

Future competences pathways for marketing and ICT education (FuseIT)



A2: Study analysis of future digital marketing competences SUMMARY

Project Duration: October 2019 – September 2021

Project No.: 2019-1-LT01-KA203-060730



Funded by the
Erasmus+ Programme
of the European Union

This project has been funded with support from the European Commission.

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Document Control			
Revision #	Revision Date	Description	Name and Surname
1	31th of March, 2020	Original Draf	Giedrius Romeika
2	21st of May	Updated Draft	Giedrius Romeika



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INTRODUCTION

"The European Union needs to ensure that the knowledge, skills, competence and creativity of the European workforce - especially its ICT practitioners - meet the highest global professional standard and are constantly updated in a process of effective lifelong learning." - Michel Catinat, Head of Unit, ICT for Competitiveness and Industrial Innovation, DG Enterprise and Industry, European Commission, 2015.

ICT is among the leading sectors in Europe making an increasingly important contribution to the economic growth and jobs creation in advanced economies. Despite of that according E-skill in Europe Report (2014) the shortage of ICT specialists is increasing. The demand for them is expected to increase in the next few years. For example, at the moment large international banks are opening their departments in Lithuania and thus increase the demand for highly skilled ICT specialists. Experts assert that many young people are still choosing studies different from ICT. Some school graduates who might be interested in ICT studies in the future do not study subjects related to ICT, choosing a different specialization at school. Those who finish ICT studies have a decent qualification, which, however, should be more proficient. High schools and universities provide students with only basic ICT knowledge. If students want to work with a specific ICT, they must additionally study in centers of competence development. Current situation justifies need for multi-disciplinary approach to ICT education, new curriculum design and creation of opportunities (and conditions) to get required skills and knowledge's ASAP (e.g. by using online courses, lifelong learning principles and etc.). From looking of long period perspectives ICT departments will be forced to accept new approach to the ICT education which could help to decrease gaps and mismatches between needs of the labor market and societal needs (or expectations) of students. According to the European Schoolnet (EUN), skills in science, technology, engineering and mathematics (STEAM) are becoming an increasingly important part for basic literacy in today's knowledge economy. There is a need for one million additional researchers by 2020 in order to keep the Europe growing. Science education can no longer be viewed as only elite training for future scientists or engineers. It is clearly visible that only science-aware citizens can make informed decisions and engage in dialogue on science-driven societal issues. As stated in the recent Report of the European Commission (EC) – Science Education for Responsible Citizenship, knowledge of and about science are integral to preparing our population to be actively engaged and responsible citizens, creative and innovative, able to work collaboratively and fully aware of and conversant with the complex challenges facing society. Unfortunately, According EUN (2016) STEAM shortages are prevalent throughout Europe and apply to almost all technical jobs, including ICT.

Fuse IT (Future competences pathways for marketing and ICT education) project addresses the education and labor market requirements for professional skills and knowledge for students and graduates in university (including life-long learning activities). The project will analyze, design, develop and implement an up-to-date curriculum, e-learning materials, blended learning environment, ICT knowledge and skills self-evaluation and knowledge evaluation system simulations. The main intellectual outputs are related to marketing and future competencies and they will include:

1. Guidelines and study analysis in HE;
2. Curriculum development and localization;
3. E-learning material in separate parts for different subjects;
4. Simulations for education;
5. Self-evaluation and knowledge evaluation system;
6. Methodological guidelines

There are 2 level of beneficiaries which will be impacted by the project. The primary target group includes:

1. Students at university;
2. Educators, university staff, adult education centers etc.
3. Business sector

This target group will benefit from the project by participating in training and knowledge evaluation, which will improve their knowledge and competencies in the labor market. Educators and university staff are responsible for skills upgrade and raising of qualification. The secondary target group are universities which could use project results and implement updated marketing study program and/or implement separate parts of marketing in ICT studies. How to implement project results and other useful information will be described in the Methodological guidelines for implementation marketing module.



1. RESEARCH GOALS AND ACTIVITIES OF IO1

The main goals of IO1 are to develop major requirements for building the Fuse IT program by using the IO1 results for target groups' DMC (Digital Marketing Competence) needs on a base of EU labour market, existing experience of partners best practices in marketing and ICT. ICT are essential skills for future workplaces (The use of ICT has increased significantly in the last five years in more than 90% of workplaces), but advanced users like technicians, professionals (both 50%) and managers (30%) are required to have specialist digital skills, especially in larger workplaces. This study will also identify the skills gap in the Digital Marketing area in Lithuania, Latvia, Portugal and Romania. The training needs will then be becoming apparent and become a base for creating learning and certification solutions in the following activities of the project.

For those purposes there is the plan:

- **Prepare recommendations** about which competencies are required for target group being well prepared, self-confident and competitive in the digital market. This will be done after analysis of existing programs and curricula at project targeted DMC (Digital Marketing Competences) available at EU partner organizations and comparing with Digital Competence Frameworks such as The Digital Competence Framework for Consumers and The Digital Competence Framework for Citizens 2.1 (1.1);
- **Prepare study analysis** of future digital marketing competences. This will be done by performing surveys and interviews: at least 50 marketing and ICT students interviewing through each HEI, marketing specialists interviewing, at least 10 through each HEI; DC training centres representatives interviewing, minimum 5 per participate country.
- **Prepare guidelines** how Digital Marketing competences could be integrated in ICT related subjects. This will be done by using target group' surveys and interviews results.

The outcomes of the IO1 will be used for building effective DMC training module based on mentoring of DMC needs. All project partners take active roles in delivering these results. As the leading partner, the VU is responsible for the smooth and efficient management of IO1 and selection of partners' institution on the leading role in special task of IO1.

The goal of IO1 A2 - prepare study analysis of future digital marketing competences (report in partners' languages, summary in EN);

Results of IO1 will be free available and could be easy integrated in other countries' universities or training organisations.



2. METHODOLOGY OF SURVEY

Vilnius university as leader of IO1 is responsible for developing surveys and for preparation of output report. Surveys and analysis is performed in all partner countries: Lithuania Latvia, Portugal and Romania. Other partners are equally involved in all A2 activities like localisation of surveys, performing surveys, preparing reports of each country. Design of survey is based on Digital Competence Frameworks such as The Digital Competence Framework for Consumers and The Digital Competence Framework for Citizens 2.1. Survey consists out of 4 parts:

General information about respondent and possible choices is provided on Table No1

Table 1. General information requested from respondent

Occupation:	Gender:	Age group (year):
student	female	18-29
HEI representative (academics)	male	30-40
representative of business (stakeholder)	other	41-50
DC training center representative		51-60
public administration representative		60+
Teacher of other educational levels		

Second part of survey is dedicated for required level of competences necessary for digital marketing specialist (see Table2)

Table 2. List of competences necessary for digital marketing specialist for respondent's evaluation

Competences:
Digital Strategy
Web Experience Management
Usability / Design
Growth Hacking (Growth Marketing)
Retargeting
Customer Engagement
Customer Experience UX
User Acquisition
Expert storyteller
Targeting & Optimization
Understanding of customer personas and their needs
Data Science & Big Data
Web Development - Custom
Web Analytics & A/B Testing
Computer science fundamentals and programming
Strategic creativity
Probability and statistics
Data modeling and evaluation
Customer loyalty, retention, and satisfaction campaigns design and execution
Strong communication
Predictive Analysis & Attribution
Software engineering and system design
Sustainable Growth marketing Strategies
Programmatic Advertising
Blockchain marketing use cases
Leadership
Intellectual property positioning and protection
Cyber security
Competitive Intelligence
Bussiness Intelligence
Crisis management in social networks



Competences:
OTHER (please specify)

The list of professional skills which necessary for digital marketing specialist provided for respondents evaluating is presented on Table No.3

Table 3. The list of professional skills which necessary for digital marketing specialist

Professional skills:
Content Marketing (<i>WordPress, Yoast SEO plug-in</i>)
Digital Analytics (<i>Google Analytics, Adobe Analytics, Optimizel</i>)
Search Engine Optimization (SEO) (<i>Moz, Ahrefs, SEM Rush, Google Search Console</i>)
Search Engine Marketing (SEM) (<i>Google AdWords, Bing Ads</i>)
Conversion Rate Optimization (CRO) (<i>Optimizely, Google Tag Manager, Craft</i>)
Social Media Marketing (<i>Facebook Ads, Twitter Ads, LinkedIn Ads, Hootsuite, Instagram, Youtube</i>)
Affiliate Marketing (<i>CJ by Conversant, Impact Radius</i>)
Python, PHP, .NET, Java or other backend programming technologies
SQL, Database administration
Excel
Marketing and Sales Automation (<i>Marketo, Pardot, Bronto</i>)
Video Marketing
Video editing
Tableau
Email Marketing (<i>Mailchimp, Constant Contact, AWeber</i>)
Geo-Targeting PPC
Web Development (<i>WordPress, Magento, Joomla, Drupal</i>)
Webdevelopment - Content Management Systems
Project Management (<i>JIRA, Basecamp, Timeforce, Trello</i>)
Paid Search Marketing
Building and managing customer experience teams
CRM
Mobile Marketing
Applying machine learning algorithms and libraries
Applying Cyber security solutions software
OTHER (please specify)

Particular professional positions for which digital marketing competences and professional skills necessary is necessary for respondents' evaluation is listed on Table No. 4

Table 4. Professional positions for which digital marketing competences and professional skills necessary

Positions:
Internet marketing content manager
<i>E.marketing</i> web designer
PPC manager
Social media specialist
<i>Martech</i> specialist
<i>E.marketing</i> information specialist
Social media development administrator
Internet research specialist
System analytic
IS designer
Market analytic
Product manager



Positions:
IS quality assurance specialist
<i>E. marketing</i> project manager
Expert in Web Analytics/Data Analytics
Expert in Business Intelligence
Marketing Metrics Manager
Brand manager
OTHER (please specify)

Business entities/types of organization for which digital marketing competences and professional skills are necessary for evaluation on survey is listed on Table No.5

Table 5. Business entities/types of organization for which digital marketing competences and professional skills necessary

Business entities/types of organization:
<i>Start-Ups</i>
(Traditional) Business companies
Public and government bodies
Science and study sector
<i>E.marketing</i> and internet communication companies
<i>E.sales</i> and marketing department
Advertising agencies
Media and technology companies
International internet content organizations
Market analytic service companies
OTHER (please specify)

All multiple choices listed on Tales No. 3; 4; 5 was selected according to information provided in Digital Competence Frameworks such as The Digital Competence Framework for Consumers¹ and The Digital Competence Framework for Citizens 2.1.², business reports e.g. 2020 Workplace Learning Trends Report: The Skills of the Future³ by *Udemy* for Business or 5 Top marketing Jobs in 2020⁴ by 10digital.co.uk and supplemented taking into account Best Practice samples from Project Partners.

The multiple choices (see tables No. 3; 4; 5) evaluation was implemented using scale adopted from Digital Competence Framework (See table No.6)

Table 6. Evaluation levels

Levels (of importance)(from low to high):	Ranking points
I dont know	0
useless	-4
foundation	1
intermediate	2
advanced	3
highly specialised	4

¹ Brečko, B., Ferrari, A., edited by Vuorikari R., Punie Y. (2016). The Digital Competence Framework for Consumers; Joint Research Centre Science for Policy Report; EUR 28133 EN; doi:10.2791/838886.

² [https://publications.jrc.ec.europa.eu/repository/bitstream/JRC106281/web-digcomp2.1pdf_\(online\).pdf](https://publications.jrc.ec.europa.eu/repository/bitstream/JRC106281/web-digcomp2.1pdf_(online).pdf)

³ <https://business.udemy.com/resources/5-workplace-learning-trends-2020/>

⁴ <https://www.10digital.co.uk/blog/posts/2019/december/top-5-new-marketing-jobs-in-2020-infographic/>



Survey divided into two parts:

1st part is survey dedicated to students. It was planned to collect data from minimum 200 students out of ICT and marketing study programmes from all schools involved into project (approx. 50 students per school/country)

2nd part is an interview dedicated to experts. The plan was to interview at least 40 experts in HEI and 20 in training centres for gathering info on task analysis. Due changed circumstances and quarantine statement in project partners' countries according which it was impossible to organise an interview it was made decision to change interview to survey (similar form as for students) with additional asking to respondent to comment wide its opinion on surveys' form.



3. RESULTS OF ANALYSIS

Study analysis of future digital marketing competences survey's results allows us to state that according to respondents most necessary competences to digital marketing specialist is related with strategic and basic aspects of marketing discipline (see Table1) (TOP 5 competences e.g. Understanding of customer personas and their needs; Strong communication; Digital Strategy; Strategic creativity; Customer Engagement, Customer loyalty, retention, and satisfaction campaigns design and execution) and competences related with digital field of marketing (Web Experience Management; Business Intelligence; Targeting & Optimization; Usability / Design)

Table 7. Ranking of competences necessary for digital marketing specialist

competences necessary for digital marketing specialist	useless	foundation	intermediate	advanced	highly specialised	I dont know	points
Understanding of customer personas and their needs	11	19	80	111	128	6	980
Strong communication	12	19	73	123	120	8	966
Digital Strategy	9	27	85	130	100	4	951
Strategic creativity	11	27	90	126	92	9	909
Customer Engagement	12	34	84	126	91	8	896
Customer loyalty, retention, and satisfaction campaigns design and execution	15	31	79	122	98	10	887
Web Experience Management	11	29	102	135	72	6	882
Bussiness Intelligence	13	39	82	123	90	8	880
Targeting & Optimization	13	31	99	109	91	12	868
Usability / Design	10	33	118	122	66	6	859
User Acquisition	16	37	97	122	76	7	837
Competitive Intelligence	17	43	85	114	87	9	835
Crisis management in social networks	19	39	85	111	91	10	830
Intellectual property positioning and protection	14	44	97	120	72	8	830
Sustainable Growth marketing Strategies	21	34	70	130	87	13	828
Data Science & Big Data	16	44	84	122	77	12	822
Data modeling and evaluation	17	38	100	121	69	10	809
Programmatic Advertising	15	49	101	116	67	7	807
Cyber cecurity	18	55	94	95	87	6	804
Web Analytics & A/B Testing	19	42	88	113	79	14	797



competences necessary for digital marketing specialist	useless	foundation	intermediate	advanced	highly specialised	I dont know	points
Growth Hacking (Growth Marketing)	20	42	78	131	71	13	795
Customer Experience UX	19	44	93	100	84	15	790
Predictive Analysis & Attribution	22	28	103	111	76	15	783
Leadership	18	44	98	108	69	18	768
Expert storyteller	16	51	110	98	65	15	761
Retargeting	14	46	113	111	52	19	757
Web Development - Custom	22	54	101	105	68	5	755
Probability and statistics	20	56	113	106	51	9	724
Computer science fundamentals and programming	26	60	113	96	55	5	690
Blockchain marketing use cases	31	44	105	104	50	21	642
Software engineering and system design	42	69	89	89	58	8	578

The analysis of professional skills necessary for digital marketing specialist (see Table 2) allows to state that most necessary are skills related with ICT tools directly designed for marketing purposes (Social Media Marketing; Digital Analytics; Mobile Marketing; CRM; Search Engine Marketing (SEM); Search Engine Optimization (SEO); Building and managing customer experience teams; Video Marketing; Email Marketing). The only exception is related with skills of *Excel* usage.

Table 8. Ranking of professional skills necessary for digital marketing specialist

professional skills necessary for digital marketing specialist	useless	foundation	intermediate	advanced	highly specialised	I dont know	points
Social Media Marketing (Facebook Ads, Twitter Ads, LinkedIn Ads, Hootsuite, Instagram, Youtube)	16	18	54	107	149	11	979
Digital Analytics (Google Analytics, Adobe Analytics, Optimizel)	15	26	65	109	132	8	951
Mobile Marketing	15	20	62	129	118	11	943
CRM	16	21	65	122	117	14	921
Excel	10	39	78	118	102	8	917
Search Engine Marketing (SEM)	18	34	51	126	115	11	902



professional skills necessary for digital marketing specialist	useless	foundation	intermediate	advanced	highly specialised	I dont know	points
(Google AdWords, Bing Ads)							
Search Engine Optimization (SEO) (Moz, Ahrefs, SEM Rush, Google Search Console)	16	31	77	112	110	9	897
Building and managing customer experience teams	13	39	63	129	96	15	884
Video Marketing	18	29	77	117	105	9	882
Email Marketing (Mailchimp, Constant Contact, AWeber)	18	37	78	106	108	8	871
Content Marketing (WordPress, Yoast SEO plug-in)	20	36	74	112	106	7	864
Geo-Targeting PPC	15	33	75	112	99	21	855
Affiliate Marketing (CJ by Conversant, Impact Radius)	17	44	70	97	108	19	839
Paid Search Marketing	19	32	81	116	93	14	838
Marketing and Sales Automation (Marketo, Pardot, Bronto)	16	41	72	107	96	23	826
Video editing	17	53	94	102	81	8	803
Conversion Rate Optimization (CRO) (Optimizely, Google Tag Manager, Craft)	20	33	66	123	87	26	802
Webdevelopment - Content Management Systems	23	49	81	107	86	9	784
Project Management (JIRA, Basecamp, Timeforce, Trello)	22	44	80	99	90	20	773
Web Development (WordPress, Magento, Joomla, Drupal)	22	61	83	95	82	12	752
Applying Cyber security solutions software	27	51	74	97	84	22	718
Tableau	15	37	91	86	69	57	693
Applying machine learning algorithms and libraries	33	41	75	100	81	25	683



professional skills necessary for digital marketing specialist	useless	foundation	intermediate	advanced	highly specialised	I dont know	points
SQL, Database administration	32	62	74	85	83	19	669
Python, PHP, .NET, Java or other backend programming technologies	35	64	74	86	76	20	634

Analysis of professional positions which requires digital marketing competences and professional skills and which could be treated as primary target group of learning material implementation conditionally possible to divide into three groups regarding types of professional activities: specialists (Social media specialists; E.marketing information specialists; Internet research specialists; E.marketing web designers), managers (Internet marketing content managers; E. marketing project managers; Marketing Metrics Managers; Social media development administrators), analytics (Expert in Web Analytics/Data Analytics; Experts in Business Intelligence; Market analytic) (Table 3).

Table 9. Ranking of positions necessary for digital marketing competences and professional skills

positions	useless	foundation	intermediate	advanced	highly specialised	I dont know	points
Social media specialist	13	35	90	118	92	7	885
E.marketing information specialist	15	30	84	127	87	12	867
Market analytic	14	34	79	132	82	14	860
Internet research specialist	15	32	90	129	79	10	855
Internet marketing content manager	20	32	78	122	94	9	850
E. marketing project manager	20	30	71	130	92	12	850
Marketing Metrics Manager	18	31	67	138	85	16	847
Expert in Web Analytics/Data Analytics	21	35	78	119	91	11	828
Expert in Business Intelligence	18	34	79	132	75	17	816
E.marketing web designer	19	32	98	123	73	10	813
Social media development administrator	21	31	94	122	78	9	813
Brand manager	21	34	76	120	83	21	794
Product manager	19	39	99	124	63	11	785
Martech specialist	16	38	76	102	82	41	760
System analytic	27	47	85	102	75	19	715
PPC manager	20	37	81	111	53	53	664



positions	useless	foundation	intermediate	advanced	highly specialised	I dont know	points
IS quality assurance specialist	31	53	83	112	54	22	647
IS designer	36	51	95	89	61	23	608

Analysis of business entities/types of organization which would be possible to treat as stakeholders for learning material development and implementation conditionally possible to divide into two groups: traditional business activities which adapts digital marketing solutions (E.sales and marketing departments (in business companies) Advertising agencies Market analytic service companies) and businesses based on digital marketing (E.marketing and internet communication companies; Media and technology companies; International internet content organizations) (Table 4).

Table 10. Ranking of business entities/types of organization which requires for digital marketing competences and professional skills

business entities/types of organization	useless	foundation	intermediate	advanced	highly specialised	I dont know	points
E.sales and marketing department	15	41	81	104	107	7	883
E.marketing and internet communication companies	14	46	78	105	104	8	877
Advertising agencies	17	44	80	99	106	9	857
Media and technology companies	15	46	83	110	93	8	854
International internet content organizations	17	39	87	106	96	10	847
Market analytic service companies	22	37	87	93	107	9	830
Start-Ups	17	53	95	106	71	13	777
(Traditional) Business companies	17	56	112	106	55	9	750
Public and government bodies	23	58	108	93	62	11	709
Science and study sector	23	56	108	95	61	12	709

Based on presented information based on performed researches, collected information and made insights Project group developed recommendations for projects curriculum development and localization.



2nd part of Survey is an interview dedicated to experts. The plan was to interview at least 40 experts in HEI and 20 in training centers for gathering info on task analysis. Due changed circumstances and quarantine statement in project partners' countries according which it was impossible to organize an interview it was made decision to change interview to survey (similar form as for students) with additional asking to respondent to comment wide its opinion on surveys' form. Specialists expressed an opinion regarding 2 areas of Survey:

- Competences to develop necessary for digital marketing specialist;
- Professional skills to develop necessary for digital marketing specialist;

Feedback regarding competences necessary for digital marketing specialist it is possible to divide into two areas related with nature of competences: personal competences and professional competences (see Table11)

Table 11. Additional competences necessary for digital marketing specialist

Competences:	Group of competences
Basics of strategic marketing	Professional competences
Mass-media channels management	
Marketing complex (marketing MIX) management	
Basics of promotion	
Big Data Analysis	
Text editing	
Graphic design	
Content Marketing skills	
Team working and communication	Personal competences
Critical thinking	
Creativeness	
Flexibility	

Feedback regarding professional skills necessary for digital marketing specialist also possible to divide into two areas related with nature of competences: personal competences and professional competences (see Table12)

Table 21. Additional professional skills necessary for digital marketing specialist

Professional skills:	Group of professional skills
Work with text redactor (text editing software)	Professional skills
Data visualization (infographics, charts, pivots pictures and etc.)	
Copy writing	
Usage of graphic design software	
Correct use of language	Personal skills
Good English	

It can be said that both competences and professional skills necessary for digital marketing specialist which is assigned to range of Professional group coincides to listings of surveys choices (see table No.2 and Table No.3).

Personal competences and Personal skills mentioned on Table 30 and table 31 complements survey with new provided information and attitude.