



# UNIT-11

# Business Process Management

## Learning Outcomes

**By the end of this unit the learner will be able to:**

- ✓ Define business process management and related concepts
- ✓ Recognize the vital role processes play in a business

## The Fundamentals of Business Process Management

### What is Business Analysis?

The business analysis phase is vital within the business process framework. This phase involves identifying key business objectives and collecting as much data and information as possible. This data will enable you to put together a comprehensive picture of the issues facing your company and what your objectives are. Then, you will be able to design or enhance processes and procedures that enable you to reach these objectives and implement the right solutions for your organization.

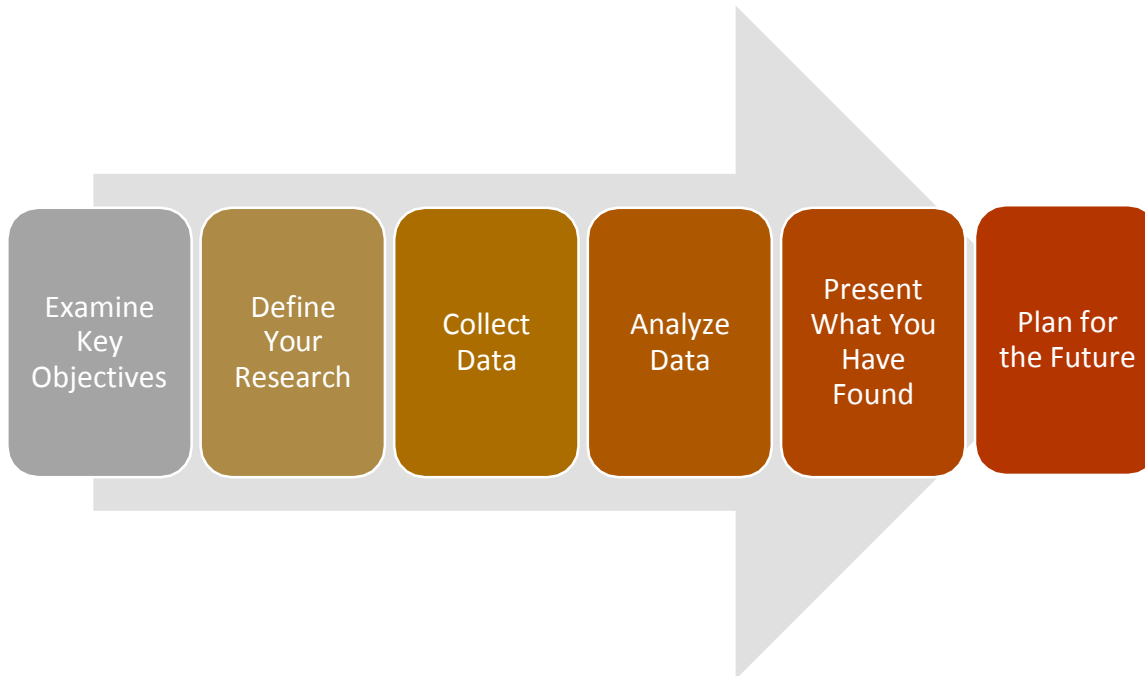
Within this stage of the business process framework, you need to ask yourself some questions to help provide focus for what actions need to be taken. The following questions can be used to guide your thinking:

- Ñ What is the purpose of this process?
- Ñ What key business objectives does this process achieve?
- Ñ How can we monitor and measure this process to make sure it is achieving a key business objective?
- Ñ How will a change or creation of a process affect the employees and structure of our company?
- Ñ What sort of training and development will be needed to implement this process?
- Ñ What resources will be used in this process?
- Ñ What might be some potential obstacles with this process?
- Ñ Is this process in line with our strategic goals? More importantly, will this process better enable us to reach our organizational goals?

Thorough answers to the above questions will help direct your thinking. Most importantly, the answers you provide will enable you to determine what course of action to take when implementing your process changes.

### How Do I Conduct A Business Analysis?

There are six essential steps to conducting a business analysis:



## Breaking Down the Model

### Examine Key Objectives

This stage is about taking a close look at the strategic goals of your organization. What is it you want to do?

Let's take selling a product as an example.

- Ñ What is the product you want to sell?
- Ñ What is your target market?
- Ñ How much do you want to sell and in what time frame?

Focusing on your key objectives enables you to create and enhance processes that will provide the right solutions and help you achieve your key objectives. Additionally, examining your key objectives enables you to narrow your focus and concentrate on what is important.

### Define Your Research

Next, you need to examine what's out there. How have other organizations like yours implemented new processes? How have these processes impacted their business?

In addition to your outside research, you also need to do thorough inside research by collecting data from internal customers, such as employees, management, and customers.

### Collect Data

This stage is all about getting the information you need to make the argument for a new process. This information can be acquired through a variety of methods, such as:

- Ñ Interviews
- Ñ Surveys
- Ñ Focus groups
- Ñ Discussions

**Analyze Data**

This stage is where you figure out how to implement your process. During this stage, you will need to examine how this process will affect different parts of your organization. Additionally, you need to make a plan to support these changes and the people affected by it. For example, if a new process requires training and development for some staff members, you need to figure out how you will provide this training.

As well, you will need to investigate what resources you need to carry out your initiative. How much time, money, or manpower is needed to enact the change? How will you communicate the changes to employees?

**Present What You Have Found**

In this stage, you put your findings in a cohesive package to share with others and present your recommendations. This stage explains your research to gain support for your initiative.

**Plan for the Future**

This is your call for action! Once you have completed the previous stages, you can now make an informed decision of where to go from here.

**What is Enterprise Content Management?**

**Test Your Knowledge**

**How would you define content?**

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**How does your business manage its content?**

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**Why is content important? Is all content important?**

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**What are some examples of content in your business?**

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**What are some examples of content that you deal with at work?**

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### Defining Content

Within an organization, content exists mainly in written documents. These documents can be about anything the organization deems important enough to write down and share, such as organizational processes or the strategic goals of the business. The challenge is the **volume** of information or content an organization produces. Think about how many documents go through your hands on any given day, week, or year.

### Defining Enterprise Content Management

In order for content to be effectively used, organizations need to have tools and procedures in place to manage it. In other words, they need to create a system that supports the storage and retrieval of the information. **Enterprise Content Management (ECM)** offers a systematic approach to help organizations manage this large volume of content.

## Enterprise Content Management Model

### Model Overview

Here is how Enterprise Content Management systems work.



## Breaking Down the Model

### Capture

This phase is concerned with capturing content. This means using technology to convert content into an electronic format. For example, a written document may be converted into a digital file by scanning it into a computer.

### Manage

This stage examines how you will manage the digitized information. Many organizations use a Content Management System (CMS) with a document management system. A CMS is a tool that helps users input a variety of content (such as recordings, sound bites, documents, pictures, and videos) while adhering to system parameters to ensure quality documentation.

Within the CMS, there needs to be a document management system. The document management system is used to:

- Ñ Capture data: Users scan or input information into the system.
- Ñ Classify data: Users and content managers use keywords, dates, and authors to identify data for easy retrieval.
- Ñ Search and retrieve information: Users find data using search terms and other tools.
- Ñ Version data: Allows users to return to earlier versions of a document and view the progress of documents.
- Ñ Limit access: Certain documents can be sensitive. Limiting access gives only authorized users the opportunity to view certain documents.
- Ñ Save and back up documents: The system must be able to protect your information.

There are many content management systems to choose from. When selecting your organization's CMS, you need to look at the goals of your company. What does your company hope to do with this stored knowledge?

Additionally, you need to look at the CMS's ease of use. How easy is it for people to input knowledge into the CMS?

You should also look at your budget, training needs, and your company's existing resources. How much will this CMS cost? Consider if you will need training on the system, or if your organization will need to upgrade existing computer systems to support the CMS.

Finally, do your research. Compare various systems to find the right solution for your organization.

### Store

The third stage of the ECM process provides temporary storage for content that will not be saved in the long-term archiving facilities of the organization.

### **Preserve**

This stage provides long-term storage for static documents that may need to be accessed at a later date.

### **Deliver**

This stage is concerned with providing users access to the content of their business. In this stage, the ECM communicates with other systems to streamline information and allows users to access the data.

### **The Role of ECM in Business Process Management**

Business process management uses workflow engines to optimize and automate processes. ECM's can interact with workflow engines by providing it with the documents it needs. We will have a closer look at workflow engines later in the course.

## **What is Business Process Re-Engineering?**

### **Test Your Knowledge**

**When might re-engineering be a better solution than building on an existing process?**

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### **Case Study**

Jane is a senior sales manager with Zamhouse, a business that provides housing for workers in remote camp sites. Jane has been with the company for about 10 years. She has recently been assigned the task of asking customers for feedback on the quality of services and products they have received from Zamhouse. From the feedback, Jane identifies that while customers are happy with the products they have received, they are very unhappy with the quality of service. In particular, the speed, consistency, and accuracy of service are not meeting customers' expectations.

Jane then decides to review Zamhouse's customer service processes to figure out how to provide more value for customers. After reviewing the processes, Jane believes that a lack of communication among internal clients (employees) is the issue. She determines a course of action for bridging this gap, implements a solution, and gathers feedback from customers to check for improvements.

To Jane's surprise, the customer response is more negative than when she initially sought their feedback. Jane then feels that maybe communication training among staff may solve the issue. But will it? Maybe the problem is that the existing customer service process needs to be re-engineered.

If Jane has tried repeatedly to optimize the process to no avail, it might be time to scrap the process and create a new approach.

## About Business Process Re-Engineering

**Business process re-engineering (BPR)** advocates that businesses need to radically restructure their organizational processes to achieve their goals and be successful. This means that businesses may need to eliminate some of their existing processes and start from scratch.

BPR also introduced the concept of **workflows**: an IT solution that focuses on sharing documents throughout departments and organizations. Additionally, BPR argues that businesses need to divest processes that have no value, rather than figuring out ways to use technology to automate the process.

With the BPR model, the energy put forth to simplify and optimize existing processes is intended to give businesses the opportunity to offer better customer service and to minimize the resources needed to provide this customer service or value.

## Role of BPR in Business Process Management

Business process management actually grew from a variation of business process re-engineering. Additionally, while BPM advocates the use of continuous improvement on processes, we all know that you can only tinker with an idea so much. Sometimes, the best way to get the most from your processes is to re-engineer or re-build the process.

## Business Process Re-Engineering Model

### Model Overview

Here is the model for business process re-engineering.



## **Breaking Down the Model**

### **Identify Organizational Gap**

In this stage, stakeholders come together to identify the root of the problem. They need to thoroughly map out the issue and create a problem statement to guide their thinking. Additionally, they need to discuss specific goals attached to the process and determine how to measure the success of this process.

### **Identify Existing Process**

This stage involves carefully mapping out all of the activities involved in your existing process. Let's say that your business is to deliver books to customers. Let's work backward to identify the steps involved in getting that book to the customer. The customer receiving the book is the final step in the process. Previous to this, a service provider had to deliver the book. Maybe this was done through a shipping provider you have a business relationship with. Previous to this, the order had to leave the warehouse it was stored in. Before that, it arrived at the warehouse from the printing house.

An important point to remember when mapping processes is that the main tasks may each have sub-steps that have to be mapped as well. For example, let's say that the customer is not home to receive their order. What happens then? Where does the order go? What procedures are in place to ensure the customer receives their order?

This step is vital to business process re-engineering since you need to analyze "as-is" processes in order to create "to-be" processes. Detailed mapping also allows you to see flaws in the process and learn from these mistakes.

### **Create Processes to Fill Gap**

Now, based on what you have learned from your process map, you need to engineer a process to fill a perceived gap in your organization.

Imagine that you are delivering books and the shipping provider has told you that costs for shipping will be increasing by 25% within the next three years. Rather than pass this cost onto your customers and potentially lose business, you look at your existing delivery process and decide that it needs to be re-designed to accommodate this change.

### **Design a Plan for Implementation**

Now that you have created your process, you need to design a plan for implementing the process. Things to consider include:

- Ñ What solutions will you use to support your initiative?
- Ñ How will you automate and increase workflow to get the greatest efficiency from your process?
- Ñ What support will you need to provide for employees, shareholders, management, and customers to help them through this transition?

- Ñ How will you measure the success of your new process?
- Ñ What new roles need to be created within your organization to support the new process?

**Evaluate New Process**

Once you have implemented your new process, you need to evaluate it by collecting information and data. The data you collect should answer the following questions:

- Ñ Does the process reach, succeed, or miss the objectives it was meant to achieve?
- Ñ With some changes, could the process become more efficient or simpler?
- Ñ Does the process succeed in giving the customer more value (better service and product)?
- Ñ What is the attitude of your customers (internal and external) toward this process?
- Ñ What are your shareholders' attitudes toward the process? Do they see the process as a success?

These questions should give you some good ideas on how to make your re-engineered process a greater success.

**Defining Business Process Management**

**What is Business Process Management?**

**Test Your Knowledge**

**What are processes? Why are they important?**

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**Who is affected by how well your organization's processes function?**

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**How might we manage a process? What steps might be involved?**

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**Why is it important to examine existing processes? How can it help our organization?**

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**Does your organization have measures in place for managing its processes? If yes, describe them.**

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**Give an example of a process you perform daily at work. An example could be anything from data entry to making coffee before everyone shows up.**

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**What are Processes?**

Processes are everywhere. We deal with them every day. There is a process for putting gas in your car: you must take the gas cap off the fuel tank before inserting the gas nozzle and starting the flow of gas. Likewise, every business has a variety of processes in place to deal with the day-to-day operations of the company. You might have a process for data entry, production, and/or dealing with customers. These processes have been implemented to enable us to perform as a company.

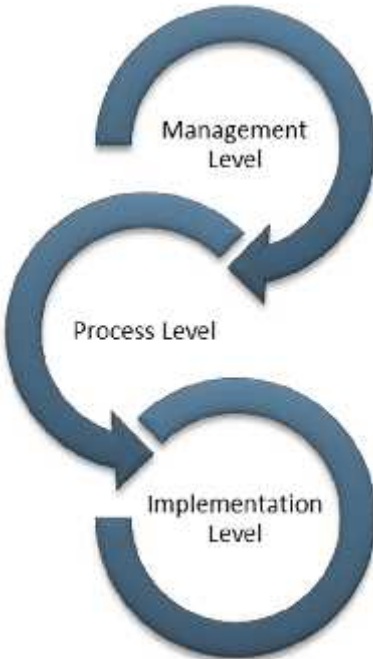
We must also understand that a business is a fluid enterprise; it must move with and meet the expectations of the customers. Therefore, it is vital that we manage our business processes to make sure they are still working and achieving the goals they were intended to reach.

**What is Business Process Management?**

**Business process management** (BPM) is a variety of tools and techniques used to support and manage the design, implementation, and improvement of operational procedures within an organization. These operational procedures are a set or sequence of activities that must be completed to reach a goal.

**Layers of Business Process Management**

Here is a model to illustrate the layers of business process management:



### Breaking Down the Model

The layers of BPM move top-down. We will start by examining the **Management level**, which is concerned with strategy. Essentially, this layer focuses on creating strategic goals that the organization can move toward.

Questions that are asked in this phase might include:

- Ñ Where is our business going?
- Ñ What is our ideal, desired future state?
- Ñ What is the vision for our company?

In order to achieve the ideal future state, companies need to put **processes** in place that reflect their strategic goals. This is the second level of the BPM process. For example, if a strategic goal is to offer clients faster service by shortening manufacturing time on a product, you need to examine and improve your existing production processes.

Questions that are asked in this phase might include:

- Ñ What are the processes we currently have?
- Ñ How can we build upon and improve these processes?
- Ñ Do we need to create new processes to achieve our goals?
- Ñ Are our existing processes performing and giving us the results they were meant to produce?
- Ñ How can we incorporate technology in our processes to make them more efficient?
- Ñ How do we add value to a process?

The final stage in the BPM model is the **Implementation** level. This level is concerned with projects to develop resources for existing and new processes. This stage is a blend of technological solutions and human resource development.

For example, when seeking to improve your processes, you may consider implementing a new computer program to support your initiative. Then, you will need to invest in training development and possibly the creation of a new position to support and monitor the application. Balancing people and technology helps businesses maximize their processes and achieve the strategic vision or goals of the company.

## Brief History of Business Process Management

Business process management (BPM) is a relatively new idea in the business world. In the 1980's, the idea of BPM came from forward thinkers involved with business process re-engineering (BPR), a concept which advocated that organizations needed to use technology to overhaul their processes.

While a complete overhaul might radically improve a business, it could be a risky move. Many owners and shareholders were hesitant about completely re-engineering their processes. A school of thought began to emerge from people involved in the BPR field. They wondered if there could be a subtler, more gradual way to improve processes. They also wondered if a concept could be created that would take into account the role of both people and technology in process improvement.

At this time, IT solutions began to be developed that would support the beliefs of BPM. These early solutions concentrated on workflow tools, which automated tasks or series of tasks involved in a process in the effort to increase flow. The thinkers behind these workflow tools believed that businesses needed solutions that could model human-based processes and dramatically improve the efficiency and quality of business operations.

With workflow tools redefining how work got done in organizations, businesses achieved cost reduction through automation, reduced cycle times, error reduction, elimination of redundancies, and better control over their processes.

With the software component firmly in place, BPM shifted its focus to the more human-based activities of process management. Various improvement approaches (such as Six Sigma and Lean) were adopted by organizations under the BPM model.

By melding technology and human-based approaches, BPM flourished. The ideas promoted by early BPM thinkers eager to break away from the radical field of BPR were successfully adopted by businesses and offered organizations a more conservative approach to taking control of and optimizing their processes.

## What are the Benefits of Business Process Management?

### Test Your Knowledge

How would improving processes benefit a business?

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How would improving processes benefit a business' customers?

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How would improving processes benefit the work you do in your organization?

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### BPM Benefits

There are many business benefits with business process management. Changing and enhancing processes to suit evolving business needs can transform an organization and give us a competitive edge that will positively impact our bottom line.

In addition to bottom-line benefits, BPM can positively impact our organization in a variety of other ways.

#### Increased Process Efficiency

Managing processes leads to higher process efficiency. Examining processes and measuring them ensures that the processes we have in place are still meeting the goals they were created to achieve.

#### Increased Employee Satisfaction

Managing processes can also lead to increased employee satisfaction. Establishing processes to carry out the daily functions of the business enables employees to do their jobs with no confusion. Additionally, managing processes to ensure they are as simple as possible can help alleviate employee frustrations.

### **Increased Customer Satisfaction**

By creating, monitoring, and evaluating processes, we can ensure that we are meeting the needs and expectations of our customers.

### **Increased Productivity**

Monitoring, evaluating, and optimizing processes ensures that we are operating at our most productive level.

### **Decrease in Costs**

Improving productivity and using technology to automate processes reduces costs. By automating processes, we also cut down on the occurrence of human error, thus saving time and money. By cutting out redundancies, reducing waste, decreasing duplication, and streamlining labor-intensive tasks, BPM can drastically improve an organization's bottom line.

### **Increased Quality and Consistency**

By adopting BPM in your organization, you are not only creating and enhancing processes; you are ensuring process standardization and reducing variability and unpredictability. This enables you to offer higher quality, more consistent processes tailored to your organization. In turn, these higher quality processes enable you to offer better services and products.

### **Summary**

In summary, business process management is a way to maximize and manage organization processes in order to reach strategic goals. This is achieved by using a variety of tools and techniques designed to get the most from processes.

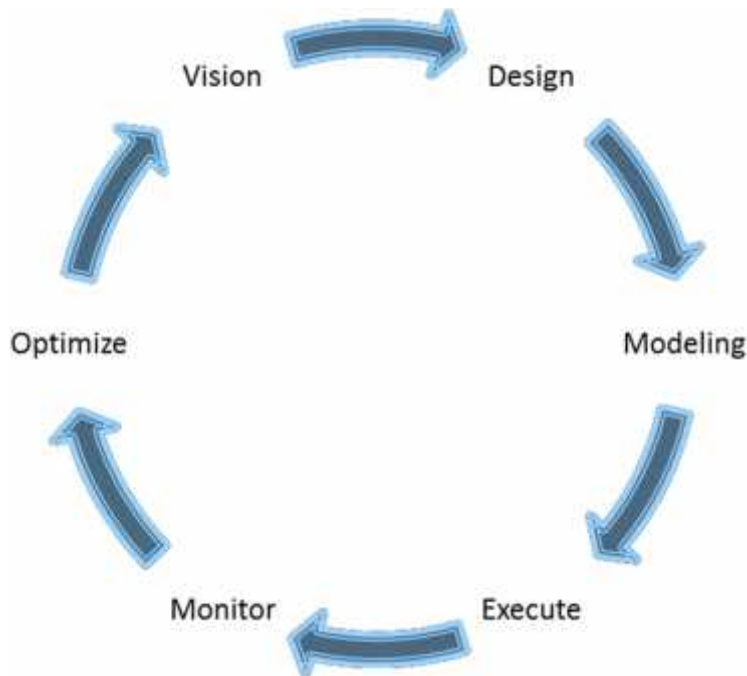
## **The Business Process Life Cycle**

### **Introduction**

The business process life cycle (BPLC) details how to create, improve, and enhance business processes. Its goals are increased productivity and efficiency, decreased costs, and better customer service. The BPLC focuses on changing processes in the effort to create value for process users (employees) and the people on the receiving end of processes (customers). In this session, we will introduce the BPLC. Later on in the course, we will focus on each stage in depth.

### **The Business Process Life Cycle**

The business process life cycle looks like this:



## Breaking Down the Model

### Vision

This stage involves looking at the big picture of your organization. What do you hope to achieve? What are your strategic goals? Once you have answered these questions, you need to focus on developing and sharing a vision of the process(es) needed to achieve your goals. The Vision stage focuses on what components are involved in the big organizational picture.

### Design

In this stage, you begin to design the processes you need to take your business to the next level. This stage focuses on how your business will implement its vision. You will need to concentrate on research and gathering information from inside and outside the organization.

In this phase, you will be asking questions like:

- Ñ What processes does our business currently have in place?
- Ñ What processes would we like to improve?
- Ñ How will we define improvement?
- Ñ How will we measure improvement?
- Ñ What have other businesses like ours done to improve their processes? What can we learn from their success or failure?

Once you have gathered information, the next step is to develop a model of your existing process. When doing so, you should try to see all of the activities involved with your process. Your goal is to create a flow chart that gives you a road map of the process you would like to improve. With this visual aid, it

becomes easier to see where your process is bottlenecking and what you can do to increase the productivity and efficiency of this operation.

As well, a thorough model of a process allows you to look at and manipulate different variables associated with the process in a risk-free environment. When manipulating your model, you should be asking yourself questions like:

- Ñ What if we cut out this activity in the process?
- Ñ Would that action simplify the sequence?
- Ñ Would it increase productivity and efficiency?

### **Modeling**

In this stage, you will be reviewing the flow chart you created in the Design stage. Using this information, you will be conducting what-if analysis and testing the design to make the process as efficient and foolproof as possible before implementing it.

### **Execution**

This stage is concerned with implementing the process and using process management technology to make your process more efficient.

### **Monitor**

This stage is concerned with tracking the progress of your process and extracting data about the process using business activity monitoring (BAM) and process mining. Your goal is to identify potential problems and implement appropriate solutions.

### **Optimization**

This stage involves looking at the information you have collected in the Execution and Monitoring stages to improve the process. Once you see the process at work, you can identify bottlenecks and implement changes to address these roadblocks.

## **The Vision Phase**

### **Creating a Vision and Seeing the Big Picture**

#### **What is a Vision?**

A vision is an idea that concentrates on bringing an abstract concept to life. Imagine your cell phone. This device you hold in your hand started as a vision: a belief by a company that this kind of technology could exist. However, a vision without action exists merely as an idea.

When we develop a vision, we look to the future. We imagine where we want to go. We are conceptualizing change – that is, we are moving toward a desired end which will involve ingenuity, innovation, problem solving, and change. To facilitate this change and to achieve our initiative, we need to put support mechanisms in place. In the case of the cell phone example, a company developed the vision and then developed the processes and procedures that would allow and support this vision coming to life.

But how do we create a vision? What does a vision have to do with the big picture?

### Creating a Vision

When creating a vision of your future company, it is beneficial to look at the current state of your organization. Consider:

- Ñ What are your organization's current beliefs, attitudes, and values?
- Ñ In what type of environment does your organization currently exist?
- Ñ What are your company's current strategic goals?

Looking at the current state of your business enables you to tailor your vision to where you are and where you want to go. To make sure you're seeing the whole picture, reach out to others within the company, and allow others within the organization to inform your thinking. Talk to your stakeholders and find out where they see the company going. Discuss the future of the company with your CEO and senior management.

With the present in mind, you can begin to focus on the future by asking yourself some key questions, such as:

- Ñ What is our company's ideal future? Where are we going?
- Ñ Where do we see ourselves in one year? Five years? Ten years?

When answering these questions, try to focus on the dream and try not to criticize or edit the idea. A big part of creating a vision is being open to new ideas. Leave the editing process until later to encourage unfiltered creativity. An additional important point is to remember to be positive when creating your vision. Negativity is a sure way to kill your creativity and the vision.

When creating your ideal future, keep in mind that the present structure of the organization may not support your future vision. Advancements may need to be made and you might have to be open to huge changes to your current operational structure to make your vision happen.

Once you have developed an ideal future for your company, you need to narrow your focus. A huge vision is great to have, but it can leave us wondering where to start and what changes to make. Begin by focusing on one change and make a plan to reach this goal.

For example, let's say that the vision for my company is to reinvent the way we manufacture our product. I could begin by changing the whole system or I could change one aspect of the manufacturing

process. The second scenario is much more preferable as it minimizes risk and use of resources. It also gives us time to properly plan the next stage of change. As well, incremental change allows people within the organization to adjust. Without proper planning, changing too much too soon can leave employees feeling confused, unsupported, and frustrated.

Remember that creating a vision is more than just “pie in the sky” dreaming. Without a clear vision of the future, we cannot work backwards to put processes in place to reach our idea.

### **Test Your Knowledge**

**How might we build a vision?**

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**Is there a difference between a vision and the big picture?**

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## **Sharing Your Vision**

### **Next Steps**

Once you have created your ideal vision, it is important to share this vision with others in the organization. You will need their help and support to implement your change and make your vision a reality. In order to get company support, you need to be clear about your ideas and how these ideas will affect the organization.

### **Benefits of a Shared Vision**

Sharing your vision can have some great results. Here are some benefits to consider.

### **Everyone on the Same Page**

When you share your vision, it encourages a more interconnected way of thinking between all levels of your organization. This is vital since making a successful change within an organization takes many

people. Additionally, having everyone on the same page can increase the speed, accuracy, and efficiency of implementing the solutions needed to achieve your vision.

### **Creates a Sense of Community**

When you involve people in your vision, it fosters a sense of community and collaboration. People within the organization should be encouraged to actively participate and contribute their thoughts and ideas about the changes taking place. Other people may offer ideas, strategies, and solutions that you may have overlooked.

### **Increased Productivity**

Involving people in your initiative can help increase productivity and shorten the time frame for your change to be delivered.

### **Increased Morale**

Have you ever been left out of a decision that fundamentally affected the way you work? How did it make you feel? Alienating people or leaving them out of decisions that will directly affect them can have a negative impact. Organizations that include employees in change efforts send the message that they care about what their employees think. This can help increase employee morale and generate support for the new initiative.

### **Impact on Culture**

When we share the big picture and encourage input from employees, we are saying that our organization is one that values and appreciates collaboration. To share your vision successfully, you need to evaluate the current culture of your company. Does your company encourage competition rather than collaboration? Does your company endorse a way of thinking and not follow up with the appropriate actions?

## **Test Your Knowledge**

### **Dreaming Big**

Imagine that you are starting a new business with your group. Your business will revolve around adventure travel, which brings groups of travelers to foreign places to do fun activities and experience a different culture.

**Create a name for your business.**

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**What does your business hope to achieve?**

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**How do you hope to achieve it?**

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**Use the space below to draw your individual vision.**

**Use the space below to draw your group vision.**

## The Design Phase

### Gathering Information

You've created and shared your vision. Now what? The next phase of the business process life cycle is the Design phase. In this stage, you need to begin collecting information about the process you would like to create or enhance. Based on this information, you need to then identify the problem or challenges facing your organization. Then, you can start thinking about the process solution(s) you want to implement.

#### **Gathering Information: Where to Look and What to Consider Amount of Human Interaction with Technology**

When designing or enhancing a process, you usually need to blend technology with human interaction. To figure out this mix, you need to consider the amount of human involvement in the process. Ask questions such as:

- Ñ What type of work are people doing to complete the process?
- Ñ Are they working collaboratively or alone?
- Ñ Who will be involved with the process?
- Ñ What level of involvement will they have?

Answering these questions will help you determine the design of technological solutions and how work will be allocated within these systems.

Additionally, you will need to determine who will be monitoring the technology. What will be their role and level of involvement with the system to ensure the tool is operating correctly and serving its function?

#### **Level of Automation**

When designing your process, you need to consider the amount of automation that will be involved. How much of the process will be performed by people and how much by workflow engines? Additionally, if you have multiple IT solutions operating within a process, you need to figure out how these tools will

communicate with each other. Does the information that needs to be communicated between systems happen automatically, or does it need a person to monitor it and ensure this information is shared?

For example, let's say that you have chosen a technological solution for data gathering. However, your process requires the retrieval and use of many documents. You decide to figure out a way for your new solution to integrate and communicate with your Enterprise Content Management system.

Questions you will need to answer include:

- Ñ What documents need to be accessed from your Enterprise Content Management system?
- Ñ When do they need to be accessed?
- Ñ What is the volume of transference of information between the two systems?
- Ñ Will the exchange of data be a single event between systems or continuous?

Answering these questions will enable you to tailor your level of automation to get the most from your technology and fit the needs of your process.

### **Role of Content**

When examining the role of content in your process, you need to determine if your process is document-driven, meaning it relies on the content of a document to determine the workflow. For example, let's say that you are working at a bank and you receive forms with the financial information of your customers. In order to process them for a new service, such as a line of credit, you need this information. The content of the document is vital to allow the process to continue. Without this document, you are unable to complete the transaction and give the customer the product.

The role of content will impact the design of your process and the choice of IT solutions.

### **Volume of Work**

The next thing you will want to gather information about is the volume of work that will be going through your process. Processing one million transactions per day is very different from processing one hundred transactions per month. Your process will need to be designed to support the volume of work it will see.

You will also need to think about what methods you will use to distribute work within your process. Ensuring that work flows well will ensure efficiency and prevent bottlenecks.

### **Complexity of Process**

When designing your process, you need to examine how complex the process will be. Mapping your process and breaking it down will enable you to see the steps needed to carry out your task. Additionally, by mapping the process, you will be able to see who is affected and needs to be involved in the process, what information you have, and what you need to figure out to implement the process.

## Defining Your Problem

Once your information has been gathered, the next step is to define the problem clearly. We have eight suggestions to help you do this as easily, efficiently, and effectively as possible.

### Rephrase the Problem

Sometimes what we want to see is not what other people see. When the boss sees sales drop and he tells his team to work harder, he's not likely to see much of a result. He's telling people what to do for his benefit. Unfortunately, this approach does very little to engage people.

Instead, he could rephrase the problem and ask people what they feel connects them to their work. He can take an interest and ask what they can do to make their jobs easier or make work processes more efficient. In this way he engages people, finds out what could be affecting their sales, and encourages them to come up with solutions instead of just telling people to be "more productive." By showing people what's in it for them and involving them in the problem-solving process, the boss is motivating his employees to find creative solutions.

If you have a hard time with wordsmithing, grab a dictionary and thesaurus (or look at online versions) and play with your problem statement by changing it several times. Start with one word or short phrases. If you don't enjoy word games very much or feel yourself struggling, ask for help from a colleague or friend.

Here's an example. If the problem seems like "Our production costs have increased," start replacing words to become clearer about what's going on:

- Ñ "Our sales are down slightly from last year."
- Ñ "Our customer volume is down from last year."
- Ñ "Wages have stayed the same."
- Ñ "Production costs are the same from last year."

By doing this type of rewording, you can narrow things down and determine that the real problem isn't that your production costs, it is the decrease in sales. Finding out why will be your next step.

### Expose and Challenge Assumptions

We assume a lot. It's human nature. Unfortunately, assumptions can really interfere with getting an accurate problem statement.

When defining your problem, write a list of as many assumptions you can think of, especially the obvious ones. This helps to clarify the problem. Then, test each assumption and find out if some of them are actually wrong, or if you imposed them on yourself.

One common assumption is to say, “We’ve never done it that way, so we won’t be allowed to do it in the future.”

### Use Facts

Sometimes we see a problem and just want to jump in and fix it. However, we are also generally responsible for things like time and money, so it’s important that we look at the details and determine what the problem really is. Find the data you need to define the problem. If you need creative aids to help with your thinking, use them. Draw a picture or a graph to help gather and focus your thoughts. Ask questions and gather information that honestly describes the problem so that you can get specific about it.

### Grow Your Thinking

Problems are often related to other problems. They can be a small element of a larger issue, so this element of problem definition includes considering the problem as part of something larger. To do this, you make the problem more general.

Ask questions such as

- Ñ “What’s this connected to?”
- Ñ “What is this an example of?”
- Ñ “Where have we seen this before?”

Leverage word play and replace specific words with more general ones. “Budget” becomes “finances,” “office desk” becomes “furniture,” “mouse” becomes “pest.”

### Shrink Your Environment Temporarily

Since each problem is likely made up of smaller problems, one way to figure out the issue is to split it into smaller pieces. Break the problem down into subsections. This allows you to consider specific details about each factor involved in the issue. This will help you gain an understanding of the bigger problem, as well as the effect that the smaller problems have on one another.

An example could be that you need to increase your income by \$2000 a month. Break this problem down into manageable chunks.

- Ñ I have been spending \$1000 a month on home renovations. I can cut this back to \$200.
- Ñ I can put in extra hours at work.
- Ñ I can ask for a pay increase.
- Ñ I can do odd jobs like cleaning to generate income.
- Ñ I can stop going out for coffee and save \$100 a month by making coffee at home.
- Ñ I can prepare lunch at home instead of eating out. This will save me \$300 a month.

Shrinking your environment is also very effective when you have a problem that is overwhelming. It allows you to focus on something tangible. You can again use word play to great benefit here, using

words that are more accurate in their definition. “Vehicle” becomes “taxi” or “car.” “Budget” becomes “our department’s budget” and then “our department’s travel budget.”

### **Practice Multiple Perspectives**

Although the problem may be very clear from where you are looking right now, that may not be the case from everyone else’s perspective. If our sales are decreasing, we may think it’s because our sales team is not being effective, but maybe our competition has dropped their price and added a feature to their product that makes them more appealing than we are.

Rewrite the problem from several different perspectives. How does your customer look at this problem? What about your sales team? Your courier? Add perspectives for people in different roles. How would your spouse see this? A former teacher? A local business association? The people at the café down the street?

### **Turn it Upside Down**

One powerful technique for defining your problem is to look at it from the reverse direction. If you want more of something, figure out what you get less of as a result. Investigate what happens to decrease sales, or to sell fewer products, or to lose more games. If you feel that sending an employee to a conference is too expensive, consider what happens when you do not send them.

Change your perspective and examine things from angles you had not yet considered, and consider the consequences. What about setting up a bare bones product that does not have all the same elements as the fancy items people are buying from your competition?

### **Frame the Problem Purposely and Positively**

This is something we borrow from goal setting. Our brains will focus on things that are positive and exciting. Even more effective is to reframe what you think is the problem into a positive and engaging question.

Our subconscious loves to ponder questions and will start working on them immediately, even if we don’t think we’re thinking about it. For example, instead of thinking, “We need our employees to quit smoking because smokers are driving up costs of our benefit plan,” try, “How can we encourage our employees to live long, healthy lives and be happy people?”

### **Summary**

When you can describe the problem clearly, the solution often presents itself. However, failure to identify the problem properly can send you off fixing things that may not ever resolve the actual problem. Don’t create a situation where you are looking at the same problem three months from now; use these eight essential elements in your favor to create and enhance a process that provides tailored solutions for your business’ needs.

## Identifying Existing and Future Processes

Once you have gathered information and correctly identified the challenge facing your organization, you need to examine your existing and future processes. Looking at where you currently are and where you want to be enables you to see the gap between now and the future. This gap analysis will help you determine what you need to implement to get the most from your processes.

For example, imagine that you are working for the claims department in an insurance company. You are an adjuster (the person who goes to see the damage on the vehicle) and the process for you to get out and see a customer to assess damage usually takes five days. You have thoughts on how to shorten your response time, but before a solution can be implemented, you need to identify the steps that need to be completed to meet this objective.

To bridge the gap between existing and future processes, follow these three steps.

### Identify Your Future State

To identify your future state, you need to ask yourself some questions, such as:

- Ñ Where do you see the process going?
- Ñ What is your ideal vision of the process?
- Ñ What improvements would you like to see?

Answering these questions allows you to envision your process' future state. It allows you to set goals for where you want to be once you have made the necessary improvement to your process.

Let's go back to our insurance claims example. A simple way to map your gap analysis is to create a table that outlines your future state, current state, and steps to bridge gaps.

Future State	Current State	Steps to Bridge Gaps
Adjusters will respond the same day of the accident.		

### Analyze Current State

The next step in identifying existing and to-be processes is to analyze the current state of your process. To do this, gather information by considering the following questions:

- Ñ Who in your organization do you need to speak with in order to get an accurate representation of where your process is now?
- Ñ What is the best way to access the information you need? Should you brainstorm? Conduct interviews? Review documents?

Once you have gathered the required information, you can create an accurate depiction of where your process currently is.

Future State	Current State	Steps to Bridge Gaps
Adjusters will respond the same day of the accident.	Adjusters have to wait for forms and clerical processing before they can be dispatched to assess damage. On average, they are responding five days after the incident.	

**Steps to Bridge Gaps**

Once you see where you want to go and have defined where you are, you need to think of the steps to achieve your desired future state. Use your vision and the information you gathered about your current state to propose potential solutions to bridge the gap.

Future State	Current State	Steps to Bridge Gaps
Adjusters will respond the same day of the accident.	Adjusters have to wait for forms and clerical processing before they can be dispatched to assess damage. On average, they are responding five days after the incident.	Look at who and what is involved in the process. See if we can cut down on the clerical process and give the adjusters more of a role in processing the client to speed up the process and offer same-day response.

This method is a great way to analyze both your existing and future processes. By examining both the present and ideal situations, you are better able to figure out the steps needed to bridge the gap between where you are now and where you would like to be.

**About Process Mapping**

**Test Your Knowledge**

Why might we map out a process?

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## **What is Process Mapping?**

Process mapping involves visually breaking down your process into its components. These components include a clear start and end point, the decisions involved in the process, the documents needed to carry out the process, and the steps or activities to complete the process.

### **Steps for Creating a Process Map**

The first step to creating a process map is to assemble the information you have gathered about your process. With a team, write down each step of the process on an index card or sticky note. The steps you write can be as detailed or as basic as you need.

The second step to creating a process map is to put the steps in the order they occur.

The third step to creating a process map is to draw the map in a digital form, using shapes as symbols. Inside the shapes, you describe that step of the process.

The fourth step is to review your map. Make sure your map matches what was originally described in steps one and two. Additionally, you may want to review your map with people who directly work within this process. What do they think? Is it an accurate representation of the steps involved?

### **Tips and Important Points**

#### **Start and End Point**

Before mapping out the steps in your process, make sure you have a definite, agreed-upon start and end point. This helps set up the parameters of your process and focus your thinking.

#### **Map As-Is**

When mapping your process, be sure you are mapping the process as it is, not as it should be. If you are not directly involved with the process, review it with someone that is.

### **Benefits of Process Mapping**

Process mapping aids our understanding of processes and allows us to see where we can improve on our performance. Some additional benefits of process mapping are listed below.

#### **In-Depth Understanding**

Drawing a process map gives you the opportunity to have a more in-depth understanding of the process. Words can only communicate so much, but a map can help you understand the intricacies and interactions involved in a process.

### Identify Problems

Seeing your process mapped out can help you better identify problems or potential obstacles. Understanding and identifying your problem will enable you to create the right solution.

### Identify How to Implement Your Process

By seeing your process, you are better able to identify how you will implement your new or changed process. You can see who is involved and will be affected by the upgraded process and make the necessary preparations to help support them through the change.

### Eliminate Redundancies and Waste

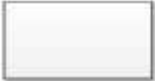

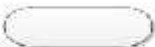

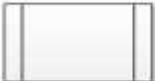

Seeing your process can help to increase efficiency because you can identify steps that add value and steps that do not. Eliminating duplications, redundancies, and wasteful activities helps give your process more value.

### Process Achieving Outcome

By mapping your process, you are better able to identify whether or not it is actually achieving the outcome it was designed to achieve. If the process is not producing the desired output, you have a visual aid to help identify why the process is not performing to its optimal level.

### Symbols and Their Meanings

Here are some of the basic symbols and their meanings in process mapping.

	Indicates Step in Process
	Indicates a Decision to be Made
	Indicates Start/End of Process
	Indicates a Document that needs to be Used
	Indicates a Sub-Process
	Indicates the Direction or Flow of Process

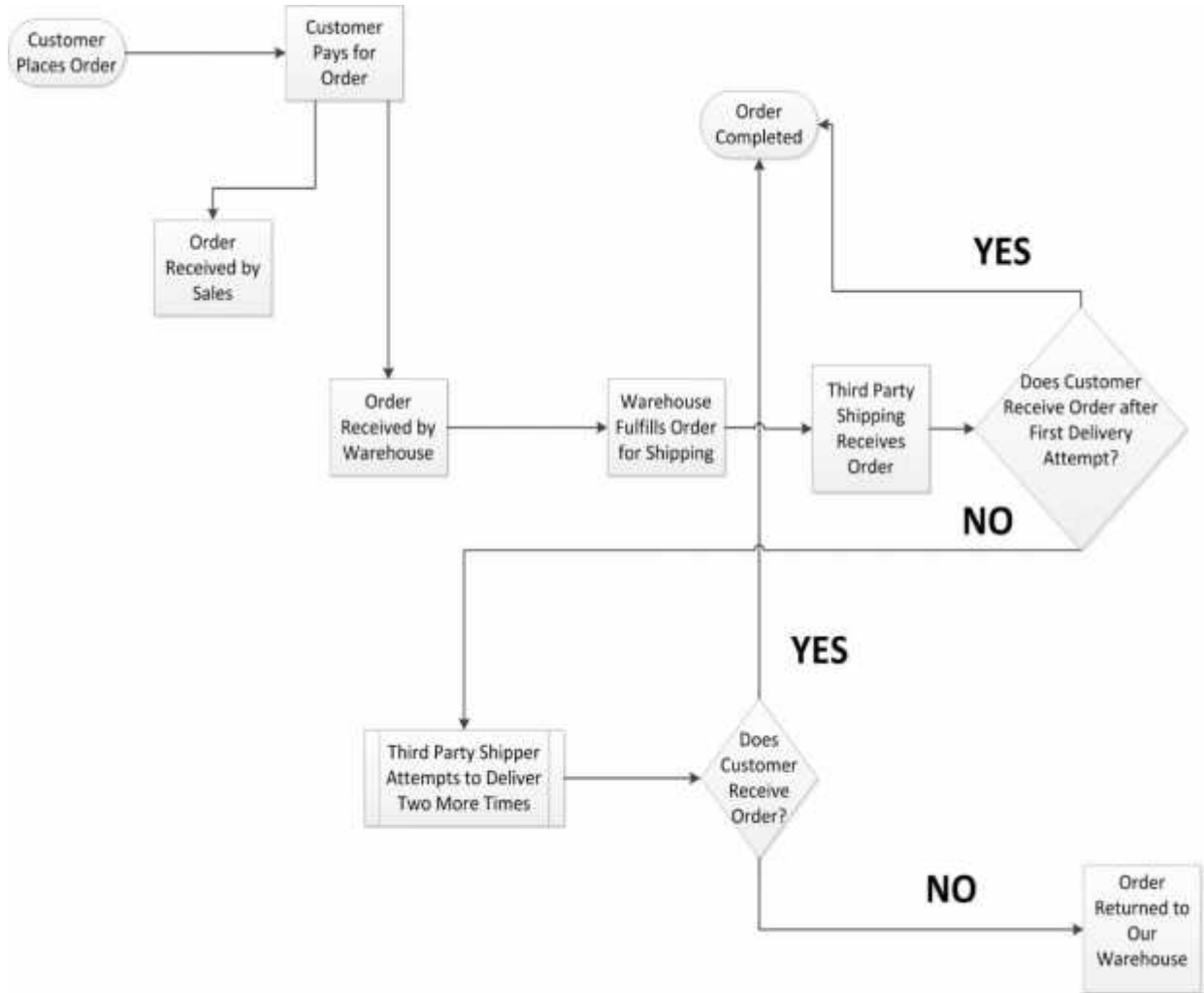
These symbols can be changed to suit your needs. Or, you can have all of your symbols the same shape and use color coding to symbolize different aspects of the process. Always include a legend so anyone viewing your map can understand its contents.

## Creating a Process Map with a Flow Chart

Let's have a look at a process map to better explain the concept. Earlier in the course, we talked about the process of delivering books to a customer. Let's assume our business is to do just that. Take a look at the below process map that details the steps involved from when a customer places an order to when they receive the order. Pink sticky notes are used to signify the beginning and end of the process, blue notes indicate direction, and orange notes outline the steps involved:



Here is a digital copy of this process map:



### Test your Knowledge

What do you think about this process map? Is it confusing or clear? Why?

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Did the process map outline the process it was intended to outline?

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Would you add any more detail to this map to help clarify the process?

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Would you take away any steps to help clarify the process?

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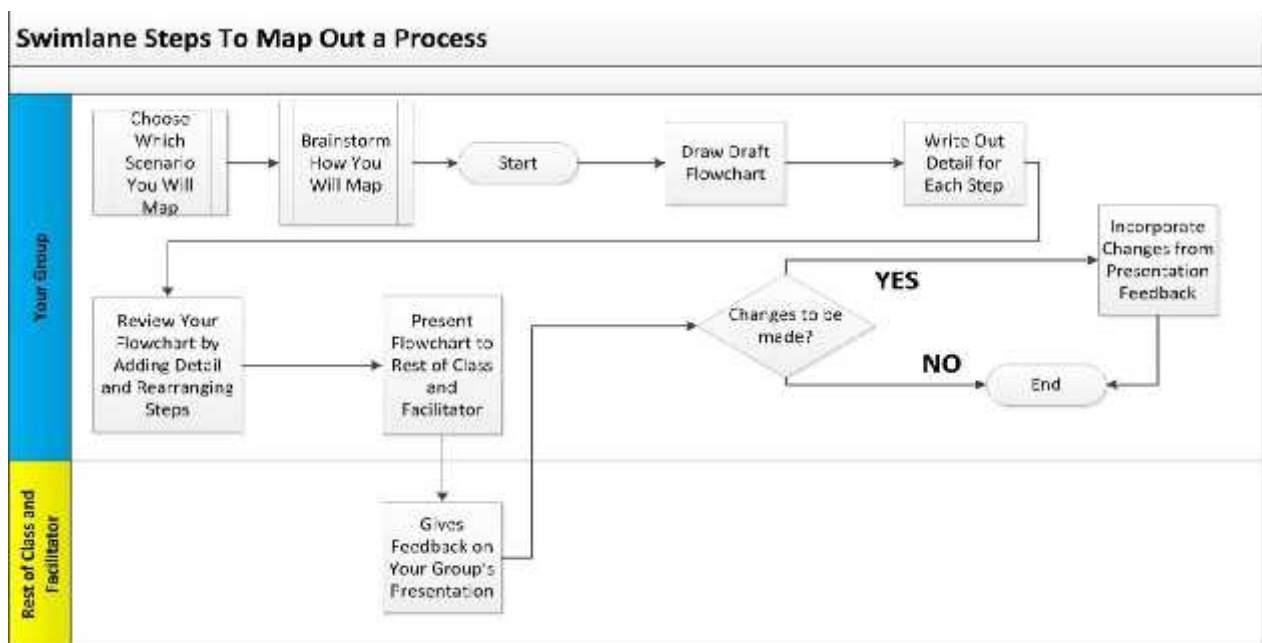
### Creating a Process Map with a Swimlane Diagram

#### What is a Swimlane Process Map?

A swimlane process map distinguishes the responsibilities for steps within a process. The steps of the process are placed in lanes or categories which are labeled with the step owner.

In the example below, the horizontal direction represents the sequence of events in the process while the rows represent who will be performing the events. The arrows between lanes represent the transfer of information or material passed between different parties involved in the process.

#### Sample Swimlane Process Map



Map it Out

**Choose one of these processes:**

- Ñ A mailout detailing a change in service to all of your customers
- Ñ Preparing for a new product launch at your shareholder’s gala
- Ñ Opening a new plant for product manufacturing

**Map this process as a flow chart.**

**Defining Improvements**

**Test your Knowledge**

**What is an improvement?**

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**Is an improvement the same as a goal?**

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**Why is it Important to Define Improvements?**

It is important to define improvements when designing your process in order to imagine your process’ ideal state. This roadmap gives your process direction and will help you evaluate its success.

Furthermore, defining improvements builds accountability. By highlighting problem areas and developing a clear, concise plan to address these areas, you are also defining roles and how the process should be carried out to achieve the desired outcome. This makes people responsible and accountable for making the process work.

As well, you need to define improvements in order to be able to measure the success of the implemented process. You cannot measure the process without a clear idea of what improvements will be made and how these improvements will benefit your business.

Measuring your process is also important for justifying why the process needs to be enhanced or created. Remember, implementing a process within an organization is not done in isolation. A change in the way you conduct business affects everyone (employees, customers, and management) and can therefore cost a significant amount of time and money. You will need to prove that the process will recoup that investment and continue to generate savings.

## Case Study

Think about a manufacturing process and imagine that you are changing an aspect of how you manufacture your product. You may need to design machinery to accomplish your idea. You will also need to provide training to employees on these updates. You may need to contact your suppliers and customers to alert them of these changes. Finally, you may even need to close your plant in order to install this new equipment. This could be an expensive project! You need to be clear about the results of the process improvement to show that the use of company resources is justified.

Establishing Functions and Identifying Function Leaders

### What is a Function in Relation to a Process?

A process is a combination of many functions working together. A function includes a necessary step in the process and the role that either technology or humans play in achieving this step. These functions can be carried out in one department or they can be the culmination of efforts from individuals throughout the organization.

Let's say that you walk into a bank looking to acquire a new line of credit. You speak with a Customer Service Representative (CSR) and they make an appointment for you to speak with a Financial Services Representative (FSR). The CSR's role represents one of the functions involved in the process. The next function in this process will be your meeting with the FSR. During this meeting, the FSR takes your financial information and inputs it into the bank's financial screening system to see if you qualify for the service. This inputting of information represents a third function within the process. Finally, you receive confirmation or are denied the service. This represents the final function within the process.

In order for this process to be completed, interdepartmental cooperation and communication are required. Furthermore, the process requires a tailored IT solution. The CSR's function is not the same as the FSR's function and they operate within different departments of the organization; however, each of their contributions is equally important for the successful completion of the process.

### Identifying Function Leaders

The successful implementation of a process requires the careful selection of skilled, knowledgeable function leaders. The role of these leaders is to assess the function and ensure that it is performing at its optimum level. This means that function leaders must understand and be able to implement the necessary actions to carry out their function within the process. They need to understand what is expected of them and ensure that those expectations are met as efficiently as possible.

An additional role of the function leader is that they are responsible for delegating different aspects of a process and making sure that each person completes their share of the work. The function leader may even perform particular parts of the process themselves.

To identify a function leader, consider the following:

- Ñ How much experience does the person have with the process?
- Ñ Is the person capable of leading a particular part of the process?
- Ñ What is the person's level of expertise on the particular function you would like to assign them? For example, if your process involves a high use of technology, is the person you would like to make a function leader capable of the duties you need them to carry out?
- Ñ How analytical is your function leader? Do they have the ability to recognize gaps in their part of the process and make suggestions on how to bridge these gaps?
- Ñ Is your function leader an effective communicator? Can they work in a team?

When you are choosing a function leader, you need to consider their disposition as well as their level of expertise. The person you choose will be a vital part of ensuring that your process is performing at an optimal level.

As well, choose personnel who do not mind being in the spotlight, are effective communicators, and are team players. If they possess the level of expertise, but do not possess the ability to be a leader, you may want to consider choosing someone that can acquire the skills and knowledge for the position and be a great team leader.

## The Modelling Phase

### Performing What-if Analysis

#### What is What-If Analysis?

What-if analysis is a brainstorming approach intended to visualize potential problems with your process. By thinking ahead and visualizing what problems may arise, you are also thinking about solutions to these problems before they happen. Then, you can build appropriate safeguards to ensure your process will be successful.

Aside from preventative problem solving, what-if analysis focuses on looking at variables within your process. Ask questions like:

- Ñ What if we extended our banking hours by two hours daily?
- Ñ What if we cut food costs by 20%?

Essentially, you are defining and changing a variable and deciding how a potential change in your process will impact your business. What-if analysis is a vital tool to employ in the modeling phase as it helps to identify potential risks and opportunities.

#### Steps to Performing a What-If Analysis

The first step in performing a what-if analysis is to set up a brainstorming session. Since the generation of ideas is such an important component of what-if analysis, we will offer a brief explanation of the concept and some basic guidelines or rules for conducting a brainstorming session.

Brainstorming can be an individual activity or a group discussion centered on creating ideas or solving a problem. One requirement for brainstorming is that there needs to be a safe environment for people to share their ideas. Members of the group should all feel comfortable in contributing their thoughts. A way to create this safe environment is to have some ground rules for your group brainstorming sessions. These rules can be created by the group. Some sample rules could be:

- Ñ Everyone must contribute.
- Ñ No idea gets criticized, no matter how unconventional.
- Ñ Be considerate of those around you. Allow a person to finish their thought before jumping in.
- Ñ One person speaks at a time.

Having guidelines in place will enable you to get the most from your brainstorming session.

The next step in the what-if analysis is to determine what ideas you will brainstorm. When analyzing your process, you need to examine opportunities for improvement and potential roadblocks.

Ask questions like:

- Ñ What if we offered clients a service at a discount? Would they be more inclined to buy? What might be some roadblocks to implementing this idea?
- Ñ What if we could reduce our expenses by 10%? Where could these savings be better spent? Would this cause a problem by compromising the quality of our service or product?
- Ñ What if we reduced costs by having online meetings and saved on travel? What issues may arise if we chose this option? How can we brainstorm solutions to these issues in the effort to cut costs?

The third part of what-if analysis is to develop answers to these questions. You will need to consult with other members of the organization to get enough information. Additionally, you may need to consult with others to develop an idea of the impact your changes will make.

For example, if you plan to reduce costs within your organization, you would need to consult with the people directly involved in the process. What are their recommendations for where you can cut costs without compromising the quality of the product and the process itself? Answering these questions will give you a more comprehensive picture of the issue you are dealing with and whether or not the change you seek to make will be feasible.

### Case Study

Julie is the operations manager at a bottle production plant. Julie's company has decided that it would like to offer more environmentally friendly products by increasing the amount of recycled materials used in production. This goal will save money by cutting down on the amount of new materials purchased for production and enhance the image of the company.

Julie has been informed of the new direction of the company and she has been asked to think about how this goal can be achieved. Luckily, she has just taken a course on business process management and she realizes that a change in the manufacturing process is needed. She assembles a team to brainstorm possible solutions. First, Julie defines the issue facing her organization: the strategic goals of the organization have taken a new direction. The issues that they are trying to generate ideas for are:

- Ñ How can we change our manufacturing process to ensure 10% of our product is made from recycled materials?
- Ñ What challenges might we face from making this change?

Julie explains the concept of what-if analysis and encourages her team to brainstorm freely, with no idea being off-limits. Many ideas are generated and Julie uses the results to gather more information.

Based on her team's suggestions and Julie's consultations with in-house and external experts, Julie advises the executive team that the process of incorporating more recycled material into products is feasible and cost-efficient. Her plant will need machinery to melt and sort glass products in order to accomplish this goal. Additionally, people within the plant will need to be trained on how to use the new machinery. Furthermore, a role within the plant may need to be created to monitor, facilitate, and oversee the recycling process to ensure that the changes will transition smoothly into current production procedures.

## Test Driving

### Testing the Design

The next step in the Modeling phase of the business process life cycle is to test your design. This stage involves analyzing and refining the design to improve its quality and functionality before implementing your process.

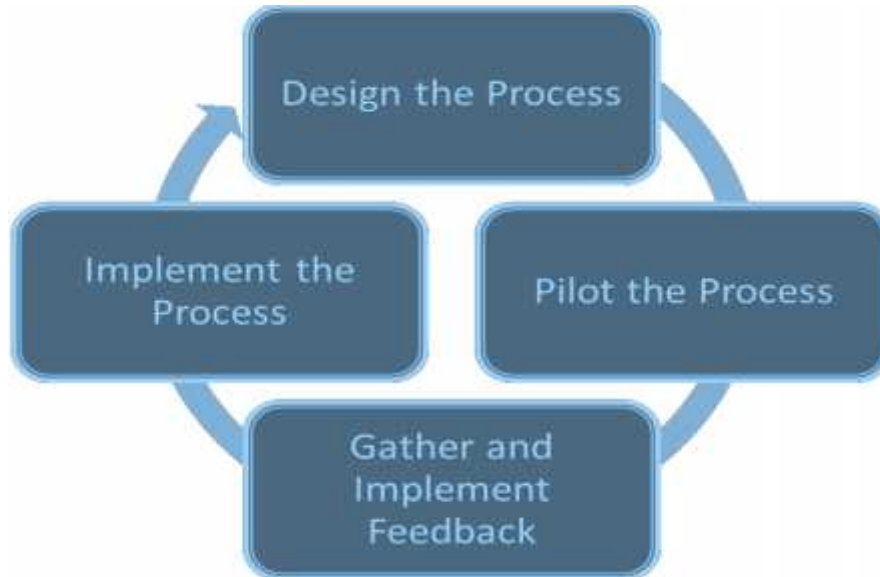
### What Does it Mean to Test the Design?

Process testing usually uses an iterative method. This means that you need to update and improve your design in a continuous, cyclic manner. Let's say that you want to use a new recipe for a big family reunion you are attending next month. You follow the steps to complete the recipe. While you are cooking, you continuously check the taste of your dish to check for quality. Then you pilot your creation by testing it out on your immediate family. Based on their recommendations and feedback, you alter and improve your recipe for the reunion.

This example illustrates how you followed a designed process (the recipe) and iteratively improved on the design of this process before implementing it by taste testing while cooking it and seeking your immediate family's feedback. Once you perfected the dish, you cooked it (implemented the process) for the reunion.

## Steps for Design Testing

There are four steps for iterative design testing:



### Breaking Down the Model

#### Design the Process

The first step in the model is to design the process you will be working with.

#### Pilot the Process

Next, you need to pilot the process to test the design. This allows you to see the process in action before it gets fully implemented. It also offers you the opportunity to continuously improve the design of your process by manipulating variables.

#### Gather Implement Feedback

Once your piloted process is complete, get feedback from people working with the process. Ask:

- Ñ How successful was the pilot?
- Ñ What can be changed for improvement?
- Ñ How can we make these changes?

Then, take these recommendations and implement the suggestions. Next, continuously repeat steps two and three until the people involved with the pilot have no further suggestions on how to improve the process.

#### Implement the Process

Once you have tested the design and made incremental improvements, it is time to implement the process within the organization.

## **Benefits of Iterative Design**

### **Risk-Free Environment**

The biggest benefit of iterative design testing is that it allows you to test your process in a risk-free environment. You can also fine-tune and modify the process without affecting business operations and costing the organization time and money.

### **Better Understanding of Process**

The iterative design approach allows you to incrementally build on your process. This gives you time to develop a better understanding of what you are working with.

### **Changes Culture**

Adopting the iterative design approach communicates to everyone that your organization is focused on continuous improvement and learning. By being committed to testing and retesting your design, you are also showing that your business is committed to excellence and high performance.

## **Summary**

The iterative design approach is structured to ensure you test your process in a cyclic manner. Feedback from the piloted process allows you to incrementally build upon and improve your design. This method also gives you the chance to optimize your process in a risk-free environment. This is a key component of the approach as any organizational change can be a costly undertaking. Making sure your process is the best it can be before companywide implementation gives your process the best opportunity to have a real impact on your business' performance.

## **The Execution Phase**

### **Implementing Processes**

Once you have defined or modified an existing process, you need to figure out how to launch the change. Use the following tips to help your process get a solid foothold within your organization.

#### **Tips for Implementing Process Changes**

##### **Get Management Buy-In**

When implementing a process (or any organizational change, for that matter) it is vital that you have the support of management. To do this, you need to show them what is in it for them. Make sure you get their thoughts and feedback on the proposed changes, and make sure you include different levels of management. Remember, their opinions and willingness to support the change can make or break your efforts.

## Establish a Policy for Your Process

It is important to establish a policy for the process. This will help outline the purpose of the process and set behavioral expectations. Furthermore, a policy attached to your new process helps give the initiative a greater sense of legitimacy.

## Establish Measurements

Over time, with the collection and analysis of process data, you can establish the acceptable performance of the process (also known as a baseline). When establishing your baseline, it is important to consider the types of work being done and when that work is being done. Knowing how much effort needs to be inputted to get the output of your process is a crucial part of the equation.

## Train Staff

Everyone using the new process must understand it. When training staff to implement your process, focus on the following questions:

- Ñ What information needs to be communicated to staff?
- Ñ Do managers need to know more than employees?
- Ñ What does successful completion of training look like?
- Ñ What skill sets will your trainees have acquired?
- Ñ Who will deliver the training? Who will receive training?
- Ñ Where will it take place?
- Ñ Who will write the material?
- Ñ What sort of funding do we need for the training to happen?
- Ñ How long will the training take?
- Ñ What will be the ramp-up period (after training, but before employees get to 100%)?

## Manage the Change

Implementing a process can mean a big organizational change. You can support individuals through the change by providing adequate training. However, some people are adverse to change no matter what support you give them, and you will probably get resistance from some individuals within the organization. You can alleviate this by getting buy-in from management and by having a policy in place for the process. If this does not produce the expected behavior, you may have to establish consequences for noncompliance.

## Test Your Knowledge

### Exploring Automation

**Can you automate a process too much? That is, can you automate a process and compromise the quality or service the process was intended to offer? In other words, do some processes work better with a high level of human involvement?**

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**Give an example of an automated process you work with. Do you find this process is enhanced by automation?**

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## Automating Processes

### What Does it Mean to Automate a Process?

When you automate a process, the goal is to use technology to help make your process more efficient. You can automate certain steps of the process or the entire process.

When you automate only steps of a process, you allow for the blend of human interaction and automation. If you choose this method, you need to ensure that the people working with the automation understand how to use the technology and tools.

When you automate the entire process, you cut down on the level of human involvement in the process. If you choose this method, you need to ensure that the process lends itself well to low human involvement.

### Benefits of Automation

#### Increased Profitability

Automation can help increase profitability by shortening your process' cycle time.

#### Increased Productivity

Automation increases productivity by giving employees extra time and increased flexibility. By having process tasks complete themselves, employees are free to work on other tasks.

#### Increased Efficiency

Automation increases efficiency by eliminating time-consuming steps in a process.

#### Increased Quality

Some processes can be extremely intricate or require a lot of repetition to be completed. Automation can increase quality by minimizing the instances of human error.

### **More Convenient**

Automation can make a process more convenient for customers. Think of online banking. Paying your bills used to be laborious; it used to require you to be physically present at a bank during their business hours. This was inconvenient (if not impossible) for most working people. Now, we can simply go online whenever we like and pay our bills.

### **Potential Pitfalls of Automation Compromised Customer Service**

When we over-automate a process, the result can be consumer frustrations. Think of when you have to call a service provider because you have a question about your bill. You call the 1-800 number and you get a computer-automated voice telling you to press numbers for a selection or to say a word for a selection. You say the word and press the number, and then you get disconnected. You call back and repeat the process over again.

Over-automating your processes can alienate your customers. A large part of customer service is the interaction between two people; it's a relationship for however brief a time. What's more, it impacts the way the consumer views your company. Over-automating customer interactions can be viewed as sterile and can be counterproductive.

### **Not Foolproof**

When you automate a process, remember that technology is not foolproof. If you have a system go down, you will not be able to offer some of your services. You have the potential to lose a lot of business depending how long your system is down. At the very least, you will have inconvenienced a number of your customers.

### **Steps to Automate a Process**

#### **Identify Steps in Your Process that Lend Themselves to Automation**

Not every step in your process will lend itself to automation. For example, imagine you needed a prescription. Instead of getting a pharmacist to fill the doctor's prescription, imagine that you could go online and submit a form to get your prescription filled. Does this process lend itself to automation? Absolutely not, since a mistake could be potentially fatal for a customer. This process needs human interaction. Consult with your process design team and get feedback from people that use the process to pinpoint areas that would benefit from automation.

#### **Look for Increased Quality and Efficiency Through Automation**

When automating processes, look at areas which would increase quality and efficiency when automated. In addition, focus on steps that would be easy to automate and provide more value for your customer.

Think of when you are pumping gas. You used to have to go into the store to pay, but now you can pay at the pump. Gas companies changed the way their customers purchased by automating part of the process. This gives the consumer a choice and adds value by saving the customer time.

### **Consult with an Expert**

When you have decided what parts of a process you would like to automate, you then need to consult with a technology expert to figure out how you can accomplish this. Depending on the solution that you need, this may be in-house, externally, or a combination of solutions.

### **Summary**

When automating aspects of processes or whole processes, there can be benefits and potential drawbacks. Here are some questions that you should consider when deciding whether or not to automate a process:

- Ñ Does this automation optimize my process?
- Ñ Does this automation simplify my process?
- Ñ Does this automation create value for customers, thereby improving our bottom line?

Answering these questions will help you determine whether or not automating a process is the right solution for your organization.

## **Understanding Business Rules**

### **What are Business Rules?**

Business rules are designed to control, define, standardize, and structure how procedures are carried out within an organization. These rules influence and guide how a business performs. They are created by analyzing the needs of the company and should evolve as the company grows.

Earlier, we talked about an insurance company's quest to update their services by envisioning their future state, analyzing their current state, and setting out steps to bridge the gap between the two. Let's say the insurance company achieves their goal and manages to have their adjusters respond to a customer the same day of the accident. A business rule that might follow from this could be: "Adjusters will respond to customers the same day of an accident."

### **Benefits of Business Rules**

#### **Direction and Clarity**

Business rules benefit an organization because they help to build a clear picture of what is expected. The example we just used ("Adjusters will respond to customers the same day of an accident") is written in simple language and makes it very clear what needs to be achieved.

**Easier to Measure**

Typically, rules that are easy to understand are also easy to measure. In the example above, the adjuster either met with the client on the day of the accident or they did not. Therefore, the company either succeeds in achieving the rule or not. The success rate of this particular rule would be extremely easy to measure.

**More Accountability**

The structure and language of our sample rule is extremely hard to misinterpret. The expectations are clearly laid out, so failure to meet the rule must have justification.

**Figure Out the How**

Since the business rules sort out the what, it allows you to focus on sorting out the how. How will you achieve this? What strategies will you use?

**Things to Watch Out For**

Business rules must be written in a clear, concise manner. Use language that is both easy to understand and that communicates the expectations of the rule. People who find the rule confusing may avoid it altogether.

Before finalizing the rule, test it! Have multiple people within the organization read the rule. Then, ask them what they think it means. Make adjustments as necessary to ensure clarity and comprehension.

As well, your rules should be written down and documented. This makes it much easier for others within the organization to access this information. Furthermore, updating or changing your rules becomes simpler when you have them compiled. One common documentation method is to use a database that is accessible to the appropriate people in your company.

**The Role of Business Rules in Workflow Engines**

While business rules can be used to give your organization structure, they also have a large part to play in business process technology. Business rules can interact with workflow engines and set up the parameters under which a workflow engine operates. (A workflow engine is a tool that helps businesses automate parts of processes or entire processes.) That is, the behavior of the workflow engine will be prescribed by business rules.

When creating business rules in a workflow engine, first establish what you want the system to do. How will it be operating within the process? What will be its function? Based on these answers, you can begin to construct a set of business rules that will govern the operation of your engine.

Let's look at an example. Say you are a Financial Services Representative at a bank. A customer comes in to apply for a line of credit. You take their financial information and input it into the bank's financial screening system to see if they qualify for the service. This screening system is an example of a customized workflow engine: it automates certain tasks like prompting you to fill out required information.

When you are filling out the forms within the screening system, you ask the customer if they have documents to prove their income. Unfortunately, they have left these documents at home. Without these documents, the process cannot continue. Your screening system prompts you that these documents are needed in order to go on. This prompt comes from the predefined business rules that govern the screening system.

Without business rules, your workflow engine is directionless. Typically, most organizations use logic-based software to create business rules. For the example above, the business rule might be, "If the customer provides the correct income documentation, then the process can continue." This sample rule is conditional; it is based on an if, then format. (If the requirement specified is met, then the process may continue. If the requirement is not met, the process cannot continue.)

When choosing business rule software, do your research. Make sure the software enables you to maximize the potential of your workflow engine.

In addition, consider the application's ease of use. Ask:

- Ñ How easy is it for you to create a rule?
- Ñ How easy is it for you to change the rule?
- Ñ How easy is it for you to link the rules with your workflow engine?

Finally, compare the cost to features. These steps will help you decide which application is the right solution for your purposes.

### Test Your Knowledge

**Create a paragraph that summarizes the role of business rules within technology and the organization as a whole.**

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## The Role of Workflow Engines

### What is Workflow?

**Workflow** is a term used to describe how various components of an organization interact and collaborate to complete the overall strategic goals of the company. In other words, a workflow is the sequence of steps needed to be completed for a process to take place. Moreover, workflow is the conscious effort to eliminate barriers between process steps and to encourage a seamless transition. Thus, when we look at workflow in an organization, our aim is to increase the efficiency or flow between these steps to increase productivity and decrease costs.

Two questions determine what a workflow looks like:

- Ñ What type of input needs to happen in order to receive the desired output?
- Ñ How well does the input move through the process in order to achieve the proper output?

In a digital world, workflow can be increased with technology. Solutions that enable workflow in processes are called **workflow engines**.

### The Workflow Model

Here is a diagram that illustrates how the various components come together:



### What is a Workflow Engine?

A **workflow engine** is a tool that automates parts of processes or entire processes. Workflow engines normally work in conjunction with human interaction. Let's say you are visiting a local library to renew your library card. You are greeted by an employee and they begin the process of issuing you a card. They open a computer program that prompts them to input your basic information. The worker follows the prompts and the workflow engine then provides the employee with the necessary documentation to be completed by you. You fill out the forms, the employee finishes inputting the data, and when all the information has been gathered, the workflow engine prompts the employee to print a library card.

However, workflow engines can complete processes without any human interaction. For example, let's say that now that you have your card, you have checked out materials from the library. Unfortunately, you have forgotten the date that the materials are due back. However, when you signed up for the card, they asked you for your e-mail address. The e-mail address is used by the computer program to send you a notification when your materials are due. This process has no human interaction; it is completed within the workflow engine.

### Test Your Knowledge

**What are the benefits of this workflow solution?**

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**What could be some of the potential pitfalls with this solution?**

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**Does your workplace currently use any workflow engines to streamline processes? If so, describe the system your business uses.**

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### Workflows and Business Rules

One additional point to note is that the parameters for the workflow engine are established by business rules that define what the system will allow. These rules are designed to structure the activities your workflow engine will perform. Additionally, they are designed to guide the user to input the proper information to successfully complete the process.

### Case Studies

Choose one of the following examples:

- Ñ Automated airport travel (ticket purchasing, getting your boarding pass, seat selection, and baggage check-in)
- Ñ The self-serve checkouts at grocery and department stores
- Ñ Another relevant example from your industry

Explain how workflow engines have impacted this industry.

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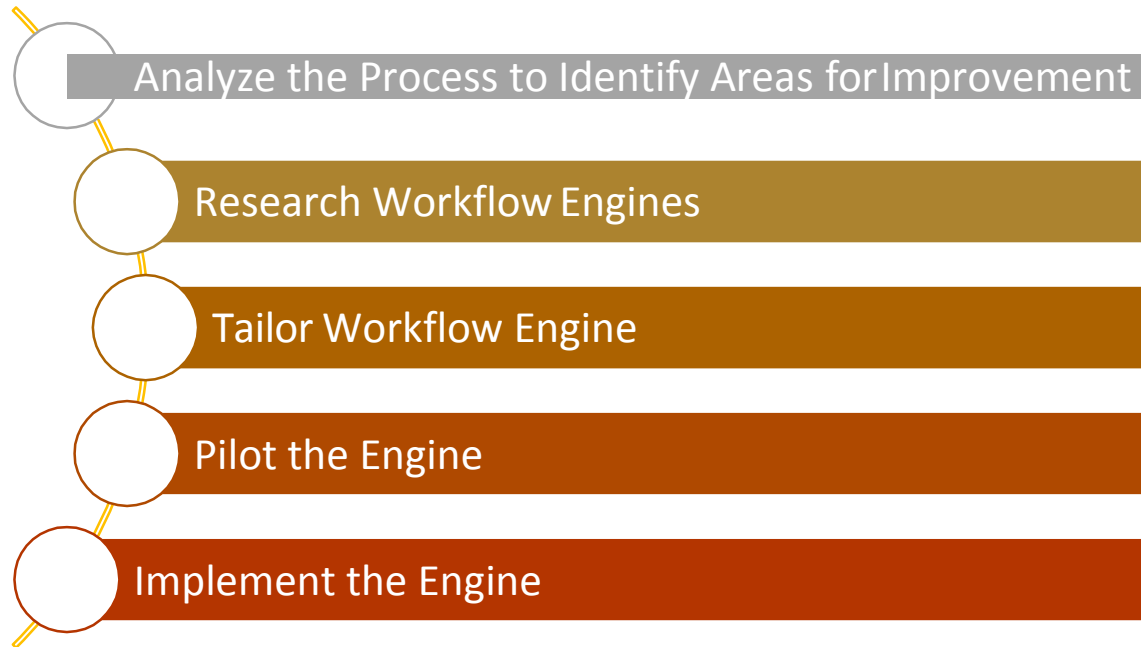
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### Steps to Implement a Workflow Engine

#### Implementing a Workflow Engine

While workflow engines can drastically improve the efficiency of your processes, they require a significant amount of time and resources to get underway. Here are the steps for implementing a workflow engine.



### Breaking Down the Model

Let's look at each step of this model.

#### Analyze the Process to Identify Areas of Improvement

When you are trying to implement a workflow engine in your process, you need to identify how your engine will enhance the process. To do this, identify areas that are in need of improvement and the areas that lend themselves to being automated. Then, you can pinpoint what tasks you want the engine to perform.

#### Research the Available Workflow Engines

When you are looking to implement a workflow engine, do your research. See what solutions are available and compare workflow engines to ensure they meet your needs. Furthermore, when researching available engines, make sure you have the proper infrastructure to support it.

Ask:

- Ñ What upgrades will need to be made to your existing IT infrastructure?
- Ñ What training will people need?
- Ñ Who in your organization will be in charge of monitoring the engine?
- Ñ What funds do you have available to support the purchase and related expenses?

#### Tailor the Workflow Engine to Suit your Process

Once you have chosen a workflow engine, you will need to tailor the engine to your process. Consider:

- Ñ What functions does it need to perform?

- Ñ What parameters need to be met in order to complete a process?
- Ñ What other systems need to be integrated?

### **Pilot the Workflow Engine**

After you have tailored the workflow engine, pilot the engine to ensure it is working correctly. Identify improvements to be made and implement them.

### **Implement the Workflow Engine**

Once your engine has been piloted, make a plan for implementation. Ensure that training is provided and that people within your organization know how to use the engine to increase process efficiency.

## **The Monitoring Phase**

### **Implementing Measures**

#### **Test Your Knowledge**

**What is measurement within an organization?**

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**Why do we measure?**

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**How do we measure?**

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**What tools can help us measure?**

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**How can we plan to measure?**

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**What items can we measure in an organization?**

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**What items does your organization measure?**

**Building Your Approach**

When implementing anything new in your organization, it is important to determine how to measure the success of the approach. It is simply not enough to say that something is successful. You need to provide concrete examples to show how the changes have improved the performance of the organization and helped it reach its goals. But what do we measure in the case of processes? How do we measure their success?

**Employee Feedback**

One way to measure your success is with employee feedback. People within your organization are the driving force behind your processes and it is important to get feedback from them. Design surveys that measure people’s opinion of and attitude toward your processes. In these surveys, you should also ask people what they think can be done to improve a process. This information may be highly subjective, but it may yield some great insights into what you can do to better your process. Furthermore, allowing people to give insight into an aspect of the organization encourages collaboration since they know that you value what they have to say.

## What is Business Activity Monitoring (BAM)?

Business activity monitoring (BAM) evaluates how your business is performing by providing you with information about the health of your processes. Business activity monitoring software monitors processes in both real time (as they happen) and after completion to detect problems, diagnose the cause of the problem, and report on business operations.

### Test Your Knowledge

Now that you have the definition of business activity monitoring, what might be some of the benefits of using it for your processes?

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Does your business currently employ business activity monitoring?

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Have you ever used business activity monitoring? If yes, describe your experience and the type of information the program provided about your process.

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### Benefits of Business Activity Monitoring Identify Problems Sooner

By having data and information sent to you about your process, you can identify problems sooner. This data also enables you to see if your process is functioning properly and if your goals are being met. Business activity monitoring software is usually able to send daily data reports as well as alerts or warnings of potential problems with your process.

### Make More Informed Decisions

By having data about the health of your process, you can make more informed decisions about changes. Remember, knowing the root of the problem will enable you to implement the correct solution.

## Easier to Share Information

Business activity monitoring software makes it easier to share information about the status of your process. Conversations will center on how the process is doing and what can be done to optimize the process, rather than focusing on gathering information and analyzing it.

## Purpose of Business Activity Monitoring

The purpose of business activity monitoring is to help you ensure your processes are operating at their most efficient level. In turn, this helps you ensure that activities that affect your bottom line, such as productivity and customer service, are done right.

Most business activity software packages can give you alerts or inform you of when your goals are not being met. For example, an automated e-mail could be sent when someone needs to take action in a process. This enables you to intervene in the process before larger problems develop.

Business activity monitoring software is usually designed to provide updates to upper management and operations managers. Often, these software packages communicate information through dashboards and visual indicators, making them easy to use and interpret.

Typically, business activity monitoring software measures success based on key performance indicators (KPI's). A KPI for a manufacturing company might be zero defects in the manufacturing process. For a call center, a KPI might be same-day response to customer inquiries.

KPI's are specific to your organization and are a reflection of what is important to your business. KPI's provide measurable goals that help direct your organization towards success. These goals can then be tracked and measured with business activity monitoring software.

## The Balanced Scorecard

A balanced scorecard is a performance measurement technique that focuses on joining an organization's strategies to specific measures. Its aim is to give us feedback on how successful a strategy or process is performing. Developed by Robert Kaplan and David Norton, this technique focuses on four perspectives: financial, customers, internal business processes, and learning and growth. Notice that all but one of these measurements are intangible. The balanced scorecard approach moves away from traditional accounting to encompass the intangible assets of an organization.

Let's have a look at the balanced scorecard's four perspectives for measurement. It is best to frame these concepts as questions to focus on what we are trying to measure and to see and create value from these answers. Additionally, when we answer the posed questions, we can compare the four perspectives to see which assets give us the most value.

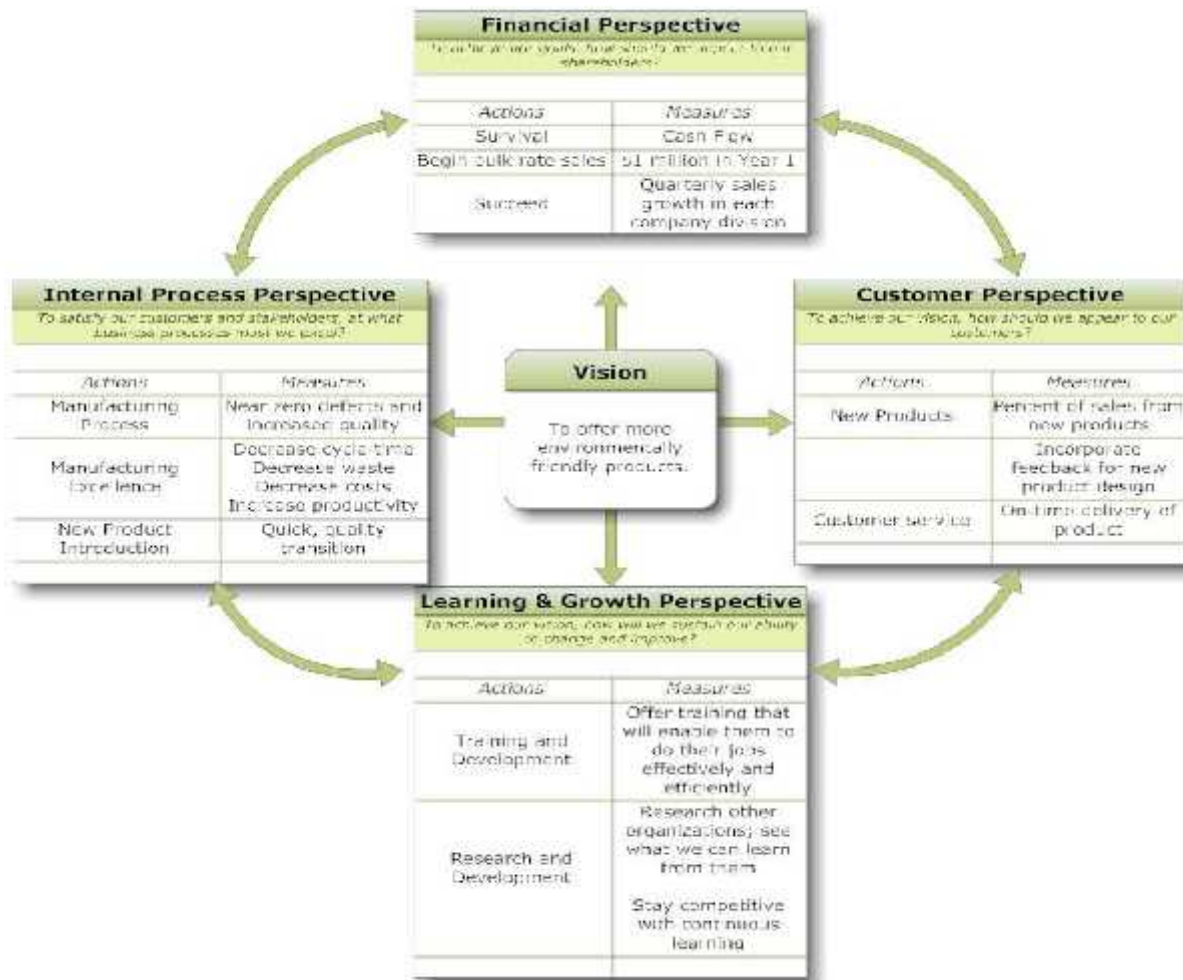
- 📌 **Financial:** How is our financial health? How do our shareholders see us? How can we improve our bottom line?
- 📌 **Customers:** How do customers see us? Do we meet their expectations?

- Ñ **Internal Business Processes:** What do we need to do to succeed? Which processes have the greatest impact on our customers and our bottom line?
- Ñ **Learning and Growth:** How can we use learning to improve in the above three areas? How can we leverage learning to grow, create value, and improve?

Business process management fits into the second and third categories of the balanced scorecard; however, to maximize our processes we need to focus our efforts on developing the fourth category. If you look at the first question posed in the learning and growth category it becomes very apparent that learning and growth has an enormous influence on the other three perspectives. This perspective comes last because the ability to meet the objectives in the other perspectives depends on the organization’s ability to learn and grow. Thus, learning and growth are performance drivers. They are harder to measure but have a direct impact on outcomes like financial growth and development.

**Balanced Scorecard Example**

Earlier in the course, we talked about Julie, an operations sales manager at a bottle production plant. Let’s use this industry to create an example balanced scorecard.



**Benefits of the Balanced Scorecard**

**Creates Focus**

The balanced scorecard enables everyone within the organization to be on the same page. By creating and documenting the issues that are important to the business, people can work collaboratively to figure out how they will achieve success.

**Integrates Four Key Aspects of Business**

The balanced scorecard allows businesses to see how the four key aspects of their company work together. Additionally, by breaking the organization down into manageable chunks, you can see where you are doing well and where you might need to focus your energy and resources.

**Allows Strategic Goals to be More Transparent**

When you are an employee working in a company, you hear the phrase “strategic goals” thrown around a lot. But you may still be wondering, “What are these mysterious goals? How do they impact me?” Having a balanced scorecard enables the strategic goals of the organization to be shared and understood by everyone.

**Test Your Knowledge**

**Creating a Balanced Scorecard**

**Scorecard Template**

Financial Perspective		Customer Perspective	
Actions	Measures	Actions	Measures
Internal Business Perspective		Learning and Growth Perspective	

Actions	Measures	Actions	Measures

Highlight the perspective(s) that you feel John should focus his efforts and resources on.

## Identifying Gaps with Process Mining

### What is Process Mining?

Process mining is a tool that analyzes processes through event logs. An event log is a piece of information generated from a process-aware information system that enables you to see the events of your process. More importantly, the event log information allows you to see how long the event took, what the wait times were, etc. These event logs serve as audit trails. That is, they are a source of records that provide documented evidence of the series of activities that have affected a specific operation, procedure, event, or process.

Key questions that process mining tools answer typically include:

- Ñ How long did each event within your process take?
- Ñ What were the wait times between the completion of an event and the start of another?
- Ñ What was the throughput (amount of materials or items passing through a process) time?

Much like business activity monitoring tools, the aim of process mining is to provide businesses with data that indicates the health of their processes. From this data, users can see how the process is operating and what they can do to optimize processes for increased efficiency and productivity.

### Benefits of Process Mining

Even with proper information gathering, an accurate flow chart representing your process, and all of the other components within the business process life cycle, we still may not see the inefficiencies of our processes. Many business processes can be extremely complicated, so no matter how much we try to map them out, some parts and components may remain hidden or simply be overlooked.

Process mining offers you an alternative approach for uncovering data about your process. Event logs can help reveal areas of waste, bottlenecking, and inefficiency, as well as specific data on those issues. This can help you pinpoint issues and implement appropriate solutions.

Process mining can also enable you to receive real-time data about your processes. This means that you can identify problems and take immediate action.

Another benefit of process mining is that it enables you to optimize your processes and align them with the strategic goals of your organization. By analyzing the data collected from your processes, you have the ability to improve your methods and ensure your processes are achieving your strategic goals.

## The Optimizing Phase

### What It's All About

The optimizing phase is all about taking your process and enhancing it. You need to thoroughly examine your process to maximize its output and improve it. Additionally, as customers' expectations change and your business grows, you need to ensure that your processes are still meeting the needs of your company and your customers.

This means that you need to take a hard look at the existing way you do things. You need to focus your efforts on:

- Ñ **Eliminating inefficiencies** or extra, redundant steps.
- Ñ **Decreasing waste**, such as pointless paperwork. These wasteful activities use a precious resource: your time. They make the cycle time of your process much longer and they add unnecessary headaches. As well, they add no value to your process.
- Ñ **Alleviate bottlenecking** by identifying the issue and developing solutions. Is there something you can be doing differently to make work happen faster and more efficiently?
- Ñ **Increase flow** by optimizing your workstations and using technological solutions.

### Case Study

Think of a messy desk. We have all seen them and maybe we've been the desk occupant! This desk represents more than just the space you work in; it represents the process of how you do work. Think of the piles of documents and paperwork on top of this desk. Would this type of workspace be optimal? Is it efficient? Does it allow the worker to be productive? The answer to these questions depends on the person. Some people thrive in a messy environment but most of us need to be organized to be productive.

For most of us, having a messy desk impedes our workflow and work process. Think of the time spent searching for a needed file. Spending 30 minutes sifting through piles of paperwork when the document should have been found in three minutes is inefficient. It also impedes the flow of work, wastes time,

adds extra steps to the task, and reduces your level of focus. What's more, the inefficiency of your desk could potentially cause a bottleneck. If you have misplaced a key report and someone else needs it to complete their job, your lack of organization can cause work to stop. Organizing our workspace can be vital to how well we perform.

In order to organize your desk properly, you need to devise a system that suits your needs. Simply putting files away and clearing the desk space may not be efficient. It will help you get rid of the mess, but if you have not devised a plan for retrieval, the solution will probably be temporary. Deciding how you will store your files (by color, by date, by client, etc.) and adhering to your approach will ensure you have an established, consistent procedure and maximize results.

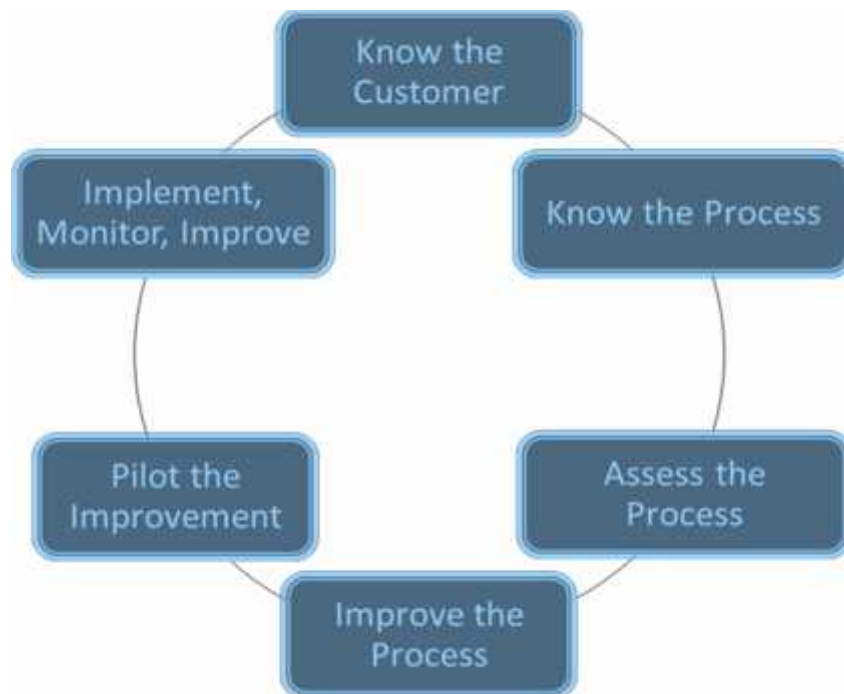
This simple example represents an optimized process. You took your existing process (the messy desk) and improved it in order to make it more productive and efficient. By improving the process, you added more value for yourself and the others that are affected by your workflow.

## Business Process Improvement

Business process improvement (BPI) focuses on continuous process improvement. This approach concentrates on how to eliminate waste and increase efficiency to positively impact a business's bottom line.

### Six Steps of Business Process Improvement

The following model illustrates the six steps of business process improvement:



## Breaking Down Steps One to Five

The first step of business process improvement is to **Know Your Customer**. Ask questions of both your internal and external customers to get a better sense of how existing processes are meeting their needs. If customers are unhappy with the processes in place, determine why they are unsatisfied and what you can do to make it better.

The second BPI step is to **Understand the Process**. Break down each segment of the process and map it out. Then, determine ways to measure and track improvements. Make sure to track performance before, during, and after changes are made.

The third BPI step is to **Assess the Process**. Once you have your process mapped, it will be easier to analyze which steps are necessary or add value and which do not. You can then eliminate unnecessary or redundant steps in the process. As well, you will need to collect and analyze process performance data to ensure that your process is fulfilling the needs and expectations of your customers. This data will enable you to see opportunities for improvement.

The fourth BPI step is to **Improve the Process**. Once you have mapped and assessed your existing process, you need to determine whether you can enhance the process or if it is in need of a complete overhaul. You will need to weigh the pros and cons of each option and select the best solution for your situation.

The fifth BPI step is to **Pilot the Process**. Here, you can test your improved process before implementing any drastic organizational changes.

Let's have a more in-depth look at the benefits of a pilot before moving on to the last step of BPI.

## Test Your Knowledge

**List three benefits of starting with a pilot project rather than a full organizational process change.**

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### Benefits of a Pilot

#### Easier to Acquire Funding

Any new initiative within an organization requires resources, which includes funding. It will be easier to acquire the funding you need and make the case for a pilot program than it would be for a full organizational program. Providing a large amount of resources and funding without proof that your initiative will bring success is a risk that not many organizations are willing to take. It is better to try this

initiative out on a smaller scale that will allow you to build the evidence for why your organization needs this improved process. This will make a larger future investment much easier to acquire.

### **Easier to Get Buy-In**

Having a pilot project allows you to prove the concept and gain credibility. This can make the process of getting buy-in from members of the organization much easier when you launch the process changes.

### **Easier to Measure**

Having a pilot process allows you to measure the results before making any drastic organizational changes. A smaller scale pilot makes it easier to answer questions like: Does the process work as it should in the pilot? Does the process deliver what it should?

### **Easier on You**

Let's face it: implementing process changes can be a daunting task. Start small to put less pressure on yourself. This will allow you to focus on the task at hand and do what's necessary to help the initiative be a success. A little bit of stress can be a good motivator but too much can impede your progress.

### **Easier to Expand Across the Organization**

Once your pilot program is a proven success, it will be much easier to expand across the organization. During your pilot, you will learn a lot about implementing process changes. These lessons learned will enable you to fully implement your changes with more confidence and experience.

### **The Final Step**

Finally, the sixth step of the BPI is to **Implement, Monitor, and Continuously Improve the Process**. The first part of this stage requires you to figure out how you will roll out your new process. For implementation, you need to focus on questions like:

- Ñ What is my budget? What are my budgetary constraints? Where would the money best be spent?
- Ñ How much time will be needed to implement this process? What are my time constraints?
- Ñ Who within the organization will I involve in this project?
- Ñ Do I need to seek help outside of the organization to accomplish my goals? If yes, who do I need to speak with?
- Ñ Is it necessary for us to upgrade our systems to implement this process? For example, if we plan on installing a new computer program, is our existing infrastructure sufficient or will we need to upgrade our systems?
- Ñ Do we need training for any of the proposed changes?

For monitoring and continuous improvement, you will need to continue to assess your process and make corrections and adjustments when necessary.

## Introduction to Lean

### What is Lean Process Improvement?

Lean process improvement is **a culture of ideas, tools, and processes that are designed to eliminate waste and improve workflow to provide maximum value for minimum cost.** The Lean philosophy was primarily developed by Toyota manufacturing experts Taiichi Ohno, Shigeo Shingo, and Eiji Toyoda. Although it has only emerged as a popular business idea in the past few decades, its basic concepts have existed for over 300 years.

It is important to note that Lean should not be viewed as a quick fix or something that just a particular department does. The companies that have success with Lean efforts are those that incorporate it as part of their culture. Ideally, all employees should have some form of Lean training, whether it is a quick seminar or a complete certification.

### The Toyota Precepts

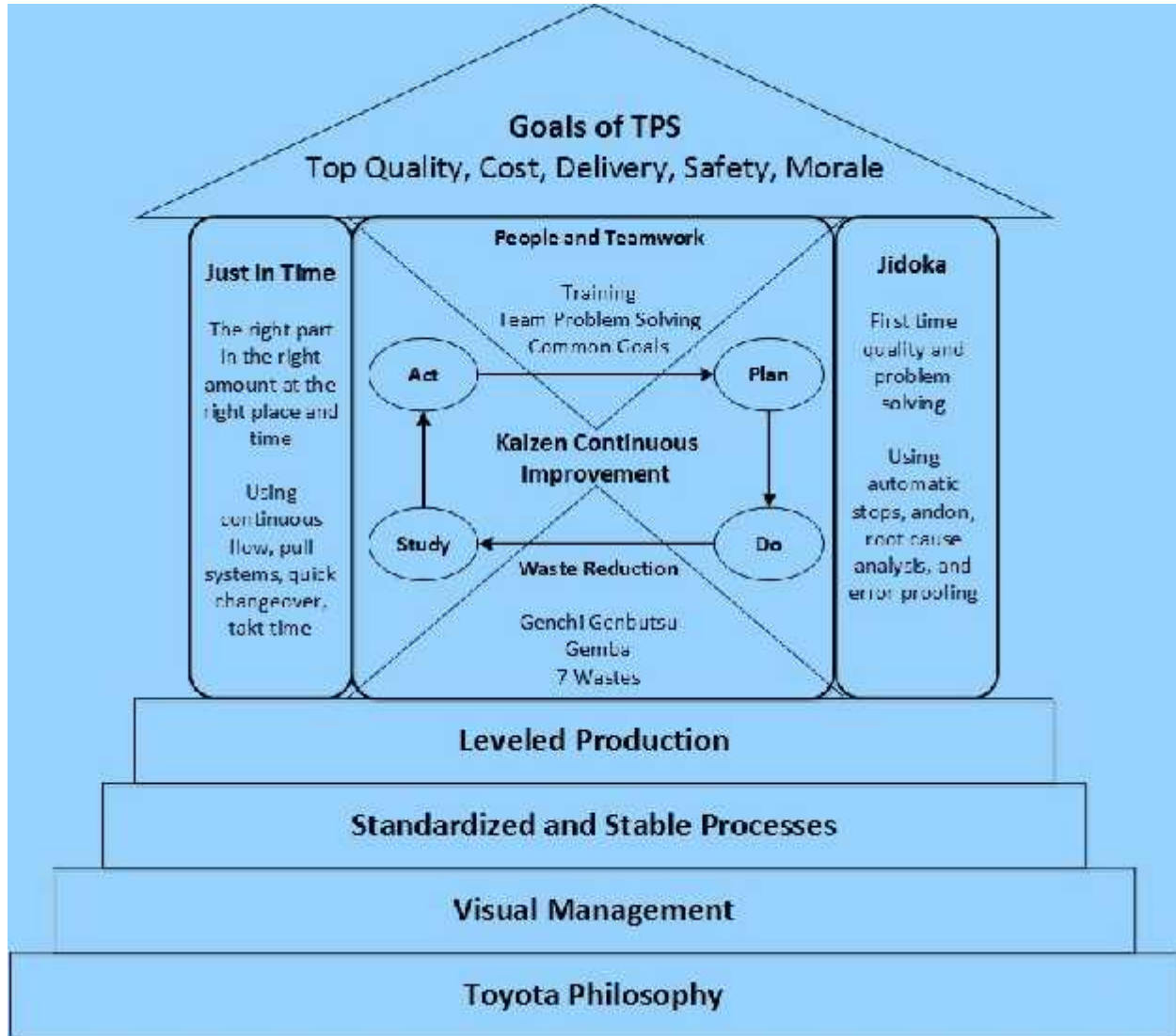
Toyota's way of doing business is known as the Toyota Precepts. These concepts are a key part of Lean methodology:

1. Be contributive to the development and welfare of the country by working together, regardless of position, in fulfilling your duties.
2. Be ahead of the times through endless creativity, inquisitiveness, and pursuit of improvement.
3. Be practical and avoid frivolity.
4. Be kind and generous; strive to create a warm, homelike atmosphere.
5. Be reverent, and show gratitude for things great and small in thought and deed.

(Source: [http://www.toyota.co.jp/en/environmental\\_rep/03/rinen.html](http://www.toyota.co.jp/en/environmental_rep/03/rinen.html))

## The Toyota Production System House

The concepts of Lean and the Toyota precepts are often drawn as a house to help us understand how all the elements come together:



### The Roof

The goals and objectives of the Toyota Production System make up the roof of the house. The system aims to achieve:

- 🏠 Top quality
- 🏠 Minimal cost
- 🏠 Proper delivery time
- 🏠 Good safety and morale

## The Pillars

Just-In-Time and Jidoka are the two pillars of the system.

- Ñ Just-In-Time means that you have what you need when and where you need it. It means no shortages, no waste, no bottlenecks, and no waiting. This can be accomplished with continuous flow, pull systems, quick changeovers, and attention paid to takt time (the rate at which customers are demanding product).
- Ñ Jidoka means error-free production. This means getting it right the first time, every time. This means stopping production if a defect is found, performing root cause analysis to fix the true nature of problems, error proofing processes, assigning appropriate work to people and machines, and using visual signals (andon) to signal progress or issues.

## The Core

The core of the system relates back to the basic Lean principles: people, problem solving, and the process of waste reduction. We can look at these three things as the core of the TPS philosophy.

## The Foundation

A strong system must have four basic elements:

- Ñ Leveled production, so that resources are not overworked or idle (heijunka)
- Ñ Standardized, stable, non-varying, documented processes
- Ñ Visual management tools (signs, lights, etc.)
- Ñ Commitment to the Toyota philosophy of long-term learning, problem solving, and the involvement of people

The seven wastes that the Lean practitioners identified are:

- Ñ Overproduction of product
- Ñ Wasted time (workers waiting for parts, machines to be fixed, and other forms of being idle)
- Ñ Unnecessary transportation of product between manufacturing operations
- Ñ Process inefficiency
- Ñ Unnecessary materials on hand
- Ñ Unnecessary motion of workers or product
- Ñ Defective goods

By eliminating unnecessary waste and striving to work intelligently, Toyota reinvented their manufacturing process. Their focus on maximizing every stage of manufacturing resulted in drastic reductions in cycle times. Additionally, their no-waste philosophy helped to engineer a better product. These combined factors had an enormous impact on Toyota's bottom line.

## Test Your Knowledge

**Think of five examples of how you might be wasteful at work. (Remember, waste does not have to take a physical form; it can also be a misuse of time and other resources.)**

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**Then, think of solutions for your waste examples.**

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**How might the elimination of this waste change the way you work?**

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## Cut Out the Waste

### Introduction to Six Sigma

#### What is Six Sigma?

Six Sigma is a continuous improvement approach developed by Motorola in the 1980's. It was originally designed to focus on and reduce defects that occurred during the company's manufacturing process. The approach concentrated on measuring process variations that led to defects, like a human or technological error, in order to isolate and eliminate the variation. The Six Sigma process helped Motorola optimize its manufacturing process to have almost no defects.

By improving the manufacturing process, Six Sigma also decreased Motorola's production costs and created value for their customers. In the 1990's, the approach was adopted and popularized by Jack Welch of General Electric. Six Sigma theories have since been implemented in many other businesses with great success.

#### The Six Sigma Approach

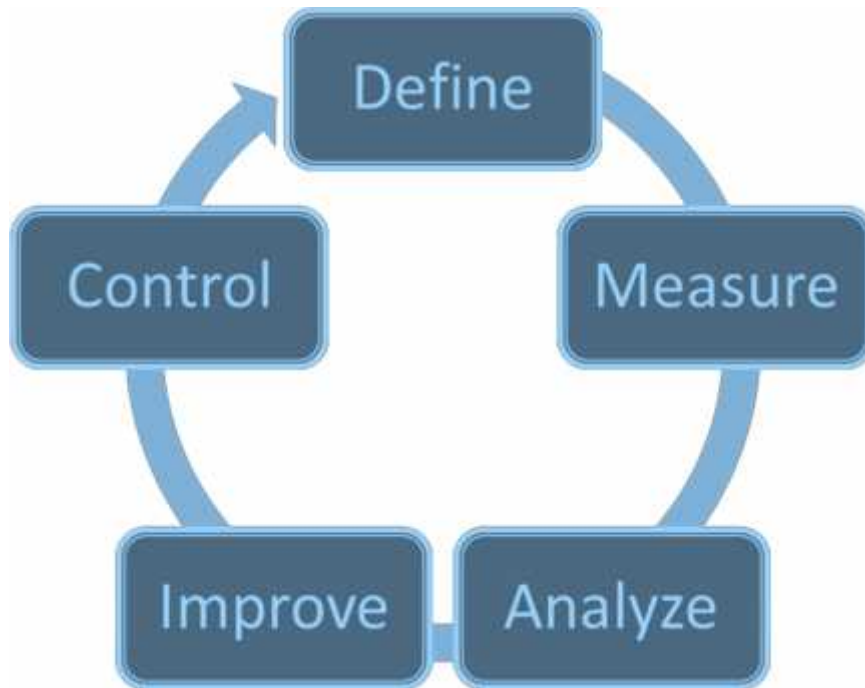
The Six Sigma approach focuses on:

- Ñ Reducing variation in processes and products
- Ñ Continuous, sustained improvement
- Ñ Measurable, quantifiable, stable results
- Ñ Commitment to perfection from the entire organization

Six Sigma methodologies can also be combined with Lean principles. This approach is called Lean Six Sigma and has been used by many organizations to improve process flow, improve quality, reduce waste, and reduce variation.

### **DMAIC Model**

Six Sigma uses the DMAIC cycle to guide process improvement:



#### **Breaking Down the Model**

##### **Define**

This is where the who, what, where, when, why, and how of the improvement project is determined. Often, project management tools like project charters, business cases, and statements of work are used to lay out what is to be done. This will better enable you to acquire the resources you need and get the necessary support from your organization. All goals should align customer needs with the goals of the organization.

##### **Measure**

In this stage, you need to establish current performance levels and defect levels. This will help you create a baseline and evaluate future improvements.

**Analyze**

Next, you will analyze the data and set specific improvement priorities. This often involves statistical analysis and looking at cause and effect relationships.

**Improve**

In this stage, you determine how you can review and optimize the process. Continued analysis is important for making sure that your changes have the desired results.

**Control**

Now it’s time to implement your process. You might even perform tests or pilot programs before doing a full-scale implementation. At all stages, the process should be controlled and maintained to ensure that defects are rectified. You will also gather and analyze data to make sure that the process continually delivers and achieves desired results.

**A Look at the Numbers**

The Six Sigma approach is all about the numbers. Having a process run at 99% efficiency may sound fantastic, but when you are dealing with a large volume of transactions, the 1% extra is extremely important. Essentially, Six Sigma aims to make a process 99.99966% efficient.

Imagine that your business is to lease POS systems (the machines that process debit and credit card transactions) out to hundreds of retailers. These POS systems process thousands of transactions per day. Your business also provides support for clients when the machines fail to operate.

The table below represents some of the processes involved in your business. The 99% accuracy represents where you are currently, while the 99.99966% represents your Six Sigma improvement end point.

Process	99% Accuracy	99.99966% Accuracy
Technical support resolving issues in one contact (ex. volume 61,000 issues per month)	610 issues per <b>month</b> that require more than one contact to resolve client issues	3 issues per <b>year</b> that require more than one contact to resolve client issues
Clients attempting to complete and close end of day transactions through wireless connections (ex. 43,000 attempts per day)	430 failed attempts per <b>day</b> to connect to the network through wireless connections	4 failed attempts per <b>month</b> to connect to the network through wireless connections

Secured network breach attempts (ex. 10,000 attempts per day)	100 successful breaches per <b>day</b>	12 successful breaches per <b>year</b>
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When dealing with a large volume of transactions, the 0.99966% improvement that will see you operating at a Six Sigma standard is remarkable. Any improvement to move toward this end point will help your business. Remember, process optimization is gradual and takes time. Celebrate your improvements and use these advances to motivate everyone involved in your business to continue striving to reach the Six Sigma standard.

### Further Reading:

