Flowchart

Dheemant Ravi Palan

Illinois Institute of Technology

Abstract

A flowchart is a powerful business tool. With proper design and construction, it communicates the steps in a process very effectively and efficiently. There are a variety of ways to make a flowchart. Initially, flowcharts were made by hand using a pencil and paper. Until the advent of a personal computer, drawing models made of plastic flowchart form outlines helped flowchart designers work faster and gave their diagrams a more detailed look. Flowcharts were initially used by industrial engineers to organize work processes such as assembly line output. Today, flowcharts are used for several purposes in manufacturing, architecture, engineering, industry, technology, education, research, medicine, government, administration, and many other fields. In this article, we will be looking at different types of Flowchart & their usages

Keywords: Process Flow, Flow Charts, Flow Diagram, EPC, SDL, Process Map

Flowchart

A flow chart is a diagram that displays an algorithm, a process or a system. These are used in many areas in a simple to log, analyze, schedule, improve and convey complicated processes as clear and easy diagrams. Flowcharts, often written as flow charts, will describe flow, with the linking arrows to identify flow and series utilizing rectangles, ovals, diamonds and possibly several other types. They can vary from plain, hand sketches to computer- diagrams that display many phases and routes. When we look at the various types of flowcharts, it is one of the most common diagrams utilized by technicians and non-technicians in many fields.

History

During the period from 1920-1930 usage of flowcharts to log market processes were in place. The American Society of Mecanotechnicians (ASME) was introduced to flowchart by industrial engineers Frank and Lillian Gilbreth in 1921. In the early 1930s, industrial engineer Allan H. Morgensen made use of Gilbreth's methods to conduct conferences and make his organization more successful. Post-1940, the techniques were developed more broadly by two students from Morgensen, Art Spinangers and Ben S. Grahams. Spinanger also adopted Procter and Gamble function simplification approaches. Graham, ta director at Standard Register Industrial, adapted knowledge process charts for information processing. In the late 1940s, Herman Goldstine and John Van Neumann began using flowcharts to create computer programs, and graphic design became then extremely common for computer programs and algorithms of all sorts. The ASCE graphical framework became adapted for flowcharts from the initial research by the Gilbreths. Flowcharts tend to be used for programming today, while pseudocodes, the mixture of language terms and coding for human understanding, are mostly used to demonstrate finer levels of information to move closer to the finished result. Kaoru Ishikawa (1915-1989), a

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leading figure in quality initiatives named flowcharts as one of the main methods to track output,

along with similar instruments such as the histogram, the Check Sheet and the cause and effect
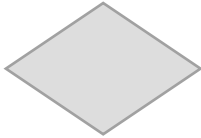
maps and now named the Ishikawa Diagram.[6]

Flowchart symbols

Terminal/Terminator

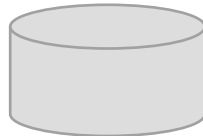One step in the process. The step is written inside the box. Usually, only one arrow goes out of the box.

Decision-based on a question. The question is written in the diamond. More than one arrow goes out of the diamond, each one showing the direction the process takes for a given answer to the question. (Often the answers are "yes" and "no.")
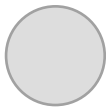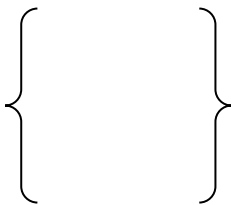Input or output

Document

Stored Data
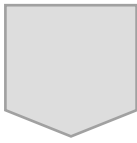
Flow Arrow

On-page connector/reference

Comment or Annotation

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Predefined process

Off-page connector/reference

Types of Flowcharts & Uses of flowcharts:

Process flowchart | Planning a new project

A fresh idea is one of the most common applications of flowcharts. The flowchart is mostly used by engineers and program developers, but some can still find it useful. for this reason. They are particularly useful when the project requires a set of decision-making moves.
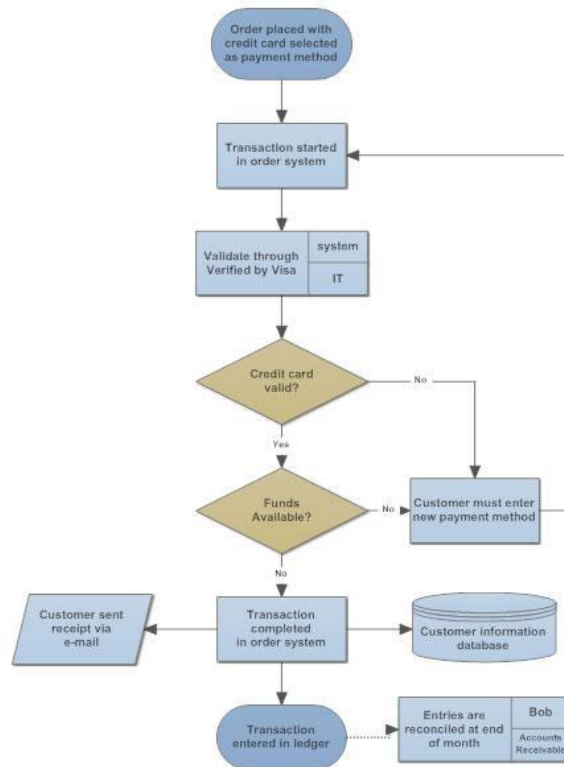

Fig.1[]

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Swimlane Flowchart| Documenting a Process Across Functional Groups

Companies also have internal or external procedure reporting specifications. For such purposes, flowcharts are an outstanding device. The usage of a flowchart would be far more effective from documenting requirements to following regulatory legislation than composing a formal text.
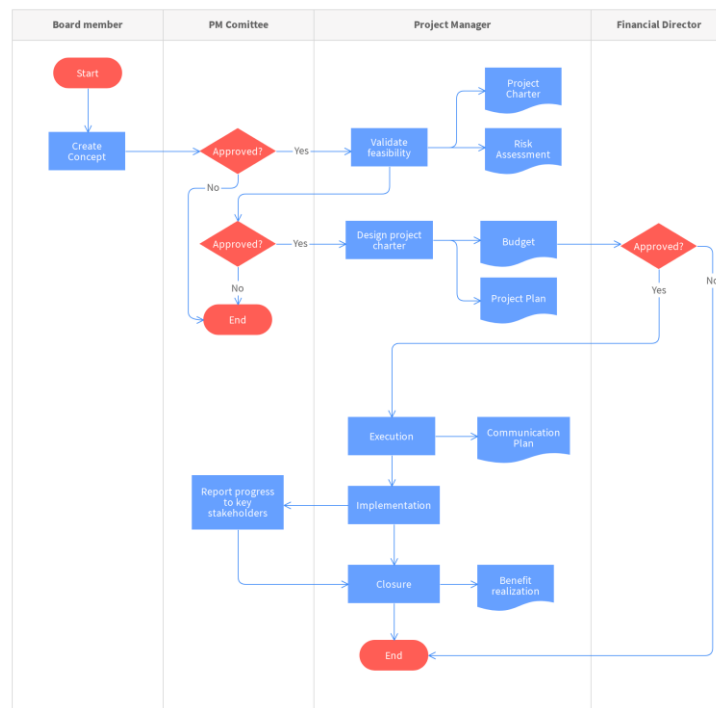

Fig.2[2]

Examples of external constraints that involve recording the method are as follows:

● BPM Automation: Documenting processes is a requirement for automatic BPM (BPM).

● ERP: Reporting procedures are needed as part of the execution of corporate resource planning.

● Business Sale: Information procedures are an essential practice while a business is prepared for future purchases.

- Compliance: A variety of statutory and administrative agencies, such as the Sarbanes-Oxley Act or the Joint Commission, also involve detailed reporting of procedures.

- Customer: Other consumers might be authorized to conduct business through ISO or certain standard certifications.

Internal reasons for the use of flowcharts in paper processes can also exist.

- Flexibility: Current and established workers will quickly know the best approach to do some job.

- Quality: If someone on the team does a job, in the same manner, every time, the result becomes reliable and stable.

- Visibility: The management will see precisely how each work is to be done.

- Flow Improvement: You can't change the way the company performs its job until you learn how it's accomplished right now.

A simple flowchart is also necessary for the documentation of the operation. Nonetheless, in cases where processes have several phases, operate through divisions, or other different categories, a swimlane flow chart or a cross-functional flow chart may be a better option. Visually divides the process into different groups.

Workflow Diagram| Managing Workflow

Workflow management systems are best demonstrated using the workflow diagram. These systems concentrate on process integration, the orientation of human tasks, or both. The goal is to establish a reliable, high-quality products based on a standardized collection of procedures.
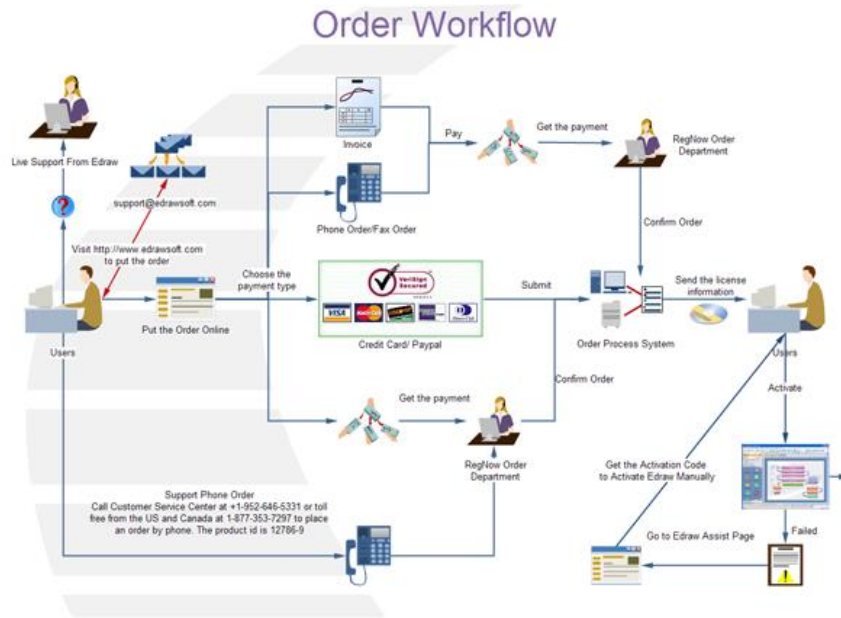
Fig.3[4]

Data Flow Diagram| Making a Decision

A decision flow map helps you to imagine the choices of any significant business decision. Look over possible consequences and make sure you weigh all problems before you make a decision.
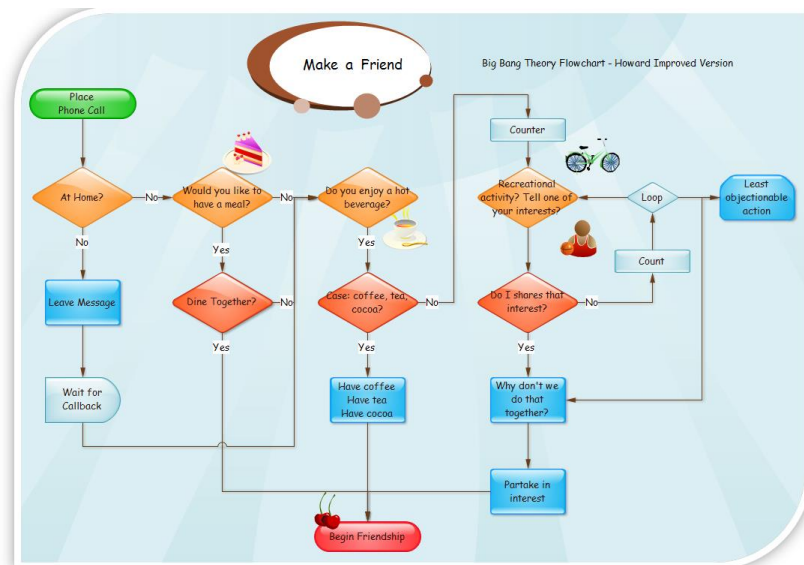

Fig.4[3]

EPC Diagram| Modeling a Business Process

Business processes can cover a broad range of activities. They may be a straightforward collection of tasks or a complicated collection of tasks that cover a variety of different situations. The simulation of these processes is performed to ensure a clear, predictable outcome. Documenting or modeling a business process is achieved using an event-driven process chain (EPC) diagram. The EPC diagram is a special form of flowchart designed specifically for this purpose. It has a special symbol library not found in conventional flowcharts.
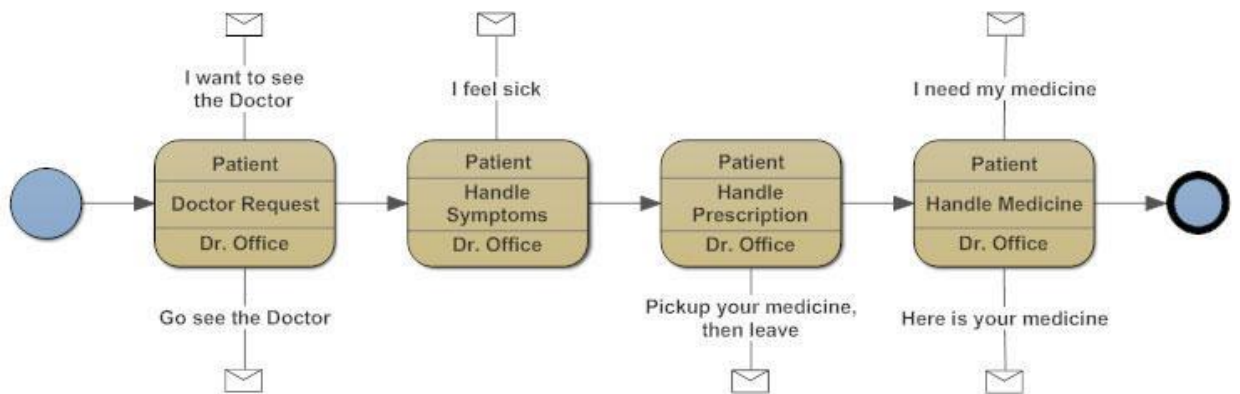

Fig.5[5]

SDL Diagram| Mapping Computer Algorithms

Brainstorming computer algorithms are also done using an SDL diagram. SDL stands for Language Specification and Definition. This is a flowchart that provides a special set of symbols used to represent real-time processes. The device description, unit, and method are the three basic components of the SDL diagram.

One of the reasons flowcharts are often used for system and network design is that they often offer a valuable tool for internal problem-solving. They are also a great way to teach consumers how to solve specific problems, as they are simple and easy to understand when presented correctly.
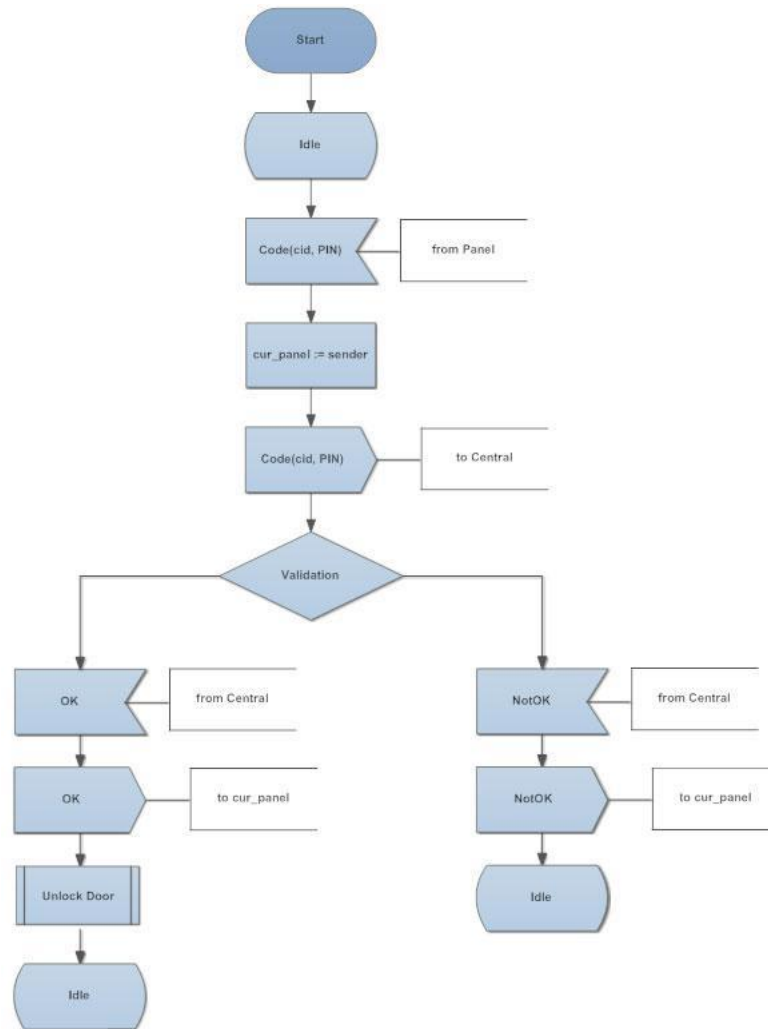
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Fig.6[5]

Process Map| Auditing a Process

Flowcharts can be used to diagnose failure or troubleshoot problems. These uses are popular in

the field of software and electronics. But they're not limited to these fields. Company companies

often use flowcharts to enhance processes. Breaking down processes into smaller measures, then

closely analyzing them, will expose areas of both operational inefficiency and potential for

improvement. A process map is a comprehensive flowchart that is a valuable resource for process

auditing. There are four steps used to construct a process map:

- Identifying and recognizing the steps of the process.

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- Gathering of information to define priorities, threats, and controls in the process.

- Interview with the individuals involved and diagram the operation.

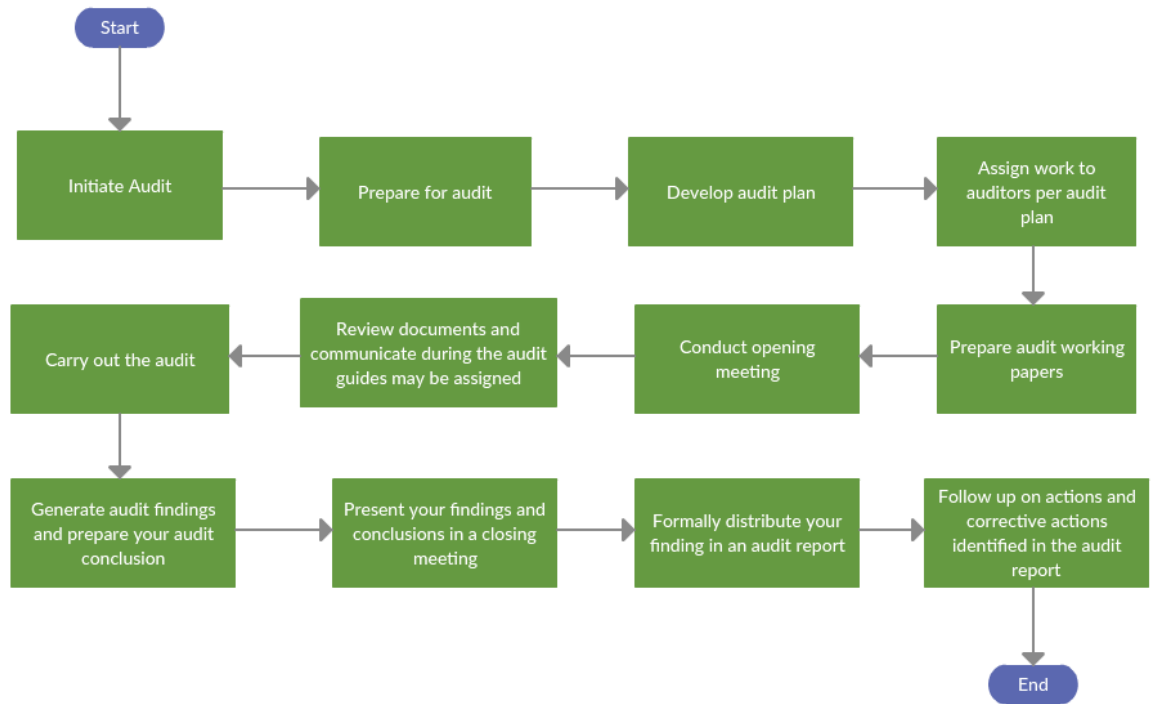- Analyzing and making adjustments to enhance the operation.

Fig.7[1]

Process Flow Diagram| Reengineering

A process flow diagram (PFD) is a technical illustration also known as a flow map. It is used for the show of high-level processes in chemical and process engineering. The PFD will concentrate on major plant processes but does not reveal any small data.
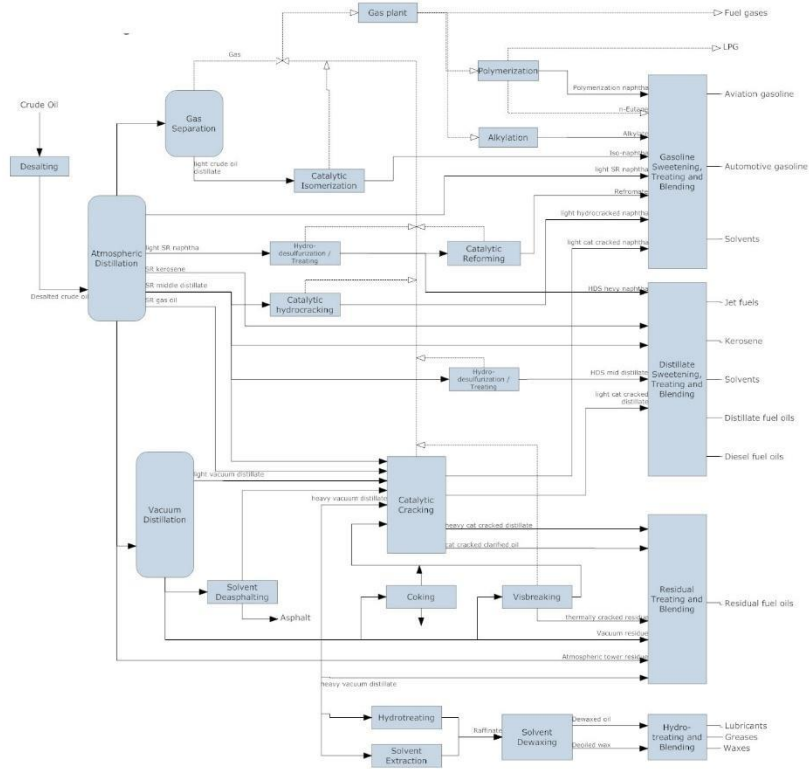
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Fig.8[5]

Conclusion

Even though there are multiple process flow one needs to understand when a particular process flow should be used. Who is the audience to review the process flow. **As** a business owner, we should always aim to increase the productivity of your company, and we should welcome any tool or resource that helps you accomplish that mission. Streamlining our business processes will also help your workers improve their efficiency, and more efficiency means more sales. Flowcharts aim to explain how a process works or should operate without any misleading technical jargon. Understanding the main uses of flowcharts will help the company function at the highest level.

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