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Teach-BE(A)ST Approach

Manual for University Teachers

From Knowledge Providers to Students' Mentors

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Introduction

Welcome to the manual on transforming university teachers from mere knowledge providers to students' mentors, who recognize the significance of fostering skills and knowledge development in students and provide a connection between subject-matter content, students interests and job market requirements.

In today's changing world, it is imperative for educational institutions to adapt their teaching approaches to meet the evolving needs of students and rapidly changing requirements of the job market. While traditional lecturing methods have their merits, a paradigm shift toward a mentorship-based approach can greatly enhance the educational experience, empowering students to become lifelong learners equipped with essential skills.

This manual aims to provide university educators with practical insights, strategies, and tools to transform their instructional practices into mentorship models that prioritize both knowledge acquisition and skill development. By embracing this shift, teachers can better guide their students through the learning journey, fostering adaptability – skills that are highly sought after in the modern workforce.

One powerful tool that can aid in this transformation is the *Personal Business Model Canvas*. Derived from the popular Business Model Canvas used in the entrepreneurial world, the Personal Business Model Canvas allows educators to introspect and design their own teaching approach. It provides a structured framework to identify key elements, articulate goals, validate subject-matter content of classes and align teaching practices with the desired outcomes of skill and knowledge development.

As the landscape of higher education continues to evolve, the role of university teachers must adapt accordingly. By transforming into mentors who prioritize skill and knowledge development, educators can better equip students for the challenges of the future. This manual serves as a roadmap for this transformation, offering practical guidance and insights to help university teachers become mentors who inspire, guide, and empower students to excel in their academic journey and beyond.

This manual is structured into three distinct sections, each designed to empower teachers with the insights and tools necessary for integrating the PBMC into educational and career development strategies:

- *Business Model Mindset & Personal Business Model Canvas.* This foundational section delves into the essence of the PBMC technique, providing a clear guide on its application in translating various occupations into tangible work models. It further explores the transformative potential of PBMC, highlighting its capacity to evolve educational processes into endeavors that are closely aligned with job market demands.

- *Designing Study Program with PBMC.* Here, we illustrate the practical use of PBMC in crafting study programs that are not only academically rigorous but also finely tuned to meet the needs of the job market. This segment equips educators and program designers with a strategic framework for developing curricula that genuinely support students' career aspirations.
- *Designing Course Subject Matter Content with PBMC.* The final section focuses on the alignment of course content with the learning outcomes that are directly linked to job market requirements. It presents a suite of activities and approaches that educators can employ to ensure that the material taught is both relevant and effective in equipping students with the skills and knowledge demanded by employers.

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Business Model Mindset
&
Personal Business Model Canvas

What is a business model mindset in the context of teaching and learning?

In the realm of education, the concept of a business model mindset transforms our traditional understanding of teaching and learning. This mindset urges educators and students to view education through the lens of value creation, sustainability, and strategic planning, similar to the components of a successful business model. At its core, it's about seeing the educational process as a dynamic, evolving system where every decision and action is aimed at creating value proposition and delivering value.

Central to this mindset is the idea of value creation, not just in academic knowledge but also in skills and personal growth. It's about nurturing students to become well-rounded individuals, equipped with the competencies necessary to thrive in VUCA world. This approach supports a learner-centric model, where educational experiences are tailored to meet the diverse needs, interests, and future goals of each student. It moves away from a one-size-fits-all approach, instead fostering an environment where teaching methods, curriculum design, and student engagement strategies are continuously re-evaluated and aligned with the end goal of maximizing student potential and success.

From this perspective, teaching is not just a transfer of knowledge but a strategic process. Educators are called to innovate in their teaching methodology by adopting methods like project-based learning and experiential learning that mirror real-world scenarios. This approach prepares students not just academically, but also for the practical challenges they will face in their careers and personal lives.

From a learning perspective, this mindset encourages students to take an active role in their education, treating it more like a personal development project. This involves a shift in focus towards developing transferable skills such as critical thinking, problem-solving, and adaptability. It also encourages students to think about their personal brand, akin to how products or services are positioned in a business model. This aspect of personal branding is crucial as it helps students understand and articulate their unique value proposition in the job market and beyond.

Moreover, a business model mindset in education promotes sustainability. It pushes for the development of learning practices that can stand the test of time and adapt to the evolving educational landscape. This includes integrating new technologies, educational methods, and responding to the changing needs of students and the job market.

The benefits of adopting a business model mindset in education are manifold. It leads to heightened engagement and motivation among students, better preparing them for

a rapidly changing job market and society. It also ensures a holistic approach to education, catering not just to intellectual development but also emotional and social growth.

The business model mindset in teaching and learning is about re-envisioning education as a strategic, value-creating process driven by awareness of subject-matter content job market importance. It encourages educators to adopt innovative, forward-thinking approaches in their teaching and compels students to be active, strategic participants in their learning journey. This mindset fosters an environment where education is not just about acquiring knowledge but about building a strong foundation for lifelong success and fulfillment.

Personal Business Model Canvas technique – What is it?

The *Personal Business Model Canvas* (PBMC) is a strategic tool initially designed to help individuals understand and articulate their unique value in the professional world. Derived from the Business Model Canvas used by companies, the PBMC shifts the focus to the individual, encouraging a *structured* and *reflective* approach to personal and career development.

In the context of this manual the technique is used in an innovative way in new areas of application such as designing the study program for major/specialization and planning content for subjects – from job market requirements through learning outcomes to topics. According to assumptions taken, using Personal Business Model of specific occupations, so called work model, related with graduate profiles may significantly improve graduates employability and marketability.

9 Building Blocks of PBMC

At its heart, the PBMC is a visual chart sometimes called one-page technique with elements describing several aspects of the job position/occupation context. It includes such elements as value proposition (*How you help?*), customers (*Who you help?*), channels of reaching out to customers (*How you deliver?*), customer relationships (*Roles, interactions*), revenue streams (*Compensation and rewards*), key resources (*Who are you?*), key activities (*What you do?*), key partnerships (*Who helps you?*), and cost structure (*Costs and consequences*). Each of these elements plays a crucial role in defining and understanding one's professional journey and aspirations as well as specific occupations maps this way.

Every segment in Personal Business Model Canvas has its meaning that is related to the modeling perspective taken. If we take a perspective of mapping specific occupation then we have the following interpretation of segments:

- Value Proposition (*How you help?*). What are the *benefits to customers* related to unique skills, strengths, or services does the individual offer? This component reflects the *value added* connected with unique talents and abilities needed for specific occupation.
- Customer Segments (*Who you help?*). Who will benefit from the activities carried out by a person on occupation?
- Channels (*How you deliver?*). How will the work results be delivered?
- Customer Relationships (*Roles, interactions*). How does the person at a specific job position interacts with his internal/external clients/customers? What are typical roles taken?
- Revenue Streams (*Compensation and rewards*). What are the expected sources of income/benefits?
- Key Resources (*Who are you?*). What key resources are needed on specific occupation to carry out the key activities and deliver value proposition? This includes education, skills, abilities, knowledge areas, values, character traits etc.
- Key Activities (*What you do?*). What key activities must the individual in a specific job position engage in to create value?
- Key Partnerships (*Who helps you?*). Who are the key partners or mentors that can help in reaching the goals, creating value proposition?
- Cost Structure (*Costs and consequences*). What are the costs involved in working on a specific occupation? This includes both tangible costs like education and development, and intangible costs like time and effort.

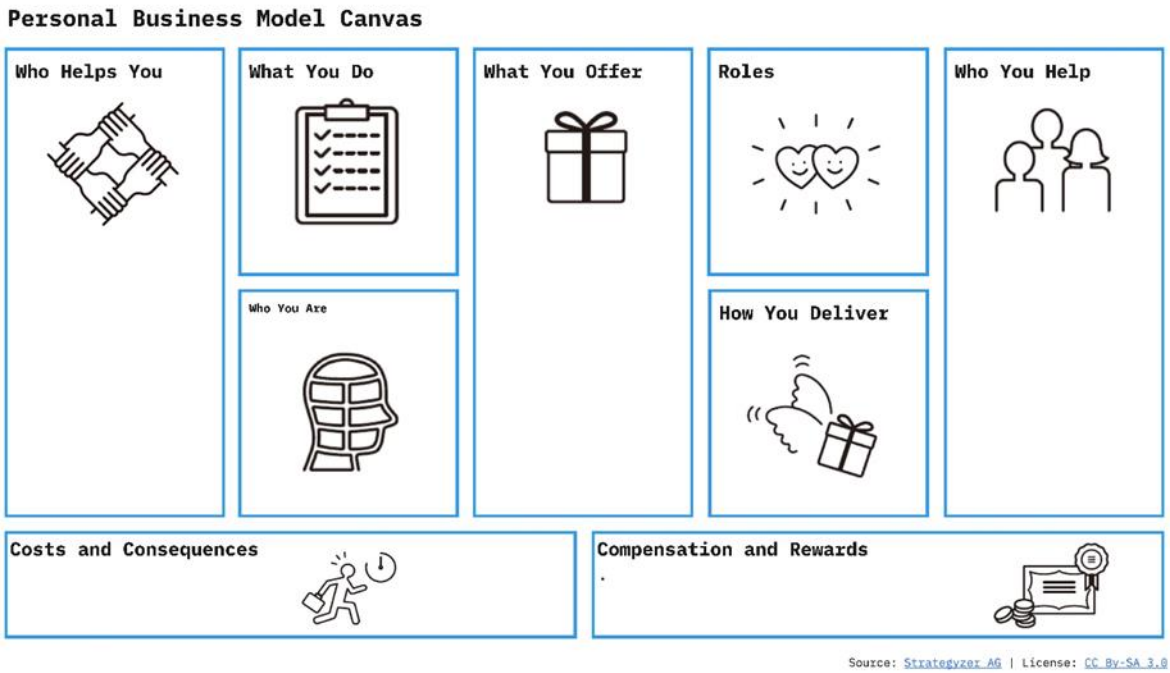

Figure 1. Personal Business Model Canvas

The PBMC is not just a static document; it is a dynamic tool meant for regular review and updates. When job market requirements for specific occupation change, so too should its PBMC (work model). It serves as a guide for constant development and revisions, helping coordinators/teachers to strategically plan and re-plan the scope and content of study programs/subjects and align them with current job market requirements.

Using the PBMC, teachers can help students to gain a clearer and deeper understanding of their *professional trajectory*, identify *areas for growth and development*, and articulate their *personal brand* in the job market. It encourages a proactive approach to career development, making individuals more adept at navigating the complex and ever-changing professional landscape. In the context of this manual, teachers and coordinators may build the foundation for preparing learning outcomes for study programs and subjects.

In essence, the Personal Business Model Canvas is a powerful framework for anyone looking to strategically manage and advance students' educational path and career design during their studies. It helps in creating a detailed map of learning journey during university and counsel students with a more focused and purposeful approach to development and personal branding.

Personal Business Model Canvas technique – possible applications in education

The Personal Business Model Canvas (PBMC) offers a strategic and innovative approach for university teaching staff and management staff, such as vice-deans/programs coordinators in designing classes and study programs. This approach may be particularly beneficial in aligning educational offerings with the actual requirements of the labor market, ensuring a more relevant and effective education for students. It can also be used in students counseling process. This manual takes into account two perspectives of application. Here's an overview of how the PBMC can be applied to achieve benefits in these areas.

Finding Better Fit Between Class Content and Market Requirements

- ***Validating Class Content.*** By developing/analyzing a PBMC for occupations relevant to specific classes, educators can validate the content and scope of their courses. This ensures that the knowledge and skills taught are directly applicable to the job market, making the education more practical and market-oriented.
- ***Alignment with Job Market Needs***. The PBMC helps in identifying the specific areas of knowledge and skills that are in demand in the job market. By aligning class content with these areas, educators can ensure that the education provided is not only academically rigorous but also highly relevant to current and future job opportunities.

Assessing the Job Market Value of Teaching Material

- ***Market Value of Course Content.*** Creating PBMCs for job positions related to specific subjects allows educators to assess the market value of their teaching materials. Understanding what the market values in terms of skills and knowledge can guide educators in enhancing the form and content of their classes.
- ***Improvement of Educational Offerings***. With insights from the PBMC, educators can refine their teaching materials and methods to ensure they are not only informative but also provide the students with the resources they need to be successful in the job market. This could involve updating course materials, incorporating new teaching methods, and introducing real-world examples and case studies. It can also be used as a starting point for ideating new majors that are related to changing requirements of job market.

Enhancing an Understanding of Student Needs

- ***Personal Resources and Professional Identity***. Using the PBMC in relation to different occupations, educators can better understand the skills and knowledge students need to develop. This involves providing students with PBMCs related to potential career paths and seeking their feedback on the quality of tutoring and educational materials.
- ***Dynamic Personalization of Class Content***. Based on feedback and the identified skills and knowledge improvements in students, educators can dynamically tailor class content to meet the specific needs of the group. This approach acknowledges and supports the diverse professional identities of students, requiring a flexible template design for subjects.

Counseling Students during classes

- ***Developing Students awareness with regard to their Professional Identity.*** When students gain deep understanding with regard to possible occupations they can select after graduation, they can confront their imagination about requirements and work context with real characteristics of occupations developed with PBMC. It helps to develop an awareness and check if dream job position really resonates with student's interests and passions.
- ***Individualization of learning path and development of learning strategies.*** Analysis of PBMC enables to understand requirements related to specific occupation student considers as an integral part of his/her professional career. It may significantly help students with preparing *learning vision* with regard to development of specific skills and knowledge areas. Having the reference model in the form of PBMC helps students in identification of skills/knowledge

gaps and planning how to reduce them during university period. This will enable students to better meet job market requirements and improve their marketability/employability and maintain strong connection with individuals' interests and passions.

In conclusion, the application of the PBMC in the design of classes and study programs provides a structured and practical approach for educators to align their teaching with the needs of the job market and the aspirations of their students. This method ensures that the educational experience is relevant, adaptable, and directly contributes to the development of the skills and knowledge that students require to succeed in their chosen careers.

Personal Business Model Canvas technique – how to develop?

If the university has well developed *job market – driven culture* and implemented, at least partially, BE(A)ST approach, there should be at the university a role responsible for PBMC development for current occupations related to major's graduates profiles. This may be Vice-Dean responsible for major or staff member who is a program coordinator (different universities have different organization of roles). In that case university teachers will have an access to ready to use PBMCs. However it will be very beneficial to every university teacher if he/she will develop PBMC for specific occupations connected with graduate profiles and current needs of groups of students he/she is teaching.

Therefore ***this section may be used as a manual for development PBMC from scratch by every teacher who would like to better understand current market requirements related to subject he/she is responsible for.*** It could also be a case that students think that they know and are initially surewhat occupations they are interested in. Process of PBMC development is presented on Figure 2.

Collect information. This stage can be done through gathering information from the following sources:

- **Job Advertisements.** Analyze local and national job ads for insights on industry demands, salary trends, and employers expectations.
- **Scholarly Research.** Review academic articles and industry reports for broader employment trends and skills requirements.
- **Employer Websites**. Visit websites of leading employers in relevant industries to understand desired attributes and skills for selected occupation.
- **Local Labor Offices**. Utilize data from labor offices to grasp the local employment landscape and opportunities.
- **Graduate Outcomes Reports.** Study the economic success of alumni to identify the strengths and gaps.
- **Social Media & Forums**. Engage with discussions on platforms like LinkedIn to stay updated on industry standards and job market needs.

- **Statistical Data**. Consult statistical reports for a macro view on employment rates, sectoral salaries, and emerging job categories.

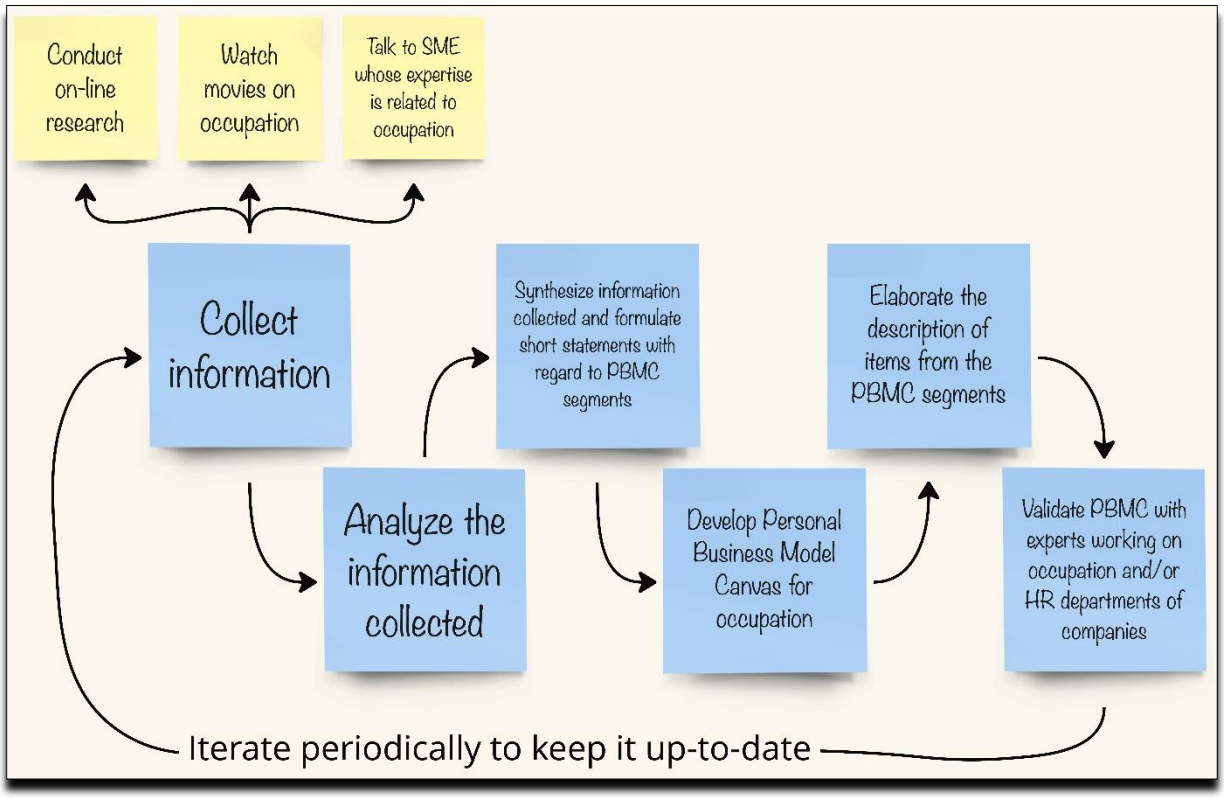

Figure 2. PBMC Development Process

Another valuable source of information may be short movies published on YouTube platform and concerning specific occupation(s) (e.g. *day in life of [occupation name]*). **Watching such movies** can offer realistic insights and visual experiences related to the occupation/job roles. It allows viewers to observe the daily routines, challenges, and work environments of professionals, providing a deeper understanding of the occupation's demands and skills required. Additionally, documentaries or career-focused content can highlight industry trends, technological advancements, and personal testimonials, enriching one's knowledge and potentially inspiring career exploration or development in that field.

Talking with Subject Matter Experts (SMEs) from a specific domain provides in-depth, firsthand insights into an occupation, bridging the gap between theoretical knowledge and practical experience. SMEs can share detailed information about the day-to-day tasks, challenges, and skills required in the profession, offering a nuanced perspective that is often not available through traditional educational materials. This interaction also allows for personalized advice and mentorship, helping individuals to tailor their learning and career paths effectively based on expert guidance from the field.

Analyze the information collected. Analyzing collected information involves synthesizing data from diverse sources to create a comprehensive view of an occupation. This process might include comparing job market trends from statistical reports with insights gained from job advertisements, assessing skill requirements mentioned across different platforms, and correlating these findings with the educational outcomes of graduates. By cross-referencing the data, patterns and discrepancies can be identified, leading to a deeper understanding of the occupation's current demand, future prospects, and the specific competencies required for success in the field.

Synthesize information collected and formulate short statements with regard to PBMC segments. Synthesizing information for a PBMC involves integrating insights across its segments. For Key Activities, this might mean identifying core tasks from job ads and SME discussions. Key Resources and Partners could be delineated from industry reports and employer websites, highlighting essential tools and collaborations. Value Propositions emerge by correlating skills and competencies with market demands. Customer Segments are defined through analysis of target audiences from social media and labor office data. Channels and Customer Relationships are deduced from communication methods and interaction styles observed. Cost Structure and Revenue Streams are informed by salary data and economic reports, providing a financial perspective on the occupation as well as insights collected from SMEs and movies. This synthesis offers a comprehensive PBMC reflecting the occupation's landscape. Synthesis of information collected should be done from the perspective off all segments of PBMC.

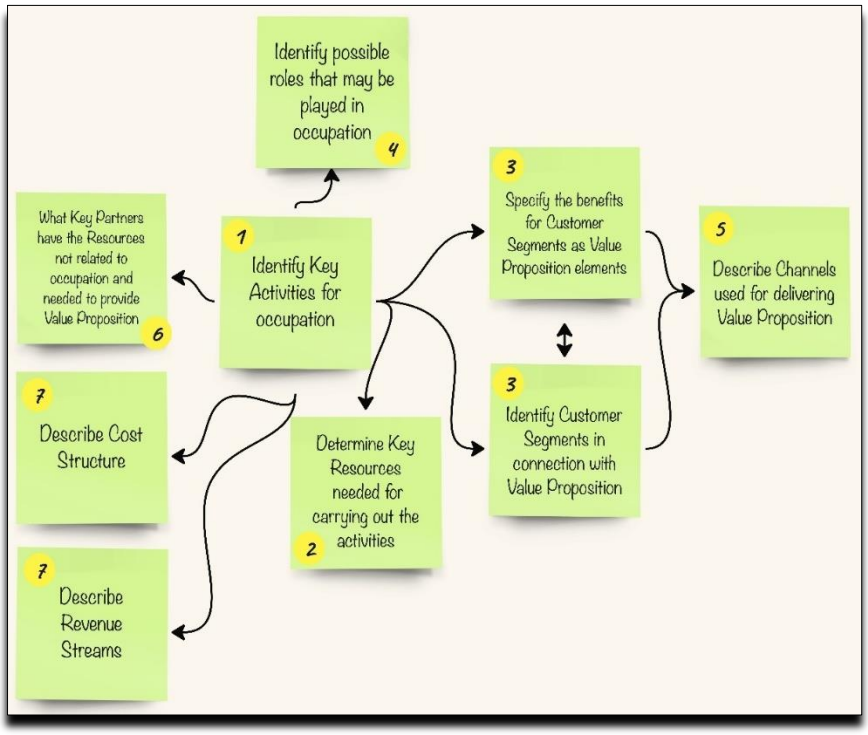

Figure 3. The process of developing PBMC for occupation

When developing PBMC, specific order of the activities may be helpful. Therefore it is valuable to start with *Key Activities* segment. In the next step identification of *Key Resources* may done in such areas as skills, abilities, knowledge areas, values, character traits etc. After Key Activities are completed it is easier to specify main elements of *Value Proposition* segment in connection with *Customer Segments*. This will answer the question *"Who receives what benefits?"*. Then typical roles played (*Customer Relationships*) in specific occupation may be identified and *Channels* used to deliver the work results. In case specific activities require the support from another occupation, *Partners* segment may be filled in with specific roles names that help. The final segments are *Cost Structure* and *Revenue Streams*. It is important to remember that these segments are related not only to financial issues but also intangible – time, energy, flexibility, stress, self-development etc.

All the elements that finally will be put on PBMC in segments should be formulated as the short statements, as self-describing as possible. *Figure 4* presents example of PBMC developed for *Digital Transformation Leader* occupation.

Elaborate the description of items from the PBMC segments. After "big picture" of specific occupation is developed in the form of PBMC, the description of the items from segments should be elaborated. It can be done based on information collected (*stage 1*). The special focus should be put on *Key Resources* and *Key Activities* segments as they could be the foundation for formulating *Learning Outcomes*, selection of subjects when planning the major and/or subject-matter content for courses. Of course, well balanced description of other segments is also important for understanding of occupation's ecosystem.

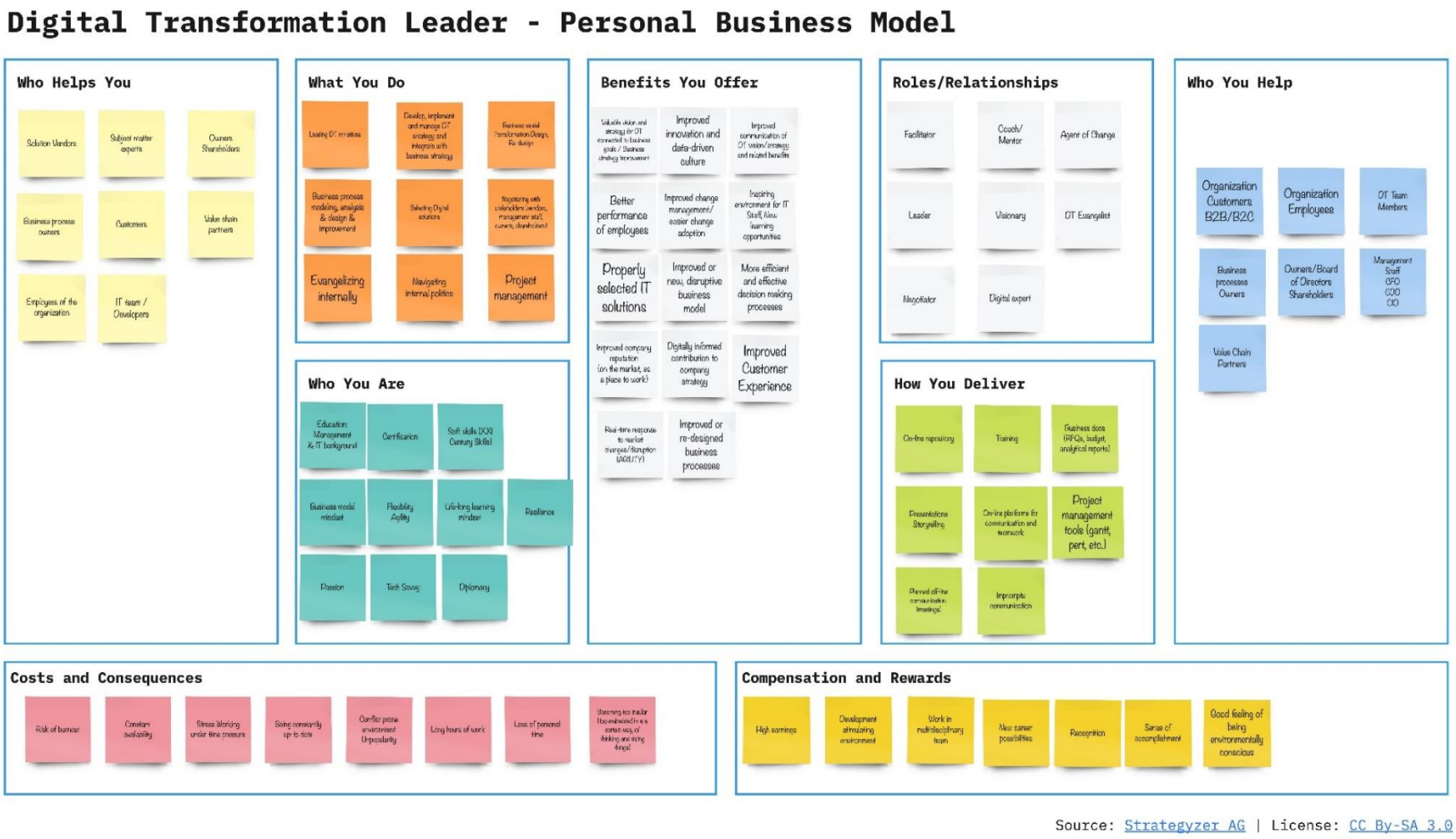

Figure 4. Personal Business Model Canvas for Digital Transformation Leader. Source: [*e-Conomy Leaders. Agents of Digital Transformation Project*]

To view and zoom click here: https://bit.ly/3TmKHCa

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Designing Study Program with PBMC

Designing Study Program for Major

Introduction

As designing study programs is very demanding activity, most universities have their own procedures and processes that have been tested and are constantly being improved. Therefore, the content of this section should be treated as a "plug-in" to existing practices that enables to make more job market oriented decisions with regard to program scope and content.

The team preparing the study program and learning outcomes should be composed of experts who have:

- in-depth knowledge of the subject area related to the program being developed,
- experience in designing curricula,
- analytical and research skills to enable in-depth analysis of the information collected,
- project management skills to ensure proper coordination of the team's work,
- communication skills to communicate the results of the work to all stakeholders,
- ability to involve and collaborate with external stakeholders in the review of curricula and learning outcomes,
- the ability to work collaboratively as part of a team, appreciate different perspectives and contribute effectively to common goals.
- knowledge of legislation and accreditation.

To better understand of how study program design process may be improved with the use of PBMC, the running case story on study program development for *Digital Transformation major* is presented.

Case Story

Digital Transformation involves integrating digital technology into all areas of a business, fundamentally changing how it operates and delivers value to customers. It's not just about adopting new technology but also about driving innovation, improving efficiency, and creating new business models. Skills related to digital transformation are crucial today as they enable organizations to remain competitive, responsive to consumer demands, and capable of leveraging technological advancements for improved performance and new opportunities in an ever-evolving digital landscape. The analysis of job market occupations with highest demand has shown that *Digital Transformation Leader* is a key role in almost every modern organization that would like to gain and sustain competitive advantage. Therefore, the university has decided to design study program for this major. Apart from standard activities usually done in such initiative PBMC has been used to provide job market requirements-oriented insights and

better informed decisions on learning outcomes and courses included in the study program. The application of PBMC to the process of developing study program has been shown on Figure 5.

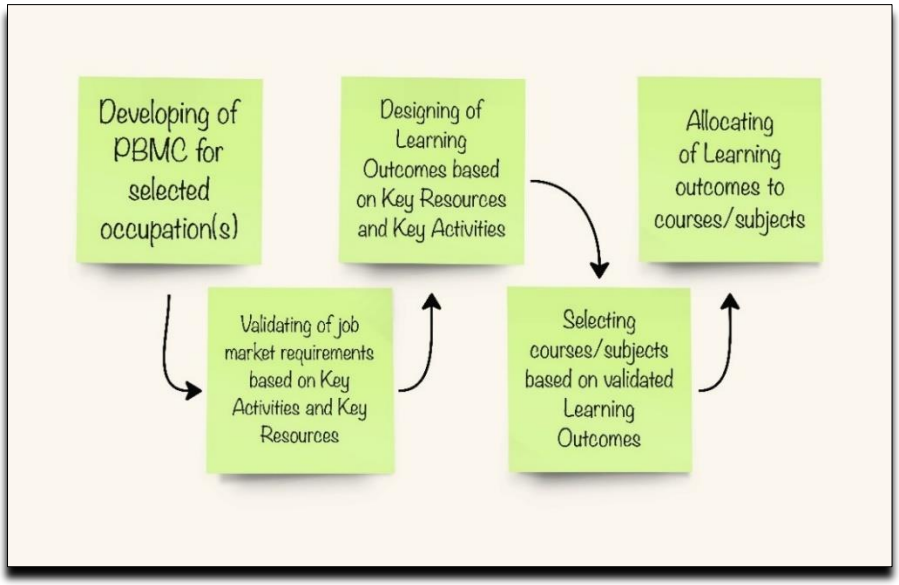

Figure 5. Process of applying PBMC to designing study program

Developing of PBMC for selected occupations. Usually, when the new major is planned, in the first step, university staff members (Deans, Vice-Deans) are preparing the graduate profile. It may relate to one or more occupations the graduates can work in. To have comprehensive view of job market requirements, for selected occupation(s) PBMC should be developed (see section on *PBMC – how to develop?*). PBMC for *Digital Transformation Leader* occupation is presented in *Appendix 1*.

Validating of job market requirements based on *Key Activities* and *Key Resources*. Having fully developed PBMC(s) for selected occupation the job market requirements have to be validated. The main question is "*Are all Key Activities related to occupations connected with graduate profile covered by Key Resources?*". To prepare the foundation for designing *Learning Outcomes*, *Key Resources* identified and described in the PBMC should be divided into three categories: *abilities*, *skills* and *knowledge*. Finally, the gap analysis can be done to check if all *Key Activities* have corresponding *Key Resources*. The validation may be supported by *Gap Analysis Matrix* (the template of *Gap Analysis Matrix* is provided in Appendix 2). The Gap Analysis Matrix developed for Digital Transformation Leader major is presented on Figure 6.

	Abilities and skills												Knowledge														
Key Personal Resources / **Key Activities**	Problem-solving	Critical thinking	Analitical skills	Teamwork	Leadership	Life-long learning mindset	Agility	Comunication	Resilience	Open mindness	Passion	Diplomacy	Digital technologies	Digital product and service	Human capital management	Innovative business models	Financial basics	Change management	Project management	Data management	Data analysis	Data visualization	Artificial intelligence and machine learning	Programming	Infrastructure&Enterprise architecture	Visual modelling
Leading DT initiatives	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Business process modeling		x	x							x												x					x
Business process analysis			x					x		x											x						x
Business process improvement	x	x	x							x			x			x		x									x
DT strategy development	x	x	x	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x		x	x	x	x	x	x	
DT strategy implemantation				x	x			x	x		x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x
DT strategy management			x	x	x	x	x	x	x	x		x			x				x	x	x	x					
Business model design, re-design, transformation	x	x	x	x			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x	x
Selecting IT solutions	x	x	x		x		x			x		x	x	x			x			x	x		x	x	x		
Managing projects	x	x	x	x	x		x	x	x	x	x	x			x		x	x	x	x	x	x				x	
Negotiating with stakeholders	x	x		x	x		x	x	x	x	x	x			x		x	x				x					
Evangelizing internally				x	x			x		x	x	x	x		x	x		x				x					x
Navigating internal politics/policies				x	x			x		x	x	x	x		x	x		x			x	x					x

Figure 6. Gap Analysis Matrix for validation of job market requirements

Designing of *Learning Outcomes* based on *Key Resources* and *Key Activities*. Undoubtedly, the biggest challenge when building an educational program is the proper definition of learning outcomes, broken down into knowledge, skills and social competence outcomes. In PBMC, Key Resources are grouped into three categories: Abilities, Skills and Knowledge, what facilitates the creation of learning outcomes. *Key Resources - Abilities* are the basis for outcomes in the area of social competence (which will be implemented at a later stage both in a major-related courses and through dedicated all-university courses), *Key Resources - Skills* will be the basis for outcomes in the area of skills along with a list of tasks from the *Key Activities* PBMC, while *Key Resources - Knowledge* will be the starting point for the development of a list of knowledge outcomes. Care should be taken to balance the number of individual effects and the appropriate level of granularity. It is unacceptable that effects of one type are described in very detailed manner and another categories in a very general way.

In this step *Gap Analysis Matrix* can also be used for validation purposes, where in rows there are *Learning Outcomes* listed and in columns *Key Resources*.

Selecting courses/subjects based on validated Learning Outcomes. Learning outcomes are essential in guiding the selection of subjects and courses when developing a new study program, as they ensure alignment with the program's educational goals and focus on equipping students with specific competencies. By emphasizing what students are expected to learn and achieve, these outcomes facilitate a coherent and progressive curriculum that meets stakeholder expectations, including those of employers and accrediting bodies. Moreover, they offer a clear framework for student assessment and curriculum evaluation, allowing for adaptability to industry changes and enhancing student motivation by making learning objectives clear and relevant.

Thus, learning outcomes play a crucial role in shaping a curriculum that is both effective and responsive to the needs of students and the broader field. *Learning outcomes* that have been drawn from the set of *Key Resources* specified for selected occupations ensure that students will be well prepared according to current job market requirements.

At first, focus is on *major-related courses*, which are the essence of the newly created curriculum. Excessive fragmentation of subjects should be avoided, as it can hinder the in-depth acquisition of competencies crucial in the labor market and impede the subsequent allocation of learning outcomes. The study program that is being created contains also basic subjects and *all-university courses*. They result from the requirements of the study programs, e.g. apprenticeship, foreign language, physical education (in the case of all-university courses). Basic subjects, on the other hand, are necessary for proper understanding of specialized subjects (e.g., mathematics, computer science). Both types of subjects are linked to the Abilities and skills elements of *Key Resources*.

The Gap Analysis Matrix with list of subjects and *Key Resources* developed for *Digital Transformation Leader* major is presented on Figure 7.

Key Personal Resources / Subjects	Digital technologies	Design digital products and services	Human capital management	Innovative business models	Financial basics	Change management	Project management	Data management&Data analysis	Visual modelling	Data visualization	Artificial intelligence and machine learning	Programming	Infrastructure & Enterprise architecture
Change Management			X	X	X	X							
Project Management			X		X		X						X
Startegic Management			X	X	X								
Business Process Management		X	X	X					X				
Introduction to Digital Technologies	X										X	X	X
Business Negotiations			X										
Digital Marketing	X	X		X	X			X		X	X		
Leadership Communication + Entrepreneurial Mindset			X	X									
Cybersecurity	X			X	X			X			X		X
Business Analytics	X							X	X	X	X	X	
Introduction to Digital Transformation	X	X			X						X	X	
User Experience	X	X		X				X	X	X	X		
Innovation Management + Entrepreneurial Mindset		X	X	X				X	X		X		
Blockchain Management	X			X	X								
Management Information Systems	X			X				X		X			X
Sustainability & Social Responsibility		X	X	X							X		

Figure 7. Subjects-Personal Resources Matrix

Allocating of Learning outcomes to courses/subjects. The final step is to allocate Learning Outcomes to courses/subjects. The main goal is to ensure that all *Learning Outcomes* will be developed during subjects/courses that have been planned.

This process is carried out taking into account the matrix developed earlier (Subjects-Personal Resources Matrix) and using the knowledge of the SMEs. The sum of the "ones" in the vertical will tell the number of learning outcomes per subject, while in the horizontal, it will tell the number of subjects in which a particular outcome is realized. Careful attention should be paid to the number of learning outcomes delivered in a single subject. Too high number of learning outcomes will cause difficulties in the future assessment of students, while too low number will mean that the student may not acquire the necessary competences.

The excerpt from *Digital Transformation Leader* study program in this area is presented on Figure 8.

Professional title awarded to graduates: Bachelor's degree
Field of study: MANAGEMENT (ENG)
Major: Digital Transformation Leader
Education profile: Practical
Type of study: Full time

Students admitted in the academic year: 2024/2025

	Major related learning outcomes	Disci pline	All-University Courses								Basic Courses								Major-Related Courses														
Symbol	Content	Management Sciences	English language	Intercultural Communication	Digital Safety and Awarness	Personal Business Model	Academic writing skills	Health and Safety while studyi	Health Education in Lifestyle E	Physical education	Mathematics	Statistical Methods in Management	Operational Research	Microeconomics	Foundamentals of Macroecono	Law	Fundamentals of Management	Fundamentals of Finance	Entrepreneurship in practice	Introduction to Digital Transfor	Introduction to Digital Technol	Change Management	Sustainability & Social Respon	Business Analytics	Management Information Syste	Digital Marketing	Business Negotiations	Business Process Management	User Experience	Project Management	Innovation Management	Leadership Communication	Cybersecurity	Number of modules implementing the effect
	ECTS Points																																
K_W01	has a basic knowledge on the importance of digital transformation in the system of sciences and of its subject-methodological relations with other scientific disciplines; knows the practical applications of this knowledge in professional activity													1	1	1	1	1		1													6
K_W02	has knowledge of the origins and development of management science, understands its place in the system of sciences																1	1	1														3
K_W03	comprehends the fundamental concepts, theories, and models of digital transformation																		1	1	1							1	1				5
K_W04	knows the meanings of concepts explaining the functioning of the economy in the area of digital transformation, understands the motives behind the behaviour of customers and other market actors and describes the causes, course, scale and consequences of market changes													1	1				1	1						1			1				6
K_W05	is familiar with the basic legal regulations concerning the functioning of economic entities and various forms of entrepreneurship															1			1													1	3
K_W06	recognizes the value of effective leadership communication in aspects of digital transformation (change management, negotiations), their regularities and mechanisms of			1	1												1		1			1				1					1		7
	understands the principles of data analytics, business intelligence and importance of data-																																

Figure 8. Allocation of Learning Outcomes to courses for Digital Transformation Leader program

Preparation of the study program final version. This step involves considering the developed list of subjects, the list of learning outcomes, the required number of hours for subjects mandated by state regulations (including work placements), the total instructional hours available for the program, and the duration of the program. Learning outcomes related to knowledge are typically addressed through lectures and recitation classes, while skill-based outcomes are targeted in laboratories and workshops. Social competences are integral to all subjects within the program, although if specifically addressed in a standalone subject, they should be taught through workshop sessions

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Designing Course Subject Matter Content with PBMC

Designing Subject Matter Content

Introduction

Designing course subject matter content using a Personal Business Model Canvas, can be an effective way to align the educational goals for the course (subject) with the needs and expectations of a specific job position(s). The section presents the process of designing subject-matter content regarding current market requirements concerning the occupations related to major.

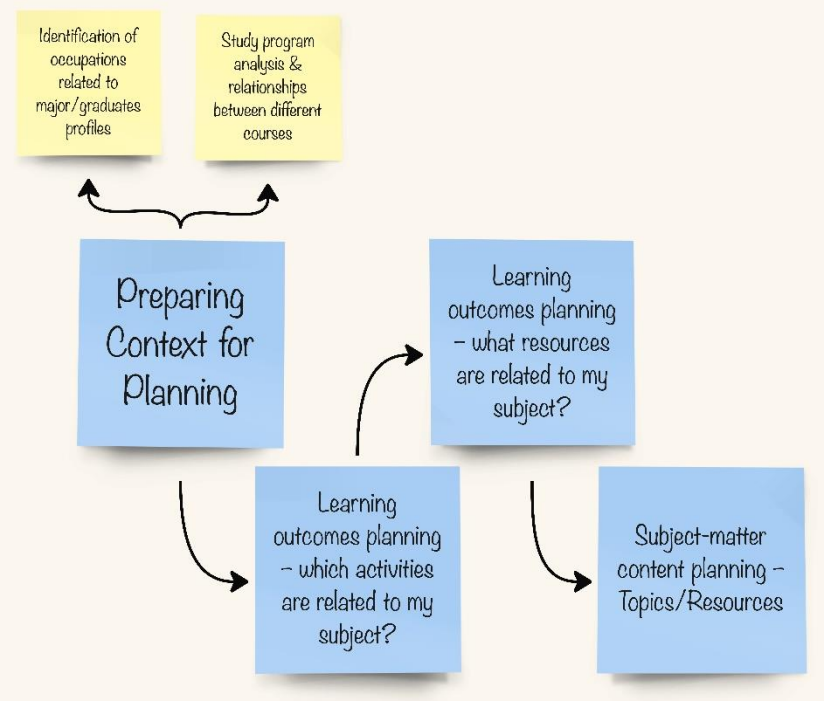

Figure 9. Process of Designing Subject-Matter Content

Preparing context for planning

The initial stage of designing subject matter content is essential to establish a comprehensive context for planning that aligns educational goals with the demands of specific job positions relevant to the major. This ensures that the subject matter content addresses the needs and expectations of graduates as they enter their chosen career paths.

Identification of occupations related to major/graduates profiles

The occupations related to the major and the expected profiles of graduates should be understood. This requires research into the industries and sectors where graduates typically find employment, as well as the specific job roles they may occupy (job descriptions, required qualifications, and career pathways should be analyzed).

Study program analysis & relationships between different courses

Secondly, a detailed analysis of the study program is necessary to identify key subject areas and their interrelationships. This involves reviewing the curriculum, course de-

scriptions, and learning outcomes to ascertain the foundational knowledge and competencies students are expected to acquire throughout their academic journey. By understanding the broader context of the program, educators can pinpoint opportunities to integrate relevant subject matter content that complements and enhances the overall learning experience. Teacher can use concept maps or mind maps which can facilitate the visualization of these connections, allowing them to identify potential overlaps, gaps, and synergies between different courses. This graphical representation enables a holistic understanding of how the subject fits within the study program and its role in preparing students for their future careers.

Learning outcomes planning – which activities are related to my subject?

The main aim of this step is to determine which of the identified in PBMC key activities are the most relevant and will be developed within the course (subject), considering the assigned learning outcomes. These activities represent the actions crucial for success in the occupations connected to the major. For each learning outcome, teacher should identify the corresponding activity or activities from PBMC. Not all identified key activities might be important or fit within the course (subject). Key activities should be analyzed in terms of relevance and impact on achieving course (subject) learning outcomes. Teacher can create a matrix presented on Figure 10 as a visual representation of key activities and the corresponding learning outcomes.

Learning Outcomes for Project Management course / Key Activities	Leading DT initiatives	Business process modeling	Business process analysis	Business process improvement	DT strategy development	DT strategy implementation	DT strategy management	Business model design, re-design, transformation	Selecting IT solutions	Managing projects	Negotiating with stakeholders	Evangelizing internally	Navigating internal politics/policies
K_W09 has a solid foundation in project management methodologies.										x			
K_U07 can plan and organise work, interact and work in a team, taking on a variety of roles						x	x				x	x	x
K_U11 can map, analyze, and optimize business processes based on innovative business models; introduce changes, design and re-design business models that could be foundation for disruptive applications of newest technologies		x	x	x									
K_U12 can manage digital transformation projects, ensuring their successful execution on time and within budget and foster a culture of innovation within organizations										x		x	x
K_U18 can lead and manage digital transformation driven change initiatives effectively within organizations	x									x	x		

Figure 10. Learning Outcomes for Project Management course / Key Activities Matrix

Learning outcomes planning – what resources are related to my subject?

Learning outcomes assigned to the course (subject) should be thoroughly reviewed. It will help to identify the specific knowledge, skills, and competencies that students are expected to acquire upon completion. All key personal resources identified in PBMC should be compared with the learning outcomes assigned to the course (subject). Teacher should determine which resources are most closely aligned with the desired educational objectives. The key resources can be prioritize based on their relevance and importance in achieving the learning outcomes. By systematically aligning the development of key personal resources with the learning outcomes assigned to the course (subject), teacher can effectively support students in acquiring accurate

knowledge, skills, and competencies needed for success in their professional career. Teacher can create a matrix presented on Figure 11 as a visual representation of key personal resources and the corresponding learning outcomes.

Learning Outcomes for Project Management course / Key Personal Resources		Digital technologies	Digital product and service	Human capital management	Innovative business models	Financial basics	Change management	Project management	Data management	Data analysis	Data visualization	Artificial intelligence and machine learning	Programming	Infrastructure&Enterprise architecture	Visual modelling
K_W09	has a solid foundation in project management methodologies							x							
K_U07	can plan and organise work, interact and work in a team, taking on a variety of roles						x	x							
K_U11	can map, analyze, and optimize business processes based on innovative business models; introduce changes, design and re-design business models that could be foundation for disruptive applications of newest technologies				x										
K_U12	can manage digital transformation projects, ensuring their successful execution on time and within budget and foster a culture of innovation within organizations			x		x		x							
K_U18	can lead and manage digital transformation driven change initiatives effectively within organizations			x				x							

Figure 11. Learning Outcomes for Project Management course / Key Personal Resources Matrix

Subject-matter content planning – Topics/Resources

Building upon the foundation laid in the previous steps, specific subject matter (content) should be identified. The course (subject) topics that will be designed should equip students to achieve the learning outcomes while simultaneously foster the development of key personal resources identified through market analysis. It can be done through identifying course (subject) topics that effectively bridge the gap between the learning outcome and the development of personal resources. The questions that can be asked in designing process are:

What specific topics or areas can be explored to equip students with the knowledge and skills required to achieve the learning outcome while simultaneously fostering the development of those crucial personal resources?
What concepts, theories, or practical skills are necessary to achieve the learning outcome?
Which topics align with the personal resources identified?

Learning Outcomes for Project Management course / Key Personal Resources		Digital technologies	Digital product and service	Human capital management	Innovative business models	Financial basics	Change management	Project management	Data management	Data analysis	Data visualization	Artificial intelligence and machine learning	Programming	Infrastructure&Enterprise architecture	Visual modelling	Topics for Project Management course
K_W09	has a solid foundation in project management methodologies.							x								Introduction to Project Management
K_U07	can plan and organise work, interact and work in a team, taking on a variety of roles						x	x								Project Initiation and stakeholder analysis
							x	x								Creating a project plan for digital transformation initiatives
K_U11	can map, analyze, and optimize business processes based on innovative business models; introduce changes, design and re-design business models that could be foundation for disruptive applications of				x											Aligning project and portfolio management practices with digital transformation objectives
					x											Change Management in Digital Transformation Projects
K_U12	can manage digital transformation projects, ensuring their successful execution on time and within budget and foster a culture of innovation within organizations			x		x		x								Implementing project plans and managing project activities
				x		x		x								Monitoring project progress and tracking key performance indicators
				x		x		x								Risk Management in Digital Transformation Projects
				x		x		x								Conducting project closure activities and transitioning to operations
K_U18	can lead and manage digital transformation driven change initiatives effectively within organizations			x				x								Managing project teams and facilitating effective collaboration
				x				x								Capturing lessons learned and best practices for future projects

Figure 11. Learning Outcomes//Key Personal Resources/TOPICS Matrix

Sufficient depth should be provided on those areas that have the greatest impact on the achievement of learning outcomes and resource development. Review the matrix and ensure that subject topics align well with both learning outcomes and personal resources. Organize the course (subject) topics in a logical sequence that promotes progressive skill development. Some topics may be foundational and need to be covered early, while others can be explored later in the course.

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