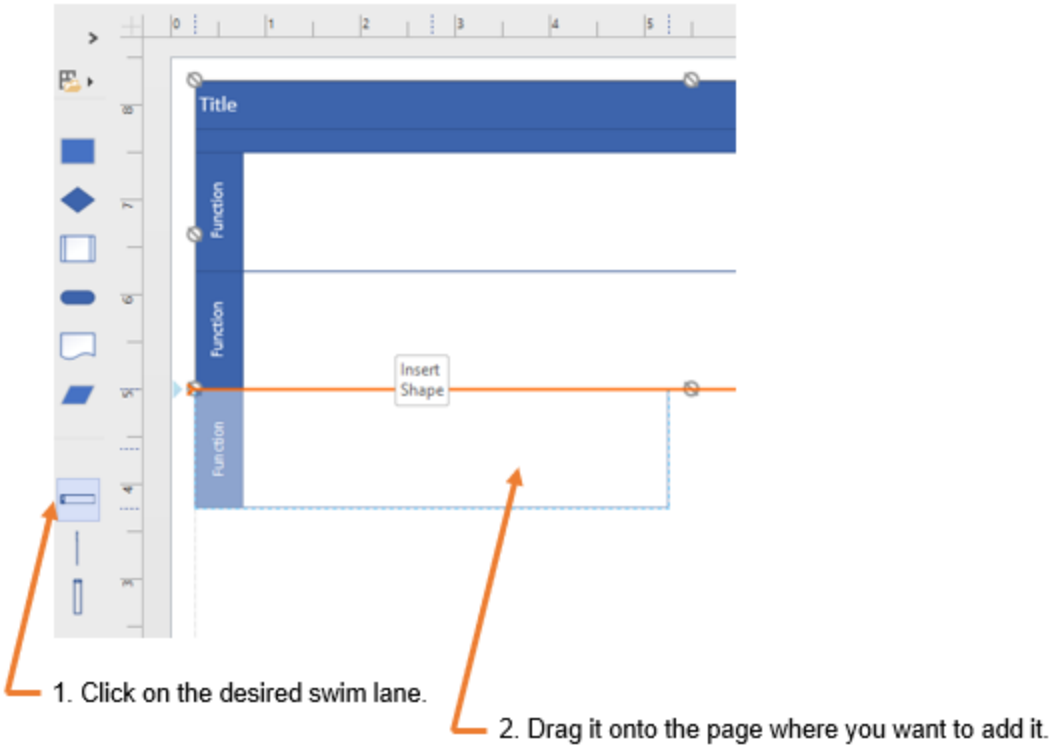


Figure 63: Add Swim Lanes to Cross-Functional Flow Chart

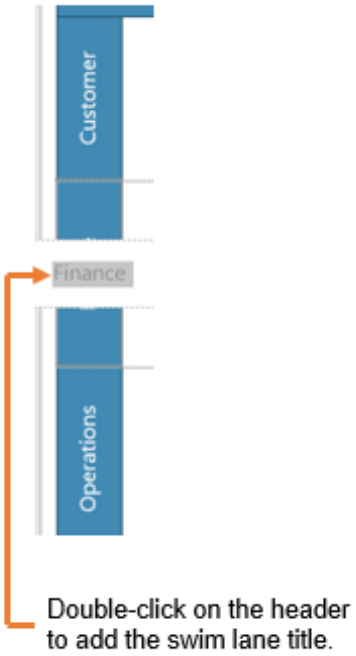


Figure 64: Adding Titles to Swim Lanes

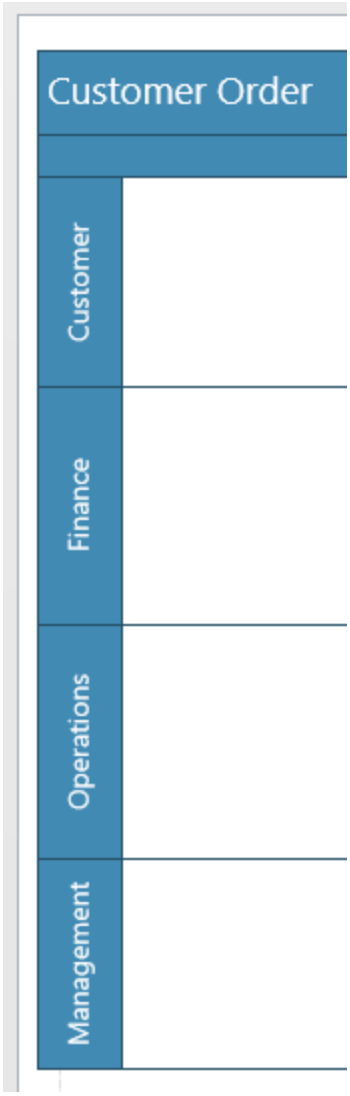


Figure 65: Cross-functional Swim Lanes

Don’t worry if you realize later that either additional swim lanes need to be added, or too many were included in the beginning. It is easy to add and delete them, and most software will adjust the process shapes into the remaining swim lanes in the same manner they were originally created.

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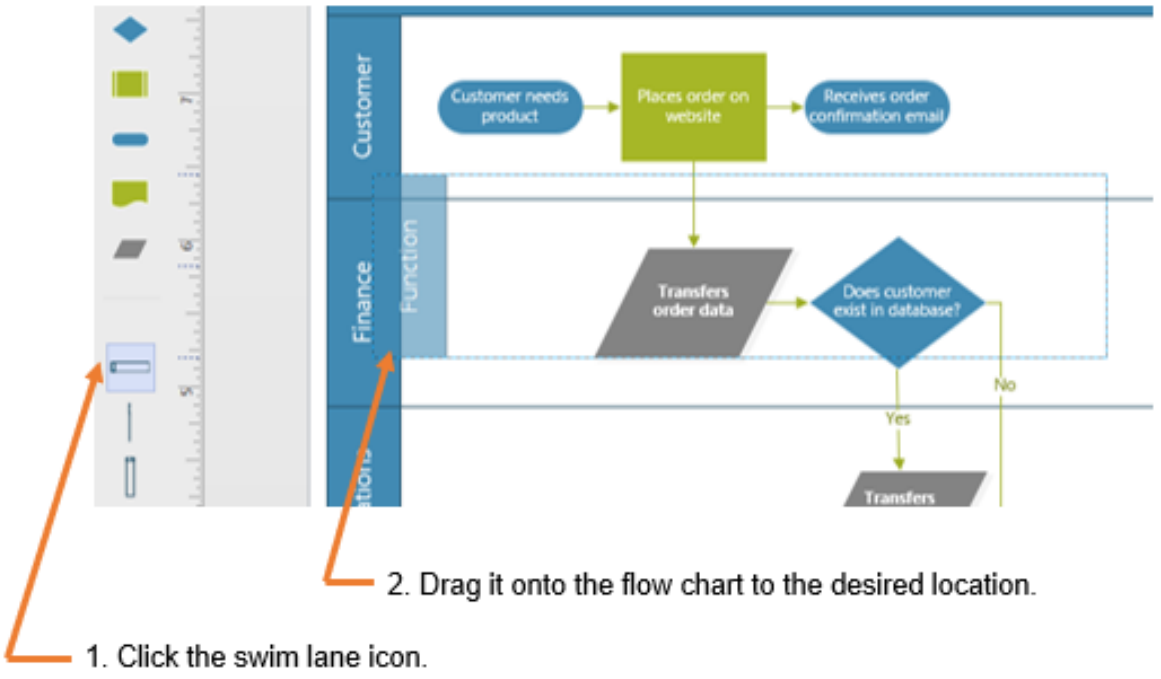


Figure 66: Inserting a Swim Lane by Dragging

Figure 66 shows that a swim lane can be added by dragging the picture of the swim lane from the shapes menu. Figure 67 shows that a swim lane can be added by selecting a swim lane and then right-clicking to insert another lane.

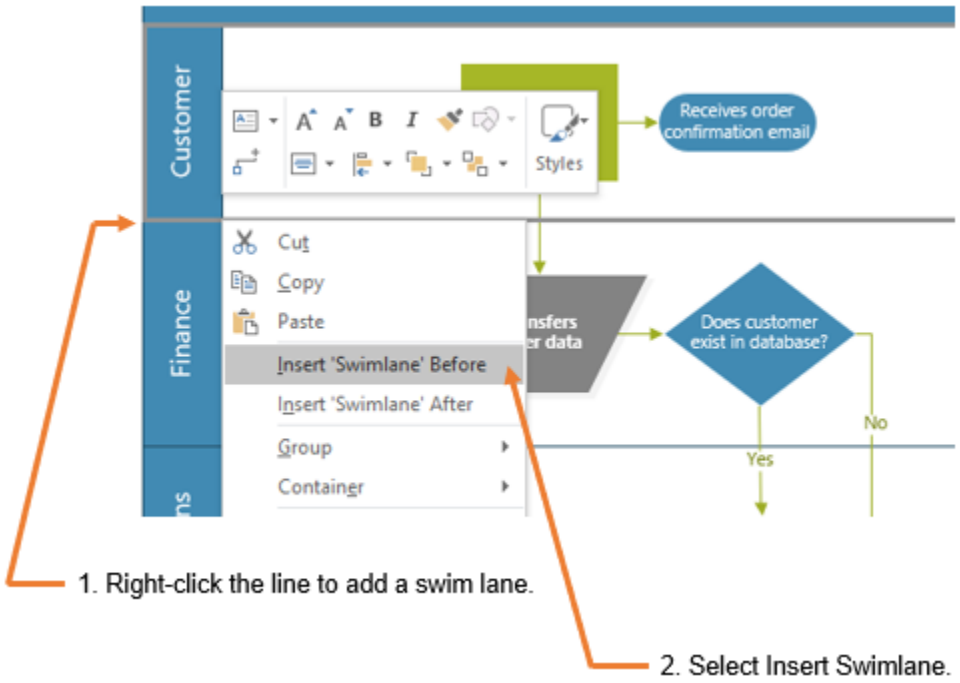


Figure 67: Inserting a Swim Lane by Clicking

Similar to a basic flowchart, the cross-functional flowchart should begin with an ellipse. Process shapes are dragged onto the diagram in the same manner. The only difference is that you drag the shapes into the swim lane that owns the process step.

You can add connections and descriptive text in the same manner as with the basic flowchart. You can also change the shapes in the same way.

The example in Figure 68 clearly shows that the customer places the order on the website, and when the data is transferred, it goes to the finance department.

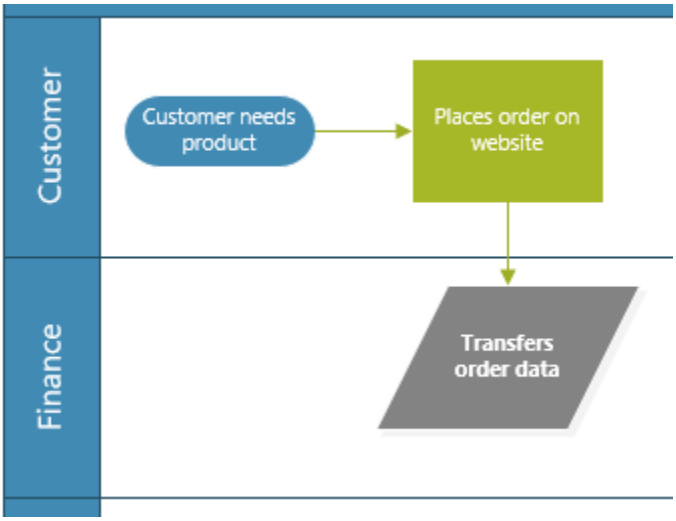


Figure 68: Cross-functional Flowchart

Split paths

When creating a split path in a cross-functional flowchart, be sure to add the process steps into the swim lane that shows which departments receive the outputs of the split path.

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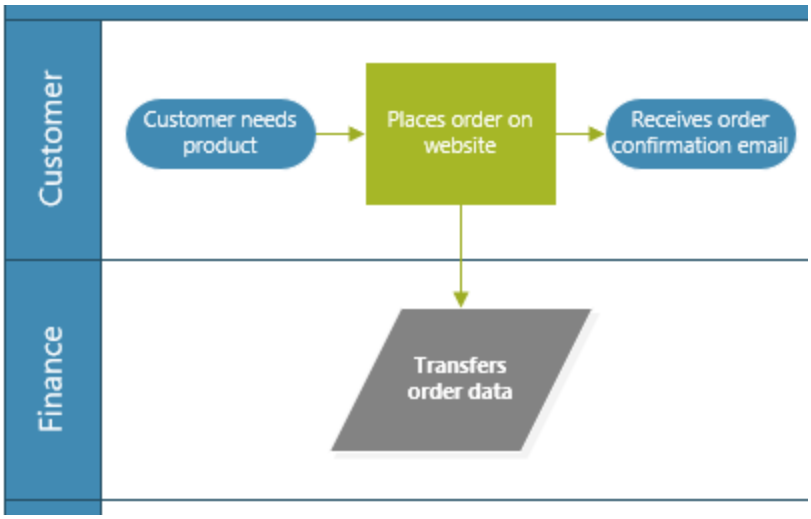


Figure 69: Cross-functional Flowchart with Split Path

For example, Figure 69 shows that when the customer enters the order into the website, order data is transferred to the finance department, and then the customer receives an order confirmation email. The path is split between two swim lanes because two different areas have ownership over those steps.

The customer has no further action to take with the order confirmation email, so the last shape in the swim lane is an ellipse to indicate that there are no further steps connecting off that one.

Note: Remember that the ellipse can be either a start or an end point.

Decision points

A decision point in a cross-functional flowchart follows the same guidelines as a basic flowchart, but it may be confusing since there are multiple swim lanes to consider in a cross-functional flowchart.

It is possible that the steps following the decision could be within the same swim lane or in different swim lanes. In some situations, a decision point could determine if the process remains within the same department or is escalated to a different department.

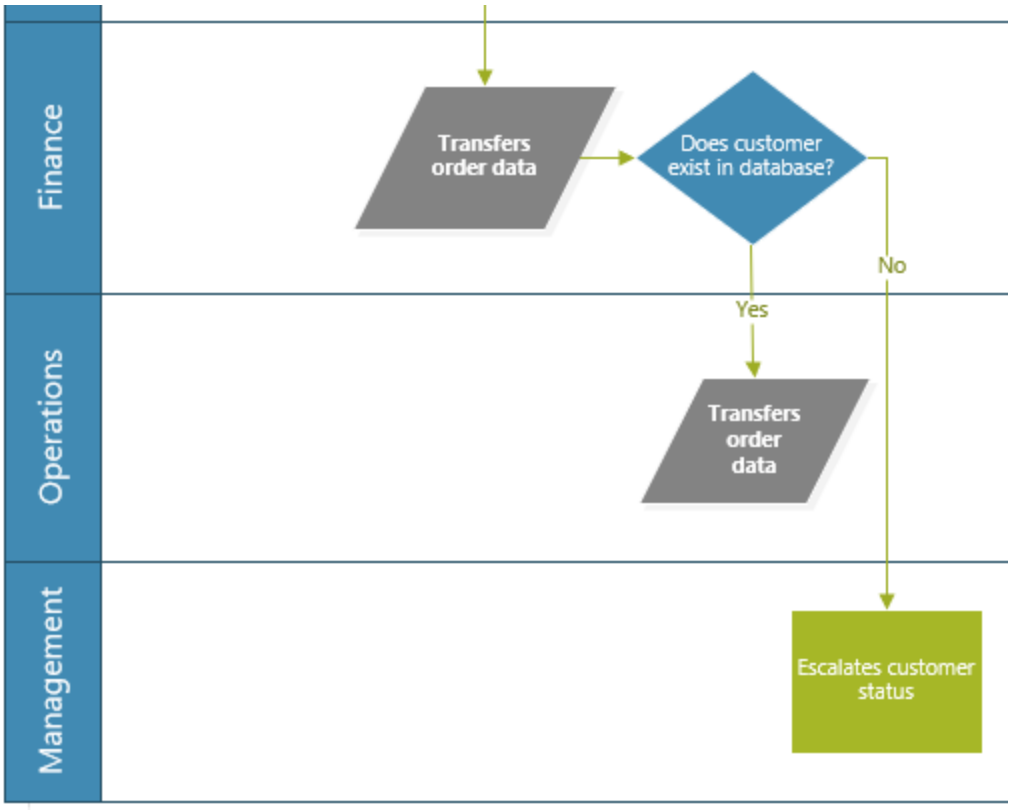


Figure 70: Cross-functional Flowchart with Decision Point

Figure 70 shows that if the customer exists in the database, then the finance department transfers the order data to the operations department. If the customer does not exist in the database, then the finance department escalates the order to management.

Two decisions going to different swim lanes is a common occurrence.

Inter-departmental business process handoffs

When process steps frequently transfer among departments, there is a larger opportunity for errors or missing information, especially if different departments run different systems to support their work.

Here are some common ways to ensure data isn't inputted improperly when transferred between departments and systems:

- Integrate specific system fields to reduce manual entry. In other words, if there is an opportunity to transfer the output data of one department directly into a system field that serves as an input for another department, then linking those fields would reduce manual entry.
- Establish a confirmation process to notify the previous team that the information was received.
- Create a queue that is reviewed at regular intervals by an assigned employee.

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Note: Each output will continue its own process until it goes to an endpoint. There should not be any place in a basic or cross-functional diagram where a process step is left unresolved or hanging open.

Chapter 10 DMADV in Process Mapping

Taking the operations of a company and trying to create a new process is a large task. Due to business development and evolution, the ideal process will also constantly evolve. So how can someone measure the impact that their project had on the business?

Six Sigma is a methodology created to reduce waste and increase efficiency. It originated in the manufacturing industry and has spread across other industries to help all types of companies improve processes.[14]

DMADV[15] is a method used within Six Sigma. It is often used by project management, and it can help determine effectiveness of an operational process. DMADV stands for:

- Define
- Measure
- Analyze
- Design
- Verify

This methodology can be used broadly to help define a goal, or even to show the results of a project.

Define

Define the scope of the part of the process that is going to be targeted for change. As an example, we will use the "customer order to shipment" process. The scope is from the point the customer places the order until the order is shipped out of the warehouse.

Measure

Choose what specific business data can be measured at this point in the process. For the "customer order to shipment" process, good measurements could include:

- Hours from customer order to order confirmation.
- Days from order to shipment.

This data should then be pulled. If it is not already captured, then go back through the company systems to compile it.

Analyze

Analyze the compiled data to determine what the precise measurements are. For example:

[14] What is Six Sigma? Retrieved from https://www.sixsigmacouncil.org/six-sigma-definition/.

[15] Villanova University & Bisk Education, Inc. Six Sigma Applications. Examining the Customer with DMADV Methodologies.

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- What is the average number of hours from customer order to customer confirmation?
- What is the average number of days from order to shipment?

Be specific with these measurements. Take the average for a week, a month, and a quarter.

Design

The new process is designed to improve the measurements of the current process. For example, say the project intends to decrease the number of days from order to shipment. Implementing an auto-invoicing process is awesome, but since invoicing generally happens as a separate process after the product ships, it will not affect that measurement. Be sure the measurement supports the defined goal.

Verify

When the new process is implemented, take the measurements at regular intervals and compare them to the original measurements to show the progress that the project has made. Improvement is a continual process, and there is always room for more. The DMADV method helps to ensure the project is moving in the right direction so that the project team gets the recognition it deserves.

Summary

Small, mid-sized, and large companies all face process issues. There is a myth that a large corporation must have become large because it operates like a steady machine, but large corporations also face issues, just like small companies do. The specific details are different, but the methodology for business process mapping to address the core issues is the same.

The world of process mapping is extensive and overlaps into project management and Six Sigma. There are problem-solving methods, such as DMADV (referenced in the previous section), and project guideline templates, such as SIPOC (referenced in Table 2), that have been created for exactly that reason.

While this text has only scratched the surface, it is now another tool in your tool belt to understand the process behind mapping a project. Now you have the basics to understand the inner workings of the next diagram or flowchart you see.

Happy process mapping!

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