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Skill Mapping Report

June 2022, Ferizaj

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Introduction

The skill mapping process intends to understand skill levels of workforce in the wood industry sector in Ferizaj in companies that UASF has agreements with. The approach compares workforce skills in firms of similar size and similar markets. The professions selected for the analysis are those compatible with three UASF programs at level 6 and 7:

BA Interior Architecture and Furniture Design (BA IAFD),
BA Design and Construction of Wood Products (BA DCWP)
MA Architecture and Interior Design with Wood Products (MA AIDWP).

Out of 17 business contacted and visited, 20 participants attended two workshops organized in UASF premises.

Methodology

The first step in the skill mapping process was determination of occupations to include in the analysis. The following occupations were identified in the International Standard Classification of Occupations (ISC0, 2008) list as relevant for UASF programs.

Table 1 Occupations according to ISCO 2008

Occupation	Classification	Level of Education
Architect/Interior	2162	6
Decorators and commercial designers	3471	6
Managing director, enterprise/manufacturing	1210	6,7
Department manager, production and operations/manufacturing	1222	6,7

Despite ISCO 2008 importance for defining an occupation standard and education program, the descriptions are considered limited as they do not reflect the context of the industry and actual occupations in the companies. We based the denomination of the occupation based on employee declaration of the title/position reflecting the actual job in the industry. Depending on the company size one position may cover more than one occupation.

The professions analyzed from the list of employees provided by the companies are presented in table 2:

Table 2 Occupations according to title/positions in the wood production enterprises

Occupation	Classification	Level of Education
Interior Architect (A)- Architect	2162	6
Interior and Product Designer(D)-Designer	3471	6, 7
Architect-Designer Manager (ADM)		6,7
General Manager (GM)	1210	4, 6,7
Production/Operations Manager (POM)	1222	6,7

The skill mapping exercise was done through workshops with companies divided in two groups.

1. Workshop with architects and designers
2. Workshop with managers

During the workshop employees were asked to fill in an anonymous form where they provided information about their title/position in the company, level of education, program/training they completed and salary.
In the first step, all employees were asked to write down functions and work tasks they do at the company.
In the second step, we grouped employees according to their position/title and asked them to discuss work tasks and divide them in to work functions.
In the third step, employees were asked to describe knowledge, skills, and technologies are needed to perform the tasks they described.

The information produced by the groups was collated in the matrix form and in the fourth step, participants were asked to self-evaluate tasks, knowledge, skills and technologies from 1-5 with the following descriptors:
1. Awareness: They are aware of the competency but are unable to perform tasks.
2. Novice (limited proficiency): They understand and can discuss terminology.
3. Intermediate proficiency: They have applied tasks and skills to situations occasionally without needing guidance.
4. Advanced proficiency: They can coach others in the application by explaining related nuances.
5. Expert: They have demonstrated consistent excellence across multiple projects.

The data from each participant was entered in the skill mapping matrix to identify which tasks, knowledge, skills, attitudes and technologies are typical in each occupation, clustered into two groups:
Group 1: Architects(A), designers (D) and Architect/Designers Managers (ADM)
Group 2: General Managers (GM) and Production/Operations Managers (POM)

In the final phase employees were asked to identify tasks, knowledge, skills, attitudes and technologies which will be needed to address changes and trends they expect in the future in terms of:

- Changes in consumer requests and preferences
- Changes in policies and regulations affecting the sector
- Changes in production and environment standards
- Changes in the human resource
- Changes in technology
- Changes in economy

The same description and rating process was repeated to identify current proficiency on projected skills.

Group 1 Skill Mapping Report

The majority of professionals in this category are graduates from UASF studying in BA Programmes, only 2 are from other Higher Education Institutions and one has an MA degree from UASF. Their salaries range from 501 to 700 euros for architects and designers with more than 2 years' experience and from 1000 to 1500 for Managers of architects and designers. Students or recent graduates are paid 300 to 500 euros.

The matrix in table 3 presents self -ranking averages of work tasks, key knowledge and skills and technologies in major functions in each occupation in the group.

Planning, design, and development function

As illustrated in the table 3 our findings reveal that designers need to improve their knowledge regarding materials and how these materials impact the environment. Additionally, they should be included in the process of material integration into structures as currently, they are excluded from some important phases in the production process. Whereas architects and ADM have shown to have advanced proficiency knowledge and skills related to materials.

In general, all three positions have ranked significantly low in regard to architecture and engineering however, this is most likely due to the fact that these subjects were not included in the university program before. While architects have ranked high on the knowledge in geometry, mathematics and physics, designers and ADM have ranked very low in this category. This most likely depends on how they learned math and its practical application into their professions. In general, the program should be analyzed for the engineering component as higher levels in mathematics and physics are prerequisites for engineering modules.

While it is acknowledged that these professionals are not categorized as craft workers, technicians and machine operators, their preparation for the industry requires better understanding of the role of individual machines and equipment used to better understand materials performance and production processes. For example, the use of CNC machines and the CAD software can be used by designers to simulate the design before prototyping or production. Learning this skill in the lab environment will help companies to reduce costs and save time. All three profession have ranked low in knowledge and understanding of building and constructions codes which reflects building practices countrywide. As results disclose, despite lack of knowledge in this domain, they are still required to research, analyze and prepare costing projections where architects have ranked to have expertise in this skill, while designers and ADM have gained and used these skills proficiently in practice.

The following skills for this function were identified as most significant and skills that architects acknowledged possessing creativity, communication, problem solving, design, planimetric drawing, management, monitoring, group work, research, critical thinking, engineering, detail orientation, numerical skills, computer skills and costing. Nevertheless, the engineering skill related to architecture and engineering knowledge was ranked as being aware of the skills but lacking competence for practical application. Whereas designers reported to have mastered most of these skills they also acknowledged that they have no competence in numerical skills, problem solving, engineering, and detail orientation. While engineering and numerical skills are expected to not be of significant importance for designers, it is expected however that problem solving, and detail orientation are skills that they should or need to advance in the future when dealing with design details and product requirements from the client. ADM declared that have applied these skills in practice and have an advanced proficiency when using them for work. Alike designers, engineering and numerical skills were ranked low for ADM. Taking into consideration that this position is a combined with architecture, ADM should enhance these skills in the future.

In terms of technology usage, professions in this category ranked the following technologies as important for completion of their daily tasks: SketchUp, laser meter, scanning, camera, ArchiCAD, architect, cad, Lumion and Microsoft Office. Lumion is only used by architects while Microsoft Office is another technology important to execute their tasks.

Management and monitoring

In this category, results show that designers are not included in the production process at any phases which is concerning as their inclusion is important for product quality. It is crucial that designers are included in all phases of production to eliminate errors and design inconsistencies with production and machinery capacities, and to eliminate errors in the final phases of production.

The following skills were identified as important for this function in practice: Communication, detail orientation, management and monitoring. Where architects and designers have stated to possess and advanced level proficiency for these skills. A difference in skills lays with designers were detail orientation, management and monitoring were raked incredibly low, but this comes as a result of not being included in the production process from its initial phases which is important to change in the future.

Microsoft Project, testing, check in check out equipment and CNC are not used by architects in work, but designers and AMD utilized CNC and check-out check-in equipment although Microsoft project should be important for project monitoring for both ADM and architects. Testing it not utilized by any of the three positions, but this is due to the fact that there is no facility in country that offers testing services for the industry.

Tendering and budgeting

Architects and designers do not practice this function whereas ADM reported to having an advanced knowledge for this function nevertheless, none of the professions possess the necessary knowledge or skills to apply it in practice.

Writing and negotiation are two skills listed as important for this function, yet all three positions have reported to either not being aware of this skill or having awareness but not the competency that allows them to perform tasks.

Microsoft Word and Microsoft Project were identified as two main technologies for use where architects and ADM use this technology to perform their tasks while designers do not need this technology for their work. Microsoft Project however is not being used by any of the three positions for their work. This should be considered in the future as the technology is a helpful tool to manage and monitor projects regarding their scale.

Client Coordination

This function was ranked relatively high for all three professions; however, designers lack cooperation with other professionals to ensure that the product is according to the context and in alignment with client specifics. This indicates that designers are not included in the initial phases of the product design. A possible explanation is that companies already have a set of available uniform product models. This should be changed to ensure that final products are contextually based and compatible with client specifics.

Communication, group work and problem solving were categorized as important skills for performing tasks in this function. Architects conveyed that they have mastered this skill in practice, but designers and AMD stated to not being aware of the group work skill whereas as mentioned above, designers lack the problem-solving skill.

Technologies used for this function are PPT, CAD, Photoshop and 3d max but only for designers work while architects and ADM don't use these tools for their work.

Research and application of building codes

Architects and ADM reported to have an advanced and intermediate knowledge and skills for this function whereas designers have declared that they have knowledge or proficiency regarding this category despite the fact that it is important for designers to be aware of the building codes, security standards, and designs geared towards access for people with special needs.

Research, analysis and critical thinking were ranked high by all three positions with analysis and critical thinking selected as having no awareness or just being aware but lacking competence for practical application by designers. This should be improved in the future since both skills are of crucial importance when producing designs that are contextual based.

Internet is listed as the only technology tool being used by all three professions.

Marketing

Marketing is only practiced by designers while architects and AMD do not practice this function. In terms of knowledge and skills, designers declared that have proficient skills in marketing and promotion and advanced proficiency in digital marketing. This was expected provided that marketing, promotion and especially digital marketing knowledge and skills are vital for the designer profession.

Communication, research, presentation were the three highest ranking skills for ADM and designers in this function whereas architects conveyed that they do not have this skill for this particular function. This is expected since architects commonly do not participate in marketing and promotion activities.

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Major functions	Key Procedures and Tasks	A	D	ADM	Key knowledge	A	D	ADM	Key Skills	A	D	ADM	Technologies	A	D	ADM
Planning, Design and Development	Ideation based on desing demand, functionality and other requirements	5	4	3	Sketching and modeling	5	4	3	Creativity	5	4	3	Sketchup	3	4	0
	study of materials, study of environmental impact, study of sustainability of the construction site	5	1	3	Knowledge of materials, methods and tools used in the construction or repair of buildings and other structures	5	4	4	Analysis	5	3	4	laser meter. Scanning, camera	5	3	4
	On-site inspection and consultation with clients, management and other stakeholders to determine the type, style and size of proposed structures and modifications to existing buildings;	5	4	5	Architecture and Engineering	1	1	1	Engineering	1	1	1	Archicad	5	3	4
									Analysis	3	3	4				
					Building functionality and measurements	5	4	5	Communication,	4	4	4				
									Problem Solving	5	0	3				
									Design	5	4	4	laser meter. Scanning, camera	5	3	4
	preparation of project documentation, including sketches, planimetric drawings and integration of structural, mechanical and aesthetic elements in the final designs and for production	5	4	3	Geometry	5	1	0	Planimetric drawing	5	4	4	Architec, cad	5	4	4
					Mathematics (algebra)	5	0	0	Numerical skills	5	0	0				
					Physics	5	0	0	Engineering	5	0	0				
					Visualization	5	4	3	Computer skills	5	4	4	Lumion	5	0	0
	making the necessary contacts to ensure project feasibility in terms of style, cost, deadline and compliance	5	1	0	Building codes	2	0	3	Analysis	5	3	4	Microsoft Office	5	2	3
					Trends in the wood production industry				Costing	5	3	4				
Management and monitoring	providing information regarding designs, materials and estimated construction time for production;	5	3	4	Project Management	5	0	3	Communication	5	4	4				
	monitoring work compliance with specifications and quality standards;	5	0	3	Quality management	5	0	4	Detail oriented	4	0	4	Microsoft Project	0	0	0
		5	0	4					Communication	5	4	4	Testing	0	0	0
	Managing other architects and designers	5	2	1	People management	5		3	Menagement	5	1	3	check in check out	0	2	4
		5	0	3	Process management	5	2	3	Monitoring	5	0	3	CNC	0	2	3
Tendering and budgeting	Preparation of tenders, proposals	0	0	4	Writing project proposals	0	0	0	Writing	0	0	1	MSWord	5	0	3
	Negotiation and management of contracts	0	1	3	Management	0	0	0	Negotiation	5	5	4	MP	0	0	0
Coordination with clients	Meets clients several times to understand project objectives, budget	5	4	4	Mother tongue	1	5	2	Communication	5	4	4	PPT, CAD, Photoshop	0	4	0
	presentation of the design / product	5	5	3	Foreign languages	0	5	3								
	Compilation of offers	5	4	4	Presentation											
	Collaborates with other professionals such as engineers, urban planners,	3	0	5	Communication	0	2	3	Group work	5	0	0	3d max	0	1	0
			0	2					Problem Solving	5	0	3				
Research and application of building	making the necessary contacts to ensure the feasibility of projects in terms of style, cost, deadline and	4	0	3	Buidling codes, fire safety rules, access for people with special needs,	5	0	3	Research	5	4	3	Internet	5	5	4
			0	0					Analysis	5	1	4				
			0	0					Critical thinking	5	0	3				
Marketing	Photographing products	0	4	0	Marketing and Promotion	0	3	0	Communication	0	2	4				
	catalog design	0	3	0					Research	0	5	4	Photoshop	0	4	3
	social media management	0	3	0	Digital marketing	0	4	0	Presentation	0	5	4	Social media	0	5	0

Table 3 Current Skill Mapping Matrix for Group 1

Finally, the key skills for this group are clustered in main categories and manager/owners also ranked their employees, showing higher ranking for engineering and production and problem-solving skills compared to employee self-ranking and lower or similar ranking for creativity and communication.

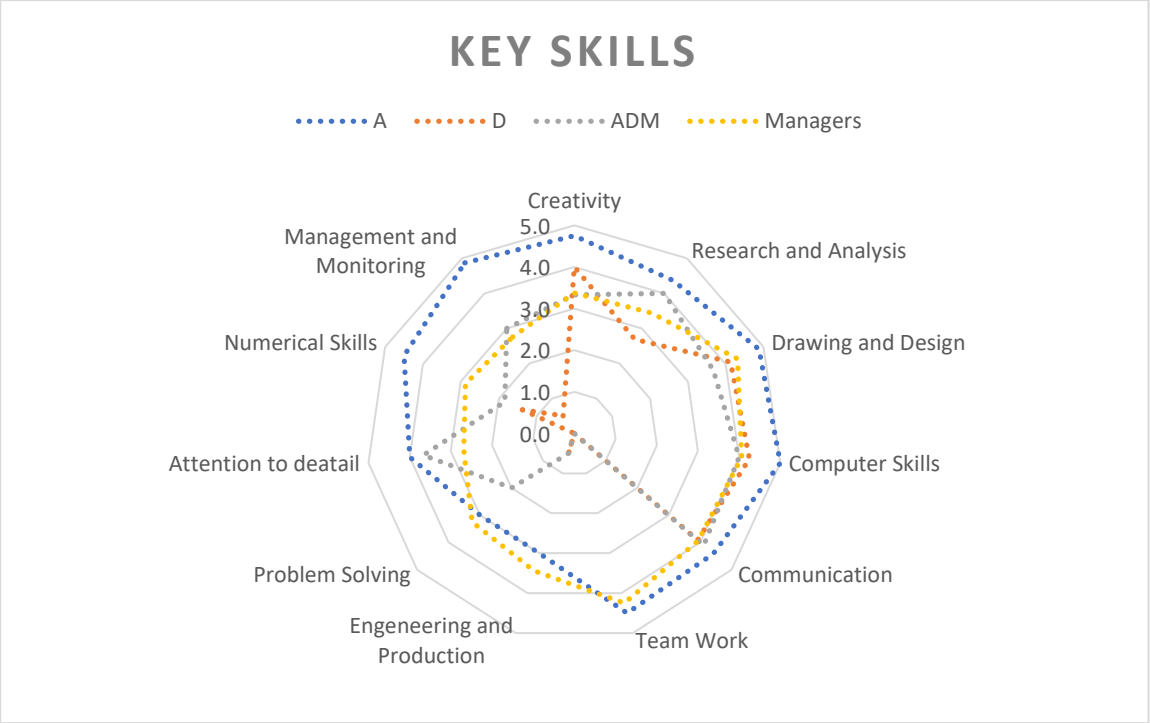

Figure 1 Skill Ranking for group 1

In conclusion, although we find some ranking differences in work tasks between the three occupations, for companies to thrive there is a need for more advanced skills in design thinking, research, engineering and production. In addition, there is a need for the development of soft skills such as teamwork, problem solving and numeracy and management skills for management positions in this group.

Future functions, knowledge, and skills

Projection and design of sustainable solutions

Architects and designers considered they will not practice this function in the future while ADM declared that they would need intermediate proficiency for this category in the future. This is concerning and should be given more attention in the future professional development as all building trends are moving towards projection and designs that offers sustainable solutions.

In terms of skills to build in the future, participants listed analytical skills were categorized as being important to have by architects and ADM while technological skills were ranked very low. This should be improved in the future as there is a tendency for introduction of new and smart technologies in general.

Digitalization

Similarly, architects and designers have declared that they have no knowledge of this future function whereas ADM reported that they need to be aware in regard to integration of digital tools for smart buildings in the future and have advanced proficiency skills in monitoring human behavior for the efficient use of space.

Smart specializations, measurements, analysis were listed as skills to be aware of in the future by architects and AMD only.

Table 4 Future Skill Mapping Matrix for Group 1

Profession (Future Needs)																
Major functions	**Key Procedures and Tasks**				**Key knowledge**				**Key Skills**				**Technologies**			
Design of sustainable solutions	Design that takes into account the efficiency, health and environmental protection and buildings' impact on society	3	1	3	Materials, quality and standards	3	0	3	Analytical skills	1	0	4	Pollution and efficiency meters	1	1	1
	placement of solar panels on the façade	0	0	0	Design tools and methods with solar panels	0	0	0								
	non-standard contextual design with minimalist approach	1	1	3	Minimalism	1	1	1								
	Recycling and Upcycling	1	1	1	Recycling tools and methods	1	1	1	Technological skills	0	0	0	IT systems for management of complex infrastructure, embedded systems for infrastructure	0	0	0
Digitization	Integration of digital tools for smart	0	0	3	Smart buildings	0	0	1	Smart specializations	1	0	0	Sensors	0	0	0
	monitoring of human behavior for the efficient use of space	0	0	0	Spatial use measurements	0	0	3	Measurements, analysis	1	0	1	Data analytics software	2	2	2

Group 2 Skill Mapping Report- General Manager

Majority of General Managers do not have a HEI qualification. They are also owners and do not receive monthly salary. However, the salaries for other managers range from 700 to 2000. Ther experience in the sector varies from 5 to 20 years.

Strategy, policies and planning function

As illustrated in table 5 general managers declared that they have advanced proficiency and expertise in strategic planning, and business development. They also conveyed that they have expert knowledge on investment planning, change management and projection for efficiency optimization and industry trends. Besides, they noted that they have expert knowledge in ensuring that work policies and standards are in accordance with applicable national laws. Whereas for maintaining health and safety standards in the workplace and researching and definition of work deficiencies, they reported to having the appropriate knowledge for application in practice. While in regard to providing necessary protective equipment for employees, they acknowledged to have limited knowledge and need to improve in this domain.

The following key skills were listed as important and in possession of general managers for this function: Exceptional organizational and leadership skills, Planning and projection skills, Planning and analytical skills, Strategic and planning skills, Organizational skills, Procedural skills, Detail Orientation, Organizational skills. All these skills were ranked very highly by general managers claiming that they are master of these skills and have expert and advanced proficiency during practical application. An exclusion is detail orientation skill where they reported to having the appropriate now knowledge but are not advanced when applying it in practice.

Although general managers have rated this function very high and claimed that they have been successful in establishing, growing and developing their family businesses to becoming successful companies that yield the desired benefits, during the workshop and discussion with them, they mentioned that besides strategizing and planning tasks, they are also heavily included in company's daily operations. Such tasks are often simple and technical tasks that do not require general manager's presence and expertise, yet this is currently occurring in these companies. As a response, mentioned that there is a succession and structuring plan in place, but it takes time for progress. Concrete steps should be taken in this area to help alleviate managers' burdens as they acknowledged being overwhelmed. Besides, structuring and preparing for succession and delegating work within appropriate departments will ensure company sustainability for future growth.

Key technologies for this function were listed: AutoCAD, ArchiCAD, 3DsMax, Office PDF, Art Cam, Social media, and Web.

Planning, directing and coordinating the general functioning of the enterprise or organization

Ranking of this category is little lower than prior one and more evident in some tasks that require technical knowledge and skills which links to the above remarks that general managers should not be included in similar tasks. In terms of knowledge management, team building, plans for continuous improvement, business process and functions knowledge and contracting, general managers have declared to have advanced knowledge while in leading and managing people and professional development, they reported to have appropriate knowledge if needed to apply in various situations.

Key identified skills for this function to help general managers perform their tasks were: Decision making and motivation skills, Organizational and management skills, Technical skills, Organizational and management skills, Delegation skills, Operational skills, High management and organization skills. Participants declared that they possess expert and advanced skills needed to execute this function,

while technical skills were ranked little lower, but this is expected as it is not very relevant to their occupation.

Monitoring

Similarly, to other functions, participants claimed that they possess advanced knowledge of resource management with process and production knowledge and inspection reporting to having novice knowledge whereas for quality assurance, they conveyed to having intermediate knowledge that allows them to successfully perform this function.

Key skills for this category as identified by participants were management and organization skills, Operational skills, Management skills, Monitoring skills, Assessment skills, Management skills which were reported to being experts by general managers despite their declaration of having lower knowledge about certain tasks within the function.

Financial Management

For this function, participants conveyed that they have the intermediate knowledge to manage and plan finances, allocate budgets and financial resources as well as monitoring company turnover and realized transactions. Whereas for organization of logistics task, they reported to have limited knowledge. This is expected since this task is easily implemented by other professionals in the organizations. Regular meetings with finance and accounting staff and financial estimation were ranked as having the appropriate knowledge to carry out this task in practice.

Key skills for this function were listed: Decision-making, projection and analytical skills, Technical skills, Operational skills, Interpersonal skills, Assessment skills and Analytical and planning skills. Managers reported that they have mastered these skills and have appropriate technical skills for practical application of this function.

Representing the enterprise or organization in its dealings with outside bodies, including government or other authorities

Similarly, knowledge about the tasks under this function were ranked remarkably high by participants. This is probably accurate as it is crucial for general managers represent and advocate about the company with different stakeholders and establish cooperation with entities of interest and acting as a leader when needed. Meeting with clients and providing solutions was ranked as having some knowledge however, this is more relevant for lower-level managers.

Key skills for this function listed by the participants were: Excellent communication, Problem solving and Communication skills. For all these skills, managers declared that they have expert skills when using in practice.

Other functions

Besides the above functions, during the workshop and discussion with managers, they listed other tasks where managers are involved almost in daily basis despite their awareness that these tasks may be executed by other workers. In assembling machinery and logistics, they acknowledged to being aware but have limited competence in performing. Whereas in offering assistance to other professional staff, they have admitted to having limited knowledge.

Key skills for this function were technical, collaboration, organizational and operational skills where they reported to have expert level skills despite the knowledge of the tasks ranking low.

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Table 5 Skill Mapping Matrix General Managers

Major functions	Key Procedures and Tasks		Key knowledge		Key Skills		Key Technologies	
Strategy, Policies and Planning	Develops strategies and sets objectives for the work and development of the company. Controls budgets and optimizes expenditures. Defines the rules and procedures of work and manages the general activities of the company	4.7	Detailed knowledge of the industry and trends in the	4.3	Exceptional organizational and leadership skills	4.8	AutoCad, Archicad, 3DsMax, Office	2.3
	Creates and maintains strategic and operational plans for all company programs	4.2	Strategic planning and Production standards	4.7	Planning and projection skills	4.3	PDF, ArtCam	
	Planning of initial and change investement	4.8			Planning and analytical skills	4.2	Social media,	3.2
	Short-term and long-term investment management	4.8			Strategic and planning skills	4.5	Web,	
	Analyzes production data and plans optimization for efficiency	4.0						
	It is ensured that the policies and work standards of the company are in accordance with applicable laws	4.5			Organizational skills	5.0		
	Maintain health and safety in the workplace through the establishment of appropriate work standards, systems and consultation	3.8			Procedural skills	4.8		
	Research and definition of work deficiencies or errors	3.7			Detail Oriented	3.3		
	Provides protective equipment for workers	2.0			Organizational skills	4.8		
planning, directing and coordinating the general functioning of the enterprise or organisation	Daily meetings with staff	3.8	Organizational behavior	4.3	Interpersonal skills	4.8		
	Workforce and project time management	4.2			Management skills	5.0		
	Directs other activities of the company including knowledge management, team building, organizational development, continuous improvement of services and products and quality assurance Employee registration Assignment of daily tasks	4.5			Decision making and motivation skills	5.0		
	Supervision of the final product	3.0	Knowledge of business process and functions (finance, human resources, procurement, operations, finance and performance	4.3	Organizational and management skills	4.8		
	Raw material management	2.7						
	Machinery maintenance management	2.2			Technical skills	3.8		
	Production management	2.8			Organizational and	4.8		
	Delegation of duties to the production manager	4.3			Delegation skills	4.8		
	Contracting of cooperating companies	4.7			Operational skills	4.3		
	Leads and manages staff including contracted resources. Recommends staff changes and implements staff decisions. Directs the professional development opportunities of the staff	3.8			High management and organization skills	5.0		
Monitorimi	Project control	4.0	Resource management	4.3	Operational skills	4.7		
	Manages facilities, assets and other resources that belong to or are contracted by the company, including, but not limited to: IT systems, Databases and systems	4.2			Management skills	4.8		
	Inspection of works in process in the field	2.5	Production process knowledge	4.3	Monitoring skills	4.7		
	Daily final inspection and control	2.7						
	Factory quality inspection	3.3	Quality assurance	4.3	Assessment skills	5.0		
	Manages the general activities of the company and requires reporting on expected results	4.3	Management, process, controling	4.3	Management skills	5.0		

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Major functions	Key Procedures and Tasks		Key knowledge		Key Skills		Key Technologies	
Financial Management	Manages and designs the finances, determines the budgets for each department, allocates the financial resources and is the main authority of transactions on behalf of the company Monitoring the turnover and realized transactions.	3.7	Organizational management, advanced financial knowledge	4.7	Decision-making, projection and analytical skills	4.7		
	Issuance of invoices / accounting	3.0			Technical skills	3.5		
	Organization of logistics	2.2			Operational skills	4.7		
	Checking and approving purchase orders	3.4				4.8		
	Daily meeting with accounting and finance staff	3.7			Interpersonal skills	4.7		
	Makes regular financial estimates of current expenditures and changes to control cost	3.7			Assessment skills	4.8		
	Preparation of quarterly and annual reports for the board of shareholders	4.7			Analytical and planning skills	4.5		
Representing the enterprise or organisation in its dealings with outside bodies, including government or other authorities;	establishing the necessary contacts to provide the right customers and suppliers for the company.	4.2	Business environement knowledge	4.0	Excellent communication skills	5.0		
	Meeting with clients and providing solutions	2.5			Problem solving skills	4.8		
	Negotiate contracts with customers and suppliers	3.8			Communication skills	4.8		
	Establishes, maintains and improves the company's existing relationships with key stakeholders: Relevant industry associations, unions, associations, responsible authorities, regulator, organizations and individuals from the wood industry, consultants, contractors and service providers. Industry training organizations	4.8	Leadership and management, collaboration,negotiation	4.0				
	Represents the company in presentations, meetings, seminars, events, forums and conferences	4.5			Excellent communication skills	5.0		
Other functions	Supply with fuel for vehicles	1.8						
	Assembly of machinery	1.8			Technical skills	3.5		
	Responsible for the supply of raw materials	1.7						
	Assistance of architects with the final offer for the client	2.5						
	Tracking and coordination with car operators	2.3			Collaboration skills	5.0		
	Advice and consultation with the assembly team	2.5						
	Waste management for recycling and incineration for workplace heating	1.7			Organizational operational	5.0		
	Acceptance of orders and delivery of the respective unit	3.0			Collaboration skills	4.8		

Future functions, knowledge, and skills

Efficient management and work practices oriented towards sustainable development and motivation

Participants reported to have the intermediate knowledge of this future function with monitoring global trends and change in the industry dominating as they have conveyed that they already practice this function currently.

Key skills listed for this function were analytical skills and research skills, where they declared the necessity to gain advanced proficiency to apply these skills in practice in the future.

Digitization

For this function, participants recognized that digitization of all processes is necessary, and an advanced proficiency knowledge is needed in order to perform this function in the future.

Table 6 Future Skill Mapping Matrix General Managers

Profession (Future Needs)								
Major functions	**Key Procedures and Tasks**		**Key knowledge**		**Key Skills**		**Technologies**	
Efficient management and work practices oriented towards sustainable development and motivation	Work in the factory takes into account energy efficiency, environmental protection and work safety	3.2	Materials/ Machinery	2.7	Analytical skills	3.0		
	Monitoring the world trends of products, colors and materials and their incorporation in production	4.3	Sustainable development	2.0	Digital Fluency	2.0		
	Incorporation of environment friendly work tools	3.3						
	Recycling of water, wood waste or any other material	3.3						
	Increases capacities and procedures for the disposal of hazardous	2.7						
Digitization	Digital transformation for all work processes	4.2	Digitalisation	2.0				

Group 2 Skill Mapping Report- Production/Operations Manager

Majority of Production/Operations Managers have a BA degree or have started a MA degree. Their salary ranges from 1200 to 2000 euros. Their experience in the sector varies from 5 to 7 years.

Planning, directing and coordinating activities concerning the manufacture of wood products

In general, this function was ranked remarkably high by operations and production managers. As shown in table 7 participants reported to having expert knowledge in order to carry out tasks related to this function. This result is expected considered that operational and project management, environment, building codes, production, transport, licensing, testing, export and customs procedures, energy efficiency and waste management along with knowledge about production and supply, markets and materials knowledge are crucial for these managers to perform their daily tasks under this function.

Key skills identified for this category were: Management, problem Solving, research and teamwork. Participants stated to having expert and advanced proficiency skills for practical application.

In general, professionals in this occupation during the workshop and discussion, declared that companies need to structure in the future to ensure a sustainable future towards growth and their aims for presence in international markets through product exporting. They also mentioned that general managers/owners of these companies should delegate more work and responsibilities to them and their peers to ensure that growth objectives are achieved in the future.

Key technologies for this function as identified by participants for this function were:
Communication tools email, viber, what's up.

Planning and directing daily production operations

Likewise, participants ranked expert knowledge about this function. Nevertheless, production and operation managers are expected to have expert and advanced knowledge of the tasks within this function for organizational sustainability and development.

Key skills listed by participants for this category were: Organization, communication, delegation, and operations skills. Here too, participants conveyed to having mastered these skills in their daily work. This is relevant and in alignment with knowledge ranking.

Key technologies for this function as identified by participants were Equipment ABS, CNC and Mills.

Monitoring, health and safety and reporting

As shown in the table 7 participants have rated their knowledge about this function remarkably high indicating that they have expert knowledge for ISO 9001 standards, monitoring of production process, supply chain, tasks related to installation and maintenance, controlling, monitoring and analyzing production and providing problem solution when needed.

Key skills for this function were identified as: Organization, communication, delegation, operations, management, numerical and computing skills, and attention to detail. Again, these skills were also ranked high to the expert and advanced proficiency level for practical application.

Overseeing the selection, training, and performance of staff

For this function, participants have claimed to having an advanced proficiency and expert knowledge in managing people and performance when managing the production teams and other work-related standards and processes.

One of the key skills listed for this function was people and evaluation skills which was rated high declaring to have an advanced this skill for performing duties in their daily work process.

Financial Management

All participants reported to having high level of knowledge in finance, accounting and taxes when preparing budgets, offers, monitoring costs, estimating production costs and meeting with clients.

Key skills for this function were listed numerical and computing and communication skills. While for numerical and computing skills they claimed to have advanced proficiency, communication was ranked the highest reporting expert level skill for applying it in practice.

One of the key technologies for this function was identified accounting software reporting to have intermediate proficiency to use when used in certain occasions.

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Table 7 Current Skill Mapping Matrix Production/Operations Manager

Production/Operations Manager	Key Procedures and Tasks	Av	Key knowledge	Av	Key Skills	Av	*Key Technologies*	Av
Planning, directing and coordinating activities concerning the manufacture of wood products	Develops production strategic plans. Plans production activities in line with production quantity and quality, costs, time and client specific requests.	5	Operations and Project Management	4.5	Management	5	Communication tools email, viber, whats up	4.1
	Planning and coordinating activities related to production, electricity, water and gass suply, including waste management and treatment.	4.5	Energy efficiency and standards for manageing waste	3.5				
	Identifying business and product design opprtunities.	4.5	Products and suppliers	5	Problem Solving	5		
	Overseeing production quota for specialised products and contracts with clients and suppliers.	4						
	Zbaton dhe monitoron strategjite e prodhimit, politikat dhe planet.	4	Regulation on environment, building codes, production, transport, licensing, testing, export and customs procedures	4.5	Research	4.5		
	Researching and applying regulatory requirements affecting production and enviromental impact.	4						
	Maintaining necessary contacts to ensure the feasibility of projects regarding the design, cost, time and regulatory requirements.	4			Team work	5		
	Works with architects, designers ad other professionals to ensure the final product fullfills client requirements.	5						
	Monitoring international trends for products, materials, style and colours.	3.5	Materials and markets	4.5	Research	4.5		
Planning and directing daily production operations	Preparing the production process	5	ISO 9001	4	Organisation	4.5	Equipment ABS, CNC Mills	3.1
	Evaluation and approval of designs	4.5			Communication	5		
	Delegates work to other production , supply, distribution and finance managers and oversees implementation.	4			Delegation	4.5		
	Organization of logistics	3.5			Operations	4.5		
	planning factory operations, including production procedures, quality procedures, maintainace and supply of equipment and tools	4.5						
Monitoring, health and safety and reporting	Monitoring production process	5						
	Reporting to CEO and board	5			Management	5		
	Monitoring supply chain, equipment installation and maintainance	5			Numerical and computing skills	4.5		
	Controlling product registers and reports Monitoring production process and employee schedule and modifications	5						
	analysing production data and identifying problem solving tasks	5						
	Monitoring implementation of health and safety requirements and procedures	4.5			Attention to detail	4.5		
Overseeing the selection, training and performance of staff	Overseeing selection of employees in production	4	Managing People and Performance	4	people and evaluation skills	4.5		
	Evaluating staff needs	5						
	Manages the production team including assignments, work standards, processes and inspection reports.	4.5						
	Evaluating staff performance	4.5						
	Consulting and informing managers for production processes and issues	4						
Financial Management	Prepares budgets and monitors production costs	4	Finance, accounting and taxes	3	Numerical and computing skills	4	Accounting software	3
	Preparing offers	4						
	Estimating project and production costs	5						
	Meeting clients and proposing product solutions	4.5			Communication	5		
	Managing communication with clients, other professionals and staff	4						
	Managing sales	4.5						

Future functions and skills

Managing sustainable solutions

For future functions, managers reported that they need to develop advanced and expert knowledge about Eco materials, Sustainable development and international standards to ensure company sustainability and their current market position, but also future growth aims. Whereas in regard to future changes and trends in supply chain management, they said that they need to be aware and understand potential changes.

One of the key skills for this function was listed analytical skill. According to them, they need to have an advanced proficiency skill in the future to ensure that tasks are completed appropriately in the future.

Key technologies for this function were listed as: Enterprise Resource Planning and Supply chain management reporting future awareness.

Digitalization of processes

As participants are aware that digitalization process is occurring and will continue in the future, they stated that they need to be aware and have novice knowledge about process automatization.

Digital fluency was identified as one of the key skills for this function and according to participants, they will remain aware and develop novice knowledge for an ability to apply it during their work processes.

Key technologies for this function were Product Development and Customer Relations Management saying that they need to be aware of changes in these technologies.

Managing and retaining employees

For this function, participants stated that they need to have intermediate knowledge to apply people management tasks within this function in the future whereas for health and safety standards, they should develop advanced knowledge in the future.

People management was listed as the main skill for this function and participants said that they need to develop an intermediate level skill for managing people in the future.

Whereas HR management technologies is needed to become aware for potential changes in the future.

Table 8 Future Skill Mapping Matrix Production/Operations Manager

Profession (Future Needs)							
Major functions	**Key Procedures and Tasks**		**Key knowledge**		**Key Skills**		**Technologies**	
Managing sustainable solutions	Design that takes into account the efficiency, environmental protection and buildings' impact on society	4.5	Eco Materials	5	Analytical Skills	4	Enterprise Resource Planning	1
	Recycling and upcycling materials	4.5	Sustainable development	4			Supply chain management	1
	supply chain management	2	supply chain	2				
	International Quality Standards	5	Standards	5				
Digitalisation of processes	Digitalisation of processes	5	Process automatization	2	Digital fluency	2	Product Development	1
	Monitoring development and technology trends in the wood industry products and solutions	5					Customer Relations Management	1
Managing and retaining employees	Procedures for management of employees	4.5	People Management	3	People Management	3	HR Management	1
	employ involvement and retention	3						
	Health and safety procedures	4.5	Health and Safety standards	4				