MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE
NATIONAL TECHNICAL UNIVERSITY
«KHARKIV POLYTECHNICAL INSTITUTE»

METHODOLOGICAL GUIDELINES

for practical classes on the course

«Creating and Developing IT Products»

for students of specialty 076 «Entrepreneurship and trade»

of the second (master) level of all forms of education

Kharkiv
NTU «KhPI»
2024

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INTRODUCTION

The IT sector plays an important role in Ukraine's economy, as it generates 4.5 % of the country's GDP and accounts for 12 % of exports. Simplistically, the Ukrainian IT industry consists of two parts: 1) service companies that provide custom software development services; 2) product companies that develop software to create their own products and subsequently bring them to market. The importance of product companies lies in the fact that, unlike outsourcing companies, which primarily create jobs for technical specialists, product companies require significantly more non-technical personnel for product launches, sales, and other business functions. Therefore, if an outsourcing company creates 0.16 non-technical jobs per technical employee within its company, a product company creates eight times more.

The discipline «Creating and developing IT products» studies the theoretical and practical foundations of creating and developing IT products, such as stages of creation and development of IT products, specialists of the product team of an IT startup, product managers and their main functions during product development, minimum viable product, ways to validate ideas, methods for researching and influencing the target audience of the product, and basic terminology of the product IT sphere. The study of this discipline is directly based on such disciplines as: «Fundamentals of management», «Fundamentals of entrepreneurship», «Innovative entrepreneurship and startup project management», «Marketing», «Finance, money, and credit».

In these methodological guidelines, the main practical tasks that are used in the course «Creating and developing IT products» are considered. Each section is

devoted to a separate topic of the course. All sections are structured in the same way: first, the necessary theoretical information is presented, at the end of each section, homework is given.

These methodological guidelines do not replace textbooks on the creating and developing IT products. For a more detailed study of the material special educational publications are recommended.

TOPIC 1. INTRODUCTION TO THE COURSE «CREATING AND DEVELOPING IT PRODUCTS»

Theoretical information

1. **Startup** is a young company in the early stage of business development focused on creating a unique product or service to bring to market and make indispensable for users. Typically, startups are funded through external investments.
2. **IT product** includes software, applications, or hardware of information technologies, including websites, programs, applications, and their modifications that deliver value to the end customer.
3. **Product-oriented IT** is a business in the field of information technology focused on creating its own «product».
4. **Product IT company** is a company working on creating a product. For example, Uber is a product company whose main product is a taxi service. Product companies prioritize the user experience.
5. **Outsourcing company** provides services in the field of information technology. An outsourcing company takes on tasks and responsibilities that the client cannot perform independently. For example, to create an online store, brands often hire developers to build the website and develop an application for it.
6. **Product manager** is a specialist working at the intersection of business, marketing, and technology, synchronizing the work of all departments. The main goal of a product manager is to create a profitable product that meets the expectations and needs of users.
7. **Unicorn company** is a startup that has received a market valuation of over $1 billion.
8. **Classifieds** is an online classified advertising platform.
9. **Product-market fit** answers how well the product aligns with the market and meets user demand.

Homework 1

Analyze, in pairs, any product you use based on the given criteria. Justify why the product is successful. Prepare and present a slide as shown in a table 1.1.

Table 1.1 – A template for designing the slide

Product name

Value (what value does the product bring to the end user?)	
Target audiences	
Needs	
How is it monetized? Business model, how does it make money?	
Competitors (direct and indirect)	
Number of users	

Product analysis criteria:

1. Value (What value does the product provide to the user?).
2. Target audience (For whom is the product created? Who uses the product?).
3. Needs (Which needs and pains of the target audience does the product address?).
4. Business model (How does the product monetize? How does it make money?).
5. Competitors (Which companies and products are direct and indirect competitors to the analyzed product?).
6. Number of users (How many users use the product?).

An example for designing the slide is shown in a table 1.2.

Table 1.1 – The example for designing the slide

Value (what value does the product bring to the end user?)	High-quality personalization of the music segment for each user
Target audiences	Millennials, creative people, budding musicians
Needs	Quick and convenient access to your favorite music tracks, the ability to follow the latest in the music world + self-development in a convenient format
How is it monetized? Business model, how does it make money?	The main source of income is the transition of users to a premium subscription. Spotify makes most of its profits by selling ad-free streaming music and podcast services, and it also sells ad slots on its non-premium streaming service
Competitors (direct and indirect)	Apple Music, Soundcloud, Deezer, YouTube Music, Indirect: Google Podcast, YouTube, pirated music downloads
Number of users	In the first quarter of 2022, about 422 million monthly active users, of which 182 million are premium subscriptions

Evaluation:

Maximum score for this task is 5 points.

The evaluation is joint for both students in the pair.

Checklist for evaluation:

- Presence of a filled slide.
- The product is analyzed according to all the criteria mentioned above.
- The target audience of the product is correctly identified (geography, demographics, social status, motivation).
- Correctly and based on reliable sources, identified the needs that the product satisfies.

- A well-argued answer to the question «Why do we consider this product successful?» is provided, relying on categories and concepts studied in modules 1–2 of the course (specifically, Product market fit, profitability, retention, value for the user).

Adherence to these criteria is mandatory for evaluation (3–5 points).

Additional considerations for assessment:

- Presence of links to the information used.
- Use of information from reliable sources (company or product website, product card on Google Play, App Store, interviews with company or product founders, if necessary – use of tools like SimilarWeb, Sensortower, AppMagic, Google Trends, etc.).
- Identification of not only direct but also indirect competitors.
- Correct determination of the product's business model based on the criteria provided in module 1.2 (subscription model, advertising model, integration/transactional).

TOPIC 2. THE LEAN CANVAS MODEL FOR COLLABORATIVE PRODUCT DEVELOPMENT

Theoretical information

Lean Canvas is a business modeling tool that helps break down the product idea into its key components. It allows teams to work on the product idea and progress from a vague concept to a detailed concept.

For any digital product creator, it is important to clearly articulate their ideas so that every interested person, team member, or investor can quickly familiarize themselves with the product concept.

Lean Canvas consolidates all the information that you and your team need to analyze and visualize onto a single canvas, excluding irrelevant details. The main idea is to save time, energy, and money for partners or investors in the economy.

It is better to fill the blocks of the Lean Canvas template in a certain sequence (figure 2.1):

1. Users and the problem.
2. A unique trade proposition.
3. Decision.
4. A hidden advantage.
5. Sales channels.
6. The financial part – the structure of costs and sources of income.
7. Key metrics.

Lean Canvas

2.1. Problem	**4. Solution** Top 3	**3. Unique Value Proposition** A clear and persuasive message that explains why you stand out from others and why you're worth purchasing	**9. Non-Market Advantage** What cannot be easily copied or bought, our unique advantages, what sets us apart from competitors	**1.1. Customer Segments** Target consumers, profile **Segment 1:** **Segment 2:**
2.2. Who already solves the problem? Competing applications	**8. Key Metrics** Key activities that can be measured		**5. Promotion Channels** How will you tell consumers about yourself? About values? About a product\ service How will you deliver?	**1.2. First Users** Describe your ideal consumer who is ready to try and provide feedback **Segment 3:**

Figure 2.1 – An example of the Lean Canvas template.

Homework 2

Describe, as a team, any product from a chosen niche using the Lean Canvas model. Any tool can be used such as PowerPoint, Excel, Word, Google Slides, Google Sheets, Google Doc, Figma, Miro (or any other interactive boards), etc.

- Example of the **Lean Canvas** template and the order of filling it out: https://drive.google.com/file/d/13ZgrwLXoL8z6qULCyS1ZUKjPOAwNqRPu/view?usp=sharing
- Example of a correctly filled **Lean Canvas**: https://drive.google.com/file/d/1zouggeBjtygGI7ZBFXHw-c8v0Bb6sWDV/view?usp=sharing
- Possible **Lean Canvas** template for student teamwork: https://miro.com/app/board/uXjVOjVNAYI=/

Evaluation:

The maximum score for this task is 5 points.

The evaluation is joint for the team.

Evaluation checklist:

Minimum result (1-2 points):*

- The presence of a presentation or document with a described Lean Canvas;

*if there are missing sections

Optimal result (3-4 points):

- The Lean Canvas model is filled out according to all criteria specified in the template.
- Presence of links to the used information.
- The student briefly presents the business concept within a 3-minute timer, relying on the Lean Canvas model, followed by a 2-minute Q&A session.

High result (5 points):

Everything mentioned above, as well as:

- Qualitatively filled metrics block.
- Mentioned 2–3 metrics from the course simulator that correspond to the product.
- Identified the North Star metric.

During the assessment of works:

- The student can explain the data relied upon when filling out each section.
- The student can explain what the Lean Canvas model is and why it is needed.
- The student can justify and explain the information specified in the business model.
- The student responds correctly to clarifying questions.
- Information from reliable sources is used (company or product website, product card on Google Play, App Store, interviews with company or product founders, if necessary – use of tools like SimilarWeb, Sensortower, AppMagic, Google Trends, etc.).

TOPIC 3. CUSTOMER BEHAVIOR

Theoretical information

1. **User Experience (UX)** is a direction that investigates the user experience from interaction with product It covers psychology, design, behavioral and cognitive sciences and marketing.

2. **Nudging** refers to hints, reminders, and certain stimuli that encourage people to take specific actions while still leaving them the freedom to choose.

3. **Principles of user product retention:**

3.1. **The principle of scarcity** states that when something is limited and may not be readily available, we tend to desire it more and strive to obtain it.

3.2. **The endowment effect**: People are willing to pay more for something they already own than for something they don't yet have.

3.3. **The sequence effect**: The first purchase is much more difficult than subsequent ones.

3.4. **Hick's law**: The more options and choices a user has, the harder it is for them to make a decision.

3.5. **Personalization**: Gradually tailoring the product to suit the users' preferences.

3.6. **User shaming**: Users are made to feel bad in order to convince them of the necessity of a certain action.

3.7. **Appeal to the feelings of victory**: Focusing the user's attention on the pleasant sensations from small achievements and minor victories.

4. **IKEA effect**: When you contribute your effort and feel that you've gradually customized the product to your liking, you will value it more.

5. **UI/UX (or product designers)** are individuals who design solutions based on business needs and user problems. They are responsible for how the interface communicates with users, develop the structure of the application, its appearance, colors, fonts, and icons.

6. **The human-centered design methodology** is an approach to product design that always prioritizes users and their needs. It is based on empathy and strives to better understand the pain points of the target audience as much as possible.

7. **UX research** involves investigating the experience of existing or potential users of a product. It's the process of gathering information about what users need and want, how they use the product, and what difficulties they encounter during use. Among the main methods of UX research, there are «field studies» on the internet, surveys, reports and analytics from research companies, interviews, and usability testing.

8. **Surveys** involve conducting short questionnaires with potential or existing product audiences. Such research can be conducted through Google Forms, SurveyMonkey, Zoho Survey, or Typeform.

9. **Reports and analytics from research companies** are predominantly free materials from consulting firms that conduct studies on the behavior of specific population categories. In such reports, one can observe trends, habits, and changes at both global and local levels. For example, you can view research from the Baymard Institute, Nielsen, or App Annie.

10. **Interviews and usability testing** are conducted to gain a better understanding of product users. In-depth interviews allow for the best understanding of the expectations, needs, motivations, and user experience with your product. Interviews can be moderated or unmoderated. During moderated testing, the user works with the product under the guidance of the interviewer. Unmoderated tests, on the other hand, take place without the direct involvement of the interviewer—users are not instructed to perform specific actions but are simply observed interacting with the product.

Homework 3

Analyze any application or website for the presence of UX design laws and principles.

Possible analysis questions:

- ✓ Which UX design laws and principles are present in the application?
- ✓ Where, at which stage of interaction with the product, are they used (illustrate with examples, screenshots from the application/website)?
- ✓ What specific function do the mentioned UX design laws and principles perform?
- ✓ How do they influence user behavior?

- ✓ What can be added/changed/removed in the UX design of the product?
- ✓ What examples from competitive products can be provided (if any)?

Evaluation:

The maximum score for this task is 5 points.

The task is performed individually by each student.

Requirements for the presentation of the task by students:

1. Presentation up to 15 slides.
2. Only in PDF format.
3. The presentation should be structured and contain answers to the questions proposed in the task.

Criteria for assessment:

- The presentation includes the name and description of the IT product chosen by the student for analysis, as well as a link to this product.
- The student's work is structured and contains consistent answers to the questions.
- The presentation includes answers to all the questions specified in the task.
- Visual examples are provided for the described UX design laws and principles.
- It is explained how the specified UX design laws and principles in the chosen product can influence user behavior.
- Conclusions are provided.
- The presentation design complies with the requirements mentioned above.
- If additional literature or sources are used in the presentation, references to these sources are provided (they are reliable and comprehensive).

Adherence to these criteria is mandatory for assessment.

TOPIC 4. SEARCHING FOR A PRODUCT IDEA AND SOLUTION

Theoretical information

Methods for generating ideas can be divided into three types, such as brainstorming, role-playing method, and constraint method.

Let's briefly describe all these methods.

1. Brainstorming consists of the following elements (best for finding team solutions):

1. Working in a team where a group of idea generators gathers.
2. The main goal of the group is to express the maximum number of ideas.
3. 2...3 minutes are allocated to formulate each individual idea.
4. Criticism is prohibited during idea generation.

2. Role-playing method or **Walt Disney method** includes three types of characters, namely Dreamer, Realist, and Critic (for small groups or individuals):

- **The Dreamer** plays the role of a creative person, an enthusiast who offers various, even unrealistic solutions to the problem. A visual system is usually used. During individual consultations, people are asked to discard all boundaries, use their imagination, and not adhere to any conditions. The images can be fairy-tale-like, fantastical.
- **The Realist** takes a sober and pragmatic position and suggests how to structure and plan the work, determining the steps necessary to implement solutions to the problem. The Realist acts as if the dream could come true and focuses on formulating a series of sequential actions necessary to achieve the goal.
- **The Critic** tries to assess the value of ideas, finds mistakes in the proposals, and identifies weaknesses in previous suggestions. The process of critical evaluation for Disney's technique involved distancing oneself from the project and taking a more detached «second look» at the situation from the perspective of the audience or clients. The «Critic» seeks to avoid problems and guarantee quality by logically applying various levels of criteria and testing how the product functions within different «what if» scenarios.

3. The constraint method is suitable for an already developed solution, where we discard everything that could hinder the idea from being perfect and consider it from various perspectives.

Homework 4

Conduct a brainstorming session and SWOT analysis for a product idea.

Evaluation:

The maximum score for this task is 5 points.

The evaluation is joint for the team.

Checklist for evaluation:

Minimum result (1-2 points):

● Presence of one product idea, the checklist submitted late.

Optimal result (3 points):

● Submitted completed brainstorming checklist (table 4.1).

● Submitted a brief SWOT analysis of the idea, all points filled in.

Table 4.1 – A brainstorming checklist for product idea search

Step	Question	Result
1	2	3
1	The date and time of the brainstorming session.	
2	Who moderated the team brainstorming...? *Please specify the moderator and full name of the student.*	
3	Who are the team members? *Specify the full composition of the team at the time of the event.*	
4	Who attended the brainstorming session? *Please indicate which members of the team were present at the meeting.*	

Continuation of the table 4.1

1	2	3
5	The moderator outlines the goal of the brain-storming: Search for an idea for our own product in the chosen field. *The business concept that will be presented by the team at the final meeting*	
6	The moderator sets a clear deadline for the brainstorming. (Deadline by which the idea must be selected)	
7	The moderator outlines the rules of the brain-storming session and conducts the first stage. 1) The brainstorming will proceed in 3 stages: • Idea generation; • Selection; • Refinement of ideas. 2) Each team member must propose ideas in turn and has no more than 1 minute for their suggestion. 3) All participants listen attentively to each other's suggestions, refraining from criticism or interruption. 4) The moderator records each idea	(The moderator records all ideas from the first stage)
8	At the second stage, participants review the ideas and select the one that best meets the search criteria: 1) Has a sufficiently large market size. 2) Feasible for implementation and already has a certain market and target audience. 3) The participants, as a team, have advantages for implementing this particular product. (Other criteria from the module on the success of IT products)	(The moderator records which idea the participants choose)

End of the table 4.1

1	2	3
9	At the third stage, participants act as critics and advocates of the idea, work on responses to the most “dangerous questions” and risks according to the SWOT model: • Strengths of the idea; • Weaknesses; • Risks; • Opportunities	(The moderator records the SWOT analysis for the idea breakdown)
10	Optionally, if the brainstorming is conducted during a class session, then teams present their idea and its SWOT analysis to other teams at the end. • 2 minutes for the presentation; • 1 minute for questions. Participants from all team’s vote. 1 person = 1 vote of support. Condition: you cannot vote for your own team. The instructor tallies the votes and records the winner	(The moderator records how many votes of support the idea garnered from the team, and documents the voting conclusions for the team)

Good result (4 points):

Everything mentioned above, as well as:

- Recorded over 7–8 initial ideas in the checklist;
- Described criteria for choosing the final idea;
- Well-developed SWOT analysis, objective risks, and strengths of the product idea recorded;
- The team presents the product idea and answers questions (up to 2 minutes).

High result (5 points):

Everything mentioned above, as well as:

The student team won the vote of participants (voting rules are specified in the brainstorming checklist).

TOPIC 5. IT PROFESSIONS

Theoretical information

Typically, specialists in IT companies are divided into technical and non-technical categories. **Technical specialists in the product team** include QA engineers, DevOps engineers, Front-end developers, Back-end developers, Full-stack developers, Data scientists, Mobile developers, and Game developers.

1. QA engineers (Quality Assurance engineers) are specialists responsible for ensuring product quality, identifying errors, defects, and helping to improve processes. QA engineers are divided into Manual QA, Automation QA, and General QA.

1.1. Manual QA are specialists who conduct manual testing. Their task is to check the quality of the work of other specialists.

1.2. Automation QA are specialists who write scripts that automatically check if everything works as it should. Such tests are usually run on a regular basis or upon updates.

1.3. General QA are testers who can both automate tests and perform manual testing.

2. DevOps engineers (Development + Operations) are technical experts of the product team who emerged to unite everyone around a common goal – rapid bug-free product release. Their mission can be described as automating processes and creating a unified operational environment for teams.

3. Full-stack developers are specialists who can perform the work of both front-end and back-end developers. They typically do not have deep knowledge of all technologies but can independently implement certain tasks.

3.1. Front-end is the visual part of the product, including images, buttons, texts, windows on the platform. This is the responsibility of front-end developers.

3.2. Back-end is the software part of the product, which occurs on the server side and is invisible to the user (for example, correct transitions between website pages, data storage, correctness of login to the personal account, integration with payment service). This is the responsibility of back-end developers.

4. Data scientists are specialists who analyze data and «train» ML models that can identify certain types of patterns. Specifically, recognize and classify objects in images and videos, recommend products in online stores, and friends on social networks.

5. Mobile developers specialize in creating applications for different operating systems, taking into account their specifics. The most popular OS among users are Android and iOS. For each of these systems, there are dedicated developers – Android Developers and iOS Developers.

6. GameDev is a separate direction in the IT industry that focuses on game development. You may be familiar with companies like EA Games, Sony Entertainment, Blizzard, which are GameDev product companies.

6.1. Unity developer is a game developer who works with the Unity game engine.

6.2. Game artists are specialists responsible for creating all visual elements of the game (style, characters, game environment).

6.3. Game designers are specialists who are responsible for developing the game logic, rules, mechanics, and storyline.

Non-technical specialists in the product team include marketers, analysts, PR specialists, designers, lawyers, financiers, recruiters and HR managers, product and project managers.

1. A marketer in product IT is a specialist responsible for promoting the company's products or services in the market. In the IT sphere, marketers are divided into several types:

1.1. Performance marketing manager. This specialist is responsible for launching and optimizing advertising campaigns on platforms such as Facebook, Google, and others. They develop a product promotion strategy and report results that can always be measured in numbers, such as the reach of advertising publications, cost per click on a post, and the number of people who have taken the desired action.

1.2. Creative marketing manager. This specialist also uses numbers and performance metrics, but their focus is on advertising creatives. This can in-

clude visual materials such as images, videos, GIFs, and other visual content that they hand over to the Performance Marketing Manager for launch.

1.3. Affiliate marketing specialist. Affiliate Marketing involves collaborating with third parties (referred to as partners or affiliates) who bring users to the site. The affiliate marketing specialist manages affiliate programs, paying commissions or fixed amounts for predefined actions such as purchasing a product, filling out a form, or visiting specific pages.

1.4. Email marketing manager. This specialist promotes company products or services through email campaigns. They aim to stand out from other emails in the potential customer's inbox, not only getting the email opened but also leading to a purchase or other desired action.

1.5. SEO specialist. This specialist optimizes the website for search engines and understands ranking algorithms. The higher a company’s website ranks in search engines, the more people will visit it, which can be converted into profit.

2. A product analyst is responsible for finding insights in user behavior data. These insights help businesses increase revenue and optimize cost-effectiveness. Analysts in IT are divided into product analysts, data analysts, and business analysts.

2.1. Product analysts track product metrics, explore growth points, and propose hypotheses. They analyze how users interact with the product and how this interaction can be improved.

2.2. Data analysts collect, process, study, and interpret large amounts of data. They help the team make decisions objectively, based on real indicators that help the product and business grow.

2.3. Business analysts conduct market analysis, niche exploration, and identify possible ways to monetize or improve the product’s business model. They may also suggest improvements to current processes within the business.

3. A PR manager is responsible for promoting the product and the company in both domestic and international markets. They work with opinion leaders, influencers, various media resources to increase user loyalty to the brand and reach the product’s target audience. Another important function of a PR manager is to develop the employer brand.

4. **Product designer – UI/UX (or product designer)** is a specialist who designs solutions based on business needs and user problems. They are responsible for how exactly the interface communicates with users, develops the structure of the application, its appearance, colors, fonts and icons.

5. **A lawyer in product IT** is responsible for providing legal support for business operations and agreements. They review the company's activities to ensure compliance with legal requirements and policies of platforms where products are hosted. For example, such policies exist in Apple Store, Play Market, Google, and other search engines.

6. **A financier in product IT** is responsible for managing financial documentation, conducting economic analysis of the company's activities, and analyzing expenses and profits. They also participate in the automation and improvement of business processes and in organizing internal control systems to achieve business indicators.

7. **A recruiter** is a specialist responsible for finding the best specialists for a company. They build a «portrait» of the candidate, write job postings, and search on relevant platforms. In some companies, recruiters also conduct interviews and fully guide candidates through all stages of the selection process until they start working.

8. **An HR manager** is a specialist who is responsible for onboarding new candidates, as well as the professional and personal development of both the entire team and its individual members. They should be knowledgeable about processes that can motivate specialists, conduct assessments of their competencies, and cultivate corporate culture. HR managers also handle employee performance reviews and terminations, if necessary.

9. **A product manager** is a specialist who works at the intersection of business, marketing, and technology, synchronizing the work of all departments. The main goal of a product manager is to create a profitable product that meets the expectations and needs of users.

10. **Project managers** are specialists responsible for individual projects that may be implemented within the framework of the global product development strategy or its specific parts. Such projects are typically time-bound and budget-constrained, whereas a product has its lifecycle, which cannot be defined by specific time frames and deadlines.

Homework 5

On the LinkedIn platform, find specialists in the IT field in one of the directions discussed in class. Compose and write introductory messages to the specialists. Share the results with your colleagues in the next class.

What can you learn from the specialists?

1. Their career path in the IT field.
2. Guidelines for first projects, internships, and working in product IT.
3. The soft and hard skills needed for entry-level professionals in their profession.

Evaluation:

The score for this task is 5 points.

The task is performed individually by each student.

Requirements for the presentation by students:

1. Presentation up to 15 slides.
2. Only in .pdf format.
3. Time for the presentation – up to 3 minutes.
4. The presentation must be structured and contain answers to all the questions in the task.

Checklist for assessment:

- The presence of a presentation with an answer to the task.
- The presentation includes an introductory message (text or screenshot) that the student wrote to specialists on LinkedIn.
- The specialization of the person to whom the message was sent is correctly determined (the student can explain what the specialist does, whether it is a tech or non-tech direction, and which tools the chosen specialist works with).
- The student understood how to search for specialists on the LinkedIn platform (its search function), providing evidence that the student sent messages to the found specialists.

- The presentation includes a response from the specialist, providing answers to all the questions written in the task.
- The presentation design meets the requirements outlined above.
- If there were no responses from specialists in the presentation, analyzed literature and other sources are included to independently answer the questions in the task (interviews, articles, videos, podcasts).
- If additional literature or sources are used in the presentation, references to these sources are provided (they are credible and comprehensive).

Compliance with these criteria is mandatory for assessment.

TOPIC 6. CV, RESUME AND MOTIVATION LETTER

Theoretical information

6.1 CV vs resume

CV is an abbreviation of «Surriculum vitæ», which translates from Latin as «course of life». Often, it seems like it's interchangeable with a resume. However, when you delve into the actual meaning of CV, you'll see they're not quite the same.

In the Ukrainian job market, «resume» and «CV» are used interchangeably. If a job listing asks for a CV, you can confidently submit your resume. However, on international job markets like the USA or Canada, there are significant differences between a resume and a CV, and each serves its own purpose.

In regions where CV and resume are distinct concepts, a **CV** typically outlines one's academic and scholarly achievements, complemented by details of published works, awards, and honors. This format is commonly used by academics to detail their career history. However, it's not uncommon for employers hiring for non-academic positions to request a CV as well. **A resume**, on the other hand, provides a brief overview of your work experience, skills, achievements, and education. Its purpose is to give recruiters and employers a general idea of your work experience and the main functions you've performed.

The best thing you can do to simplify the recruiter's job is to create a proper and relevant structure for your CV. Mandatory sections of a CV include:

- Contact information.
- Summary about yourself.
- Education.
- Work experience.
- Skills / tools / language proficiency.

Your CV should be clear, easy to understand, and free of grammatical, orthographic, and punctuation errors.

Contact information. In a CV, it's important to include your contact information. Usually, you should provide your phone number, email address, and social media profiles. Include only those social media profiles that are relevant to

your professional activities or skills. For example, if you have a LinkedIn profile, publications on Medium, or projects on GitHub, be sure to include links to them.

Volume. Regardless of your work experience, education, and skills, your CV should fit onto 1–2 A4 pages. Recruiters won't spend their time on a CV that spans 3–4 pages with detailed descriptions of each job position.

Keywords. Digital tools and artificial intelligence are already being used in the hiring process. For example, there are already programs that filter out CVs lacking key words from the job listing. That's why it's important to use terminology specific to the field you're applying to and tailor your CV for each job vacancy. Additionally, incorporating profession- or position-specific keywords will streamline the recruiter's search within their system.

It is important that the following opportunities for improvement of your CV are identified:

- ✓ Add dates and years of study.
- ✓ Learn to place from the last to the first.
- ✓ Place the work experience from the last to the first.
- ✓ Detail the places of work (name of the company or organization).
- ✓ Modify the duties in each of the positions so that it is clearer what the person did in each of them.
- ✓ Specify the level of language proficiency.
- ✓ Add current contacts.
- ✓ Add «Skills».
- ✓ Remove MS Office, PowerPoint from the "Programs" block, add more relevant tools (relevant to experience and position).

Homework 6.1

Compose your own CV for a potential employer using the following programs: CVmaker, CV2you, Canva, and SweetCV. Familiarize yourself with their capabilities, identify the advantages and disadvantages, and draw conclusions about which program is better (table 6.1).

Table 6.1 – Conclusions on programs for creating CV

Program	Advantages	Disadvantages
CVmaker		
CV2you		
Canva		
SweetCV		

6.2 Motivation letter

A motivation letter is a document where a student expresses their interest in working for a company or participating in an educational program. In this document, it's important to explain why you are the ideal candidate. If the motivation letter is for a job application, it complements the CV and strengthens it.

Guidelines for writing the motivation letter

1. Define the purpose and describe it accurately. To achieve a result, effort must be made. What result do you want to achieve and how will the resources invested in this internship / school / job help you? Before writing the letter, **define the goal**. **Refer back to it** during the writing process and afterward. Review each sentence: does the letter truly convey what is needed according to the goal? Does this formulation specifically help achieve the goal of landing the desired position?

2. Find your arguments and «hooks». Information about previous independent work, **research, and interest in the topic** even before starting your education / work increases the chances of success. Don't write in general terms. Tell your story. It would be great if you were already interested in information about this domain on the internet and mentioned specific resources you've explored in your motivation letter.

3. Write clearly, concisely, and error-free. At first glance, the text should be appealing in its form. That's why it's important to maintain the structure of the letter: *a brief introduction, the main body, and a conclusion*. Be sure to divide the text into informative blocks – *paragraphs*. Understanding that the candidate has

taken care of the readability of the text indicates that it is indeed important to them. If you have doubts, use an online spell-checking program.

4. Call-to-action. At the end of the letter, it's worth thanking for the time spent considering the candidacy and once again emphasizing the motivation to move to the next stage of the selection process. We recommend concluding the letter with a call to action: «Thank you for the time spent reviewing my application. I look forward to hearing about my further participation in the selection process».

Homework 6.2

Write a motivation letter taking into account all the guidelines of the practical class, namely: before writing the letter, define the goal. In the letter, provide information about previous independent work, research and interest in the topic. Tell your story. The structure of the letter should have a brief introduction, the main body, and a conclusion with a call to action. The text of the letter must be divided into information blocks – paragraphs.

TOPIC 7. STARTUP PITCH DECKS FOR ATTRACTING INVESTORS

Theoretical information

7.1 Basic concepts

1. **Startup** (lit. «starts») is an innovative company in the field of information technologies, which is just starting its operation. A company ceases to be called a startup after it begins to generate stable profits and continues to grow.

2. **Business model** is a conceptual description of how a specific company makes money. It explains how the company operates, creates favorable conditions for customers, and ensures the necessary level of sales and corresponding profit.

3. **Unicorn company** is a startup company that has received a market valuation of over $1 billion.

4. **Break-even point** is a volume or level of operations at which total revenue equals total costs, i.e., it is the point of zero profit or zero losses.

5. **The startup Death Valley** is the period in the product's lifecycle when the MVP (Minimum Viable Product) has already been launched, but sales do not cover operational expenses, and obtaining new investments requires refining the business model. In the absence of profit, the startup finds itself on the brink of survival.

6. An **investor** is a legal entity or individual (Ukrainian or foreign company, state, private individual) that makes financial investments in assets and projects to generate profit. The investor operates within the framework of the country's legislation, independently choosing the direction and volume of investments, taking into account possible risks and the level of profit.

7.2 Pitch Deck

A pitch deck is a promotional presentation of a startup, usually presented to potential investors in the hope that they will see the value of the product and decide to invest their capital and resources. It should cover many aspects of the

business, the problem users face that the startup solves, the unique product you've developed, information about the market, and future prospects.

Pitch decks are divided into three types, including:

1. **Elevator pitch** is a presentation of up to 1 minute (the time it takes to ride with an investor in an elevator). It includes the problem, solution, and monetization methods.
2. **Idea pitch** is a startup presentation of up to 3 minutes. It should include: name, problem, solution, market size, business model, team, conclusions, and contacts.
3. **Funding pitch – 7–10 minutes**. It includes all the previous points plus a description of competitors, plans, information about previous work, and the amount of investment needed.

Let's consider the structure of the pitch deck presentation.

On the first slide of the pitch deck presentation, the student should describe their project in one sentence. This slide should include the following information:

- ❖ Company name.
- ❖ Brief positioning statement of the startup.

Optionally (can be provided at the end of the presentation):

- ➢ Founder's name and surname.
- ➢ Email address.
- ➢ Phone number, social media of the startup founder.

At the second stage of the pitch deck, the student should describe the problem that the product or service solves and for whom. Here you need answer the questions: Why are we here? What gap in the market does the product fill? What problem does it solve? This stage is a chance to highlight customer problems and how the product can make their lives easier and revolutionize or turn the market upside down.

At the third stage of the pitch deck, the task of the startup founder is to present how exactly their product will solve the user problem indicated on the previous slides.

Using the example of Airbnb, we show that the solution should be described clearly, concisely and structured. Thanks to the service of the founders, when renting housing, users will be able to:

- Save money while traveling.
- Earn money as a host for travelers.
- Share culture through local people.

At the fourth stage, it is necessary to show that the startup has a large market and the opportunity to develop on it. The gold standard for a venture capitalist is to get at least 5 times more income than he invested in the startup. Therefore, you have to convince the investor that you can grow at least 5 times in the next 5 years. For this, your startup must develop in a market valued at least in several billion dollars.

When describing the market, it is appropriate to show investors information about 3 markets for your product:

1. **General market**. Who would want to buy a product like this?
2. **Existing market**. Who will buy the product from any competitor in the market?
3. **Target market**. Who will actually buy this particular product? How many people can the product be sold to according to the company structure?

At the fifth stage, it is necessary to explain as briefly and easily as possible what the essence of the product is and what its functionality is.

The sixth slide is optional, for startups that already have some experience (for example, an audience survey, a prototype of a future product, etc.). If the product is completely new and there is no development, this slide can be skipped.

At the seventh stage, you need to conduct market research and find out who your competitors are and whether you can compete with them. Special applications can help, including SimilarWeb, AppMagic, Sensor Tower. In addition

to competitors, it is important to indicate competitive advantages – what differentiates the product from similar services.

At the eighth stage, the student should choose one of the business models for his/her product, as well as indicate the metrics for evaluating the success of the project for investors.

There are several types of the business models:

- Advertising (advertising on websites, banners) – paid by users and advertisers.
- Transaction commission.
- Marketplace.
- Crowdsourcing.
- Franchise.
- Subscription.
- Others.

In addition, some **metrics** should also be included during the presentation of the startup business model, as these metrics will show how we will measure the success of the product. For example, if the business works on the model of user subscriptions, investors will definitely be interested in indicators such as CRR, LTV and CAC.

- **CRR** is a *customer retention rate*, or *user retention rate* (in this case, users who pay for your product). Let's say your product has an annual subscription. 40 % of all your current subscribers will renew next year and 60 % will unsubscribe. So, your retention rate is 40 %.
- **LTV** is a *lifetime value*, or the profit that the user will bring you for the entire time of using your product.
- **CAC** is a *customer acquisition cost*, i.e. the cost of attracting a new user for your business.

In order to simplify the perception of the product for investors, during the pitch deck investors are offered to consider the business model of the startup in the Lean Canvas format (fig. 2.1). It is also one of the must-have elements of a pitch deck.

After analyzing the current market situation, it’s time to make predictions. What awaits the product? How many users could you potentially reach or, with some expansion through investment, how many people will be using the product or service in the next 2–5 years?

Potential investors want you to give them a realistic idea of what to expect in the coming years. You will also need to conduct market research and use data to avoid incorrect or inaccurate claims.

The ninth slide should be used to outline your marketing and sales plan. It is necessary to identify the key tactics that you are going to use to present the product to potential investors. Finding and attracting customers can sometimes be the biggest challenge for a startup, so it is important to demonstrate that the founders of the startup have a good understanding of how to reach their target market and which **sales channels** will be used. If the marketing and sales process differs from the competitors' processes, it is important to highlight this here. Specify how you plan to advance in the market and look for new customers.

The tenth slide. For their own pitch deck, students can search for examples of specialists they would like to attract to their team in the professional social network LinkedIn. During the defense of the pitch deck, it will be necessary to justify why such specialists were chosen. Investors look not only at the product’s indicators and metrics, but also at the team. Therefore, in the presentation it is necessary to talk about your team and emphasize the achievements of key managers.

At the eleventh stage, it is necessary to show investors what possible profit awaits the startup. The best way is to visualize the data.

At the twelfth stage, it is important to clearly show not only how much money you need from the investor, but also to demonstrate why you need it now, what goal you are pursuing, and when the investment will start to pay off for the investor.

The last slide should contain contacts such as name and contact details, i.e. mail, phone, and social networks.

There are some **tips for improving quality of your pitch:**

1. **Limit the number of slides.** There is a great rule of thumb for preparing presentations – 10/20/30 to help you make an amazing presentation. The ideal number of slides is 10, the ideal amount of presentation time is 20 minutes, and the ideal font size is 30 so that everyone in the room can see what you are talking about. The pitch takes less time, and the number of slides is up to 10.
2. **Do not overload** the slides with text.
3. Use **visualization**.
4. See what presentations and content are made by world-renowned companies. For this, it's recommended to view a site with pitch decks: https://www.pitchdeckhunt.com/
5. Provide **clear and structured information** that you believe in. Information overload can lead to investors asking questions that you can't answer.
6. Constantly **improve** your pitch deck. The truth is that all famous startups with success stories also started with pitch decks. Even Google had to approach several investors before they could get funding. Keep improving your performance and don't give up. Every «no» brings you closer to the «yes» you want to hear.

Homework 7

Conduct pitch deck for your own startup to attract investment for the project.

Evaluation:

The score for this task is 5 points.

Students can create pitch decks individually or in pairs. The assessment is shared for the team.

Requirements for the presentation by students:

1. Presentation up to 15 slides or fewer.
2. Only in .pdf format.

3. Contains all necessary slides according to the structure of pitch decks (provided below).

4. Time for the presentation – up to 3 minutes.

5. Startup ideas can relate to any field:

- e-commerce;
- edtech;
- fintech;
- media;
- mobile applications;
- travel;
- medicine;
- etc.

6. What the students' pitch deck must include?

1. **Introduction.** Brief information about the project author and the idea itself.
2. **Problem.** Information demonstrating the need for the student's product or service for users.
3. **Solution.** How the student's business solves the problem?
4. **Market size.** Calculations of the market size, information about the state of 3 types of markets: total, available, and attainable.
5. **Product.** Description and visual images of the product (a close-to-reality visualization is acceptable).
6. **Competitor analysis.** Analysis of competitors and a brief description of how the product differs from what is already on the market.
7. **Finances.** Information about the business model and growth strategy of the business.
8. **Marketing and sales strategy.** How the product will be promoted and sold in the market, including distribution channels?
9. **Team.** Expertise and ability of the management team to sell the product.
10. **Contacts.**

Checklist for assessment:

Minimum result (1–2 points):*

- The student indicated the sphere of their startup.
- There is an incomplete and unstructured presentation, with certain slides missing from the specified pitch deck structure.
- The startup’s business model in Lean Canvas format is missing.
- Sources of information are absent.
- Market and competitor analysis are not conducted.
- The audience did not understand the essence of the idea and the need for the product.
- The student exceeded the 3-minute time limit for the presentation (presentation lasted over 5 minutes).
- The student could not answer questions from other students (potential «investors»).

Optimal result (3-4 points):

- The sphere for the development of the startup is chosen.
- There is a structured presentation (2–3 slides may be missing from the specified pitch deck structure).
- The startup’s business model is chosen and presented in Lean Canvas format.
- The student did not exceed the 3-minute time limit for the presentation (but did not exceed the 5-minute limit).
- At least 1 tool for market and competitor analysis is used.
- The work includes a description of the sources referred to by the author.
- The student could answer most of the audience’s questions (potential «investors»).

High result (5 points):

- The sphere for the development of the startup is chosen.
- All requirements for the pitch deck presentation format are adhered to.

- The presentation is clear, structured, concise, and easy to understand, using principles of presentation design.
- The pitch deck structure is maintained, containing all the mentioned slides with necessary information.
- Analytical and research work is conducted to prepare for the presentation.
- The student used reliable sources as indicated in their work.
- Special tools are applied for market and competitor research.
- Lean Canvas model is available for the project.
- The student stayed within the time limit for the pitch deck presentation (up to 3 minutes).
- The presentation was confident and clear, without unnecessary information.
- The pitch deck author provided precise and clear answers to the «investors'» questions.

Additional points can be given for:

- The instructor may conduct a survey among students participating as «investors». If the majority of them vote to invest in the startup after the pitch deck, the author receives an additional 1 point.
- If a student tries to present their pitch deck in Elevator Pitch format (an oral presentation up to 1 minute). If the pitch deck is successful, and «investors» vote to invest in the project, the student can receive an additional 2 points. The Elevator Pitch does not exclude the need for preparation for a full-fledged startup pitch deck.
- An additional 1 point may be awarded to «investors» if they actively participate in colleagues' presentations and ask insightful and interesting questions to the «owners of startups».
- The student also receives an additional 1 point if, to organize their startup team, they searched on LinkedIn and found specialists whom they would genuinely like to involve in their project.

TOPIC 8. THE ALGORITHM FOR LAUNCHING A SUCCESSFUL PRODUCT

Theoretical information

An approximate algorithm for creating and developing IT product consists of the following steps:

1. Start with exploring the problem. Any successful product addresses a user need. To satisfy such a need, you first need to identify the «pain points» of your target audience. This could be anything – perhaps people constantly scan documents, but there's no mobile scanner on the market that recognizes text accurately. Or your potential users keep forgetting to exercise and stay hydrated – you could develop a product to remind them about it. Remember, consistent communication with your audience is the key to the success of your product.

2. Find a solution to the problem. The problem exists – now we need to find a solution. Think about what could help you and other users alleviate their pains and meet their needs. This is where team brainstorming sessions and meetings come into play, where you'll test different ideas and ultimately come to an understanding of the concept of your product.

3. Market research and competitive analysis. Once you've understood the core concept of your product, it's important to determine whether someone already has a similar solution or if there are more effective approaches. It's also crucial to understand if there's a demand for your product. This means researching the market, potential users, and competitors.

4. Test ideas. Create a description or prototype of a minimum viable product and test it among your potential audience. Find out if users would actually use such a product. For instance, you could conduct formal research or start by surveying potential users through social media. Gather feedback and insights – then move on to shaping a plan for developing a fully-fledged product.

5. Choose a business model. Now you need to understand how your product will make money. Look at the business models of your competitors and find out what fits best for your audience. Make sure to consider multiple options and remember that each model needs to be tested.

6. Establish goals and strategy. It's important to understand what measurable goals we will set for our product and what product and marketing strategy we will choose to achieve them. Everything should look like a clear plan – a roadmap for your product. Remember, the IT product market changes rapidly: your strategy and action plan must be flexible.

7. Develop a product development plan. Once you've understood your goal and developed a strategy, it's time to move on to forming the development plan for the product itself. Answer these questions: what is needed for the technical implementation of your product, how many people, time, and resources are required, who is in the team and how they will work on it, what approach to planning work you will choose.

Homework 8. Final certification task for the student team

1. Present to the tutor the concept of your own product in the chosen field (using the Lean Canvas model).
2. Outline the launch algorithm for your own IT product.

Evaluation:

The score for this task is 20 points.

Questions for student preparation:

- ✓ What is the idea of your product? What problem are you solving?
- ✓ How does your product solve the identified problem?
- ✓ Conduct basic market research:
  - ✓ Who is the target audience?
  - ✓ How many people need your product?
  - ✓ Who will be the users? How are they currently addressing the problem?
  - ✓ Are there competitors for your product? Who are they?
  - ✓ Are there demanded analogs of the product?
  - ✓ What is the value of your product? What does it provide to users that competitor products do not?

✓ Check if the product is interesting to your audience. Are there people ready to use the product now?

✓ Determine the monetization model and business model: how will the product generate revenue? What will users pay for?

✓ How will you measure the success of your product? How will you achieve defined success?

✓ What will be your North Star metric?

✓ What specialists will be needed for product development? What will be your MVP (Minimum Viable Product)?

✓ How do you plan to promote the product? How will potential users learn about your product? What marketing channels will you use?

✓ How will you collect feedback and work with user feedback to improve the product?

✓ What is your vision for the product's development and scaling?

Formatting of the certification work presentation:

➢ Any tool can be used for preparing the presentation.

➢ Structured, clear presentation of information. Verifiability of information.

➢ Presence of a list of used sources.

➢ Presence of tables, additional files, diagrams, and graphs to support arguments.

➢ No more than 20 slides in one presentation.

Checklist for evaluation:

- Presence of a presentation. The presentation is made in accordance with the above requirements.
- Use of course terminology.
- Description of the product's value.
- Description of the key functionality of the product (MVP elaborated).
- Market analysis conducted (market size, key market metrics, and dy-

namics).

- Specified pains that the product addresses (the problem it solves) and how.
- Description of the product’s competitive advantage.
- Definition of the target audience.
- Identification of main competitors and their competitive advantages.
- Definition of the North Star metric for the product.
- Proposed and evaluated key product metrics.
- Application of tools discussed in the course.
- Presence of graphs, diagrams to support arguments.
- Indication of main marketing channels (how the product attracts users).
- Developed business model for the product (monetization).
- Presence of conclusions, argumentation.
- Distribution of roles in the product team.

Additional points may be awarded for:

✓ Development of the product layout.

✓ Creation of creatives for product promotion.

✓ Development of a working or semi-working MVP of the product.

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