

Science Communication Guidebook



MarkerWizards.com

Introduction

In this guide, you will find Marker Wizards' solutions for science communication and the ways these solutions can improve the social impact of your research. This guide will help you, for example, when you are preparing an application for funding or are creating an outline for your science project.

Science communication is all about making scientific knowledge understandable, accessible and impactful to different audiences. Often the most challenging aspect of science communication is to translate complex and specialised scientific information into sufficiently concise, clear and impactful presentations. However, at its best, science communication goes beyond being informative and comprehensible to being interesting and engaging.

Successful and impactful science communication requires specialised expertise. Science communicators are often professionals with specialisations that enable them to explain complex issues in interesting and understandable ways.

Marker Wizards have more than a decade of experience in science communication. We have created hundreds of videos for a wide range of scientific disciplines and communication needs.

Our experts are highly qualified and higher-educated professionals. Some of us also have experience as university researchers.

In addition to videos, we offer other visual science communication solutions, such as illustrations, infographics and the production of seminar materials for different needs. Our professional and expert support is even suitable for researchers, as even those with experience in science communication don't have to do it all by themselves.

Alongside our expertise, our work is guided by a refined, facilitated process that allows us to get to the core of the issues in an engaging way. We recognize that each client is the best expert on their own field of expertise, and we help focus attention on the essence of their work. We specialise in illustrating complex logics, phenomena, and concepts in understandable and compelling ways. We also make sure that the content is accessible, both in substance and the ways it is presented visually.

We hope you find the information you need in our guide! You are also welcome to [contact our experts](#).



Science communication - where to start?

The communication needs related to science and research can be diverse. They range from communicating your research topic and its relevance in a concise and understandable way to different interest groups or to the wider public; commercialising research results; meeting the requirements of a research funder; and even providing guidance to research participants.



Subject and objective

The best way to start planning your presentation is to define the topic and objective precisely enough to choose the best means for communication. What do you want to communicate - what is the point of the story? How can the new information reach the right target groups in the best possible way?

Target group

When planning your presentation, it is important to identify the target groups for your message. Doing so enables you to tailor your content and style of communication as closely as possible to the needs of the target group. Who should know about this topic? What do they already know, what is new information? What kind of messages will reach them best? In which language or languages does the message come across most effectively? Do the members of the target group have special needs, for example visual impairment, which could be taken into account when defining accessibility needs?

Channels of distribution

Once the topic and target groups are known, it is a good idea to consider which distribution channels will best reach the chosen target groups. Communication can take place through websites, social media, email, video-sharing services, events and seminars, among others. It is common to use more than one channel of communication. *Which channels have been chosen for communication? How do these channels influence the style of communication? For example, if video is the preferred medium, what restrictions do the channels impose in terms of aspect ratio, duration or accessibility requirements?*

Benefits and effectiveness of visual communication – what does the research say?

Studies have shown that visual communication, and videos in particular, are an effective way to improve the comprehensibility of the message. They help to get the point across to the target audience.

Visual communication

Studies have shown that visual communication enhances an audience's understanding of complex and difficult-to-understand information. Through visual communication, such as animations and infographics, complex information can be presented in such a structured way that it is easier to comprehend than text-only information.

A researcher can use different kinds of visualisations to explain the observations and interpretations, especially when working with the kind of large datasets that are common in quantitative research -- without losing the original idea. The findings and concepts drawn from the data can also be so complex that the only way to explain them in an accessible way is by using visual representations.

Data visualisations have many different potential application: they can be used to offer a more analytical approach in reporting various news events and social developments, compared to traditional news material (1); they often produce better learning outcomes than textual material alone (2); and they help people understand complex instructions and manuals (3).

Infographics are used to present complex data in understandable and clear ways. Their roles and meanings have grown as the amount of information produced has increased. Infographics and other similar kinds of visualisations take advantage of the human ability to perceive patterns and structures visually, thus improving the absorption of information (4). The challenge with infographics, as with any type of visualisation, is to create images that are appropriately suited for the material and engaging for the viewer.



1 Egan et al. (2021), Antichi (2021), Lee & Kim (2015).

2 Sholihah et al (2023), Waddell & Clarizza (2018), Khan (2019).

3 Egan et al. (2021).

4 Heer et al. (2010, Li & Molder (2021).

Dynamic visual communication, such as whiteboard videos

From a science communication perspective, the advantage of so-called dynamic communication, such as videos and animations, is that the information is often presented in more interesting ways than it can be via static images. From the viewers' point of view, concise and informative videos are an interesting form of communication because they capture their interest. Animations and videos also help break down research into smaller and easily comprehensible pieces at the same time that they draw connections between significant elements of the research.

The challenge of this kind of dynamic communication that contains a lot of moving elements is the risk of presenting too much information. Too much at once can make it difficult to grasp the so-called big picture (5).

What about whiteboard videos? What is their advantage over regular animations and videos? Research has shown that whiteboard videos combine the benefits of both static and dynamic visual communication. Images in a whiteboard video are drawn by hand in a progressive, piece-by-piece fashion, following the narrative story structure.

The viewer is always focused on the detail that is being drawn and spoken about at that specific moment. In contrast, conventional animation displays the whole frame at once and movement can occur simultaneously in multiple parts of the picture, which can be confusing for the viewer. When watching a whiteboard video, where each picture is constructed gradually, the viewer is able to digest a lot of information, but one fact at a time, which makes it possible to transfer that information from working memory to long-term memory between scenes. In this way, the viewer can absorb more information and knowledge from a whiteboard video than from static images, traditional animations, or simple speech and text. In the past, the effectiveness of whiteboard videos was linked to a certain novelty effect, but research has shown that this is not the case (6). In addition, the effectiveness of whiteboard videos is even more enhanced when the video has a coherent and clear narrative story, with simple sentence structures, with illustrations that support the spoken story and without any complicated technical terminology (7).

There are many effective ways to use whiteboard videos in science communication. In addition to explain technical and scientific findings, they have been found to work to help internalise complex medical instructions (8), engaging young people (9), and communicating technical and scientific findings.

5 Schneider et al. (2023).

6 Türkay 2016, Schneider et al. (2023).

7 Putorti et al. (2019), Schneider et al. (2023).

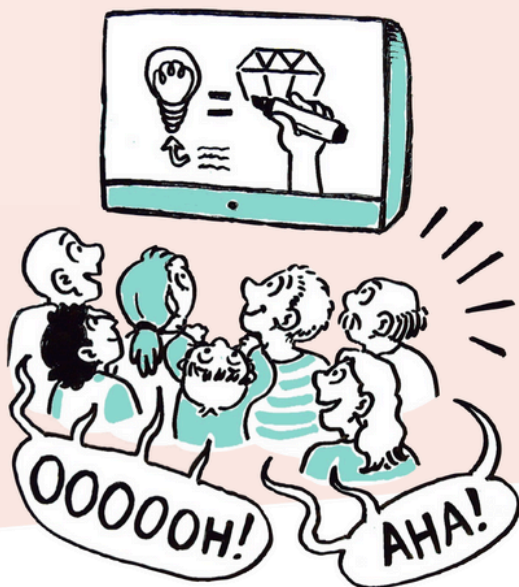
8 Wong et al (2020), Purwaningsih & Anggraeni (2021), Ackman et al. (2021). 9 O'Shea (2017).

Marker Wizards' solutions for science communication

Marker Wizards has more than a decade of experience in science communication. We have created hundreds of videos for a wide range of scientific disciplines and needs.

Our team of experts are all highly qualified and higher-educated specialists from different fields ranging from Masters of Fine Arts to Masters of Social Sciences and Masters of Science (Tech). In addition, many of us have a background as university researchers. These are some of the reasons why all projects related to science and research have a special place in our hearts.

In addition to videos, we also offer other types of science communication, in particular, visual solutions. For example we produce illustrations and infographics to support scientific publications and materials. We also do design and layout services, provide (remote) live illustrations for conferences and events, and produce a range of seminar materials. We are familiar with instructional design and have produced teaching materials for upper secondary schools, polytechnics, and universities.



Whiteboard videos

We at Marker Wizards use whiteboard video as our preferred video technique because of its superior advantages compared to other methods of video communication (see previous chapter).

In a whiteboard video, the artist illustrates spoken text by drawing in sync on a whiteboard. The clear and gradual narrative structure of the illustrations makes it easy to understand even the most complex subject.

Whiteboard videos are memorable, accessible and illustrative. Hand-drawn images provide a visually interesting and distraction-free method for communication. Thoughtfully designed illustrations, drawn in sync with the speech, help viewers internalise the subject matter and produce memorable moments for the viewer. Illustrations can include humor and lightness that are appropriate to the video's topic, making them even more enjoyable to watch. This way, science communication is important and effective, but not overly dry!

In our video projects, the division of roles is clear: the client is the expert of their topic and discipline, and we are the experts of whiteboard videos. Our core competence lies in summarising and clarifying the client's message. Our multidisciplinary team studies and internalises the subject matter, digs out the core message and condenses the complexity into a succinct, high-quality video. We do this through a carefully refined and tested process that takes us one step at a time into the heart of the topic.

Marker Wizards' whiteboard videos are literally handcrafted in our studio in Tampere, Finland. The content is drawn on a whiteboard with real markers by one of our illustrators – so the hand you see in the video is the real hand of the artist. This approach guarantees the quality and distinctiveness of the final result. Each image in the video is uniquely designed and drawn for that specific video.



Would you like to see our videos yourself? On our website markerwizards.com you will find several examples of our whiteboard videos on a variety of science topics.

Visualisations

In science communication, illustrations and other visualisations are often very useful. They help to clarify the topic and keep people interested. They also help people grasp details and connections that might otherwise go unnoticed.

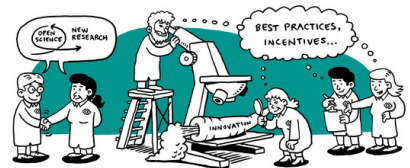
Illustrations

Illustrations help clarify the message of the research publications and, at the same time, give them a structure that makes them pleasant and interesting to read. Also for more complex topics, relevant illustrations help the reader to understand the content of the publication.

Illustrations can be very varied. They may include infographics, fact boxes, characters or comics, for example. We always work with the client to choose the right form of illustration for each publication.

We also provide professional design and layout services for publications, whether printed or in the form of slides. Appropriate and polished layout makes the whole publication more accessible. Colours, illustrations and a clear layout help to draw attention to the essentials and maintain interest.

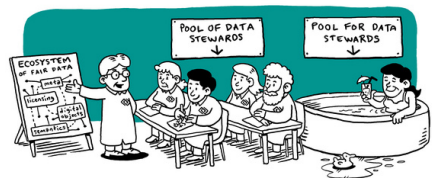
1. COMMON INCENTIVES FOR OPEN SCIENCE AND INNOVATION PRACTICES



2. NORDIC OPEN SCIENCE GREEN DATA SPACES FOR RESEARCH AND INNOVATION



3. COLLABORATING ON FUTURE SKILLS AND WORKFORCE



Live Illustration

is a spectacular way to add an informative element to an event. In live illustration, the artist illustrates a presentation, speech or event in real time. No prior visual design is required, as we can summarise the main points of the speech real time in the form of an illustration. Live illustration is usually done remotely.

The output of the live illustrator is a memorable and easily distributable visual summary of the day's presentations, or, for example, the outputs of a workshop. It can be easily included in summary materials or shared on social media. It also communicates the key points of the event to those who are unable to attend the event.



Example prices for Marker Wizards' science communication solutions

We offer a range of science communication tools from engaging whiteboard videos to eye-catching illustrations. Below are example prices to give you an idea of our services. All prices are fixed, including unlimited revisions and Full satisfaction guarantee.



Whiteboard videos

In general, the cost for videos used in science communication is between 6 000 € and 9 000 €. This covers a video of about 1:00-2:00 minutes.



For longer videos (more than 3:00 minutes) on large data sets, we use a separate pricing model. 3:00-5:00 minute videos usually cost between 8 000 € and 13 000 €.



The price is an all inclusive price, which includes all the necessary work, unlimited commentary rounds and a satisfaction guarantee. Prices are exclusive of VAT. VAT is determined in accordance with applicable legislation.

Illustrations

Prices for illustration work depend on the scope of the work and we always provide a separate estimate. Typically, illustration costs range from 500 € to 3500 €, with 500 € illustrations typically being single infographics or content illustrations and 3500 € illustrations being, for example, large process illustrations covering the whole study or a combination of several illustrations.

The price is an all inclusive price, which includes all the necessary work, unlimited commentary rounds and a satisfaction guarantee. Prices are exclusive of VAT. VAT is determined in accordance with applicable legislation.

If you're looking for something to fit your needs, we're happy to give an exact quote. [Just contact our sales.](#)



A science communication project with Marker Wizards - how does it work?

Whiteboard video project

The aim of a whiteboard video project is always to make a video that looks and feels like the client's materials, is understandable and, at the same time, engaging for the viewer. The project is available to the client at all times, which means the client can see all ideas and comment on them at every stage of the project.

During the project, we will work on the video together in three meetings. You will also have the opportunity to comment on several different drafts, which will help us find the best and most understandable way to tell your desired story.

In the first meeting, we will discuss the content of the video and goals for the video. Based on this meeting, we will write several different scripts for you to comment on.

In the second meeting, we will review the script together, refined on the basis of your comments.

We will also brainstorm together how to illustrate the topic of the video.

In the third meeting, we will look at the draft-video together, review illustrations and make any necessary changes to the drawings.

At all stages, our own experts, who come from different disciplines, are involved in the creative process. Through this multidisciplinary team and several drafts and versions, we ensure that the finished video is easy to comprehend and as concise as possible.

Your role as a client is to contribute to the brainstorming and to choose from among the options that we present to you, regarding script and illustrations. In practice, you will participate in three meetings (approx. two hours each), with light commentary in between.

Many people who have made videos with us have said that it took them surprisingly little time as clients. At the same time, they had a clear idea of the progress at all times and the opportunity to influence the content of the video.

The usual duration of a video project is six weeks. If necessary, a video can be made on a different schedule.

Illustration project

The illustration project starts with a remote meeting between client and illustrator, during which they go through the illustration-related issues and agree on a schedule for the project. The content of the images and the visualisation choices are discussed during the meeting.

After the meeting, the illustrator creates the first sketches and sends them for comments. Based on the feedback, the illustrator revises the images, and draws new versions. The client is able to comment on the finished illustration, before the final files are sent.

Any questions? Interested in co-operation? Contact us and let's talk!

If you are interested in a science communication project with Marker Wizards, please send us a contact request using the form at markerwizards.com. You can also call or email us.



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Marker Wizards Ltd. (in Finnish Tussitaikurit Oy) has been making the best whiteboard videos in the Nordic countries for more than 12 years.

Our clients include universities, research institutes, educational institutions, companies of all sizes and public institutions.

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