Report 1: A Survey of BPMN Modeling tools

By

Mr. WARIS DAMKHAM 6388014

Mr. THANAWATH HUAYHONGTHONG 6388016

Miss PATTANAN KORKIATTRAKOOL 6388022

Mr. NAPHAT SOOKJITSUMRAN 6388059

Submitted to

Assoc. Prof. Dr. Jarernsri Mitrpanont

A Report Submitted in Partial Fulfillment of

the Requirements for

ITCS 414 – Information Retrieval and Storage

Faculty of Information and Communication Technology

Mahidol University

2021

Executive Summary page

This report is a part of the Management Information Systems ITCS361. The purpose of this report is to provide readers with business process model and notation (BPMN) and BPMN tools. There are five main topics that appear. Most topics are BPMN tools with explanations and methods. I hope those who go through it will find it useful and worthwhile.

Table of Contents

Business Process Model and Notation (BPMN)

BPMN provides a graphical representation of business workflows that anyone, from business analysts to stakeholders, can easily understand, which aids in business process analysis and business process improvement.

What is Business Process Modeling Notation (BPMN)?

The Business Process Modeling Notation (BPMN), also known as the Business Process Model and Notation (BPMN), is an open diagramming standard for business processes. It resembles a flowchart and employs conventional images to depict the process's participants, options, and flow. The graphics are meant to be both comprehensive and easy to interpret without special expertise. This allows the same graphic to be utilized by executives, analysts, and technical implementation employees to facilitate group cooperation and comprehension. A BPMN diagram does not correspond directly to a particular implementation.

How is Business Process Modeling Notation used?

At its core, BPMN is a set of symbols and rules for linking them to describe a business process. These diagrams are known as "business process models" and can be used to depict either a public or private process. The initial purpose of BPMN was to assist in bridging the communication gaps that frequently occur between the various divisions of a company or organization. BPMN is frequently used in business process management projects.

BPMN does not directly correspond to any particular workflow implementation, yet it is frequently used to define intelligible coding processes. A business analyst may, for instance, build a BPMN diagram depicting a business process. This diagram may be implemented using business process execution language (BPEL) code in business orchestration software by a programmer. The program can then provide a BPMN diagram of the implemented process for an executive to review.

Overview of Business Process Modeling Notation icons

BPMN can be thought of as a graphic programming language. Each icon has a defined use and meaning in the diagram. These icons each represent a step or activity in the process.

Flow Objects are connected to create the main sequence and to control the process flow. They are subdivided into Flows, Events, Activities, and Gateways.

- **Event:** An occurrence indicating an interruption of a flow. It is represented by a circle. Events are subdivided into Start Events, Immediate Events, and End Events.
- **Activity:** Work is done in a process represented by a rounded rectangle. They can be an atomic singular task, or a compound process made up of other process flows.
- **Gateway:** A branching point in a flow is represented by a diamond. They can be exclusive decisions, inclusive decisions, branching parallel activities or complex gateways.

Connecting objects are directional arrows connecting flow objects to represent the sequence. There are three types of connecting objects: Sequence Flows, Message Flows, and Associations

- **Sequence Flow:** A solid line represents the order of objects that have only one source and one destination.
- **Message Flow:** A dashed line represents the flow of messages between participants.
- **Association:** A dotted line to link artifacts with objects.

A Swimlane is a container for separating activities. Swimlanes can be horizontal or vertical. There are two types of Swimlane: a pool and a lane.

- **Pools:** A box representing a separate entity, such as another department or business, Pools can be drawn without the internal process being shown to outside participants as a "black box."
- **Lane:** A box to partition within a pool to represent internal divisions. For example, to represent roles in an organization, such as manager and associate.

BPMN Specification

The latest version of BPMN is BPMN 2.0, which includes usage regulations. The BPMN2.0 standard will describe the symbols and meaning of collaboration diagrams and process diagrams and will reflect the aggregation of best practices throughout the business modeling community. BPMN aims to standardize business process modeling and notation. Considering modeling notation and views to do this, BPMN provides a simple method for business users, process implementers, tasks, customers, and suppliers to communicate process information.

Top 10 BPMN used in 2022

ADONIS: Community Edition

ADONIS: Community Edition is the free edition of BOC Group's Business Process Management suite ADONIS. It is intended for a community of experts to exchange ideas and experiences in BPM as well as promote BPM. This makes it perfect for anyone looking to take ADONis for a test drive before buying into a professional plan.

Bizagi Modeler

It is free, user-friendly, and collaborative business process mapping software utilized by millions of people worldwide. The Bizagi Modeler helps businesses to develop and document business processes in a centralized cloud repository in order to obtain a better knowledge of each step and to find possibilities for process improvement that will boost organizational efficiency.

BPMN.io

The bpmn.io project provides tools to view and edit BPMN, DMN, and CMMN diagrams as well as forms in your browser. Our tools are built, and battle tested by Camunda and are an integral part of the Camunda product stack. Our libraries are extensible, embeddable, and open source on GitHub.

Camunda Modeler

Camunda Modeler uses visual BPMN and DMN languages so that stakeholders with and without technical skills can work together and design.

Cawemo

Cawemo is the specification platform of the Camunda Platform 7 stack. Its main goal is to let all stakeholders model BPMN and DMN diagrams and related files and work together on them.

Cardanit

Cardanit is the Business Process Management (BPM) online software from ESTECO. Our 20-year experience working on automation and artificial intelligence demonstrates that these are more than buzzwords to us. We have put our expertise into the next generation of BPMN and DMN collaborative tools. We are aware of the challenges you face daily to model the processes, optimize them and take the right decisions for your next big digital step.

ARIS Express

ARIS Express is based on the proven ARIS method and industry standards. This free version will appeal to universities and vocational schools, as well as BPM beginners and occasional users. Smart design enables modelers to capture company information fast and easily based on a spreadsheet view. Users can concentrate on the content and don't have to take care of modeling standards or correct placement of objects.

Draw.io

Draw.io is proprietary software for making diagrams and charts. The software lets you choose from an automatic layout function or create a custom layout. They have a large selection of shapes and hundreds of visual elements to make your diagram or chart one-of-a-kind. The drag-and-drop feature makes it simple to create a great-looking diagram or chart.

PNMSoft

PNMsoft is a global software company that provides BPM (Business Process Management) software. Its product, Sequence, is a BPM software suite that enables building workflow applications with the purpose of improving business operations.

Signavio

Signavio is a vendor of Business Process Management (BPM) software based in Berlin and Silicon Valley. Its main product is Signavio Process Manager, a web-based business process modeling tool.
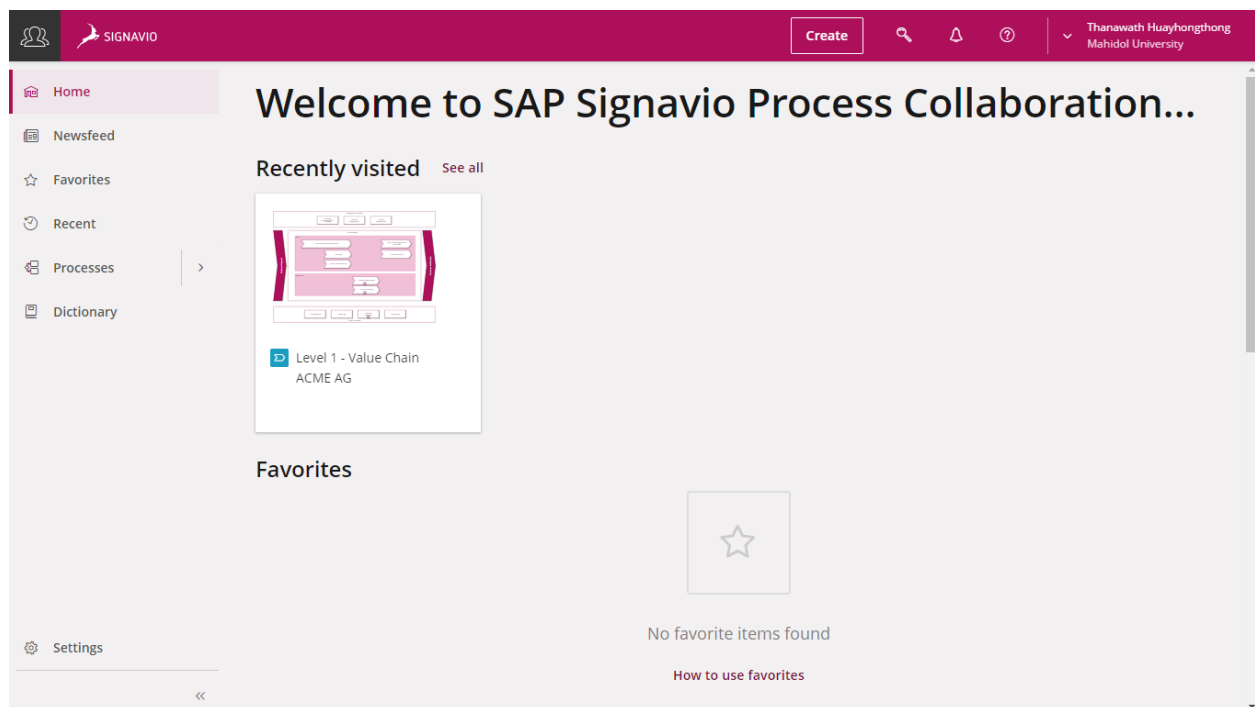
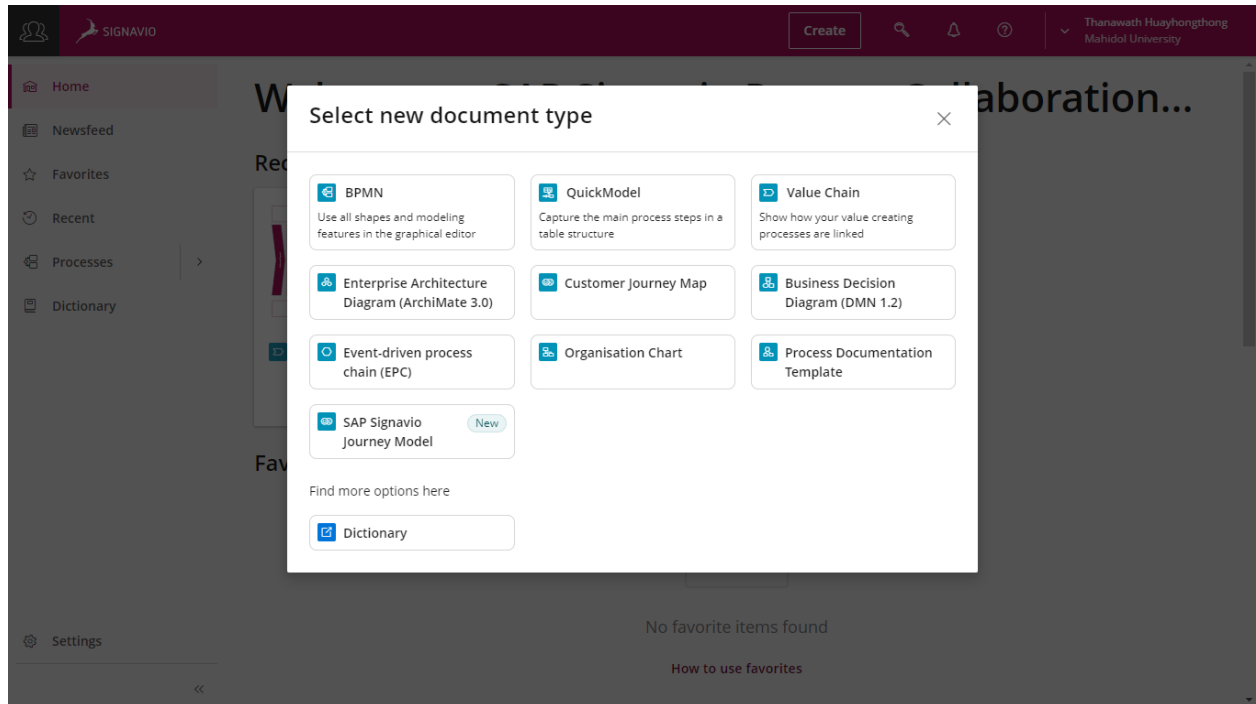# BPMN Modeling Software Tools

Signavio

Signavio is a Berlin and Silicon Valley-based Business Process Management (BPM) software provider. Signavio Process Manager, a web-based business process modeling application, is its flagship product.
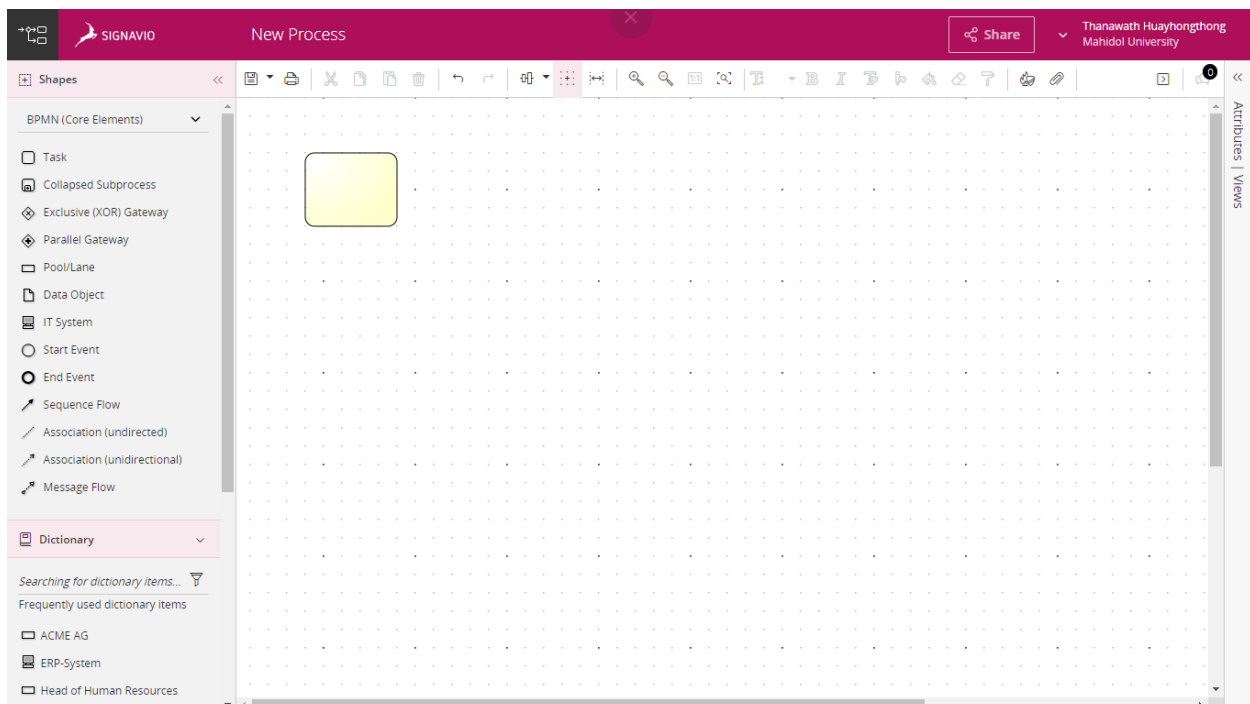
How to use

For the first time that you want to use it, you will have to register for the first time, but after you finish this, you will get a 30-day trial for free.
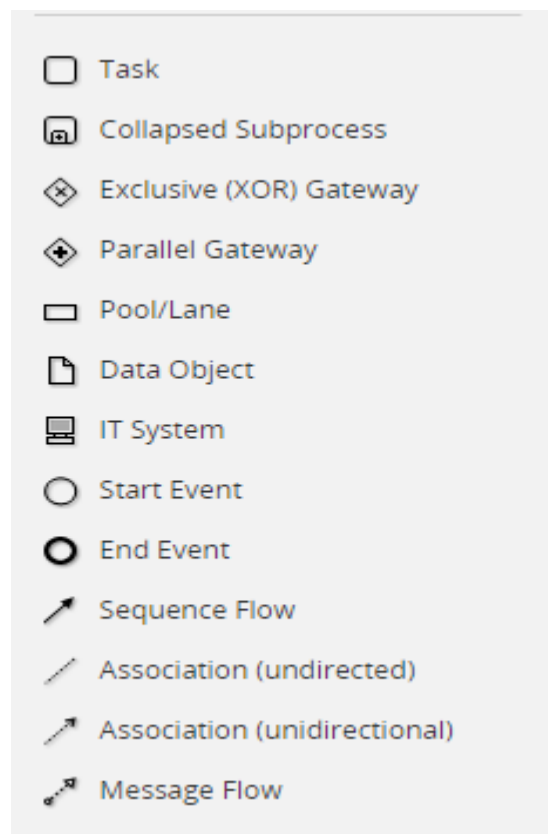
And you will see the homepage like this after you register and login to use it.

After that, when you want to create your BPMN, just click the "create" button on your top-right and choose the new document type that you want.

To create the diagram Just press and hold the command on your left hand and drag it out to the desired area.

For each tool, that means:

Task: The unit of work in which the job is to be performed. It is an atomic activity within a process flow.

Collapsed subprocess: is that which is a decomposable activity and can be linked to another process diagram.

Exclusive: when splitting, it routes the sequence flow to exactly one of the outgoing branches based on conditions. When merging, it awaits one incoming branch to complete before triggering the outgoing flow.

Parallel: When used to split the sequence flow, all outgoing branches are activated simultaneously. When merging parallel branches, it waits for all incoming branches to complete before triggering the outgoing flow.

Pool: that represents responsibility for activities in a process. Pools represent whole organizational units; lanes subdivide pools or other lanes hierarchically.

Data objects: represent information flowing through the process, such as business documents, emails, or letters.

IT system: can be associated with an activity. It is a system, or an application used while fulfilling the activity.

Start: Untyped start event.

End: An untyped end event typically marks the standard end of a process.
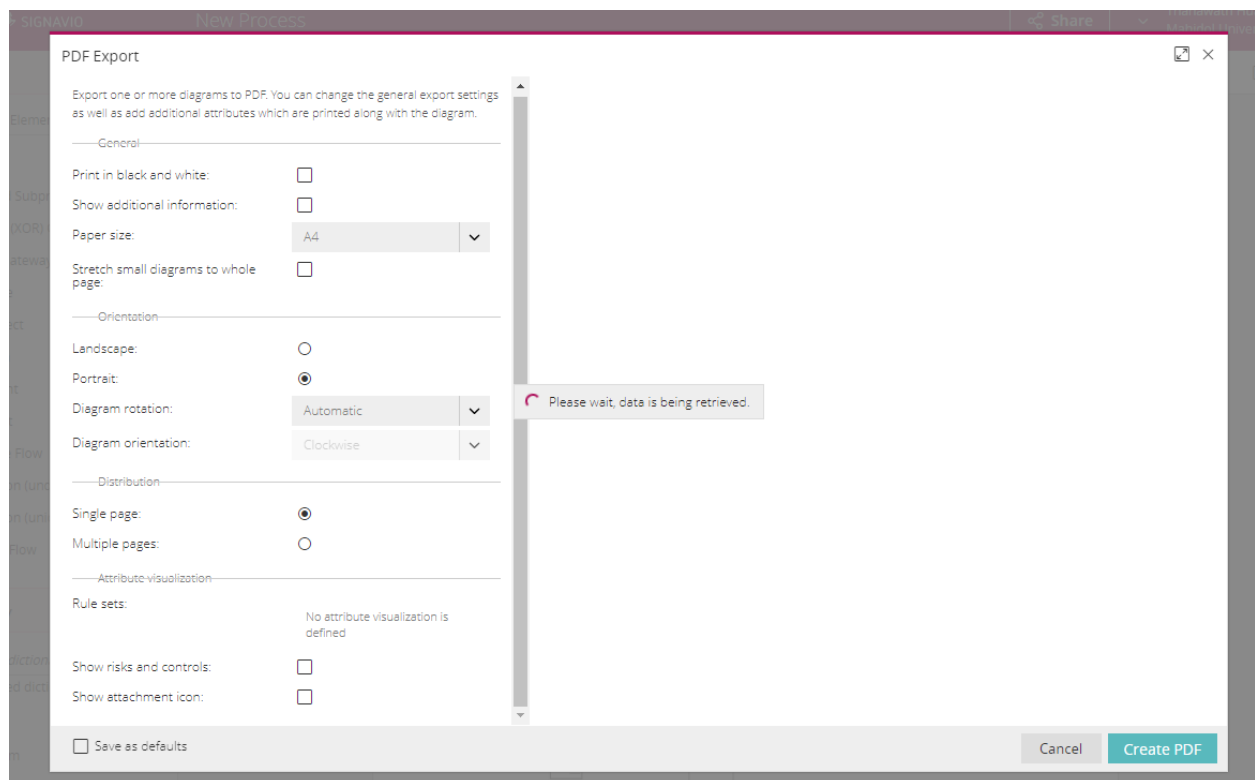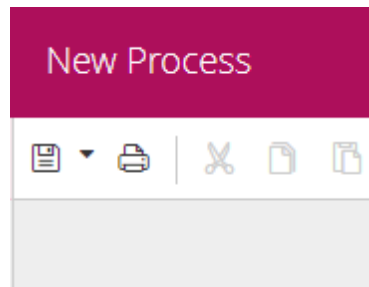
Sequence: that defines the execution order of activities.

Data Association: attaching a data object with an undirected association to sequence flow indicates hand-over of information between the activities involved.

Directed Association: denotes the flow of information. A data object can be read at the start of an activity or written upon completion.

Message: That symbolizes information flow across organizational boundaries. Message flow can be attached to pools, activities, or message events. Message flow and sequence flow can be used together to set the order of message exchanges.

After finishing, you will focus on the print icon on the top-bar to export.

When you press the print icon, it will show PDF export to convert, and it will export your work to a pdf file.
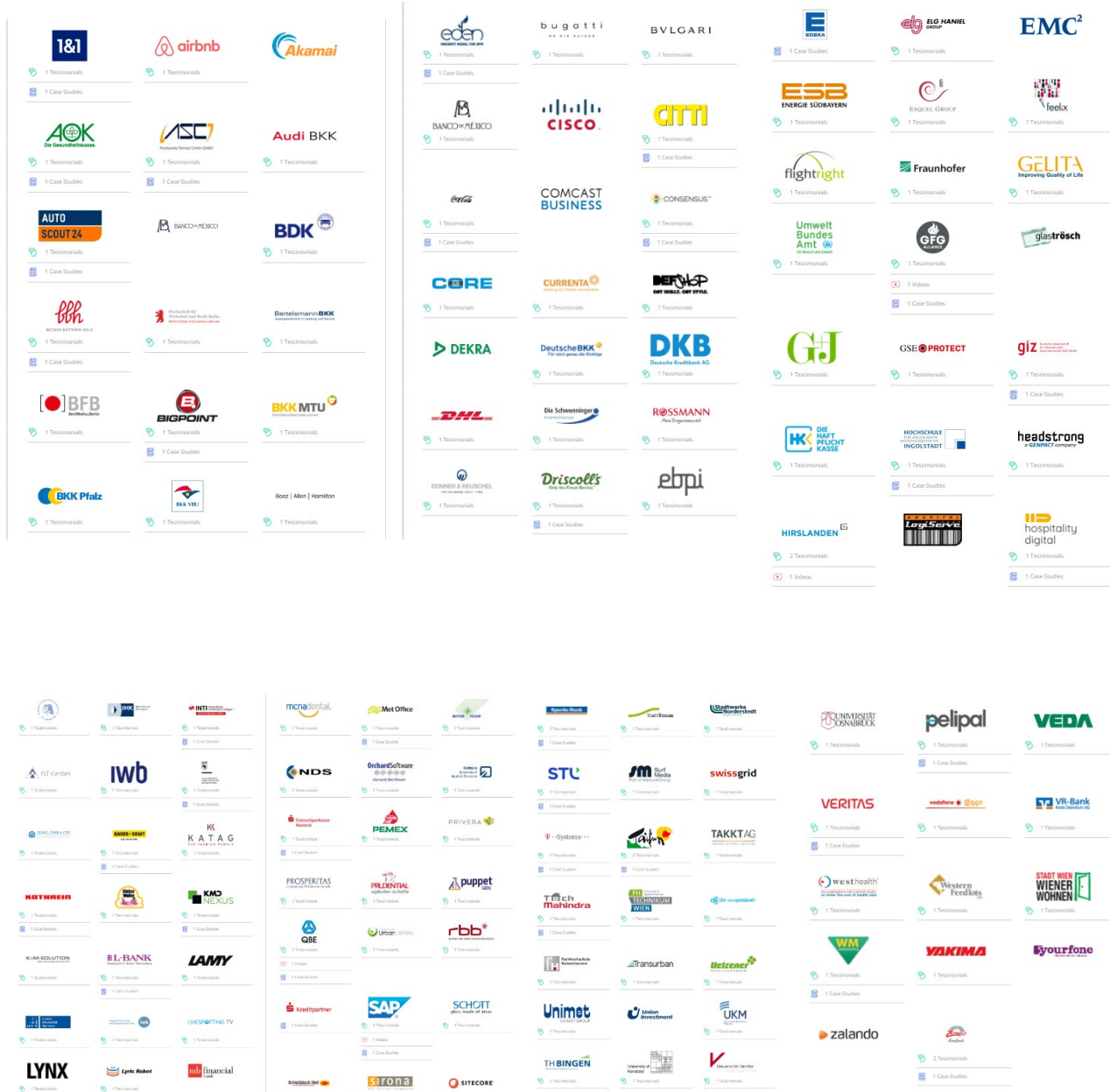
Pros

- It is a fast and simple-to-use device with a hub function.
- Simple Collaboration Hub functionality and model validation with precision.
- Create workflows quickly.
- Process visualization is straightforward and may give a thorough, in-depth study of the whole process.
- Ability to write JavaScript-based code to customize or integrate the behavior.
- It employs business process management notation, which is part of a company's effort to align its operations with worldwide standards.
- It has features that make it easy to keep track of and manage a company's processes, especially when the processes are well-developed.

Cons

- Its inability to convert existing flows to Signavio flows with little or no effort.
- Insufficient support for customization throughout the system
- There is no great user community for the same reason.
- You will struggle a lot with obtaining data out of Signavio due to a lack of APIs.
- Storage is also a constraint.
- There is no Direct Drive or Box integration.
- A license that is extremely costly in relation to its competitors.
- The UI has not been updated in a very long time.
- The designs of fonts appear to be dated and common.
- It takes some time to determine and implement all the features.
- Quick modeling's limitations typically necessitate the purchase of a complete license, offsetting the program's advantages.
- There are a few minor graphical flaws.

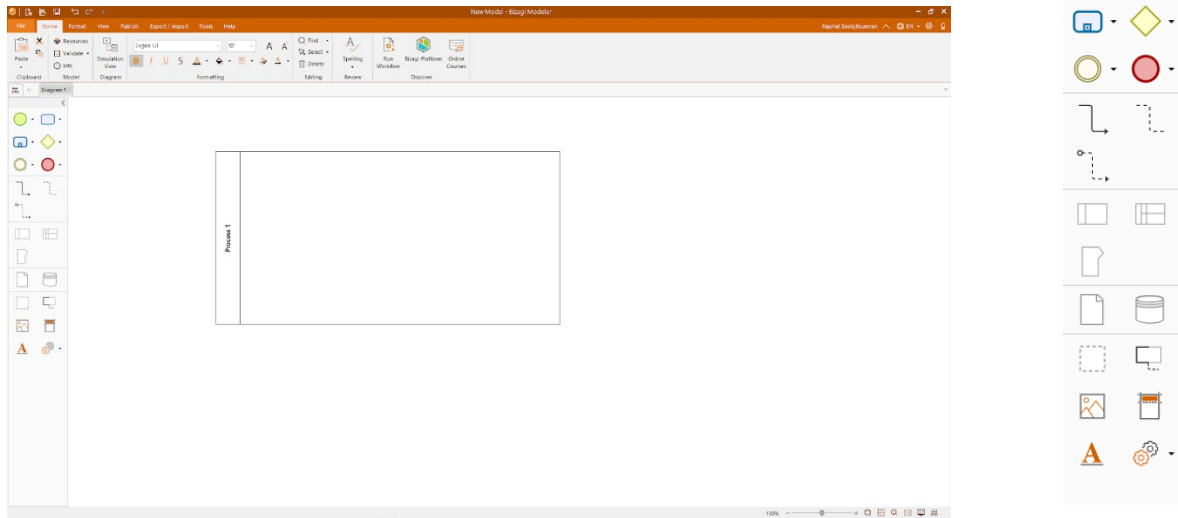## Company and organization who use Signavio

They have 137 customers that trust and use Signavio for planning t heir business processes.

Bizagi Modeler

The Bizagi Modeler enables organizations to create and document business processes in a central cloud repository to gain a better understanding of each step and identify process improvement opportunities to increase organizational efficiency.

How to use

The palette includes many forms to help the process flowchart. The shapes adhere to BPMN notation.

Rectangular tasks reflect the labor completed by an organization. There are atomic and non-atomic tasks.
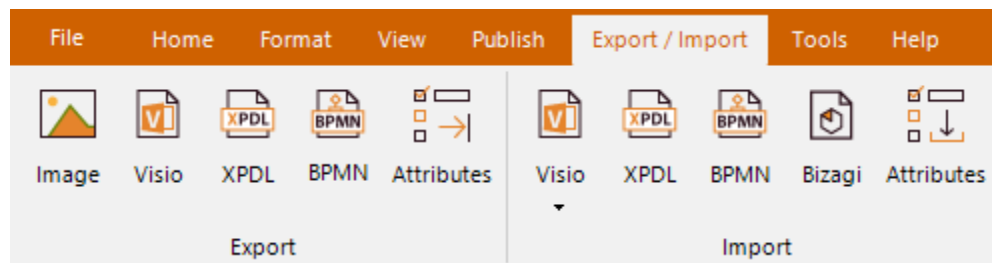
Events are open-centered circles. They indicate something that occurs throughout the process. These occurrences alter the process's flow and typically have a course or consequence. There are three distinct categories of events depending on their impact on the flow: beginning, middle, and conclusion.

Gateways are precious gems. These components are used to govern sequence flow divergence and convergence.

You may alter the pool's name by double-clicking on it. Enter the desired text and begin creating diagrams.

You may export and import by referring to the image.

Pros

- The interface is simple to use. The Bizagi standard drag and drop process modeling environment makes mapping processes simple with no need for technical knowledge.

- Downloading and using Bizagi Modeler is free, as is the creation of process models.

- Learning resources.

- Multiple functionalities Its features make automated processes faster and more efficient than ever. It provides an incredible cost-to-benefit ratio, outstanding customer service, fast development, security, and flexibility.

- Flexibility and adaptability

Cons

- Customers may fail to build process governance standards or a solid business process competency center due to the platform's propensity for opportunistic application development (BPCC). Customers of Bizagi have been able to extend operations to hundreds of processes and millions of users, though. Bizagi provides documentation and advising services to aid its customers in establishing digital process competence centers, hence facilitating their larger digital transformation objectives.

- Bizagi gives the ability to handle both organized and unstructured processes, however it lacks some advanced case control features. Since the conclusion of this study, Bizagi has published version 11 of its platform, which, according to the company, includes a new set of features designed to bring improved case management capabilities and a contextualized user experience.

- Bizagi provides one of the least intelligent products in our study when compared to prominent iBPMS providers. It only covers the very minimum aspects of the Gartner Business Process IQ framework.

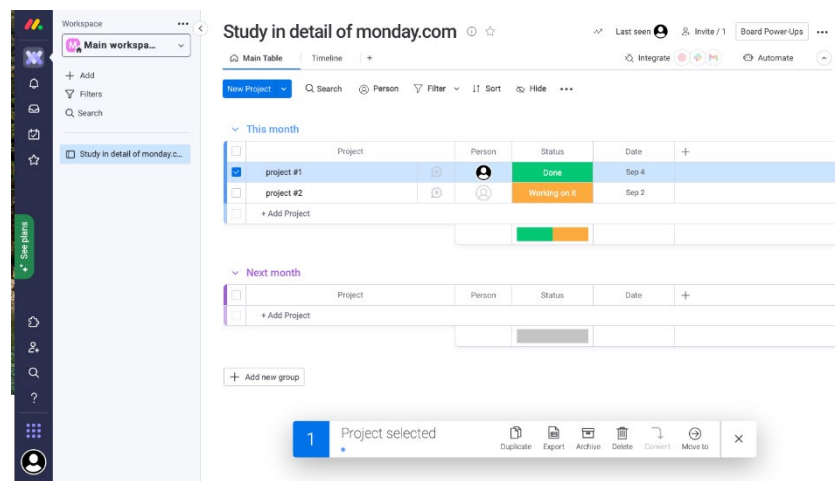**Company or organization who use Bizagi Modeler**

Leading Argentinian oil and gas company Tecpetrol needed a way to document business processes to replicate successful projects and ensure compliance and efficiency of their process models.

The Tecpetrol BPM team used Bizagi's web repository to store all the documented processes and models. When setting up new processes, they were able to use the revision history feature and publish different versions of the same diagram based on revision comments.
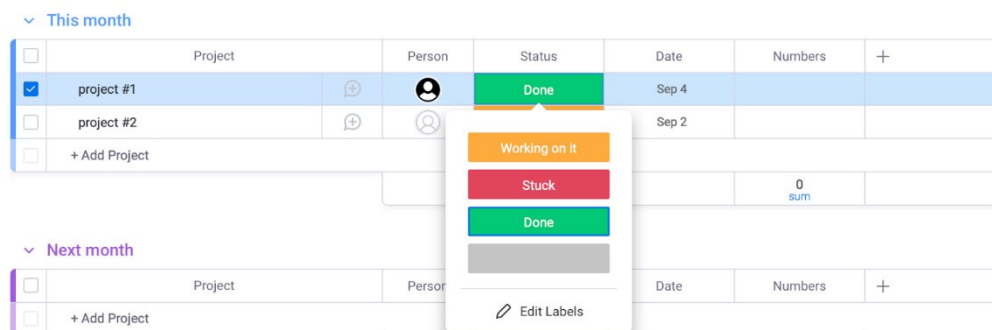
Monday.com

The cloud-based work OS platform allows users to create their own work management and workflows with no-code building blocks. Monday.com has tools for users, so they can control every aspect to improve a business process.
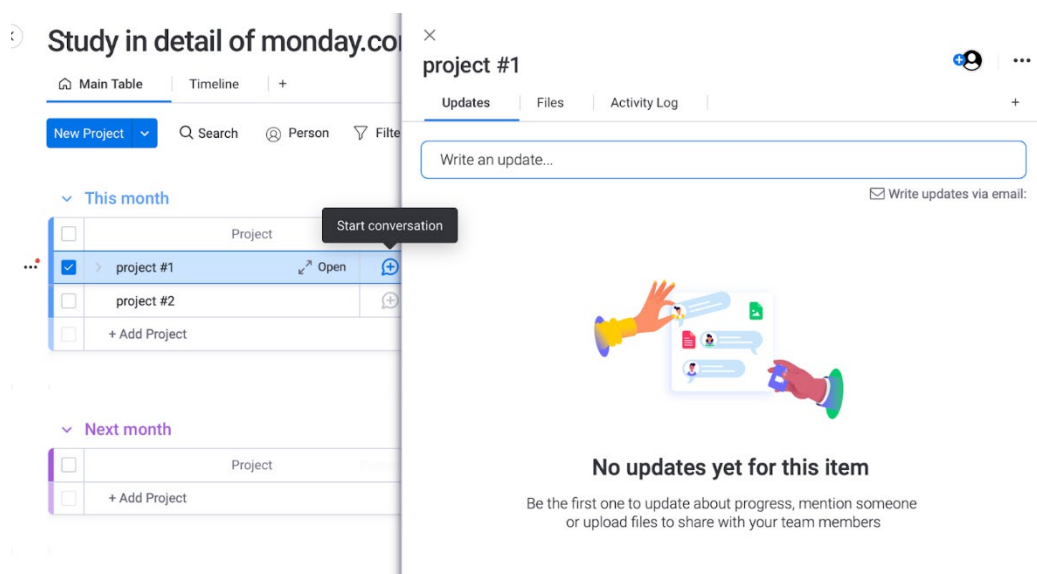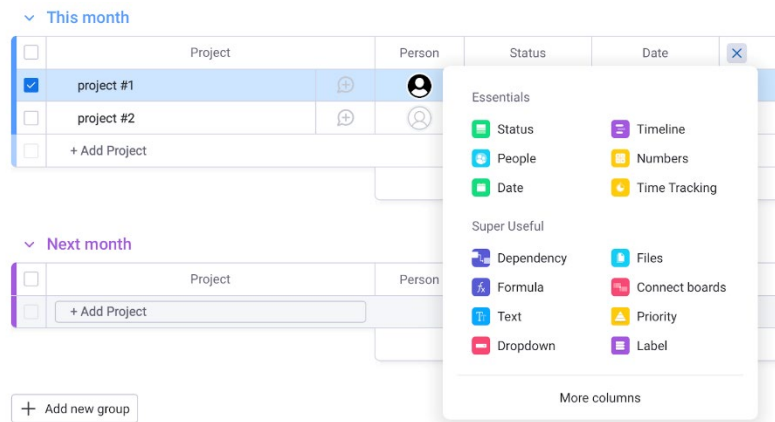
How to use

When entering the user's project management page, the user can choose to add or remove existing tasks. To do this, click on the box in front of the task's name. As in the picture above, it will be labeled "Project #1" and a square bar will appear for managing that task.
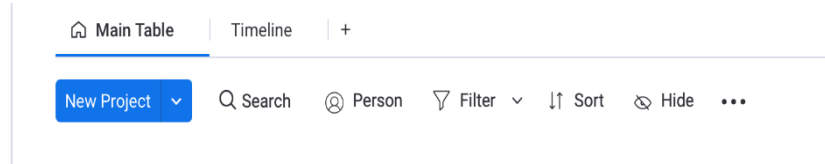
Every task has a "status" badge for users to manage tasks and keep track of tasks to check if they are finished or if the work is being done.
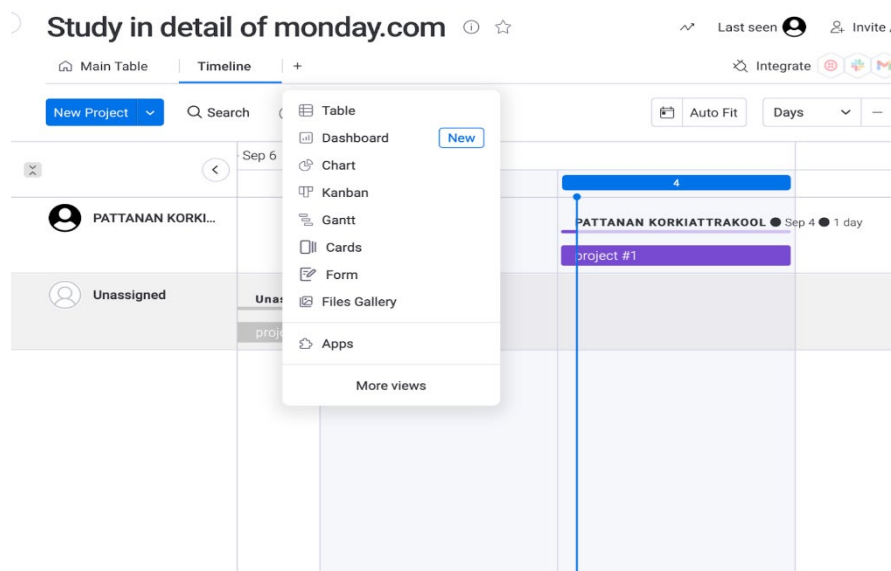

When clicking the symbol [⊕] , user will be able to have a conversation with their team by chatting or sending files.

Users can add columns for further details of the task to increase clarity and importance of the task, whether it be the delivery date, length of time spent working, timeline, or comments.

In the main table tabs, there will be various tools available to the user for creating new projects, searching for tasks based on user-selected criteria, and hiding columns.

Users will be able to add further tabs for their own project management, such as Gantt charts, Dashboards, etc.
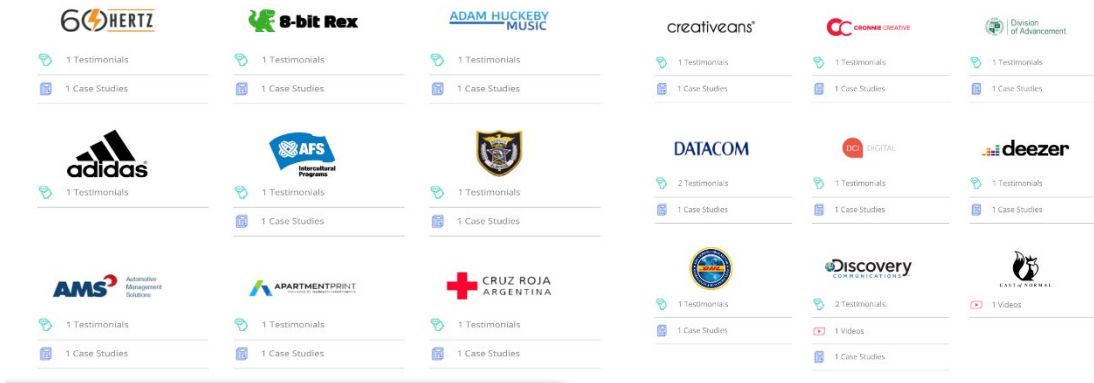
Pros

- Easily accessible for use and monitored.

- Suitable for users who want to work as a team. Users can edit a list at any time. Teams can communicate with each other and collaborate with them, especially when difficulties or challenges arise. Easily accessible for use and monitored.

- Monday.com has alternative views for users. The platform provides a timeline view that many users find more appropriate for their requirements.

- Dependable project management and organization. Through the platform, teams can centralize their project data, resources, plans, workloads, and communications into an easy-to-navigate workspace.

Cons

- Mobile app is limited. Some complain that the mobile apps, particularly the iPhone native app, do not update well. The dashboards do not have an equivalent view on the mobile app.

- Integration problems. Most users agree that Monday.com has a problem with delayed updates.

- Excessive interface and visualization. Some users find the user interface a bit disorganized or confusing. Additionally, users think that some visualizations can be improved.

Company and organization who use Monday.com

There are 151 companies that use and trust Monday.com. These are examples of those companies.

Comparison table of the BPMN Modeling Software Tools

BPMN Modeling Software Tools	Available on Web-based	BPMN v2.0	Accessibility to customize tasks	Real-time asynchronous collaboration and communication	Ease of use
Signavio	✓	✓	✓		✓
Bizagi Modeler		✓	✓	✓	✓
Monday.com	✓	✓	✓	✓	✓

Conclusion

In conclusion, all three modeling software tools provide services and functions for using tools for the purpose of creating a business process model and notation. These three services are similar but simultaneously have slightly different details and features. First of all, Signavio and Monday.com are available in a Web-based version. But at the same time, the Bizagi Modeler is only available on the downloaded version on the user's device, which means that the user must install the software program before starting to create the BPMN. The user will not be able to view or modify tasks via an online platform. Second, the specification of BPMN version 2.0 is now widely used and accepted. The three services, which are Signavio, Bizagi Modeler, and Monday.com, have the ability to use BPMN version 2.0 as well. Another similarity between these three services is the accessibility to customized tasks. Users are able to access all the customization and editing of the business process model and notation. Next is the real-time asynchronous collaboration and communication feature. On the other hand, Bizagi Modeler and Monday.com allow users to collaborate and communicate with their teams while working on the organizational project in real-time. On the other hand, Signavio particularly allows users to comment and communicate with the team in real-time by inviting their team members to participate. However, Signavio does not allow users to collaborate to modify the BPMN with their team. Last, is the ease of use. All three software tools are easy to use for users to customize, create, and edit BPMN. These tools are designed to be easy to use and suitable for users' use.

Reference

Arash, & Zbigniew. (2020, July 30). Free BPMN modelling tools – 2020 edition: BPM Tips. BPM tips | Practical BPM tips for business process analysts and process managers. Retrieved September 4, 2022, from https://bpmtips.com/free-bpmn-modelling-tools-2020-edition/

Top 10 best business process management software: BPM tools of 2022. Software Testing Help. (2022, August 14). Retrieved September 4, 2022, from https://www.softwaretestinghelp.com/bpm-tools/

Business Process Model and Notation (BPMN), Version 2.0. About the business process model and notation specification version 2.0. (n.d.). Retrieved September 4, 2022, from https://www.omg.org/spec/BPMN/2.0/About-BPMN/

Pros and cons of bizagi - with a Bizagi alternative. Tallyfy. (2020, January 31). Retrieved September 4, 2022, from https://tallyfy.com/pros-and-cons-of-bizagi-with-a-bizagi-alternative/

BizAgi. (2021, November 22). Bizagi Modeler - modeling my first process. YouTube. Retrieved September 4, 2022, from https://www.youtube.com/watch?v=KgO8K6FFJdU

A new way of working. monday.com. (n.d.). Retrieved September 4, 2022, from https://monday.com/

Santos, J. M. D. (n.d.). Articlesbase.com. Retrieved September 4, 2022, from https://articlesbase.com/the-pros-and-cons-of-using-monday-com-software/

Pros and cons of monday.com 2022 - trustradius. (n.d.). Retrieved September 3, 2022, from https://www.trustradius.com/products/monday/reviews?qs=pros-and-cons

Featuredcustomers. (n.d.). Retrieved September 4, 2022, from https://www.featuredcustomers.com/vendor/monday-com/customers