

**National University of Life and Environmental Sciences of Ukraine**  
**Faculty of Agrarian Management**  
**Production and Investment Management Department**

**Methodical Recommendations**  
**for Preparation for practical classes, independent work and exam**

**“Basics of business projecting”**

**for Bachelors**  
**of the Faculty of Agrarian Management**

**Kyiv – 2021**

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Methodical recommendations for preparation for practical classes, independent work and preparation for the exam in the for students studying for getting a degree in 073 "Management", 075 "Marketing" of the Faculty of Agricultural Management NULES of Ukraine / K.A. Alekseieva, M.M. Dielini - K. : Ed. NULES Center, 2021. - 160 p.

This workbook is a supplement to the e-learn platform page and is recommended for simultaneous use.  
<https://elearn.nubip.edu.ua/course/view.php?id=4331>

The Academic Council of the Faculty of Agrarian Management of NULES of Ukraine recommended the protocol № 7 from « 23» 03 2021.

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Educational edition

**WORKBOOK**

to prepare for practical classes, perform independent work and prepare for the exam  
for students majoring in  
073 "Management", 075 "Marketing"

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# I. INTRODUCTION TO THE COURSE

## “BASICS OF BUSINESS PROJECTING”

The concepts of "project" is a close part of our daily lives, and the modern environment is a world of projects that must be implemented to achieve the goal, in a given period of time and within available resources. To obtain the desired result, projects require constant management, which is the purposeful coordination of the necessary actions to achieve the goals.

The purpose of the discipline is to teach students the basics of projecting, the acquisition of skills to use the acquired knowledge for the effective implementation of the project solutions in the practical activities of the enterprise.

The subject of the discipline "Basics of Business Projecting" is the study of theoretical concepts and methodologies of project development, basic approaches and criteria for determining and justifying the choice of change.

In the process of studying the discipline "Basics of Business Projecting" students solve the following main tasks:

- studying of the basic provisions of project management;
- determining the place of the project at the enterprise and identifying the most common approaches to the formation of the structure of the project life cycle, acquaintance with the principles of change and project management at the enterprise;
- definition of the project methods and tools;
- substantiation of the need to manage the quality, time and resources of the project, determining the forms of organization of project activities at the enterprise.

In the process of teaching the discipline, a credit-module system of organization of the educational process is used, which meets the requirements of ECTS. The following teaching methods are used in the educational process: lectures, practical and seminar classes, case-methods, independent and individual scientific-analytical work.

Learning outcomes. After studying the discipline "Basics of Business Projecting" the student must:

**know:**

- essence, content, basic principles of business design;
- mechanisms, tools, methods, tools, functions of project management;
- types of projects and features of their implementation;
- regulatory and legal and organizational support for project development;
- methods of project planning and implementation;
- theoretical bases of providing control at realization of projects.

**be able:**

- to determine the phases of business project implementation;
- to evaluate investment projects under different conditions;
- to plan project implementation time;
- to project the organizational structure, carry out the distribution of powers and responsibilities on the basis of their delegation;
- to develop procedures and methods of control;
- to effectively organize group work based on knowledge of group dynamics processes and principles of project team formation;
- to assess the impact of investment decisions and financing decisions on the growth of the value (value) of the company.

## II. SHORT OVERVIEW OF THE THEORETICAL MATERIAL

Content module 1.

### THEORETICAL BASICS OF BUSINESS PROJECTING

#### Topic 1. General provisions of business projecting

Definition of basic concepts: project, business project. Signs of the project. Business project environment. Project life cycle. Internal and external environment of the project. Project environment. The main elements of the project.

Classification of projects. Types of projects. Project participants. Project owners. Project investors. Project team. Stakeholders of the project

Business project life cycle. Project life cycle properties. Phases of the project cycle, stages and stages. Properties and content of project phases. Types of work performed at different stages of the life cycle. The structure of the business project

#### *Theoretical material in short*

In many countries of the world, management of economic activity of the enterprise is based on projects and this approach (project) in practice has proven its ability to significantly increase the effectiveness of management decisions and, consequently, the effectiveness of enterprises.

Domestic practice usually referred to projects as research, architectural and construction activities, as the project meant a set of documents, calculations, drawings necessary to create some products or structures.

The modern interpretation of the project in a broad sense goes beyond these limits and includes all activities, from changing the image to the construction and operation of a nuclear power plant.

The most important components of the interpretation of the project are a clear focus on the effectiveness of measures, the need to achieve them in a certain period of time in conditions of limited resources.

The term project comes from the Latin word "Projectus" – thrown forward.

A project is a time-limited activity that has a definite beginning and end, usually limited by a date, but may also be limited to funding or achieving results that are implemented to achieve unique goals and objectives, to create added value or beneficial social change.

Business project is a commercial project the implementation of which is aimed at achieving unique goals and objectives and obtaining economic benefits from its owner.

Business projecting is the activity of the enterprise to develop and implement a business project.

### **Features of a project**

1. *Quantitative measurability.* This means that all costs and benefits of the project must be quantified, as the analyst evaluates the project based on figures. The claim that the project "will improve the well-being of the residents of the district" is an unsubstantiated expression bordering on nonsense. However, the assumption that the project will create "an additional 200 jobs, each of which will provide 1,000 hryvnias in tax revenues and 20,000 hryvnias in total national income," will allow the analyst to assess the feasibility of this project.

2. *Time horizon of action.* No project can exist without time constraints, which have two goals:

⇒ the first - determining the period during which the success or failure of the project can be determined;

⇒ the second - the assessment of the real value of financial costs and benefits is impossible without taking into account time constraints.

3. *Target orientation.* The project is always aimed at achieving a specific goal, meeting a need. This direction assumes that there is a desired measured result that can be achieved in a certain period of time. For successful implementation of the project it is

necessary not only to define it, but also to establish in the essential characteristic, including conditions (requirements and restrictions) of its functioning. Project objectives must be clearly articulated, measured, constraints set, and requirements established.

4. *Life cycle.* The project arises, functions and develops. There is a clear relationship and consistency between the different project activities. Each project, regardless of its complexity and the scope of actions required for its implementation, undergoes in its development certain forms of state from conception to implementation.

5. *System functioning of the project, elemental structure.* There is a connection between the elements of the project. However, the composition of a project does not always remain the same: some of its elements may appear or leave.

6. *Existence in a certain external environment, the elements of which have a significant impact on the project.* Therefore, the project must be analyzed taking into account the conditions of the environment in which it will be carried out.



## **Topic 2. Well-grounding for the project development**

Development of a project model. Analysis of input data. Description of the project content. Preparation of a content management plan. Organization of works at the stage of project development. Methods of creative thinking. Formation of the project concept. Identification of project alternatives. Defining project selection criteria. Creating a matrix of project selection. Evaluation of business project efficiency criteria. Expert assessments of investment projects.

General sequence of project analysis. Project comparison methods. Commercial feasibility analysis. Analysis of the microenvironment and macroenvironment of the project. Technical analysis. Financial analysis. Economic analysis. Institutional analysis. Economic analysis. Description of the general task of the project. Defining project management tasks.

### **Theoretical material in short**

*Project development* is a specially organized research work of forecasting-analytical and technical-economic nature, related to setting the goal of project development, development of its concept, planning and design of design estimates.

At the stage of development (pre-investment phase) managers perform the following types of work:

- identification of investment opportunities and promotion of business ideas;
- analysis of alternative project options and preliminary project selection;
- project preparation - development of preliminary feasibility study (PTE) and feasibility study (feasibility study);
- functional studies of the project;
- conclusion from the project and investment decision.

This implementation of the pre-investment phase in stages allows managers to make a step-by-step test of the business idea and evaluate alternative solutions.

### ***Structure of project analysis***

After formulating a business idea of the future investment project, the question naturally arises whether the company is able to implement this idea. To answer this question, it is necessary to analyze the state of the industry to which the company belongs, and find its competitive position within the industry. This analysis is the content of the previous stage of development and analysis of the investment project. In the practice of Western project analysis, it is accepted to use the following two criteria:

- maturity of the industry,
- competitiveness of the enterprise, market position.

According to the second criterion, it is necessary to establish the competitiveness of the enterprise within the industry to which it belongs. The end result of the preliminary stage of the project analysis is to establish the position of a particular enterprise according to certain criteria, i.e. literally to which cell of the life cycle matrix this enterprise belongs.

Having determined the position of a particular enterprise, it will be possible to consider one of the possible strategies for its further behavior in the market:

It is clear that any project of the enterprise is almost certainly doomed to failure, if the position of the enterprise corresponds to the lower right cell of the matrix.

Despite the fact that the conclusions made at the previous stage are based mainly on qualitative assessments, this stage is necessary for at least two reasons:

- at the further communication with the strategic investor questions of maturity of branch and a competitive position of the enterprise will necessarily become and it is necessary to be ready for it in advance;

- if the managers of the enterprise do not take care of this analysis, the strategic investor will do it himself and his conclusions may not be so favorable.

Project analysis is a type of voluntary examination of the project, the subject of which is the study of the completeness and quality of project decisions, social, economic, financial and social efficiency and commercial feasibility.

A detailed study of financial and economic efficiency, uncertainties and risks, as well as individual changes in management or policy that may affect the success of the project.

*The project analysis program usually includes the following:*

- development of the task (together with the customer to take into account the specifics of the project);
- receipt of the original project documentation from the customer, formation of registers;
- express analysis of the current state of the project with documents;
- analysis of the idea;
- analysis of the institutional environment;
- analysis of the completeness of pre-investment research;
- analysis of legal validity;
- strategic analysis of changes in the external environment;
- concept analysis;
- analysis of the project structure;
- analysis of project management methodology and project team structure;
- examination of the composition, content and quality of project documentation;
- analysis of the logical and legal scheme of project implementation for compliance;
- assessment of project certainty;
- assessment of project documentation for compliance;
- scenario analysis, etc.

### **Topic 3. Business plan of the project**

The concept and structure of a business plan. The order of preparation and registration of the business plan. Defining the goals and target audience of the business plan. Analysis of the market situation. Marketing plan. Production and sales plan. Organizational plan. Financial plan. Feasibility study. Current issues of project business planning.

#### **Theoretical material in short**

If a company (enterprise) needs to attract additional capital from investment companies or venture firms with which it has not previously cooperated, the business plan plays the role of a business card for it.

The initial task of the business plan is to make a potential investor familiar with it, which will allow the company's management to take the following measures. Each company uses only its own business plan, using its own approaches and structure, which differ depending on the nature of the business, the specific objectives of the plan and the individual requirements of creditors. For example, a plan for a manufacturing firm should include sections other than a plan for a service business.

A business plan used for internal purposes is different from a plan to attract investment. But there are key questions that need to be answered regardless of its goals.

- What is a company's business?
- What are the goals of the company?
- What strategies and tactics can help the company achieve these goals?
- What is the extent of the impact of financial and other resources needed by the company, during what period and how will these resources be used?
- When and how will the funds be returned to creditors and investors?

#### **The main sections of a business plan are the following:**

*The title page* of the business plan contains the following details: company name; company address; company phone; name, status, addresses, telephone numbers of owners; a paragraph describing the company and the nature of the business.

**Resume.** This part is a brief and clear summary of the business plan. It contains the purpose and strategy of the business, emphasizes the uniqueness of the product or service, forces lenders or investors to read the business plan from start to finish. A serious investor receives dozens of such plans every week and has more material than he can read. Therefore, a resume is needed by the investor to determine whether to read the entire business plan.

**Company description.** This section of the plan should describe the company in detail, including its history, current status, and future project.

**Product or service.** This section should include a complete description of the product or service with an analysis of competitive advantages and disadvantages.

**Industry analysis.** It is important to evaluate the industry or industries in which the business operates. In particular, the business plan is evaluated by potential investors on a number of criteria, one of which is the industry in which the company competes. Therefore, it is desirable to include an overview of industries and, including development trends and business history. An important part of the section is the analysis of competition. All major competitors should be identified with a description of their strengths and weaknesses, especially how they could contribute to the potential success of the new business. It is worth detailing information about major suppliers and buyers.

**Marketing analysis and strategy.** This section of the business plan should be considered especially carefully and attentively. Marketing analysis should, as far as possible, focus on plausible, interdependent and comparable information. A marketing plan is an important part of a business plan because it describes how distribution, pricing, and product promotion can be done.

**Production.** It describes the existing and anticipated procedures and tools required by the firm to produce or provision of services. If the company is a production company, then a production plan is required. This plan must fully describe the production process. Operational plans should be outlined for different stages, for example, at creation of a new product, the previous stage of production, working off of marketing, the first serial release of a product. There should also be a description of production facilities, personnel (by category), sources of raw materials and components, as well as the strategy of the

next service. If any part of the production process (or the whole process) is to be outsourced, a description of all subcontractors should be included, indicating their location, the considerations that led to their selection, costs and all contracts concluded. This section should also contain a description of the premises, machinery and equipment required for production, information on suppliers of raw materials and components - addresses and conditions, production costs and all future equipment costs.

***Management and organization.*** This section describes the structure of the organization and key executives. First, the form of ownership (company, joint stock company, etc.) must be described. If the company is a joint stock company, it is important to include information about the issued shares, names, addresses and records of directors and key employees of the company. It is also useful to draw up a diagram of the organization with the indicated levels of responsibility of the members of the organization.

***Financial plan.*** The financial plan identifies the potential investments that are needed for the business and shows whether the business plan is economically feasible. Before preparing a business plan, the manager must have a complete assessment of the profitability of the enterprise. This estimate shows potential investors whether the business will be profitable, how much money it takes to start a business and meet short-term money needs, how that money can be obtained (i.e. stocks, loans, etc.).

***Risk analysis.*** Each business activity is associated with certain risks associated with the characteristics of industries and industries, competitors, as well as the general political and economic situation in the country. The business plan should analyze the difficulties that may arise in the foreseeable future (in the next 2-3 years). This section should identify potential risks and develop an effective strategy to address them.

***Appendices*** (accompanying documents). The appendix contains materials that do not have to be given in the main text. Only those documents that are of direct interest to the potential investor should be provided in full. For others, you can limit yourself to short notes. References to any documents used in the appendix should be made in the business plan itself.

## **BASICS OF BUSINESS PROJECT IMPLEMENTATION**

### **Topic 4. Organizational plan of the project and HR providing**

Organizational plan of the project. Organizational management structure. Different types of organizational structures. Legal providing.

HR project. Project of HR management processes. Planning and forming a project team. Team development management. Project manager leadership. Delegation.

The project needs personnel providing. Project specialists are involved. Team and team work development. Project team development goals. Stages of team development.

Motivation of individuals and groups. Modern theories of motivation. Principles and factors of motivation. Motivation program. Conflict management. Methods of solving problems. Conditions for successful resolution of conflicts in the team.

### **Theoretical material in short**

#### ***The structure of the organizational plan:***

1. Form of business organization.
2. Business needs in staff.
3. Business owners.
4. Organizational chart of management.
5. Personnel policy and strategy.

#### ***Determining the firm's needs in staff***

1. Make a list of necessary activities (or specific tasks), establish areas of responsibility and on this basis to develop job specifications, qualifications, job descriptions.

2. Determine the required number of staff of the company in certain categories (main employees, auxiliaries, employees).
3. Make preliminary calculations of the cost of staff retention (including wages, remuneration, social security contributions, payroll taxes, etc.).
4. Identify specific sources of staffing needs (internal or external).

***Requirements for rational construction organizational structure of enterprise management***

- 1) optimality (minimum number of management levels);
- 2) efficiency (the ability to ensure rapid management decisions, their transfer to lower levels of government, ensuring the distribution of rights and responsibilities);
- 3) efficiency (rational distribution of managerial work and minimum management costs

**The calendar plan** is a schedule of the main stages of works on preparation for realization of the business project is developed, as a rule, for the newly created enterprises and at realization of large-scale business projects.

A calendar plan should contain information on the main stages and sequence of their implementation, time, timing and relationship of major events that help prepare for the start of the business project and achieve its goals.

For example, the following steps may be:

- order of raw materials;
- completion of product design;
- obtaining the necessary approvals and permits related to the implementation of the business project;
- search, construction, rent of necessary premises, development of the plan of placement of buildings and constructions, installation within them of the equipment, testing of the equipment, release of a trial party of products;
- search and hiring of staff, their preparation for the tasks within the project

**The main organizational tasks of building a project team**

- creation of a professionally stimulating environment;



- implementation of competent leadership;
- providing qualified technical staff;
- providing management support and a stable environment.

#### **Advantages of team work:**

- ❖ Teamwork is a tool that provides support and success of management.
- ❖ The team can be renewed and renewed independently through the selection of people as individual members leave.
- ❖ The team creates a "bank" of collective experience, information, rules that can be passed on to new members.
- ❖ Many people are more successful working in a team than alone.
- ❖ Team synergy generates more output than the sum of individual contributions.

### **Topic 5. Production plan of the project**

Project production plan: purpose, objectives and structure. Stages of production of goods or services. Technological process of production. Enterprise costs. Calculation of the need for logistics. Equipment and raw materials. Calendar-schedule of project implementation. Fixed and variable project costs. Production plan and production costs during the project. Remuneration fund.

#### **Theoretical material in short**

The main components of the section “Production plan” of the business plan are:

1. Description of technology of production and sale of products (provision of services).
2. Substantiation of the need for an entrepreneurial project in the material and technical base.
3. Calculation of the needs of the business project in all types of resources.
4. Calculation of maximum production capacity.

5. Calculation of costs associated with the use of all types of resources and total production costs per unit of output; drawing up cost estimates.

6. Distribution of costs into fixed and variable.

7. Calculation of the unit cost of production.

It should be noted that in the working version of the business plan it is recommended to calculate three options for the production forecast: pessimistic, optimistic and most probable.

After substantiation of the maximum production capacity and determination of the production program of the enterprise in the "Production Plan" it is necessary to calculate the need of the enterprise in the material and technical base and all types of resources.

However, this process can be logically divided into two stages: justification of the need for all types of resources needed by the company before the start of the business project (usually long-term assets) and resources required for the normal processes of production and marketing during the business project . If the business plan of the existing enterprise is being developed or the enterprise already has some elements of material and technical base in the "Production plan" before the development of the business plan, it is expedient to provide (in tabular form) information on available resources and need for additional buildings. equipment, etc.

## **Topic 6. Marketing plan of a business project**

Project marketing plan. Complex 4P. Tasks of the marketing plan. Product price formation. Pricing methods. Project marketing strategy. Market segmentation. Strategies for the company to enter new markets. Evaluation of competitors. Information distribution and sales channels. Project advertising campaign. Marketing cost plan. SWOT analysis.

### **Theoretical material in short**

In order for potential customers to become real, the company needs to have a marketing plan. This plan should show why customers will buy your products. If the assessment of sales does not provide all the smallest details of how it will be achieved, it

will inevitably cause distrust on the part of potential investors. Here you need to think and explain to potential partners or investors the main elements of your marketing plan: pricing, distribution scheme, advertising, sales promotion methods, organization of after-sales support, image formation.

The marketing plan of the project should begin with a brief description of the overall marketing strategy, which indicates which properties of the product (service) will be focused. At the same time, it should be noted that the initial information in the development of marketing strategy is the information from the section "Market Research", and in particular - the results of consumer segmentation and selection of the target market segment. Therefore, the marketing strategy should be developed for each of the target market segments, as well as taking into account the competitive position of the company in each of them. When choosing a marketing strategy for market coverage, three types of strategy can be used:

- undifferentiated (mass) marketing;
- differentiated marketing;
- concentrated marketing. In addition, when choosing a marketing strategy, it is advisable to rely on the matrix "price - marketing costs".

An important place in the planning of the marketing part is the communication policy of the enterprise within the implementation of the business project. Communicative policy should be understood as a set of promising measures aimed at planning and implementing the relationship of the enterprise with all subjects of the marketing system on the basis of a sound strategy of using a set of communicative measures aimed at ensuring stable and effective demand and promotion of products (services). target market segments in order to meet the needs of consumers and make a profit. This section of the "Marketing Plan" should reflect the main provisions of the program of communication policy of the enterprise: goals; tasks; corporate identity; strategy; structure and specific measures of the complex of marketing communications (advertising, sales promotion, personal sales, public relations, direct marketing, sponsorship, product placement, branding).

## **Topic 7. Financial plan and risk assessment of the project**

Financial plan of the project. The logic of developing a financial plan. Sources of project funding. Own, attracted and borrowed funds of the project. Alternative sources of project funding. Investments in the project. Project revenues and costs. Net profit. Break-even point of the project. The main indicators of project profitability. Indicators of profitability, business activity and liquidity of the project. Assessment of the investment attractiveness of the project. Calculation method: NPV, IRR, DPP. Project risks. Assessment of the probability of occurrence of project risks. Entrepreneurial risk. Commercial risk. Methods of risk minimization. Insurance. Risk diversification.

### **Theoretical material in short**

#### *The main indicators of the financial plan*

It should be remembered that within this paragraph it is advisable to calculate the indicators for the following groups:

- indicators of business activity;
- indicators of efficiency of use of resource maintenance of the enterprise;
- indicators of profitability and profitability.

The second group (indicating the feasibility of deciding on the implementation of an entrepreneurial project) is formed by a set of indicators that are presented in the presentation to the lecture: NPV (net present value), IRR (internal rate of return), PP (payback period), DPP (discounted payback period), PI (profitability index). Break-even analysis involves determining the volume of economic activity of the enterprise, at which the income from the sale of products (services) of the enterprise corresponds to its costs. To determine the break-even point, you need to know information about the selling price per unit of output (or gross income level), variable costs per unit of output (or the level of variable costs) and total fixed costs.

$BEP = FC / (P - VC)$ , where BEP - the volume of production (sales) of products, which achieves a break-even economic activity of the enterprise, UAH;

FC - fixed costs, UAH;

P - unit price, UAH;

VC - variable costs, UAH

The break-even point corresponds to the value of income at which the company covers conditionally fixed and variable costs. In this situation, the company does not suffer losses, but does not make a profit and is unable to ensure proper development, return on investment, etc.

the sources of investment are:

- own funds (profit, depreciation deductions, insurance amounts of damages, immobilized balances of fixed and current assets, intangible assets, etc.);
- borrowed funds, including contributions and donations; funds received from the sale of shares, etc.;
- borrowed funds in the form of bank, budget and commercial loans (on an interest and non-interest basis).

**At the level of the investment project funding sources are:**

- at the expense of state, regional and local budgets, extra-budgetary funds;
- at the expense of business entities;
- foreign investment in various forms.

Risk is the probability of a certain level of loss of a part of income or increase of expenses as a result of a risk situation. At the same time, the risk situation is considered unfavorable for the functioning of the enterprise and the results of its activities, the development of events.

Under the risk of the project, they understand the possibility of such conditions that will lead to negative consequences for all or individual participants.

Risk monitoring is required to determine the risk of a project. Risk monitoring is a risk control throughout the life cycle of the project, which is provided by the management of the information received and allows you to take effective management decisions before the occurrence of risk events.

**Project risk analysis is conducted for:**

- the formation of the person who makes the decision on the project, a coherent picture of the studied socio-economic system;
- risk rating according to the degree of influence on the key indicators of project efficiency;
- comparison of alternative projects, variants of actions, technologies, etc.; creation of databases for systems of support of acceptance of managerial decisions; justification of measures to reduce risks

### **III. TASKS FOR PRACTICAL CLASSES**

#### **Practical task № 1 "General provisions of business projecting"**

**Purpose:** to study the principles of business design, to get acquainted with the main categories and concepts of this topic.

#### **Practical lesson plan**

1. Definition of basic concepts: project, business project, business design
2. Business design environment
3. Project life cycle
4. SMART-criteria

#### **Task progress:**

1. Get acquainted with the plan of practical work and materials of lectures.
2. It is necessary to divide into working teams (on 2-3 persons. Depending on how it was agreed with the teacher on pair).
3. Create a business ideas for further project creation and download it here
4. Study the questions and describe the environment of your business idea and the life cycle phase of the further business project
5. It is necessary to form the concept of the project. We send the main theses as an answer to the task of practical work (must be passed before the lesson, will be discussed between students)

#### **Practical task № 2 "Project justification"**

**Purpose:** to determine the basic concepts of the topic and tools to justify the project.

#### **Practical lesson plan**

1. Organization of works at the stage of project development
2. General sequence of project analysis
3. Methods of evaluation of investment projects

#### 4. Research of project market

##### **Task progress:**

1. Get acquainted with the plan of practical work and lecture material.

2. It is necessary to analyze the state of the industry, to study the market to which the company belongs, and to find its competitive position within the industry

3. Give short author's answers to the questions:

- how you can justify the feasibility of a business project;
- what information is required to develop a business project;
- what determines the sequence of business design;
- what is the method of project market analysis.

4. Work out questions for self-control: What factors affect the feasibility of developing a business project? Sources of business project information? What is the method of evaluating business projects? Why is it necessary to study the project market and the state of the economy to which the project belongs?

5. Please, study the next material and give answers to the questions:

#### ***21 Great Small Business Ideas to Start in 2021***

*If you're ready to run your own business, consider any of these great business ideas.*

##### *1. Consultant*

*If you are knowledgeable and passionate about a specific topic (business, social media, marketing, human resources, leadership, communication, etc.), starting a consultant business can be a lucrative option. You can start your consulting business on your own, then grow your business and hire other consultants over time.*

##### *2. Online reseller*

*Those passionate about clothing and/or sales may want to consider starting an online reseller business. Although it takes a lot of time and dedication – and an eye for fashion – this is a great idea that you can start as a side hustle and turn into a full-time resale business. You can start by using online store websites like Poshmark and Mercari to sell your unwanted clothing, eventually expanding to your own resale website.*

##### *3. Online teaching*



*The demand for online education has opened up a wide possibility for entrepreneurs to start their own ventures. Since this is an online business idea, you can choose any subject you are knowledgeable about and teach a course regardless of your location. If you don't have advanced knowledge in any particular subject, you can always consider teaching English as a foreign language online to students overseas.*

#### *4. Online bookkeeping*

*As with education, technology allows many bookkeeping services to be performed online. If you are an accountant or bookkeeper who wants the freedom and autonomy of running your own business, you can take advantage of modern technology to start your own online bookkeeping service, taking on other companies as clients.*

#### *5. Medical courier service*

*If you have a reliable vehicle and good time management skills, you may want to consider creating your own courier service – more specifically, a medical courier service. As a driver, you would be responsible for transporting medical items like lab specimens, prescription drugs and equipment. The healthcare industry is expanding, which is great for medical courier service job stability. You could start your courier business on your own or hire other drivers to work for you.*

#### *6. App developer*

*If you are knowledgeable and experienced in technology, you may want to consider a career in app development. Smartphones have become an everyday accessory for many Americans, which has increased demand for mobile apps. Similarly, virtual reality software has become popular in recent years, so there is also a demand for VR app development.*

#### *7. Transcription service*

*If you have a good ear and can type quickly, a transcription service is a great business idea that allows you to work from home with a flexible schedule. Medical transcription services are especially needed as voice recognition technology proliferates for healthcare provider dictation. If you're not looking to start all at once, or if you have a day job you would like to keep for the time being, you can accept as few or many*

*transcription jobs as you'd like. To boost your business prospects and justify charging more, consider becoming a certified transcriptionist and delving into a few specialties.*

*Medical transcriptionists typically charge 6 to 14 cents per line of transcription, which can quickly add up. The typical turnaround time for transcription work is 24 hours, so it's important to stay on top of the jobs you accept. However, the flexibility to accept only a few requests to get started means you can scale up as you are ready, making transcription an easy service to start up slowly. Best of all, there is very little startup cost and overhead. You simply need a computer, the appropriate software and a secure messaging service.*

#### *8. Professional organizer*

*Looking for a business idea that can really "spark joy"? Professional organizers, like Marie Kondo, help people declutter and minimize for a living. In an age of materialism, many people are desperate to downsize and take control over their possessions, rather than letting their things possess them. Minimalism is becoming extremely popular, but people often find it hard to part with things they've owned for a long time. Part of being a professional organizer is helping clients develop a system for downsizing and keeping things that way.*

*If you're a highly organized person who enjoys making spaces functional and comfortable, you might be good at coaching others to do the same. People will pay you to help them devise a method of minimizing their possessions and then maintaining an organized space. To promote your business, ask if your clients will let you take before and after photos of the areas of their homes you've organized, and use those to create a portfolio that you can put on social media to attract more clients.*

#### *9. Cleaning service*

*If you like to clean, you can easily turn it into a business. With a few staff members, a host of cleaning supplies and transportation, you can offer cleaning services to homeowners, apartment complexes and commercial properties. Most cleaning services charge between \$25 and \$50 per hour. Cleaning services are straightforward businesses that require relatively little overhead; you simply need planning, dedication and marketing to get your business noticed.*

*If you're looking to differentiate yourself from other cleaning services, consider adding premium options like floor waxing or exterior power washing for an additional fee. These services could be the deciding factor between your new cleaning service and seasoned companies that maintain too large a client list to provide that level of cleaning.*

#### *10. Freelance copywriter*

*If you're a natural wordsmith with a bit of marketing knowledge, you can establish yourself as a freelance copywriter. Whether you write blogs, web content or press releases, plenty of companies will pay for your services. You can increase your value by bringing SEO knowledge to the table to help your clients craft a strategy to attack specific keywords that their target audience is already using in their online searches. Most freelance copywriters charge \$40 to \$50 per hour, but those with expertise in a given vertical could charge even more.*

*Freelance copywriting is a great business to run, because as long as you have an internet connection, you can work. It's a business that you can operate from the comfort of your own home, or even from the road if you travel. If you establish a large enough network and gain referrals from satisfied clients, you could even make freelance writing your full-time job.*

#### *11. Home care service*

*A background in care and hospitality can go a long way to support housebound seniors who require in-home care. It's also a service for which demand is only going to grow. According to the National Institute on Aging, between 2010 and 2050, the 85-and-over population is projected to increase 351% globally, and the global number of centenarians (those over age 100) is projected to increase tenfold. Many will need care and assistance, oftentimes in their own homes.*

*Luckily, you don't need a background in healthcare to help seniors and grow a successful business at the same time, although those skills are certain to be in demand as well. Many seniors need help with everything from errands to repairs around the house. With some experience, you could consider growing your business to help seniors transition from their homes to assisted living facilities, offering services such as packing, transporting, setting up, or storing their furniture and possessions.*

## *12. Translation service*

*According to research from IBISWorld, the translation services industry saw a decline in 2020, as did many industries; however, it is projected to rebound nicely in 2021. That projected growth isn't surprising, as the internet has opened up entrepreneurs in other countries to English-speaking markets and vice versa.*

*This trend has created an opening for multilingual speakers to offer specific services, such as document translation and the translation of website information into languages for use in other markets. If you know multiple languages, carving out a niche in the translation services industry could be a successful endeavor.*

## *13. Digital marketing*

*The importance of the internet grows with every passing day, making it harder all the time for businesses to cut through the clutter and properly market themselves. Digital marketing services are always in demand, and many small and midsize companies would rather outsource it than establish a costly in-house team. If you've got chops in SEO, content marketing, pay-per-click, web development or social media management, you could have a business opportunity that allows you the freedom to work from home.*

*Digital marketing is an important part of a brand, so it's critical for you to respond to developments in your clients' marketing strategies. Social media management entails watching for comments and messages around the clock, not just scheduling posts in a "set-it-and-forget-it" mindset. If you enjoy strategizing and implementing plans meticulously, digital marketing could be the right business for you. You may also consider becoming an affiliate marketer, which is another form of digital marketing.*

## *14. Food truck*

*With indoor dining limited in many locations right now, aspiring restaurateurs might find more success with a food truck. Food trucks come in all shapes and sizes, serving up a wide range of snacks and cuisines. Take your favorite style of food on the road and sell your culinary passions directly to hungry customers. Sure, you'll be working, but you'll be in a space you're passionate about, with a chance to connect to people who have similar interests.*

*Food trucks might sound like a wild idea, but the industry is growing. The overhead and upkeep for a truck costs significantly less than owning a restaurant, and you have the added benefit of mobility. If you're interested in serving up smiles, check out our guide to getting your food truck business rolling full speed ahead.*

#### *15. Lawn care service*

*If you grew up with a lawn, chances are your parents made you take care of it. For many of us, lawn care is bothersome, but for some, it offers a sense of peace and serenity. Working outdoors with your hands to tame and beautify the natural landscape can be a rewarding experience, and since so many people find the work tedious, it can also be profitable.*

*Lawn care services require little more than some basic equipment, a trailer and perhaps some staff, depending on how many clients you have and how big the jobs are. You can quickly grow a small lawn care service into a full landscaping company by offering premium services and establishing a reputation as a brand that does a thorough job with a smile. If you like working outdoors and creating elegant landscapes, this could be the business for you.*

#### *16. Rideshare driver*

*If starting your own business seems daunting or too much of a risk, you can always use your car to become a rideshare driver. The overhead and responsibility of running the company falls on the rideshare service, giving you the freedom to work as much or as little as you need. Rideshare applications such as Uber and Lyft have enabled people to start side hustles that pay well and require little more than a willingness to drive people to their destinations and make occasional friendly conversation.*

*Rideshare drivers have the independence of a small business owner without the heavy workload required to manage the logistics behind the scenes. If any of the other business ideas seem like they require too much effort or upfront capital, ridesharing might be a great way for you to dip your toes into the world of entrepreneurship.*

#### *17. Real estate agent*

*For many people, navigating the housing market is overwhelming. As a real estate agent, you can help people find the home of their dreams at a price that fits their budget.*

*In many states, you simply need to complete a few months of classes and pass an exam to qualify as a real estate agent. Even with a certification, you'll get nowhere without basic people skills, so if you're not a people person, this might not be the route for you.*

#### *18. Graphic designer*

*Corporations, small businesses and sole proprietors all need eye-catching promotional materials, but not nearly everybody has an eye for what looks good. If you've got an artistic streak and know how to organize content into a visually pleasing format, you can start a graphic design business to provide flyers, digital ads, posters and other engaging visual materials. Graphic design also has the benefit of requiring few physical tools beyond a laptop and a desk.*

#### *19. T-shirt printing business*

*Just like with graphic design, you might enjoy launching a T-shirt printing business if you've got a sharp artistic sense – or maybe you just enjoy taking someone else's visuals and screen-printing them onto a blank shirt. Either way, if you have space for a T-shirt printing setup, you can easily get the necessary tools and start your small business.*

#### *20. Dropshipping*

*Not all companies that sell goods store them onsite. In dropshipping, people who run e-commerce sites go to a third party to fulfill all orders. The third party is likely a wholesale retailer or other entity that runs a warehouse and shipping operation. The minimal inventory and tools needed for dropshipping make it an especially great startup idea if you're worried about overhead and physical space.*

#### *21. Pet sitting*

*About two-thirds of U.S. families have a pet. When these families go away for extended periods and need someone to watch their pets for them, your pet-sitting small business can give them peace of mind. As a pet sitter, you'll watch over your clients' dogs, cats or other pets at their house, making sure to feed them, give them water, play with them, spend time with them, and (with dogs) walk them as needed. You'll also need to regularly update your clients on how their pets are doing.*

*If you have other sources of income that require merely an internet connection and a laptop, pet sitting may be an especially apt small business idea. Almost all pet owners*

*will be glad to let you do work on your laptop while you spend time at their home with their pets, meaning that you can run two income streams simultaneously.*

Material retrieved from: <https://www.businessnewsdaily.com/2747-great-business-ideas.html>

Also, you can study the following links: <https://www.ryrob.com/best-businesses-start-while-working-full-time-job/>

<https://www.adamenfroy.com/business-ideas>

<https://www.oberlo.com/blog/business-ideas-that-make-money>

Answers:

1. If you want to start a new business, what sphere or idea would you choose?
2. Up to you, why the abovementioned ideas are the best for starting a new business in the nearest future?
3. What would you add to this list of ideas? Please, justify your answer.

### **Practical task № 3 "Business plan of the project"**

**Purpose:** to study the various structures of business plans and the purpose of their development.

#### **Practical lesson plan**

1. Factors determining the content and scope of the business plan:
  - the audience for which the business plan is designed;
  - specific goals of business plan development;
  - specific and functional orientation of the business plan;
  - scale of activity and volumes of initial financing;
  - the most important characteristics of the future product and the stage of its life cycle.
2. Typical sections of the business plan focused on attracting investment in production activities:
  - resume;

- market research;
- industry, firm and its products (services);
- organizational plan;
- production plan;
- marketing plan;
- financial plan;
- risk assessment.

### 3. Topical issues of project business planning.

#### **Task progress:**

1. Get acquainted with the plan of practical work, materials of lectures
2. Define the target audience of your project (within the project groups you have identified).
3. Analyze the competitive environment of the project.
4. Please, analyze the following material and give answers to questions:

#### ***Three Rules that make business planning easier***

*Before you get started with your business plan, let's talk about some "rules" that will make the whole business planning process easier.*

*The goal is to get your business plan done so you can focus on building your business.*

1. *Keep it short. Business plan should be short and concise. The reasoning for that is twofold: 1. First, you want your business plan to be read (and no one is going to read a 100-page or even 40-page business plan). 2. Second, your business plan should be a tool you use to run and grow your business, something you continue to use and refine over time. An excessively long business plan is a huge hassle to revise – you are almost guaranteed that your plan will be relegated to a desk drawer, never to be seen again.*
2. *Know your audience. Write your plan using language that your audience will understand. For example, if your company is developing a complex scientific process, but your prospective investors are not scientists, avoid jargon, or acronyms that won't be familiar.*



*Instead of this: Our patent-pending technology is a ne-connection add-on to existing bCPAP setups. When attached to a bCPAP setup, our product provides non-invasive dual pressure ventilation.”*

*Write this: “Our patent-pending product is a no power, easy-to-use device that replaces traditional ventilator machines used in hospitals at 1/100<sup>th</sup> the cost.”*

*Accommodate your investors, and keep explanations of your product simple and direct, using terms that everyone can understand. You can always use the appendix of your plan to provide the full specs if needed.*

- 3. Don't be intimidated. Did you know that the vast majority of business owners and entrepreneurs aren't business experts? They don't have MBAs or accounting degrees. They're learning as they go and finding tools and resources to help them.*

### ***What's in a business plan?***

*Whether you're building a business plan to raise money and grow your business or just need to figure out if your idea will work, every business plan needs to cover 6 essentials topics.*

- 1. Executive summary. The executive summary is an overview of your business and your plans. It comes first in your plan and is ideally only one to two pages. Most people write it last, though.*
- 2. Opportunity. The opportunity section answers these questions: What are you actually selling and how are you solving. Problem (or “need”) for your market? Who is your target market and competition?*
- 3. Execution. In the execution chapter of your business plan, you'll answer the question: how are you going to take your opportunity and turn it into a business? This section will cover your marketing and sales plan, operations, and your milestones and metrics for success.*
- 4. Company and Management Summary. Investors look for great teams in addition to great ideas. Use the company and management chapter to describe your current team and who you need to hire. You will also provide a quick overview of your legal structure, location, and history if you're already up and running.*

5. *Financial Plan.* Your business plan isn't complete without a financial forecast. We'll tell you what to include in your financial plan, but you'll definitely want to start with a sales forecast, cash flow statement, income statement (also called profit and loss) and your balance sheet.
6. *Appendix.* If you need more space for product images or additional information, use the appendix for those details.

*Basic structure of business plan:*

1. *Executive Summary*

1. *Opportunity*

1. *Problem Summary*

2. *Solution Summary*

3. *Market Summary*

4. *Competition*

5. *Overview*

6. *Why Us?*

2. *Expectations*

1. *Forecast*

2. *Financial Highlights by Year [chart]*

3. *Financing Needed*

2. *Opportunity*

1. *Problem & Solution*

1. *Problem Worth Solving*

2. *Our Solution*

2. *Target Market*

3. *Competition*

1. *Current Alternatives*

2. *Our Advantages*

3. *Execution*

1. *Marketing & Sales*

1. *Marketing Plan*

2. *Sales Plan*
2. *Operations*
  1. *Locations & Facilities*
  2. *Technology*
  3. *Equipment & Tools*
3. *Milestones & Metrics*
  1. *Milestones Table*
  2. *Key Metrics*
4. *Company*
  1. *Overview*
  2. *Team*
    1. *Management Team*
    2. *Advisors*
5. *Financial Plan*
  1. *Forecast*
    1. *Key Assumptions*
    2. *Revenue by Month [chart]*
    3. *Expenses by Month [chart]*
    4. *Net Profit (or Loss) by Year [chart]*
  2. *Financing*
    1. *Use of Funds*
    2. *Sources of Funds*
  3. *Statements*
    1. *Projected Profit & Loss*
    2. *Projected Balance Sheet*
    3. *Projected Cash Flow Statement*
6. *Appendix*
  1. *Monthly Financial Forecasts*
  2. *Additional Documentation*

Answers:

1. Please, list main components of business plan.
2. Call three rules of “easier” business plan.
3. Describe content of every component of business plan.
4. What component would you add in your business plan over than was presented here.  
Justify your opinion.

#### **Practical Task 4. “Possessing general knowledge in business projecting”**

**Purpose:** to study theoretical material in business projecting

#### **Practical lesson plan**

**Task progress:** give short author's answers to the questions according to the options:

- what factors influence the formation of the structure of the business plan;
- what information is required for the business plan;
- about the structure of the business plan focused on attraction of investments, logic of processing of the business plan, the basic rules of drawing up and registration of the business plan;
- appointment of a business plan summary and requirements for its preparation.
- please, study the following material and answer the questions:

#### ***How to write your business proposal?***

*Thinking about starting a business? If you're looking for outside financing, a business proposal is an absolute must. Even if you don't need to prove your idea to any outside parties, a business plan can be a useful tool to think through your idea and its execution before taking the big leap forward into your new endeavor. It can help you identify strengths and weaknesses in your idea and your team of employees or collaborators. Thinking through your plan also can help you prepare for possible obstacles that may fall in your way.*

*Write a three- to five-page executive summary that outlines the “big picture.” What is your company, and what are your goals? If you are looking for investors, this brief summary of your goals and strategy needs to be persuasive so they will keep reading the rest. Think of this as your opportunity to make a good first impression.*

## **2**

*Write a detailed description of the business. This section should be about 10 to 20 pages and should go into detail on all aspects of the operation. Specifically define your goals and time line. Give a detailed market analysis, and talk about how you will break into that market. Discuss any competitors you have and how you will differentiate yourself from them. Give your investors a good idea of how the company will operate on both a day-to-day and a long-term basis allowing for growth.*

## **3**

*Put together a detailed dossier on your founding team members. Use this section to explain the origins of the idea and what each person brings to the proposed company. If you are the only member of your business, explain why you are the best person for this job.*

## **4**

*Provide detailed financial information for your business that includes startup costs and anticipated return on investment. This is arguably the most important part of your proposal from an investor's standpoint, so if you are using this business plan to raise capital, pay close attention to this section, and double-check all your figures. A lack of understanding of the financial side of your business will turn off investors very quickly. When you are drafting this section, think about how much money you need to get started, how you plan on spending that capital, how much money you will need to make just to break even and how quickly you expect to make a profit.*

## **5**

*Gather any additional information or documentation to support your proposal. This may include presentation materials such as photographs, plans and blueprints that are relevant to your product or service. If you are offering a service or a product, this section can include letters of intent from potential clients or customers.*

*Put all the sections of your proposal together and proofread for errors and to ensure it all flows together in a logical way. The finished proposal should be detailed enough to answer all potential questions from investors, but also concise and easy to read. Your information should be correct, and each section of your proposal should build on the information contained in the previous ones.*

Material retrieved from: <https://smallbusiness.chron.com/write-business-proposal-43435.html>

Answers:

1. What is the best way of writing a business proposal?
2. List main steps of the most effective writing?
3. What would you add to this steps?

### **Practical Task 5. “Common information in business projecting”**

**Purpose:** to study the value of common information in business projecting, its sources and directions of usage; to prepare for writing Final test in Module 1.

#### **Practical lesson plan**

#### **Task progress:**

- Work out questions for self-control:
- What factors influence the formation of the structure of the business plan?
- What exactly should a business plan include?
- What is the significance of a resume as one of the sections of a business plan?
- What components of the business plan are mandatory?
- Describe the most common structure of a business plan focused on attracting investment in production activities.
- Name the main sections of the business plan. Describe them.
- On the basis of which documents is the financial plan made?
- What is the general logic of developing a business plan?
- What are the basic rules for drawing up a business plan?
- Specify ways to protect the privacy of your business plan.

- Please, study the following material and answer the questions:

### ***Examples of Three-Year Business Projections***

*Business plans written for the purpose of raising capital are typically required to have a three-year projection of sales and profits. This provides investors with information about how they can expect return on their investment. Your three-year projection will vary depending on what kind of growth you expect your business to have.*

#### ***Three-Year Projections***

*All business plans are written for a specific purpose, with most formal plans written in order to raise initial or continuing investment for the operation of the business. Business plans should have pro forma spreadsheets for all past operations, if any, and projections out for the next three years. These spreadsheets itemize all past and future expenses and income for the business. A time period of three years is used because it is long enough for investors to gain insight into the entrepreneur's thinking, but the longer-term the projection, the more likely it is to be inaccurate due to changing business needs.*

#### ***Projecting Cash Return***

*A cash return business has already reached the point where sales income exceeds the costs of operation, and some part of these profits are paid out to initial investors. Existing businesses that are profitable will need to detail in the business plan why profits are being paid out to some investors, while investment capital is still being sought for other expansion. Most commonly, a cash return projection is used for a startup business, documenting when profitability is expected to be reached, and when the business will begin paying out on the startup investment.*

#### ***Projecting Profit Reinvestment***

*A business using a profit reinvestment model will take future profits over some predetermined period of time, and reinvest that capital into business expansion. Typically, these businesses will limit their growth to the amount that can be sustained by profitability. In these cases, the initial investors must wait a longer period of time before they receive any return on their investment capital, so business plans of this type*

*demonstrate that a much larger return on investment will be provided in return for the longer period of reinvestment.*

### ***Projecting Multiple Capital Rounds***

*Businesses that expect to grow very large, or which require a great deal of expensive expansion before going to market, may require several rounds of capital investment before showing any profitability. Examples of this model include computer hardware or biotechnology firms, where the first round of investment covers startup and design costs, but second or third rounds of investment are necessary for additional research and development before primary products or services are shipped to market. This is the most complex form of business startup to run, as initial investors must be promised return on their investment in a way that is attractive to them but which does not dissuade future investors by selling too much equity or promising too much capital outflow.*

*Material retrieved from: <https://smallbusiness.chron.com/examples-threeyear-business-projections-22351.html>*

Answers:

1. What is the main idea of the abovementioned information?
2. Why in a business plan has to be forecast of sales and profits?
3. Why you should project for a three-year period?

### **Practical Task 6. Organizational plan of the project and its staffing**

**Purpose:** to study the types of organizational structures, project management and basic approaches to personnel management of a business project.

#### **Practical lesson plan**

1. Project of human resource management processes.
2. Planning and forming a project team.
3. Organizational tasks of project team building.
4. Types of organizational structures of the enterprise.
5. Motivation of individuals and groups.
6. Types of leadership and leadership in the project.



## 7. Conflicts and their management.

### **Task Progress**

As part of the project you are developing as part of this course it is necessary

- describe the organizational and legal form of your project. Justify the choice of this form;
- present the organizational structure of your project;
- describe the job responsibilities of project staff

Form of execution and submission of results:

Oral questioning on the main categories and concepts in the audience during the practical lesson on the basis of the submitted task and a written answer to the task on your project.

- please, study the following material and answer the questions:

### ***What Factors Make the Difference Between a Good Business Plan & an Excellent One?***

*When it comes to writing a top-notch business plan, the devil is in the details. While broad overviews and assumptions should start your plan, investors, lenders and partners want as much research and support as possible to determine whether your idea will fly. Even if you're not looking for funding or help, the more questions you can answer in your business plan, the more valuable it is.*

#### *Organization*

*An excellent business plan is organized in a logical, thoughtful way that makes it easy to move from your assumptions to your justifications. The more organized your document, the easier it is to follow and to review later when you need specific information. Include a detailed contents page, an executive summary that tells what's coming, sections on your product or service, the marketplace and financial numbers, a summary and supporting documents.*

#### *Executive Summary*

*Many professional business plans start with an executive summary at the front of the document, rather than at the end. This summary tells the reader the business idea, the reasoning behind it, what factors make you think it will work and the estimated*

*startup costs, break-even period and eventual profits. An executive summary is often only a half-page or less, containing no detailed market research or financial numbers. The goal of the executive summary is to get the reader interested in reviewing the business plan.*

#### *Company Overview*

*This section includes a description of your product or service, its benefits, how it differs from the competition and what brand, or image, you will create for it in the marketplace. Don't get into your manufacturing costs or profits at this point -- your goal here is simply to prove that there is a need for your product and its benefit in the marketplace. A weak business plan tries to convince readers that an idea is "great." An excellent business plan proves that there's a consumer demand for a product or service.*

#### *Marketing Section*

*The marketing section of a thorough business plan goes beyond discussing advertising, public relations and promotions. It begins by presenting market research that supports the fact that your idea will sell. This includes information about the marketplace, target customer, competition and current sales figures of competing products. Include a discussion of the distribution channels you'll use and why. Once you've completed this information, present your advertising, PR and promotions strategies and tactics, referring to your market research to show why you are recommending these.*

#### *Financials*

*The most useful business plans provide detailed financial information, including startup expenses, manufacturing and overhead costs, sales expenses, break-even point and profit projections. Include more than one budget in your business plan to show readers you've done your homework: a budget outlining your startup costs, an annual master budget, budgets that break out overhead and manufacturing costs and a cash flow statement. Provide enough detail so that if someone hands you a check for your requested amount, you won't need to spend money on anything that isn't already in your business plan.*

#### *Support*

*Add an appendix to your business plan that includes research, data, charts and graphs that help prove the information you've supplied in your plan is sound. Once you've proved you have a viable concept, explained what it will take to fund the launch of and initial operating costs and forecast the profits, demonstrate that you are qualified to do this. Include your biography, highlighting any experience you have relevant to the business. Explain whom you will hire or use as contractors.*

Material retrieved from: <https://smallbusiness.chron.com/factors-make-difference-between-good-business-plan-excellent-one-60986.html>

Answers:

1. What is the main idea of the abovementioned information?
2. What Factors Make a Business Plan an Excellent One?
3. What will you take from this text during your projecting?

### **Practical Task 7. Organizational plan of the project and its staffing**

**Purpose:** to study the types of organizational structures, project management and basic approaches to personnel management of a business project.

#### **Practical lesson plan**

1. Work out questions for self-control:
2. Discover the essence of leadership.
3. Describe the main areas of personnel management in projects.
4. Explain the contents of the project team.
5. Name the main types of project management teams.
6. Describe the stages of development of the project team.
7. Describe the main approaches to forming a project team.
8. Explain the structure of the project team formation and management system.

#### **Task Progress**

As part of the project you are developing as part of this course it is necessary

- describe main responsibilities of employees;
- make the salary plan;
- decide whether you use outsource resources;
- please, study the following material and answer the questions:

### *How to Design an Effective Business Plan*

*A thorough and well-constructed business plan can help you start, operate and grow a business, as well as help attract financing. Although you might have a unique product or service, you can use the same basic steps many entrepreneurs use to create a business plan for a new or existing company. Using business plan samples, you can follow step-by-step instructions to create a plan tailored to your company.*

### *Consider Your Purpose*

*Business plans serve two primary purposes: creating a hands-on guide for starting and operating the business, and convincing lenders and investors that you are a good risk. Both plans will contain the same basic components, but your purpose for the plan will guide you in what you emphasize. If you are creating a business plan to operate your business, emphasize your marketing planning and research and production methods to help guide you. If you are using the plan to raise capital, emphasize your financial projections.*

### *Create an Outline*

*Before you begin writing your plan, determine what your contents will include, how you'll order and present the information, and what support data and materials you'll need. Plan on the following components for your plan: cover page, contents page, executive summary, marketing section, financial projections, support materials. Divide your marketing section into the following areas: marketplace overview, including customer profile and competitor analysis; product description; pricing strategy; brand strategy; distribution strategy; and communications strategy. After you have finished your plan, write your executive summary, which will appear at the beginning of the document. This summary should give an overview of your product or service, demonstration of marketplace need and bottom-line financial projections without any supporting detail. The rest of the plan will provide the detail.*

### *Focus on Marketing*

*Marketing is not limited to advertising, promotions and PR. Marketing covers the upfront research and planning you do that justifies your going into business. This includes proving that there is a need for your product or service in the marketplace, enough people with a demonstrated desire to buy it, and that you have a unique selling differential that will draw customers to you instead of the competition. Your pricing strategy suppositions should prove that your price will generate enough sales to generate a profit. Your distribution strategy should focus on demonstrating that where you are choosing to sell provides the best combination of sales volume and gross profits. After you prove these things, you then discuss how you will promote your product, including the brand you will create for your company.*

### *Provide Realistic Financials*

*Whether you are writing your plan for yourself or to share with lenders or investors, create three different financial scenarios: your best guess as to your real costs and sales; optimistic projections that aren't pie-in-the-sky, but based on your biggest competitor's sales volumes; and a conservative projection that shows the lowest sales volume you can temporarily survive. Support your numbers with detailed production and overhead breakdowns and an annual budget adjusted for each of your three sales scenarios. For investors, highlight your start-up costs, first-year operating expenses and expected investment payback and future profits.*

*Material retrieved from: <https://smallbusiness.chron.com/factors-make-difference-between-good-business-plan-excellent-one-60986.html>*

### Answers:

1. What is the main idea of the abovementioned information?
2. What is the best way to organize a business plan?
3. What will you take from this text to your own project?

## **Practical Task 8. Production plan of a project .**

**Purpose:** to study the basics of creating a production plan of the project, the calculation of project costs.

### **Practical lesson plan**

1. The essence, purpose and objectives of the production plan of the project.
2. Stages of development of the project production plan.
3. Determining the need for material resources.
4. Production program planning.
5. Production costs.

### **Task Progress**

As part of the project you are developing you ought to:

- provide a plan for project production
- state the need for logistics;
- calculate the initial costs of the project;
- present the fixed and variable costs of your project;
- develop a plan of production costs;
- please, see extra material for this topic:

# PRODUCTION PLANNING IN FIVE STEPS

STEP  
1

FORECAST DEMAND



STEP  
2

DETERMINE  
POTENTIAL OPTIONS  
FOR PRODUCTION



STEP  
3

CHOOSE THE OPTION  
THAT USES RESOURCES  
MOST EFFECTIVELY



STEP  
4

SELF-ASSESS  
YOUR PERFORMANCE



STEP  
5

ADJUST



*Are you a manufacturing firm? If so, you will need a production plan to ensure that you have all the inputs for production ready at the right time to meet your product demand.*

*Production planning is “the administrative process that takes place within a manufacturing business and that involves making sure that sufficient raw materials, staff and other necessary items are procured and ready to create finished products according to the schedule specified”, as defined by the Business Dictionary.*

*A production plan serves as a guide for your company’s production activities. It establishes and sequences activities which must be carried out to achieve a production target, so that all staff involved are aware of who needs to do what, when, where and how.*

*A production plan will help you meet product demand while minimizing production time and cost by improving process flow, reducing the waiting time between operations, and optimizing use of plant, equipment and inventory. In order to do this, you must align your production plan to your business strategy and business plan, and support production planning by coordinating with other departments, such as procurement, finance and marketing.*

*The diagram above shows the production planning and control process divided in five steps:*

*Step 1: forecast and demand of your product*

*Estimate your demand, so that you know how many products you need to produce during a specific time period. You may have already some confirmed orders for the next couple of month, but on top of that, you need to predict how many more may come.*

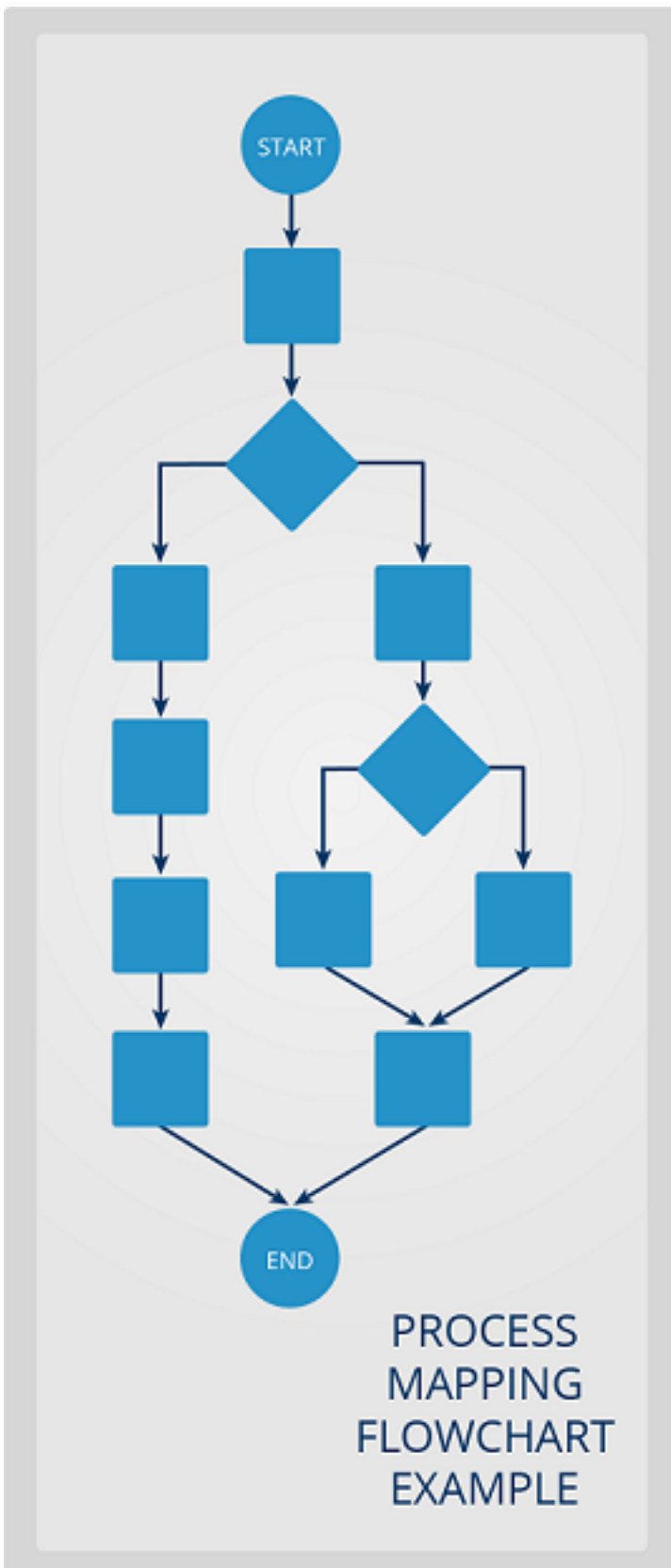
*Different methods exist to forecast your product demand. A traditional technique to estimate product demand is based on historical information (e.g. orders placed by your customers in the past). While this is a very common method, you need to consider external and internal events in your business environment that could alter past patterns. For example, new market trends, a slowdown in the economy, or a new marketing campaign that could increase or decrease your product demand compared to what happened in the past.*



*Step 2: determine potential options for production*

*Determine the different production options available to meet the forecasted demand of your product. For example, if you want to produce 100 shirts, you need to use a certain number of machines, human resources, materials, and time. Different combinations of these inputs can lead to different production times and costs.*

***a. Start by mapping all the steps of your production process.** When doing so, take into account if tasks are sequenced or dependent on other tasks, or if they happen simultaneously or independently. Below is an example of how a simple process-mapping flowchart could look. Each box represents a task of your production process. The map of the production process will be different and unique to each company. Think about how to improve process flow by eliminating bottlenecks.*



b. *Determine the resources needed to complete each task involved in your production process.*

*Look at how different combination of resources lead to different production times and costs:*

**Human Resources.** Determine the number of staff that will be involved in each phase of the production process, their availability, and the cost. Make sure their time is well utilized.

**Machinery and Equipment.** Identify the machines needed and their availability, including any maintenance or replacement that may be needed.

**Materials.** Make a list of all the materials needed for production and how you obtain them. Assess the reliability of your suppliers, including delivery time. Having materials available when needed is crucial for the production process.

**Inventory.** It is important that you consider how to optimize your inventory. Keeping a large inventory is expensive, but keeping a low inventory is risky if demand fluctuates on a regular basis. Having a good inventory control system in place can help your firm accommodate variations in demand and mitigate possible problems or delays that may occur during the production process.

*Step 3: choose the option for production that use the combination of resources more effectively*

*Compare the cost and time of each potential production option and choose the option that uses the most efficient combination of resources and that allows you to meet product demand. The chosen option should maximize the operational capacity of your firm.*

*Always make sure you can cover the costs involved in the production process (purchase of materials, office rent, payment of staff salary, leasing, etc.)*

*You need to share your production plan with all the departments and staff that contribute or interact with the production process, including human resources, procurement, finances, marketing, etc. If everybody knows what to do, and what materials and equipment should be used for each task of the production process, operations will be smoother.*

*Step 4: monitor and control*

*You want to ensure that your plan is working in the way it is intended. Monitoring and controlling is about comparing what is happening with what should be happening.*

*Having a control system in place helps you detect problems as soon as they occur, allowing you more time to correct before it is too late.*

*Step 5: Adjust*

*Be prepared to adjust the plan if needed. The production plan needs to be flexible to accommodate changes in customers' demand (e.g. an important order that gets cancelled). Also, you need to take into account possible risks that may arise during the production process (e.g. a machine breaks, a worker gets sick or a supplier does not deliver on time) and have a risk mitigation plan.*

*Material retrieved from: <https://www.pakistansmetoolkit.com/quick-links/production-planning-in-5-steps/#1508321308013-b2adb0c1-59a4>*

*More material see in the Appendices*

## **Practical Task 9. Marketing plan of a business project**

**Purpose:** to study the process of developing a marketing plan for the project and calculating the cost of it.

### **Practical lesson plan**

1. Marketing plan of the project: essence, tasks and components.
2. Stages of marketing plan development.
3. Pricing strategies.
4. Marketing strategies of the enterprise.
5. SWOT analysis.

### **Task Progress**

Give brief answers to the questions:

- marketing plan - the main components, purpose and objectives;
- marketing complex - what is the marketing complex;
- advertising campaign - what is the advertising campaign of the project;
- marketing strategy - what types of marketing strategies are distinguished; the purpose of its development;

- SWOT-analysis of the project - the essence and possibilities of analysis development.

3. Within the project you are developing within this course you need:

to determine the target audience of the project. Justify this choice;

to state and justify the price of products;

to develop an advertising campaign for your project;

to make a SWOT-analysis of the enterprise.

4. Please, study this material:

### ***How to do a market analysis for a business plan***

*A key part of any business plan is the market analysis. This section needs to demonstrate both your expertise in your particular market and the attractiveness of the market from a financial standpoint.*

*This article first look at what we mean exactly by market analysis before looking at how to make a good one for your business plan.*

### ***What is a market analysis?***

*A market analysis is a quantitative and qualitative assessment of a market. It looks into the size of the market both in volume and in value, the various customer segments and buying patterns, the competition, and the economic environment in terms of barriers to entry and regulation.*

### ***How to do a market analysis?***

*The objectives of the market analysis section of a business plan are to show to investors that:*

- you know your market*
- the market is large enough to build a sustainable business*

*In order to do that I recommend the following plan:*

- 1. Demographics and Segmentation*
- 2. Target Market*
- 3. Market Need*
- 4. Competition*
- 5. Barriers to Entry*
- 6. Regulation*

*The first step of the analysis consists in assessing the size of the market.*

### ***Demographics and Segmentation***

*When assessing the size of the market, your approach will depend on the type of business you are selling to investors. If your business plan is for a small shop or a restaurant then you need to take a local approach and try to assess the market around your shop. If you are writing a business plan for a restaurant chain then you need to assess the market a national level.*

*Depending on your market you might also want to slice it into different segments. This is especially relevant if you or your competitors focus only on certain segments.*

### ***Volume & Value***

*There are two factors you need to look at when assessing the size of a market: the number of potential customers and the value of the market. It is very important to look at both numbers separately, let's take an example to understand why.*

*Imagine that you have the opportunity to open a shop either in Town A or in Town B:*

<i>Table: Town A vs. Town B</i>		
<i>Town</i>	<i>A</i>	<i>B</i>
<i>Market value</i>	<i>£200m</i>	<i>£100m</i>
<i>Potential customers</i>	<i>2 big companies</i>	<i>1,000 small companies</i>
<i>Competition</i>	<i>2 competitors</i>	<i>10 competitors</i>

*Although Town B looks more competitive (10 competitors vs. 2 in Town A) and a smaller opportunity (market size of £100m vs. £200 in Town A), with 1,000 potential customers it is actually a more accessible market than Town A where you have only 2 potential customers.*

### ***Potential customer?***

*The definition of a potential customer will depend on your type of business. For example if you are opening a small shop selling office furniture then your market will be all the companies within your delivery range. As in the example above it is likely that most companies would have only one person in charge of purchasing furniture hence*

*you wouldn't take the size of these businesses in consideration when assessing the number of potential customers. You would however factor it when assessing the value of the market.*

### ***Market value***

*Estimating the market value is often more difficult than assessing the number of potential customers. The first thing to do is to see if the figure is publicly available as either published by a consultancy firm or by a state body. It is very likely that you will find at least a number on a national level.*

*If not then you can either buy some market research or try to estimate it yourself.*

### ***Methods for building an estimate***

*There are 2 methods that can be used to build estimates: the bottom up approach or the top down approach.*

*The bottom up approach consist in building a global number starting with unitary values. In our case the number of potential clients multiplied by an average transaction value.*

*Let's keep our office furniture example and try to estimate the value of the 'desk' segment. We would first factor in the size of the businesses in our delivery range in order to come up with the size of the desks park. Then we would try to estimate the renewal rate of the park to get the volume of annual transactions. Finally, we would apply an average price to the annual volume of transactions to get to the estimated market value.*

*Here is a summary of the steps including where to find the information:*

- 1. Size of desks park = number of businesses in delivery area x number of employees (you might want to refine this number based on the sector as not all employees have desks)*
- 2. Renewal rate = 1 / useful life of a desk*
- 3. Volume of transactions = size of desks park x renewal rate*
- 4. Value of 1 transaction = average price of a desk*
- 5. Market value = volume of transactions x value of 1 transaction*

*You should be able to find most of the information for free in this example. You can get the number and size of businesses in your delivery area from the national statistics.*

*Your accountant should be able to give you the useful life of a desk (but you should know it since it is your market!). You can compare the desk prices of other furniture stores in your area. As a side note here: it is always a good idea to ask your competitors for market data (just don't say you are going to compete with them).*

*That was the bottom up approach, now let's look into the top down approach.*

*The top down approach consist in starting with a global number and reducing it pro-rata. In our case we would start with the value of UK office furniture market which AMA Research estimates to be around £650m and then do a pro-rata on this number using the number of businesses in our delivery area x their number of employees / total number of people employed in the UK. Once again the number of employees would only be a rough proxy given all business don't have the same furniture requirements.*

*When coming up with an estimate yourself it is always a good practice to test both the bottom up and top down approaches and to compare the results. If the numbers are too far away then you probably missed something or used the wrong proxy.*

*Once you have estimated the market size you need to explain to your reader which segment(s) of the market you view as your target market.*

### **Target Market**

*The target market is the type of customers you target within the market. For example if you are selling jewellery you can either be a generalist or decide to focus on the high end or the lower end of the market. This section is relevant when your market has clear segments with different drivers of demand. In my example of jewels, value for money would be one of the drivers of the lower end market whereas exclusivity and prestige would drive the high end.*

*Now it is time to focus on the more qualitative side of the market analysis by looking at what drives the demand.*

### **Market Need**

*This section is very important as it is where you show your potential investor that you have an intimate knowledge of your market. You know why they buy!*

*Here you need to get into the details of the drivers of demand for your product or services. One way to look at what a driver is, is to look at takeaway coffee. One of the*



*drivers for coffee is consistency. The coffee one buys in a chain is not necessarily better than the one from the independent coffee shop next door. But if you are not from the area then you don't know what the independent coffee shop's coffee is worth. Whereas you know that the coffee from the chain will taste just like in every other shop of this chain. Hence most people on the move buy coffee from chains rather than independent coffee shops.*

*From a tactical point of view, this section is also where you need to place your competitive edge without mentioning it explicitly. In the following sections of your business plan you are going to talk about your competition and their strengths, weaknesses and market positioning before reaching the Strategy section in which you'll explain your own market positioning. What you want to do is prepare the reader to embrace your positioning and invest in your company.*

*To do so you need to highlight in this section some of the drivers that your competition has not been focussing on. A quick example for an independent coffee shop surrounded by coffee chains would be to say that on top of consistency, which is relevant for people on the move, another driver for coffee shop demand is the place itself as what coffee shops sell before most is a place for people to meet. You would then present your competition. And in the Strategy section explain that you will focus on locals looking for a place to meet rather than takeaway coffee and that your differentiating factor will be the authenticity and atmosphere of your local shop.*

### **Competition**

*The aim of this section is to give a fair view of who you are competing against. You need to explain your competitors' positioning and describe their strengths and weaknesses. You should write this part in parallel with the Competitive Edge part of the Strategy section.*

*The idea here is to analyse your competitors angle to the market in order to find a weakness that your company will be able to use in its own market positioning.*

*One way to carry the analysis is to benchmark your competitor against each of the key drivers of demand for your market (price, quality, add-on services, etc.) and present the results in a table.*

Below is an example for a furniture shop in France. As you can see from the table all the actors on the market are currently focused on the low medium range of the market leaving the space free for a high end focused new player.

<i>Table: side by side competitive analysis</i>				
<i>Company</i>	<i>Competitor 1 (Small shop)</i>	<i>Competitor 2 (Small shop)</i>	<i>Competitor 3 (Chain)</i>	<i>My Company</i>
<i>Revenues</i>	<i>€ 750,000</i>	<i>N.A.</i>	<i>€ 1,500,000</i>	<i>€ 400,000 (year 1 target)</i>
<i>Nb. employees</i>	<i>10</i>	<i>5</i>	<i>20</i>	<i>5</i>
<i>Size</i>	<i>1 shop in Caen, 1 shop in Cabourg</i>	<i>1 shop in Caen</i>	<i>3 shops in Caen</i>	<i>1 shop in Caen</i>
<i>Price</i>	<i>Low</i>	<i>Average</i>	<i>Average</i>	<i>High</i>
<i>Quality</i>	<i>Low</i>	<i>Average</i>	<i>Average</i>	<i>Superior</i>
<i>Choice</i>	<i>Large</i>	<i>Low</i>	<i>Very large</i>	<i>Average</i>
<i>Delivery</i>	<i>No</i>	<i>€ 50</i>	<i>Free from € 100</i>	<i>Free</i>

### ***Barriers to Entry***

*This section is all about answering two questions from your investors:*

- 1. what prevents someone from opening a shop in front of yours and take 50% of your business?*
- 2. having answered the previous question what makes you think you will be successful in trying to enter this market? (start-up only)*

*As you would have guess barriers to entry are great. Investors love them and there is one reason for this: it protects your business from new competition!*

*Here are a few examples of barriers to entry:*

- Investment (project that require a substantial investment)*
- Technology (sophisticated technology a website is not one, knowing how to process uranium is)*
- Brand (the huge marketing costs required to get to a certain level of recognition)*
- Regulation (licences and concessions in particular)*
- Access to resources (exclusivity with suppliers, proprietary resources)*

• *Access to distribution channels (exclusivity with distributors, proprietary network)*

• *Location (a shop on Regent's Street)*

*The answer to the questions above will be highly dependent on your type of business, your management team and any relations it might have. Therefore it is hard for me to give any general tips about it.*

### ***Regulation***

*If regulation is a barrier at entry in your sector then I would advise you to merge this section with the previous one. Otherwise this section should be just a tick the box exercise where you explain the main regulations applicable to your business and which steps you are going to take to remain compliant.*

*Now you know how to do a market analysis for a business plan! I hope you found this article useful. If so please share it, and if not let us know what we need to improve.*

*Material* *retrieved* *from:*  
[https://www.thebusinessplanshop.com/blog/en/entry/market\\_analysis\\_for\\_business\\_plan](https://www.thebusinessplanshop.com/blog/en/entry/market_analysis_for_business_plan)

### **Practical Task 10. Financial plan and risk assessment of the project**

**Purpose:** to study the financial plan of the project, the algorithm of its development and calculation.

#### **Practical lesson plan**

1. Financial plan: the essence.
2. The logic of developing a financial plan.
3. Sources of project funding.
4. The main indicators of the financial plan.
5. Calculation of investment indicators.
6. Project risk assessment.

#### **Task Progress**

Within the project you are developing within this course you need to:

- develop a plan of revenues and expenditures for the project. Cash flow table (see presentation on the topic and lecture material);
- calculate the net profit before taxes and after (You can make the first two points together);
- calculate the need for investment money;
- identify sources of funding for your project;
- describe and assess the risk of the project;
- please, read the following extra information and use it in your business plan:

### **What Is a Financial Plan, and How Can I Make One?**

*A financial plan creates a roadmap for your money and helps you achieve your goals.*

*Financial planning can be done on your own or with a professional.*

*A financial plan is a comprehensive picture of your current finances, your financial goals and any strategies you've set to achieve those goals. Good financial planning should include details about your cash flow, savings, debt, investments, insurance and any other elements of your financial life.*

#### ***What is financial planning?***

*Financial planning is an ongoing process that will reduce your stress about money, support your current needs and help you build a nest egg for your long-term goals, like retirement. Financial planning is important because it allows you to make the most of your assets, and helps ensure you meet your future goals.*

*Financial planning isn't just for the wealthy: Creating a roadmap for your financial future is for everyone. You can make a financial plan yourself, or you can get help from a financial planning professional. Due to online services like robo-advisors, getting assistance with financial planning is more affordable and accessible than ever.*

#### ***Financial planning in 7 steps***

##### ***1. Start by setting financial goals***

*A good financial plan is guided by your financial goals. If you approach your financial planning from the standpoint of what your money can do for you — whether that's buying a house or helping you retire early — you'll make saving feel more intentional.*

*Make your financial goals inspirational — what do you want your life to look like in five years? What about in 10 and 20 years? Do you want to own a car, or a house? Are kids in the picture? How do you imagine your life in retirement?*

*You start with goals because they will inspire you to complete the next steps and provide a guiding light as you work to make those aims a reality.*

## **2. Track your money, and redirect it toward your goals**

*Get a sense of your monthly cash flow — what's coming in and what's going out. An accurate picture is key to creating a financial plan, and can reveal ways to direct more to savings or debt pay-down. Seeing where your money goes can help you develop immediate, medium-term and long-term plans.*

*Developing a budget is a typical immediate plan. NerdWallet recommends the 50/30/20 budget principles: Put 50% of your take-home pay toward needs (housing, utilities, transportation and other recurring payments), 30% toward wants (dining out, clothing, entertainment) and 20% toward savings and debt repayment. Reducing credit card or other high-interest debt is a common medium-term plan, and planning for retirement is a typical long-term plan.*

## **3. Get your employer match**

*If you visit a financial advisor, he or she will be sure to ask: Do you have an employer-sponsored retirement plan like a 401(k), and does your employer match any part of your contribution?*

*True, 401(k) contributions decrease your take-home pay now, but it's worth it to put in enough to get the full matching amount, because that match is free money. Here's how much you should contribute to a 401(k).*

## **4. Make sure emergencies don't become disasters**

*The bedrock of any financial plan is putting cash away for emergency expenses. You can start small — \$500 is enough to cover small emergencies and repairs so that an unexpected bill doesn't run up credit card debt. Your next goal could be \$1,000, then one month's basic living expenses, and so on.*

*Building credit is another way to shock-proof your budget. Good credit gives you options when you need them, like the ability to get a decent rate on a car loan. It can also boost*

*your budget by getting you cheaper rates on insurance and letting you skip utility deposits.*

### **5. Tackle high-interest debt**

*A crucial step in any financial plan: Pay down “toxic” high-interest debt, such as credit card balances, payday loans, title loans and rent-to-own payments. Interest rates on some of these may be so high that you end up repaying two or three times what you borrowed. If you’re struggling with revolving debt, a debt consolidation loan or debt management plan may help you wrap several expenses into one monthly bill at a lower interest rate.*

### **6. Invest to build your savings**

*Investing sounds like something for rich people or for when you’re established in your career and family life. It’s not.*

*Investing can be as simple as putting money in a 401(k) and as frictionless as opening a brokerage account (many have no minimum to get started).*

*Financial plans use a variety of tools to invest for retirement, a house or college:*

- **Employer-sponsored retirement plans.** *If you have a 401(k), 403(b) or similar plan, gradually expand your contributions toward the IRS limit of \$19,500 per year. If you’re 50 or older, the limit goes up to \$26,000.*
- **Traditional or Roth IRA.** *These tax-advantaged investment accounts can further build retirement savings by up to \$6,000 a year (or \$7,000, if you are over 50). This NerdWallet IRA guide will help you choose the right type of IRA and show you how to open an account.*
- **529 college savings plans.** *These state-sponsored plans provide tax-free investment growth and withdrawals for qualified education expenses.*

### **7. Build a moat to protect and grow your financial well-being**

*With each of these steps, you're building a moat to protect yourself and your family from financial setbacks. As your career progresses, continue to improve your financial moat by:*

- *Increasing contributions to your retirement accounts.*
- *Padding your emergency fund until you have three to six months of essential living expenses.*

- *Using insurance to protect your financial stability, so a car crash or illness doesn't derail you. Life insurance protects loved ones who depend on your income. Term life insurance, covering 10-year to 30-year periods, is a good fit for most people's needs.*

Retrieved from: <https://www.nerdwallet.com/article/investing/what-is-a-financial-plan>

#### **IV. QUESTIONS FOR SELF-CONTROL**

1. Types of planning and essence of each type of planning.
2. Define the concepts of "business planning" and "business plan".
3. Define the essence of the concept of marketing strategy and provide several examples.
4. Define the essence of fixed and variable costs and give examples.
5. Provide some definitions that together characterize the concept of risk of an entrepreneurial project.
6. Stages of the strategic planning process
7. What methods and indicators are used to determine the level of intensity of competition in a particular market?
8. In what two areas should be considered the requirements for the business plan as a document?
9. What are the criteria for typology of competitors?
10. Planning methods: essence of planning methods.
11. What components of the competitive environment does M. Porter's model "Five Forces of Competition" contain?
12. What is the methodological scheme of developing a business plan of the enterprise?
13. According to Michael Porter what objects should be focused on when analyzing competitors?
14. What are the main questions to be answered in the "Production Plan" section?

15. What are the main questions to be answered in the "Marketing Plan" section?
16. What are the main questions to be answered in the "Organizational Plan" section?
17. What are the main questions to be answered in the section "Financial Plan"?
18. Provide the most typical signs of classification of risks of realization of the business project.
19. Provide examples of pricing strategies and describe pricing methods.
20. Provide and describe other approaches to the sequence of business plan development.
21. Provide a description and justify the basic rules for drawing up a business plan.
22. Name the mandatory sections of the optimal structure of the business plan.
23. Justify approaches to planning the volume of economic activity of the enterprise based on the efficiency of its resource provision.
24. What are the main elements of the planning system?
25. Describe the internal logic of the development of the section "Production Plan".
26. Describe the internal logic of the development of the section "Marketing".
27. Describe the internal logic of the development of the section "Organizational plan".
28. Describe the external and internal functions of business plan development.
29. Describe the main stages of strategic planning.
30. Describe the approaches to the analysis of competitors, highlight their advantages and disadvantages
31. Describe the essence of the concept and the need to justify the stages of the life cycle of products (services) of the enterprise.
32. List the external and internal (by the nature of the impact) risks of the enterprise.
33. List the methods of risk assessment, describe their content.
34. List the most typical risks (complications) specific to the financial and economic activities of the enterprise.
35. Essential characteristics of business planning.
36. What is the difference between a business plan and plans for production, economic and financial activities of the enterprise?
37. What is a quantitative and what is a qualitative assessment of the level of risk?



38. What is the purpose of developing a business plan of the enterprise, its goals and objectives?
39. What is the essence and what is the method of analyzing the investment attractiveness of the industry?
40. Formation of the information field of a business plan.
41. Functions and goals of business plan development.
42. What is the organizational structure of management, what are its main types? Describe them.
43. What is the competitive environment of the enterprise?
44. How to design the title page of a business plan?
45. What are the requirements for the structure of the business plan?
46. What are the sources of information for developing a business plan of the enterprise?
47. What are the methods of calculating targets, what is their essence?
48. What are the possible sources of attracting financial resources to the company?
49. What are the possible additional issues that should be covered in the "Production Plan" section?
50. What are the basic principles of planning, their characteristics?
51. What are the ways to reduce the level of risk of business projects.
52. What can be the losses of the enterprise due to the negative impact of risks?
53. What evaluation indicators and principles for building an organizational management structure do you know?
54. What issues should be covered in the "Organizational Plan" characterizing the specifics of staff motivation?
55. What questions should be revealed when giving a description of the field of operation of the enterprise?
56. What factors affect the intensity of competition between enterprises (the strength of competition)?

57. What financial indicators characterize the feasibility of deciding on the implementation of the investment project? Give the method of their calculation and critical values.
58. What financial indicators characterize the liquidity and solvency of the enterprise? Give the method of their calculation and critical values.
59. What is the internal logic of developing a business plan? Give a brief description of each stage.
60. What is the main purpose of describing the basic industry parameters?
61. What is the main purpose and objectives of the "Production Plan" section?
62. What is the main purpose and objectives of the "Marketing Plan" section?
63. What is the main purpose and objectives of the "Organizational Plan" section?
64. What is the main purpose and objectives of the "Financial Plan" section?
65. What is the sequence of project development of the organizational structure of enterprise management (project implementation)?
66. What project information is provided in the Appendices?
67. What information should contain the characteristics of products (services)
68. What information should be provided about the product and assortment policy of the enterprise?
69. What information should be provided in the "Production Plan" about the technological process of manufacturing products (services)?
70. What information must be provided in the Project Summary?
71. What characteristics in the section "Marketing plan" should be given to describe the sales channels of the enterprise?
72. How do you understand the category "Business project"?
73. What methods of PM do you know? Describe at least four of them
74. What is Kanban?
75. What is Agile?
76. What is Waterfall?
77. What chapters does a business plan contain?
78. Ways of formation and development of a project team.

## **V. TESTS**

### **1. WHAT ARE THE LENDING SOURCES OF FINANCING?**

- A) Issue of shares, charitable contributions, crowdfunding, funds of business angels.
- B) Profit of the enterprise, depreciation, insurance amounts of compensation
- C) Issue of bonds of the firm; targeted government loan aimed at a specific type of investment; tax credit; investment leasing.
- D) Venture financing, consortium financing, grant financing

### **2. THE STAGE OF LIFE CYCLE WHICH IS CHARACTERIZED BY MARKET EXPANSION, PURCHASE IRREGULARITY, INSTABILITY OF CONSUMER BEHAVIOR, IS CALLED:**

- A) birth
- B) development
- C) maturity
- D) old age

### **3. THE METHODS OF DIRECT PRICING DO NOT INCLUDE**

- A) “dependent” pricing
- B) limiting the number of prices
- C) credit policy
- D) market pricing

### **4. WHO SOLVES THE CONFLICTS WHICH ARISE IN THE PROJECT TEAM**

- A) The investor
- B) Customer of the project
- C) Project manager
- D) Consulting firm

### **5. EXTERNAL FACTORS THAT CAN SIGNIFICANTLY AFFECT THE IMPLEMENTATION OF THE PROJECT**

- A) Regulatory authorities

- B) Competitors
- C) Risks
- D) Circumstances

**6. THE LEVEL OF THE DISCOUNT RATE AT WHICH THE NET PRESENT VALUE IS ZERO CHARACTERIZES THE INDICATOR**

- A) net present value
- B) profitability index
- C) payback period
- D) internal rate of return

**7. STRATEGIC MANAGEMENT PROVIDES**

- A) Identification of the main market positions for the future, allocation of resources, creation of management centers for each strategic goal and evaluation of activities
- B) Getting the maximum profit
- C) Minimize costs
- D) Minimize costs

**8. IF THE NET PRESENT VALUE OF THE PROJECT IS 0, THEN THE PROJECT IS**

- A) profitable
- B) non-profit
- C) a project that does not bring profit but also does not have losses
- D) there is no correct answer

**9. THE INDICATOR DEMONSTRATING THE DISCOUNTED PAYBACK PERIOD IS**

- A) NPV
- B) PI
- C) IRR
- D) DPP

**10. IF THE COSTS OF PRODUCTION OR SALE OF PRODUCTS CHANGE UNDER THE INFLUENCE OF CERTAIN FACTORS, A STRATEGY CAN BE APPLIED**

- A) flexible prices
- B) "removal of cream"
- C) strategy of price discrimination
- D) strategy to follow a competitor

**11. DETERMINATION OF PERSONNEL NEEDS OF THE PROJECT MAY BE A PART OF THE FOLLOWING COMPONENT OF THE BUSINESS PLAN:**

- A) Financial plan
- B) Production plan
- C) Organizational plan
- D) Marketing plan.

**12. THE ENTERPRISES 'OWN FINANCIAL RESOURCES, WHICH ARE SPECIFIED FOR THE PROJECT IMPLEMENTATION, DO NOT INCLUDE:**

- A) Retained earnings of the enterprise
- B) Funds of business owners
- C) Reserves of the enterprise
- D) Bonds

**13. THE PRICING STRATEGY OF THE ENTERPRISE IS:**

- A) pricing policy for the long term
- B) market coverage strategy
- C) pricing policy for up to three months
- D) pricing policy in relation to a particular market segment

**14. PRICING ON THE BASIS OF TENDER REFERS TO THE FOLLOWING GROUP OF PRICING METHODS:**

- A) cost methods
- B) taking into account the level of competition

C) parametric methods

D) methods of state regulation

**15. GANTT CHART (GIVE THE ANSWER THAT MOST ACCURATELY DESCRIBES):**

A) allow to establish logical relationships and interdependence of different types of work

B) these are line diagrams that allow you to clearly represent the ratio of time to perform individual works and loading of specific process equipment

C) are charts in which robots are represented by blocks (or nodes)

D) all the answers are correct

**16. THE CALCULATION OF THE PRODUCTION COST PLAN OF THE PROJECT IS IN THIS PART OF THE BUSINESS PLAN:**

A) Organizational plan

B) Production plan

C) Financial plan

D) Marketing plan

**17. WHAT IS THE NAME OF THE TYPE OF ANALYSIS THAT EXAMINES THE STRENGTHS AND WEAKNESSES OF THE ENTERPRISE, ITS CAPABILITIES AND THREATS. THIS ANALYSIS IS PERFORMED BOTH FOR THE PROJECT ITSELF AND FOR THE PROJECT'S COMPETITORS.**

A) PEST

B) SWOT

C) BCG

D) 4P

**18. THIS SECTION OF THE PROJECT BUSINESS PLAN DESCRIBES THE COMPETITIVE ENVIRONMENT**

A) Organizational plan

B) Production plan

C) Financial plan

D) Marketing plan

**19. THE 4P MARKETING COMPLEX INCLUDES**

A) Product, price, place, promotion

B) Person, people, product, place

C) Product, price, people, personality

D) Promotion, policy, product, person

**20. BY PROPERTY RELATIONS SOURCES OF FINANCING BUSINESS PROJECTS ARE DIVIDED INTO:**

A) State investment resources, investment resources of economic entities, investment resources of foreign investors.

B) Own, involved, borrowed.

C) At the expense of the state, regional and local budgets, at the expense of business entities, foreign investment in various forms

D) Joint-stock, state, joint

**21. INDICATOR DEMONSTRATING THE EFFICIENCY OF INVESTMENTS IS**

A) NPV

B) PI

C) IRR

D) DPP

**22. THE STRUCTURE OF THE BUSINESS PLAN INCLUDES**

A) Organizational, production, marketing and financial plans.

B) Personnel, material, technical and cost plans.

C) Personnel, material, technical and cost plans

D) Marketing, economic and legal plans

**23. INDICATOR WHICH HELPS TO DETERMINE THE TIME REQUIRED FOR THE AMOUNT OF PROJECT REVENUES TO REIMBURS THE COST OF COSTS**

A) NPV

- B) PI
- C) IRR
- D) DPP

**24. AN IMPORTANT PART OF THE MARKETING PLAN IS**

- A) Estimating the project and defining areas of responsibility
- B) Calculation of project performance indicators
- C) Market segmentation, definition of target audience
- D) Logistics of the project

**25. TO WHICH GROUP OF INDICATORS ARE THE INDICATORS OF THE PROJECT RETURN PERIOD, NET PRESENT VALUE, INTERNAL RATE OF RETURN, PROFIT**

- A) Project profitability indicators
- B) Indicators of investment attractiveness
- C) Project profitability indicators
- D) Payback indicators of the project

**26. THE LIQUIDITY OF THE ENTERPRISE REFLECTS**

- A) how quickly the company can meet its obligations
- B) the efficiency of each invested hryvnia
- C) the ratio of own and borrowed funds
- D) accounts payable of the enterprise

**27. THIS SECTION OF THE BUSINESS PLAN OF THE PROJECT DESCRIBES THE JOB RESPONSIBILITIES AND CONNECTIONS AT THE ENTERPRISE**

- A) Organizational plan
- B) Production plan
- C) Financial plan
- D) Marketing plan



**28. WHAT KIND OF CAPITAL IS JOINT STOCK AS A METHOD OF FINANCING BUSINESS PROJECTS?**

- A) Own
- B) Involved
- C) Borrowed
- D) Credit

**29. THE PROFITABILITY OF THE ENTERPRISE REFLECTS**

- A) how quickly the company can take responsibility for its responsibilities
- B) the efficiency of each invested hryvnia
- C) the ratio of own and borrowed funds
- D) debts

**30. BUSINESS ANGELS ARE**

- A) Enterprise (usually small), whose activities are related to the development of new products, services, technologies that are not yet known to the consumer, but have great market potential, which is associated with a high degree of risk of their promotion in the market
- B) Wealthy people who invest in a startup business are usually in exchange for a convertible debt or stake in the company
- C) Money or other funds transferred by citizens and legal entities (including foreign ones), as well as international organizations for specific research, drafting of laws, training and other projects under the conditions provided by the grantor.
- D) Entrepreneurs who sponsor a project without reciprocal requirements.

**31. HOW DOES THE COMPOSITION AND CONTENT OF A BUSINESS PLAN CAN BE AFFECTED BY THE CHARACTERISTICS OF A BUSINESS PRODUCT:**

- A) If you create a completely new product, then more attention is paid to its technical components and description, the content of the business plan in this case may expand
- B) Product characteristics do not affect the composition and content of the business plan. This is typical and does not depend on the quality of the product
- C) The simpler the product, the less the content of the business plan

D) The characteristics of the business product affect only the scope of the marketing plan

**32. ACCORDING TO THE WORLD BANK'S APPROACH, THE PROJECT LIFE CYCLE CONSISTS OF THE FOLLOWING PHASES:**

A) Initiation, planning, implementation and completion

B) Pre-investment, investment, post-investment phase.

C) Design and implementation.

D) Initiation, planning, implementation, monitoring and control, final phase.

**33. WHO IS NOT INCLUDED IN THE EXTERNAL ENVIRONMENT OF THE PROJECT?**

A) Staff

B) Consumers

C) Partners

D) Competitors

**34. WHO IS ATTRIBUTED TO THE EXTERNAL ENVIRONMENT OF THE PROJECT?**

A) Staff

B) Knowledge and skills of the director

C) Knowledge and skills of the personnel manager

D) Competitors

**35. THIS PART OF THE BUSINESS PLAN IS A CALCULATION OF THE MAIN INDICATORS OF THE DESIGN OF THE PROJECT IMPLEMENTATION**

A) Introduction

B) Organizational plan

C) Financial plan

D) Project summary

**36. CAN A BUSINESS PLAN BE DEVELOPED FOR THE PURPOSE OF MODELING A MANAGEMENT SYSTEM?**

A) Yes, maybe. If there are management problems at the enterprise, a decision can be made to make changes.

- B) No, it can't. The business plan is developed only for the purpose of attraction of investments
- C) Yes, maybe. If the company does not have a management system, it must be created
- D) No, it can't. The business plan has other components that do not provide a description of management systems.

**37. HOW CAN THE INDUSTRY LIFE CYCLE AFFECT THE IMPLEMENTATION OF A BUSINESS PLAN?**

- A) If the product industry is in the process of completion, the company should not enter the market with it
- B) If the industry is at an early stage of development, the company should not enter the market with it
- C) If the industry is nearing completion, the company should have time to start producing this product or service
- D) If the industry is growing, the company is at risk of starting a business in this area

**38. WHAT DO THE SMART CRITERIA MEAN?**

- A) Specificity, measurability, the presence of the performer, realism, limited time.
- B) Definiteness, endurance, relevance, specificity, reliability
- C) Conciseness, creativity, validity, formality, correctness.
- D) Creativity, specificity, feature, feasibility, limited time.

**39. WHAT IS THE DIFFERENCE BETWEEN THE EBRD STANDARD PROJECT AND UNIDO AND MANY OTHER STANDARDS?**

- A) The business plan according to its standard pays the most attention to the financial side of the project, less considers other sections
- B) This project does not require SWOT analysis
- C) The volume of items is one of the largest among other standards
- D) Does not require analysis of competitors

**40. THIS PART OF THE BUSINESS PLAN IS BRIEF INFORMATION ABOUT THE PROJECT IDEA, ENTERPRISE DATA, PROJECT COST AND EXPECTED RESULTS**

- A) Introduction

- B) Organizational plan
- C) Financial plan
- D) Project summary

**41. DEVELOPING A BUSINESS PLAN ONE SHOULD**

- A) analyze both the external and internal environment
- B) analyze only the external environment of the project
- C) analyze only the target audience
- D) identify competitors, but do not analyze the other external environment

**42. WHAT INDICATORS CHARACTERIZE THE PROFITABILITY OF THE PROJECT**

- A) profitability and liquidity
- B) net present value and internal rate of return
- C) revenue, profit, net profit
- D) production costs

**43. HOW TO TRANSLATE FROM LATIN "PROJECT"**

- A) Thrown forward
- B) Planned
- C) Package of documents
- D) Estimate

**44. IN WHICH CASES CAN THE ENTERPRISE CHOOSE THE STRUCTURE OF A BUSINESS PLAN ACCORDING TO THE TACIS OR UNIDO STANDARD?**

- A) If it wants to apply for a grant from these organizations.
- B) If it wants to apply for a grant from the Cabinet of Ministers of Ukraine
- C) If it wants to get a grant from the World Bank
- D) If it wants to get a grant from the EBRD

**45. PEST ANALYSIS OF THE EXTERNAL ENVIRONMENT OF THE PROJECT PROVIDES**

- A) Analysis of political, economic, social and technical factors that may affect the project
- B) Analysis of the competitive environment
- C) Analysis of the environment by legal environment
- D) Analysis of consumers, suppliers and competitors

**46. WHAT IS THE DISADVANTAGE OF STARTING A BUSINESS IN THE FORM OF A FRANCHISE?**

- A) Whoever buys a franchise enters the market with an unknown brand
- B) The buyer of the franchise is limited in activities by the requirements of the seller of the franchise
- C) The method of doing business is provided
- D) Additional tax burden

**47. THIS KIND OF BUSINESS PLAN IS BEING DEVELOPED TO JUSTIFY CARDINAL STRATEGIC CHANGES IN THE ENTERPRISE'S ACTIVITY**

- A) Business plan of the existing enterprise
- B) Conceptual business plan
- C) Business plan for external use
- D) Business plan of the new enterprise

**48. THE BUSINESS PLAN SHOULD NOT BE DEVELOPED BY THE ENTERPRISE IN THE FOLLOWING CASE**

- A) Before its creation
- B) To plan the development of the enterprise, if it already exists
- C) To hire a new person
- D) To justify the economic feasibility of starting new activities

**49. THE BEGINNING OF THE PROJECT IS CONSIDERED**

- A) The moment of origin of the idea
- B) Studying of forecasts for the development of the firm
- C) Formation of a project team

D) Making a preliminary investment decision

**50. WHICH SECTION OF THE BUSINESS PLAN DESCRIBES BUYERS OF THE PLANNED GOODS OR SERVICES?**

A) Production plan

B) Description of the company

C) Summary

D) Marketing plan

**51. DEFINE THE FOLLOWING CHARACTERISTICS: SYSTEMATIC CALCULATION OF INDICATORS OF ECONOMIC AND FINANCIAL ACTIVITIES FOR THE OPERATIONAL (CURRENT) PLANNING PERIOD AND SELECTION OF OPTIMAL ANSWERS TO THE CRITERIA OF OPTIMALITY (MAXIMIZATION OF INCOME AND PROFIT, EFFICIENCY OF RESOURCE POTENTIAL, COST MINIMIZATION).**

A) Business planning

B) Business plan

C) Business project

D) Planning

**52. WHAT DO THE SMART CRITERIA MEAN?**

A) Specificity, measurability, anxiety of the performer, realism, limited time.

B) Definiteness, endurance, relevance, specificity, reliability.

C) Conciseness, creativity, validity, formality, correctness.

D) Creativity, specificity, feature, feasibility, limited time.

**53. THE BUSINESS PLAN IS:**

A) fixing a system of goals, objectives and tools that provide for a targeted change in the situation in the predicted state of the environment.

B) a predetermined course of action required to achieve the goal. Planning - the optimal allocation of resources to achieve this goal.

C) it is an active working tool of management, the starting point of all planning and executive activities of the enterprise.

D) the process of business planning.

**54. WHAT IS THE TERM OF THE AMOUNT OF EXPENSES FOR PRODUCTION?**

- A) Production cost
- B) The cost of sales
- C) Project costs
- D) Shop cost

**55. THE PLAN OF SALES VOLUMES REFERS TO**

- A) financial plan
- B) production plan
- C) organizational plan
- D) project summary

**56. An indicator that characterizes the speed of response to their obligations**

- A) liquidity
- B) profitability
- C) business activity
- D) break-even point

**57. FINANCIAL STRATEGY IS**

- A) financing the project's own needs
- B) Formation of an operational plan
- C) is the development of a plan to obtain funds for the development, expansion, establishment of the enterprise
- D) Budget planning

**58. BASIC INFORMATION PROVIDED IN THE PRODUCTION PLAN**

- A) advertising campaign
- B) cash flow
- C) job responsibilities

D) calculation of production costs

**59. INDICATOR, WHICH SHOWS TO WHAT PERCENTAGE OF THE COST OF LOANS THE PROJECT WILL BE PROFITABLE**

A) Internal rate of return

B) Net present value

C) Return on investment

D) Liquidity

**60. WHICH OF THE SECTIONS OF THE BUSINESS PLAN IS THE MOST IMPORTANT?**

A) Financial plan

B) Project summary

C) Production plan

D) Organizational plan

**61. THE KEY SECTION OF THE BUSINESS PLAN IS:**

A) financial plan

B) loan repayment plan

C) analysis of the external environment

D) analysis of the internal environment

**62. INDICATOR, WHICH SHOWS THE VOLUME OF PRODUCTION AND SALE OF PRODUCTS (SERVICES) WILL ACHIEVE FULL SELF-RETURN OF ECONOMIC ACTIVITY AND ACTIVITY**

A) break-even point

B) profitability of the project

C) Net present value

D) Coefficient of autonomy volume

**63. THE MAIN STAGES OF BUSINESS PLANNING ARE:**

A) birth, prosperity, decline



- B) initial, preparatory, basic
- C) rise, development, decline
- D) all answers are correct

**64. BRIEF INFORMATION ABOUT THE ENTERPRISE, INCLUDING ITS NAME, LEGAL STATUS AND FORM OF OWNERSHIP, DATE OF REGISTRATION, ADDRESS, BRIEF ANALYSIS OF ANALYSIS**

- A) general characteristics of the firm
- B) summary
- C) introduction
- D) production plan

**65. BUSINESS PLANNING CONTAINS STAGES:**

- A) the creation of the enterprise
- B) liquidation of the enterprise
- C) the creation of new production;
- D) presentation of the business plan, development of the business plan, preparatory period

**66. THE STRUCTURE OF THE BUSINESS PLAN HAS AN ESTABLISHED STRUCTURE AND CANNOT BE CHANGED UNDER ANY CIRCUMSTANCES.**

- A) Yes, there is a common structure of a business plan.
- B) No, the structure is typical, but different organizations and companies have developed their own business plan standards.
- C) PMBOK has established the structure of the business plan.
- D) PMBOK has established the structure of the business plan.

**67. IS IT POSSIBLE TO INTRODUCE THE ACQUISITION OF A FRANCHISE TO A NEW WAY OF STARTING A BUSINESS?**

- A) Yes
- B) no
- C) A franchise cannot be the subject of business planning

D) Only in the first year of entering the market.

**68. WHAT IS THE NAME OF THE BUSINESS PLAN, WHICH IS DEVELOPED IN ORDER TO ESTABLISH BUSINESS COOPERATION AND CREATE A FAVORABLE IMAGE OF THE COMPANY FOR INTERESTED CONTACT AUDIENCES.**

A) Business plan of the new enterprise.

B) Business plan of the existing enterprise.

C) Business plan for external use.

D) Local business plan.

**69. THE NAME OF THE BUSINESS PLAN, WHICH DEFINES THE DIRECTIONS AND GOALS OF ENTERPRISE DEVELOPMENT, FOCUSES ON ENSURING ITS COMPETITIVENESS THROUGH THE IMPLEMENTATION OF RELEVANT BUSINESS PROJECTS.**

A) Business plan of the new enterprise.

B) Business plan of the existing enterprise.

C) Business plan for external use.

D) Local business plan.

**70. WHAT QUESTIONS DOES THE BUSINESS PLAN ANSWER?**

A) What do I want to do, how to do it, what exactly is needed for this?

B) What I want to do, why I want to do it, who will do it.

C) When I do it, who will help me to do it.

D) For whom I want to do it, why and when I want to do it.

**71. ENTREPRENEURIAL RISK IS:**

A) the risk of not achieving the goal, the expected results of the implementation of the decision or the implementation of the planned activities due to objectively existing uncertainty

B) the cost of sales of products incurred by the enterprise during a certain period

C) costs of manufactured products, consisting of production costs, administrative and trade costs

D) total costs of finished products to be sold, produced during a certain period

**72. CAN A BUSINESS PLAN BE DEVELOPED FOR PARTNERS?**

- A) No, in this case a cooperation agreement is drawn up immediately
- B) Yes, this is one of the possible directions of compiling a business plan
- C) No, all agreements are in words only
- D) No, a Memorandum is drawn up for the partners

**73. THE BUSINESS PLAN IS FORMED ONLY IN CASE OF CREATION OF THE NEW PROJECT OR ENTERPRISE**

- A) No, a business plan can be made for the development of an existing enterprise or reorganization
- B) Yes, in other cases a development plan is created
- C) No, the business plan is developed every year at each enterprise when planning the budget
- D) Yes, there can be no other options

**74. A UNIQUE SET OF PROCESSES CONSISTING OF COORDINATED AND MANAGED TASKS WITH A BEGINNING AND COMPLETION DATE APPLICABLE TO ACHIEVEMENT:**

- A) the project
- B) strategic plan
- C) business plan
- D) business case

**75. BUSINESS PLAN IS**

- A) enterprise management plan aimed at consolidating its position, meeting needs and achieving certain goals
- B) actions and approaches of management staff to achieve the established performance indicators;
- C) a comprehensive plan formed to carry out the mission of the organization and achieve its goals
- D) a written document outlining the essence of the business idea, ways and means of its implementation.

**76. ONE OF THE MOST POPULAR TYPES OF DIAGRAMS IN PROJECT MANAGEMENT IS**

- A) Gantt chart
- B) decision tree
- C) problem tree
- D) scatter plot

**77. THE PURPOSE OF THE PROJECT SHOULD BE:**

- A) concrete, achievable, relevant
- B) global, large-scale, important
- C) concise, but cover many problems
- D) informative, ambitious, regulatory

**78. PMBOK IS:**

- A) project management guard
- B) project management standard
- C) unified rules for project management
- D) classifier for project management

**79. WHICH STANDARD BUSINESS PLAN IS PROVIDED IN THE ORGANIZATION OF EU COUNTRIES?**

- A) EBRD standard
- B) TACIS standard
- C) UNIDO standard
- D) ISO standard

**80. FINANCIAL RESOURCES OF ENTERPRISES ARE:**

- A) a set of funds from the funds of enterprises and from external revenues that can be used to form fixed and working capital needed to conduct business and ensure expanded production
- B) a risk assessment methodology that considers the favorable and unfavorable circumstances that may occur in the activities of the projected enterprise
- C) a technique that shows how much the NPV of the project will change due to changes in the original variable for all other constant factors

D) actual net cash received by the enterprise or spent by it during a certain period

**81. THE CALENDARY PLAN OF THE PROJECT WILL BE DEVELOPED FOR:**

A) Formulation of the main stages of project development and implementation, with the definition of deadlines

B) Easy to use business plan

C) Establishing limits of liability

D) Formulation of business plan goals

**82. IN WHAT PART OF THE BUSINESS PLAN CAN BE DESCRIBED THE HR POLICY OF THE PROJECT?**

A) General characteristics of the project

B) Organizational plan of the project

C) Production plan of the project

D) Financial plan of the project

**83. IS YOUR BUSINESS PLAN AFFECTED BY A FACTOR SUCH AS THE AGE OF THE INDUSTRY?**

A) Yes

B) No

C) Depending on the industry

D) Only if it is a branch of information technology

**84. WHAT IS THE IMPORTANCE OF DEVELOPING A SWOT ANALYSIS IN BUSINESS PLANNING?**

A) This type of analysis allows you to look at your project from another angle, to assess its advantages and disadvantages

B) This type of analysis makes it possible to analyze their suppliers

C) This type of analysis forms the overall structure of the business plan

D) This analysis gives you the opportunity to see the effectiveness of your staff

**85. BUSINESS PLANS CAN BE CLASSIFIED BY CERTAIN FEATURES**

- A) the ratio of sales to the average cost of inventories
- B) the ratio of profit to cost of production
- C) the ratio of sales to the average annual value of fixed and current assets
- D) by business area, by business scale, by product characteristics

**86. SWOT-ANALYSIS DISPLAYS (PROVIDE THE MOST COMPLETE ANSWER)**

- A) the main factors influencing the project
- B) competitive advantages of the project
- C) weaknesses and strengths, opportunities and threats of the project
- D) strengths of the project and its risks

**87. THE TARGET AUDIENCE OF THE PROJECT IS STUDIED IN**

- A) organizational plan
- B) financial plan
- C) marketing plan
- D) description of the industry

**88. WHAT FACTORS DO NOT AFFECT THE BUSINESS PLAN?**

- A) the scale of the planned project and the area of activity
- B) Almost all possible factors affect the business plan, as the processes are interconnected and you need to know the industry
- C) development of competing industries
- D) the average salary in the field of activity

**89. THIS SECTION OF THE BUSINESS PLAN DESCRIBES THE PRICING STRATEGY**

- A) financial plan
- B) investment plan
- C) pricing plan
- D) marketing plan

**90. WHEN WRITING A BUSINESS PLAN, YOU SHOULD NOT CONSIDER COMPETITORS.**

- A) Yes, our business plan is written for a new project where competitors do not play an important role
- B) No, competitors should be considered when writing a business plan. It doesn't make sense to write a business plan without analyzing competitors
- C) No, it is worth analyzing all competitors operating in the industry
- D) Yes, there is a marketing department that will analyze them when the project starts operating

**91. DISCOUNTING IS USED FOR:**

- A) bringing the value of current income to the future
- B) bringing the value of future income to the present time
- C) improving the financial efficiency of the project
- D) determining the timing of the project

**92. A DESCRIPTION OF THE PROJECT MANAGEMENT STYLE IS GIVEN IN**

- A) general characteristics of the project
- B) financial plan
- C) marketing plan
- D) organizational plan

**93. THE BREAK-EVEN POINT SHOWS**

- A) the level at which income equals expenditure
- B) the level at which costs exceed revenues
- C) the level at which revenues exceed expenditures
- D) expenditures are equal to the volume of the cost

**94. STAGES OF THE LIFE CYCLE OF GOODS ARE**

- A) development, implementation, growth, maturity, decline
- B) informing customers; diversification; communication with the consumer
- C) producers and consumers

D) all answers are correct

**95. THE BUSINESS PLAN EXPRESSES**

- A) the state of the country as a whole
- B) the chosen type of activity
- C) the state of labor protection at the enterprise
- D) all answers are correct

**96. PRODUCTION RISKS**

- A) determine the need for financial resources
- B) study of production technology of this product
- C) determine the production capacity of the enterprise on a specific date
- D) relate to the peculiarities of the technological process at a particular enterprise, the level of qualification of employees, the organization of supplies of raw materials and transportation

**97. PROJECT COSTS THAT DEPEND ON PRODUCTION ARE CALLED**

- A) fixed
- B) variable
- C) dependent
- D) Conditionally constant

**98. CASH FLOW BUDGET IS**

- A) the final state that the enterprise expects to reach at some point in the future
- B) a plan for the movement of funds on the current account and in the cashier of the enterprise and its structural unit, which reflects all the projected receipts and expenditures of funds as a result of ordinary activities of the enterprise
- C) a set of internal factors of the enterprise that determine the processes of its activities
- D) a set of factors that the entrepreneur can not change, which are objectively formed in the environment of the enterprise

**99. THE METHOD OF SETTING THE PRICE "FOLLOWING THE COMPETITOR" HAS THE FOLLOWING DISADVANTAGES:**



- A) We become dependent on the prices of the leading competitor, we take risks, because they can have more money and make the price very low, which is not acceptable to us.
- B) Consumers choose the products of a competitor, because they will be the first to see its price
- C) There is no such method
- D) The Antimonopoly Committee prohibits the use of such a pricing method

**100. ACTIVITIES AIMED AT CREATING DEMAND AND ACHIEVING THE OBJECTIVES OF THE ENTERPRISE THROUGH MAXIMUM SATISFACTION OF CONSUMER NEEDS**

- A) financial resources
- B) management
- C) personnel policy
- D) marketing

## VI. RECOMMENDED LITERATURE

### *Basic:*

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## VII. TERMS IN PROJECT MANAGEMENT

### - A -

**Accept** – A decision to take no action against a threat. Project teams typically accept risks when they fall below risk thresholds or when the team thinks it best to act only if and when a threat occurs. (See also *risk acceptance*)

**Acceptance criteria** – The specific requirements expected of project deliverables. To be formally accepted, deliverables must meet all acceptance criteria.

**Acceptance test** – A test in which a team of end users runs a product through its full range of use to identify potential problems.

**Acquisition process** – This process obtains the personnel and resources necessary for project work. Acquisitions are closely coordinated with project budgets and schedules.

**Action item** – An activity or task that must be completed.

**Action item status** – This tracks an action item's progress from creation to closure. Since work packages comprise multiple action items, keeping action item statuses updated is important for project progress.

**Activity** – The smallest unit of work necessary to complete a project work package (which includes multiple activities). Time, resources, and finances are required to complete each activity.

**Activity code** – An alphanumeric value by which activities can be grouped and filtered. A code is assigned to each activity.

**Activity identifier** – A unique alphanumeric value by which an individual activity can be distinguished. An activity identifier is assigned to each activity.

**Activity label** – A short descriptor for an activity. Activity labels may be placed below arrows representing activities in activity-on-arrow (AOA) diagrams.



**Activity-On-Arrow (AOA)** – In this network diagram, arrows represent activities and nodes represent events or milestones. AOA diagrams can only indicate finish-to-start relationships.

**Activity-On-Node (AON)** – In a network diagram of this nature, nodes represent activities and arrows illustrate logical relationships between activities. AON diagrams can illustrate four relationship types: start-to-start, start-to-finish, finish-to-start, and finish-to-finish.

**Actual cost of work performed (ACWP)** – This represents the total cost incurred for work done in a given period of time.

**Actual duration** – The length of time taken to complete an activity.

**Actual effort** – The amount of labor performed to complete an activity. It is expressed in person-hours or similar units of work.

**Actual expenditure** – The sum of costs paid from a budget.

**Actual progress** – This measures the amount of work completed on a project. It is used to assess the comparison between project progress and project baselines and is usually stated as a percentage.

**Adaptive project framework (APF)** – An approach to project management that rejects traditional, linear project management and instead accepts changing requirements and allows projects to be affected by external business environments. The ADF stresses flexibility in many aspects of project management and focuses on performing and evaluating project work in stages to allow room for replanning due to changing business goals, objectives, and requirements.

**Administrative closure** – This refers to the set of formal requirements fulfilled to end a project. Among other things, it involves documenting the formal acceptance of deliverables and ensuring that all relevant information is sent to a project's sponsor and stakeholders.

**Aggregate planning** – This strategy uses demand forecasts to manage scheduling and planning for project activities between three and 18 months in advance, so that the necessary resources and personnel can be efficiently acquired or assigned.

**Agile** – The Agile family of methodologies is a superset of iterative development approaches aimed at meeting ever-changing customer requirements. Agile development proceeds as a series of iterations, or sprints, with incremental improvements made in each sprint. Since agile

projects do not have fixed scopes, agile methodologies are adaptive, and the iterative work is guided by user stories and customer involvement.

**Agile project management** – Agile project management draws from concepts of agile software development. Agile approaches focus on teamwork, collaboration, and stakeholder involvement, as well as the use of iterative development methods.

**Agile software development** – Agile software development originates from the Agile Manifesto, a set of principles that emphasizes meeting changing requirements through collaborative development and making ongoing improvements through iteration. It stresses the importance of being reactive to rapid changes in external environments.

**Alert** – Notifications by email or to a home page, updating users to changes to items that they have subscribed. Examples might include notifications about performance changes or commentary.

**Allocation** – The assigning of resources for scheduled activities in the most efficient way possible. (See also *resource allocation*)

**Alternative analysis** – The evaluation of possible courses of action for project work in order to find the most suitable course of action.

**Analogous estimating** – This technique uses historical project data to prepare time and cost estimates. It is considered the most inaccurate estimation technique. (See also *top-down estimating*)

**Analytical estimating** – This technique computes total project time and cost estimates by preparing estimates for each project activity and adding them together. Analytical estimating is considered the most accurate estimation technique. (See also *bottom-up estimating*)

**Application area** – The specific project category of which the project is a part. Application areas can be defined on the basis of project products' characteristics or applications or by the projects' customers or stakeholders.

**Apportioned effort** – Project work associated with components of a work breakdown structure and performed in proportion, with discrete effort. Since the amount of apportioned effort (which includes activities such as quality assurance) depends directly on the amount of discrete effort, it cannot be considered separately from discrete effort. It is one of three types of activities used to measure work performance as part of earned value management.

**Approach analysis** – During the project planning phase, this type of analysis is used to examine the various methods by which a project’s goals may be achieved.

**Arrow diagramming method (ADM)** – A method of constructing a network diagram that uses arrows to represent activities and nodes to represent events or milestones. The ADM is used to construct activity-on-arrow (AOA) diagrams.

**Artifact** – Items that support software development. Artifacts include both items associated with the process of development, such as project plans, and items used to support actual aspects of development, such as use cases and requirements.

**Assignment contouring** – The process of assigning people to project work for changing numbers of hours per day as the project moves through different stages. Assignment contouring is typically done using project management software.

**Assumption** – Factors deemed to be true during the project planning process, though proof of their validity is not available. A project’s assumptions can affect its risks and outcomes, so you must consider them carefully.

**Authorization** – In general, authorization is the power to make decisions that the management grants. The specific remit for authorization varies on a case-by-case basis.

**Authorized work** – Work that management or others in authority approve.

**Avoid** – A response to a negative risk that seeks to ensure the risk does not occur or (if the risk cannot be eliminated) seeks to protect the project objectives from the negative risk’s impact. (See also *risk avoidance*)

## - B -

**Backward pass** – This calculates late-start and finish dates for project activities by working backwards from the project end date.

**Balance** – A phase in the portfolio life cycle that involves balancing a portfolio’s components based on risk, costs, and use of resources. It is an aspect of organizational project management. (See also *portfolio balancing*)

**Balanced scorecard** – A Balanced scorecard is a concept or tool used to assess whether an organization's activities are correlated with its general vision and objectives.

**Bar chart** – A diagrammed calendar schedule of project activities' start and end dates in logical order. (See also *Gantt chart*)

**Baseline** – This term represent the costs and schedules approved at the start of the project. They use baselines as a basis for monitoring and evaluating performance.

**Benchmarking** – The comparison of similar processes across organizations and industries to measure progress, identify best practices, and set improvement targets. Results may serve as potential targets for key performance indicators.

**Benefits realization** – This term focuses on ensuring that project results give customers and stakeholders the benefits they expect.

**Blueprint** – A document that explains what a program means to accomplish and describes a program's contribution to organizational objectives.

**BOSCARD** – This method details and considers the background, objectives, scope, constraints, assumptions, risks, and deliverables of new projects.

**Bottom-Up estimating** – This calculation computes total time and cost estimates for projects by preparing individual estimates for each of a project's activities and adding them together. Bottom-up estimating is considered the most accurate estimation technique. (See also *analytical estimating*)

**Brief** – This refers to the document produced during a project's concept phase. It is the primary document outlining requirements.

**Budget** – The sum of money allocated for a project. The term may also refer to a comprehensive list of revenues and expenses.

**Budgeted cost of work performed (BCWP)** – The portion of the budget allocated to scheduled work actually performed in a period of time. (See also *earned value*)

**Budgeted cost of work scheduled (BCWS)** – The portion of the budget allocated to work scheduled to be performed in a period of time. (See also *planned value*)

**Burn down chart** – A graph that shows the relationship between the number of tasks to be completed and the amount of time left to complete these tasks.

**Burst point** – A point in a network diagram at which multiple successor activities originate from a common predecessor activity. None of the successor activities may start until one finishes the predecessor activity.

**Business analysis** – The practice of identifying and solving business problems. It focuses on creating and implementing solutions to business needs via organizational development, process reengineering, or any number of other methods.

**Business case** – A documentation of the potential outcomes of a new project, including benefits, cost, and effects. It shows the reasoning for starting the project.

**Business imperative** – An issue, situation, or circumstance with the potential to affect a business in one way or another, depending on the course of action used to address it. Organizations prioritize business imperatives for actions that will realize any potential benefits or avoid any potential harm.

**Business model** – A company's business model is the system by which the organization's profitable activities are planned, structured, and executed, and by which it interacts with its customers.

**Business operations** – The entire ensemble of activities or business processes through which a company uses its assets to create value for its customers.

**Business Plan** – These comprise the Corporate, Directorate, Service and Team plans, which specify the key priorities and activities to be undertaken.

**Business Performance Management** – A type of performance management that includes finance, covering compliance issues, competition, risk and profitability and human resources performance management encompassing employee performance appraisals and incentive compensation and other types of performance management include operational performance management and IT performance management.

**Business process** – A Business process is a system of activities by which a business creates a specific result for its customers. There are three categories of business processes: management processes, operational processes, and supporting processes.

**Business process modeling (BPM)** – Business process modeling is the representation, analysis, and evaluation of business processes in an effort to improve them.

**Business requirements** – The conditions a product must satisfy to effectively serve its purpose within a business.

**Business value** – The business value of a project is the sum of positive effects – tangible and intangible – it has on the business.

## - C -

**Calendar unit** – The smallest unit of time – usually hours or days – by which project activity durations are measured.

**Capability maturity model (CMM)** – This model is used to assess the maturity of business process capabilities. It was created to assess the capabilities of software development processes but is now used in a number of other industries as well. Like other maturity models, the CMM allows organizations to assess themselves against external benchmarks and provides recommendations for improvement.

**CAPEX** – CAPEX, or capital expenditure, is the money a company spends to acquire new fixed physical assets or upgrade old ones, typically for long-term use.

**Cascading**– The process of developing aligned goals throughout an organization, connecting strategy to operations to tactics, allowing each employee to demonstrate a contribution to overall organizational objectives. Methods of cascading include identical (objectives and measures are identical), contributory (translated, but congruent, objectives and measures), unique (unique objectives and measures; do not link directly to parent) and shared (jointly-shared unique objective or measure).

**Case study** – A case study involves extensive and in-depth formal research into an area of a company, a situation, or an event. Case studies typically result in formal reports that are published in academic or professional publications. They investigate important, singular, or locally representative cases that contribute to the advancement of knowledge.

**Cause and Effect** – The way perspectives, objectives, and/or measures interact in a series of cause-and-effect relationships demonstrate the impact of achieving an outcome. For example, organizations may hypothesize that the right employee training (Employee, Learning and Growth Perspective) will lead to increased innovation (Internal Process Perspective), which will in turn lead to greater customer satisfaction (Customer Perspective) and drive increased revenue (Financial Perspective).

**Certified Associate in Project Management (CAPM)** – This is an entry-level certification for project managers offered by the Project Management Institute. It is designed to build knowledge of project management processes and terms.

**Champion** – A project champion makes project success a personal responsibility. This person pushes the project team to work hard, liaise with stakeholders on behalf of the project, and support the project manager. Project champion is an informal role.

**Change control** – Change control is the process of identifying, evaluating, approving, and implementing changes to a project. It ensures that changes are introduced in a controlled and effective manner and that any adjustments necessitated by changes are also addressed.

**Change control board** – An appointed group of stakeholders who evaluate proposed changes and decide when and whether to make them.

**Change control system/process** – The process by which changes to the project are evaluated before approval, implemented, and documented.

**Change freeze** – The point at which scope changes to a project are no longer permissible.

**Change management plan** – A Change management plan details the change control process. It is created to ensure all changes are managed according to procedure. Change management plans can be created for individual projects or for organizations undergoing transitions.

**Change request** – A formal document submitted to the change control board that requests changes to the finalized project management plan. Change requests are usually made only for significant changes, as smaller changes with little to no impact on the project work can be brought to the project manager.

**Client/Customer** – The people who will directly benefit from a project. A team executes a project with specific attention to a client's requirements.

**Closing phase** – The final phase of the project management life cycle, in which all aspects of the project are officially completed and closed. This includes making sure that all deliverables have been given to the client, that the team notifies suppliers of completion, and that the team updates stakeholders regarding the end of the project and overall project performance.

**Code of accounts** – An alphanumeric system used to assign unique identifiers to all work breakdown structure components.

**Collaborative negotiation** – Collaborative negotiation entails all negotiating parties obtaining at least some of what they want from negotiations.

**Communications log** – This document is used to track all project-related communications. It is organized and edited by the project manager and details who communicated, when and where the communication took place, what information was shared, and the results of the communication.

**Communications management plan** – This plan states who will send and receive information on aspects of the project, what details are communicated, and when communications are sent. It is part of the project management plan.

**Communities of practice** – Groups of people who share an area of interest within project management. They meet regularly to share and develop knowledge in the area of interest.

**Competence** – The ability and knowledge required to perform the tasks associated with a specific role.

**Competence framework** – The set of competence expectations by which one assesses a person's suitability for a specific role.

**Concept** – The beginning phase of the project management life cycle. In the concept phase, the team presents the opportunity or problem (along with possible solutions) and examines the general feasibility of the project.

**Conceptual project planning** – Conceptual project planning involves developing the documentation from which a project's organization and control system will originate.

**Concurrent engineering** – A product development approach where design and development are carried out at the same time. It is used to shorten the development life cycle and to release products more quickly. The simultaneous execution of design and development can help to improve design practicality.



**Configuration** – Configuration of a product involves shaping its functions and characteristics to make it suitable for customer use.

**Configuration management** – Configuration management ensures that the product of a project meets all necessary specifications and stipulations. It provides well-defined standards for the management and team to guarantee that they meet quality and functional requirements, as well as any other characteristics considered important.

**Consensus** – A decision agreed upon by all members of a group.

**Constraint** – A limitation on a project. Among other things, constraints may be financial or based on time or resource availability.

**Constructability** – Constructability is a concept used in complex hard projects to assess and examine the entire construction process before beginning construction. It reduces the number of errors, setbacks, and delays once construction work actually begins.

**Construction** – The process by which a team builds infrastructure. Construction projects are complex. Engineers and architects supervise them, while a project manager manages the project work.

**Consumable resource** – A nonrenewable resource that cannot be used once consumed.

**Contingency plan** – An alternative or additional course of action planned in anticipation of the occurrence of specific risks.

**Contingency reserve** – An allocation of time or money (or both) set aside for the occurrence of known possibilities that could delay a project or make it more expensive. It is not the same as a management reserve, which is an allocation made for unforeseeable circumstances. Use of a contingency reserve is typically authorized upon the occurrence of a contingency.

**Contract administration** – The process by which a team manages a relationship with a contracting party. It establishes protocols for dealings between contracting parties.

**Contract closeout** – The process of determining whether the terms of a contract were completed successfully and of settling any remaining terms.

**Control Account** – A work breakdown structure tool that allows aggregation of costs for work packages as part of earned value management calculations.

**Control chart** – Control charts compare process results with historical averages and process control limits to show whether a process meets results expectations. If a process's results are inconsistent or fall outside process control limits, it may need to be examined and adjusted.

**Core process** – A process that follows an established order and is central to the performance of the process system or project of which it is part.

**Corrective action** – A step taken to bring work back into alignment with performance expectations after it has failed to meet expectations. A corrective action, which is reactive, is not the same as a preventive action, which is proactive.

**Cost baseline** – The sum of work package estimates, contingency reserve, and other associated costs by which project performance is assessed. A formal change control process is necessary to change the cost baseline.

**Cost benefit analysis** – A Cost benefit analysis is used to weigh project costs against anticipated tangible project benefits.

**Cost engineering** – The application of scientific and engineering principles to several aspects of cost management. Among other things, cost engineers contribute to estimation procedures and project cost management. Cost engineering may also be called project controls in some industries.

**Cost management plan** – This plan details how project costs will be planned, funded, and controlled. It is a part of the project management plan.

**Cost of quality** – The cost associated with ensuring project quality. This cost may mean the difference between unacceptable and acceptable project results.

**Cost overrun** – A cost overrun occurs when unexpected costs cause a project's actual cost to go beyond budget.

**Cost performance index** – A cost performance index measures the cost efficiency of a project by calculating the ratio of earned value to actual cost.

**Cost plus fixed fee contract (CPFC)** – Under a cost plus fixed fee contract, the seller is reimbursed for costs incurred and paid a predetermined fixed fee.

**Cost plus incentive fee contract (CPIF)** – Under a cost plus incentive fee contract, the seller is reimbursed for costs incurred and paid an additional fee if they meet performance criteria specified in the contract.

**Cost plus percentage of cost contract (CPPC)** – Under a cost plus percentage of cost contract, the seller is reimbursed for costs incurred and paid an additional amount equal to a percentage of the costs incurred if they meet performance criteria specified in the contract.

**Cost reimbursable contract** – A cost reimbursable contract is a contract under which a seller is reimbursed for costs incurred and paid an additional sum as per a predetermined agreement as profit. They are typically negotiated for projects with costs that are not fully known or not well defined.

**Cost variance** – The Cost variance of a project is its earned value minus its actual cost. A negative cost variance indicates that a project is running over budget. A positive cost variance indicates that a project is running below budget.

**Cost/schedule impact analysis** – A cost/schedule impact analysis determines the effects of a particular change on a project's cost or schedule.

**Crashing** – A schedule compression technique used to speed up project work by increasing the rate at which critical path activities are completed by adding more resources — usually more personnel or more equipment. Crashing increases project costs, so it is used first on activities that can be sped up at the least additional cost.

**Critical chain project management (CCPM)** – Critical chain project management is an approach to managing projects that emphasizes the resources needed to complete project activities over activity order and durations set in a schedule. It uses resource optimization techniques like resource leveling and requires that activity start times be flexible.

**Critical incident stress debriefing (CISD)** – CISD is a psycho-educational exercise for small groups who have experienced a traumatic event. It is sometimes used in project management to help project teams cope with trauma and to rebuild team cohesion.

**Critical path activity** – A scheduled activity that is part of a project's critical path.

**Critical path method** – The Critical path method is used to estimate the shortest length of time needed to complete a project and to determine the amount of float for activities that are not part of the critical path.

**Critical success factor** – A critical success factor is an aspect of a project that is crucial to the success of the project.

**Criticality index** – Each project activity is assigned a percentage called a criticality index, which is a measure of how frequently it is a critical activity in project simulations. Activities with high criticality indexes are likely to prolong project duration if delayed.

**Current finish date** – The most up-to-date estimate of when an activity will finish.

**Current start date** – The most up-to-date estimate of when an activity will start.

**Current state** – A detailed representation of current business processes that is used as a point of comparison for efforts to analyze and improve processes' efficiency, effectiveness, and outputs.

**Customer-Facing Operations**– Encompasses those facets of the organization that interface directly with customers; typically an organization's sales, service and marketing functions. Also referred to as Demand Chain.

**Customer Perspective** – Measures are developed based on an organization's value proposition in serving their target customers. In many organizations, especially public sector and non-profit, the Customer perspective is often elevated above or placed alongside the Financial perspective.

## - D -

**Dashboard** – A dashboard is a reporting tool that consolidates, aggregates and arranges measurements, metrics (measurements compared to a goal) and sometimes scorecards on a single screen so information can be monitored at a glance. Dashboards differ from scorecards in being tailored to monitor a specific role or generate metrics reflecting a particular point of view; typically they do not conform to a specific management methodology.

**Data date** – A data date, also called an as-of date, is a point at which a project's status is measured and documented. It separates actual data from scheduled data.

**Decision tree analysis** – A diagrammatic technique used to illustrate a chain of decisions and to examine the implications of multiple decision-making or situational outcomes.

**Decomposition** – The hierarchical breaking down of project deliverables into smaller components that are easier to plan and manage.

**Defect repair** – An action taken to remedy a product that is nonfunctional or does not match expectations or requirements.

**Define** – The phase in the portfolio life cycle in which projects, programs, and any organizational changes needed to realize strategic objectives are identified and examined.

**Definitive estimate** – A definitive estimate reaches a total project cost estimate by computing cost estimates for all a project's work packages. Definitive estimating is considered a highly accurate estimation technique, with estimates falling within a ten-percent range of the actual budget.

**Deflection** – The transferring of risk to another party, generally via a contract.

**Deliverable** – A final product or product component that must be provided to a client or stakeholder according to contractual stipulations.

**Delphi technique** – An estimation method based on expert consensus. Experts make estimates individually and simultaneously and then review their estimates as a group before making another set of estimates. The process is repeated, with the pool of estimates typically becoming narrower after each round of review until a consensus is reached. (See also *wideband delphi*)

**Dependency** – A logical relationship between project activities in a network diagram that determines when a dependent activity may begin.

**Discrete effort** – Project work directly associated with components of a work breakdown structure. It is directly measurable. Discrete effort is one of three types of activities used to measure work performance as part of earned value management.

**Discretionary dependency** – The preferred way to sequence activities when there is no logical limitation on how they must be ordered.

**Do nothing option** – An element of a project business case that states the consequences, if any, of not undertaking the project.

**Drawdown** – A method used to exercise control on the release of project funds. Instead of making entire project budgets available from the outset, management may choose to release funds at specific times. These releases are called drawdowns. Drawdowns may coincide with phase gates so that funds are released at the beginning of each phase.

**Dummy activity** – In activity-on-arrow diagrams, where arrows represent activities, dummy activities show logical relationships between activities. They are not actual activities themselves – dummy activity arrows are drawn with broken lines to differentiate them from regular activity arrows.

**Duration** – The amount of time taken to complete an activity or task from start to finish.

**Duration compression** – Duration compression techniques shorten a project's duration without reducing its scope. This typically requires additional expenditure. There are two main duration compression techniques: crashing and fast tracking. (See also *schedule compression technique*)

**Dynamic systems development method** –The dynamic systems development method is one of the agile product development methodologies. Like other members of the agile family, it conducts development in a series of iterations, with user-story-based improvements made in increments. The dynamic systems development method operates with fixed cost and time constraints and uses the MoSCoW prioritization method to identify the desired product requirements with these constraints in mind.

## - E -

**Early finish date** – The earliest time by which a scheduled project activity can logically finish.

**Early start date** – The earliest time by which a scheduled project activity can logically start.

**Earned schedule** – A method of measuring schedule performance that improves upon traditional earned value management. Earned value management tracks schedule variance only in terms of money and not in terms of time and thus does not accurately indicate schedule performance by the end of a project. To address this discrepancy, earned schedule theory uses the same data as traditional earned value management but tracks schedule performances separately with respect to money and time.

**Earned value** – A concept used to gauge project schedule and cost performance. Portions of the project budget are assigned to components of the work breakdown structure, and successful

completion of a work breakdown structure component is understood as value earned through work.

**Earned value management** – A method of measuring project performance and progress with regard to scope, time, and costs. It is based on the use of planned value (where portions of the budget are allotted to all project tasks), and earned value (where progress is measured in terms of the planned value that is *earned* upon completion of tasks).

**Effort** – The amount of labor needed to complete a task. It is measured in person-hours or similar units.

**Effort estimate** – A calculated approximation of the effort – measured in staff-hours or similar units – needed to complete an activity.

**Effort management** – The most efficient allocation of time and resources to project activities.

**End user** – The person or persons who will eventually use the product of a project. Products are designed with end users in mind.

**Enhancement, maintenance, and upgrade (EMU)** – Enhancement, maintenance, and upgrade are project classifications used in the software development industry. Enhancement projects involve improving the functionality or performance of software. Maintenance projects keep software functioning as expected. Upgrade projects create a new version of the software, called a release.

**Enterprise environmental factors** – Internal and external factors that can impact projects. They include such things as climate, available resources, and organizational structure.

**Enterprise modeling** – Enterprise modeling is the creation of a model to represent an organization's structure, processes, and resources. Enterprise models are built to increase understanding of how organizations work. They form the basis of improvement or restructuring efforts.

**Epic** – A set of similar or related user stories.

**Estimate at completion (EAC)** – The estimated total cost for all project work, calculated as the sum of the actual cost and the estimate to complete.

**Estimate to complete (ETC)** – At a given point in a project, the estimate of the cost of the work that still needs to be completed.

**Estimating funnel** – A metaphor for the increased accuracy in estimation made possible as a project progresses.

**Estimation** – The use of estimating techniques to reach approximations of unknown values.

**Event chain diagram** – A visual representation of a schedule network based on event chain methodology. It shows relationships between project activities and risk events.

**Event chain methodology** – A schedule network analysis method that enables uncertainty modeling. It is used to identify risk events' impact on a schedule.

**Event-Driven** – The adjective describes an action that is prompted by the occurrence of an event.

**Execution phase** – The execution phase begins after activity approval and is the phase in which the team executes the project plan. Execution is typically the longest and most expensive phase in the project management life cycle.

**Executive sponsor** – Typically a member of the organization's board who is ultimately responsible for the success of the project. They provide high-level direction to project managers and are accountable to the board for project success.

**Expert judgment** – The practice of using expert opinion to guide decision making.

**External dependency** – An outside relationship that affects the completion of a project activity.

**Extreme programming (XP)** – An agile software development methodology that emphasizes a high degree of responsiveness to evolving customer demands. Development cycles in extreme programming are short, and releases are frequent. Its main features include high-volume communication with customers and pair programming.

**Extreme project management (XPM)** – An approach to project management used mostly for complex projects with a high degree of uncertainty. XPM is designed for projects where requirements are expected to change. Therefore, it focuses on flexibility more than rigid scheduling. Where traditional project management proceeds sequentially through the project management life cycle and thus clearly defines problems, scopes, and solutions, extreme project management accepts that all three aspects will change as the project proceeds and thus emphasizes continual learning over deterministic planning.



## - F -

**Fallback plan** – A predetermined alternative course of action adopted if a risk occurs and a contingency plan proves unsuccessful in avoiding the risk's impact.

**Fast tracking** – A schedule compression technique or duration compression technique in which the duration of a critical path is shortened by performing sections of some critical path activities concurrently instead of consecutively.

**Feasibility study** – An evaluation of how likely a project is to be completed effectively, or how practical it is, taking resources and requirements into consideration.

**Financial Perspective** – The perspective that looks at bottom line results. In public sector and non-profit organizations, the Financial Perspective is often viewed within the context of the constraints under which the organization must operate.

**Finish-To-Start** – In a finish-to-start relationship, a successor activity cannot start until a predecessor activity has finished.

**Finish-To-Finish** – In a finish-to-finish relationship, a successor activity cannot finish until a predecessor activity has finished.

**Fishbone diagram** – A fishbone diagram is used in project management to identify and categorize the possible causes of an effect. (See also *Ishikawa diagram*)

**Fixed duration** – A task in which the time required for completion is fixed.

**Fixed formula method** – The fixed formula method calculates earned value in a given period of time by splitting a work package budget between the start and completion milestones of a work package. A known proportion of value is earned upon beginning the work package, and the rest is earned upon completing the work package.

**Fixed price contract (FPC)** – A fixed price contract pays an agreed-upon fee and does not incorporate other variables, such as time and cost.

**Fixed units** – A task in which the number of resources used is fixed.

**Fixed work** – A task in which the amount of effort required is fixed.

**Float** – A measure of the schedule flexibility involving a particular task.

**Flowchart** – A diagram that lays out the complete sequence of steps in a process or procedure.

**Focused improvement** – An improvement strategy based on the theory of constraints. Attention is focused on addressing one limiting factor – called a constraint – at a time in order to optimize a system. Each constraint is improved until it no longer limits the system’s performance.

**Fordism** – Fordism, named for Henry Ford, is a manufacturing system in which mass-produced goods are priced affordably enough that those producing them may reasonably buy them with their own wages.

**Forecast** – A prediction or estimation of future project status based on available information.

**Formal acceptance** – The step at which authorized stakeholders sign off on a product, indicating that it meets their expectations.

**Forward pass** – A technique used to calculate early start and finish dates by working forwards from a point in a project schedule model.

**Free float** – The amount of time by which an activity can be postponed without affecting the early start dates of a successor activity.

**Functional manager** – The individual in charge of all activities carried out by a particular functional department within an organization.

**Functional organization** – An organization which organizes and manages staff members in groups based on specialty areas.

**Future state** – A detailed representation of the ideal condition of a company’s business processes after improvement.

## - G -

**Gantt chart** – A Gantt chart is a type of bar chart that shows all the tasks constituting a project. Tasks are listed vertically, with the horizontal axis marking time. The lengths of task bars are to scale with tasks’ durations. (See also *bar chart*)

**Gate** – An end-of-phase checkpoint at which decisions are made regarding whether and how to continue with the project. (See also *phase gate*)

**Go/No go** – A point in a project at which it is decided whether to continue with the work.

**Goal** – An objective set by an individual or an organization. It is a desired endpoint reached by setting and working towards targets.

**Goal Diagram** – Generically used to describe the one-page visualization that shows the different goals of the organization and how they are related. Examples of goal diagrams include strategy plans, strategy maps and process diagrams.

**Goal setting** – The process of creating specific, measurable, and attainable goals and of setting deadlines for these goals if desired.

**Gold plating** – The practice of incorporating features and improvements that go beyond a product's agreed-upon characteristics. This is generally done to boost customer satisfaction.

**Governance** – The structure by which roles and relationships between project team members and an organization's high-level decision makers are defined.

**Graphical evaluation and review technique (GERT)** – A network analysis technique that uses Monte Carlo simulation to bring a probabilistic approach to network logic and the formation of duration estimates. It is an alternative to the PERT technique but is not often used in complex systems.

## - H -

**Hammock activity** – In a schedule network diagram, a hammock activity is a type of summary activity that represents a number of grouped – but unrelated -smaller activities that occur between two dates.

**Handover** – In the project life cycle, a handover is the point at which deliverables are given to users.

**Hanger** – An unplanned break in a network path, usually caused by oversights regarding activities or dependent relationships between activities.

**HERMES** – A project management method created by the Swiss government and used by IT and business organizations. It is a simplified project management method that can be adapted

to projects with varying degrees of complexity. It provides document templates to expedite project-related work.

**High-Level requirements** – The high-level requirements explain the major requirements and characteristics of the final product, including its purpose as a product and within the company. (See also *product description*)

**Historical information** – Data from past projects used in the planning of future projects.

**Human Capital** – A metaphor for the transition in organizational value creation from physical assets to the capabilities of employees. Knowledge, skills, and relationships, for example. Closely related to terms such as intellectual capital and intangible assets. Some experts suggest that as much as 75% of an organization's value is attributable to human capital.

**Human resource management plan** – A human resource management plan details the roles of and relationships between personnel working on a project, as well as how personnel will be managed. It is part of the project management plan.

**Hypercritical activities** – Critical path activities with negative slack time. They are created when a sequence of critical path activities leading up to another activity is too long to be completed in the stated duration.

- I -

**Information distribution** – The channels used to provide stakeholders with timely information and updates regarding a project.

**Initiatives** – Initiatives organize people and resources and dictate which activities are required to accomplish a specific goal by a particular date; initiatives provide the how while goals provide the what. As differentiated from projects, initiatives directly support an organization's strategic goals; projects may or may not have strategic impact.

**Initiation phase** – The formal start of a new project. It involves receiving proper authorization and creating a clear definition for the project.

**Inputs** – The information required to start the project management process.

**Inspection** – The process of reviewing and examining the final product to assess compliance to initial requirements and expectations.

**Integrated assurance** – The process of coordinating assurance activities across a number of assurance providers.

**Integrated change control** – The coordination of changes throughout all aspects of a project, including scope, budget, and schedule.

**Integrated master plan (IMP)** – A project management tool used to break down project work in large, complex projects. It lists project tasks and events in a hierarchical structure and shows relationships between them.

**Integrated master schedule (IMS)** – An integrated master schedule is produced from an integrated master plan. It is a list of all project tasks represented as a networked schedule.

**Integration management plan** – A document that explains integration planning and details how changes to project aspects will be managed.

**Integration planning** – The process of deciding how project elements will be integrated and coordinated and how changes will be addressed throughout the project management process.

**Integrative management** – Management processes that coordinate a number of project aspects including cost, schedule, and resources (among others).

**Internal Process Perspective** – Internal Process Perspective: The perspective used to monitor the effectiveness of key processes at which the organization must excel in order to achieve its objectives and mission.

**Invitation for bid** – An invitation for expressions of interest that a procuring organization extends. (See also *request for proposal*)

**Ishikawa diagram** – Ishikawa diagrams are used in project management to identify the possible causes of an effect. (See also *fishbone diagram*)

**ISO 10006** – A set of quality-management guidelines for projects. It is a standard created by the International Organization for Standardization.

**Issue** – Anything that can cause problems for a project. The term typically refers to major problems that cannot be tackled by the project team on their own.

**Issue log** – Project issues and the persons responsible for resolving them. It may also include issue status, plans for resolution, and resolution deadlines.

**Iteration** – A concept from iterative software development that specifies a fixed time cycle for development work, typically a few weeks long. The development life cycle consists of a number of iterations, sometimes with a functional version of the software produced at the end of each one. Iterative development prioritizes time over scope, so there are rarely concrete requirements to be achieved in an iteration.

**Iterative development** - Iterative development focuses on developing products in a series of repeated fixed-time iterations, instead of working towards a single deliverable. At the end of an iteration, the team assesses progress and sets targets for the next iteration.

**Iterative and incremental development** – Iterative and incremental development is any combination of the iterative and incremental development approaches. It is an alternative to the waterfall development method: instead of focusing on sequential development with a single end product, it passes through a number of development cycles, with an improved version of the product, called an increment, produced at the end of each iteration.

## - K -

**Kanban** – The word *kanban* means *visual signal* in Japanese. **Kanban** is a visual communication approach to the project management process. It uses visual tools like sticky notes or virtual cards in an online bulletin board to represent project tasks and to track and indicate progress throughout a project.

**Kickoff meeting** – The first meeting between a project team and stakeholders. It serves to review project expectations and to build enthusiasm for a project.

**Key Outcome Indicator (KOI)** – Often used in the public sector to describe key performance indicators, those metrics most critical to gauging progress toward objectives. KOIs are metrics that are: tied to an objective; have at least one defined time-sensitive target value; and have explicit thresholds which grade the gap between the actual value and the target.

**Key performance indicator (KPI)** – A Key performance indicator is a metric for measuring project success. Key performance indicators are established before project execution begins.

## - L -

**Lagging Indicator** – Backward-looking performance indicators that represent the results of previous actions. Characterizing historical performance, lagging indicators frequently focus on results at the end of a time period; e.g., third-quarter sales. A balanced scorecard should contain a mix of lagging and leading indicators.

**Lag/Lag time** – A necessary break or delay between activities.

**Late finish date** – The latest possible date a scheduled activity can be completed without delaying the rest of the project.

**Late start date** – The latest possible date a scheduled activity can be started without delaying the rest of the project.

**Lateral thinking** – Lateral thinking involves using a roundabout method to inspire new ideas or solutions. It can be done in a variety of ways, from using a random word to choosing an object in a room as a basis for thought.

**Leading Indicator** – Forward-looking in nature, leading indicators are the drivers of future performance. Improved performance in a leading indicator is assumed to drive better performance in a lagging indicator. For example, spending more time with valued customers (a leading indicator) is hypothesized to drive improvements in customer satisfaction (a lagging indicator).

**Lead/Lead time** – The amount of time an activity can be brought forward with respect to the activity it is dependent upon.

**Lean manufacturing** – A production methodology based on the idea of streamlining and doing more with less, such as by providing customers with the same product value while eliminating waste and thus reducing production costs.

**Lean six sigma** – Lean six sigma combines the no-waste ideals of lean manufacturing with the no-defects target of six sigma. The goal of Lean six sigma is to eliminate waste and defects so that projects cost less and deliver more consistent quality.

**Learning and Growth Perspective** – May also be termed “Skills and Capability.” Measures in this perspective are often considered enablers of measures appearing in other perspectives; therefore, this perspective is often placed at the bottom or foundation of a strategy plan. Employee skills and training, availability of information, and organizational culture are often measured in this perspective. More latterly, this perspective has included ‘Capacity’ to indicate that it is concerned with more than the human aspect and all includes other physical resources.

**Lessons learned** – The sum of knowledge gained from project work, which can be used as references and points of interest for future projects.

**Level of effort** – Work that is not directly associated with components of a work breakdown structure but that can instead be thought of as support work. Examples of level of effort include maintenance and accounting. It is one of three types of activities used to measure work performance as part of earned value management.

**Life cycle** – The entire process used to build its deliverables. Life cycles are divided into a number of phases. A variety of life cycle models are in use in project management.

**Line of balance** – A graphical technique used to illustrate relationships between repetitive tasks in projects such as building identical housing units. Each set of repetitive tasks is illustrated as a single line on a chart. Project managers look for places where dependent tasks intersect, indicating that the successor task must be delayed.

**Linear sequential model** – A linear sequential model moves through a project life cycle’s phases systematically and sequentially. It is typically used for small projects with straightforward requirements, since sequential development makes it difficult to revise design based on testing or preliminary feedback. (See also *waterfall model*)

**Linear scheduling method** – A graphical scheduling technique used to assign resources when project work consists of repetitive tasks. It focuses on maximizing resource use and reducing time wastage due to interruptions.

**Logic Model** – Having gained prominence in the ’90s largely in response to the Government Performance and Results Act (GPRA), the Logic Model is now a widely accepted management tool in the public and non-profit sectors as well as the international arena. The model is a roadmap or picture of a program that shows the logical relationships



among resources or inputs (what an organization invests); activities or outputs (what an organization gets done); and outcome-impacts (what results or benefits happen as a consequence).

**Logic network** – A chronologically arranged diagram that shows relationships between project activities.

**Logical relationship** – A dependency between project activities or between project activities and milestones.

## - M -

**Malcolm Baldrige** – Established by the U.S. Congress in 1987, the Malcolm Baldrige performance framework is a rating tool that assesses management systems and helps identify major areas for improvement in seven categories of performance criteria: Leadership; Strategic Planning; Customer and Market Focus; Measurement, Analysis, Knowledge Management; Human Resource Focus; Process Management; and Business Results.

**Management** – The act of overseeing planning, personnel, and resources to achieve a goal.

**Management process** – The act of planning and executing a project or process to meet a defined set of objectives or goals. Management processes may be carried out at multiple levels within organizations, with the scale and scope of activities typically increasing up the organizational hierarchy.

**Management reserve** – An allocation of money or time (or both) to address unforeseeable circumstances that might delay or increase the costs of a project. A management reserve is not the same as a contingency reserve, which is an allocation made for known possibilities. The senior management must typically approve any release of funds from a management reserve.

**Management science (MS)** – A field of study that seeks to improve organizational decision making through the use of quantitative and scientific research methods. It evaluates

management decisions and outcomes to find optimal solutions to problems, and thus enables better decision making. (See also *operations research*)

**Master project** – A master project file comprises a number of smaller projects, called subprojects, arranged hierarchically.

**Matrix organization** – Employees in a matrix organization report to more than one boss, with different lines of reporting representing different organizational projects or functions. A matrix structure can boost employee engagement and cross-field approaches to problem solving, but it can also create ambiguity over an employee's role.

**Maturity model** – Maturity is the extent to which an organization's methods, processes, and decisions are standardized and optimized. A maturity model assesses one or more of these aspects against a set of external benchmarks to determine an organization's maturity level. Maturity models allow organizations to assess themselves according to management best practices. They typically offer recommendations for improvement.

**Measure** (also called metric) – Term to describe a standard used to communicate progress on a particular aspect of a program. Measures typically are quantitative in nature, conveyed in numbers, dollars, percentages, etc. (e.g., \$ of revenue, headcount number, % increase, survey rating average, etc.) though they may be describing either quantitative (e.g., sales made) or qualitative (e.g., employee motivation) information.

**Megaproject** – A complex, large-scale, and high-investment project. Only hard projects may be termed megaprojects.

**Metric** (also called measure) – A framework to establish and collect measurements of success/failure on a regulated, timed basis that can be audited and verified. The term used in commercial organizations to describe a standard used to communicate progress on a particular aspect of the business. Measures typically are quantitative in nature, conveyed in numbers, dollars, percentages, etc. (e.g., \$ of revenue, headcount number, % increase, survey rating average, etc.) though they may be describing either quantitative (e.g., sales made) or qualitative (e.g., employee motivation) information.

**Merge point** – A point in a network diagram at which multiple predecessor activities culminate in a single successor activity. The successor activity may not start until all the predecessor activities have finished.

**Milestone** – Milestones indicate specific progress points or events in project timelines. They mark progress needed to complete projects successfully.

**Milestone schedule** – A milestone schedule details the time relationships associated with project milestones.

**Mission** – Concise statement that describes, in motivating and memorable terms, the current top-level strategic goal of the organization. A mission provides both an internal rallying cry and external validity. Usually financial-, process-, or customer service-oriented, with a mid-term (three to five years) horizon, an effective mission is inspiring as well as easily understood and communicated.

**Mission statement** – A concise enunciation of the goals of an activity or organization. Mission statements are usually a short paragraph, and can be created for entire organizations or for individual projects. They are designed to provide direction and guidance.

**Modern project management** – An umbrella term for a number of contemporary management strategies. In contrast to traditional management, modern project management: features more recognition of quality and scope variation; refines processes more frequently; stresses collective, interdisciplinary knowledge and team consensus over individual leadership. It is also less based on traditional hierarchies- modern project teams draw from a range of organizational levels and functional areas.

**Monte Carlo simulation/technique** – Monte Carlo simulation is a computer-based technique that performs probabilistic forecasting of possible outcomes to facilitate decision making. For each possible decision – from the most high-risk to the most conservative – a Monte Carlo simulation provides decision makers with a range of possible outcomes and the likelihood that each will occur.

**MoSCoW** – The MoSCoW prioritization method allows project managers to communicate with stakeholders on the importance of delivering specific requirements. The acronym indicates four categories of priority and importance for project requirements. Each requirement is prioritized as a “must have,” a “should have,” a “could have,” or a “won’t have.”

**Most Likely Duration** – An estimate of the most probable length of time needed to complete an activity. It may be used to compute expected activity duration through a technique called three-point estimation.

**Motivation** – A reason or stimulus that makes a person behave in a certain manner. In management, motivation refers to the desire to pursue personal or organizational goals and is positively associated with productivity.

**Murphy's Law** – Murphy's Law – “What can go wrong will go wrong.” – is cited in project management as a reason to plan adequately for contingencies.

## - N -

**Near-critical activity** – A near-critical activity has only a small amount of total float, or slack time. Near-critical activities have a high chance of becoming critical since their float is easily exhausted.

**Near-critical path** – A series of activities with only small amounts of total float, called near-critical activities. A near-critical path may become a critical path if its float is exhausted.

**Negative variance** – The amount by which actual project performance is worse than planned project performance. Negative variances in time and budget show the project is taking longer and is more expensive than planned, respectively.

**Negotiation** – A discussion to resolve an issue between parties. Negotiations can take place at any point during an activity and may be formal or informal.

**Net present value (NPV)** – Net present value is a concept that compares the present value of a unit of currency to its inflation-adjusted possible value in the future. It allows organizations to determine the financial benefits, or lack thereof, of long-term projects.

**Network Path** – In a schedule network diagram, a network path is a logically connected continuous series of activities.

**Node** – In a network diagram, a node is a point at which dependency lines meet. In activity-on-node diagrams, nodes represent activities. In activity-on-arrow diagrams, they represent events or stages.

**Nonlinear management (NLM)** – Nonlinear management refers broadly to management practices which emphasize flexibility, self-organization, and adaptation to changing

circumstances. It runs counter to concepts in linear management, which seek to impose structure on organizations. The defining characteristics of nonlinear management include encouragement of out-of-the-box thinking, proactivity in responding to challenges, and flexible working arrangements for employees.

## - O -

**Objective or Outcome Scorecard** – A specific application of a scorecard/objective scorecards monitor progress toward a given set of objectives or outcomes using a threshold-based rating scale. Typically, objective status is determined by normalizing one or many key performance indicators and comparing it to a given rating scale.

**Objective** – A clear, concise statement about what an activity is meant to accomplish. Objectives are written to be SMART: specific, measurable, achievable, realistic, and time-bound. A successful project meets all its stated objectives.

**Operations and maintenance** – Operations and maintenance is the stage at which a project or system is handed over to staff who will put it into full operation and carry out routine maintenance.

**Operational Alignment** – The means to and/or state of alignment of an organization's day-to-day activities with its strategic goals or objectives, operational alignment helps ensure that an organization's daily activities are advancing its longer-term goals and mission.

**Operations management** – The duty of ensuring that an organization's operations are functioning optimally. Operations managers maintain and improve the efficacy and efficiency of business processes. They seek to develop operations which deliver high-quality outputs while keeping costs low.

**Operational Performance Management** – A type of performance management that addresses the growing pressure to increase revenue while managing costs, while meeting ever-evolving and expanding customer demands. Other types of performance

management include business performance management and IT performance management.

**Operational Reviews** – Usually used to describe the regularly scheduled internal status meetings of an organization. Going by different names based on the organization, manufacturing companies typically call them Operational Excellence (OPX) meetings, other organizations sometimes just refer to them as Performance reviews.

**Operations research (OR)** – A field of study that uses mathematical, statistical, and scientific methods to aid and optimize decision making. It uses techniques such as mathematical modeling and optimization to enable better decision making. (See also *management science*)

**Opportunity** – In project management, an opportunity is a possibility that can contribute to project objectives. Opportunities in project management are classified as a type of risk.

**Opportunity cost** – The opportunity cost of a particular course of action is the loss of potential gains from all alternative courses of action.

**Optimistic duration** – An estimate of the shortest length of time needed to complete a specific activity or task. It may be used to compute expected activity duration through a technique called three-point estimation.

**Order of magnitude estimate** – An order of magnitude estimate provides an early, imprecise idea of the time and money required to complete a project. It uses historical data from completed projects to form adjusted estimates for similar new projects, usually presenting these estimates as ranging from -25 percent to +75 percent of the actual budget to indicate the levels of uncertainty involved.

**Organization** – A formally structured arrangement of parties that actively pursues a collective purpose. Organizations can be affected by external factors, and they in turn can affect the external environment.

**Organization development** – Broadly, organization development involves strategic efforts to improve aspects of organizational performance such as efficacy, efficiency, and sustainability, as well as aspects of organizational health such as employee satisfaction and engagement. The term may also refer to a field of study focusing on the characteristics of organizations and their growth and evolution.

**Organizational breakdown structure** – A hierarchical model of an organization's units and all its activities. It shows relationships between activities and organizational units and indicates the responsibilities of each unit, thus providing a holistic perspective of how an organization operates.

**Organizational enabler** – Any practice, tool, knowledge, or skill base that facilitates an organization's pursuit of its objectives may be termed an organizational enabler.

**Organizational planning** – The strategic process of defining roles, responsibilities, and reporting hierarchies for parties within an organization, keeping the organization's objectives in mind. It is carried out based on the principles and strategies by which an organization manages its members.

**Organizational process assets** – The specific set of formal and informal plans and processes in use at an organization. They also constitute the sum of knowledge and experience accumulated from past efforts. Organizational process assets are essentially the unique knowledge and processes that facilitate an organization's operations.

**Organizational project management** – A strategic approach that emphasizes the effective management of projects, programs, and portfolios as the best way to pursue organizational objectives. It focuses on aligning an organization's activities with its objectives and on managing these activities collectively, so they contribute to objectives.

**Organizational project management maturity** – A measure of an organization's ability to meet its objectives by effectively managing all its activities. It can be assessed with a maturity model called the OPM3, which, like other maturity models, provides comparisons and recommendations for improvement.

**Outcome** – Commonly used within the Logic Model, outcomes (also called outcome-impacts) describe the benefits that result as a consequence of an organization's investments and activities. A central concept within logic models, outcomes occur along a path from shorter-term achievements to medium-term and longer-term achievements. They may be positive, negative, neutral, intended, or unintended. Examples of outcomes include changes in knowledge, skill development, behaviour, capacities, decision-making, and policy development.

**Output** – In project management, an output is the (usually physical) end product of a process.

**Overall change control** – The evaluation, coordination, and management of project-related changes. It concerns both the effective integration of changes to benefit the project and the management of adverse changes or emergencies, so that project activities are not disrupted.

## - P -

**P3 assurance** – P3 assurance involves satisfying sponsors and stakeholders that projects, programs, and portfolios are on course to meet performance expectations, fulfill objectives, and meet requirements.

**P3 management** – P3 management refers collectively to the management of projects, programs, and portfolios.

**Parallel life cycle** – In a parallel life cycle, certain phases are conducted in parallel (they overlap).

**Parametric estimating** – A technique for estimating cost and duration based on using historical data to establish relationships between variables — for example, calculating unit costs and the number of units required to complete a similar activity.

**Pareto chart** – A Pareto chart is a combination bar chart and line graph where the bars represent category frequencies in descending order from left to right, and the line tracks the cumulative total as a percentage.

**Path convergence** – On a schedule network diagram, path convergence occurs when an activity has multiple predecessors.

**Path divergence** – On a schedule network diagram, path divergence occurs when an activity has multiple successors.

**Percent complete** – The percent complete indicates the amount of work completed on an activity as a percentage of the total amount of work required.

**Performance Driver** – Measures that indicate progress against a process or behaviour. These measures are helpful in predicting the future outcome of an objective.

**Performance-Based Budgeting** – A performance budget is an integrated annual performance plan and budget that shows the relationship between program funding levels



and expected results. It indicates that a goal or a set of goals should be achieved at a given level of spending.

**Performance Gap** – The “difference” between actual and target, the trend of the performance or target gap shows an organization’s momentum.

**Performance measurement baseline** – A performance measurement baseline uses the schedule, cost, and scope baselines to create a point of comparison by which project performance is assessed. Variance from the performance measurement baseline may prompt corrective action.

**Performance reporting** – Performance reporting is formally informing stakeholders about a project's current performance and future performance forecasts. The aspects of performance to be reported are typically laid out in a communications management plan.

**Performing organization** – The performing organization for a project is the one whose members and resources most directly perform the project work.

**Perspective** – Representing the various stakeholders, internal and external, critical to achieving an organization’s mission. Together, the perspectives provide a holistic, or balanced, framework for telling the “story of the strategy” in cause-and-effect terms. While the traditional Balanced Scorecard includes the four perspectives of Financial, Customer, Internal Process, and Employee Learning and Growth, an organization may choose to modify and/or add to these to adequately translate and describe their unique strategy.

**Pessimistic duration** – The pessimistic duration is an estimate of the longest length of time needed to complete a specific activity or task. It may be used to compute expected activity duration through a technique called three-point estimation.

**PEST analysis** – A PEST analysis examines how political, economic, social, and technological factors might affect a project.

**Phase** – A distinct stage in a project life cycle.

**Phase gate** – A phase gate is an end-of-phase checkpoint where the project leadership reviews progress and decides whether to continue to the next phase, revisits work done in the phase, or ends the project.

**Planned value (PV)** – The budget assigned to the work it is meant to accomplish. (See also *budgeted cost for work scheduled*)

**Planning** – The development of a course of action to pursue goals or objectives.

**Planning phase** – In project management, planning refers specifically to a phase of the life cycle that involves creating plans for management, control, and execution, as well as for what a project is meant to accomplish.

**Planning poker** – A consensus-based estimation technique. It attempts to avoid the anchoring effect – where the first estimate forms a baseline for all subsequent estimates – by having project team members make estimates simultaneously and discuss their estimates until they reach agreement.

**Portfolio** – A collectively managed set of programs and projects.

**Portfolio balancing** – An aspect of organizational project management, portfolio balancing involves selecting and tailoring a portfolio's components so they can be managed in line with organizational objectives.

**Portfolio charter** – A portfolio charter details the formal structure of a portfolio and describes what it is meant to achieve. It authorizes the creation of a portfolio and connects its management with organizational objectives.

**Portfolio management** – The collective management of portfolios and their components in line with concepts of organizational project management.

**Portfolio manager** – The individual responsible for balancing and controlling a portfolio in line with concepts of organizational project management.

**Portfolio, program, and project management maturity model (P3M3)** – The P3M3 assesses organizational performance in portfolio, program, and project management via a set of key process areas (KPAs). Like other maturity models, the P3M3 allows organizations to measure their performance against external benchmarks and provides a roadmap for project performance and delivery improvement.

**Positive variance** – The amount by which actual project performance is better than planned project performance. Positive variances in time and budget show the project is proceeding faster and is less expensive than planned, respectively.

**Precedence diagramming method (PDM)** – The process of constructing a project schedule network diagram. It illustrates the logical relationships between project activities and shows the order in which they must be performed by using nodes to represent activities and arrows to show dependencies. PDM also indicates early and late start and finish dates, as well as activity durations.

**Precedence network** – A precedence network visually indicates relationships between project activities. Boxes and links are used to represent activities and activity relationships. Precedence networks also detail the time relationships and constraints associated with activities.

**Predecessor activity** – In a schedule, a predecessor activity logically comes immediately before another activity, which is dependent on the predecessor.

**Preventive action** – A step taken to ensure future work does not stray from performance expectations. A preventive action, which is proactive, is not the same as a corrective action, which is reactive.

**PRINCE2** is an acronym for projects in controlled environments, version 2. It is a project management methodology that emphasizes business justifications for projects.

**PRINCE2 management** is based on clear organization of project roles and responsibilities and managing when necessary rather than by obligation. It involves planning and executing projects in a series of stages, with stipulated requirements for each work package.

**PRiSM** – PRiSM is an acronym for projects integrating sustainable methods. It is a project management methodology that focuses on minimizing negative impacts on society and the environment. PRiSM focuses on sustainability. It is essentially green project management.

**Probability and impact matrix** – A visual framework for categorizing risks based on their probability of occurrence and impact.

**Problem statement** – A problem statement concisely states and describes an issue that needs to be solved. It is used to focus and direct problem-solving efforts.

**Process** – A process is a repeatable sequence of activities with known inputs and outputs. Processes consume energy.

**Process architecture** – The sum of structures, components, and relationships that constitute a process system, which is a complex system of processes.

**Process Diagram** – Process diagrams typically are used to represent specific processes that are undertaken in an organization and the key steps involved in the process. An example might be a high-level diagram that highlights the customer experience.

**Process management** – The act of planning, coordinating, and overseeing processes with a view to improving outputs, reducing inputs and energy costs, and maintaining and improving efficiency and efficacy.

**Process-based project management** – A methodology that views projects as means of pursuing organizational objectives. It involves using an organization's mission and values to guide the creation and pursuit of project objectives. If project objectives aren't in alignment with the company mission statement, they are amended accordingly.

**Procurement management plan** – A procurement management plan explains how an organization will obtain any external resources needed for a project.

**Product breakdown structure (PBS)** – A product breakdown structure is used in project management to record and communicate all project deliverables in a hierarchical tree structure. It may be thought of as a comprehensive list of all project outputs and outcomes.

**Product description** - A product description defines and describes a project product and its purpose. (See also *high-level requirements*)

**Product verification** – Product verification involves examining a deliverable to ensure, among other things, that it meets requirements, quality benchmarks, and expectations set by the product description. It is conducted before a product is presented to a customer for acceptance.

**Program Assessment Rating Tool** – Developed by the Office of Management and Budget within the Office of the President of the United States, the Program Assessment Rating Tool (PART) was developed to assess and improve program performance so that the federal government can achieve better results. A PART review helps identify a program's strengths and weaknesses to inform funding and management decisions aimed at making the program more effective. The PART therefore looks at all factors that affect and reflect program performance including program purpose and design; performance measurement, evaluations, and strategic planning; program management; and program results.

**Professional development unit (PDU)** – A continuing education unit that project management professionals (PMPs) take to maintain certification.

**Program** – A collectively managed set of projects.

**Program charter** – An approved document that authorizes the use of resources for a program and connects its management with organizational objectives.

**Program Evaluation and Review Technique (PERT)** – PERT is a statistical method used to analyze activity and project durations. PERT networks are typically illustrated with activity-on-arrow diagrams. The method makes use of optimistic, pessimistic, and most likely durations to estimate expected durations for project activities and to determine float times, early and late start dates, and critical paths. (See also *three-point estimating*)

**Program management** – The collective management of programs and their components in line with concepts of organizational project management.

**Program manager** – A program manager has formal authority to manage a program and is responsible for meeting its objectives as part of organizational project management methods. They oversee, at a high level, all projects within a program.

**Progress analysis** – The measurement of progress against performance baselines. Progress analysis collects information about the status of an activity that may prompt corrective action.

**Progressive elaboration** – The practice of adding and updating details in a project management plan. It aims at managing to increase levels of detail as estimates are revised, and more up-to-date information becomes available.

**Project** – A temporary, goal-driven effort to create a unique output. A project has clearly defined phases, and its success is measured by whether it meets its stated objectives.

**Project accounting** – In project management, project accounting deals with reporting on the financial status of projects. It measures financial performance and actual costs against budgets or baselines. Therefore, it complements project management while providing financial information to the sponsor. Project accounting may also be referred to as job cost accounting.

**Project baseline** – A project baseline comprises the budget and schedule allocations set during the initiation and planning phases of a project. Assuming the scope of the project remains unchanged, it may be used to determine variance from budget or schedule.

**Project calendar** – A project calendar indicates periods of time for scheduled project work.

**Project charter** – A Project charter is a document that details the scope, organization, and objectives of a project. It is typically created by a project manager and formally approved by the sponsor. A project charter authorizes the project manager's use of organizational resources for the project and is understood to be an agreement between the sponsor, stakeholders, and project manager. (See also *project*)

**Project cost management (PCM)** – The use of an information system to estimate, measure, and control costs through the project life cycle. It aims at completing projects within budgets.

**Project definition** – A project definition or project charter is a document created by a project manager and approved by a project sponsor that details the scope, organization, and objectives of a project. It authorizes a project manager's use of resources for a project and constitutes an agreement between the sponsor, stakeholders, and project manager (See also *project charter*)

**Project management body of knowledge (PMBOK)** – The PMBOK is a collection of project management-related knowledge maintained by the Project Management Institute.

**Project management office** – An organizational unit that oversees project management-related activities within an organization. It seeks to facilitate and expedite project work through the use of standard procedures. A project management office also functions as a repository of general, project-related knowledge and resources.

**Project management process** – A management process that encompasses all phases of a project, from initiation to the meeting of objectives.

**Project management professional (PMP)** – A Project management professional (PMP) is a person certified by the Project Management Institute upon completion of a course of formal education, an examination, and a certain number of hours managing projects. The certification is considered the gold standard in project management.

**Project management simulators** – Software training tools that teach project management skills via interactive learning and provide real-time feedback by which project management trainees can practice and reassess their decision making. Some simulators, such as the Monte Carlo simulator, are used to support and complement decision making in real projects.

**Project management software** – Project management software is a family of tools typically used in the management of complex projects. They provide the ability to: calculate estimates; create and manage schedules and budgets; track and oversee project activities and progress;

assign and allocate resources; optimize decision making; and communicate and collaborate with members of a project team.

**Project management triangle** – A visual metaphor that illustrates relationships between scope, cost, and schedule. It expresses the idea that none of the three aspects can be amended without affecting the others.

**Project manager** – The person tasked with initiating, planning, executing, and closing a project, and with managing all aspects of project performance through these phases. The term is typically used for a project management professional. Project managers are able to use organizational resources for projects. They serve as contact points for sponsors, program managers, and other stakeholders.

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**Project network** – A visual representation of the activities and dependencies involved in the successful completion of a project.

**Project performance indicators** – Measures used to assess project performance, usually with reference to project or performance baselines. These typically include cost, schedule, and scope statuses.

**Project phase** – A distinct stage in a project management life cycle. Each phase comprises a set of project-related activities.

**Project plan** – A document formally approved by the project manager, sponsor, and other stakeholders which states the approved cost, schedule, and scope baselines. It guides project execution, control, and quality and performance assessment. The project plan also forms the basis for communication between parties involved in a project. Project plans can vary in their levels of detail.

**Project planning** – Project planning is usually the longest phase of the project management life cycle. It involves determining cost, schedule, and scope baselines and using these to create a detailed roadmap for executing project activities and producing deliverables.

**Project portfolio management (PPM)** – A method of collectively managing a portfolio's constituent programs and projects to pursue organizational objectives. It involves optimizing the mix and scheduling of projects to pursue objectives as effectively as possible. Project portfolio management is closely related to organizational project management.

**Project schedule network diagram** – A diagram is a visual representation of how scheduled project activities are ordered and related. Depending on the type of network diagram, boxes represent activities or events, and arrows indicate activities or dependencies, typically with expected durations.

**Project scope statement** – A project scope statement details what a project is meant to achieve and describes the deliverables expected. It forms the basis of measurable objectives by which the success of a project will be assessed. Project scope statements are typically part of project plans.

**Project stakeholders** – Broadly, a Stakeholder is any party which may be affected by a project. In project management, the term usually refers to parties with an interest in the successful completion of a project.

**Project team** – A project team is responsible for leading and collectively managing a project and its related activities through the project's life cycle. Project teams may contain members from several different functional groups within an organization. Depending on the nature of the project, a project team may be disbanded upon completion of a project.

**Project tiers** – Project sizing categorizes projects into project tiers based on staff power or time required for completion to determine the most appropriate project management practices.

**Projectized organization** – A projectized organization arranges all its activities into a collection of projects, programs, and portfolios. Projects are typically completed for external clients or customers. The prioritization of project work means the project manager can utilize resources and assign work as they see fit.

**Proof of concept** – A proof of concept is derived from a pilot project or experiment that examines whether an activity can be completed, or a concept can be realized. It shows the feasibility of an idea.

**Proport** – The term proport is used to define the sum of unique skills that team members bring to a project. These skills can be harnessed for collective benefit.



## - Q -

**Qualitative**– Subjective, as opposed to quantitative (measured). A common source of qualitative metrics are surveys of customers, stakeholders or employees.

**Qualitative risk analysis** – A project management technique that subjectively analyzes risk probability and impact. The risks are categorized on a probability and impact matrix, and those deemed significant may undergo a quantitative risk analysis.

**Quality** – In project management, quality is a measure of a deliverable’s degree of excellence. Quality may also refer to a clearly defined set of stakeholder requirements by which results are assessed.

**Quality assurance** – A set of practices designed to monitor processes and provide confidence that result in deliverables meeting quality expectations. It may involve quality audits and the stipulated use of best practices.

**Quality control** – The use of standardized practices to ensure that deliverables meet stakeholder expectations. It involves not only the definition and identification of unacceptable results but also the management of processes to optimize results.

**Quality management plan** – A quality management plan identifies stakeholders’ quality expectations and details quality assurance and quality control policies to monitor results and meet these expectations. It is part of a project management plan.

**Quality planning** – Quality planning involves identifying expected quality standards and creating mechanisms to ensure these standards are met. It may also recommend corrective action if quality standards are not being met.

**Quality, cost, delivery (QCD)** – QCD is an approach to management that focuses on assessing production processes with regard to three aspects: quality, cost, and delivery. It seeks to simplify process management and facilitate decision making by providing objective information about each of the three aspects, with an understanding that modifications to any one aspect will also affect the others.

**Quantitative** – Measured, as opposed to qualitative (subjective). Quantitative measures often come from transactional systems.

**Quantitative risk analysis** – The mathematical analysis of risk probability and impact. In project management, it is not a substitute for qualitative risk analysis. Instead, quantitative analysis is conducted after qualitative analysis and assesses risks that qualitative analysis has identified as significant.

## - R -

**RAID log** – RAID is an acronym for risks, assumptions, issues, and dependencies. The RAID log is a project management tool that records developments in these four aspects of project work for the stakeholders' benefit and for an end-of-project review.

**RASCI/RACI chart** – A RASCI chart is created during project initiation to identify those who are: responsible for project activities, accountable for ensuring that work is done, signing off on the work, consulted in relation to work activities, and informed about the status of the work. The acronym may be simplified as RACI. (See also *responsibility assignment matrix*)

**Readiness Scorecard** – A specific application of a scorecard, a readiness scorecard can be used to evaluate an organization's state of readiness/acceptance of a given strategy.

**Reengineering** – Reengineering involves the extensive redesign or rethinking of core processes to achieve major performance improvements. It focuses on optimizing key performance areas such as quality and efficiency. Reengineering often involves restructuring organizations so that multi-functional teams can manage processes from start to end.

**Release** – In IT project management, a release is a fully functional software delivered to a customer as agreed, typically after a series of iterations.

**Remote team** – A remote team's members work in collaboration, usually electronically, from different geographic locations.

**Repeatable** – The term repeatable is used to describe a sequence of activities that may be easily and efficiently replicated. Repeatable processes are economical since they typically avoid negative variances and have established operations.

**Reports** – Typically show the details of performance for a metric or multiple metrics. Reports are often used to drill down to the root cause of performance issues.

**Request for proposal** – A formal invitation for expressions of interest that is extended by an organization looking to procure goods or services. (See also *invitation for bid*)

**Request for quotation** – Upon receipt of proposals after issuing a request for proposal, an organization will issue a request for quotations to shortlisted proposers, asking for detailed cost estimations for specific goods or services.

**Requirements management plan** – A requirements management plan explains how project requirements will be defined, managed, and delivered. It is part of a project management plan and is used to guide project execution and control to adequately deliver requirements.

**Requirements traceability matrix** – A table that tracks requirements through the project life cycle and product testing. It is used to ensure that a project is able to deliver the stipulated requirements during the verification process.

**Requirements** – A set of stipulations regarding project deliverables. They are a key element of the project scope and explain in detail the stakeholders' expectations for a project.

**Residual risk** – Any risks that have not or cannot be addressed by risk mitigation or risk avoidance procedures.

**Resource allocation** – The assigning and scheduling of resources for project-related activities, ideally in the most efficient manner possible. Resource allocation is typically handled by a project manager, though they may be overridden by a program manager if resources are to be shared between multiple projects. (See also *allocation*)

**Resource availability** – Resource availability indicates whether a specific resource is available for use at a given time.

**Resource breakdown structure** – A hierarchical list of resources needed for project work, classified by type and function.

**Resource calendar** – A resource calendar indicates resource availability, usually by shift, over a period of time.

**Resource leveling** – A technique that involves amending the project schedule to keep resource use below a set limit. It is used when it is important to impose limits on resource use. Resource leveling can affect a project's critical path.

**Resource loading profiles** – Resource loading profiles indicate the number and type of personnel required to do project work over periods of time.

**Resource optimization techniques** – Resource optimization techniques seek to reconcile supplies and demands for resources. Depending on whether project duration or limiting resource use is prioritized, they can be used to amend activity start and finish dates in ways that do or do not affect a project’s critical path. (See also *resource leveling* and *resource smoothing*)

**Resource smoothing** – A technique that makes use of float when allocating resources so as not to affect total project duration. It is used when project time constraints are important. Resource leveling does not affect a project’s critical path.

**Resource-Limited schedule** – A resource-limited schedule has had its start and end dates adjusted based on the expected availability of resources.

**Resources** – The elements needed for a project to successfully meet its objectives. Examples of resources include equipment, staff, locations, facilities, and money.

**Responsibility assignment matrix** – A responsibility assignment matrix identifies those who are: responsible for project activities, accountable for ensuring that work is done, consulted about work activities, and informed about the work status. (See also *RASCI/RACI* chart)

**Retainage** – The sum of money withheld from a contract payment until completion of the contract according to terms.

**Return on investment (ROI)** – The expected financial gain of a project expressed as a percentage of total project investment. It is used to assess the overall profitability of a project.

**Risk** – The probability of occurrence of a specific event that affects the pursuit of objectives. Risks are not negative by definition. In project management, opportunities are also considered risks.

**Risk acceptance** – Risk acceptance involves acknowledging a risk and not taking preemptive action against it.

**Risk appetite** – The amount and type of risk an organization is willing to accept in anticipation of gains. It is not the same as risk tolerance, which is the amount of variation in performance measures that an organization is willing to accept.

**Risk assessment** – An activity that involves identifying possible risks to a project and examining how these risks, if they occur, would affect objectives.

**Risk avoidance** – Risk avoidance focuses on avoiding threats that can harm an organization, its projects, or assets. Unlike risk management, which is geared toward mitigating the impact of a negative event, risk avoidance seeks to address vulnerabilities and make sure those events do not occur.

**Risk breakdown structure** – A hierarchical model of all risks, arranged categorically.

**Risk category** – A set of risks grouped by cause.

**Risk efficiency** – A concept based on the idea of maximizing the return-to-risk ratio. It can do this in two ways: by minimizing exposure to risk for a given level of expected return or by seeking the highest possible expected return for a given level of risk.

**Risk enhancement** – Risk enhancement involves increasing the probability of an opportunity, or positive risk, occurring.

**Risk exploitation** – Risk exploitation focuses on ensuring that an opportunity, or positive risk, occurs.

**Risk identification** – The process of identifying and examining risks and their effects on project objectives.

**Risk management** – A subset of management strategies that deals with identifying and assessing risks and acting to reduce the likelihood or impact of negative risks. Risk managers seek to ensure that negative risks do not affect organizational or project objectives.

**Risk mitigation** – Risk mitigation involves decreasing the probability of a negative risk occurring, as well as protecting project objectives from a negative risk's impact.

**Risk monitoring and control** – The risk monitoring and control process uses a risk management plan to identify risks and implement appropriate risk responses.

**Risk owner** – A risk owner is responsible for determining and enacting appropriate responses to a specific type of risk. (See also *risk response owner*)

**Risk register** – A risk register, or risk log, is a tool used to chronicle risky situations and risk responses as they arise.

**Risk response owner** – A risk owner monitors a specific type of risk and implements appropriate risk responses when necessary. (See also risk owner)

**Risk response planning** – Risk response planning is typically conducted after risk analyses to determine appropriate courses of action for risks is deemed significant.

**Risk sharing** - Risk sharing involves handing ownership of a positive risk to a third party who is typically specialized and better able to realize the opportunity.

**Risk threshold** – The level at which the likelihood or impact of a risk becomes significant enough that the risk manager deems a risk response necessary.

**Risk tolerance** – The level of variation in performance measures that an organization is willing to accept. It is not the same as risk appetite, which is the level and type of risk an organization is prepared to accept in anticipation of gains.

**Risk transference** – Risk transference involves handing ownership of risk to a third party who is typically specialized and better able to address the risk or to withstand its impact.

**Risk trigger** – An event that causes a risk to occur. A trigger can serve as a warning that a risk has occurred or is about to occur.

**Rolling wave planning** – A planning approach that focuses on in-depth detailing of work to be accomplished in the near term and progressively lower levels of detail for work scheduled farther in the future. It is based on the idea that work scheduled in the future is more subject to change and thus less worth planning in detail. Rolling wave planning only works for schedules with clearly defined iterations.

**Root cause** – The primary reason an event occurs.

**Run book** – A comprehensive catalog of information needed to conduct operations and to respond to any emergency situations that arise during operations. It typically details, step by step, all regular operational procedures and emergency responses.

## - S -

**S-Curve analysis** – An s-curve tracks cumulative financial or labor costs. S-Curve analysis is used to compare a project's cumulative costs at any given point with a cumulative cost baseline created during the planning phase. It allows project managers and sponsors to assess performance and progress.

**Schedule** – A comprehensive list of project activities and milestones in logical order, with start and finish dates for each component.

**Schedule baseline** – A schedule baseline is the original project schedule – approved by the project team, sponsor, and stakeholders – by which performance is assessed. Schedule baselines are generally inflexible, though alteration of a schedule baseline via a formal change control process may be allowed.

**Schedule compression technique** – A schedule compression technique speeds up projects without affecting scope by decreasing the duration of a project's critical path. There are two main schedule compression techniques: crashing and fast tracking. (See also *duration compression*)

**Schedule model** – A logically arranged, time-based plan for project activities. It is used to create a project schedule.

**Schedule model analysis** – Schedule model analysis examines the project schedule created from a schedule model. It aims to optimize the schedule, usually via the use of scheduling software.

**Schedule network analysis** – Schedule network analysis uses a variety of techniques to identify early and late start and finish dates for project activities and thus to create project schedules.

**Schedule performance index (SPI)** – The ratio of earned value to planned value at a given point in time. It shows whether a project is running to schedule. An SPI lower than one indicates the project is behind schedule. An SPI higher than one indicates the project is ahead of schedule.

**Schedule variance** – Schedule variance is the difference between earned value and planned value at a given point in time.

**Scientific management** – Scientific management was an early attempt to bring scientific approaches to process management. Its earliest form was derived from a 1911 monograph by Frederick W. Taylor, who focused on increasing economic efficiency via the analysis and optimization of labor processes.

**Scope** – The scope of a project constitutes everything it is supposed to accomplish in order to be deemed successful.

**Scope baseline** – The set of requirements, expectations, and work packages approved as project deliverables. It is used to guide and assess project performance.

**Scope change management** – Scope change management deals with amendments to the scope as set in the scope baseline and project management plan. Since scope amendments typically affect cost and schedule estimates, scope change management involves revising estimates and adequately communicating these to stakeholders, as well as obtaining the resources necessary to fulfill new scope requirements.

**Scope creep** – Scope creep refers to gradual changes in project scope that occur without a formal scope change procedure. Scope creep is considered negative since unapproved changes in scope affect cost and schedule but do not allow complementary revisions to cost and schedule estimates.

**Scorecard** – A scorecard is a visual display of the most important information needed to achieve one or more objectives, consolidated and arranged on a single screen so the information can be monitored at a glance. Unlike dashboards that display actual values of metrics, scorecards typically display the gap between actual and target values for a smaller number of key performance indicators.

**Scrum** – Scrum is an iterative development procedure used in software development projects. Scrum-based projects focus on prioritizing requirements and working towards a clear set of goals over a set time period, called a sprint. The development team thus works through the list of requirements over a number of sprints. Scrum-based projects usually do not have project manager. Instead, the project team meets daily for progress updates.

**Secondary risk** – A risk created by a risk response.

**Security** – Security in project management refers broadly to protecting humans, information, and resources from risk.

**Six Sigma** – An approach to process management that focuses on the near total elimination of product or service defects. It uses quality management methods to improve and optimize processes involved in the production of a product or service so that 99.9 percent of process outcomes are defect-free.

**Slack time** – The length of time an activity's early start can be delayed without affecting project duration. (See also *float*)

**Slip chart** – A slip chart graphically compares predicted activity completion dates with originally planned completion dates.



**Slippage** – The negative variance between planned and actual activity completion dates. Slippage may also refer to the general tendency of a project to be delayed beyond planned completion dates.

**Soft project** – A soft project does not have a physical output.

**Software engineering** – Software engineering is generally defined as the use of engineering principles in software development. It systematically employs scientific and technological approaches in the design, operation, and modification of software.

**Spiral life cycle** – An IT system's development model that aims to learn from experience by drawing from both iterative development and the waterfall model. It has four sequential phases: identification, design, construction, and evaluation and risk analysis. At the end of each life cycle, an iteration is assessed by the customer, and the spiral sequence begins again upon receipt of customer feedback. The spiral model is typically used in long-term projects or those where requirements are expected to vary, and customer feedback is to be incorporated in phases.

**Sponsor** – A sponsor has ultimate authority over a project. They provide high-level direction, approve project funding as well as deviations from cost and budget, and determine project scope. Sponsors are typically members of the senior management and are expected to provide high-level support for a project.

**Sprint** – In iterative project development, a sprint is a fixed unit of time during which the project typically passes through a complete development life cycle. A sprint is usually a few weeks long.

**Stakeholder** – In project management, a Stakeholder is any party with an interest in the successful completion of a project. More generally, the term refers to anyone who is affected by a project. (See also *project stakeholder*)

**Standards** – A standard prescribes a collection of standardized rules, guidelines, and characteristics requirements for processes or products that are approved by a recognized body. Standards are not by definition mandatory. They are adopted by consensus, although they may be enforced as a requirement for participation in certain markets.

**Start-To-Finish** – In a start-to-finish relationship, a successor activity cannot finish until a predecessor activity has started.

**Start-To-Start** – In a start-to-start relationship, a successor activity cannot start until a predecessor activity has started.

**Statement of work (SoW)** – A Statement of work is a comprehensive and detailed list of deliverables expected under a contract, with expected dates for each deliverable.

**Steering committee** – A steering committee provides high-level strategic guidance on a project. It typically comprises individuals from a number of stakeholder organizations and serves to provide consensus-based direction on projects with a large number or a diversity of stakeholders.

**Story point** – In sprint-based projects, a story point is a measure of the amount of work required to implement a particular user story. Assigning and totaling story points allows project teams to target a realistic number of user stories for action during an iteration or sprint.

**Strategic Management System** – Describes the use of the Balanced Scorecard in aligning an organization's short-term actions with strategy. Often accomplished by cascading the Balanced Scorecard to all levels of the organization, aligning budgets and business plans to strategy, and using the Scorecard as a feedback and learning mechanism.

**Strategy** – Strategy is the way an organization seeks to achieve its vision and mission. It is a forward-looking statement about an organization's planned use of resources and deployment capabilities. Strategy becomes real when it is associated with: 1) a concrete set of goals and objectives; and 2) a method involving people, resources and processes.

**Strategy Map** – A specific version of a strategy plan that adheres to the Balanced Scorecard methodology. Strategy maps depict objectives in multiple perspectives with corresponding cause and effect linkages.

**Strategy Plan** – A visual representation of an organization's strategy and the objectives that must be met to effectively reach its mission. A strategy plan can be used to communicate, motivate and align the organization to ensure successful execution.

**Successor activity** – In a schedule, a successor activity logically comes after and depends on an activity immediately preceding it.

**Summary activity** – In a network diagram, a summary activity combines a set of related activities and visually represents them as a single activity.

**Sunk cost** – A cost that cannot be recovered once spent.

**Systems development life cycle (SDLC)** – In systems engineering, the systems development life cycle is the process of creating, releasing, and maintaining an information system, which may comprise hardware, software, or both. The typical SDLC has six sequential phases: planning, analysis, design, implementation, testing, and maintenance.

**Systems engineering** – A field of engineering that applies principles of systems thinking to the development of complex systems. Since complex systems are more difficult to coordinate and make cohesive, systems engineering focuses on developing and optimizing systems as interactive wholes instead of sums of parts. As complex systems comprise both technical and human elements, systems engineering is, by nature, interdisciplinary.

## - T -

**Target** – A target is the defining standard of success, to be achieved over a specified time period, for the key performance indicators associated with a particular strategic objective. Providing context to make results meaningful, targets represent the organization’s “stretch goals.”

**Task** – In project management, a task is a unit of work or activity needed for progress towards project goals. Typically, a task must be completed by a set deadline. Tasks may be further broken down into assignments or subtasks.

**Task analysis** – A task analysis details the actions or resources required to complete a task.

**Testing** – The testing phase involves assessment of the product developed so as to gauge quality and performance and to determine whether requirements have been met.

**Theme** – Descriptive statement representing a major component of a strategy, as articulated at the highest level in the Vision. Most strategies can be represented in three to five themes. Themes are most often drawn from an organization’s internal processes or the customer value proposition, but may also be drawn from key financial goals. The key is that themes represent vertically linked groupings of objectives across several scorecard perspectives (at a minimum, Customer and Internal). Themes are often stated

as catchy phrases that are easy for the organization to remember and internalize. For example: Operational Excellence or Customer Intimacy or Strategic Partnering.

**Theory of constraints** – The theory of constraints explains that any process is limited from optimum performance by its weakest link or links, called constraints. The theory of constraints methodology involves identifying these weak links via a strategy called focusing and improving them until they no longer limit performance.

**Threat** – A negative risk that could adversely affect project objectives.

**Three-point estimating** – A superset of estimating techniques that use averages (or weighted averages) of most likely, optimistic, and pessimistic costs, and duration estimates to form final estimates.

**Threshold** – A means of describing and/or depicting the performance gap in easily understandable terms. Examples of threshold methods include “letter-grade” (A/B/C/D/F) and “traffic-light” (green/yellow/red).

**Time and material contract** – A time and material contract pays per unit of time and reimburses materials costs for contracted work.

**Time chainage diagram** – In project management, a time chainage diagram graphically represents scheduled activities for a hard project completed sequentially over a geographic distance, such as the construction of a motorway or the laying of a pipeline. It thus provides both a scheduled time and a relative geographic location for each activity.

**Time limit** – The time limit for a task is the window of time or deadline by which it must be completed.

**Time-scaled network diagram** – A network diagram is time scaled if the lengths of activities are drawn to scale to indicate their expected durations.

**Timebox** – Timeboxing is a project management strategy that prioritizes meeting deadlines over scope requirements. It involves assigning specific lengths of time, called timeboxes, to project activities. Project teams work to address as many requirements as possible within each timebox, proceeding to successor activities once the time limit has passed.

**Timeline** – A Timeline is a graphical, sequential representation of project activities.

**To-Complete Performance Index (TCPI)** – A project's to-complete performance index is the cost performance it needs to achieve to be completed within budget. The TCPI is calculated as the ratio of work remaining to budget remaining.

**Tolerance** – The acceptable level of variance in project performance. The project sponsor is typically informed if tolerance levels are crossed.

**Top-Down estimating** – Top-Down estimating uses historical data from similar projects to compute time and cost estimates. (See also *analogous estimating*)

**Total cost of ownership (TCO)** – The total cost of ownership estimates the sum total of direct and indirect costs incurred in the purchase, operation, and maintenance of an asset through its life.

**Total float** – The length of time an activity can be delayed from its early start date without affecting the project end date.

**Trigger condition** – A condition that causes a risk to occur. Trigger conditions can serve as warning signs that risks have occurred or are about to occur. (See also *risk trigger*)

## - U -

**Unified process** – A unified process may refer to any one of a family of iterative software development process frameworks. Unified processes have four phases: inception, elaboration, construction, and transition. Each phase comprises a number of time boxed iterations, which in turn involve a cycle of specifying requirements, analysis, design, implementation, and testing, with emphases on these shifting as the project team proceeds through iterations. Each iteration results in an improved version of the system called an increment.

**Use case** – In software development, a use case is a step-by-step list of actions that end users would take to achieve specific goals. Use cases facilitate end user-focused software testing.

**User story** – A project requirement stated in one sentence. It typically identifies users, real or hypothetical, what these users want from software, and why they want it. Project development teams prioritize user stories in each iteration by assigning story points.

## - V -

**V life cycle** – The V in V life cycle stands for verification and validation. It is a sequential software development process that matches a corresponding testing phase to each phase in the software development life cycle. During the verification phase, a project team works at increasingly granular levels of detail to identify requirements and design, and then builds the software. Validation proceeds in the opposite direction, as testers examine software components in turn before moving on to systems testing and finally checking that the project as a whole meets requirements.

**Values** – Representing an organization's deeply-held and enduring beliefs, an organization's values openly declare how it expects everyone to behave and are often embedded in its vision.

**Value Chain** – The process steps by which a company moves from the identification of its customer needs to customer fulfilment.

**Value engineering** – Value engineering seeks to increase the functionality-to-cost ratio of a product by providing improved functionality at lower cost. Some applications of value engineering attract criticism, as manufacturers may decrease costs by using lower-quality components that decrease product lifespans.

**Value for money ratio** – In project management, the value for money ratio is expressed as the ratio of financial and other benefits to the resources expended in a project.

**Value tree** – A hierarchical model of the characteristics of a product or service that determine its value.

**Value Proposition** – Describes how an organization intends to differentiate itself in the marketplace and what particular value it will deliver to customers. Many organizations choose one of three “value disciplines” operational excellence, product leadership, or customer intimacy.

**Variance analysis** – The practice of investigating deviations between planned and actual performance.

**Variance at completion (VAC)** – A project’s variance at completion is the difference between its budget at completion and its estimate at completion.

**Vertical slice** – A performance indicator that demonstrates progress across all project components or performance areas at a given point in time.

**Virtual design and construction (VDC)** – A method based on using technology in design and construction projects. It uses building information modeling (BIM) tools that focus on designable and manageable aspects of projects to create integrated models that predict project performance.

**Virtual team** – A virtual team comprises people from different organizations, locations, or hierarchies. It is not necessarily the same as a remote team, which is a group of people working together from different locations.

**Vision** – A concise statement defining an organization’s long-term direction, the vision is a summary statement of what the organization ultimately intends to become five, 10 or even 15 years into the future. It is the organization’s long-term “dream,” what it constantly strives to achieve. A powerful vision provides everyone in the organization with a shared mental framework that helps give shape to its abstract future.

## - W -

**Waterfall model** – The Waterfall model is a software development life cycle in which development phases are sequential, non-iterative, and do not overlap. It is typically reserved for small projects with straightforward, clearly defined requirements since a sequential development process makes it difficult to revisit the analysis and design phases once testing has begun. (See also *linear sequential model*)

**Weighted milestone method** – The weighted milestone method allows project managers to estimate earned value by splitting work packages into weighted segments. Each segment represents a portion of the budget value for the work package and ends with a milestone. When a segment milestone is classified as complete, a portion of the total work package value has been earned.

**What-If scenario analysis** – A simulation technique that allows project managers to determine and compare specific conditions’ effects on project schedules and objectives.

**Wideband Delphi** – An estimation technique based on expert consensus. Each member of an estimation team uses a work breakdown structure to create anonymous estimates of the effort required to complete each project element or work package. The estimates are then reviewed as a group before the experts create new estimates, and the process is repeated for a number of rounds until a consensus is reached. (See also *delphi technique*)

**Work** – In project management, work is the amount of effort needed to complete a task.

**Work authorization system** - A formal procedure to ensure that project work is performed on time and in logical order.

**Work breakdown structure (WBS)** – A Work breakdown structure is a comprehensive, hierarchical model of the deliverables constituting the scope of a project. It details everything a project team is supposed to deliver and achieve. A work breakdown structure categorizes all project elements, or work packages, into a set of groups and may be used to form cost estimates.

**Work breakdown structure dictionary** – A document that details, describes, and provides scheduling information for every element of a work breakdown structure. It may be thought of as a dictionary-cum-schedule of work packages.

**Work package** – The work packages of a project are its lowest-level deliverables. They are detailed in a work breakdown structure dictionary.

**Work stream** – In project management, a work stream is a logically arranged series of activities that must be completed to pursue project objectives. The term typically refers to the full sequence of work activities from project initiation to project closure.

**Workaround** – A way to circumvent a problem which does not have a permanent solution or for which no adequate response was planned.



**X-Bar control charts** – An x-bar control chart includes two separate charts that display the means and sample ranges for a number of periodically gathered, same-size samples. The sampled data constitute some characteristic of a product or a process.

## **Appendix**

### **Critical Path Planning and Scheduling**

*Project management generally requires directing a series of time-limited activities and tasks to meet project objectives. Proper scheduling, resource management and monitoring is critical. One of the major planning and scheduling techniques for project management is referred to as the critical path method or critical path analysis. It was first developed in the 1950s and was soon adopted as a tool to manage complex federal defense projects. Now it is used in business organizations to plan and manage a wide variety of projects and programs.*

#### **Activities and Tasks**

*Critical path analysis starts with developing a list of all activities and tasks required to complete an objective. In addition to staff performance requirements, project activities might include, for example, any staff training or outsourced activities that may be required to achieve the objective. Each activity and task is lettered for purposes of later linkage with interdependent activities and tasks.*

#### **Timescales**

*In critical path planning, timescales are used to identify the amount of time necessary to complete a given task or activity, which is generally necessary to develop a realistic estimate for completing the final objective. Alternatively, if you have a 10-week deadline to complete a project objective, you will then need to schedule realistic deadlines for each task and activity that works within the deadline set for the project. On a critical path analysis chart, time estimates are recorded alongside the list for each task or activity.*

#### **Sequencing**

*One of the major concepts in critical path analysis relates to sequencing activities and tasks. In planning, this acknowledges that some activities must first be completed before others can be performed. These are called parallel activities. Time sequencing involves identifying parallel activities and tasks and properly ordering them within a project schedule. In critical path analysis planning, this makes it easy for planners to next develop precise sequencing and time schedules for parallel tasks and activities.*

## ***Benefits***

*Critical path analysis is an effective technique for project management. It assists project managers in developing timescales and deadlines for tasks and activities. Also, by identifying the interrelationship between activities and tasks, project managers are better able to develop time sequences and set priorities to reduce the potential for project delays. For complex projects, it can be useful in evaluating problems that arise during the implementation stage of the project plan.*

Retrieved from: <https://smallbusiness.chron.com/critical-path-planning-scheduling-21822.html>

## **What Is a Critical Path Method?**

*The critical path method is a way of planning a complex project that increases the likelihood it is completed on time. To find the critical path you must find the amount of time it takes for each step of the project, then diagram them in order to find the sequence in which the most important ones must be finished -- the "critical path" -- to show what must be the focus of the project.*

### ***The Steps in the Project***

*When using the critical path method, the first thing you must do is determine all of the steps that make up the project and how long each is estimated to take. Then you must figure out which steps must be completed before other steps can be started (or completed).*

*For example, Step A should take three weeks, Step B should take four weeks, and Step C should take two weeks -- but cannot be completed until Step A is finished.*

### ***Diagramming the Project***

*The second part of the critical path method is creating a diagram showing the various steps and their sequence, along with the estimated time for each. You can draw this flow chart by hand or use CPM software. The end result should be a series of paths*

*that you must follow in the proper order. A key is that the project has one starting time and one ending time, and each path travels from the former to the latter.*

*In the example, since Step A must be completed before Step C can be finished, but Step B can be carried out independent of Steps A and C, Step A to Step C is one path, and Step B is a second path unto itself.*

### ***Determining the Critical Path***

*The final stage in the critical path analysis is determining the longest path -- this is the critical path the method is named for. This is the path that must be traveled as close to the time estimates as possible in order for the project to be completed on time. The other paths normally take less time, so they have some "slack," meaning you can delay or slow them in order to concentrate on the critical path.*

*In the example, the path featuring Step A and Step C is the critical path, since it takes five weeks -- the path with Step B takes only four weeks, so it has a week of slack.*

### ***Pros and Cons***

*The critical path method has stood the test of time since its creation in the 1950s at Du Pont. The benefit of the critical path method is that it lays out a sequence for the steps of a project in visual form, while showing both the time frame for each project and which ones are most important. On the other hand, CPM works best with projects in which each step has a fairly definite time frame -- it reduces the complexity but does not allow for a lot of leeway in its estimates.*

*Retrived from: <https://smallbusiness.chron.com/critical-path-method-65982.html>*

## **How Does PERT & CPM Work?**

*The current PERT definition is “Program Evaluation and Review Technique.” Created by the United States Navy after World War II, PERT has become a popular management strategy for handling large-scale, complex projects. In other words, projects involving both massive amounts of planning and coordination with other concurrent projects. PERT is especially useful for planning large-scale software projects and coordinating teams of developers.*

### **PERT Generally Follows a Five-Step Process:**

#### ***Determining project tasks and milestones***

*Step one* involves determining what the specific tasks of the project will be and using milestones to mark met goals. This process usually incorporates the use of a table for organizing purposes.

#### ***Sequences***

*Step two* comprises sequencing, where the arrangement of project tasks must optimize completion time.

#### ***Graphical representation***

*Step three* includes diagramming the network to visualize the order of tasks. It also involves determining parallel tasks (tasks co-occurring with other tasks). Finally, step three takes on identifying which are tasks serial (tasks completed one after the other in sequence).

#### ***Estimation of time frames***

*Step four* encompasses a three-fold establishment of timing for the project. This part of the process establishes three time frames: optimistic, probable, and pessimistic. These represent the optimum, likely, and worst-case scenarios concerning completion of the tasks in the project.

#### ***Estimation of critical path***

*Step five* embroils estimating the critical path. This estimation is the overall time the project is expected to take from inception to completion. The term “Critical Path” was first used by the DuPont corporation in the 1950s to estimate project completion times.

*Employed as a useful strategy for planning a software project's time frame, cost, and required steps, PERT tackles many aspects of a development project.*

### **The PERT Chart**

*A PERT Chart, or PERT Diagram, is an excellent way to represent the steps of a project using PERT methodology. These are specialized flow charts that show the steps, time frames, and milestones of the development project. Each project task is shown as an arrow, while circles represent dates for milestone completion. These "events" can be either "predecessor events" or "successor events" depending on if they happen before or after a specific milestone.*

### **How to Create a PERT Chart**

*The first two steps to creating a **PERT Chart** are:*

- 1. **List** the tasks and put them into a sequence, noting their time frames.*
- 2. **Diagram** the network of events as a **PERT Chart**.*

*The second step involves the creation of "activity-on-arrow diagrams," in which an arrow in the diagram signifies the task. Alternatively, circles, or "nodes," indicate milestones.*

*Above each arrow, the diagram includes the estimated time it will take to accomplish that task. This approximation could be optimistic, pessimistic, most likely, or the expected time – or, even a combination of all four. An event network diagram gives various time frames in which the task can be completed under different circumstances and with different possible obstacles.*

### **Completing Tasks Sequentially**

*In many cases, completing specific tasks sequentially (serially) is necessary to move forward past certain milestones. For this reason, the milestone aspect is sometimes called a "precedence diagram," because certain tasks are required for the next phase to begin.*

*A complete PERT Chart is a diagram that conclusively shows the most efficient path to realizing a completed project. A PERT Chart accounts for all steps involved as well. It also shows the time necessary to complete each step and the sequence of events*

*involved. Not only does a PERT Chart organize essential tasks for the duration of a project, but it also keeps track of already finished milestones.*

### **Other Important PERT Chart Terminology**

*The ideas of slack (lead and lag time) and critical paths are essential parts of PERT Charts as well. Slack refers to how much longer a particular step in the project can take before it impacts the project as a whole. In particular, slack involves lead time and lag time. Lead time refers to the amount of time needed to finish a project step with no effect on the next step. Lag time denotes the earliest completion time of a step after the previous step.*

*One way to optimize this process is to use fast-tracking. This process cuts down on time by rearranging multiple serial steps into parallel steps. However, some tasks, known as critical path activities, function on a strict time frame with little to no room for error to ensure on-time project completion.*

### **Critical Path Method Defined**

*Critical Path Method, or CPM, developed around the same time as PERT. Initially, this method was intended to organize large-scale industrial projects, and it is especially useful in construction projects. Like PERT, CPM focuses on coordination and organization incorporating the following concepts:*

- **Defining** Project Tasks.
- **Determining** Task Relationships.
- **Network** Diagramming.
- **Time/Cost** Assessment.
- **Establishing** the Critical Path.
- **Project** Management.

*CPM focuses on the timely completion of activities in the project, and it is primarily concerned with maximizing cost-effectiveness. Additionally, CPM requires quality results at each phase before proceeding to the next one. CPM places a greater emphasis on minimizing costs and optimizing quality, while at the same time it coordinates and organizes the time frames needed to complete the project within schedule and within the budget.*

## **Similarities Between PERT and CPM**

*Like PERT, CPM requires project managers to figure out which tasks need to be completed in what order and then determine how these tasks can be coordinated to minimize the amount of time to completion. Also, CPM adds a time/cost assessment, unlike PERT, which permits more flexible estimates of time. The critical path in CPM is the single most crucial aspect of the process, and accurate timing combined with cost control makes this technique one of the most effective project management tools available in a variety of sectors.*

*This should not be confused with CPM in digital marketing, which stands for “cost per mille” (mille is Italian for one-thousand). Specifically, this instance refers to the cost per 1000 webpage advertisement impressions. Impressions refer to the ads shown on the webpage, whether or not a user clicks on them.*

### **PERT vs. CPM**

*Both PERT and CPM have their benefits. The methodologies are both very similar because they identify the tasks in the project, determine time frames, and establish the necessary path for the project to be completed within boundaries. However, there are some differences:*

- **PERT** appears more commonly in R & D, whereas CPM regularly falls under the umbrella of construction and industry.

- **PERT** has several different time estimates

- optimistic, pessimistic, likely, expected

- whereas CPM is more focused on “hard deadlines.” **PERT** focuses more on the relationship between cost and time, whereas CPM focuses more on cost.

*CPM emphasizes minimizing time wherever possible, but PERT uses the concept of slack to give a more flexible time frame for the project’s tasks and milestones.*

*\* CPM relies on previous projects with similar parameters and bases its estimations on those. PERT is more common in projects that explore new territory, and therefore less data is available for these estimates. This aspect reveals why PERT time frames are more variable than CPM time frames.*



*Project managers do not need to choose one or the other, however. Frequently used together, PERT and CPM both provide valuable tools for project managers who want to coordinate various phases of a large-scale project without sacrificing time or money. Not only is PERT handy for exploratory projects, but it also uses critical paths to determine deadlines regarding certain milestones. In this way, the two methods are best used together, whenever possible.*

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