# MICROCREDENTIALS FOR INFORMATION DATA LITERACY
## Competence 1.2: EVALUATING DATA, INFORMATION AND DIGITAL CONTENT

**DSW**
**DIGITAL SKILLS WALLET**

**Co-funded by
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# Contents

# FOUNDATION LEVEL
# (LEVEL 1 AND LEVEL 2)

# Misinformation and Disinformation: WHAT, HOW AND WHY (MC 1.2.A.1)

## Basic Information

| | |
|---|---|
| Identification of the learner | Any Citizen |
| Title and code of the micro-credential | Misinformation and Disinformation: WHAT, HOW AND WHY<br>Code: MC 1.2.A.1 |
| Country(ies)/Region(s) of the issuer | ITALY, CYPRUS, GREECE, ROMANIA<br>http://dsw.projectsgallery.eu |
| Awarding body(ies) | DSW Consortium<br>Project Number: **101087628** |
| Date of issuing | Nov 2023 |
| Notional workload needed to achieve the learning outcomes | 3 hrs |
| Level of the learning experience leading to the micro-credential | FOUNDATION |
| Type of assessment | Automatically marked Questions<br>Number of Questions: 16 – 20<br>Passing Score: 75% |
| Form of participation in the learning activity | Online Asynchronous |
| Type of quality assurance used to underpin the micro-credential | Peer Review |

## Learning Outcomes

Learning Outcomes (ref. LOs 1.2.1, 1.2.2 )
- Describe what is misinformation and disinformation and the difference of the two
- Describe how content is populated on the Internet and various platforms and recognize that online environments contain all types of information and content including misinformation and disinformation
- Recognize the Artificial Intelligence systems depend on information available on the internet and that information provided is not always correct or accurate

## Description

The acquisition of the micro credential 'Misinformation and Disinformation: WHAT, HOW AND WHY' demonstrates that learners understand the terms misinformation and disinformation. Misinformation and disinformation refer to false or misleading information, but they differ in their intent and source. The learner should be able to explain the difference between the two.

Moreover, learners acquiring this MC demonstrate a deeper understanding of why and how misinformation and disinformation exist on the Internet and Social Media platforms by understanding how content is populated on the Internet and SM platforms and therefore the acknowledge that online content is not always correct, even if a topic is widely reported it does not necessarily mean it is accurate.

Artificial Intelligence (AI) systems work by simulating human intelligence through the use of algorithms, data, and computational power. The goal of AI is to enable machines to perform tasks that typically require human intelligence, such as learning, reasoning, problem-solving, perception, and language understanding. The learners should be aware that AI models rely/are trained based on information available (i.e. on the Internet) and therefore if the underlying information is false AI systems can deliver false results.

## Questions

Misinformation and Disinformation: WHAT, HOW AND WHY
1. Can you provide with a description of misinformation and disinformation?
2. Can you differentiate between these 2 terms?
3. Describe methods that content is generated on the Internet and SM platforms.
4. Why content on the internet is not always correct or accurate?
5. Why AI systems can provide inaccurate results?
6. How AI models learn?

# Credibility of Online Sources – Elements that support/not support online sources credibility (MC 1.2.A.2)

## Basic Information

| | |
|---|---|
| Identification of the learner | Any Citizen |
| Title and code of the micro-credential | Credibility of Online Sources – Elements that support/not support online sources credibility<br>Code: MC 1.2.A.2 |
| Country(ies)/Region(s) of the issuer | ITALY, CYPRUS, GREECE, ROMANIA<br>http://dsw.projectsgallery.eu |
| Awarding body(ies) | DSW Consortium<br>Project Number: **101087628** |
| Date of issuing | Nov 2023 |
| Notional workload needed to achieve the learning outcomes | 3 hrs |
| Level of the learning experience leading to the micro-credential | FOUNDATION |
| Type of assessment | Automatically marked Questions<br>Number of Questions: 16 – 20<br>Passing Score: 75% |
| Form of participation in the learning activity | Online Asynchronous |
| Type of quality assurance used to underpin the micro-credential | Peer Review |

## Learning Outcomes

Learning Outcomes (ref. LOs 1.2.4)
Credibility of Online Sources
- Enlist and describe elements that can support the credibility of a source, information and digital content

## Description

Checking the credibility of a source is crucial to ensure that the information you are relying on is accurate, reliable, and trustworthy. There are numerous elements that can support the credibility of a source such as Authorship: Checking the author's credentials and expertise, their educational background, professional affiliations, and relevant experience in the field, Publication Source: Examine the source of the publication. Is it from a reputable publisher, academic institution, or established media outlet? Peer Review: If the information is from an academic source, check whether the research has undergone peer review. Peer-reviewed articles have been evaluated by experts in the field for quality and accuracy before publication, Citations and References:
A credible source should include citations and references to support the claims made. Check whether the author has cited reputable sources and whether these references are easily accessible and verifiable.

Other factors that can indicate the accuracy/validity of a source is Date of Publication: Consider the date of publication. Some topics may require the most recent information, while others may not be time-sensitive. The learner should be cautious of outdated information, especially in rapidly evolving fields. Another element that should be examined is Objectivity and Bias. Is the information presented in a balanced and unbiased manner, or does it exhibit a clear bias?

Other factors that could indicate the credibility of a source may be the Quality of Writing since credible sources typically adhere to high standards of language use, clarity, and organization and the domain of the source.

This MC demonstrates that the learner is aware of various elements that can support (or not) the credibility of the source and can elaborate on the reasons why they do. The learners demonstrate a deeper understanding why these elements may or may not support the credibility of a source (i.e. weird or reputable domain name).

## Questions

1. List elements that can support (or not) the credibility of a source.
2. Explain why a domain name could indicate that a source may not be credible.
3. How the tone and language used may indicate the credibility of a source?
4. How objectivity and Bias can be revealed by examining a source?

# Credibility of Online Content – Viewing with a Critical Eye (MC 1.2.A.3)

## Basic Information

| | |
|---|---|
| Identification of the learner | Any Citizen |
| Title and code of the micro-credential | Credibility of Online Content – Viewing with a Critical Eye<br> Code: MC 1.2.A.3 |
| Country(ies)/Region(s) of the issuer | ITALY, CYPRUS, GREECE, ROMANIA<br>http://dsw.projectsgallery.eu |
| Awarding body(ies) | DSW Consortium<br>Project Number: **101087628** |
| Date of issuing | Nov 2023 |
| Notional workload needed to achieve the learning outcomes | 3 hrs |
| Level of the learning experience leading to the micro-credential | FOUNDATION |
| Type of assessment | Automatically marked Questions<br>Number of Questions: 16 – 20<br>Passing Score: 75% |
| Form of participation in the learning activity | Online Asynchronous |
| Type of quality assurance used to underpin the micro-credential | Peer Review |

## Learning Outcomes

Learning Outcomes (ref. LOs 1.2.5, 2.1.6 and 2.1.7)
Questioning Search Results
- Detect the credibility of online content by differentiating sponsored content from other content online, question ranking in search results and other factors
- Recognize various factors that can cause potential information biases
- Recognize how various forms of bias and misinformation that can be present in digital content, can impact perceptions and opinions and adopt a responsible online behaviour

## Description

By acquiring this MC the learner demonstrates capacity in recognizing advertisements and marketing messages on social media or search engines even if it is not marked as sponsored and carefully considering the top/first search results in both text-based and audio searches, as they may reflect commercial and other interests rather than be the most appropriate results for the query.

The acquisition of this MC also demonstrates that the learner is aware that information biases exist and can be caused by numerous factors such as data, algorithms, editorial choices, censorship, one's own personal limitations. Additionally, it demonstrates an understanding at a high level how these factors create bias and learners can critically review information.

Misinformation and bias extent beyond the online environment as they can shape opinions, influence voters, and impact perceptions. This MC demonstrates that the learners are able to recognize the importance of these influences and adopt a responsible online behaviour (i.e. share or like trustworthy information)

## Questions

1. How can you differentiate sponsored content in Social Media?
2. How can you detect sponsored content in search results?
3. What factors may cause information biases?
4. What is censorship and how it can create information bias?
5. How misinformation can influence audiences?
6. What is an ethical online behaviour when sharing content on the internet ir Social Media?

# Misinformation, Disinformation and Bias in AI generated content(MC 1.2.A.4)

## Basic Information

| | |
|---|---|
| Identification of the learner | Any Citizen |
| Title and code of the micro-credential | Misinformation, Disinformation and Bias in AI generated content<br>Code: MC 1.2.A.4 |
| Country(ies)/Region(s) of the issuer | ITALY, CYPRUS, GREECE, ROMANIA<br>http://dsw.projectsgallery.eu |
| Awarding body(ies) | DSW Consortium<br>Project Number: **101087628** |
| Date of issuing | Nov 2023 |
| Notional workload needed to achieve the learning outcomes | Minimum 3 – Maximum 8 hrs |
| Level of the learning experience leading to the micro-credential | FOUNDATION |
| Type of assessment | Automatically marked Questions<br>Number of Questions: 16 – 20<br>Passing Score: 75% |
| Form of participation in the learning activity | Online Asynchronous |
| Type of quality assurance used to underpin the micro-credential | Peer Review |

## Learning Outcomes

Learning Outcomes (ref. LOs 1.2.7, 1.2.8 and 1.2.9)
Misinformation, Disinformation and Bias in AI generated content

- Explain what the term "deep-fakes" means in reference to AI-generated images, videos or audio recordings
- Recognise that AI algorithms might not be configured to provide only the information that the user wants; they might also embody a commercial or political message
- Understand at a high level how AI works and recognise that the data, on which AI depends, may include biases and therefore information is reproduced with biases

## Description

AI-generated images, videos or audio recordings of events or persons that did not really happen (e.g. speeches by politicians, celebrity faces on pornographic imagery). They may be impossible to distinguish from the real thing

Recognise that AI algorithms might not be configured to provide only the information that the user wants; they might also embody a commercial or political message (e.g. to encourage users to stay on the site, to watch or buy something particular, to share specific opinions). This can also have negative consequences (e.g. reproducing stereotypes, sharing misinformation).
Learners should be aware that the data, on which AI depends, may include biases. If so, these biases can become automated and worsened by the use of AI. For example, search results about occupation may include stereotypes about male or female jobs (e.g. male bus drivers, female sales persons).

## Questions

1. Can you provide examples on how to perform searches in the popular Social Media Platforms?
2. Can you create and share content on Social Media platforms?
3. Can you find information in Social Media with the use of various methods?
4. Do you understand the implications and the implications of sharing false content?
5. What are the prerequisites to open a downloaded file and what are the risks of doing so?

# Information verification with fact-checking websites, tools and extensions (MC 1.2.A.5)

## Basic Information

| | |
|---|---|
| Identification of the learner | Any Citizen |
| Title and code of the micro-credential | Information verification with fact-checking websites, tools and extensions Code: MC 1.2.A.5 |
| Country(ies)/Region(s) of the issuer | ITALY, CYPRUS, GREECE, ROMANIA http://dsw.projectsgallery.eu |
| Awarding body(ies) | DSW Consortium Project Number: **101087628** |
| Date of issuing | Nov 2023 |
| Notional workload needed to achieve the learning outcomes | 5 hrs |
| Level of the learning experience leading to the micro-credential | FOUNDATION |
| Type of assessment | Automatically marked Questions Number of Questions: 16 – 20 Passing Score: 75% |
| Form of participation in the learning activity | Online Asynchronous |
| Type of quality assurance used to underpin the micro-credential | Peer Review |

## Learning Outcomes

Learning Outcomes (ref. LOs 1.2.11)

**Information verification with fact-checking websites, tools and extensions**

- Enlist fact-checking websites, Internet explorer extensions  and tools to verify the accuracy of digital information and describe at high level how these work.

## Description

The learner should be able to enlist fact checking web sites (i.e. Snopes, FactCheck.org and  PolitiFact) as well as Internet explorer  extensions (i.e.  Google Fact Check Explorer), tools (i.e. Hoaxy,  Truth or Fiction) for fact checking of viral emails, social media posts and other internet rumors ()

The micro credential " **Information verification with fact-checking websites, tools and extensions** " demonstrates the awareness  of the learner of fact-checking web sites and tools and how these can assist in verifying information encountered online

## Questions

1. Can you enlist 3 fact checking web sites?
2. What extensions can be employed to fact check information?
3. What tools exist for information verification?
4. Can you elaborate on features provided by websites and tools?

# INTERMEDIATE LEVEL
# (LEVEL 3 AND LEVEL 4)

# Verifying credibility of online Content with Fact-Checking Websites, tools and extensions (CODE 1.2.B.1)

## Basic Information

| | |
|---|---|
| Identification of the learner | Any Citizen |
| Title and code of the micro-credential | **Verifying credibility of online Content with Fact-Checking Websites, tools and extensions**<br> Code: MC 1.2.B.1 |
| Country(ies)/Region(s) of the issuer | ITALY, CYPRUS, GREECE, ROMANIA<br>http://dsw.projectsgallery.eu |
| Awarding body(ies) | DSW Consortium<br>Project Number: **101087628** |
| Date of issuing | Nov 2023 |
| Notional workload needed to achieve the learning outcomes | 5 hrs |
| Level of the learning experience leading to the micro-credential | INTERMEDIATE |
| Type of assessment | Automatically marked Questions<br>Number of Questions: 16 – 20<br>Passing Score: 75% |
| Form of participation in the learning activity | Online Asynchronous |
| Type of quality assurance used to underpin the micro-credential | Peer Review |

## Learning Outcomes

Learning Outcomes (ref. LOs 1.2.12, 1.2.13, 1.2.14)
**Verifying credibility of online Content with Fact-Checking Websites, tools and extensions**
- Use fact checking websites to verify the accuracy of digital information
- Use fact checking tools to verify the accuracy of digital information
- Inclined in using fact-checking tools and websites for checking the credibility of online content

## Description

Fact-checking websites play a crucial role in verifying the accuracy of information circulating online. They investigate claims, statements, and news stories to determine their truthfulness and provide users with reliable information. Some well-known fact-checking websites that can be used to verify information are Snopes, FactCheck.org, PolitiFact, The Washington Post Fact Checker and others

Snopes is one of the oldest and most comprehensive fact-checking websites. It covers a wide range of topics, including politics, health, science, and urban legends. FactCheck.org, is a project of the Annenberg Public Policy Center and focuses on checking the factual accuracy of political claims, advertisements, and speech. PolitiFact is a Pulitzer Prize-winning fact-checking website that primarily focuses on statements made by politicians. It rates the accuracy of claims on a Truth-O-Meter scale.

Hoaxy and Truth or Fiction are online tools designed to help users navigate and fact-check information on the internet. Hoaxy is a web-based tool that visualizes the spread of information on social media. It focuses on tracking the dissemination of claims, rumors, and misinformation. Hoaxy does not determine the truth or falsehood of content but instead illustrates how information spreads across social networks.

Truth or Fiction is a fact-checking website that verifies the accuracy of various claims, rumors, and stories circulating on the internet. The website categorizes information into "truth," "fiction," or "undetermined" based on its investigation. Users can search for specific claims to see whether they are accurate or have been debunked.

The acquisition of the micro-credential "**Verifying credibility of online Content with Fact-Checking Websites, tools and extensions"** demonstrates the capacity of the learner to use websites and tools to verify the credibility of online content and the adoption of this fact-checking on a regular basis.

## Questions

1. Can you provide a list of 3-4 fact-checking websites?
2. Are you able to use a variety fact-checking web-sites?
3. How does The Washington Post Fact Checker works?
4. What Hoaxy does?
5. How does Truth or Fiction website works?

# Investigating the Credibility of Online Content (CODE 1.2.B.2)

## Basic Information

| | |
|---|---|
| Identification of the learner | Any Citizen |
| Title and code of the micro-credential | Investigating the Credibility of Online Content<br>Code: MC 1.2.B.2 |
| Country(ies)/Region(s) of the issuer | ITALY, CYPRUS, GREECE, ROMANIA<br>http://dsw.projectsgallery.eu |
| Awarding body(ies) | DSW Consortium<br>Project Number: **101087628** |
| Date of issuing | Nov 2023 |
| Notional workload needed to achieve the learning outcomes | 4 hrs |
| Level of the learning experience leading to the micro-credential | INTERMEDIATE |
| Type of assessment | Automatically marked Questions<br>Number of Questions: 16 – 20<br>Passing Score: 75% |
| Form of participation in the learning activity | Online Asynchronous |
| Type of quality assurance used to underpin the micro-credential | Peer Review |

## Learning Outcomes

Learning Outcomes (ref. LOs 1.2.15)
Investigating the Credibility of Online Content

- Investigate the credibility of the online content by investigating the author, the source of the information and other factors that support (or not) the credibility of the content

## Description

By diligently investigating the author or source, you can gain insights into the credibility of the information and make more informed judgments about its reliability. The credibility assessment is a critical skill in today's information landscape, where misinformation and disinformation can be prevalent. The learner should be able to find the name of the author and investigate whether reputable sources have been used, the Author's profile on Social Media, fact-checking web-sites, citations and references, cross-referencing etc.

The acquisition of this Micro-credential demonstrates that the learner has the capacity to investigate the credibility of the source by using a variety of methods (i.e. investigating the author, reviewing sources, citations, review) using fact-checking tools and websites, checking domain names etc

## Questions

1. Can you elaborate on methods used to check the credibility of online content?
2. What kind of methods would you use to check whether information is correct and accurate?
3. Providing a link to online content can you make a judgement whether the information presented is accurate?

# Analysing and Evaluating the Credibility of Online Content (CODE 1.2.B.3)

## Basic Information

| | |
|---|---|
| Identification of the learner | Any Citizen |
| Title and code of the micro-credential | Analysing and Evaluating the Credibility of Online Content<br>Code: MC 1.2.B.3 |
| Country(ies)/Region(s) of the issuer | ITALY, CYPRUS, GREECE, ROMANIA<br>http://dsw.projectsgallery.eu |
| Awarding body(ies) | DSW Consortium<br>Project Number: **101087628** |
| Date of issuing | Nov 2023 |
| Notional workload needed to achieve the learning outcomes | 6 hrs |
| Level of the learning experience leading to the micro-credential | INTERMEDIATE |
| Type of assessment | Automatically marked Questions<br>Number of Questions: 16 – 20<br>Passing Score: 75% |
| Form of participation in the learning activity | Online Asynchronous |
| Type of quality assurance used to underpin the micro-credential | Peer Review |

## Learning Outcomes

Learning Outcomes (ref. LOs 1.2.16, 1.2.17 and 1.2.18)

**Analysing and Evaluating the Credibility of Online Content**

- Analyze and interpret various media types critically, understanding their potential impact on audiences and perceptions.
- Develop the ability to identify and distinguish biases, misinformation, disinformation, and propaganda in digital content.
- Evaluate the trustworthiness, reliability, and authority of digital information sources through critical analysis.

## Description

Analysing and interpreting various media types critically involves examining content across different forms of media and understanding how they can shape audience perceptions. The Learner should be able to analyse information on the author, source, the target audience, explore Social and Cultural Impact and self-reflect.

The learner should enhance his/her ability to identify and distinguish biases, misinformation, and disinformation, fostering a more critical and informed approach to the information he/she encounters.

The learner should be able to perform critical analysis and take informed decisions taking into account his/her investigation results. The learner should also be aware of his/her own bias and beliefs that might influence his/her decisions.

The micro-credential '**Analysing and Evaluating the Credibility of Online Content'** demonstrates the capacity of the learner to critically evaluate content taking into consideration a number of factors.

## Questions

1. Given a story presented online, can you investigate and critically take position of the truthfulness of the story?
2. You are given an article found online along with relevant information such as the source, information from fact-checking web-sites and the author, can you distinguish biases? misinformation, and disinformation?
3. You are given an article found online along with relevant information such as the source, information from fact-checking web-sites and the author, can you distinguish misinformation?
4. You are given 2 stories; one contains misinformation and the other disinformation. Can you distinguish between the 2 with an explanation of your choices?

# Ethical Practices in Using and Disseminating Online Content (CODE 1.2.B.4)

## Basic Information

| | |
|---|---|
| Identification of the learner | Any Citizen |
| Title and code of the micro-credential | Ethical Practices in Using and Disseminating Online Content<br>Code: MC 1.2.B.4 |
| Country(ies)/Region(s) of the issuer | ITALY, CYPRUS, GREECE, ROMANIA<br>http://dsw.projectsgallery.eu |
| Awarding body(ies) | DSW Consortium<br>Project Number: **101087628** |
| Date of issuing | Nov 2023 |
| Notional workload needed to achieve the learning outcomes | 3 hrs |
| Level of the learning experience leading to the micro-credential | INTERMEDIATE |
| Type of assessment | Automatically marked Questions<br>Number of Questions: 16 − 20<br>Passing Score: 75% |
| Form of participation in the learning activity | Online Asynchronous |
| Type of quality assurance used to underpin the micro-credential | Peer Review |

## Learning Outcomes

Learning Outcomes (ref. LOs 1.2.19 and 1.2.20)
Ethical Practices in Using and Disseminating Online Content
- Demonstrate ethical practices in using and disseminating digital information and content.
- Demonstrate knowledge of privacy, copyright, and intellectual property concerns.

## Description

Ethical practices in using and disseminating digital information and content are essential for maintaining integrity, trust, and responsible behavior in the online environment. Key ethical considerations are accuracy and truthfulness of content disseminated online, attribution and citations, transparency, respect of privacy, avoiding plagiarism, digital citizenship and create ethical and respectful content.

When sharing content either in social media or the Internet, it is important to give credit to the original sources of information by providing proper attribution and citations and respect copyright and intellectual property rights when using content created by others. Transparency is also a key ethical element, which shows the intentions and affiliations of the author and any potential conflicts of interest when sharing information.

Respecting individuals' privacy rights by obtain explicit consent before sharing personal information, images, or data, and be mindful of the potential impact on individuals' privacy as well respecting copyrights and intellectual property rights are good practices when sharing online content.

Finally, the learner should stay informed about evolving ethical standards and best practices in the digital space, engage in continuous learning to adapt to changes in technology and information dissemination.

Ethical principles contribute to a positive and responsible digital culture, fostering an environment where information can be trusted, and online interactions are respectful and beneficial.

The micro-credential 'Ethical Practices in Using and Disseminating Online Content' demonstrates the capacity of the learner to exercise ethical practices and respecting privacy, intellectual rights and copyrights whenusing and disseminating online content.

## Questions

# Legal Issues to Social Media Use (CODE 1.2.B.5)

## Basic Information

| | |
|---|---|
| Identification of the learner | Any Citizen |
| Title and code of the micro-credential | Legal Issues to Social Media Use<br>Code: MC 1.2.B.5 |
| Country(ies)/Region(s) of the issuer | ITALY, CYPRUS, GREECE, ROMANIA<br>http://dsw.projectsgallery.eu |
| Awarding body(ies) | DSW Consortium<br>Project Number: **101087628** |
| Date of issuing | Nov 2023 |
| Notional workload needed to achieve the learning outcomes | 4 hrs |
| Level of the learning experience leading to the micro-credential | INTERMEDIATE |
| Type of assessment | Automatically marked Questions<br>Number of Questions: 16 – 20<br>Passing Score: 75% |
| Form of participation in the learning activity | Online Asynchronous |
| Type of quality assurance used to underpin the micro-credential | Peer Review |

## Learning Outcomes

Learning Outcomes (ref. LOs 1.2.21 and  1.2.22)
Legal Issues to Social Media and Internet Use
- Recognise legal issues related to social media and Internet use.
- Adhere to laws and regulations.

## Description

The use of social media is subject to various legal issues that individuals, businesses, and organizations need to be aware of to ensure compliance with the law. Some key legal considerations related to social media use are
Intellectual Property Laws, Defamation and Libel, Privacy Laws, Advertising and Endorsements, Data Protection and Privacy Regulations, Terms of Service and Community Guidelines, E-Discovery and Legal Discovery, Children's Online Privacy Protection Act (COPPA).

Being aware of laws and regulations that apply when using the Social Media and Internet as well as the potential consequences if these are not obeyed, the learner demonstrates the capacity to adhere to these rules and regulations.

For example, engaging in cyberbullying or harassment on social media  may lead to legal consequences, and platforms often have mechanisms to report and address harassment. Recognizing that social media content may be subject to legal discovery in legal proceedings, organizations and individuals should be prepared to provide relevant social media records if legally required. Certain industries, such as finance and healthcare, have specific regulations governing the use of social media. Adhering to COPPA regulations when dealing with content targeted at children dictates to obtain parental consent before collecting personal information from children under the age of 13.

The acquisition of the micro-credential "Legal Issues to Social Media and Internet Use" demonstrates that the learner is aware of any legal issues and adheres to the laws and regulations when using the Internet and Social Media.

## Questions

1. Can you describe the various laws and regulations that apply when using the Internet and Social Media?
2. What is COPPA?
3. What laws/regulations apply in Advertising and Endorsements?
4. What is Cyber bulling and how laws protect users from this?
5. Elaborate on the purpose of Terms of Service and Community Guidelines

## Tools available for Data analysis (CODE 1.2.B.6)

### Basic Information

| | |
|---|---|
| Identification of the learner | Any Citizen |
| Title and code of the micro-credential | Tools available for Data analysis<br>Code: MC 1.2.B.6 |
| Country(ies)/Region(s) of the issuer | ITALY, CYPRUS, GREECE, ROMANIA<br>http://dsw.projectsgallery.eu |
| Awarding body(ies) | DSW Consortium<br>Project Number: **101087628** |
| Date of issuing | Nov 2023 |
| Notional workload needed to achieve the learning outcomes | 3 hrs |
| Level of the learning experience leading to the micro-credential | INTERMEDIATE |
| Type of assessment | Automatically marked Questions<br>Number of Questions: 16 – 20<br>Passing Score: 75% |
| Form of participation in the learning activity | Online Asynchronous |
| Type of quality assurance used to underpin the micro-credential | Peer Review |

## Learning Outcomes

Learning Outcomes (ref. LOs 1.2.23)
Tools available for Data analysis
- Enlist and describe tools for data analysis and visualization Adhere to laws and regulations.

## Description

There are numerous tools available for data analysis, catering to various needs and preferences. For example Microsoft Excel is a spreadsheet program that allows users to perform basic data analysis, create charts, and perform calculations and Google Sheets, an online spreadsheet tool similar to Excel, allowing collaboration in real-time.

There is also other software available for more advanced data manipulation and analysis such as Python with Pandas which is a powerful open-source data analysis library for Python, providing data structures for efficient data manipulation and analysis, R which is a programming language and environment for statistical computing and graphics. Jupyter Notebooks which is an open-source web application that allows users to create and share documents containing live code, equations, visualizations, and narrative text, Tableau Public, a data visualization tool that allows users to create interactive and shareable dashboards, Microsoft's Power BI, a business analytics tool by Microsoft that enables users to visualize and share insights across an organization and SQL (Structured Query Language), a domain-specific language used for managing and manipulating relational databases (various database management systems (DBMS) support SQL for data analysis) and the well know IBM SPSS Statistics, a Statistical software used for data analysis, including descriptive statistics, linear regression, and predictive analytics.

The acquisition of the micro-credential "Tools available for Data analysis" demonstrates that the learner is aware of tools available in the market and is able to describe at high level what these tools offer (i.e. data manipulation, transformation, analysis, visualization).

## Questions

1. Can you provide an example of a tool that allows to visualise data in a chart?
2. Can you provide an example of a tool that allows to transform and manipulate data?
3. What is SQL and how can be used in Database systems?
4. What is R programming language?
5. Which  tool is the standard tool used for Statistical Analysis?

# Visualise data to draw conclusions using a spreadsheet software (CODE 1.2.B.7)

## Basic Information

| | |
|---|---|
| Identification of the learner | Any Citizen |
| Title and code of the micro-credential | Visualise data to draw conclusions using a spreadsheet software<br> Code: MC 1.2.B.7 |
| Country(ies)/Region(s) of the issuer | ITALY, CYPRUS, GREECE, ROMANIA<br>http://dsw.projectsgallery.eu |
| Awarding body(ies) | DSW Consortium<br>Project Number: **101087628** |
| Date of issuing | Nov 2023 |
| Notional workload needed to achieve the learning outcomes | 5 hrs |
| Level of the learning experience leading to the micro-credential | INTERMEDIATE |
| Type of assessment | Automatically marked Questions<br>Number of Questions: 16 – 20<br>Passing Score: 75% |
| Form of participation in the learning activity | Online Asynchronous |
| Type of quality assurance used to underpin the micro-credential | Peer Review |

## Learning Outcomes

Learning Outcomes (ref. LOs 1.2.24)
Visualise data to draw conclusions using a spreadsheet software
- Visualize data to draw conclusion based on a data set using a spreadsheet software.

## Description

Visualizing data in a spreadsheet software like Microsoft Excel or Google Sheets is a powerful way to draw conclusions, identify patterns, and communicate insights. Prior to visualization, important steps should be performed such as importing or entering data, understanding the structure of the data (numeric, categorical), performing data cleaning (if needed) and selecting the appropriate visualization type.

By following these steps, the learner can effectively use spreadsheet software to visualize data, gain insights, and communicate findings to others. Visualization is a powerful tool for making data-driven decisions and conveying information in a clear and compelling manner.

The acquisition of the micro-credential "Visualise data to draw conclusions using a spreadsheet software" demonstrates that the learner is able to use a spreadsheet software to perform the steps described above to visualise data  for making data-driven decisions and conveying information in a clear and compelling manner

## Questions

1. What is data cleaning?
2. Describe possible methods to perform data cleaning
3. What steps should you take to visualise data?
4. Write down the steps to create a chart from the data set provided.

# ADVANCED LEVEL

# (LEVEL 5 AND LEVEL 6)

# Combine Fact-Checking Techniques to Verify, Analyse and Critically Evaluate Search Results (MC 1.2.C.1)

## Basic Information

| | |
|---|---|
| Identification of the learner | Any Citizen |
| Title and code of the micro-credential | Combine Fact-Checking Techniques to Verify, Analyse and Critically Evaluate Search Results<br>Code: MC 1.2.C.1 |
| Country(ies)/Region(s) of the issuer | ITALY, CYPRUS, GREECE, ROMANIA<br>http://dsw.projectsgallery.eu |
| Awarding body(ies) | DSW Consortium<br>Project Number: **101087628** |
| Date of issuing | Nov 2023 |
| Notional workload needed to achieve the learning outcomes | 4 hrs |
| Level of the learning experience leading to the micro-credential | ADVANCED |
| Type of assessment | Automatically marked Questions<br>Number of Questions: 16 – 20<br>Passing Score: 75% |
| Form of participation in the learning activity | Online Asynchronous |
| Type of quality assurance used to underpin the micro-credential | Peer Review |

## Learning Outcomes

Learning Outcomes (ref. LOs  1.2.25, 1.2.27 and 1.2.27)
**Combine Fact-Checking Techniques to Verify, Analyse and Critically Evaluate Search Results**
- Combine fact-checking techniques to verify the accuracy of claims and information found in digital content.
- Analyse and critically evaluate search results to identify their origins, to distinguish fact-reporting from opinion, and to determine whether outputs are truthful or have other limitations.
- Adopt an active stand for fighting misinformation and disinformation

## Description

Combining fact-checking techniques with critical evaluation of search results is crucial in ensuring the accuracy and reliability of information. The learner should be able to apply a  systematic approach that incorporates various strategies such as Understanding the Context, Diversify Sources to ensure a well-rounded view, apply Fact-Checking Techniques ( (e.g., using Snopes, or FactCheck.org, PolitiFact) to verify specific claims, use Cross-Verification, evaluate Website Credibility, authorship and expertise, check Date and Currency,  read beyond headlines which can be misleading avoiding click baits, compare and contrast, evaluate visual content, consider Biases and consult primary Sources, and check if the source or author has issued any corrections or updates to the information.

The learner should be able to apply critical thinking skills to assess the logic, reasoning, and coherence of the information presented and look at user Reviews or comments about the source.

By combining these fact-checking techniques and critical evaluation strategies, the learner enhances his/her ability to verify, analyse, and critically evaluate search results effectively, promoting a more accurate and informed understanding of the information you encounter.

The micro-credential  "**Combine Fact-Checking Techniques to Verify, Analyse and Critically Evaluate Search Results" demonstrates the skills of the learner to critically assess information encountered online, taking an active stand in fighting misinformation and disinformation.**

## Questions

1. Elaborate on strategies that combine fact-checking techniques to check the validity of information encountered.
2. Given information encountered online, assess the validity of information and elaborate on your results
3. Explain possible methods to report discrepancies encountered online

# Analyse and critically evaluate social media activity streams (MC 1.2.C.2)

## Basic Information

| | |
|---|---|
| Identification of the learner | Any Citizen |
| Title and code of the micro-credential | Analyse and critically evaluate social media activity streams<br>Code: MC 1.2.C.2 |
| Country(ies)/Region(s) of the issuer | ITALY, CYPRUS, GREECE, ROMANIA<br>http://dsw.projectsgallery.eu |
| Awarding body(ies) | DSW Consortium<br>Project Number: **101087628** |
| Date of issuing | Nov 2023 |
| Notional workload needed to achieve the learning outcomes | 7 hrs |
| Level of the learning experience leading to the micro-credential | ADVANCED |
| Type of assessment | Automatically marked Questions<br>Number of Questions: 16 – 20<br>Passing Score: 75% |
| Form of participation in the learning activity | Online Asynchronous |
| Type of quality assurance used to underpin the micro-credential | Peer Review |

## Learning Outcomes

Learning Outcomes (ref. LOs  1.2.28)

**Analyse and critically evaluate social media activity streams**

- Analyse and critically evaluate social media activity streams, to identify their origins, to distinguish fact-reporting from opinion, and to determine whether outputs are truthful or have other limitations

## Description

Analysing and critically evaluating social media activity streams involves a combination of techniques to identify origins, distinguish fact-reporting from opinion, and determine the truthfulness or limitations of the information.

Basic steps for evaluating social media activity streams are  Identifying Origins (i.e. Check Profile Information) Verify Account Verification (platforms like Twitter and Instagram have verification badges for authentic accounts), examine posting patterns, look for website links (i.e. check if the social media account links to a reputable website),use Reverse Image Search, distinguishing Fact-Reporting from Opinion, check Language and tone, evaluate sources cited, verify Information with independent sources, look for Editorial Policies to determine truthfulness or limitations, question sensationalism, evaluate engagement metrics, verify Statistics and Data (if any mentioned), consider the context(misinformation often relies on taking statements out of context), use Tools and Platforms such as Fact-Checking Websites, explore Social Media Analytics, review Comments and Replies, enhance Media Literacy:

Critical evaluation is an ongoing process, and the ability to distinguish fact from opinion requires a combination of analytical skills, skepticism, and awareness of online trends. Regularly updating knowledge and refining your evaluation techniques will contribute to a more informed and discerning approach to social media content.

The micro-credential "**Analyse and critically evaluate social media activity streams" demonstrates that the learner has the** ability of the learner to exercise effective analysis and evaluation of social media activity streams

## Questions

1. Can you elaborate on methods to evaluate social media activity streams?
2. Why the tone of a post is important?
3. Given a post drawn from Social Media, can you judge whether is truthful? Why or why not is truthful?

# Filter Bubbles in AI  (MC 1.2.C.3)

## Basic Information

| | |
|---|---|
| Identification of the learner | Any Citizen |
| Title and code of the micro-credential | Filter Bubbles in AI<br>Code: MC 1.2.C.3 |
| Country(ies)/Region(s) of the issuer | ITALY, CYPRUS, GREECE, ROMANIA<br>http://dsw.projectsgallery.eu |
| Awarding body(ies) | DSW Consortium<br>Project Number: **101087628** |
| Date of issuing | Nov 2023 |
| Notional workload needed to achieve the learning outcomes | 3 hrs |
| Level of the learning experience leading to the micro-credential | ADVANCED |
| Type of assessment | Automatically marked Questions<br>Number of Questions: 16 – 20<br>Passing Score: 75% |
| Form of participation in the learning activity | Online Asynchronous |
| Type of quality assurance used to underpin the micro-credential | Peer Review |

Learning Outcomes (ref. LO 1.2.29 and 1.2.30)
**Filter Bubbles in AI**
- Describe what are the filter bubbles and how they influence search results
- Recognize "echo chambers" or "filter bubbles" by using a variety of methods

## Description

Filter bubbles refer to the personalized information ecosystems created by algorithms that selectively expose individuals to content based on their past online behaviour, preferences, and interests. This concept was popularized by Eli Pariser in his book "The Filter Bubble: What the Internet Is Hiding from You."

Recognizing "echo chambers" or "filter bubbles" is an essential skill when working online. For example, the learner should be able to retain scepticism which information encountered (i.e. a social media stream favours a particular political ideology, additional recommendations can reinforce that ideology without exposing it to opposing arguments).

There are numerous steps to take to limit the effects of filter Bubbles such as diversifying Search Queries, experimenting with neutral and unbiased search terms, using multiple social media platforms and content aggregators to observe variations in content recommendations, browsing using Incognito/Private tabs, analyzing content diversity, examining personalized recommendations and using third-party tools such as Filter Bubble Checker Tools.

The micro-credential "Filter Bubbles in AI" demonstrates that the learner has the knowledge of the term, the skills to avoid such filter bubbles and retains skepticism when information is encountered online.

## Questions

1. Can you explain what is a "filter bubble"?
2. Elaborate on steps to take to avoid filter bubbles
3. Enlist Filter Bubble Checker Tools

# Evaluating Structured Data with Pivot Tables (MC 1.2.C.4)

## Basic Information

| | |
|---|---|
| Identification of the learner | Any Citizen |
| Title and code of the micro-credential | Evaluating Structured Data with Pivot Tables<br>Code: MC 1.2.C.4 |
| Country(ies)/Region(s) of the issuer | ITALY, CYPRUS, GREECE, ROMANIA<br>http://dsw.projectsgallery.eu |
| Awarding body(ies) | DSW Consortium<br>Project Number: **101087628** |
| Date of issuing | Nov 2023 |
| Notional workload needed to achieve the learning outcomes | 3 hrs |
| Level of the learning experience leading to the micro-credential | ADVANCED |
| Type of assessment | Automatically marked Questions<br>Number of Questions: 16 – 20<br>Passing Score: 75% |
| Form of participation in the learning activity | Online Asynchronous |
| Type of quality assurance used to underpin the micro-credential | Peer Review |

## Learning Outcomes

Learning Outcomes (ref. LOs 1.2.31)
**Evaluating Structured Data with Pivot Tables**
- Use tools such as Pivot Tables to analyse structured data from a single source

## Description

A pivot table is a data processing tool used in spreadsheet programs like Microsoft Excel and Google Sheets. It allows users to summarize, analyse, and present large amounts of data in a structured and meaningful way. Pivot tables are particularly useful for quickly generating insights, identifying patterns, and making data-driven decisions.

Pivot tables are organized in a tabular structure with rows, columns, and cells, similar to a spreadsheet. However, they provide a more dynamic and flexible way to view and analyse data. Pivot tables allow users to aggregate and summarize data. Users can perform operations like sum, average, count, and more on the data within the table. One of its main advantages is its dynamic layout which facilitates quick changes to the structure of the table. Pivot tables enable users to group data based on certain criteria, such as date ranges or categorical variables. This grouping makes it easier to analyse patterns within the data. Users can apply filters and sorting options to the data within a pivot table, allowing for a more focused analysis of specific subsets of data.  It also supports data drilling, where users can navigate from summarized data to detailed data and back and Data Slicers, which are interactive visualizations that allow users to filter data in a pivot table easily.

By acquiring this micro-credential the learner demonstrates skills of using effectively Pivot tables in order to present large amounts of data in a structured and meaningful way and based on the results take informed decisions.

## Questions

1. Can you describe the main steps to create a Pivot Table?
2. What are the prerequisites to create a Pivot Table?
3. Can you create a Pivot Chart from a Pivot table?
4. Can you create a Pivot table when provided a set of structured data and instructions on the group and aggregated fields?
5. Can you investigate trends in a set of structured data without any further guidelines and draw conclusions?

# Evaluating Structured Data from multiple flat files with Power Pivot (MC 1.2.C.5)

## Basic Information

| | |
|---|---|
| Identification of the learner | Any Citizen |
| Title and code of the micro-credential | Evaluating Structured Data from multiple flat files with Power Pivot<br>Code: MC 1.2.C.5 |
| Country(ies)/Region(s) of the issuer | ITALY, CYPRUS, GREECE, ROMANIA<br>http://dsw.projectsgallery.eu |
| Awarding body(ies) | DSW Consortium<br>Project Number: **101087628** |
| Date of issuing | Nov 2023 |
| Notional workload needed to achieve the learning outcomes | 7 hrs |
| Level of the learning experience leading to the micro-credential | ADVANCED |
| Type of assessment | Automatically marked Questions<br>Number of Questions: 16 – 20<br>Passing Score: 75% |
| Form of participation in the learning activity | Online Asynchronous |
| Type of quality assurance used to underpin the micro-credential | Peer Review |

## Learning Outcomes

Learning Outcomes (ref. LOs 1.2.32)
**Evaluating Structured Data from multiple flat files with Power Pivot**

- Use tools such as PowerPivot to visualize cleaned structured data from multiple flat files

## Description

Power Pivot is a business intelligence tool that is part of Microsoft Excel. It is designed to enhance data analysis and reporting capabilities within Excel by providing advanced data modeling and calculation features. Power Pivot allows users to import, transform, and analyze large datasets, and it enables the creation of sophisticated data models and calculations beyond the capabilities of traditional Excel worksheets. Here are key features and functionalities of Power Pivot:

PowerPivot add-in allows users to perform Data Import and Transformation, Data Modelling, Calculations using DAX, Hierarchies and Time Intelligence. At this level, the learner should be able to import a set of flat files, create models by establishing relationships and create PowerPivot tables.

Power Pivot is a powerful tool for users who need to perform advanced data analysis, create complex data models, and generate insightful reports within the familiar Excel environment. It is particularly valuable for professionals working with large datasets and engaging in business intelligence and analytics activities.

The acquisition of the micro-credential '**Evaluating Structured Data from multiple flat files with Power Pivot**' demonstrates that the learner is able to create simple PowerPivots from data models created by drawing data sets from flat files.

## Questions

1. How can you enable the PowerPivot Add – In?
2. What is a data model?
3. How to import data from flat files?
4. What are the basis Relationships that can be used in PowerPivot?
5. Given a set of 3 excel files, can you create a PowerPivot?

# Evaluating Structured Data from multiple flat files with Business Intelligence tools (MC 1.2.C.6)

## Basic Information

| | |
|---|---|
| Identification of the learner | Any Citizen |
| Title and code of the micro-credential | **Evaluating Structured Data from multiple flat files with Business Intelligence tools**<br> Code: MC 1.2.C.6 |
| Country(ies)/Region(s) of the issuer | ITALY, CYPRUS, GREECE, ROMANIA<br>http://dsw.projectsgallery.eu |
| Awarding body(ies) | DSW Consortium<br>Project Number: **101087628** |
| Date of issuing | Nov 2023 |
| Notional workload needed to achieve the learning outcomes | 7 hrs |
| Level of the learning experience leading to the micro-credential | ADVANCED |
| Type of assessment | Automatically marked Questions<br>Number of Questions: 16 – 20<br>Passing Score: 75% |
| Form of participation in the learning activity | Online Asynchronous |
| Type of quality assurance used to underpin the micro-credential | Peer Review |

## Learning Outcomes

Learning Outcomes (ref. LOs 1.2.33)
**Evaluating Structured Data from multiple flat files**
- Use Business Intelligence tools such as PowerBI or Tableu to analyse and visualize data from multiple data sources

## Description

Tableau and Power BI are similar tools as they both belong to the category of business intelligence (BI) and data visualization platforms. They share common objectives of helping users analyse, visualize, and gain insights from their data.

Power BI and Tableau allows users to perform Data Import and Transformation, Data Modelling, Measures, Hierarchies and Time Intelligence functions. At this level, the learner should be able to import a set of flat files, create models by establishing relationships and create visualizations.

Power BI and Tableau is a powerful tool for users who need to perform advanced data analysis, create complex data models, and generate insightful reports. It is particularly valuable for professionals working with large datasets and engaging in business intelligence and analytics activities.

The acquisition of the micro-credential '**Evaluating Structured Data from multiple flat files with Business Intelligence Tools"** demonstrates that the learner is able to create simple visualizations from data models created by drawing data sets from flat files.

## Questions

1. What are the main features of Business Intelligence Systems such as Tableau or PowerBI
2. What is a data model?
3. What type f relationships are supported in Tableau or PowerBI?
4. Can you create a data model by importing flat files?
5. Give examples of common visuals that can be created in BI software

# EXPERT LEVEL

# (LEVEL 7 AND LEVEL 8)

# Create solutions to complex problems with limited definition that are related to analysing and evaluating credible and reliable sources of information (MC 1.2.D.1)

## Basic Information

| | |
|---|---|
| Identification of the learner | Any Citizen |
| Title and code of the micro-credential | Create solutions to complex problems with limited definition that are related to analysing and evaluating credible and reliable sources of information<br>Code: MC 1.2.D.1 |
| Country(ies)/Region(s) of the issuer | ITALY, CYPRUS, GREECE, ROMANIA<br>http://dsw.projectsgallery.eu |
| Awarding body(ies) | DSW Consortium<br>Project Number: **101087628** |
| Date of issuing | Nov 2023 |
| Notional workload needed to achieve the learning outcomes | 7 hrs |
| Level of the learning experience leading to the micro-credential | EXPERT |
| Type of assessment | Automatically marked Questions<br>Number of Questions: 16 – 20<br>Passing Score: 75% |
| Form of participation in the learning activity | Online Asynchronous |
| Type of quality assurance used to underpin the micro-credential | Peer Review |

## Learning Outcomes

Learning Outcomes (ref. LO 1.2.34 )

**Create solutions to complex problems with limited definition that are related to analysing and evaluating credible and reliable sources of information**

- Create solutions to complex problems with limited definition that are related to analysing and evaluating credible and reliable sources of information and content in digital environments.

## Description

This micro-credential demonstrates that the learner is able to create solutions to complex problems with limited definition that are related to analysing and evaluating credible and reliable sources of information.

It demonstrates that the learner is able to evaluate online sources and information encountered without any guidance and use knowledge accumulated in previous levels in regards to checking online content (authorship, context, publication, domain, etc)

## Questions

1. Without any guidance, can you evaluate digital content  encountered online and provide an opinion substantiated with evidence?

# Create Solutions to solve complex problems that are related to analysing and evaluating credible and reliable sources of structured data (MC 1.2.D.2)

## Basic Information

| | |
|---|---|
| Identification of the learner | Any Citizen |
| Title and code of the micro-credential | Create Solutions to solve complex problems that are related to analysing and evaluating credible and reliable sources of structured data<br>Code: MC 1.2.D.2 |
| Country(ies)/Region(s) of the issuer | ITALY, CYPRUS, GREECE, ROMANIA<br>http://dsw.projectsgallery.eu |
| Awarding body(ies) | DSW Consortium<br>Project Number: **101087628** |
| Date of issuing | Nov 2023 |
| Notional workload needed to achieve the learning outcomes | 7 hrs |
| Level of the learning experience leading to the micro-credential | EXPERT |
| Type of assessment | Automatically marked Questions<br>Number of Questions: 16 – 20<br>Passing Score: 75% |
| Form of participation in the learning activity | Online Asynchronous |
| Type of quality assurance used to underpin the micro-credential | Peer Review |

## Learning Outcomes

Learning Outcomes (ref. LO 1.2.35 )
**Solutions to solve complex problems that are related to analysing and evaluating credible and reliable sources of structured data**

- Create solutions to solve complex problems with many interacting factors that are related to analysing and evaluating credible and reliable sources of structured data.

## Description

Given a real-life scenario of a data set (in flat files) the user is able to conduct data analysis to solve a problem and report results without guidance of the fields or groupings to be performed. The user should be able to use data analysis knowledge and skills earned from previous levels and create visuals, pivot tables by using a variety of tools (charts, pivot tables and BI software)

The micro-credential "**Solutions to solve complex problems that are related to analysing and evaluating credible and reliable sources of structured data"** accredits that the user can create visuals to evaluate data and make informed decisions without specific guidance.

## Questions

1. Given a real-life scenario of a data set (in flat files) conduct data analysis to solve a problem and report results by using a variety of tools explaining the reasons a specific tool was chosen.

# APPENDIX I: LEARNING OUTCOMES FOR COMPETENCE 1.2 EVALUATING DATA, INFORMATION AND DIGITAL CONTENT

| COMPETENCE AREA 1: INFORMATION AND DATA LITERACY | | |
|---|---|---|
| COMPETENCE 1.2: EVALUATING DATA, INFORMATION AND DIGITAL CONTENT | | |
| 1 | At basic level and with guidance, I can: | • detect the credibility and reliability of common sources of data, information and their digital content |
| 2 | At basic level and with autonomy and appropriate guidance where needed, I can: | • detect the credibility and reliability of common sources of data, information and their digital content |
| 3 | On my own and solving straightforward problems, I can: | • perform the analysis, comparison and evaluation of the credibility and reliability of well-defined sources of data, information and digital content.<br>• perform the analysis, interpretation and evaluation of well-defined data, information and digital content |
| 4 | Independently, according to my own needs, and solving well-defined and non-routine problems, I can: | • perform the analysis, comparison and evaluation of sources of data, information and digital content.<br>• perform the analysis, interpretation and evaluation of data, information and digital content. |
| 5 | As well as guiding others, I can: | • carry out an evaluation of the credibility and reliability of different sources of data, information and digital content.<br>• carry out an evaluation of different data, information and digital content. |
| 6 | At advanced level, according to my own needs and those of others, and in complex contexts, I can: | • critically assess the credibility and reliability of sources of data, information and digital content.<br>• critically assess data, information and digital content. |
| 7 | At highly specialised level, I can: | • create solutions to complex problems with limited definition that are related to analysing and evaluating credible and reliable sources of data, information and content in digital environments.<br>• integrate my knowledge to contribute to professional practices and knowledge and to guide others in the analysis and evaluation of the credibility and reliability of data, information and digital content and their sources. |

| 8 | At the most advanced and specialised level, I can: | • create solutions to solve complex problems with many interacting factors that are related to analysing and evaluating credible and reliable sources of data, information and content in digital environments.<br>• propose new ideas and processes to the field. |
| --- | --- | --- |

# FOUNDATION LEVEL

| COMPETENCE AREA: INFORMATION AND DATA LITERACY |
| --- |

| COMPETENCE: COMPETENCE 1.2 - EVALUATING DATA, INFORMATION AND DIGITAL CONTENT |
| --- |
| **LEVEL: FOUNDATION** |

**LEVEL 1**

At basic level and with guidance, I can:

- detect the credibility and reliability of common sources of data, information and their digital content.

**LEVEL 2**

At basic level and with autonomy and appropriate guidance where needed, I can:

- detect the credibility and reliability of common sources of data, information and their digital content.

| Learning Outcome | Level | K – S - A | Explanation |
| --- | --- | --- | --- |
| 1. Describes what is misinformation and disinformation and the difference of the two | L1-L2 | K | Misinformation and disinformation refer to false or misleading information, but they differ in their intent and source. The learner should be able to explain the difference between the two |
| 2. Describe how content is populated on the Internet and various platforms and recognize that online environments contain all types of information and content including misinformation and | L1-L2 | K | Understanding how content is populated on the Internet, provides an in depth understanding that the online content is not always correct. Even if a topic is widely reported it does not necessarily mean it is accurate. |

| | | | | |
|---|---|---|---|---|
| | disinformation, | | | |
| 3. | Recognize the Artificial Intelligence systems depend on information available on the internet and that information provided is not always correct or accurate | L1-L2 | K | Artificial Intelligence (AI) systems work by simulating human intelligence through the use of algorithms, data, and computational power. The goal of AI is to enable machines to perform tasks that typically require human intelligence, such as learning, reasoning, problem-solving, perception, and language understanding. AI models are rely/are trained based on information available on the Internet and therefore if the underlying information is false AI systems can deliver false results |
| 4. | Enlist and describe elements that can support/not support the credibility of a source, information and digital content | L1-L2 | K | The learner should be able to enlist elements that could assist in evaluating whether the source and the information, or digital content are credible (i.e. author, source itself, undependability of source etc). The learners should have a deeper understanding why these elements may or may not support the credibility of a source (i.e. weird or reputable domain name) |
| 5. | Detect the credibility of online content by differentiating sponsored content from other content online, question ranking in search results and other factors | L1-L2 | S | The learner should be able to recognise advertisements and marketing messages on social media or search engines even if it is not marked as sponsored. The learner should also carefully consider the top/first search results in both text-based and audio searches, as they may reflect commercial and other interests rather than be the most appropriate results for the query. |
| 6. | Recognize various factors that can cause potential information biases | L1-L2 | K | The learner should be aware that information biases exist and can be caused by numerous factors such as data, algorithms, editorial choices, censorship, one's own personal limitations. Therefore, this LO aims to explain these factors and provide learners with examples of how to critically review information. |
| 7. | Recognize how various forms of bias and misinformation that can be present in digital content, can impact perceptions and opinions and adopt a responsible online behaviour | L1-L2 | K-A | Misinformation and bias extent beyond the online environment as they can shape opinions, influence voters, and impact perceptions. Learners should be able to recognize the importance of these influences and adopt a responsible online behaviour (i.e. share or like trustworthy information) |
| 8. | Can explain what the term "deep-fakes" means in | L1-L2 | K | AI-generated images, videos or audio recordings of events or persons that did not really happen (e.g. speeches by politicians, celebrity faces on pornographic imagery). |

| | | | | |
|---|---|---|---|---|
| | reference to AI-generated images, videos or audio recordings | | | They may be impossible to distinguish from the real thing |
| 9. | Recognise that AI algorithms might not be configured to provide only the information that the user wants; they might also embody a commercial or political message | L1-L2 | K | Recognise that AI algorithms might not be configured to provide only the information that the user wants; they might also embody a commercial or political message (e.g. to encourage users to stay on the site, to watch or buy something particular, to share specific opinions). This can also have negative consequences (e.g. reproducing stereotypes, sharing misinformation). |
| 10. | Understand at a high level how AI works and recognise that the data, on which AI depends, may include biases and therefore information is reproduced with biases | L1-L2 | K | Learners should be aware that the data, on which AI depends, may include biases. If so, these biases can become automated and worsened by the use of AI. For example, search results about occupation may include stereotypes about male or female jobs (e.g. male bus drivers, female sales persons). |
| 11. | Enlist fact-checking websites, Internet explorer extensions and tools to verify the accuracy of digital information and describe at high level how these work. | L1-L2 | K | The learner should be able to enlist fact checking web sites (i.e. Snopes, FactCheck.org and PolitiFact) as well as Internet explorer extensions (i.e. Google Fact Check Explorer), tools (i.e. Hoaxy, Truth or Fiction) for fact checking of viral emails, social media posts and other internet rumors () |

# INTERMEDIATE LEVEL

| COMPETENCE AREA: INFORMATION AND DATA LITERACY |
|---|

| COMPETENCE: COMPETENCE 1.2 - EVALUATING DATA, INFORMATION AND DIGITAL CONTENT |
|---|
| **LEVEL: INTERMEDIATE** |

**LEVEL 3**

On my own and solving straightforward problems, I can:

- perform the analysis, comparison and evaluation of the credibility and reliability of well-defined sources of data, information and digital content.
- perform the analysis, interpretation and evaluation of well-defined data, information and digital content

**LEVEL 4**

Independently, according to my own needs, and solving well-defined and non-routine problems, I can:

- perform the analysis, comparison and evaluation of sources of data, information and digital content.
- perform the analysis, interpretation and evaluation of data, information and digital content.

| 12. Use fact checking websites to verify the accuracy of digital information | L3-L4 | S | Use websites such as Snopes, FactCheck.org and PolitiFact for fact checking |
|---|---|---|---|
| 13. Use fact checking tools to verify the accuracy of digital information | L3-L4 | S | Use tools such as Hoaxy, Truth or Fiction for fact checking |
| 14. Inclined in using fact-checking tools and websites for checking the credibility of online content | L3-L4 | A | The learner should demonstrate adoption of fact-checking on a regular basis |

| | | | |
|---|---|---|---|
| 15. Investigate the credibility of the online content by investigating the author, the source of the information and other factors that support (or not) the credibility of the content | L3-L4 | S | By diligently investigating the author or source, you can gain insights into the credibility of the information and make more informed judgments about its reliability. The credibility assessment is a critical skill in today's information landscape, where misinformation and disinformation can be prevalent. The learner should be able to find the name of the author and investigate whether reputable sources have been used, the Author's profile on Social Media, fact-checking web-sites, citations and references, cross-referencing etc. |
| 16. Analyze and interpret various media types critically, understanding their potential impact on audiences and perceptions. | L3-L4 | S | Analyzing and interpreting various media types critically involves examining content across different forms of media and understanding how they can shape audience perceptions. The Learner should be able to analyse information on the Author, Source, the target audience, explore Social and Cultural Impact and self-reflect. |
| 17. Develop the ability to identify and distinguish biases, misinformation, disinformation, and propaganda in digital content. | L3-L4 | S | The learner should enhance his/her ability to identify and distinguish biases, misinformation, and disinformation, fostering a more critical and informed approach to the information he/she encounters. |
| 18. Evaluate the trustworthiness, reliability, and authority of digital information sources through critical analysis. | L3-L4 | S | The learner should be able to perform critical analysis and take informed decisions taking into account his/her investigation results. The learner should also be aware of his/her own bias and beliefs that might influence his/her decisions |
| 19. Demonstrate ethical practices in using and disseminating digital information and content. | L3-L4 | S | Ethical principles contribute to a positive and responsible digital culture, fostering an environment where information can be trusted, and online interactions are respectful and beneficial. |
| 20. Demonstrate knowledge of privacy, copyright, and intellectual property concerns. | L3-L4 | S | Respecting individuals' privacy rights by obtain explicit consent before sharing personal information, images, or data, and be mindful of the potential impact on individuals' privacy as well respecting copyrights and intellectual property rights are good practices when sharing online content. |

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| 21. Recognise legal issues related to social media and Internet use. | L3-L4 | K | The use of social media and Internet is subject to various legal issues that individuals, businesses, and organizations need to be aware of to ensure compliance with the law |
| 22. Adhere to laws and regulations . | L3-L4 | S | Being aware of laws and regulations that apply when using the Social Media and Internet as well as the potential consequences if these are not obeyed, the learner demonstrates the capacity to adhere to these rules and regulations. |
| DATA | | | |
| 23. Enlist and describe tools for data analysis and visualization | L3-L4 | K | There are numerous tools available for data analysis, catering to various needs and preferences such as Microsoft Excel, PowerBI, R etc. The learner should be able to describe at high level how these tools can be used to manipulate, transform and/or visualize data. |
| 24. Visualize data to draw conclusion based on a data set using a spreadsheet software | L3-L4 | S | Visualizing data in a spreadsheet software like Microsoft Excel or Google Sheets is a powerful way to draw conclusions, identify patterns, and communicate insights. The learner should be able to perform basic steps such as importing or entering data, understanding the structure of the data (numeric, categorical), performing data cleaning (if needed) and selecting the appropriate visualization type. |

# ADVANCED LEVEL

| COMPETENCE AREA: INFORMATION AND DATA LITERACY |
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| COMPETENCE: COMPETENCE 1.2 - EVALUATING DATA, INFORMATION AND DIGITAL CONTENT |
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| **LEVEL: ADVANCED** |

**LEVEL 5**

As well as guiding others, I can:

- carry out an evaluation of the credibility and reliability of different sources of data, information and digital content.
- carry out an evaluation of different data, information and digital content.

**LEVEL 6**

At advanced level, according to my own needs and those of others, and in complex contexts, I can:

- critically assess the credibility and reliability of sources of data, information and digital content.
- critically assess data, information and digital content.

| INTERNET and SOCIAL MEDIA | | | |
|---|---|---|---|
| 25. Combine fact-checking techniques to verify the accuracy of claims and information found in digital content. | L5-L6 | S | Combine techniques (using fact-checking websites, tools, credibility of a source to verify the credibility of information. The learner should be able to apply a systematic approach that incorporates various strategies |
| 26. Analyse and critically evaluate search results to identify their origins, to distinguish fact-reporting from opinion, and to determine whether outputs | L5-L6 | S | Analyze and Evaluate the search results, by combining fact-checking to techniques and reach to conclusions of the validity and objectivity of the digital content (i.e. do not server economic, political or religious interests). |

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| are truthful or have other limitations | | | |
| 27. Adopt an active stand for fighting misinformation and disinformation | L5-L6 | A | The learner should adopt an active stand against misinformation and disinformation by reporting discrepancies. |
| 28. Analyse and critically evaluate social media activity streams, to identify their origins, to distinguish fact-reporting from opinion, and to determine whether outputs are truthful or have other limitations | L5-L6 | S | Analyze and Evaluate social media activity streams by combining fact-checking to techniques and reach to conclusions of the validity and objectivity of the digital content (i.e. do not serve economic, political or religious interests). |
| 29. Describe what are the filter bubbles and how they influence search results | L5-L6 | K | Filter bubbles refer to the personalized information ecosystems created by algorithms that selectively expose individuals to content based on their past online behaviour, preferences, and interests. This concept was popularized by Eli Pariser in his book "The Filter Bubble: What the Internet Is Hiding from You." |
| 30. Recognize "echo chambers" or "filter bubbles by using a variety of methods | L5-L6 | S | Recognizing "echo chambers" or "filter bubbles" is an essential skill when working online. For example the learner should be able to retain scepticism which information encountered (i.e. a social media stream favours a particular political ideology, additional recommendations can reinforce that ideology without exposing it to opposing arguments). |
| DATA | | | |
| 31. Use tools such as Pivot Tables and Pivot Charts to analyse structured data from a single source | L3-L4 | S | A pivot table is a data processing tool used in spreadsheet programs like Microsoft Excel and Google Sheets. It allows users to summarize, analyse, and present large amounts of data in a structured and meaningful way. Pivot tables are particularly useful for quickly generating insights, identifying patterns, and making data-driven decisions. At this level, the data sets provided should be cleaned and ready for visualization. |
| 32. Use tools such as PowerPivot to visualize cleaned structured | L5-L6 | S | This LO equips learners with the skills to effectively create Power Pivot tables in order to present large amounts of data in a structured and meaningful way |

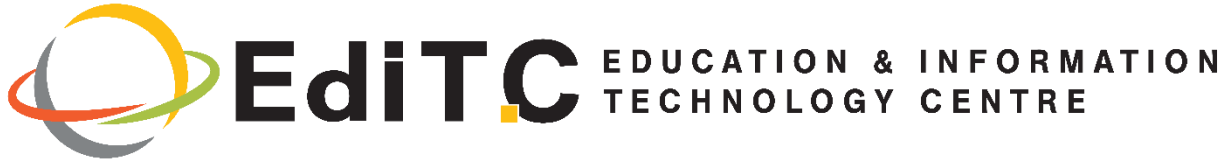| data from multiple flat files | | | and based on the results take informed decisions. At this level, the data sets provided should be cleaned and ready for visualization. |
|---|---|---|---|
| 33. Use Business Intelligence tools such as PowerBI or Tableu to analyse and visualize data from multiple data sources | L5-L6 | S | Tableau and Power BI are similar tools as they both belong to the category of business intelligence (BI) and data visualization platforms. They share common objectives of helping users analyze, visualize, and gain insights from their data. |

| COMPETENCE AREA: INFORMATION AND DATA LITERACY |
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| COMPETENCE: COMPETENCE 1.2 - EVALUATING DATA, INFORMATION AND DIGITAL CONTENT |
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| LEVEL: EXPERT |
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**LEVEL 7**

At highly specialised level, I can:

- create solutions to complex problems with limited definition that are related to analysing and evaluating credible and reliable sources of data, information and content in digital environments.
- integrate my knowledge to contribute to professional practices and knowledge and to guide others in the analysis and evaluation of the credibility and reliability of data, information and digital content and their sources.

**LEVEL 8**

At the most advanced and specialised level, I can:

- create solutions to solve complex problems with many interacting factors that are related to analysing and evaluating credible and reliable sources of data, information and content in digital environments.
- propose new ideas and processes to the field.

| 34. Create solutions to complex problems with limited definition that are related to analysing and evaluating credible and reliable sources of information and content in digital environments. | L7-L8 | S | Given a real life example of an article searched online the learner can employ different methods to investigate and make informed judgment of the truthfulness of the information providing the reason behind it and tools/methods used to make the decisions |
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| 35. Create solutions to solve complex problems with many interacting factors that are related to analysing and evaluating credible and reliable sources of structured data. | L7-L8 | S | Given a real life scenario of a data set (in flat files) the user is able to conduct data analysis to solve a problem and report results without guidance of the fields or groupings to be performed. The user should draw conclusions based on a variety of analysis and write a report. |
| 36. Integrate his/her knowledge to contribute to professional practices and knowledge and to guide others in the analysis and evaluation of the credibility and reliability of data, information and digital content and their sources. | L7-L8 | S | The learner can demonstrate good practices to contribute to professional practices and knowledge. |
| 37. Cultivate a mindset of critical thinking and skepticism when consuming and sharing digital content. | L7-L8 | A | - |
| 38. Remain open-minded and receptive to diverse perspectives and ideas encountered in digital information. | L7-L8 | A | - |
| 39. Understand the responsibility of sharing accurate and reliable information while being aware of potential consequences. | L7-L8 | A | - |
| 40. Foster curiosity and a willingness to continue learning about digital information evaluation in an ever-changing digital | L7-L8 | A | - |

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| landscape. | | | |
| 41. Embrace the role of responsible digital citizens, contributing to a positive and informed online community. | L7-L8 | A | - |

# Project Coordinator:

EdiTC EDUCATION & INFORMATION TECHNOLOGY CENTRE

# Partners:

DiMITRA educational organization

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DSW DIGITAL SKILLS WALLET

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