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A well-defined work breakdown structure (WBS) is an essential tool for project managers in any industry. A WBS breaks down large projects into bite-sized pieces, making it easier to plan, schedule, track progress, and identify potential roadblocks. Use this guide to explore WBS and its various applications in ensuring successful project completion. Discover how WBS decomposes complex projects into manageable components, facilitating planning, scheduling, risk identification, and overall project clarity. What is a work breakdown structure?A work breakdown structure (WBS) is a project management tool that decomposes the total work required to deliver a product, service, or project into smaller, more manageable components. A WBS provides a hierarchical view of your project’s scope, translating overall strategies and objectives into specific goals, workflows, project phases, and action plans. Read more: What Is a Project Manager? A Career GuideWhat is the purpose of a work breakdown structure? In project management, you’ll use work breakdown structures for several reasons:To identify the project tasks that make up the critical path of your project To schedule activities that comprise the performance measurement baseline (PMB)To define the deliverables for your project To plan your resources, timelines, and priorities To get a clearer picture of the risks the project may face as it progressesProject planning, scheduling, and budgetingThe top level of your WBS represents the project's final deliverable, or end product. It represents the project scope statement. The lower levels break down the scope into more detailed deliverables and individual tasks. All these sub-elements can have time and cost estimates associated with them. When combined, they form a total estimate of what’s required for the project team to complete the project within its defined scope. This makes it possible for you to plan, schedule, and form budgets based on the details of the project rather than relying on high-level guesstimates.Risk management, resource management, task management, and team managementThe work breakdown structure lets you dissect the project to understand how it all fits together and create a Gannt chart that provides clear focus and critical path requirements.When you create a WBS, you’re required to think through each activity in detail to define all the work necessary to complete it. In doing so, you’ll identify risks that may impact your project. These can go on the risk register, and you can then form an appropriate project risk plan. You will also identify the resources needed to complete each task, which will help you plan how many people you need on your team and when you need them. This will help you manage your team during the project life cycle because you can assign each task to a team member with the required expertise. Learn more: What Is a RACI Chart?Benefits of using a work breakdown structureA work breakdown structure offers several advantages throughout the project lifecycle. It can foster improved communication, task clarity, time estimation accuracy, risk mitigation, and efficient resource allocation within your project team. Better communication with your team members regarding tasksClearer definition of the deliverables that need to be produced during each project stage More accurate time estimates for each task because you can see precisely what needs to be done for each step of the projectEasier identification of critical path items, so you can take steps to reduce risks to these tasks (e.g., add resources or assign another team member to help complete it)More easily identify which tasks should be done by whom because you can see where the expertise is needed most.Types of WBSYou can use different types of work breakdown structures to define deliverables and schedule tasks: 1. Process-oriented WBSA process-oriented WBS decomposes work into the processes needed to accomplish it, such as requirements, design, development, and testing. This type of breakdown structure has the advantage of clarifying tasks and assigning task owners. It also makes it easy to assign resources and estimate time because they can be assigned at each level of the structure. Process-oriented WBS provides clear milestones and is thus often preferred by clients.2. Phase-based work breakdown structureSimilar to a process-oriented WBS, a phase-based WBS is a project management approach that breaks projects down into phases, each of which has its own purpose and features. The phases are usually broken down into smaller tasks, which are typically broken down even further into simpler tasks.3. Deliverable-oriented WBSA deliverable-oriented WBS is a hierarchical tree structure of the project and its components. It decomposes work into tangible products or services, such as database schema and user manuals. It shows the connection between the high-level deliverables and the work to be done. The deliverable-based WBS organizes the work horizontally as related activities, providing a view of the entire project from start to finish. The advantage of this type of breakdown structure is that it gives an overview of the deliverables required for a project. This type of WBS is most appreciated by project teams and management. 4. Resource breakdown structureThe resource breakdown structure (RBS) is used to identify all of the resources required to complete each work package in the WBS and for the project. It can be developed by starting with the work packages in the WBS, then collecting all of the resources needed to complete each work package, and finally organizing them into a hierarchical structure based on their similarity or specialty.The goal of the RBS is to ensure that all necessary resources are available to carry out the project and that there are no conflicts in their usage, which could delay the project.5. Risk breakdown structureA risk breakdown structure (Risk BS) is used to organize risks into categories and subcategories in a way that helps you manage them effectively. Risk categories may be defined by type, risk source, or other means deemed appropriate for your project. A risk category would be something like cost, schedule, quality, or scope. Risk subcategories would be more specific risk types within each category. For example, under cost risks, you might have subcategories like labor rates, material costs, or budget overruns.6. Cost breakdown structureA cost breakdown structure (CBS) shows the estimated cost of each project element. For example, the cost of a website includes hosting, programming, design, and content creation. The CBS makes it easier to estimate a project budget and control costs.7. Organizational breakdown structureAn organizational breakdown structure (OBS) shows how roles are assigned within an organization. For example, a medium-sized online business might have a chief technology officer, chief operating officer, chief executive officer, and other roles, each with different responsibilities.What are the elements of work breakdown structure?A work breakdown structure is comprised of several key components: WBS dictionary: The WBS dictionary documents each component with its definition, estimated effort, and performance measurements. It allows you to define each step of the WBS and how it will be executed. WBS levels: The WBS levels provide context for each portion of the project and determine the hierarchy of tasks and deliverables. Project deliverables: Project deliverables are the desired outcomes of project tasks. They are grouped into work packages.Work packages: A work package is the lowest level in the WBS. It represents the work needed to accomplish a specific deliverable. Work packages describe activities that can be planned, scheduled, and controlled by one person. Once completed, it should be possible to hand over the work package to another person.Planning packages: are used as an independent planning horizon for one or more work packages that will be completed in the future. They help to summarize the project plan at different levels.Control accounts: Control accounts help control costs and schedules on projects with very large budgets or when a large part of the budget or duration applies to only one or two major deliverables. Control accounts function like work packages with some additional requirements. Control accounts are usually created for major parts of the project, such as phases and key deliverables.Tasks: Tasks are work packages broken down into smaller activities so they can be scheduled, monitored, and controlled by one person.How to create a work breakdown structureA WBS helps everyone on the project team understand what needs to be completed, who's responsible for each task, how tasks relate to one another, when things should be done, and how much they will cost. Follow these steps to create a WBS. 1. Define the project scope.Start by identifying the overall project goal, the deliverables, boundaries, and deadlines. What are the major outcomes that your team needs to achieve in order to complete the project? What does the project include and exclude?2. Gather critical documents. Gather critical documents, including:Project management plan, outlining the project's execution, monitoring, scheduling, and resources. Risk register, detailing potential risks and mitigation strategies.Project scope statement, outlining the project's objectives, deliverables, and boundaries. 3. Create a hierarchy. Organize the project into a hierarchical structure, with the major deliverables as the highest level. 4. Decompose project components.Break down each deliverable into smaller, manageable tasks or work packages that can be assigned and tracked. 5. Identify key team members. Determine the individual or team who'll be responsible for each task. This step will ensure accountability and help project team members communicate effectively. 6. Create the WBS dictionary.After decomposition, create the WBS dictionary, which documents the project's key information, including the time and resources needed for each task and the relationships between them. The WBS dictionary can be represented as an outline or a diagram. Use boxes for each work package and lines to indicate the relationships between them.7. Create a Gantt chart schedule.After reviewing and validating the WBS thus far, create a Gannt chart schedule. The schedule is one of the most important components of a project management plan and will be used to monitor progress throughout the life of the project.Read more: Gantt Charts: What They Are and How to Make ThemHere's a basic work breakdown structure template to give you an idea of how you can construct yours:WBS software A number of free and paid project management software are available to help you create a WBS for your projects. Before selecting a software tool, research a variety of them and evaluate their cost, features, and ease of use. Take a look at some common WBS software tools to get you started.EdrawMaxEdrawMax is a versatile and capable diagramming application. It covers all aspects of WBS, from flowcharts to floor planning to business process diagrams. It's best suited for people who need a feature-rich tool that covers a wide variety of use cases.Cost: Starts at $99 / year. LucidchartLucidchart is a cloud-based visual collaboration tool that allows teams to work together on the same diagram with real-time updates and live chat. Lucidchart provides a simple interface that enables you to create professional diagrams without prior experience.Cost: Starts free.SmartDrawSmartDraw is a browser-based tool. It helps you draw flowcharts, organization charts, mind maps, project charts, and more. It’s useful for visualizing projects and individual aspects of a project.Cost: Starts at $9.95 / month. Visual ParadigmVisual Paradigm is an extensive software suite that offers everything from project planning to source code management and test case design. This application is best suited for professional developers and managers working on large enterprise projects.Cost: Starts at $6 / month. MindViewMindView is designed specifically for project managers and business professionals who create mind maps to plan projects, brainstorm solutions, and present ideas visually. Mindview’s collaborative tools allow team members to work together on project planning.Cost: Starts at $15 / month for a three-year subscription. CreatelyCreately is an online diagramming application that makes it easy to draw flowcharts, organizational charts, mind maps, and other diagrams online. Creately comes with features such as smart drawing aids that automatically align shapes while drawing flowcharts or other diagrams. You can also use it to collaborate with your colleagues in real time while working on a project together.Cost: Starts at $5 / month. Learn more: Project Management Frequently Asked Questions (FAQ)Learn more about project management with Coursera.A work breakdown structure (WBS) is a project management tool that breaks down a project into smaller, more manageable pieces. It helps you plan, schedule, and track your project, and identify potential risks. By creating a WBS, you can ensure everyone on your team understands the project goals and their role in achieving them. Project management is an in-demand skill, with employers looking for experts who can lead projects that drive positive business outcomes. If you are ready to learn more about project management, explore the Google Project Management Professional Certificate, a six-course program designed for project managers at all levels. Inside, you can learn about initiating projects, building a project plan, managing risks, creating closing documentation, and more. Frequently asked questionsThe main reason project managers should use a WBS is to define the complete scope of a project in as much detail as possible. By doing this, you can assign work to your teams and break down their tasks further into actionable steps. The best way for you to get started with a WBS is by defining your project's deliverables. What are the key things you want create or accomplish? Once you have the deliverables defined, you can start breaking them down into individual phases, tasks, and subtasks until you have enough detail to allow your team members to perform the work required. A Work Breakdown Structure includes dividing a large and complex project into simpler, manageable, and independent tasks. The root of this tree (structure) is labeled by the Project name itself. For constructing a work breakdown structure, each node is recursively decomposed into smaller sub-activities, until at the leaf level, the activities become undividable and independent. It follows a Top-Down approach. Steps Work Breakdown Structure:Step 1: Identify the major activities of the project. Step 2: Identify the sub-activities of the major activities. Step 3: Repeat till undividable, simple, and independent activities are created. Work Breakdown StructureConstruction of Work Breakdown StructureFirstly, the project managers and top level management identifies the main deliverables of the project. After this important step, these main deliverables are broke down into smaller higher-level tasks and this complete process is done recursively to produce much smaller independent tasks. It depends on the project manager and team that upto which level of detail they want to break down their project. Generally the lowest level tasks are the most simplest and independent tasks and takes less than two weeks worth of work. Hence, there is no rule for upto which level we may build the work breakdown structure of the project as it totally depends upon the type of project we are working on and the management of the company. The efficiency and success of the whole project majorly depends on the quality of the Work Breakdown Structure of the project and hence, it implies its importance. Uses of Work Breakdown StructureCost estimation: It allows doing a precise cost estimation of each activity.Time estimation: It allows estimating the time that each activity will take more precisely.Easy project management: It allows easy management of the project.Helps in project organization: It helps in proper organization of the project by the top management. A Work Breakdown Structure (WBS) is a fundamental tool in project management that hierarchically decomposes a project into smaller, more manageable components. Its structure reflects the project's scope, defining tasks and deliverables. WBS helps organize, plan, and control projects by breaking them down into phases, tasks, and work packages. There are two main types of WBS: deliverable-oriented (product-based) and phase-oriented (project-based). Examples include a software development WBS with phases like requirements, design, and testing. Characteristics include clarity, completeness, and the ability to facilitate project control and communication. WBS In Project Management Definition: A Work Breakdown Structure (WBS) in project management is a hierarchical decomposition of a project into smaller, more manageable components. It systematically breaks down the project's scope into deliverables and tasks, providing a visual representation of the work to be accomplished. The WBS serves as a foundation for project planning, scheduling, and resource allocation, offering a clear roadmap for project teams to understand, organize, and execute their work effectively. The purpose of creating a WBS Tool is to organize and define the total scope of the project in a structured way. Each level of the hierarchy represents an increasingly detailed description of the project work, from the overall project down to individual tasks. Definition of WBS In PMP Terminology In Project Management Professional (PMP) terminology, the Work Breakdown Structure (WBS) is a fundamental concept used in project planning and management. It is one of the key tools and techniques mentioned in the Project Scope Management knowledge area. The WBS in PMP is a hierarchical decomposition of the total scope of work to be carried out by the project team. It organizes and defines the project's total scope into more manageable and understandable components. The main purpose of creating a WBS in PMP is to provide a framework for organizing and controlling project work. PMP emphasizes that the WBS should be created early in the project planning phase and used as a foundation for developing the project schedule, budget, and resource plans. The breakdown helps in identifying all the deliverables and work packages that need to be accomplished to complete the project successfully. In summary, the WBS in PMP is a vital project management tool that assists in defining, organizing, and managing the scope of work in a systematic and structured manner Definition of WBS in SAP Terminology In the context of SAP (Systems, Applications, and Products), a WBS in SAP typically refers to a Work Breakdown Structure used in project management within the SAP Project System (PS). The Work Breakdown Structure (WBS) in SAP, particularly in the Project System (PS) module, is a tool for structuring and organizing project-related information, providing a hierarchical view of the project's components and facilitating effective project management within the SAP ERP environment. What is WBS on the Gantt Chart? Breakdown Structure (WBS) on a Gantt chart refers to how the project's tasks and activities are organized and displayed. In the context of a Gantt chart, the WBS is often used to structure and represent the hierarchy of tasks and subtasks in a project On a Gantt chart, the WBS is typically represented by the task list or project outline, where tasks are organized hierarchically. Each level of the hierarchy corresponds to a different level of detail in the project's breakdown. This breakdown helps in visualizing the project's structure and dependencies, making it easier to plan and manage The WBS on a Gantt chart is a way of structuring and organizing the tasks and activities of a project to create a clear representation of the project's timeline and dependencies. Characteristics of a work breakdown structure The Work Breakdown Structure (WBS) has several key characteristics that contribute to its effectiveness as a project management tool: 1. Hierarchical Structure: Organized in a hierarchical manner, with the top level representing the entire project and subsequent levels breaking down into phases, deliverables, and tasks. 2. Detailed and Specific: Break down project work into manageable and specific tasks or deliverables, providing a detailed view of the project scope. 3. Deliverable-Oriented: Focuses on the final deliverables or outcomes of the project, making it easier to track and manage progress against tangible goals. 4. Action-Oriented Language: Uses action verbs to describe tasks, making it clear what needs to be accomplished at each level of the structure. 5. Action-Oriented Language: Uses action verbs to describe tasks, making it clear what needs to be accomplished at each level of the structure. 6. Scope-Bound: Clearly defines the boundaries of the project, helping to prevent scope creep by providing a structured view of what is included in the project. 7. Graphical or Tabular Representation: Can be presented visually in charts or tables, making it easy for project stakeholders to understand and providing a quick overview of the project structure. 8. Flexible: Allows for flexibility and adaptability as project details evolve. It can be updated and revised to accommodate changes in project scope or requirements. 9. Responsibility Assignment: Assigns responsibilities for each task or deliverable, promoting accountability within the project team. 10. Time and Resource Estimation: Provides a basis for estimating time and resources required for each task, aiding in project planning and scheduling. 11. Depict Dependencies: Clearly depicts dependencies between tasks, helping in the identification of critical paths and ensuring a logical sequence of work. 12. Tool for Planning and Control: Serves as a foundation for project planning and control, helping project managers allocate resources, monitor progress, and make informed decisions. 13. Dynamic and Iterative: Recognizes that project details may evolve, and the WBS can be dynamic and iterative, reflecting changes in project scope or circumstances. 14. Communication Tool: Acts as a communication tool, ensuring that all stakeholders have a shared understanding of the project structure and objectives. By embodying these characteristics, a well-constructed Work Breakdown Structure becomes an invaluable tool in project management, contributing to the successful planning, execution, and control of projects. Stages of WBS (Work breakdown structure) A Work Breakdown Structure (WBS) is a hierarchical decomposition of a project into phases, deliverables, and work packages. Here's an example breakdown for a software development project: 1- Project Initiation Project initiation requires some steps: Define Project Goals Stakeholder Identification Initial Project Planning 2- Requirements Gathering Requirements Gathering occurs through: Stakeholder Interviews Document Requirements Review and Approval 3- System Design System Design is divided into three divisions: High-Level Design Detailed Design Design Review 4- Development Development can be done by: Coding Unit Testing Code Review 5- Testing Testing is divided into three types: System Testing Integration Testing User Acceptance Testing 6- Deployment Deployment meaning can be through: Deployment Planning Implementation Post-Deployment Review 7-Documentation Documentation is a group of materials and manuals as: User Manuals Technical Documentation Training Materials 8- Project Management Project management depends on: Progress Monitoring Issue Tracking Stakeholder Communication 9- Quality Assurance Quality Assurance is known as: QA Planning QA Audits Continuous Improvement 10- Project Closure Project closure is through three parts: Client Approval Final Documentation Lessons Learned Each of these elements can be further broken down into smaller tasks until you have a comprehensive view of the project's components. What are the 5 types of WBS The Work Breakdown Structure (WBS) typically includes five main types: 1- Phase-Based WBS Phase-Based WBS Organizes work by project phases, such as initiation, planning, execution, monitoring, and closure. A Phase-Based Work Breakdown Structure (WBS) divides a project into distinct phases or stages. Each phase represents a significant stage in the project's lifecycle, and within each phase, tasks and deliverables are further broken down. This helps in organizing and managing the project more effectively. 2- Deliverable-Based WBS Deliverable-based WBS Breaks down the project into tangible deliverables, focusing on the final outputs or results. 3- Organizational-Based WBS: Organizational-based WBS Structures the work according to the responsible organizational units or departments. 4- Product-Based WBS: Product-based WBS decomposes the project into its physical or functional components, emphasizing the end products. 5- Activity-Based WBS: Activity-based WBS divides the project into specific activities or tasks required for completion. These types can be used individually or in combination, depending on the project's nature and requirements. Importance Of Work Breakdown Structure The Work Breakdown Structure (WBS) holds significant importance in project management for several reasons: 1. Clarity and Understanding: Provides a clear and visual representation of the project's scope, making it easier for stakeholders to understand. 2. Scope Definition: Helps define and document the project's scope by breaking it down into smaller, manageable components. 3. Project Planning: Serves as a foundation for project planning by identifying tasks, dependencies, and resource requirements. 4. Resource Allocation: Assists in allocating resources efficiently by breaking down work into smaller, more manageable components. 5. Communication: Improves communication among project team members and stakeholders by providing a common framework for discussing project details. 6. Estimation and Budgeting: Facilitates accurate estimation of costs and time required for each task, aiding in budgeting and resource planning. 7. Risk Management: Helps identify potential risks by breaking down the project into smaller components, making it easier to assess and manage risks at each level. 8. Monitoring and Control: Enables effective monitoring and control of the project by providing a structured framework for tracking progress against the plan. 9. Change Management: Offers a structured way to assess and manage changes in project scope, ensuring that changes are properly evaluated and integrated. 10. Quality Management: Enhances quality management by breaking down the project into manageable units, making it easier to define and monitor quality standards for each component. In summary, the Work Breakdown Structure is a fundamental tool that enhances project management by providing a systematic and organized approach to planning, executing, and controlling projects. What are examples of WBS? Sure, let's consider a simple example of a Work Breakdown Structure (WBS) for a software development project: Example 1: Construction Project There are steps we should follow, Project Initiation Define Project Objectives Identify Stakeholders Develop Project Charter Site Preparation Clear Land Excavate Foundations Install Temporary Utilities Structural Construction Foundation Construction Frame Structure Roof Installation Interior Construction Electrical Wiring Plumbing Installation Interior Finishing Exterior Finishing Siding Installation Painting Landscaping Final Inspection and Handover Conduct Final Inspection Obtain Certifications Handover to Client Example 2: Marketing Campaign We will follow a group of steps to complete this project: Campaign Planning Define Campaign Objectives Identify Target Audience Develop Marketing Strategy Content Creation Design Campaign Materials Create Copy and Visuals Review and Approval Digital Marketing Set Up Campaign Website Implement SEO Strategies Launch Social Media Ads Offline Marketing Print Collateral Organize Events Distribute Flyers Campaign Execution Monitor Digital Metrics Track Offline Engagement Adjust Strategies as Needed Campaign Evaluation Analyze Campaign Performance Collect Feedback Prepare Post-Campaign Report These examples illustrate how a WBS can be tailored to different project types, providing a structured approach to project management How to Make a Work Breakdown Structure Creating a Work Breakdown Structure (WBS) involves breaking down a project into smaller, more manageable tasks and deliverables. Here's a step-by-step guide: 1. Define Project Scope: Clearly understand the project's objectives, boundaries, and constraints. This will guide the creation of your WBS. 2. Identify Major Phases: Divide the project into major phases or stages. These should represent the high-level steps needed to achieve the project's goals 3. List Deliverables: Identify the major deliverables for each phase. These are tangible outcomes or results that contribute to achieving the project objectives. 4. Break Down Deliverables into Tasks: For each deliverable, break down the associated tasks required to complete it. These tasks should be specific, measurable, and achievable. 5. Use a Hierarchical Structure: Organize tasks in a hierarchical structure. Start with the main project at the top, break it down into phases, and then break each phase into tasks. 6. Assign Task Owners: Assign responsibilities by specifying who is responsible for each task. This promotes accountability within the project team. 7. Define Dependencies: Identify dependencies between tasks. Understand which tasks must be completed before others can start or finish. This helps in creating a logical project schedule. 8. Estimate Time and Resources: Estimate the time and resources needed for each task. This information will be crucial for project planning and scheduling 9. Use Action Verbs: Phrase each task using action verbs to clearly convey what needs to be done. For example, "Develop Project Plan" or "Conduct Stakeholder Analysis." 10 Review and Refine: Regularly review and refine the WBS with project stakeholders. This ensures alignment with project objectives and accommodates any changes in scope. 11. Document the WBS: Document the WBS in a format that suits your project needs. This could be a visual chart, a spreadsheet, or using project management software. 12. Use WBS for Planning and Monitoring: Utilize the WBS for project planning, resource allocation, and monitoring progress. It serves as a foundation for creating a project schedule. 13. Iterate as Needed: Understand that the WBS may evolve as the project progresses. Be prepared to iterate and update it to reflect changes in scope, schedule, or resources. By following these steps, you'll create a comprehensive WBS that serves as a valuable tool for project planning and management. Learn Project Management with Bakkah Learning: Are you ready to take your career to the next level in Project Management? Look no further! Bakkah Learning offers comprehensive courses, including PMP, CAPM, and more, designed to equip you with the skills and knowledge you need to excel in this dynamic field. One fundamental aspect of effective project management is understanding the Work Breakdown Structure (WBS). WBS is a powerful tool that helps project managers organize and define the scope of their projects, breaking down complex tasks into manageable components. Here are the top courses we have in Bakkah Learning: First in Project Management Courses: Risk Management Courses And Certifications: Risk Management Professional - PMI-RMP Course MoR Certification and course PRINCE2 Courses PRINCE2 Certification PRINCE2 Agile. Project Management Tools: Portfolio Management Check them now! Conclusion: A Work Breakdown Structure (WBS) in project management is a hierarchical decomposition of a project into smaller, manageable components, systematically breaking down the project's scope into deliverables and tasks. In Project Management Professional (PMP) terminology, the WBS is essential for organizing and managing the project's total scope, helping to develop the project schedule, budget, and resource plans. Key characteristics of a WBS include its hierarchical structure, deliverable orientation, use of action-oriented language, flexibility, and ability to depict dependencies and assign responsibilities. It is crucial for planning, controlling, and communicating project details. A work breakdown structure is a visual representation of a project or tasks. Generally, it’s a way to divide a large task into clear, manageable components. You might use it to plan a home renovation, a product launch, or any task with multiple key phases.However, in project management, a work breakdown structure helps you organize all the work needed to complete a project. The Project Management Institute’s project management body of knowledge book, (PMBOK), defines WBS as “a deliverable-oriented hierarchical decomposition of the work to be executed by the project team to accomplish the project objectives and create the required deliverables.”Why is a WBS important in project management?I’ve worked on enough projects to know that confusion usually starts when there’s no structure. A work breakdown structure in project management helps you: Clarify tasks to your project teamWithout structure, it’s easy for people to get lost. A breakdown structure helps you assign responsibilities early. Project team members know what they’re supposed to do and when. This avoids double work and unnecessary check-ins later down the line.Define project scopeIf you’re not careful, you’ll only focus on the big milestones and forget the small steps. A WBS lays out the job’s key components, ensuring every part of the project work is accounted for. Manage deliverables at every stageWith the right structure in place, you can break big goals into sub-deliverables. This makes it easier to monitor project progress and spot any delays early. Align project scope, schedule, and cost A work breakdown structure (WBS) is one of the most important project management documents. A major benefit is how a WBS supports your planning process. A WBS integrates scope, cost, and schedule baselines, ensuring project plans are aligned. That way, project managers can figure out how much money is needed for each phase and plan the overall project budget accordingly.Gain control when project scope starts to shiftChanges are inevitable. But when you’ve already defined the project scope and linked it to structured work packages, it’s easier to know whether a new request fits into the project plan or if it’s going to throw things off.What are the key elements of a work breakdown structure?A work breakdown structure is only as good as the parts that make it. Here are the WBS elements you should consider:Project deliverables You can’t break something down if you don’t know what you’re trying to produce. That’s why every WBS starts with the project deliverables. For example, if you’re delivering a software development project like a new mobile app, your sub-deliverables might include: An app User manual Website launch Testing report Each one needs to be listed clearly, so there’s no confusion about what the end result should be. Once the major deliverables are set, you can begin breaking them into manageable components.Task groupsNow that you’ve identified what needs to be delivered, the next step is grouping the related project work under each deliverable. This helps you see the structure of the job and avoids tasks floating around without purpose. Take the mobile app example again. Under the deliverable “Website launch” you might have grouped work like: Design Copywriting Testing Deployment I always organize my WBS this way because it keeps everything tied to the project scope.Work packages Once the grouped work is clear, you can break it down further into what we call work packages. These are the smallest units in the structure that you can confidently hand off to someone and say, “You own this.” WBS work packages should be detailed enough to be estimated, scheduled, and assigned. If your team uses project management tools like a Gantt chart, work packages are the perfect size to plot and schedule.Task ownersEach parent task or work package should have an owner. Task owners don’t always have to do the work themselves, but they should be accountable for making sure it gets done. In my experience, one of the most common problems in a team is not knowing who’s responsible. Adding task owners early avoids that headache completely.WBS dictionaryThe WBS dictionary describes each element in the WBS, including its name, description, assigned resources, estimated duration, and communications. Project Management Institute puts it this way: ‘’To ensure ease and accuracy of communications, the definition of terms should be consistent across the entire WBS and, ideally, across all projects performed in an organization.’’Control accountsControl accounts represent groups of work packages and deliverables tracked throughout the project’s execution. In most teams I’ve worked with, budget tracking can become a nightmare if it’s not baked into the structure early. You don’t need to track every single line item. Control accounts give you just the right amount of visibility. They help you spot when costs are creeping up or when certain areas are falling behind. You can use Wrike’s budget tracker to estimate costs and avoid overruns. A Work Breakdown Structure includes dividing a large and complex project into simpler, manageable, and independent tasks. The root of this tree (structure) is labeled by the Project name itself. For constructing a work breakdown structure, each node is recursively decomposed into smaller sub-activities, until at the leaf level, the activities become undividable and independent. It follows a Top-Down approach. Steps Work Breakdown Structure:Step 1: Identify the major activities of the project. Step 2: Identify the sub-activities of the major activities. Step 3: Repeat till undividable, simple, and independent activities are created. Work Breakdown StructureConstruction of Work Breakdown StructureFirstly, the project managers and top level management identifies the main deliverables of the project. After this important step, these main deliverables are broke down into smaller higher-level tasks and this complete process is done recursively to produce much smaller independent tasks. It depends on the project manager and team that upto which level of detail they want to break down their project. Generally the lowest level tasks are the most simplest and independent tasks and takes less than two weeks worth of work. Hence, there is no rule for upto which level we may build the work breakdown structure of the project as it totally depends upon the type of project we are working on and the management of the company. The efficiency and success of the whole project majorly depends on the quality of the Work Breakdown Structure of the project and hence, it implies its importance. Uses of Work Breakdown StructureCost estimation: It allows doing a precise cost estimation of each activity.Time estimation: It allows estimating the time that each activity will take more precisely.Easy project management: It allows easy management of the project.Helps in project organization: It helps in proper organization of the project by the top management. A Work Breakdown Structure includes dividing a large and complex project into simpler, manageable, and independent tasks. The root of this tree (structure) is labeled by the Project name itself. For constructing a work breakdown structure, each node is recursively decomposed into smaller sub-activities, until at the leaf level, the activities become undividable and independent. It follows a Top-Down approach. Steps Work Breakdown Structure:Step 1: Identify the major activities of the project. Step 2: Identify the sub-activities of the major activities. Step 3: Repeat till undividable, simple, and independent activities are created. Work Breakdown StructureConstruction of Work Breakdown StructureFirstly, the project managers and top level management identifies the main deliverables of the project. After this important step, these main deliverables are broke down into smaller higher-level tasks and this complete process is done recursively to produce much smaller independent tasks. It depends on the project manager and team that upto which level of detail they want to break down their project. Generally the lowest level tasks are the most simplest and independent tasks and takes less than two weeks worth of work. Hence, there is no rule for upto which level we may build the work breakdown structure of the project as it totally depends upon the type of project we are working on and the management of the company. The efficiency and success of the whole project majorly depends on the quality of the Work Breakdown Structure of the project and hence, it implies its importance. Uses of Work Breakdown StructureCost estimation: It allows doing a precise cost estimation of each activity.Time estimation: It allows estimating the time that each activity will take more precisely.Easy project management: It allows easy management of the project.Helps in project organization: It helps in proper organization of the project by the top management. Editorial Note: We earn a commission from partner links on Forbes Advisor. Commissions do not affect our editors' opinions or evaluations. A work breakdown structure (WBS) is a project management tool that takes a step-by-step approach to complete large projects with several moving pieces. By breaking down the project into smaller components, a WBS can integrate scope, cost and deliverables into a single tool. While most WBSes are deliverable-based, they can also be phase-based. Read on to learn more about what a WBS can do for your business. What is Work Breakdown Structure? The Project Management Institute’s PMBOK® Guide—Third Edition defines WBS as “a deliverable-oriented hierarchical decomposition of the work to be executed by the project team to accomplish the project objectives and create the required deliverables. It organizes and defines the total scope of the project. Each descending level represents an increasingly detailed definition of the project work. The WBS is decomposed into work packages. The deliverable orientation of the hierarchy includes both internal and external deliverables.” Some commonly used terms used with WBS project management include: Acceptance criteria: Standards to be met to achieve customer or other stakeholder requirements Budget: Expenses associated with the project, which can be broken down by deliverables or phases Deliverables: The product, service or results created at various stages of the project. For instance, in a website design project, a deliverable-based WBS would be structured around deliverables such as URL, layout and written content Milestones: Critical stages of the project identified in the WBS Phases: The various stages of a project. For instance, in a website design project, a phase-based WBS would be structured around things like discovery, design and launch, rather than specific deliverables WBS: Work breakdown structure Key Characteristics and Components of the WBS A key component of a work breakdown structure is the 100% rule. This means that the WBS encompasses all aspects of the project, as well as the person or team responsible for that component. Another key characteristic of WBS is its leveled structure. When applying the 100% rule, Level 1 of the WBS will be the totality of the project. Some WBSs include a description or overview of the project at the top level if it isn’t self-explanatory. Then each level below breaks down the project into further detail, using the 100% rule at each level. For instance,if you’re creating a WBS for a new website, Level 1 would be “ Website for New Brand”. Level 2 elements break down the deliverables necessary to bring the project to completion, such as secure website url, design layout and develop content. Each subsequent level continues breaking down the elements into further detail. Why a WBS Is Helpful for Project Management Work breakdown structure is a helpful project management tool for several reasons. First, it breaks down the project into bite-size components, making the project less overwhelming and more manageable. Second, it provides a roadmap for the different individuals and teams working on the project. Many projects involve different teams moving in tandem, all of which need to coordinate and integrate for project completion. By using a WBS, the various individuals and teams can focus on their specific tasks and deliverables while also seeing how their piece fits into the project as a whole. Finally, a WBS is an excellent tool for measuring project completion, identifying milestones and allocating budget resources. By using the 100% rule, project managers can be confident that the project is properly budgeted and that they won’t run into any roadblocks due to a “surprise” deliverable. How To Create and Use a WBS Effectively To use a work breakdown structure effectively, it is important to include all components of a project (remember that 100% rule described above) but without too much detail. Turns out, there can be too much of a good thing when it comes to the WBS. To create a WBS: 1. Define the project. The first step in creating a work breakdown structure is to clearly establish the project. For some projects, this might be fairly straightforward. For other projects, it might require refining the actual scope of the project so that the WBS is scaled appropriately and doesn’t become unwieldy. 2. Set project boundaries. Once the project is defined and described, you can set boundaries on what is and isn’t included in the WBS. 3. Identify project deliverables. This will include high-level deliverables associated with the project, such as a Project Scope Statement or Mission Statement. 4. Define Level 1 elements. Remember the 100% rule while creating the Level 1 deliverables. 5. Break down each of the Level 1 elements. The process of breaking down Level 1 elements is called decomposition. It consists of breaking down a task into smaller and smaller pieces, applying the 100% rule at each level. At each subsequent level, ask yourself whether further decomposition would improve project management. Continue breaking down the elements until the answer to that question is “no.” When you’ve completed the decomposition process for each element in Level 1, the WBS is complete. 6. Identify team members. Identify an individual or team who is responsible for each element. 7. Create a Gantt chart to accompany the WBS. A Gantt chart shows activities over time so that you can visually see information related to the schedule of the project and its various activities. WBS Examples, Templates, and Tools If you’re looking for some guidance, there are many examples, templates and software tools out there to help you create a work breakdown structure for your project. If you want to see some examples of how others have used the WBS as a project management tool, check out WorkBreakdownStructure.com. If you need a little more guidance, templates might be the way to go. There are several templates available to download on Monday, ProjectManager and Wrike. If you’re looking for even more help with the creation of your WBS, or you need a more comprehensive and detailed WBS, a software tool might be the way to go. Platforms like WBS Schedule Pro and Microsoft Visio offer intuitive software options. Frequently Asked Questions Work breakdown structure takes a large project and, quite literally, breaks it down into smaller components. This makes it easier for teams to identify scope, cost and deliverables and delegate tasks to the team members who are best suited for the job. A work breakdown structure can help project managers “see the forest through the trees” by showing the individual components of a project in one document. It also helps project managers communicate information regarding a project budget and timeline to key stakeholders, including the individuals and teams involved in the project. Finally, by breaking down the project into smaller components, a WBS integrates scope, cost and deliverables into a single tool. There are several tools and software available to help you create a WBS. Monday, ProjectManager and Wrike all offer templates and tools to guide you in the process. Additionally, there are software options like WBS Schedule Pro and Microsoft Visio available if you need a more comprehensive approach. Many project managers do find that Gantt charts complement WBS well. They help teams to estimate the time frame of individual tasks and visualize the overall timeline of projects from start to finish. Work Breakdown Structure (or WBS, as it’s sometimes known) is about dividing a project into smaller, more digestible chunks, making it easier to plan, execute, and monitor. In this guide, we’ll cover everything you need to know about work breakdown structures: what they are, how to create them, and how to use them effectively in your project planning. We’ll also provide some templates and examples to get you started. So let’s dive in! A work breakdown structure is a planning tool used by project managers to break down the work of a project into smaller, more manageable ‘pieces’ in order to make it easier to track progress – as well as identify potential issues. As an organisational tool, WBS helps to assign roles for each task and subtask and define who’s responsible for what. Typically created from the project scope, a WBS lets teams map out all tasks that need to be completed from beginning to end, starting with the larger activities and breaking them down into more granular detail until every element of the project has been accounted for. With its flexibility and scalability, this popular planning tool can easily be modified along the way to adjust for changes or environmental factors that arise during the lifetime of a project. Our Insight By sharing responsibility and workload, you create a situation where – if everyone looks after their own little part – the ‘big picture’ starts to come to fruition. So, we’ve established that a work breakdown structure is an incredibly useful tool for project managers. What are the actual benefits of working in this way? A WBS breaks down complex projects into smaller, more manageable tasks, making it easier to plan and schedule the work that needs to be completed. By identifying all the stuff that needs to be done, you can create a more accurate project plan, including timelines, milestones, and deliverables – keeping your entire project running smoothly and optimising chances of success. With a detailed WBS, you can identify the specific resources needed for each task, including people, equipment, time and materials. This lets you allocate resources more efficiently and effectively – ensuring that everyone and everything is being used to their fullest potential. A work breakdown structure provides a clear and comprehensive overview of the project, allowing you to monitor progress, identify potential issues, and make necessary adjustments as issues arise. By breaking the project down into smaller pieces, you can track progress more easily and keep everyone on the same page. A WBS can serve as a valuable communication tool, since it lets you share project information with team members, stakeholders, and other relevant parties. By presenting the project in a clear, structured format, you can facilitate communication and ensure that everyone understands what needs to be done and when. People can grasp not only their own role in the bigger picture of your project, but also understand what others are working on. With a work breakdown structure, you can identify potential risks and develop strategies to mitigate them. By breaking the project down into smaller pieces, you can identify areas where risks are more likely to occur and take steps to address them before they become major issues. Further underlining the flexibility of this way of working, there are a variety of different types of WBS to be used and adapted depending on the needs of your project. This type of WBS focuses on the end deliverables of the project and breaks them down into smaller, more manageable tasks. Each task is assigned to a specific team or individual responsible for completing it. WORKS BEST FOR: Projects with clearly defined outcomes. EXAMPLE: Building a websiteIf you were building a website, you could start by laying out your deliverables – all the different components that are required to be completed. These might include:Project PlanWireframes and MockupsWeb Content (Text, Images, Videos)User Interface DesignFront-end DevelopmentBack-end DevelopmentTestingLaunchWithin this, each deliverable could be assigned its own range of tasks, allocated to teams or team members, and given deadlines. This type of WBS breaks down the project into phases, with each phase representing a major milestone or objective. Each phase is further broken down into smaller tasks, allowing for better project management and monitoring. WORKS BEST FOR: Projects with distinct stages. Each phase would then be given its own set of tasks and assigned to specific people. EXAMPLE: New product developmentIn a phase-oriented WBS, you start by identifying the different project phases it needs to pass through.So, hypothetically, if you were developing a new product, these might be:Concept DevelopmentDesignPrototypingTestingLaunchEach phase would then be given its own set of tasks and assigned to specific people. This type of WBS is based on the organisational structure of the project team. Tasks are grouped according to the team or department responsible for completing them, making it easier to allocate resources and track progress. WORKS BEST FOR: Projects with multiple departments or stakeholders involved. EXAMPLE: Construction projectYou might use an organisational-oriented WBS for a construction project by dividing the project up into the required ‘departments’ involved. These might include:PlumbersElectriciansSuppliersBricklayersSurveyorsThe WBS would be organised around these vendors, with each one responsible for completing their specific tasks related to the construction project. But – as the overall project manager – you’d have a clear overview of what each team had to work on to get the job done. This type of WBS breaks down the project into specific activities or tasks that need to be completed, regardless of the end deliverable. Each activity is assigned to a specific team or individual responsible for completing it. WORKS BEST FOR: Projects with many interdependent tasks. EXAMPLE: Planning a conferenceIf you were setting up a conference, you might create an Activity-oriented WBS that was based around the various interdependent tasks and activities required to get this up and running. For example: Conference ProgramVenue and LogisticsSpeakers and PresentationsMarketing and CommunicationsAttendee ExperienceBudget and FinancialsSponsorship and ExhibitorsEvaluation and FeedbackTasks for each deliverable could then be assigned to teams or individuals, with specific deadlines for completion. This type of WBS combines two or more of the above types, depending on the needs of the project. For example, a hybrid WBS may include a phase-oriented WBS for overall project management, with an activity-oriented WBS for specific tasks or deliverables. WORKS BEST FOR: Projects where you have a ‘mix’ of any or all of the other types of WBS and need to use a highly customised WBS to suit the needs of the project team. EXAMPLE: Software development projectIn this example project, the WBS could be organised into both deliverables and phases. For example, the project might be broken down into distinct phases, such as:DesignDevelopmentTestingDeploymentThese would each have their own set of deliverables, such as wireframes, prototypes, and code releases. But within each phase, the WBS could also be organised according to the various departments involved in the project, such as:The development teamThe design teamThe quality assurance teamThe project management team.Each department would be responsible for completing their specific tasks related to the project, with clear deadlines and dependencies. A hybrid WBS would be necessary in this project because it would allow for both deliverable-based and phase-based management, as well as departmental management. This would provide a more comprehensive and flexible structure for managing the project, ensuring that all deliverables are completed on time and within budget while also allowing for more efficient departmental coordination and resource allocation. In essence a hybrid WBS offers the best of both worlds – a high-level overview of the project’s phases and deliverables, as well as a more detailed breakdown of the tasks and responsibilities within each department. Developing a WBS isn’t difficult – all it takes is understanding the basics of project management and following a few steps. The first step is to identify the major deliverables or outcomes that the project aims to achieve. These are usually the key objectives or milestones of the project. Once the major deliverables have been identified, break them down into smaller, more manageable sub-deliverables. This step involves breaking down the major objectives into smaller, more specific tasks that need to be completed to achieve them. Continue breaking down the sub-deliverables into smaller and more manageable tasks until you have reached a level of detail that is sufficient for project planning and management. This level of detail will depend on the complexity and size of the project. Organise the tasks into a hierarchical structure that shows the relationship between the different tasks. This structure will help in project planning and tracking progress. Assign resources and estimate the time required to complete each task. This will help in determining the project schedule and budget. Review and refine the WBS to ensure that it accurately reflects the scope of the project and that all necessary tasks have been included. Once the WBS has been created, use it as a reference tool throughout the project to ensure that all tasks are completed as planned and that the project stays on track. To recap, creating a work breakdown structure (WBS) is a critical step in planning and managing a project. By breaking down a project into smaller, manageable deliverables, the project team can organise their work, allocate resources effectively, and track progress more easily. Expert Tip Don’t forget – the type of WBS used depends on the nature of the project and the needs of the project team. By selecting the appropriate type of WBS, the project team can ensure that their project is well-organised, efficiently managed, and successfully completed. If you’re looking for the best way to manage your projects, then why not try using Project.co? With Project.co, you can easily create your project, set up tasks, invite your team, allocate tasks to team members, and give them deadlines – all in one central location. This allows you to have a clear overview of where things are at in your project and who is working on what at every stage. Project.co makes project management simple, streamlined, and efficient, helping you to get your project completed on time and within budget. So why not give it a try? Sign up today and get started right away. , the free encyclopedia that anyone can edit. 117,922 active editors 6,999,259 articles in English The first UK Phantom on a test flight in 1968 From 1968 to 1992, the United Kingdom used the McDonnell Douglas F-4 Phantom II as one of its principal combat aircraft. The Phantom was procured to serve in both the Royal Navy's Fleet Air Arm and the Royal Air Force (RAF) in several different roles. Most Phantoms operated by the UK were built as a special batch containing a significant amount of British technology. Two variants were initially built: the F-4K was a carrier-based air-defence interceptor for the Fleet Air Arm, while the F-4M was initially used by the RAF for tactical strike and reconnaissance, before transitioning to an air defence role in the 1970s. In the mid-1980s, a third Phantom variant was obtained when fifteen former US Navy F-4J aircraft were purchased to augment the UK's air defences. Although the Fleet Air Arm ceased using the Phantom in 1978, the RAF retained it until 1992, when it was withdrawn as part of a series of post-Cold War defence cuts. (Full article...) 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Ongoing: Gaza war M23 campaign Russian invasion of Ukraine timeline Sudanese civil war timeline Recent deaths: Jim Irsay Yury Grigorovich Yuri Vladimirov Colton Ford Werenoi Benjamin Ritchie Nominate an article May 27 Manchu Prince Dorgon 1644 – Manchu regent Dorgon (depicted) defeated rebel leader Li Zicheng of the Shun dynasty at the Battle of Shanhai Pass, allowing the Manchus to enter and conquer the capital city of Beijing. 1799 – War of the Second Coalition: Austrian forces defeated the French Army of the Danube, capturing the strategically important Swiss town of Winterthur. 1954 – The security clearance of American nuclear physicist J. Robert Oppenheimer, head of Project Y, was revoked. 1967 – Australians voted overwhelmingly to include Indigenous Australians in population counts for constitutional purposes and to allow the federal government to make special laws affecting them in states. 1997 – A destructive F5-rated tornado tracked through a subdivision of homes northwest of Jarrell, Texas, killing 27 people. Diego Ramírez de Arellano (d. 1624)Julia Ward Howe (b. 1819)Cilla Black (b. 1943)Gérard Jean-Juste (d. 2009) More anniversaries: May 26 May 27 May 28 Archive By email List of days of the year About Anemonoides blanda, the Balkan anemone, Grecian windflower, or winter windflower, is a species of flowering plant in the family Ranunculaceae. The species is native to southeast Europe and the Middle East. It grows up to 10 to 15 centimetres (4 to 6 inches) tall and is valued for its daisy-like flowers, which appear in early spring, a time when little else is in flower. The flowers are found in various colors and are radially symmetrical, containing seven or more sepals and petals. This purple A. blanda flower was photographed in Bamberg, Germany. Photograph credit: Reinhold Möller Recently featured: Bluespotted ribbontail ray Black Lives Matter art Germanicus Archive More featured pictures Community portal – The central hub for editors, with resources, links, tasks, and announcements. Village pump – Forum for discussions about Wikipedia itself, including policies and technical issues. Site news – Sources of news about Wikipedia and the broader Wikimedia movement. Teahouse – Ask basic questions about using or editing Wikipedia. Help desk – Ask questions about using or editing Wikipedia. Reference desk – Ask research questions about encyclopedic topics. Content portals – A unique way to navigate the encyclopedia. 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Many other Wikipedias are available; some of the largest are listed below. 1,000,000+ articles العربية Deutsch Español فارسی Français Italiano Nederlands 日本語 Polski Português Русский Svenska Українська Tiếng Việt 中文 250,000+ articles Bahasa Indonesia Bahasa Melayu Bân-lâm-gú Български Català Čeština Dansk Eesti Ελληνικά Esperanto Euskara עברית Հայերեն Magyar Norsk bokmål Română Simple English Slovenčina Srpski Srpskohrvatski Suomi Türkçe Oʻzbekcha 50,000+ articles Asturianu Azərbaycanca □□□□□ Bosanski کوردی Frysk Gaeilge Galego Hrvatski ქართული Kurdî Latviešu Lietuvių □□□□□□ Македонски □□□□□□□□□□ Norsk nynorsk □□□□□□ Shqip Slovenščina □□□ □□□□□ Retrieved from " 2 This article needs additional citations for verification. Please help improve this article by adding citations to reliable sources. Unsourced material may be challenged and removed.Find sources: "1644" – news · newspapers · books · scholar · JSTOR (August 2016) (Learn how and when to remove this message) Calendar year Years Millennium 2nd millennium Centuries 16th century 17th century 18th century Decades 1620s 1630s 1640s 1650s 1660s Years 1641 1642 1643 1644 1645 1646 1647 vte July 1: The Battle of Colberger Heide is fought between Sweden and Denmark-Norway off of the German coast. July 2: Parliament wins control of northern England from King Charles in

the Battle of Marston Moor. 1644 by topic Arts and science Architecture Art Literature Music Science Leaders State leaders Colonial governors Religious leaders Birth and death categories Births – Deaths Establishments and disestablishments categories Establishments – Disestablishments Works category Works vte 1644 in various calendarsGregorian calendar1644MDCXLIVAb urbe condita2397Armenian calendar1093ԹՎ ՌՂԳAssyrian calendar6394Balinese saka calendar1565–1566Bengali calendar1050–1051Berber calendar2594English Regnal year19 Cha. 1 – 20 Cha. 1Buddhist calendar2188Burmese calendar1006Byzantine calendar7152–7153Chinese calendar癸未年 (Water Goat)4341 or 4134 — to —甲申年 (Wood Monkey)4342 or 4135Coptic calendar1360–1361Discordian calendar2810Ethiopian calendar1636–1637Hebrew calendar5404–5405Hindu calendars - Vikram Samvat1700–1701 - Shaka Samvat1565–1566 - Kali Yuga4744–4745Holocene calendar11644Igbo calendar644–645Iranian calendar1022–1023Islamic calendar1053–1054Japanese calendarKan'ei 21 / Shōhō 1(正保元年)Javanese calendar1565–1566Julian calendarGregorian minus 10 daysKorean calendar3977Minguo calendar268 before ROC民前268年Nanakshahi calendar176Thai solar calendar2186–2187Tibetan calendar阴水羊年(female Water-Goat)1770 or 1389 or 617 — to —阳木猴年(male Wood-Monkey)1771 or 1390 or 618 1644 (MDCXLIV) was a leap year starting on Friday of the Gregorian calendar and a leap year starting on Monday of the Julian calendar, the 1644th year of the Common Era (CE) and Anno Domini (AD) designations, the 644th year of the 2nd millennium, the 44th year of the 17th century, and the 5th year of the 1640s decade. As of the start of 1644, the Gregorian calendar was 10 days ahead of the Julian calendar, which remained in localized use until 1923. Calendar year It is one of eight years (CE) to contain each Roman numeral once (1000(M)+500(D)+100(C)+(-10(X)+50(L))+(-1(I)+5(V)) = 1644). Kolumna Zygmunta erected. January 22 – The Royalist Oxford Parliament is first assembled by King Charles I of England.[1] January 26 – First English Civil War: Battle of Nantwich – The Parliamentarians defeat the Royalists, allowing them to end the 6-week siege of the Cheshire town.[2] January 30 Dutch explorer Abel Tasman departs from Batavia in the Dutch East Indies (modern-day Jakarta in Indonesia) on his second major expedition for the Dutch East India Company, to map the north coast of Australia. Tasman commands three ships, Limmen, Zeemeeuw and Braek, and returns to Batavia at the beginning of August with no major discoveries. Battle of Ochmatów: Polish–Lithuanian Commonwealth forces under hetman Stanisław Koniecpolski secure a substantial victory over the horde of Crimean Tatars under Tugay Bey. February 5 – The first livestock branding law in America is passed in Connecticut.[3] March 24 – Roger Williams is granted an official grant for his Rhode Island Colony from the Parliament of England, allowing the establishment of a general assembly. April 18 – Opchanacanough leads the Powhatan Indians in an unsuccessful uprising against the English at Jamestown. Although 300 of the English colonists are slain, the settlers pursue Opchanacanough, who is imprisoned in Jamestown for the rest of his life.[4] This is the last such Indian rebellion in the region. April 25 – A popular Chinese rebellion led by Li Zicheng sacks Beijing, prompting Chongzhen, the last emperor of the Ming dynasty, to commit suicide. May 6 – Johan Mauritius resigns as Governor of Brazil.[3] May 25 – Ming general Wu Sangui forms an alliance with the invading Manchus and opens the gates of the Great Wall of China at Shanhaiguan Pass, letting the Manchus through towards the capital Beijing. May 26 – Battle of Montijo: The Kingdom of Portugal is victorious over Habsburg Spain, in the first major action between the two nations during the Portuguese Restoration War. May 27 – Battle of Shanhai Pass: The Manchu Qing dynasty and Wu Sangui gain a decisive victory over Li Zicheng's Shun dynasty. June 3 – Li Zicheng proclaims himself emperor of China. June 6 – The invading Qing army, with the help of Ming general Wu Sangui, captures Beijing in China, marking the beginning of Manchu rule over China proper. June 11 – During the English Civil War, Prince Rupert and his men take Liverpool Castle.[5] Liverpool is later reclaimed by Sir John Moore. July 1 – Torstenson War: Battle of Colberger Heide – The Dano-Norwegian and Swedish fleets fight a naval battle off the coast of Schleswig-Holstein. The battle is indecisive but represents a minor success for the Dano-Norwegian fleet. July 2 – English Civil War: Battle of Marston Moor – The Parliamentarians crush the Royalists in Yorkshire, ending Charles I's hold on the north of England.[6] September 1 – English Civil War: Battle of Tippermuir – Montrose defeats Lord Elcho's Covenanters, reviving the Royalist cause in Scotland. September 2 – English Civil War: Second Battle of Lostwithiel (in Cornwall) – Charles I and the Royalists gain their last major victory.[7] September 15 – Pope Innocent X succeeds Pope Urban VIII, becoming the 236th pope.[8] October 1 – The Jews of Mogilev, Polish–Lithuanian Commonwealth, are attacked during Tashlikh. November 8 – The Shunzhi Emperor, the second emperor of the Qing dynasty, is enthroned in Beijing after the collapse of the Ming dynasty as the first Qing emperor to rule over China proper. November 23 Battle of Jüterbog (December 3 New Style): Sweden's forces defeat those of the Holy Roman Empire. Areopagitica, an appeal for freedom of speech written by John Milton, is published in London. November – The Castle of Elvas in Portugal resists a 9-day siege by the Spanish during the Portuguese Restoration War. December 8 (December 18 New Style) – As Christina comes of age, she is made ruling queen of Sweden. December – Bubonic plague breaks out in Edinburgh (Scotland). A Spanish officer is murdered in St. Dominic's Church, Macau during mass by colonists loyal to Portugal during the Portuguese Restoration War. Sigismund's Column is erected in Warsaw to commemorate King Sigismund III Vasa, who moved the capital of Poland from Kraków to Warsaw in 1596. Philosopher René Descartes publishes Principia Philosophiae (Principles of Philosophy) in Amsterdam. The opera Ormindo is first performed in Venice (music by Francesco Cavalli, and libretto by Giovanni Faustini). The West India Company[which?] displays greater interest in profit than in colonization.[vague] Thomas Britton Veit Hans Schnorr von Carolsfeld Otto Mencke Henry Winstanley Henrietta of England January 9 – Robert Gibbes, English-born landgrave in South Carolina (d. 1715) January 10 Louis François, duc de Boufflers, Marshal of France (d. 1711) Celestino Sfondrati, Italian Catholic cardinal (d. 1696) January 11 – Hayashi Hōkō, Japanese philosopher (d. 1732) January 14 – Thomas Britton, English concert promoter (d. 1714) January 18 – John Partridge, English astrologer (d. 1708) January 23 – Jonas Budde, Norwegian army officer (d. 1710) January 25 – Antoine Thomas, Jesuit missionary priest and astronomer (d. 1709)[9] January 26 – Thomas Boylston, American colonial doctor (d. 1695) February 2 Isaac Chayyim Cantarini, Italian rabbi (d. 1723) Johannes Hancke, German writer (d. 1713) February 7 – Nils Bielke, member of the High Council of Sweden (d. 1716) February 8 – Pierre de La Broue, American bishop (d. 1720) February 12 – Jakob Ammann, Swiss founder of the Amish sect (d. 1712) February 24 – Maria Elisabeth Lämmerhirt, German mother of Johann Sebastian Bach (d. 1694) March 1 – Simon Foucher, French polemicist (d. 1696) March 15 – Veit Hans Schnorr von Carolsfeld, German iron and cobalt magnate (d. 1715) March 21 – Sir Walter Bagot, 3rd Baronet, English politician (d. 1704) March 22 Otto Mencke, German philosopher and scientist (d. 1707) Sir James Rushout, 1st Baronet, English politician (d. 1698) March 25 – Heinrich von Cocceji, German jurist from Bremen (d. 1719) March 31 – Henry Winstanley, English engineer (d. 1703) April 6 – António Luís de Sousa, 2nd Marquis of Minas, Portuguese general, governor-general of Brazil (d. 1721) April 7 Nathaniel Johnson, American politician (d. 1713) François de Neufville, duc de Villeroy, French soldier (d. 1730) April 11 – Marie Jeanne Baptiste of Savoy-Nemours, Duchess of Savoy (d. 1724) April 17 – Abraham Storck, Dutch painter (d. 1708) April 21 – Conrad von Reventlow, Danish statesman, first Grand Chancellor of Denmark (d. 1708) May 2 – Robert Cotton, English politician (d. 1717) May 4 – Juan Caballero y Ocio, Spanish priest remarkable for lavish gifts to the Catholic Church and charity (d. 1707) May 5 – Sir Richard Newdigate, 2nd Baronet, English landowner (d. 1710) May 26 – Michael Ettmüller, German physician (d. 1683) June 2 – William Salmon, English medical writer (d. 1713) June 7 – Johann Christoph Volkamer, German botanist (d. 1720) June 16 – Henrietta Anne Stuart, Princess of Scotland, England and Ireland and Duchess of Orléans (d. 1670)[10] June 17 – Johann Wolfgang Franck, German baroque composer (d. 1710) July 2 – Abraham a Sancta Clara, German Augustinian friar (d. 1709) July 4 – Josceline Percy, 11th Earl of Northumberland, English noble (d. 1670) July 7 – Joan Geelvinck, Dutch politician (d. 1707) July 10 – Miguel Bayot, Spanish Catholic prelate, Bishop of Cebu (from 1697) (d. 1700) July 22 – Peter Drelincourt, Irish chaplain (d. 1722) August 6 Christian Ernst, Margrave of Brandenburg-Bayreuth (1655–1712) (d. 1712) Louise de La Vallière, French mistress of Louis XIV of France (d. 1710)[11] August 12 – Heinrich Ignaz Franz Biber, Bohemian composer and violinist (d. 1704) August 28 (bapt.) – Gilles Schey, Dutch admiral (d. 1703) August 29 – Anne Bourdon, nun in New France (d. 1711) August 30 – Thomas Tufton, 6th Earl of Thanet, English politician (d. 1729) September 3 – Richard Newport, 2nd Earl of Bradford, English politician (d. 1723) September 6 – Juan Bautista Cabanilles, Spanish composer (d. 1712) September 11 – Jacob Rotius, Dutch painter (d. 1681) September 22 – Jacques Échard, French Dominican, historian of the Order (d. 1724) September 25 – Ole Rømer, Danish astronomer (d. 1710) October 1 – Jean Rousseau, French viol player (d. 1699) October 2 – François-Timoléon de Choisy, French abbé, author and cross-dresser (d. 1724) October 3 – Adriaen Frans Boudewijns, landscape painter (d. 1719) October 12 – Christopher Sandius, Dutch Arian writer (d. 1680) October 13 – Sipihr Shikoh, Mughal Emperor (d. 1708) October 14 – William Penn, English Quaker and founder of Pennsylvania (d. 1718) October 26 – Mathias Steuchius, Swedish archbishop (d. 1730) November 23 (bapt.) – Cornelia van der Gon, Dutch art collector (d. 1701) December 8 – Maria d'Este, Italian noble (d. 1684) December 9 – Robert Kirk, Scottish folklorist, Bible translator, Gaelic scholar (d. 1692) December 23 – Tomás de Torrejón y Velasco, Spanish composer, musician and organist (d. 1728) December 25 – Walter Scott, Earl of Tarras, Scottish nobleman (d. 1693) December 29 – Philips van Almonde, Dutch Lieutenant Admiral (d. 1711) Matsuo Bashō, Japanese poet (d. 1694) Pietro Erardi, Maltese chaplain and painter (d. 1727)[12] Antonio Stradivari, Italian violin maker (d. 1737)[13] Pope Urban VIII Johannes Wtenbogaert January 20 – Stefano Amadei, Italian painter (b. 1580) January 30 – William Chillingworth, controversial English churchman (b. 1602) January 31 – Georg II of Fleckenstein-Dagstuhl, German nobleman (b. 1588) February 28 – Guru Har Gobind, the Sixth Sikh Guru (b. 1595) March 15 – Countess Louise Juliana of Nassau, Regent of Bohemia (b. 1576) March 24 – Cecilia Renata of Austria, Queen of Poland (b. 1611) March 29 – Lord John Stewart, Scottish aristocrat, Royalist commander in the English Civil War (b. 1621) April 2 – Diego Salcedo, Spanish bishop (b. 1575) April 10 – Reverend William Brewster, English Pilgrim leader (b. 1567) April 25 – Chongzhen, last Ming Emperor of China (suicide) (b. 1611) April 28 – Zsófia Bosnyák, Hungarian noblewoman (b. 1609) May 26 – Alfonso III d'Este, Duke of Modena, Italian noble (b. 1591) June 17 Anne de Montafié, Countess of Clermont-en-Beauvaisis, French countess (b. 1577) John of St. Thomas, Portuguese philosopher (b. 1589) July 4 – Brian Twyne, English archivist (b. 1581) July 7 – Hedwig of Hesse-Kassel, countess consort of Schaumburg (b. 1569) July 16 – Giovanni Biliverti, Italian painter (b. 1585) July 25 – Amar Singh Rathore, Rajput nobleman affiliated with the royal house of Marwar (b. 1613) July 29 – Pope Urban VIII (b. 1568)[14] August 25 – Johann Heinrich Alting, German Lutheran theologian (b. 1583) September 4 – Johannes Wtenbogaert, Dutch leader of the Remonstrants (b. 1557) September 7 Guido Bentivoglio, Italian statesman and historian (b. 1579)[15] Ralph Corbie, Irish Jesuit (b. 1598) September 8 John Coke, English politician (b. 1563)[16] Francis Quarles, English poet (b. 1592)[17] October 6 – Elisabeth of France, queen of Philip IV of Spain (b. 1602) October 19 – Johann Friedrich, Count Palatine of Sulzbach-Hilpoltstein (b. 1587) October 30 – Jorge de Cárdenas y Manrique de Lara, Spanish noble (b. 1584) November 6 – Thomas Roe, English diplomat (b. c. 1581) November 10 – Luis Vélez de Guevara, Spanish writer (b. 1579) November 20 – Nathaniel Foote, American colonist (b. 1592) November 24 – Deodat del Monte, Flemish painter, architect (b. 1582) December 20 – Albert IV, Duke of Saxe-Eisenach (from 1640) (b. 1599) December 23 – Sir Alexander Carew, 2nd Baronet, English politician (b. 1609) December 28 – John Bankes, Attorney General and Chief Justice to King Charles I of England (b. 1589) December 30 – Jan Baptist van Helmont, Flemish chemist (b. 1577) ^ Braddick, Michael J. (2015). The Oxford handbook of the English revolution. Oxford, UK; New York: Oxford University Press. p. 103. ISBN 9780199695898. ^ Coward, Barry (1994). The Stuart age: England, 1603-1714. London New York: Longman. p. 223. ISBN 9780582067226. ^ a b "What Happened In 1644". hisdates.com. Retrieved March 3, 2016. ^ Edward S. Ellis, et al., The People's History of the World; Including Two Volumes on the Races of Mankind, Volume 5: United States (Chicago: The History Publishing Association, 1902) p. 127 ("The second outbreak occurred April 18th, 1644... Opechankano was taken prisoner, and died in Jamestown while a captive") ^ "Rupert, Prince", by Charles Harding Firth, in The Dictionary of National Biography, Volume 17 (Oxford University Press, 1922) p. 408 ("Rupert returned to Wales.. Defeating the parliamentarians at Stockport, he forced his way into Lancashire, stormed Bolton on 28 May, and captured Liverpool on 11 June", quoting Ormerod, Civil War Tracts of Lancashire, p. 187) ^ Levene, Mark (1999). The massacre in history. New York: Berghahn Books. p. 93. ISBN 9781571819345. ^ Jeremy Black (1996). The Cambridge Illustrated Atlas of Warfare: Renaissance to Revolution, 1492-1792. Cambridge University Press. p. 80. ^ Levillain, Philippe (2002). The papacy : an encyclopedia. New York: Routledge. p. 801. ISBN 9780415922289. ^ Walle, Willy (2003). The history of the relations between the Low Countries and China in the Qing era (1644-1911. Leuven, Belgium: Leuven University Press Ferdinand Verbiest Foundation. p. 90. ISBN 9789058673152. ^ Lowther, Kenneth (1979). Dartmoor, Exeter... London: Ward Lock. p. 35. ISBN 9780706357929. ^ Dumas, Alexandre (1998). The Vicomte de Bragelonne. Oxford New York: Oxford University Press. p. 674. 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Please help improve this article by adding citations to reliable sources. Unsourced material may be challenged and removed.Find sources: "16th century" – news · newspapers · books · scholar · JSTOR (September 2022) (Learn how and when to remove this message) Millennia 2nd millennium Centuries 15th century 16th century 17th century Timelines 15th century 16th century 17th century State leaders 15th century 16th century 17th century Decades 1500s 1510s 1520s 1530s 1540s 1550s 1560s 1570s 1580s 1590s Categories: Births – Deaths Establishments – Disestablishments vte The world map by the Italian Amerigo Vespucci (from whose name the word America is derived) and Belgian Gerardus Mercator shows (besides the classical continents Europe, Africa, and Asia) the Americas as America sive India Nova', New Guinea, and other islands of Southeast Asia, as well as a hypothetical Arctic continent and a yet undetermined Terra Australis.[1]The 16th century began with the Julian year 1501 (represented by the Roman numerals MDI) and ended with either the Julian or the Gregorian year 1600 (MDC), depending on the reckoning used (the Gregorian calendar introduced a lapse of 10 days in October 1582).[1] The Renaissance in Italy and Europe saw the emergence of important artists, authors and scientists, and led to the foundation of important subjects which include accounting and political science. Copernicus proposed the heliocentric universe, which was met with strong resistance, and Tycho Brahe refuted the theory of celestial spheres through observational measurement of the 1572 appearance of a Milky Way supernova. These events directly challenged the long-held notion of an immutable universe supported by Ptolemy and Aristotle, and led to major revolutions in astronomy and science. Galileo Galilei became a champion of the new sciences, invented the first thermometer and made substantial contributions in the fields of physics and astronomy, becoming a major figure in the Scientific Revolution in Europe. Spain and Portugal colonized large parts of Central and South America, followed by France and England in Northern America and the Lesser Antilles. The Portuguese became the masters of trade between Brazil, the coasts of Africa, and their possessions in the Indies, whereas the Spanish came to dominate the Greater Antilles, Mexico, Peru, and opened trade across the Pacific Ocean, linking the Americas with the Indies. English and French privateers began to practice persistent theft of Spanish and Portuguese treasures. This era of colonialism established mercantilism as the leading school of economic thought, where the economic system was viewed as a zero-sum game in which any gain by one party required a loss by another. The mercantilist doctrine encouraged the many intra-European wars of the period and arguably fueled European expansion and imperialism throughout the world until the 19th century or early 20th century. The Reformation in central and northern Europe gave a major blow to the authority of the papacy and the Catholic Church. In England, the British-Italian Alberico Gentili wrote the first book on public international law and divided secularism from canon law and Catholic theology. European politics became dominated by religious conflicts, with the groundwork for the epochal Thirty Years' War being laid towards the end of the century. In the Middle East, the Ottoman Empire continued to expand, with the sultan taking the title of caliph, while dealing with a resurgent Persia. Iran and Iraq were caught by a major popularity of the Shia sect of Islam under the rule of the Safavid dynasty of warrior-mystics, providing grounds for a Persia independent of the majority-Sunni Muslim world.[2] In the Indian subcontinent, following the defeat of the Delhi Sultanate and Vijayanagara Empire, new powers emerged, the Sur Empire founded by Sher Shah Suri, Deccan sultanates, Rajput states, and the Mughal Empire[3] by Emperor Babur, a direct descendant of Timur and Genghis Khan.[4] His successors Humayun and Akbar, enlarged the empire to include most of South Asia. Japan suffered a severe civil war at this time, known as the Sengoku period, and emerged from it as a unified nation under Toyotomi Hideyoshi. China was ruled by the Ming dynasty, which was becoming increasingly isolationist, coming into conflict with Japan over the control of Korea as well as Japanese pirates. In Africa, Christianity had begun to spread in Central Africa and Southern Africa. Until the Scramble for Africa in the late 19th century, most of Africa was left uncolonized. For timelines of earlier events, see 15th century and Timeline of the Middle Ages. Mona Lisa, by Leonardo da Vinci, c. 1503–1506, one of the world's best-known paintings 1501: Michelangelo returns to his native Florence to begin work on the statue David. 1501: Safavid dynasty reunifies Iran and rules over it until 1736. Safavids adopt a Shia branch of Islam.[5] 1501: First Battle of Cannanore between the Third Portuguese Armada and Kingdom of Cochin under João da Nova and Zamorin of Kozhikode's navy marks the beginning of Portuguese conflicts in the Indian Ocean. 1502: First reported African slaves in the New World 1502: The Crimean Khanate sacks Sarai in the Golden Horde, ending its existence. 1503: Spain defeats France at the Battle of Cerignola. Considered to be the first battle in history won by gunpowder small arms. 1503: Leonardo da Vinci begins painting the Mona Lisa and completes it three years later. 1503: Nostradamus is born on either December 14 or December 21. 1504: A period of drought, with famine in all of Spain. 1504: Death of Isabella I of Castile; Joanna of Castile becomes the Queen. 1504: Foundation of the Sultanate of Sennar by Amara Dunqas, in what is modern Sudan 1505: Zhengde Emperor ascends the throne of Ming dynasty. 1505: Martin Luther enters St. Augustine's Monastery at Erfurt, Germany, on 17 July and begins his journey to instigating the Reformation. 1505: Sultan Trenggono builds the first Muslim kingdom in Java, called Demak, in Indonesia. Many other small kingdoms were established in other islands to fight against Portuguese. Each kingdom introduced local language as a way of communication and unity. 1506: Leonardo da Vinci completes the Mona Lisa. 1506: King Afonso I of Kongo wins the battle of Mbanza Kongo, resulting in Catholicism becoming Kongo's state religion.Battle of Cerignola: El Gran Capitan finds the corpse of Louis d'Armagnac, Duke of Nemours 1506: At least two thousand converted Jews are massacred in a Lisbon riot, Portugal. 1506: Christopher Columbus dies in Valladolid, Spain. 1506: Poland is invaded by Tatars from the Crimean Khanate. 1507: The first recorded epidemic of smallpox in the New World on the island of Hispaniola. It devastates the native Taíno population.[6] 1507: Afonso de Albuquerque conquered Hormuz and Muscat, among other bases in the Persian Gulf, taking control of the region at the entrance of the Gulf. 1508: The Christian-Islamic power struggle in Europe and West Asia spills over into the Indian Ocean as Battle of Chaul during the Portuguese-Mamluk War 1508–1512: Michelangelo paints the Sistine Chapel ceiling. 1509: The defeat of joint fleet of the Sultan of Gujarat, the Mamlûk Burji Sultanate of Egypt, and the Zamorin of Calicut with support of the Republic of Venice and the Ottoman Empire in Battle of Diu marks the beginning of Portuguese dominance of the Spice trade and the Indian Ocean. 1509: The Portuguese king sends Diogo Lopes de Sequeira to find Malacca, the eastern terminus of Asian trade. After initially receiving Sequeira, Sultan Mahmud Shah captures and/or kills several of his men and attempts an assault on the four Portuguese ships, which escape.[7] The Javanese fleet is also destroyed in Malacca. 1509: Krishnadevaraya ascends the throne of Vijayanagara Empire. Afonso de Albuquerque 1509–1510: The 'great plague' in various parts of Tudor England.[8] 1510: Afonso de Albuquerque of Portugal conquers Goa in India. 1511: Afonso de Albuquerque of Portugal conquers Malacca, the capital of the Sultanate of Malacca in present-day Malaysia. 1512: Copernicus writes Commentariolus, and proclaims the Sun the center of the Solar System. 1512: The southern part (historical core) of the Kingdom of Navarre is invaded by Castile and Aragon. 1512: Qutb Shahi dynasty, founded by Quli Qutb Mulk, rules Golconda Sultanate until 1687. 1512: The first Portuguese exploratory expedition was sent eastward from Malacca (in present-day Malaysia) to search for the 'Spice Islands' (Maluku) led by Francisco Serrão. Serrão is shipwrecked but struggles on to Hitu (northern Ambon) and wins the favour of the local rulers.[9] 1513: Machiavelli writes The Prince, a treatise about political philosophy 1513: The Portuguese mariner Jorge Álvares lands at Macau, China, during the Ming dynasty. 1513: Henry VIII defeats the French at the Battle of the Spurs. 1513: The Battle of Flodden Field in which invading Scots are defeated by Henry VIII's forces. 1513: Sultan Selim I ("The Grim") orders the massacre of Shia Muslims in Anatolia (present-day Turkey). 1513: Vasco Núñez de Balboa, in service of Spain arrives at the Pacific Ocean (which he called Mar del Sur) across the Isthmus of Panama. He was the first European to do so. 1514: The Battle of Orsha halts Muscovy's expansion into Eastern Europe. 1514: Dózsa rebellion (peasant revolt) in Hungary.Martin Luther initiated the Reformation with his Ninety-five Theses in 1517. 1514: The Battle of Chaldiran, the Ottoman Empire gains decisive victory against Safavid dynasty. 1515: Ascension of Francis I of France as King of France following the death of Louis XII. 1515: The Ottoman Empire wrests Eastern Anatolia from the Safavids after the Battle of Chaldiran. 1515: The Ottomans conquer the last beyliks of Anatolia, the Dulkadirs and the Ramadanids. 1516–1517: The Ottomans defeat the Mamluks and gain control of Egypt, Arabia, and the Levant. 1517: The Sweating sickness epidemic in Tudor England.[10] 1517: The Reformation begins when Martin Luther posts his Ninety-five Theses in Saxony. 1518: The Treaty of London was a non-aggression pact between the major European nations. The signatories were Burgundy, France, England, the Holy Roman Empire, the Netherlands, the Papal States and Spain, all of whom agreed not to attack one another and to come to the aid of any that were under attack. 1518: Mir Chakar Khan Rind leaves Baluchistan and settles in Punjab. 1518: Leo Africanus, also known as al-Hasan ibn Muhammad al-Wazzan al-Fasi, an Andalusian Berber diplomat who is best known for his book Descrittione dell’Africa (Description of Africa), is captured by Spanish pirates; he is taken to Rome and presented to Pope Leo X. 1518: The dancing plague of 1518 begins in Strasbourg, lasting for about one month. 1519: Leonardo da Vinci dies of natural causes on May 2.Europe at the time of the accession of Charles V in 1519 1519: Wang Yangming, the Chinese philosopher and governor of Jiangxi province, describes his intent to use the firepower of the fo-lang-ji, a breech-loading Portuguese culverin, in order to suppress the rebellion of Prince Zhu Chenhao. 1519: Barbary pirates led by Hayreddin Barbarossa, a Turk appointed to ruling position in Algiers by the Ottoman Empire, raid Provence and Toulon in southern France. 1519: Death of Emperor Maximilian; Charles I of Austria, Spain, and the Low Countries becomes Emperor of Holy Roman Empire as Charles V, Holy Roman Emperor (ruled until 1556). 1519–1522: Spanish expedition commanded by Magellan and Elcano are the first to Circumnavigate the Earth. 1519–1521: Hernán Cortés leads the Spanish conquest of the Aztec Empire. Ferdinand Magellan led the first expedition that circumnavigated the globe in 1519–1522. 1520–1566: The reign of Suleiman the Magnificent marks the zenith of the Ottoman Empire. 1520: The first European diplomatic mission to Ethiopia, sent by the Portuguese, arrives at Massawa 9 April, and reaches the imperial encampment of Emperor Dawit II in Shewa 9 October. 1520: Vijayanagara Empire forces under Krishnadevaraya defeat the Adil Shahi under at the Battle of Raichur 1520: Sultan Ali Mughayat Shah of Aceh begins an expansionist campaign capturing Daya on the west Sumatran coast (in present-day Indonesia), and the pepper and gold producing lands on the east coast. 1520: The Portuguese established a trading post in the village of Lamakera on the eastern side of Solor (in present-day Indonesia) as a transit harbour between Maluku and Malacca. 1521: Belgrade (in present-day Serbia) is captured by the Ottoman Empire. 1521: After building fortifications at Tuen Mun, the Portuguese attempt to invade Ming dynasty China, but are expelled by Chinese naval forces. 1521: Philippines encountered by Ferdinand Magellan. He was later killed in the Battle of Mactan in central Philippines in the same year. 1521: Jiajing Emperor ascended the throne of Ming dynasty, China. 1521: November, Ferdinand Magellan's expedition reaches Maluku (in present-day Indonesia) and after trade with Ternate returns to Europe with a load of cloves. 1521: Pati Unus leads the invasion of Malacca (in present-day Malaysia) against the Portuguese occupation. Pati Unus was killed in this battle, and was succeeded by his brother, sultan Trenggana. 1522: Rhodes falls to the Ottomans of Suleiman the Magnificent.[11]Sack of Rome of 1527 by Charles V's forces (painting by Johannes Lingelbach) 1522: The Portuguese ally themselves with the rulers of Ternate (in present-day Indonesia) and begin construction of a fort.[9] 1522: August, Luso-Sundanese Treaty signed between Portugal and Sunda Kingdom granted Portuguese permit to build fortress in Sunda Kelapa. 1523: Sweden gains independence from the Kalmar Union. 1523: The Cacao bean is introduced to Spain by Hernán Cortés 1524–1525: German Peasants' War in the Holy Roman Empire. 1524: Giovanni da Verrazzano is the first European to explore the Atlantic coast of North America between South Carolina and Newfoundland. 1524: Ismail I, the founder of Safavid dynasty, dies and Tahmasp I becomes king.Gun-wielding Ottoman Janissaries and defending Knights of Saint John at the siege of Rhodes in 1522, from an Ottoman manuscript 1525: Timurid Empire forces under Babur defeat the Lodi dynasty at the First Battle of Panipat, end of the Delhi Sultanate. 1525: German and Spanish forces defeat France at the Battle of Pavia, Francis I of France is captured. 1526: The Ottomans defeat the Kingdom of Hungary at the Battle of Mohács. 1526: Mughal Empire, founded by Babur. 1527: Sack of Rome with Pope Clement VII escaping and the Swiss Guards defending the Vatican being killed. The sack of the city of Rome considered the end of the Italian Renaissance. 1527: Protestant Reformation begins in Sweden. 1527: The last ruler of Majapahit falls from power. This state (located in present-day Indonesia) was finally extinguished at the hands of the Demak. A large number of courtiers, artisans, priests, and members of the royalty moved east to the island of Bali; however, the power and the seat of government transferred to Demak under the leadership of Pangeran, later Sultan Fatah. 1527: June 22, The Javanese Prince Fatahillah of the Cirebon Sultanate successfully defeated the Portuguese armed forces at the site of the Sunda Kelapa Harbor. The city was then renamed Jayakarta, meaning "a glorious victory." This eventful day came to be acknowledged as Jakarta's Founding Anniversary. 1527: Mughal Empire forces defeat the Rajput led by Rana Sanga of Mewar at the Battle of Khanwa 1529: The Austrians defeat the Ottoman Empire at the siege of Vienna. 1529: Treaty of Zaragoza defined the antimeridian of Tordesillas attributing the Moluccas to Portugal and Philippines to Spain. 1529: Imam Ahmad Gurey defeats the Ethiopian Emperor Dawit II in the Battle of Shimbra Kure, the opening clash of the Ethiopian–Adal War. Spanish conquistadors with their Tlaxcallan allies fighting against the Otomies of Metztitlan in present-day Mexico, a 16th-century codex 1531–1532: The Church of England breaks away from the Catholic Church and recognizes King Henry VIII as the head of the Church. 1531: The Inca Civil War is fought between the two brothers, Atahualpa and Huáscar. 1532: Francisco Pizarro leads the Spanish conquest of the Inca Empire. 1532: Foundation of São Vicente, the first permanent Portuguese settlement in the Americas. 1533: Anne Boleyn becomes Queen of England. 1533: Elizabeth Tudor is born. 1534: Jacques Cartier claims Canada for France. 1534: The Ottomans capture Baghdad from the Safavids. 1534: Affair of the Placards, where King Francis I becomes more active in repression of French Protestants. 1535: The Münster Rebellion, an attempt of radical, millennialist, Anabaptists to establish a theocracy, ends in bloodshed. 1535: The Portuguese in Ternate depose Sultan Tabariji (or Tabarija) and send him to Portuguese Goa where he converts to Christianity and bequeaths his Portuguese godfather Jordao de Freitas the island of Ambon.[12] Hairun becomes the next sultan. 1536: Catherine of Aragon dies in Kimbolton Castle, in England.Territorial expansion of the Ottoman Empire under Suleiman (in red and orange) 1536: In England, Anne Boleyn is beheaded for adultery and treason. 1536: Establishment of the Inquisition in Portugal. 1536: Foundation of Buenos Aires (in present-day Argentina) by Pedro de Mendoza. 1537: The Portuguese establish Recife in Pernambuco, north-east of Brazil. 1537: William Tyndale's partial translation of the Bible into English is published, which would eventually be incorporated into the King James Bible. 1538: Gonzalo Jiménez de Quesada founds Bogotá. 1538: Spanish–Venetian fleet is defeated by the Ottoman Turks at the Battle of Preveza. 1539: Hernando de Soto explores inland North America. Nicolaus Copernicus 1540: The Society of Jesus, or the Jesuits, is founded by Ignatius of Loyola and six companions with the approval of Pope Paul III. 1540: Sher Shah Suri founds the Suri dynasty in South Asia, an ethnic Pashtun (Pathan) of the house of Sur, who supplanted the Mughal dynasty as rulers of North India during the reign of the relatively ineffectual second Mughal emperor Humayun. Sher Shah Suri decisively defeats Humayun in the Battle of Bilgram (May 17, 1540). 1541: Pedro de Valdivia founds Santiago in Chile. 1541: An Algerian military campaign by Charles V of Spain (Habsburg) is unsuccessful. 1541: Amazon River is encountered and explored by Francisco de Orellana. 1541: Capture of Buda and the absorption of the major part of Hungary by the Ottoman Empire. 1541: Sahib I Giray of Crimea invades Russia. 1542: The Italian War of 1542–1546 War resumes between Francis I of France and Emperor Charles V. This time Henry VIII is allied with the Emperor, while James V of Scotland and Sultan Suleiman I are allied with the French. 1542: Akbar The Great is born in the Rajput Umarkot Fort 1542: Spanish explorer Ruy López de Villalobos named the island of Samar and Leyte Las Islas Filipinas honoring Philip II of Spain and became the official name of the archipelago. 1543: Ethiopian/Portuguese troops defeat the Adal army led by Imam Ahmad Gurey at the Battle of Wayna Daga; Imam Ahmad Gurey is killed at this battle. 1543: Copernicus publishes his theory that the Earth and the other planets revolve around the Sun 1543: The Nanban trade period begins after Portuguese traders make contact with Japan. 1544: The French defeat an Imperial–Spanish army at the Battle of Ceresole.Scenes of everyday life in Ming China, by Qiu Ying 1544: Battle of the Shirts in Scotland. The Frasers and Macdonalds of Clan Ranald fight over a disputed chiefship; reportedly, 5 Frasers and 8 Macdonalds survive. 1545: Songhai forces sack the Malian capital of Niani 1545: The Council of Trent meets for the first time in Trent (in northern Italy). 1546: Michelangelo Buonarroti is made chief architect of St. Peter's Basilica. 1546: Francis Xavier works among the peoples of Ambon, Ternate and Morotai (Moro) laying the foundations for a permanent mission. (to 1547) 1547: Henry VIII dies in the Palace of Whitehall on 28 January at the age of 55. 1547: Francis I dies in the Château de Rambouillet on 31 March at the age of 52. 1547: Edward VI becomes King of England and Ireland on 28 January and is crowned on 20 February at the age of 9. 1547: Emperor Charles V decisively dismantles the Schmalkaldic League at the Battle of Mühlberg. 1547: Grand Prince Ivan the Terrible is crowned tsar of (All) Russia, thenceforth becoming the first Russian tsar. 1548: Battle of Uedahara: Firearms are used for the first time on the battlefield in Japan, and Takeda Shingen is defeated by Murakami Yoshikiyo. 1548: Askia Daoud, who reigned from 1548 to 1583, establishes public libraries in Timbuktu (in present-day Mali). 1548: The Ming dynasty government of China issues a decree banning all foreign trade and closes down all seaports along the coast; these Hai jin laws came during the Wokou wars with Japanese pirates. 1549: Tomé de Sousa establishes Salvador in Bahia, north-east of Brazil. 1549: Arya Penangsang with the support of his teacher, Sunan Kudus, avenges the death of Raden Kikin by sending an envoy named Rangkud to kill Sunan Prawoto by Keris Kyai Satan Kober (in present-day Indonesia). The Islamic gunpowder empires: Mughal Army artillerymen during the reign of Jalaluddin Akbar 1550: The architect Mimar Sinan builds the Süleymaniye Mosque in Istanbul. 1550: Mongols led by Altan Khan invade China and besiege Beijing. 1550–1551: Valladolid debate concerning the human rights of the Indigenous people of the Americas. 1551: Fifth outbreak of sweating sickness in England. John Caius of Shrewsbury writes the first full contemporary account of the symptoms of the disease. 1551: North African pirates enslave the entire population of the Maltese island Gozo, between 5,000 and 6,000, sending them to Libya. 1552: Russia conquers the Khanate of Kazan in central Asia. 1552: Jesuit China Mission, Francis Xavier dies. 1553: Mary Tudor becomes the first queen regnant of England and restores the Church of England under Papal authority. 1553: The Portuguese found a settlement at Macau. 1554: Missionaries José de Anchieta and Manuel da Nóbrega establishes São Paulo, southeast Brazil. 1554: Princess Elizabeth is imprisoned in the Tower of London upon the orders of Mary I for suspicion of being involved in the Wyatt rebellion. 1555: The Muscovy Company is the first major English joint stock trading company. 1556: Publication in Venice of Delle Navigiationi et Viaggi (terzo volume) by Giovanni Battista Ramusio, secretary of Council of Ten, with plan La Terra de Hochelaga, an illustration of the Hochelaga.[13] 1556: The Shaanxi earthquake in China is history's deadliest known earthquake during the Ming dynasty. 1556: Georgius Agricola, the "Father of Mineralogy", publishes his De re metallica. 1556: Akbar defeats Hemu at the Second battle of Panipat. 1556: Russia conquers the Astrakhan Khanate. 1556–1605: During his reign, Akbar expands the Mughal Empire in a series of conquests (in the Indian subcontinent).Political map of the world in 1556 1556: Mir Chakar Khan Rind captures Delhi with Humayun. 1556: Pomponio Algerio, radical theologian, is executed by boiling in oil as part of the Roman Inquisition. 1557: Habsburg Spain declares bankruptcy. Philip II of Spain had to declare four state bankruptcies in 1557, 1560, 1575 and 1596. 1557: The Portuguese settle in Macau (on the western side of the Pearl River Delta across from present-day Hong Kong). 1557: The Ottomans capture Massawa, all but isolating Ethiopia from the rest of the world. 1558: Elizabeth Tudor becomes Queen Elizabeth I at age 25. 1558–1603: The Elizabethan era is considered the height of the English Renaissance. 1558–1583: Livonian War between Poland, Grand Principality of Lithuania, Sweden, Denmark and Russia. 1558: After 200 years, the Kingdom of England loses Calais to France. 1559: With the Peace of Cateau Cambrésis, the Italian Wars conclude. 1559: Sultan Hairun of Ternate (in present-day Indonesia) protests the Portuguese's Christianisation activities in his lands. Hostilities between Ternate and the Portuguese. The Mughal Emperor Akbar shoots the Rajput warrior Jaimal during the Siege of Chittorgarh in 1567 1560: Ottoman navy defeats the Spanish fleet at the Battle of Djerba. 1560: Elizabeth Bathory is born in Nyirbator, Hungary. 1560: By winning the Battle of Okehazama, Oda Nobunaga becomes one of the pre-eminent warlords of Japan. 1560: Jeanne d'Albret declares Calvinism the official religion of Navarre. 1560: Lazarus Church, Macau 1561: Sir Francis Bacon is born in London. 1561: The fourth battle of Kawanakajima between the Uesugi and Takeda at Hachimanbara takes place. 1561: Guido de Bres draws up the Belgic Confession of Protestant faith. 1562: Mughal emperor Akbar reconciles the Muslim and Hindu factions by marrying into the powerful Rajput Hindu caste. 1562–1598: French Wars of Religion between Catholics and Huguenots. 1562: Massacre of Wassy and Battle of Dreux in the French Wars of Religion. 1562: Portuguese Dominican priests build a palm-trunk fortress which Javanese Muslims burned down the following year. The fort was rebuilt from more durable materials and the Dominicans commenced the Christianisation of the local population.[12] 1563: Plague outbreak claimed 80,000 people in Elizabethan England. In London alone, over 20,000 people died of the disease. 1564: Galileo Galilei born on February 15 1564: William Shakespeare baptized 26 April 1565: Deccan sultanates defeat the Vijayanagara Empire at the Battle of Talikota. 1565: Mir Chakar Khan Rind dies at aged 97. 1565: Estácio de Sá establishes Rio de Janeiro in Brazil. 1565: The Hospitallers, a Crusading Order, defeat the Ottoman Empire at the siege of Malta (1565). 1565: Miguel López de Legazpi establishes in Cebu the first Spanish settlement in the Philippines starting a period of Spanish colonization that would last over three hundred years. 1565: Spanish navigator Andres de Urdaneta discovers the maritime route from Asia to the Americas across the Pacific Ocean, also known as the tornaviaje. 1565: Royal Exchange is founded by Thomas Gresham. 1566: Suleiman the Magnificent, ruler of the Ottoman Empire, dies on September 7, during the battle of Szigetvar.Siege of Valenciennes during the Dutch War of Independence in 1567 1566–1648: Eighty Years' War between Spain and the Netherlands. 1566: Da le Balle Contrade d'Oriente, composed by Cipriano de Rore. 1567: After 45 years' reign, Jiajing Emperor died in the Forbidden City, Longqing Emperor ascended the throne of Ming dynasty. 1567: Mary, Queen of Scots, is imprisoned by Elizabeth I. 1568: The Transylvanian Diet, under the patronage of the prince John Sigismund Zápolya, the former king of Hungary, inspired by the teachings of Ferenc Dávid, the founder of the Unitarian Church of Transylvania, promulgates the Edict of Torda, the first law of freedom of religion and of conscience in the World. 1568–1571: Morisco Revolt in Spain. 1568–1600: The Azuchi-Momoyama period in Japan. 1568: Hadiwijaya sent his adopted son and son in-law Sutawijaya, who would later become the first ruler of the Mataram dynasty of Indonesia, to kill Arya Penangsang. 1569: Rising of the North in England. 1569: Mercator 1569 world map published by Gerardus Mercator. 1569: The Polish–Lithuanian Commonwealth is created with the Union of Lublin which lasts until 1795. 1569: Peace treaty signed by Sultan Hairun of Ternate and Governor Lopez De Mesquita of Portugal. The Battle of Lepanto 1570: Ivan the Terrible, tsar of Russia, orders the massacre of inhabitants of Novgorod. 1570: Pope Pius V issues Regnans in Excelsis, a papal bull excommunicating all who obeyed Elizabeth I and calling on all Catholics to rebel against her. 1570: Sultan Hairun of Ternate (in present-day Indonesia) is killed by the Portuguese.[12] Babullah becomes the next Sultan. 1570: 20,000 inhabitants of Nicosia in Cyprus were massacred and every church, public building, and palace was looted. Cyprus fell to the Ottoman Turks the following year. 1571: Pope Pius V completes the Holy League as a united front against the Ottoman Turks, responding to the fall of Cyprus to the Ottomans. 1571: The Spanish-led Holy League navy destroys the Ottoman Empire navy at the Battle of Lepanto. 1571: Crimean Tatars attack and sack Moscow, burning everything but the Kremlin. 1571: American Indians kill Spanish missionaries in what would later be Jamestown, Virginia. 1571: Spanish conquistador Miguel López de Legazpi establishes Manila, Philippines as the capital of the Spanish East Indies. 1572: Brielle is taken from Habsburg Spain by Protestant Watergeuzen in the Capture of Brielle, in the Eighty Years' War. 1572: Spanish conquistadores apprehend the last Inca leader Tupak Amaru at Vilcabamba, Peru, and execute him in Cuzco. 1572: Jeanne d'Albret dies aged 43 and is succeeded by Henry of Navarre. 1572: Catherine de' Medici instigates the St. Bartholomew's Day massacre which takes the lives of Protestant leader Gaspard de Coligny and thousands of Huguenots. The violence spreads from Paris to other cities and the countryside. 1572: First edition of the epic The Lusiads of Luís Vaz de Camões, three years after the author returned from the East.[14] 1572: The 9 years old Taizi, Zhu Yijun ascended the throne of Ming dynasty, known as Wanli Emperor. 1573: After heavy losses on both sides the siege of Haarlem ends in a Spanish victory.St. Bartholomew's Day massacre of French Protestants 1574: in the Eighty Years' War the capital of Zeeland, Middelburg declares for the Protestants. 1574: After a siege of 4 months the siege of Leiden ends in a comprehensive Dutch rebel victory. 1575: Oda Nobunaga finally captures Nagashima fortress. 1575: Following a five-year war, the Ternateans under Sultan Babullah defeated the Portuguese. 1576: Tahmasp I, Safavid shah, dies. 1576: The Battle of Haldighati is fought between the ruler of Mewar, Maharana Pratap and the Mughal Empire's forces under Emperor Akbar led by Raja Man Singh. 1576: Sack of Antwerp by badly paid Spanish soldiers. 1577–1580: Francis Drake circles the world. 1577: Ki Ageng Pemanahan built his palace in Pasargede or Kotagede. 1578: King Sebastian of Portugal is killed at the Battle of Alcazarquivir. 1578: The Portuguese establish a fort on Tidore but the main centre for Portuguese activities in Maluku becomes Ambon.[12] 1578: Sonam Gyatso is conferred the title of Dalai Lama by Tumed Mongol ruler, Altan Khan. Recognised as the reincarnation of two previous Lamas, Sonam Gyatso becomes the third Dalai Lama in the lineage.[15] 1578: Governor-General Francisco de Sande officially declared war against Brunei in 1578, starting the Castilian War of 1578. 1579: The Union of Utrecht unifies the northern Netherlands, a foundation for the later Dutch Republic. 1579: The Union of Arras unifies the southern Netherlands, a foundation for the later states of the Spanish Netherlands, the Austrian Netherlands and Belgium.The Irish Gaelic chieftain's feast, from The Image of Ireland 1579: The British navigator Sir Francis Drake passes through Maluku and transit in Ternate on his circumnavigation of the world. The Portuguese establish a fort on Tidore but the main centre for Portuguese activities in Maluku becomes Ambon.[16] The fall of Spanish Armada 1580: Drake's royal reception after his attacks on Spanish possessions influences Philip II of Spain to build up the Spanish Armada. English ships in Spanish harbours are impounded. 1580: Spain unifies with Portugal under Philip II. The struggle for the throne of Portugal ends the Portuguese Empire. The Spanish and Portuguese crowns are united for 60 years, i.e. until 1640. 1580–1587: Nagasaki comes under control of the Jesuits. 1581: Dutch Act of Abjuration, declaring abjuring allegiance to Philip II of Spain. 1581: Bayinnaung dies at the age of 65. 1582: Oda Nobunaga commits seppuku during the Honnō-ji Incident coup by his general, Akechi Mitsuhide. 1582: Pope Gregory XIII issues the Gregorian calendar. The last day of the Julian calendar was Thursday, 4 October 1582 and this was followed by the first day of the Gregorian calendar, Friday, 15 October 1582 1582: Yermak Timofeyevich conquers the Siberia Khanate on behalf of the Stroganovs. 1583: Denmark builds the world's first theme park, Bakken. 1583: Death of Sultan Babullah of Ternate. 1584–1585: After the siege of Antwerp, many of its merchants flee to Amsterdam. According to Luc-Normand Tellier, "At its peak, between 1510 and 1557, Antwerp concentrated about 40% of the world trade...It is estimated that the port of Antwerp was earning the Spanish crown seven times more revenues than the Americas."[17] 1584: Ki Ageng Pemanahan died. Sultan Pajang raised Sutawijaya, son of Ki Ageng Pemanahan as the new ruler in Mataram, titled "Loring Ngabehi Market" (because of his home in the north of the market). 1585: Akbar annexes Kashmir and adds it to the Kabul SubahPortuguese fusta in India from a book by Jan Huygen van Linschoten 1585: Colony at Roanoke founded in North America. 1585–1604: The Anglo-Spanish War is fought on both sides of the Atlantic. 1587: Mary, Queen of Scots is executed by Elizabeth I. 1587: The reign of Abbas I marks the zenith of the Safavid dynasty. 1587: Troops that would invade Pajang Mataram Sultanate storm ravaged the eruption of Mount Merapi. Sutawijaya and his men survived. 1588: Mataram into the kingdom with Sutawijaya as Sultan, titled "Senapati Ingalaga Sayidin Panatagama" means the warlord and cleric Manager Religious Life. 1588: England repulses the Spanish Armada. 1589: Spain repulses the English Armada. 1589: Catherine de' Medici dies at aged 69. Abu'l-Fazl ibn Mubarak presenting Akbarnama to Mughal Azam Akbar, Mughal miniature 1590: Siege of Odawara: the Go-Hojo clan surrender to Toyotomi Hideyoshi, and Japan is unified. 1591: Gazi Giray leads a huge Tatar expedition against Moscow. 1591: In Mali, Moroccan forces of the Sultan Ahmad al-Mansur led by Judar Pasha defeat the Songhai Empire at the Battle of Tondibi. 1592–1593: John Stow reports 10,675 plague deaths in London, a city of approximately 200,000 people. 1592–1598: Korea, with the help of Ming dynasty China, repels two Japanese invasions. 1593–1606: The Long War between the Habsburg monarchy and the Ottoman Turks. 1594: St. Paul's College, Macau, founded by Alessandro Valignano. 1595: First Dutch expedition to Indonesia sets sail for the East Indies with two hundred and forty-nine men and sixty-four cannons led by Cornelis de Houtman.[18] 1596: Birth of René Descartes. 1596: June, de Houtman's expedition reaches Banten the main pepper port of West Java where they clash with both the Portuguese and Indonesians. It then sails east along the north coast of Java losing twelve crew to a Javanese attack at Sidayu and killing a local ruler in Madura.[18] 1597: Romeo and Juliet is published. 1597: Cornelis de Houtman's expedition returns to the Netherlands with enough spices to make a considerable profit.[18] 1598: The Edict of Nantes ends the French Wars of Religion. 1598: Abbas I moves Safavids capital from Qazvin to Isfahan in 1598. 1598–1613: Russia descends into anarchy during the Time of Troubles. 1598: The Portuguese require an armada of 90 ships to put down a Solorese uprising.[12] (to 1599) 1598: More Dutch fleets leave for Indonesia and most are profitable.[18]Edo period screen depicting the Battle of Sekigahara 1598: The province of Santa Fe de Nuevo México is established in Northern New Spain. The region would later become a territory of Mexico, the New Mexico Territory in the United States, and the US State of New Mexico. 1598: Death of Toyotomi Hideyoshi, known as the unifier of Japan. 1599: The Mali Empire is defeated at the Battle of Jenné. 1599: The van Neck expedition returns to Europe. The expedition makes a 400 per cent profit.[18] (to 1600) 1599: March, Leaving Europe the previous year, a fleet of eight ships under Jacob van Neck was the first Dutch fleet to reach the ‘Spice Islands’ of Maluku.[18] 1600: Giordano Bruno is burned at the stake for heresy in Rome.Siege of Fiľakovo castle during the Long Turkish War 1600: Battle of Sekigahara in Japan. End of the Warring States period and beginning of the Edo period. 1600: The Portuguese win a major naval battle in the bay of Ambon.[19] Later in the year, the Dutch join forces with the local Hituese in an anti-Portuguese alliance, in return for which the Dutch would have the sole right to purchase spices from Hitu.[19] 1600: Elizabeth I grants a charter to the British East India Company beginning the English advance in Asia. 1600: Michael the Brave unifies the three principalities: Wallachia, Moldavia and Transylvania after the Battle of Șelimbăr from 1599. For later events, see Timeline of the 17th century. Polybius' The Histories translated into Italian, English, German and French.[20] Mississippian culture disappears. Medallion rug, variant Star Ushak style, Anatolia (modern Turkey), is made. It is now kept at the Saint Louis Art Museum. Hernan Cortes (1485–1547) Henry VIII, (1491–1547) King of England and Ireland Don Fernando Álvarez de Toledo (1507–1582) Suleiman the Magnificent, Sultan of the Ottoman Empire (1520–1566) Ivan IV the Terrible (1530–1584) Oda Nobunaga (1534–1582) Sir Francis Drake (c. 1540 – 1596) Alberico Gentili, (1552–1608) the Father of international law Philip II of Spain, King of Spain (1556–1598) Akbar the Great, Mughal emperor (1556–1605) Related article: List of 16th century inventions. The Columbian Exchange introduces many plants, animals and diseases to the Old and New Worlds. Introduction of the spinning wheel revolutionizes textile production in Europe. The letter J is introduced into the English alphabet. 1500: First portable watch is created by Peter Henlein of Germany.The Iberian Union in 1598, under Philip II, King of Spain and Portugal 1513: Juan Ponce de León sights Florida and Vasco Núñez de Balboa sights the eastern edge of the Pacific Ocean. 1519–1522: Ferdinand Magellan and Juan Sebastián Elcano lead the first circumnavigation of the world. 1519–1540: In America, Hernando de Soto expeditions map the Gulf of Mexico coastline and bays. 1525: Modern square root symbol (√) 1540: Francisco Vásquez de Coronado sights the Grand Canyon. 1541–42: Francisco de Orellana sails the length of the Amazon River. 1542–43: Firearms are introduced into Japan by the Portuguese. 1543: Copernicus publishes his theory that the Earth and the other planets revolve around the Sun 1545: Theory of complex numbers is first developed by Gerolamo Cardano of Italy. 1558: Camera obscura is first used in Europe by Giambattista della Porta of Italy. 1559–1562: Spanish settlements in Alabama/Florida and Georgia confirm dangers of hurricanes and local native warring tribes. 1565: Spanish settlers outside New Spain (Mexico) colonize Florida's coastline at St. Augustine. 1565: Invention of the graphite pencil (in a wooden holder) by Conrad Gesner. Modernized in 1812. 1568: Gerardus Mercator creates the first Mercator projection map. 1572: Supernova SN 1572 is observed by Tycho Brahe in the Milky Way. 1582: Gregorian calendar is introduced in Europe by Pope Gregory XIII and adopted by Catholic countries. c. 1583: Galileo Galilei of Pisa, Italy identifies the constant swing of a pendulum, leading to development of reliable timekeepers. 1585: earliest known reference to the 'sailing carriage' in China. 1589: William Lee invents the stocking frame. 1591: First flush toilet is introduced by Sir John Harrington of England, the design published under the title 'The Metamorphosis of Ajax'. 1593: Galileo Galilei invents a thermometer. 1596: William Barents discovers Spitsbergen. 1597: Opera in Florence by Jacopo Peri. Entertainment in the 16th century ^ a b Modern reference works on the period tend to follow the introduction of the Gregorian calendar for the sake of clarity; thus NASA's lunar eclipse catalogue states "The Gregorian calendar is used for all dates from 1582 Oct 15 onwards. Before that date, the Julian calendar is used." For dates after 15 October 1582, care must be taken to avoid confusion of the two styles. ^ de Vries, Jan (14 September 2009). "The limits of globalization in the early modern world". The Economic History Review. 63 (3): 710–733. CiteSeerX 10.1.1.186.2862. doi:10.1111/j.1468-0289.2009.00497.x. JSTOR 40929823. S2CID 219969360. SSRN 1635517. ^ Singh, Sarina; Lindsay Brown; Paul Clammer; Rodney Cocks; John Mock (2008). Pakistan & the Karakoram Highway. Vol. 7, illustrated. Lonely Planet. p. 137. ISBN 978-1-74104-542-0. Retrieved 23 August 2010. ^ Babur (2006). Babur Nama. Penguin Books. p. vii. 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An Encyclopedia of World History (5th ed. 1973); highly detailed outline of events online free Media related to 16th century at Wikimedia Commons Timelines of 16th century events, science, culture and persons Retrieved from " 4 The following pages link to 16th century External tools (link count transclusion count sorted list) · See help page for transcluding these entries Showing 50 items. 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