

## E-GUIDE 1:

# Mastering Digital Resources

***D-Upskill.50: Smart toolkit for  
supporting adult workers and adults  
educators in the educational digital  
upskilling pathway***



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## Table of Contents

Introduction.....	3
Instructions.....	4
1. Selecting digital resources.....	4
2. Creating and modifying digital resources.....	10
3. Managing, protecting and sharing digital resources.....	12
Repository (tables) .....	19
References.....	21





## Introduction

As an educator you are currently confronted with a wealth of digital (educational) resources you can use for teaching. One of the key competences any educator needs to develop is to come to terms with this variety, to effectively identify resources that best fit their learning objectives, learner group and teaching style, to structure the wealth of materials, establish connections and to modify, add on to and develop themselves digital resources to support their teaching. At the same time, you need to be aware of how to responsibly use and manage digital content. Also, you must respect copyright rules when using, modifying and sharing resources, and protect sensitive content and data, such as digital exams or students' grades.

So, this first guide “Mastering Digital Resources” is meant to help you with selecting digital resource, creating and modifying digital resource and managing, sharing and protecting digital resources.

### Selecting digital resources

In this first section the guide will help you with identifying, assessing and selecting digital resources for teaching and learning and considering the specific learning objective, context, pedagogical approach, and learner group, when selecting digital resources and planning their use. In particular, you will receive information about:

- Formulating appropriate search strategies to identify digital resources for teaching and learning;
- Selecting suitable digital resources for teaching and learning, considering the specific learning context and learning objective;
- Critically evaluate the credibility and reliability of digital sources and resources;
- Considering possible restrictions to the use or re-use of digital resources (e.g. copyright, file type, technical requirements, legal provisions, accessibility);
- Assessing the usefulness of digital resources in addressing the learning objective, the competence levels of the concrete learner group as well as the pedagogic approach chosen.

### Creating and modifying digital resources

In the second section the guide will help you with modifying and building on existing openly-licensed resources and other resources where this is permitted, creating or co-creating new digital educational resources as well as considering the specific learning objective, context, pedagogical approach, and learner group, when designing digital resources and planning their use. In particular, you will receive information about:

- Modifying and editing existing digital resources, where this is permitted. Combining and mixing existing digital resources or parts thereof, where this is permitted;
- Creating new digital educational resources;
- Jointly create with others digital educational resources;
- Considering the specific learning objective, context, pedagogical approach, and learner group, when adapting or creating digital learning resources;
- Understanding different licenses attributed to digital resources and the implications for their re-use.

### Managing, protecting and sharing digital resources





In the third section the guide will help you with organizing digital content and making it available to learners, parents and other educators, effectively protecting sensitive digital content, respecting and correctly applying privacy and copyright rules as well as understanding the use and creation of open licenses and open educational resources, including their proper attribution. In particular, you will be able to:

- To share resources using links or as attachments, e.g. to e-mails;
- To share resources on online platforms or personal or organisational websites/blogs;
- To share one's own repositories of resources with others, managing their access and rights as appropriate;
- To respect possible copyright restrictions to using, re-using and modifying digital resources;
- To appropriately reference sources when sharing or publishing resources subject to copyright;
- To attribute (open) licenses to self-created resources;
- To take measures to protect sensitive data and resources (e.g. students' grades, exams);
- To share administrative and student-related data with colleagues, students and parents, as appropriate.

## Instructions

### 1. Selecting digital resources



Digital resources are useful tools to enhance and improve your teaching and learning methods, don't be afraid to use them and try to explore new ways of teaching, testing and assessing your students. At first, the amount of information available can feel overwhelming, but with the right mindset and knowledge you will be able to select what you're looking for.

## - Searching

The easiest and most rapid methods for searching already existing digital resources are online search engines, therefore, the wording of your research will be crucial when searching for specific teaching materials or online resources.



**Google.com** is definitively the most used and famous search engine, however is not the only one and other mainstream platform exist and have many users. Amongst these:

**Bing.com** – The Microsoft proprietary search engine, very intuitive and easy to use with a nice interface.

**Yahoo.com** – A very long-lived platform that offers several functions including email, news and finance information.

Usually, the first links are the most connected to your research, but this is not always the case, it is important to know which kind of websites and platforms can provide you with useful and verified information and resources. Some specific information can also be found after several pages, so don't stop at the first one. It is important to know special search engines functions in order to improve the search. Also, making sure to not search only based on the topic, but also on the level and age group of your students.

However, with the advent of AI new search engines opportunities are arising with very interesting development. Amongst interesting ones, we definitively have:



**Chat GPT** - a sibling model to InstructGPT, which is trained to follow an instruction in a prompt and provide a detailed response.

**You.com** - an AI-powered search engine founded by Richard Socher, a prominent natural language processing (NLP) researcher and former chief scientist of Salesforce.

**Openverse** – A search engine for non-copyrighted content. This search engine is perfect if you need music for a video, an image for a blog post, or anything else without worrying about copyright infringements.



After selecting the appropriate or preferred search engine, it will be important to develop a search strategy, the key actions to perform are:

- Accurately define the search question or search objective;
- Identify key words and correct phrasing;
- Determine if search options are needed (such as specific timeframe, size, etc.);

A good lesson on through the process of turning your research question into an effective search strategy developed by the Leeds University Library.

[https://www.youtube.com/watch?v=ljiOuYDSs4U&ab\\_channel=LeedsUniversityLibrary](https://www.youtube.com/watch?v=ljiOuYDSs4U&ab_channel=LeedsUniversityLibrary)

- Deciding

There are some criteria that will have to be addressed to finalize the decision of selecting a digital resource:

Is the content reliable? To which extent is the information credible and accurate? Evaluate the reliability of the sources by confronting it with others as well as by performing a quick check on the reputation and history of the source itself. If the author is mentioned, is it well known or recognized in the academic world? Has the author performed lectures or realized more publications?





Is the content relevant? It is important to assess if the selected resource is relevant for the purpose you want to achieve. Is it useful for your needs? All the topics are covered and with sufficient depth? Is the content up to date and still relevant?

What is the intended audience? Is the audience you are planning to show the digital resource the same as the one intended in the resource itself?

- Limitations

After searching for and selecting a digital resource, you must assure there are no limitations or restrictions conflicting with the use you intend to perform.

### **Copyright**

One of the main issues with using digital resource is copyright. It is important to understand the concept of copyright and ownership as well as if a resource can be used or shared. It is also possible to ask for permission to share or use a determined resource if the author/owner allows it or it's reachable. Wider opportunities to use copyrighted material for education, research and preservation of cultural heritage: the exceptions allowing these uses have been modernized and adapted to the technological changes, to allow uses online and across borders.

The new teaching exception for educational establishments and teachers covers digital cross-border uses of content protected by copyright for the purposes of illustration for teaching, including online. This will for example ensure that educational establishments can make available, in full legal certainty, teaching content to distance students in other Member States through their secure electronic environment, e.g. a university's intranet or a school's virtual learning environment.

The recently adopted Directive (EU) 2019/790 harmonizes the use of copyright-protected content in digital and cross-border teaching activities by introducing a new exception (Article 5), mandatory for Member States. This new exception covers digital uses made for the purpose of illustration for teaching to the extent they take place under the responsibility of educational establishments, on their premises or other venues or through secure electronic environments accessible only to teaching staff and students. See the text of the directive on : <https://eur-lex.europa.eu/eli/dir/2019/790/oj> (Article 5 and recitals 19 to 24). Member States have to implement this new directive by 7 June 2021.


### **Technical requirements**

Currently, each person or each school or educational institution use a wide variety of different devices and tools. Even when using the same tools (such as smartphone or PCs) versions or capabilities may vary widely. When you work with your learners and you plan to share a digital resource or have them work with a digital tool, it is important to make sure what technical requirements are needed. Also, different systems may support different types of files or different versions of the same platform/app.

- Assessing the usefulness of digital resources and the competence levels of the concrete learner groups

Digital competence is a combination of knowledge, skills and attitudes with regards to the use of technology to perform tasks, solve problems, communicate, manage information, collaborate, as well as to create and share content effectively, appropriately, securely, critically, creatively, independently and ethically (DigComp).






## KNOWLEDGE

Knowledge is the result of assimilated information obtained through learning. Knowledge is a collection of facts, theories, principles and traditions related to a job or study. Knowledge can best be described as either theoretical or factual.

### EXAMPLES

- Productive knowledge includes, for example, the awareness of new technologies and how they can usefully support an existing workflow process.
- Communicative knowledge includes, for example, theories on media effects or the knowledge of a range of digital collaboration tools.
- Informative knowledge includes, for example, the knowledge of relevant search engines, self-service solutions, storage possibilities and strategies for assessing the validity of the information.




## SKILL

A skill is the ability to solve a task or problem in practice, while an instrumental skill is the ability to apply a method, a material or a tool.

### EXAMPLES

- Productive skills are, for example, be the ability to use a variety of applications to create or edit multimedia of various kinds.
- Communicative skills are, for example, the use of methodologies, strategies and applications to solve communicative tasks.
- Informative skills are, for example, the use of nemld, finding sources for an assignment, or converting a file to another fileformat.



## ATTITUDE

Attitudes represent ways of thinking and motivations behind actions. Therefore, they have a great influence on people's digital activities. This includes, for example, ethics, values, priorities, accountability, cooperation and autonomy.

### EXAMPLES

- Attitudes towards digital production can, for example, include ethical considerations in relation to what should be produced and shared.
- Attitudes toward communication can, for example, be whether you find value and meaning by talking to others via media. Or, if you are very careful with formulations so that they are not misunderstood by the recipient.
- Attitudes towards information can, for example, be a proactive, analytical or critical position on finding and storing digital information.

The OECD Program for the International Assessment of Adult Competencies (PIAAC) provides internationally comparable measures of three sets of skills: literacy, numeracy, and problem solving in technology rich environments (OECD, 2013).

The Digital Competence Wheel is theoretically based on a major EU research project, DIGCOMP, deriving from the European Parliament's inclusion of digital competence, as one of the eight core competences for lifelong learning.

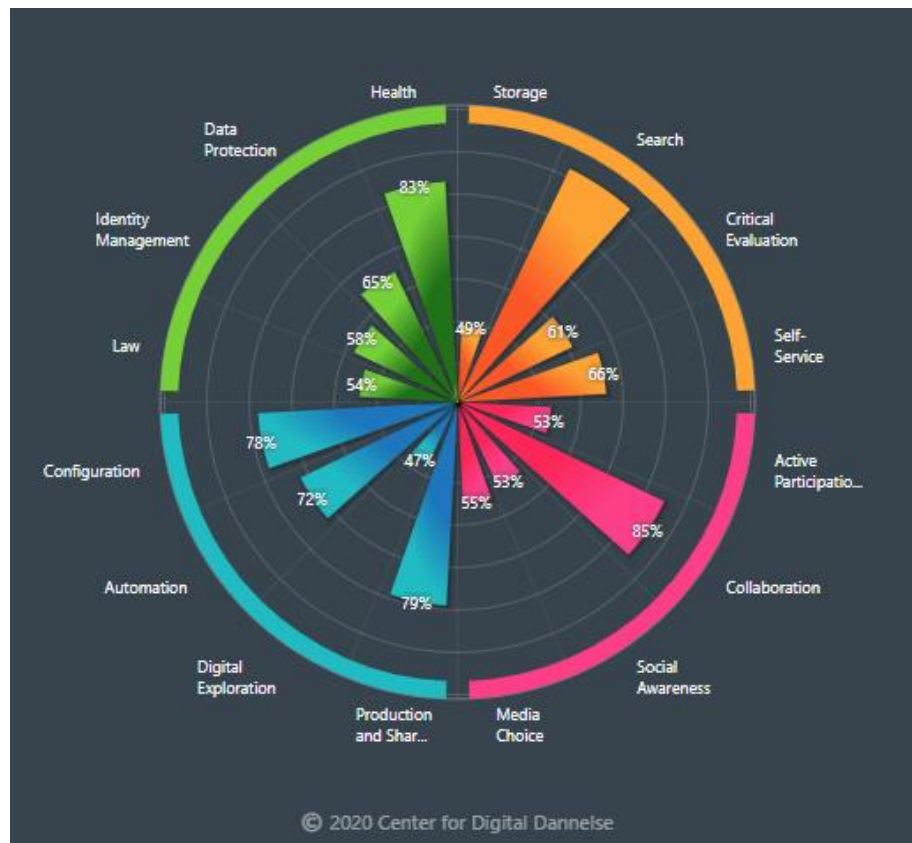




The purpose of the Digital Competence Wheel is to provide an overview of which digital competences exist and should be improved, as well as concrete inspiration for how to improve the most relevant digital competences.

The digital competence wheel

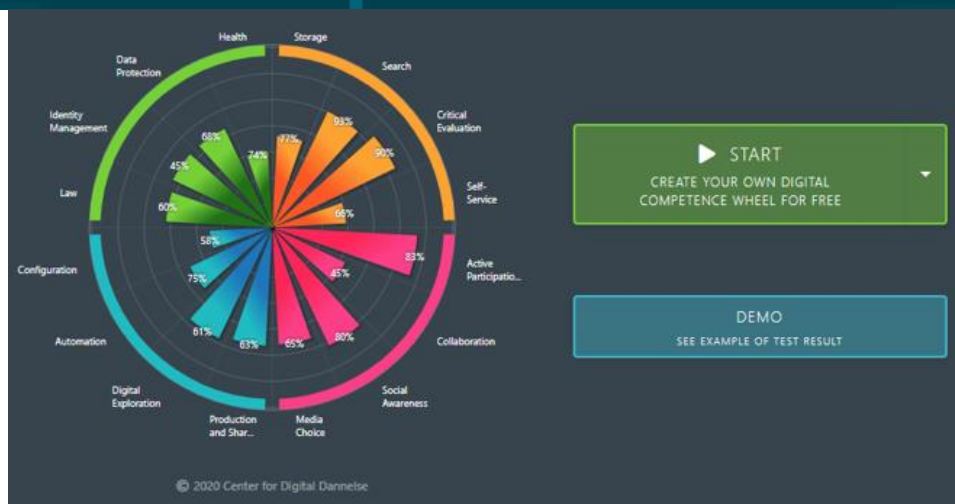
An online testing tool that maps your digital competences



<https://digital-competence.eu/>

The competence wheel will be able to provide you with personal information and analysis about 16 different digital competencies. Also, it will provide you with at least 3 recommended areas that will definitively strengthen your digital competences as well as providing 50 examples of several aspects of digital competences and 184 exercises and motivational examples. Creating your digital competence Wheel takes about 15 minutes. (approx. 15 min.)

It is also possible and recommended to use the competence wheel to measure your learners com-petences



The Digital Competence Wheel was the main issue in this topic. It provide an overview of which digital competences exist and should be improved, as well as concrete inspiration for how to improve the most relevant digital competences.

## 2. Creating and modifying digital resources





When you modify digital resources to fit a learning situation and target group you first have to do a pedagogically evaluation of both the situation and the group. Then you can do the editing. Here we will see how you can use basic tools to edit existing text, photo, video and even compile the different file type into one.

- Text
- Photo
- Video
- Compile
- Text

When you research a new topic and want to present it to your learners you might visit a lot of webpages and find relevant text bites. You can mark these, copy them and paste them into a Word document. A nice feature here is the shortcut Windows bottom + V. This will give you access to all the things you have copied.

When you find a pdf file and wants to editing you need to convert it. It sounds complicated but Word have an inherent function that can do this easy: Open Word, in File select Open, find your pdf and select it. The conversion makes a few minutes and are often not perfect but for text editing it works

### **Photo**

Photo editing can be done with professional – and complicated application but surprisingly many basic editing function can be done in Word. Here you can:

- Change the brightness, contrast, or sharpness of a picture
- Change the color of a picture
- Crop a picture
- Reduce the file size of a picture
- Select many frames
- Arrange the placement relative to the text

### **Video**

You can learn this in a short video: <https://support.microsoft.com/en-us/office/editing-photos-without-picture-manager-2b540dac-7cd4-42fc-b7a3-d8d0ba47f4c5>

When you want to edit a video but don't want to use big and dedicated applications for this, you can do basic video editing two ways:

- Online – search for online video editing. Vimeo has easy to use editor
- Windows – find your video in your archive and right click on it. Choose Open with and select Pictures. Here you have different types of editing tools such as trimming and titles.

### **Compile**

If you want to present – or make your learners present virus media types in the same file you can use a presentation application like PowerPoint or alternatives as mentioned before.

In PowerPoint (or Prezi) you can insert text, audio, photos and video. When shown in presentation mode the different media types will play automatically or by the way you have chosen. A presentation in PowerPoint can even be recorded and saved as a movie (MP4).



### 3. Managing, protecting and sharing digital resources



#### GDPR

What is General Data Protections Regulation (GDPR)?

The General Data Protections Regulation (GDPR) is a ruling intended to protect the data of citizens within the European Union. The GDPR is a move by The Council of the European Union, European Parliament, and European Commission to provide citizens with a greater level of control over their personal data.

The General Data Protection Regulation (GDPR) is the toughest privacy and security law in the world. Though it was drafted and passed by the European Union (EU), it imposes obligations onto organizations anywhere, so long as they target or collect data related to people in the EU. The regulation was put into effect on May 25, 2018. The GDPR will levy harsh fines against those who violate its privacy and security standards, with penalties reaching into the tens of millions of euros.



<https://gdpr.eu/what-is-gdpr/>





The right to privacy is part of the 1950 European Convention on Human Rights, which states, “Everyone has the right to respect for his private and family life, his home and his correspondence.” From this basis, the European Union has sought to ensure the protection of this right through legislation.

As technology progressed and the Internet was invented, the EU recognized the need for modern protections. So in 1995 it passed the European Data Protection Directive, establishing minimum data privacy and security standards, upon which each member state based its own implementing law. But already the Internet was morphing into the data Hoover it is today. In 1994, the first banner ad appeared online. In 2000, a majority of financial institutions offered online banking. In 2006, Facebook opened to the public. In 2011, a Google user sued the company for scanning her emails. Two months after that, Europe’s data protection authority declared the EU needed “a comprehensive approach on personal data protection” and work began to update the 1995 directive.

The GDPR defines an array of legal terms at length. Below are some of the most important ones:

- Personal data
- Data processing
- Data subject
- Data controller
- Data processor

### **Personal data**

Personal data is any information that relates to an individual who can be directly or indirectly identified. Names and email addresses are obviously personal data. Location information, ethnicity, gender, biometric data, religious beliefs, web cookies, and political opinions can also be personal data. Pseudonymous data can also fall under the definition if it’s relatively easy to ID someone from it.

### **Data processing**

Data processing — Any action performed on data, whether automated or manual. The examples cited in the text include collecting, recording, organizing, structuring, storing, using, erasing... so basically anything.

### **Data subject**

Data subject — The person whose data is processed. These are your customers or site visitors.

### **Data controller**

Data controller — The person who decides why and how personal data will be processed. If you’re an owner or employee in your organization who handles data, this is you.

### **Data processor**

Data processor — A third party that processes personal data on behalf of a data controller. The GDPR has special rules for these individuals and organizations.

### **Data protection principles**

If you process data, you have to do so according to seven protection and accountability principles:

1. Lawfulness, fairness and transparency — Processing must be lawful, fair, and transparent to the data subject.
2. Purpose limitation — You must process data for the legitimate purposes specified explicitly to the data subject when you collected it.





3. Data minimization — You should collect and process only as much data as absolutely necessary for the purposes specified.
4. Accuracy — You must keep personal data accurate and up to date.
5. Storage limitation — You may only store personally identifying data for as long as necessary for the specified purpose.
6. Integrity and confidentiality — Processing must be done in such a way as to ensure appropriate security, integrity, and confidentiality (e.g. by using encryption).
7. Accountability — The data controller is responsible for being able to demonstrate GDPR compliance with all of these principles.

<https://gdpr.eu/what-is-gdpr/>

### **How to share sensitive data**

Technology tools and apps are making it possible for educators and students to collaborate, create, and share ideas more easily than ever. When schools use technology, students' data—including some personal information—is collected both by educators and often the companies that provide apps and online services.

Educators use some of this data to inform their instructional practice and get to know their students better. It is just as essential for educators to protect their students as it is to help them learn. There are legal [GDPR] and ethical restrictions that impact districts, school, and teachers.

Traditionally, student data consisted of things like attendance, grades, discipline records, and health records. Access to that data used to be restricted to the administrator, guidance counselor, teacher, or other school official who needed it to serve the educational needs ... With the use of technology in schools, traditional data is now often shared with companies that provide Student Information Systems (SIS), Learning Management Systems (LMS), and many other technologies.

<https://www.connectsafely.org/eduprivacy/>

When a teacher or a college want to start using a new application or service you have according to the GDPR have assure they threat the data created properly. This agreement is called a data processor agreement. This is normally done by an IT responsible or a manager. If you have any doubts concerning the use of a technology that collect data, you should ask the responsible at your college. Almost all applications and services that is connected online collect a various range of data – even a small app on your phone often collect data on how you use it.

When you need to share sensitive data about your learners, you have to make sure this is done properly. First of all ask yourself: is it necessary to share this data? Secondly make sure you are sharing with a technology/service system your college have approved. Using your private Hotmail or G-mail to communicate social security number and for example considerations concerning dyslexia is not a good data sharing praxis.

### **How to navigate taking precautions concerning cybersecurity**

#### **Definition – Cyber security**

Cyber security is the practice of defending computers, servers, mobile devices, electronic systems, networks, and data from malicious attacks. The term applies in a variety of contexts, from business to mobile computing, and can be divided into a few common categories: Network security, Application security, Information security, Operational security, Disaster recovery and business continuity and End-user education.







Here we will only focus on the last one

<https://www.kaspersky.com/resource-center/definitions/what-is-cyber-security>

### Definition – Cybersecurity

‘cybersecurity’ is defined in the Cybersecurity Act (Regulation (EU) 2019/881) to cover “the activities necessary to protect network and information systems, the users of such systems, and other persons affected by cyber threats”. A ‘cyber threat’ is a “potential circumstance, event or action that could damage, disrupt or otherwise adversely impact network and information systems, the users of such systems and other persons”;

<https://eur-lex.europa.eu/eli/reg/2019/881/oj>

### End-user education

End-user education addresses the most unpredictable cyber-security factor: **people**. Anyone can accidentally introduce a virus to an otherwise secure system by failing to follow good security practices. Teaching users to delete suspicious email attachments, not plug in unidentified USB drives, and various other important lessons is vital for the security of any organization.

### Cyber safety tips – protect yourself against cyberattacks:

- Update your software and operating system
- Use anti-virus software
- Use strong passwords
- Do not open email attachments from unknown senders
- Do not click on links in emails from unknown senders or unfamiliar websites
- Avoid using unsecure Wi-Fi networks in public places

<https://www.kaspersky.com/resource-center/definitions/what-is-cyber-security>

Cyber safety tips – in other words: Pay attention to every **email**: Who is the sender and why are you receiving it?

Great questions to ask yourself:

- Why should I click on the link in this email?
- Why is this email filled with spelling errors?
- Why is my boss asking me to transfer money to an unknown account?

If you are unsure whether the email is fake or not, don’t hesitate to call or write back to the sender – alternatively ask a good colleague for advice.

Cyber safety tips – in other words: Stop reusing your **password** across different accounts – you wouldn’t use the same key for your home, your car and your workplace.

This password is bad: “Laura76” – using your first name and the year you were born is simply way too easy to guess.

This password is great: “IWannaDanceWithSomebody1992” – everyone has lyrics they’ll always remember. Use these unforgettable words and spice them up with numbers and capitals to create a strong password.





Cyber safety tips – in other words: When online, the best thing you can be is really boring. This means keeping **sensitive information** to yourself unless people you trust need it.

### 3 steps to becoming really boring:

1. Always keep your information safe. Both offline and online.
2. Never provide your account details, civil registration number, or similar information to companies you don't trust.
3. Destroy outdated information. This applies both to old documents and information stored on your computer.

### How to organize a repository

A repository containing educationally digital resources can be:

- placed at different levels
- contain different resources
- organized/categorized in different ways
- use different technologies to store and present the resources

#### Placed at different levels

A repository can be (in starting point) build for your own use. When this is one the right way and maintained the right way it can be a great resource for you and save time as you fast and smart can reuse what you have already made A repository works very well together with other peers as all participant can be inspired by each others. The levels at your college could be sharing at team level, department level or for the whole college. Finally, a repository can be open for all by give online access to all interested – and giving all permission to contribute to the repository.

#### Contain different resources

Most basically repository resources can be text files. Many cloud-based repositories provides possibilities to edit text files online. This have many advantages such as version control (there will be only one), sharing and cooperating on the text file and access to the files from any device. Different types of media files (photos, audio, video files etc..) can be stored and organized in a repository. There can be some restrictions concerning storage size. A repository can also be an interactive list of online resources contain links that leads to the resource – and a short description of the resource

#### Organized/categorized

Most teachers like to store recent and almost ancient documents. Some of these teachers have sometimes problems finding their documents later. When you share repositories with others these problems will escalate into chaos and confusion. The solution is to decide a structure and more difficult stick to this structure. When designing your folder structure, start with a broad category at the top level and split it into subfolders of more narrow subcategories. Each folder should have only one purpose.

Stick to a naming convention. Folder and document names should be clear, consistent.

Keep track on different versions – ideally edit files online, or delete older versions – or finally give each version a date suffix (“task5\_verbs\_30112020”)





A repository containing educationally digital resources can be placed at different levels, contain different resources, organized/categorized in different ways and use different technologies to store and present the resources. When used the right way from start and afterward a repository both can inspire and save time.

### Different way of sharing

The possibilities of choosing different technologies to store and present resources with others are overwhelming. As a teacher it is probably not enough with just one technology – for example e-mail but using too many often fosters confusion and inefficiency.

A **mail** one-to-one or a mailing list can be a quick and effective way to share resources with colleagues or learners. The mail could consist of attached files or of a list of links to resources. Mails have also disadvantaged such as information overload, version control and lack of common storage.

Most colleges have an **online platform** where teachers can share resources with learners or with each other's. Many of these online platforms are so called Learning Management Systems and have inherent digital pedagogically tools and resources – and may be linked up to other systems (administrative).

Some online platforms have a strict structure and are managed centrally rather tight. Other platforms are mostly managed by the users and can be more chaotic.

Most platforms gives you the possibility to share at different levels; one-to-one, to a class, to a team, a department or the whole college. When sharing and co creating with others it is important to remember to keep a strong organizing, version control and name giving. As a teacher you can also share resources by creating a website or a blog. A website is more static and a blog more dynamic.

When you first have created a **website**, you can link to it or to some sections of it. If your college don't have systems that gives you the possibility to create websites there are a lot of free services online with guides and templates. See list and test off 10 here:

<https://www.websiteplanet.com/blog/best-really-free-website-builders-tried-tested/>

Some of the listed websites also contains **blog**-function. With a blog you can post short messages or articles of different topics. You can manage how much interaction you want from others on your blog from no interaction at all to full rights to others. An often-seen inappropriateness when using blogs is setting dates on your posts and not posting frequently. It is not motivating when last post is one year old. Easy fix is to remove dates. A derivate from blogs are **vlogs** – video blogs where the media is solely video. This can be as a sort of diaries or theme article. Most known service to provide vlogs is a YouTube Chanel.

Put down some keywords on when, what and to whom you would choose to share resources by:

- Mail or mail list
- Online platform
- Website
- Blog
- Vlog





## What to take into account when sharing resources

When sharing resources there are some elements to take in account:

- If you share resources containing sensitive data, you must assure the sharing is compliant with the GDPR.
- If you share resources produced by others, you must take in account not to violate any copyright rules.
- When sharing in a pass code protected area/online platform you have wider possibilities to not violate rules.
- When you share text or even pictures produced by others, you must often insert a reference to the place of origin.
- File size is often a low practical issue when sharing resources – especially media files. Here you can upload files to cloud storage and share a link to the place.
- You also must ensure your recipients have tools to open you file. Files from InDesign, Photoshop, Premiere video or interactive white boards cannot always be opened by all.

If you share resources containing sensitive data, you must assure the sharing is compliant with the GDPR and if you share resources produced by others, you must take in account not to violate any copyright rules.

When sharing in a pass code protected area/online platform you have wider possibilities. You must often insert a reference. File size is often an issue. You also must ensure your recipients have tools to open you file.





## Repository (tables)

### Selecting digital resources

List of useful platforms, tools and resources. Generic information on how to look for and find digital resources.

<a href="#">Ask.com</a>	Multilingual	Google 
<a href="#">Brave Search</a>	Multilingual	Brave 
<a href="#">Dogpile</a>	English	<a href="#">Metasearch engine</a>
<a href="#">DuckDuckGo</a>	Multilingual	Microsoft Bing 
<a href="#">Ecosia</a>	Multilingual	Microsoft Bing 
<a href="#">Exalead</a>	Multilingual	Cloudview 
<a href="#">Excite<sup>+</sup></a>	Multilingual	Microsoft Bing 
<a href="#">Gigablast</a>	<a href="#">English</a>	<a href="#">Apache License 2.0</a>
<a href="#">Google</a>	Multilingual	Google 
<a href="#">HotBot</a>	English	Microsoft Bing 
<a href="#">Lycos</a>	Multilingual	Microsoft Bing 
<a href="#">MetaCrawler</a>	English	<a href="#">Metasearch engine</a>
<a href="#">Microsoft Bing</a>	Multilingual	Microsoft Bing 



<a href="#">Mojeek</a>	Multilingual	Mojeek 
<a href="#">Opensearch</a>	Multilingual	<a href="#">Apache License 2.0</a> (Elasticsearch fork)
<a href="#">Petal</a>	Multilingual	Huawei 
<a href="#">Qwant</a>	Multilingual	Microsoft Bing 
<a href="#">Searx</a>	Multilingual	<a href="#">Metasearch engine</a>
<a href="#">Sogou</a>	Multilingual	Tencent 
<a href="#">Startpage</a>	English	Google 
<a href="#">Swisscows</a>	Multilingual	Microsoft Bing 
<a href="#">WebCrawler</a>	English	Microsoft Bing 
<a href="#">YaCy</a>	Multilingual	<a href="#">GPL-2.0-or-later</a>
<a href="#">Yahoo! Search</a> <sup>†</sup>	Multilingual	Microsoft Bing 
<a href="#">Yandex</a>	Multilingual	Yandex 
<a href="#">You.com</a>	English	Microsoft Bing 





## References

EUROPEAN COMMISSION: DigComp Framework

[https://joint-research-centre.ec.europa.eu/digcomp/digcomp-framework\\_en](https://joint-research-centre.ec.europa.eu/digcomp/digcomp-framework_en)

