STUDENT MANUAL

CARIBBEAN EXPORT DEVELOPMENT AGENCY

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THE CARIBBEAN DIGITAL TRANSFORMATION INSTITUTE

Empower your journey

Digital Transformation Series

Processes

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PART ONE: COURSE OVERVIEW

COURSE OVERVIEW

This course will examine business processes and the benefits of mapping them out, take a look at why automating steps of a process could be helpful, and explore the basic ideas of Lean and how it relates to digital transformation.

LEARNING OBJECTIVES

At the end of this workshop, participants should be able to:

- Map out a business process and understand why this could be helpful
- Determine when automation could improve a business process
- Understand the basics of the Lean methodology and how it could be applied to digital transformation

Learning Objectives

PART TWO: PROCESS MAPPING AND ANALYSIS

Businesses have many processes in place that allow them to operate – from the creation of a product to delivery of that product, and every step in between.

This session will look at how to map out a business process, and why mapping is beneficial.

IDENTIFYING EXISTING BUSINESS PROCESSES AND WORKFLOWS

What is a business process?

Processes are everywhere. They are used every day. There is a process for putting gas in a car: the gas cap must be removed from 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. There might be processes for data entry, production, and/or dealing with customers. These activities help businesses reach their goals, and enable them to perform as a company.

What is process mapping?

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

Steps for Creating a Process Map

The first step to creating a process map is to gather and assemble the information about the process, writing down each step of the process on an index card or sticky note. The steps can be very basic or detailed.

The second step to creating a process map is to put the steps in the order in which 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, describe that step of the process.

The fourth step is to review the map. Make sure it matches what was originally described in steps one and two. Additionally, the map can be reviewed with people who directly work within this process to determine if it is an accurate representation.

When mapping a process, be sure the process is being mapped realistically, not as one wishes it to be.

Benefits of Process Mapping

Process mapping aids understanding of processes and gives the opportunity to see where performance can be improved. Some additional benefits of process mapping are listed below.

- **In-Depth Understanding:** Drawing a process map provides the opportunity to have a more in-depth understanding of the process. Words can only communicate so much, but a map can help understand the intricacies and interactions involved in a process.
- **Identify Problems:** Seeing a process mapped out can help identify problems or potential obstacles. Understanding and identifying a problem will enable the right solution to be created.
- **Identify How to Implement the Process:** When the process is mapped, it is easier to identify how to implement a new or changed process. It gives the ability to see who is involved and who will be affected by the upgraded process, and then make the necessary preparations to help support them through the change.
- **Eliminate Redundancies and Waste:** Seeing the process can help to increase efficiency because steps can be identified that add value and steps that do not add value. Eliminating duplications, redundancies, and wasteful activities helps give the process more value.
- **Process Achieving Outcome:** Mapping a process assists with identifying whether or not it actually achieves the outcome it was designed to achieve. If the process is not producing the desired output, the process map is 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 process mapping symbols and their meanings.

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

Indicates Step in Process

Indicates a Decision to be Made

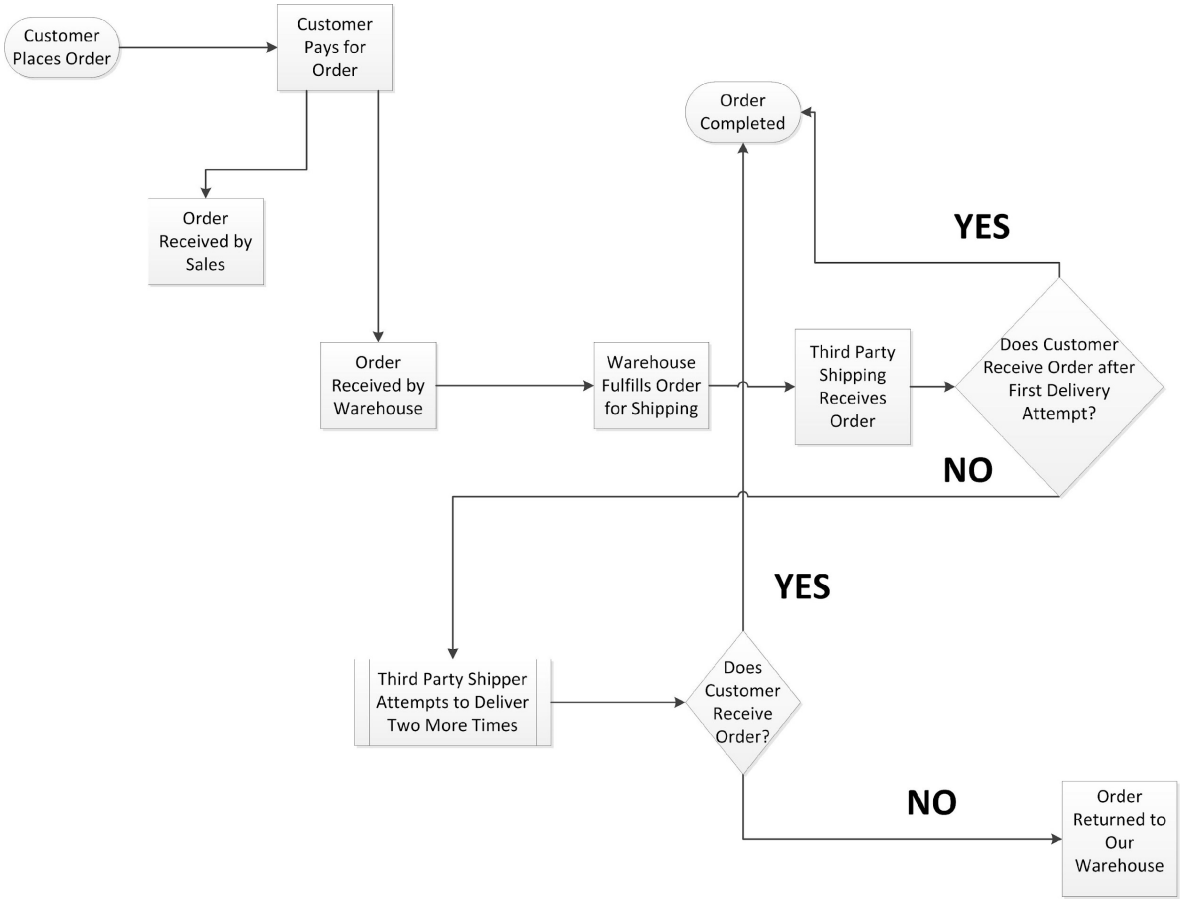
Indicates Start/ End of Process

Indicates a Document that needs to be Used

Indicates a Sub Process

Indicates the Direction or Flow of Process

Here is an example of a process map to help explain the concept. Earlier, the course talked about the process of delivering books to a customer. This process map details the steps involved from when a customer places an order to when they receive the order.



IDENTIFYING AREAS FOR IMPROVEMENTS

It is important to define improvements in order to imagine the ideal state for a process.

Defining improvements builds accountability. Highlighting problem areas and developing a clear, concise plan to address these problems helps to define roles and how the process should be carried out to achieve the desired outcome. This makes people responsible for and accountable for making the process work.

As well, to be able to measure the success of the implemented process, it is necessary to define the improvements that are desired. This involves having a clear idea of what improvements will be made and how they will benefit the business.

This is also important for justifying why the process needs to be enhanced or created. Implementing a process within an organisation is not done in isolation. A change in the way business is conducted affects everyone (employees, customers, and management) and can therefore cost a significant amount of time and money. It is necessary to prove that the process will recoup that investment and continue to generate savings.

PROCESS MAP ACTIVITY

Choose a process within your organisation and map it out. The first step should be to decide on starting and ending points before filling in the rest of the process.

- What are the steps involved in your process?
- What events will be your start and end points?
- What symbols or colors will you use to map out the different elements involved in your process?

Process Map

What are the benefits to "seeing" the process?

How hard was it to map out your process? What were some of the challenges?

Did mapping the process help you focus your thinking?

PART THREE: PROCESS AUTOMATION

Technology can improve some business processes. This might mean automating part of the process, or the entire thing.

This session will examine how to determine when automation could be helpful in a process, the potential benefits and pitfalls, and how to implement automation.

IDENTIFYING PROCESSES SUITABLE FOR AUTOMATION

When a process is automated, the goal is to use technology to help make the process more efficient. Certain steps of the process or the entire process can be automated.

When only steps of a process are automated, this allows for the blend of human interaction and automation. If this method is chosen, it is necessary to ensure that the people working with the automation understand how to use the technology and tools.

When the entire process is automated, this cuts down on the level of human involvement in the process. If this method is chosen, it is necessary to ensure that the process lends itself well to a small amount of human involvement.

Benefits of Automation

- **Increased Profitability:** Automation can help increase profitability by shortening the cycle time of a process.
- **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 minimising the instances of human error.

- **More Convenient:** Automation can make a process more convenient for customers. Think of online banking. Paying bills used to be laborious; it used to require a physical presence at a bank during their business hours. Now, bills can be paid at any time online.

Potential Pitfalls of Automation

- **Compromised Customer Service:** Over-automating processes can potentially alienate customers. A large part of customer service is the interaction between two people; it is a relationship, even if it is only brief. It can also impact the way the consumer views a company. Over-automating customer interactions can be viewed as sterile and can be counterproductive.

- **Not Foolproof:** When a process is automated, remember that technology is not foolproof. If a system is not working properly, services will be affected. If the system is out of commission, there is the potential to lose business, depending how long the system is not operating. At the very least, a number of customers can be inconvenienced.

Steps to Automate a Process

1. **Identify Steps in the Process that Lend Themselves to Automation:** Not every step in a process will lend itself to automation. Look at the example of prescription dispensing. Instead of getting a pharmacist to fill the doctor's prescription, what if individuals could submit an online form to get the 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 the process design team and get feedback from people that use the process to pinpoint areas that would benefit from automation.

2. **Look for Increased Quality and Efficiency Through Automation:** When automating processes, look at areas that would increase quality and efficiency when automated. In addition, focus on steps that would be easy to automate and provide more value for customers.

3. **Consult with an Expert:** When it has been decided which parts of a process should be automated, then consult with a technology expert to figure out how to accomplish this. Depending on the solution that is needed, this may be in-house, external, 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 to use to help determine whether or not to automate a process:

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

Answering these questions will help determine whether or not automating a process is the right solution for an organisation.

IMPLEMENTING PROCESS AUTOMATION TOOLS AND TECHNOLOGIES

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. For example, when an individual is renewing a library card at the local library, an employee opens a computer program that prompts them to input the individual's basic information such as name and address. The worker follows the prompts and the workflow engine then provides the employee with the necessary documentation to be completed. The individual fills out the forms, and then the employee finishes inputting the data. 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, when a borrower signed up for their library card, they were asked for their email address. The email address is used by a computer program to send a notification when the borrowed materials are due to be returned. This process has no human interaction; it is completed within the workflow engine.

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 that the workflow engine will perform. Additionally, they are designed to guide the user to input the proper information to successfully complete the process.

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

Let's look at an example. A financial services representative at a bank is assisting a customer with applying for a line of credit. The rep takes the customer's financial information and inputs it into the bank's financial screening system to see if they qualify for the service. When filling out the forms within the screening system, the rep is prompted to ask the customer if they have documents to prove their income. Without these documents, the process cannot continue. This prompt comes from the predefined business rules that govern the screening system.

Without business rules, a workflow engine is directionless. Typically, most organisations 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 research. Make sure the software enables the potential of the workflow engine to be maximised. When researching available engines, make sure the proper infrastructure is available to support it. Ask:

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

Once a workflow engine has been chosen, tailor it to the process. Consider:

- What functions does it need to perform?
- What parameters need to be met in order to complete a process?
- What other systems need to be integrated?

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

Once the pilot has been carried out, make a plan for implementation. Ensure that training is provided and that people within the organisation know how to use the engine to increase process efficiency.

Workflow Engines to Revolutionise Industries

Choose one of the following examples:

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

Now, consider how workflow engines have impacted these industries.

Can you think of any other industries that have been revolutionised by workflow engines?

Can you think of industries that are desperately in need of workflow engines?

PART FOUR: LEAN METHODOLOGY

The Lean Methodology is an approach that looks for improvements in business processes by identifying and reducing waste.

This section will explore that approach, and begin to consider how it can be applied to digital transformation projects.

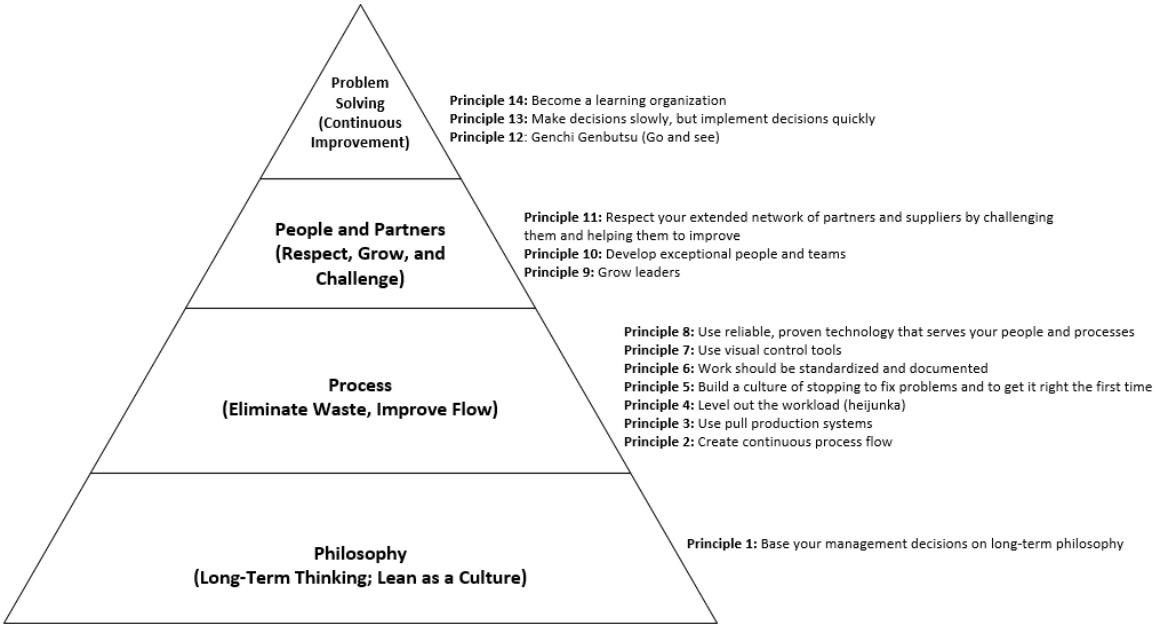
UNDERSTANDING LEAN

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. Although it has only emerged as a popular business idea in the past few decades, specifically in manufacturing at Toyota, its basic concepts have existed for over 300 years.

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.

Lean refers to a set of tools that are designed to improve flow and reduce waste during a business process or material production. These tools can be used within Six Sigma efforts or on their own.

One of the most popular descriptions of Lean philosophy for Western audiences is contained in Jeffery Liker's 2004 book *The Toyota Way*. Liker organises the four main principles of Lean as a pyramid, with each part of the pyramid containing one or more key Lean principles.



The foundation of the pyramid represents **Philosophy.** Its sole principle is to base management decisions on long-term philosophy. This is why it is important for Lean to become a part of the corporate culture.

The second level is **Processes**, where waste is eliminated and value increased. This involves:

- Creating continuous flow.
- Using pull production systems, where only as much product is made as is demanded by the customer.
- Leveling out work so that resources are not overwhelmed or idle.
- Encouraging members of the organisation to get it right the first time and to stop and fix problems.
- Standardising and documenting work.
- Using visual tools, such as lights and signage.
- Use reliable technology.

Once the philosophy and processes are in place, move onto the third level: **People and Partners**. Here, the aim is to:

- Grow leaders and exceptional people and teams.

- Treat partners as such: encourage them to improve and challenge them in a respectful manner.

At the top of the pyramid, is **Problem Solving**. In other words, once the Lean system is solidly in place, focus on continuously improving the systems. The key principles of continuous improvement are:

- Always go and see first-hand (Genchi Genbutsu); never assume or believe what you are told.
- Remember the old saying, “Ready, aim, fire!” (In other words, take time when making a decision, but once the decision is made, implement it quickly.)
- Become a learning organisation. Encourage or require all members to grow and evolve.

ELIMINATING WASTE

The concept of eliminating waste is one of the core ideas of Lean process improvement.

Taiichi Ohno, the founder of the Toyota Production System and one of the inspirations for Lean, originally identified seven wastes.

These are:

- Overproduction (making more of something than needed)
- Unnecessary motion
- Surplus inventory
- Unnecessary processing steps
- Excessive transportation
- Idleness and waiting
- Defects

APPLYING LEAN TO DIGITAL TRANSFORMATION

Colin Parris for Forbes suggests Lean principles can be combined with a digital approach – through the use of data to reduce waste and increase value.

“Because data is now abundantly available, it can be used for analytics and AI techniques to gain deep insights to support process changes needed to reduce waste and create better business value,” Parris writes.

Value

In terms of Lean, value means a desirable result from a product, service, or process that has some worth. Any process should put out more than it consumes. For example, if producing a widget costs $20 but it is sold for $15, this does not create value.

There are two basic ways to increase value: increase revenue or decrease cost.

Waste

Waste is the second key concept of Lean. It is the opposite of value: anything that is not wanted, or a result that has no worth. Eliminating waste is at the root of most, if not all, Lean processes.

In his book *Toyota Production System*, Taiichi Ohno says, “In production, ‘waste’ refers to all elements of production that only increase cost without adding value – for example, excess people, inventory, and equipment.”

Parris suggests examining business processes using a “value stream map” in order to understand an organisation’s waste and opportunities, and to be ready to modify processes.

According to the Lean Enterprise Institute, a value stream is every step “required to bring a product from raw material to the arms of the customer.” The mapping process means diagramming the current process, and the process as the organisation would like it to be.

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