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Best practice for effective dissemination of scientific research

Case: Navigating Innovation by Benoit Gailly.

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Academic year 2023-2024
Dissertation for the master of:
Master [120] Business Engineering, with a specific orientation in Financial Engineering
Daytime schedule

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Read and acknowledged on the 8/08/2024

Acknowledgement

First, I would like to express my gratitude to my promotor, Dr. Benoit Gailly, Professor of Innovation Management at the Louvain School of Management for his valuable guidance, insightful feedback and advice all throughout the entire process of this thesis. His experience and scientific point of view helped shape this work and made the research possible.

I would also like to thank Françoise de Viron and Cédrick Fairon for taking the time to participate in my interviews. Their insights have been very useful to reach a realistic and feasible conclusion, and so improve the quality of this research.

Finally, I would like to thank my family for their help throughout this process, their unwavering encouragement and support.

Thank you all.

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1. Introduction

In the modern landscape of scientific research, effective communication of scientific research is essential for the dissemination, application of new knowledge and fostering innovation. In this thesis, we will explore the various dissemination or communication tools available for disseminating scientific knowledge, classify these tools based on specific criteria, and develop a strategy to optimize their use. The goal of the thesis is to determine a range of potential dissemination tools and strategies that could be the most effective and that align with Professor Gailly's research on innovation management as his seeks to enhance the visibility and accessibility of his research. This involves assessing the impact on the target audience, cost efficiency and the feasibility of the implementation of a dissemination tool according to the specific requirements for a virtual, low maintenance and long-lasting tool asked by Benoit Gailly.

To achieve this objective, the thesis begins with a literature review, that is composed of three different parts. The first part discusses the different ways knowledge can be utilized and the rationale behind focusing on dissemination. The second part lists the available tools for disseminating scientific knowledge. The third part outlines the criteria for classifying these tools, emphasizing their impact on the target audience and cost-efficiency. Our literature review sources are selected based on their relevance and credibility, with a preference for comprehensive reviews that summarize findings from multiple studies. The review aims to pinpoint effective communication tools and map them against identified criteria to determine the most efficient combination.

The second part of this thesis is empirical research. To create a foundational mapping of communication tools, we draw on the article "Catalogue of Communication Tools and Dissemination Guidelines" by EFSA (2021), which provides a catalogue of tools evaluated based on their impact and cost-efficiency. We supplement this with an interview with Cédrick Fairon, offering real-life insights into effective dissemination strategies. We then identify an initial mapping of fourteen communication tools rated on their impact and cost-efficiency. These tools range from traditional methods like press releases and newsletters to modern digital platforms such as videos, interactive tools, and podcasts. We analyse how each tool engages with different audiences and the benefits and limitations of each.

The following part consist in a benchmark analysis to refine this initial mapping by comparing their effectiveness and efficiency in real-world applications, and more specifically in the innovation management field. It involves a focused analysis of dissemination strategies within the innovation management field. By evaluating six relevant articles and an interview with Françoise de Viron, we identify the most suitable tools for disseminating research in this specific domain. Their objectives, target audience and dissemination channels are assessed. The interview with an expert in innovation management help us ensure the applicability of the tools. This process reduces our selection to eight key tools, emphasizing the importance of a balanced mix of traditional and modern strategies. They are the most convenient for the dissemination of research on the innovation management, based on the impact on the target audience and the cost efficiency.

Finally, the last part of this thesis is the application of the gathered insights to Professor Gailly's specific context. His current dissemination efforts will be reviewed, and recommendations will made to enhance these efforts based on the new refined dissemination tools choices from the previous section. The recommendations will be based on his objectives, target audience, and specific constraints, ensuring a tailored and practical dissemination strategy. The goal of the final section is to identify suitable tools, and to provide detailed recommendations to optimize his dissemination process.

Through this structured approach, the thesis aims to enhance the reach and impact of Professor Gailly’s research while aligning with his specific needs and constraints by developing a mapping of potential dissemination strategy leveraging his existing resources and connections. This approach ensures a robust and adaptable dissemination strategy, maximizing the application and influence of his innovative findings in the field of innovation management.

2. Literature Review

The first step in the redaction of this thesis is to do a literature review of the various tools of communication available and understanding how they are classified and based on which criteria. This literature review will be composed of three parts. First, we will define several ways the knowledge can be used and why we chose to do a dissemination. Then, we will list different tools available to disseminate scientific knowledge and finally, we will determine on which criteria to classify them. The purpose of this literature review is to pinpoint communication tools and then map them against the identified criteria to determine the most effective combination of tools. In this literature review, the articles are chosen regarding their relevance to the research question and credibility of the source. I also aimed for articles that offered a review of the topic as they summarized findings from multiples studies.

2.1. Different use of knowledge

There are several processes or approaches that can be employed in order to use knowledge effectively, such as valorisation, dissemination, transfer, and more. Given the main topic of this thesis, we will focus on why we chose to disseminate our knowledge over other process. This will help define the scope of this thesis regarding the dissemination of scientific knowledge.

First, **knowledge transfer** refers to the process of sharing, it involves conveying explicit knowledge or tacit knowledge through mentorship. It emphasizes on passing knowledge to individuals inside an organisation or from one organisation to another and ensure the understanding and reception by the intended audience (Argote, 2000). The **dissemination of knowledge** is an interactive process and involves a broader audience, like practitioners, policymakers or the general public (wide target audience). The dissemination of knowledge improves the accessibility of the knowledge, and it utilizes multiple channels such as media or digital platforms and its aims is to inform, engage and facilitate the use of the knowledge (Ordoñez & Serrat, 2009). In other words, it involves sharing research findings with the relevant audiences so that the impact can reach its full potential (Dovetail Editorial Team, 2024).

Another process is **knowledge valorisation**. It is the transfer of knowledge from one party to another for economic benefit. It is based on the assumption that knowledge is a thing that has economical value, which is subjective, so it requires an estimation of its worth (Andriessen, 2005). Lastly, there is the **knowledge utilization**, which refers to the process of

applying the knowledge into real-life situations, to solve problems or make informed decisions. In other words, it is the translation into actions or policies of results of scientific research (Knowledge Utilization, 2023).

The goal of this thesis is to build a map of the possible most effective ways to give access to anyone who would be interested in the research of my promotor. Therefore, we will apply the process the dissemination of knowledge. By focusing on the dissemination process, our aim is to maximize the reach and impact of the research through accessible methods, ensuring that the knowledge will be wildly shared.

To have an effective dissemination, clarity regarding the purpose and the objective of your dissemination is crucial. This entails carefully selecting the process or the methods used, in other words, you have to clarify the channels, the format and the timing of your dissemination. Lastly, understanding your target audience is essential as each audience require a different type of communication approaches and language styles (Dovetail Editorial Team, 2024). By aligning dissemination strategies with the needs and preferences of the target audience, researchers can maximize the impact and reach of their findings.

Note that some authors from the different articles found differentiate explicit knowledge and tacit knowledge in order to use the most suitable tool. The explicit knowledge is knowledge that is easy to write down and articulate while the tacit knowledge is gained from personal experience, so it is more difficult to share (Anderson, 2023). We will, thus, only concentrate on the tools used for the explicit knowledge in the articles that differentiate them because the kind of knowledge we want to disseminate in this thesis is explicit.

2.2. Available tools

In this part, we will analyse different scientific articles where are cited most common tools used for a dissemination of knowledge in any specific sector.

In the article *Choosing a knowledge dissemination technique* by John Kingston (2012), they based their article on Milton's two dimensions classification (Milton, 2010) of the different approaches for knowledge dissemination (**appendix 1**). They decided to use this because, as stated, "This categorisation is powerful because it reflects one of the biggest philosophical debates in knowledge management research" (p. 2). The two dimensions are Informal – Formal and Connect – Collect.

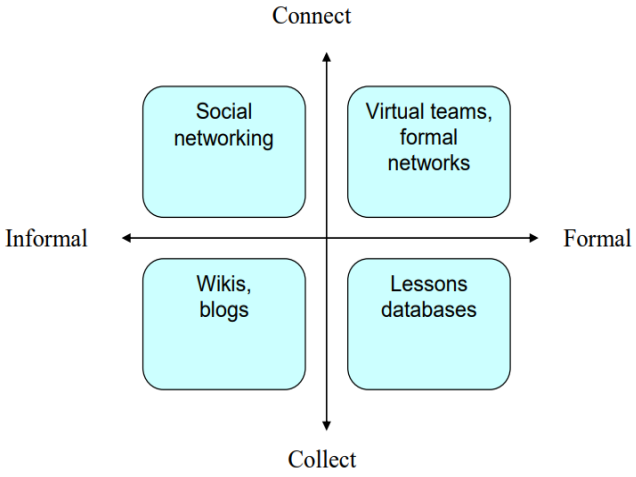

Figure 1 Milton's classification of 'lessons learnt' approaches

Based on the graph above, in the 'Informal Connect', you can find the **social networking**. This is where people who need the knowledge connect with those who have it and they are the easiest to put up. The contact can be through meetings, internet-based discussions or collaboration spaces, under the form of discussions. They are open to discussions with the experts, it is a nest for innovation and creativity. In the 'Formal Connect', there is virtual teams and **formal networks**. It is an IT system, in other words, it is a web page with a single point of access. The goal being to unify the information. This is more used within an organization to solve a problem, so their content is regularly updated. In the 'Formal Collect' is **lessons and databases**. The goal is to make the knowledge more accessible to its intended audience. It is to make guidance or procedures available. The knowledge needs to be verified, validated and standardised, so the knowledge is reliable. Finally, in the 'Informal Collect' is the **blogs and wikis**. So, it includes all forms of voluntarily publishing material. It requires a lot of management to implement and maintain the knowledge, but it can be shared among a wide range of people, and it can be verified and validated.

In a second article called *Dissemination and utilisation of Knowledge* by Dr. R. Senapathi (2011), they explained various mediums to disseminate knowledge while differentiating tacit and explicit knowledge. As said above, as the research we are looking to disseminate are explicit knowledge, we will only focus on them. It is said that "Most of the world's knowledge is in written form in the form of **books**" and that nowadays, we can find it on the **internet** (Senapathi, 2011). They say that for the explicit knowledge, it is disseminated using structured and accessible methods such as databases, intranets, and digital platforms (**email, blogs, wikis**). They also emphasize the importance of using a combination of communication tools and collaboration tools to share knowledge more effectively.

They define blogs as a type of website that is typically maintained by an individual and features regular entries or posts. These entries can include a variety of content such as commentary, descriptions of events, graphics, or videos (Senapathi, 2011). It is allowed to leave comments, creating an interactive format and it contains text, videos, images, audio, etc. The main purpose of blogs for a professional use is to reach a broad audience, share an engage with readers. They can help connect like-minded people to support each other and share information. As for wikis, they define it as a web-based platforms that allow multiple users to create, edit, and update content collaboratively. There are several types of wikis, such as public wiki which is open to everyone, for example Wikipedia, and there are corporate wikis Used within organizations to manage projects, communicate, and share knowledge, they are more secure. Wikis facilitate collaboration and accessibility, there are also real-time updating, but they are high risks of misinformation.

Given the fact that we live in a world that is more and more digitalized, I looked for tools of dissemination that are adapted to this new digital world and found the article called *Digital Society and social dynamics* by S. Serpa et al (2020). In the article, they explain how the use of digital tools enhances the dissemination process and offer ways to reach a broader audience. There are several tools focusing on scholarly communication practices such as email, videoconferences, diverse software, social networks, online communication platforms, e-books, online databases and GRID computing. All these tools help to have a broader dissemination, improve the practices, advance understanding and potentially drive the innovation in knowledge management (Serpa et al., 2020).

First the **emails** are used as a communication tool that allows individuals to exchange messages and organizations. Then, there are **videoconferences** or virtual meetings which use has significantly increased during the pandemic. The **diverse software** refers to a variety of applications and programs used for different purposes (productivity, design, project management). The organization adopt it to enhance efficiency and collaboration. The **social networks** are the online platforms that connect users, such as LinkedIn, Twitter, etc. They play a crucial role in the digital society for the communication. There are also **online communication platforms** which are blogs, YouTube or vlogs. These allows individuals to disseminate information and engage with the audience. **The e-books** are electronic versions of printed books that can be read on digital devices and also contribute to the dissemination of knowledge in the digital society. **Online databases** are digital repositories of information that can be accessed, searched, and retrieved over the internet. Finally, there is the **GRID**

computing which involves interconnected serves and computers to work on computational tasks for a large-scale project (Serpa et al., 2020).

In an article named *Seizing the economic and social impact of universities' knowledge exchange activities: Does one size fit all?* by Jasmina Berbegal-Mirabent and Victor Martin-Sanchez (2024), they discuss the evolving role of universities in fostering knowledge exchange (KE) and their impact on society and the economy. It highlights the shift from traditional educational models to more collaborative and inquiry-based approaches, emphasizing the importance of partnerships between universities and external stakeholders, such as industries and communities. What is relevant in this article is how they introduce the concept of knowledge exchange. They say that it encompasses activities that facilitate the sharing of knowledge between academic institutions and external stakeholders. It relies on multiple tools and strategies while supporting collaboration and enhancing communication. (Berbegal-Mirabent et al., 2024)

The tools and strategies in question are **workshops and training sessions**, where academics and community members collaborate on specific issues or conduct seminars to educate on the latest research. They also mention **community forums**, where stakeholders can share insights. There are also **open door events**, **conferences or public lectures**, this allows for a broader audience. They encourage faculty to engage with non-academic groups to exchange ideas via **professional networks**. Finally, the **digital platforms** are also used as tools such as social media, to disseminate research findings and engage with a more diverse audience. The article emphasizes collaboration between universities and stakeholders (Berbegal-Mirabent et al., 2024).

An article discussed the concepts surrounding the social media and its implications for the research dissemination. It is called *The Use of Online Strategies and Social Media for Research Dissemination in Education* and it was writing by Dr Amanda Cooper (2014). It outlines the various tools associated with the new technologies and it emphasizes a shift from users being just consumers to users being active producers of knowledge. It also provides insights on how these technologies facilitate the connections between research, policy and practice (Cooper, 2014). This article mentions only social media tools, as they call it, for the research dissemination, and they divide them in 3 categories.

First there is the communication tools such as **blogging** that allows users to publish written content, **microblogging** that are short posts like on Twitter for example, and **social**

networking (LinkedIn, Facebook). Then, there are the collaboration tools, these are tools that facilitate virtual meetings and collaboration like **Skype** or **wikis**, where multiple users can edit the content. Finally, there are the multimedia tools, these are for photograph sharing, video sharing, live streaming, etc. They can use **YouTube**, or other streaming websites. All these tools serve different purposes throughout the academic research communication and collaboration (Cooper, 2014).

In this final article that I analyzed, they wanted to investigate the impact of the choice of communication tools on communication efficiency in projects, more precisely, they compared traditional communication tools versus Social Media. The goal was to show the benefits of Social Media. The paper it titled "*Communication tools' impact on project communication efficiency: An evaluation of traditional communication tools and Social Media*" by Linda Berg (2017). As traditional tools, they had **E-mail**, which are widely used for project communication but can be time-consuming, **Skype** and **Meetings**, they say that face-to-face conversations necessary for solving complex issues that demand dynamic conversations, and then, **social media**. The use of traditional tools is actually important because trust is high among project team members using traditional communication tools as they are well established which is, for now, the opposite for the social media.

2.3. Main criteria used to sort out those tools

Because the efficiency depends on the criteria chosen to define it (Berg, 2017), in this part we will search for the most used criteria to define what we will mean in the thesis when we talk about the efficiency of dissemination tools.

In the article *Effectiveness and efficiency of guideline dissemination and implementation strategies* by JM Grimshaw et al (2004), they did a systematic review of the effectiveness and costs of different guideline development, dissemination and implementation strategies. The goal was to identify a framework to know when it is efficient to develop clinical guidelines. In order to establish their framework, they looked for implementation strategies that are likely to be the more efficient given their limited resources and to maximise population benefits. They identified the **potential clinic areas** for clinical effectiveness activities, that can be interpreted as their target audience, and the **costs required** to introduce those guidelines (Grimshaw, 2004).

In this same article they also mention the fact that all the studies used for their article were of poor methodological quality. To have unbiased estimates of costs and effect for all the stages of the dissemination, it is said that the more realistic approach is the one outlined by

Mason and colleagues (Mason, 2001), they concentrate on evaluating behavioural change and costs development.

In another article, it is said that the efficient dissemination of documents and files relies on proper organization, **load balancing**, and classification based on **popularity** and **locality** (Serpa et al., 2020). They refer to the dissemination of files and documents in a hierarchical system and they use proxies. If you use several proxies for your dissemination, you must balance the load given the demand of the dissemination channel you use, is crucial for rationing resources efficiently among competing home servers. In this article, it is called the location. The performance of the dissemination protocol is impacted by the frequency of updates and more frequent updates result in higher dissemination activity, so the more popular your document will be. Finally, there are various modes of distribution including subscription-based, query-based, and propagation-based methods, based on user's interests (Serpa et al., 2020).

The article cited above named *Seizing the economic and social impact of universities' knowledge exchange activities: Does one size fit all?* by Jasmina Berbegal-Mirabent and Victor Martin-Sanchez (2024), they mentioned the **impact measurement** as essential for understanding how universities contribute to social and economic progress. This involves developing new indicators and methodologies to quantify the diverse activities that universities engage in with external partners. To measure the impact they have on social and economic progress, they use 5 key dimensions: knowledge and technology commercialization, interdisciplinary research collaboration, community engagement initiatives, social entrepreneurship activities and partnerships with local industries and organizations.

2.4. Conclusion

To conclude, this literature review aimed at identifying and classifying various communication tools to enhance the dissemination of scientific knowledge. The review consists of three distinct parts: understanding the different uses of knowledge, examining available dissemination tools, and identifying criteria to evaluate their effectiveness.

Initially, we differentiate among various knowledge processes such as transfer, dissemination, valorization, and utilization. The focus is on dissemination due to its broad target audience and interactive nature, making it ideal for maximizing the reach and impact of research findings. By emphasizing dissemination, the goal is to ensure that the research is widely accessible, thereby maximizing its societal and academic impact.

Tools and strategies for knowledge sharing can be categorized using Milton's Informal – Formal and Connect – Collect dimensions. Informal Connect methods, like social networking, foster open discussions and creativity, while Formal Connect tools, such as virtual teams, unify information for problem-solving. Formal Collect tools, including lessons and databases, provide reliable, standardized knowledge. Informal Collect tools, like blogs and wikis, facilitate broad sharing and collaborative validation. Each tool is evaluated for its suitability in disseminating explicit knowledge, which is the primary focus of this thesis.

Structured methods for explicit knowledge dissemination, such as databases, intranets, and digital platforms, are emphasized by Dr. Senapathi. Modern digital tools, highlighted by S. Serpa et al., including emails, videoconferences, and social networks, enhance reach and drive innovation. Linda Berg's comparison reveals that while traditional tools like emails and face-to-face meetings are trusted, social media is emerging as a valuable dissemination tool. Evaluating the efficiency of these tools involves considering cost-effectiveness, user behavior impact, and engagement.

Furthermore, we examine the criteria used to assess the efficiency of these dissemination tools. Factors such as the target audience, costs, frequency of updates, and the popularity of the dissemination method are considered crucial. The framework for evaluating efficiency also incorporates impact measurement dimensions like knowledge and technology commercialization, interdisciplinary research collaboration, community engagement, and partnerships with external stakeholders.

Ultimately, a combination of traditional methods and modern digital platforms, tailored to the organization's needs and the knowledge being shared, ensures accessible, up-to-date, and reliable information, fostering innovation and maintaining a competitive edge. This approach not only enhances the accessibility and engagement of research findings but also ensures that the dissemination process is efficient, impactful, and aligned with the needs of the target audience. Next, we will do an empirical analysis to create the mapping of communication tools.

3. Empirical research

We focus on the dissemination of knowledge, so we will consider throughout this report a combination of four major elements: the source, the content, the medium and the user (Senapathi, 2011). The **source** is the author responsible for the new knowledge, in our case it is my promotor Pr. Benoit Gailly. The **content** is the new knowledge itself, so here, it is the

research he has done about the innovation management (IPdigIT, 2024). The **medium** is the way in which the knowledge will be distributed, in the report we will call that the tools of dissemination and this will be the main focus of this report. Finally, the **user** is the target audience.

This empirical research is to help us make a first mapping containing the different communication tools, the **medium**, found in the literature review for any scientific field. This mapping will be under the form of a graph on which the tools will be placed based on the impact they have on their target audience and their cost-efficiency.

Firstly, we will explore the article called *Catalogue of Communication Tools and Dissemination Guidelines* by EFSA[1] (2021). In this article, they established a catalogue of different communication tools available for an effective dissemination of knowledge based on some criteria. Given the fact that it confirms the findings of the literature review, we agreed on the fact that it was relevant enough for us to use it as base throughout this thesis to establish the mapping because they were able to quantify the impact on the target audience and the cost-efficiency, I will explain later how.

Furthermore, an interview was conducted with Cédrick Fairon. The interview allowed us to have real-life experience on the dissemination of knowledge in several sector, so it contributed to the mapping of more realistic communication tools.

Finally, we will display a first map of communication tools based on their impact on their target audience and their cost-efficiency with the conclusions drawn from the first and second part of this empirical research.

3.1. Catalogue of communication tools and dissemination guidelines.

We will explore the article authored by ICONS[2] and EFSA and called “Catalogue of Communication Tools and Dissemination Guidelines: benchmarking current practice in EU and Member State bodies” (EFSA, 2021). The catalogue is divided in 4 categories of 25 different tools, and we will explore them one by one in this part. First there is the multimedia, the editorial, the meeting and events and finally the educational tools. Note that for now, my

[1] EFSA: European Food Safety Authority ; pivotal agency of the European union
[2] ICONS: private Italian group specializing in developpement of large-scale projects in the field of science innovation and culture (Admicons, 2023)

promotor, Benoit Gailly, does not want to do any physical event, so we will not work with the category “Meetings & Events”.

This report was written because the Transparency Regulation (2019/1381) was aiming to improve how food safety risks are communicated across the European Union. The European Commission led this effort, seeking support from EFSA. Together, they produced reports on best practices in risk communication. ICONS also collaborated with them, creating a catalogue of communication tools and guidelines. They conducted surveys and interviews to compile this information. The report outlines current tools, their purposes, and target audiences, as well as ways to improve dissemination. It serves as a foundation for future communication efforts, adapting to changing needs and regulations. (ICONS Signs Jointly With EFSA the Catalogue of Communication Tools and Dissemination Guidelines - ICONS, 2021)

As said above, this catalogue features 25 communication tools belonging to 4 categories (**appendix 1**), the multimedia, the editorial, the meetings & events and educational. As criteria used to define the efficiency of a communication tool, they measured the impact on the target audience, so, whether or not they reached the audience they intended to reach, and the cost efficiency. Unlike the articles from our literature review, they did manage to quantify it by interviewing a sufficient amount of people. They evaluated these two criteria on a scale from 1 to 5. To be consistent throughout this work, we will continue to use the scores attributed to the relevant communication tools to find out which one is better for our specific scientific research We will also use the same denomination for the tools as they are mostly the same or they group together those found in the literature review.

Note that the scores of the impact and the cost-efficiency is an evaluation made by all the respondent of the online survey. The focused their data collection on three types of organisations, Member states (including communication experts network members and focal points), Committee on the Environment, Public Health and Food Safety EU Agencies (European Food Safety Authority (EFSA), European Medicines Agency(EMA), European Chemicals Agency (ECHA), European Centre for Disease Prevention and Contro (ECDC)) and EU Bodies (Directorate General for Health and Food Safety (DG SANTE), Joint Research Centre of the European Commission (JRC), European Council (EU COUN)). A total of 42 respondent answered the survey and you can find the full list of respondents in their ANNEX I. (EFSA, 2021, pp 14-15).

Now, for the three most relevant category, Multimedia, editorial and educational, I will explain the tools related to them and explain whether or not we are going to use them or not based on my promotor's wishes and the resources available. This will then help us to map only the most feasible tools in any scientific sector. In the **appendix 1**, the actual catalogue can be found in which there is the key objective, the key target and the key channel by tool. You can also find how much they were rated out of 5 for their impact on the target audience and their cost efficiency.

3.1.1. Multimedia

In the digital era, **video** is one of the most powerful ways to engage diverse audience, including both specialists and non-specialists. Videos possess the flexibility to be shared across various platforms, such as social media (SoMe) and websites. They can be embedded in emails and some communication tools.

An **infographic** represents information visually. It can make complex data easy to digest thanks to the use of visual design. The problem with this tool is that it cannot really be used with the kind of research and information we are trying to disseminate so we will not use this tool.

For the **website content**, the problem is the same. It is made to offer a portal to an organization's activities. Some content mainly features on websites such as "About", "Governance", "Contact", "Mission and/Or Values" sections, Glossary, etc. It can also come in many forms; visuals, textual, video, etc, it overlaps with other dissemination tools. Its key purpose it to offer a clear review of an organisation. To be able to use it as a communication tool, we would have to do a partnership with any organisation that would be willing to help us dissemination the research of my promotor, so we can not use this tool in itself but we can use other tools such as podcasts, video or other that would be posted on the website of our partner. This means that we will only be able to use the websites as channels and not as tools.

Video animation is a filming technique able to grab viewers' attention and emotions, especially engaging for non-specialist audiences. It simplifies concepts. Entertaining and impactful effects (graphic, visuals and sound effects) together with engaging storytelling are the key factors behind its success. They work well on SoMe and on websites, e-mails, … They can also be shown at physical events.

The **interactive tools** are adapted to the digital era. The aim is to engage expert and non-expert through entertaining features and diverse functionalities enough to cater for different types of scientific knowledge. The tools, ranging from self-tests to quizzes, offer a dynamic platform for all these different types of knowledge. For instance, an interactive database tool provides facilitated access to different content, simplifying complex scientific data for enhanced comprehension.

Podcasts offer a convenient and accessible means of consuming content, ideal for individuals on the go, whether walking, traveling, or engaging in other activities. They can be streamed directly from websites or downloaded for offline listening. It explores scientific knowledge more in-depth than videos and it is accessible to the less specialized audience.

Video Interview typically features experts, they attract a wide audience and enhance the visibility of the research. However, as my promotor has expressed a preference against conducting such interviews, this communication tool will not be utilized in our dissemination strategy.

Mobile applications are restricted only to mobile devices and require downloading from Google Play or App store. Although they are an interactive way to raise awareness, the cost is to high to develop or maintain this kind of application. Therefore, this kind of communication tool will also be excluded from our dissemination strategy.

3.1.2. Editorial

Social media content overlaps with many other communication tools as social media are key dissemination channels. So here, it only covers the specific content created for the social media such as cards, posts, short videos, etc. The content will depend on the platform used and the different platforms offer a versatile and dynamic space for engaging with the target audiences and amplifying research visibility.

A **Press release** plays a crucial role in establishing a connection to journalists. It is typically distributed via email or other channels. A press release provides concise and specific information about the research, aiming to engage journalists who serve as key multipliers in reaching diverse target audiences.

A **News story**, typically crafted by journalists, provides written information on new and trending topics, often presented from a fresh perspective or angle. The content of the news story must suit the dissemination channel chosen. However, given that the research made by Benoit

Gailly does not align with the news story's characteristics, this communication tool will not be utilized further.

Newsletters serves as a popular and cost-effective means of maintaining communication with the target audiences. It provides subscribers with updates mostly through email. The newsletters provides timely updates and relevant information if it is to achieve its full potential.

Printed products such as flyers and posters are effective for summarizing detailed content for a quick and easy read. However, given that the knowledge being disseminated by my promotor does not have a format that can be summarize on a flyer so this dissemination tool will not be used.

Infocard was made popular with the development of the internet as visual communication becomes more relevant. It is a combination of written text and graphic material. It informs the target audience, scientific or non-scientific, about the research in an easy-to-understand overview. While this communication tool would have been relevant to our scientific research, the main dissemination channel is the website which we do not have access to.

Product alert is concise and eye-catching. They are used to deliver information about an issue, an explanation of danger or advice so it is not applicable to our research dissemination needs.

Frequently Asked Questions (FAQs) serves as valuable feature on websites, offering a list of typical and common questions that audiences may have asked regarding a particular subject and their answers. Typically, FAQs are presented as a stand-alone page or as a section within a website, with multiple subpages addressing specific questions or topics. They can also be used in articles or online forums. For it to be effective, the answers must be short and regularly updated.

Blogs serves as a powerful tool for building reputation and gaining influence within a particular field. They offer a platform for experts to share insights inform the audience about a specific topic and encourage people to interact. Managed by experts who are able to moderate the debates, the blogs facilitate debates and discussions while providing valuable information. A blog allows to better target your audience on a specific topic, they share their opinions on something that interest them, so the attention and involvement is enhanced. For a blog to be

effective, it must be regularly stimulated and there must be regular posting, the authors also would have to identify keywords so that the content can be found by search engines.

Op – Eds *(opposite the editorial page)* or opinion pieces are articles that reports an expert's viewpoint on a specific subject matter. These pieces can be commissioned by the editorial staff or submitted by the expert for publication but the final decision to publish rests with the editorial board. As such, establishing strong media relations and building connections with journalists are crucial for effectively disseminating knowledge through this tool.

The organisations have a duty to inform the public about the benefits and risks of a product or substance, particularly concerning health and food issues so the **product information** does not align with the nature of our scientific knowledge being disseminated. This dissemination tool is not applicable to our research efforts.

Interviews with influential figures, such as experts, are a common type of **feature story**. They are asked questions and provide opinions about trending subjects. However, since Benoit Gailly has expressed reluctance to participate in interviews, this dissemination tool will not be utilized.

3.1.3. Educationnel

Training courses serves as valuable tools for improving skills, providing knowledge, or offering guidance to participants. These courses can be delivered face-to-face or online with the length and duration dependent on the topic and the purpose. It needs a structured learning programme, typically based on modules, and a final evaluation or course certificate.

Education programmes are structured into modules with the purpose of educating young people and nurturing specific behaviours in them. These programs may lectures organized by an organisation to explain issues to specific audiences, with supplementary materials such as videos or posters used to enhance understanding.

3.2. Interview with Cédrick Fairon – Summary

After this first empirical research, I did an interview with an expert to have an opinion on the dissemination tools used in a generic scientific field. In the **appendix 2**, you can find the transcription of the interview. The interviewee was Cédrick Fairon, an expert in automatic language processing dealing with text manipulation and natural language processing and he has experience in research dissemination. He also was dean of the FIAL faculty at UCL.

The dissemination strategies encompass several approaches. The tools used by Cédrick were mainly publication in scientific journals or articles and conferences with which he can engage with a broader audience. The more well-known the journals the better for visibility and credibility within the academic community. He also published in his research series called “Les cahiers du Cental”. Finally, he leveraged traditional media coverage, including the newspapers, radio and TV interviews and he organized public forums in order to reach a wider audience.

As for some more modern dissemination strategies, he is now using a platform or website, to aggregate all the knowledge gathered during their conferences and in their publications. They also are actively using academic social networks such as ResearchGate and Academia. These platforms are used to share their information with the scientific and academic community. To reach a wider professional audience, the use of Facebook and LinkedIn is fairly widespread. Note that Facebook is a more localized dissemination than LinkedIn.

Cédrick mentioned the challenge in measuring the return on investment of a dissemination tool. It is difficult to quantify but the results are shown is the growth of the research centre in size and recognition was an indicator and some media-driven projects provided some financial support which could be also used as a measure of effectiveness. He also warned me about the difficulty in balancing broad public engagement with academic visibility and a dynamic nature of dissemination platforms requires constant adaptation.

As a dean, Cédrick followed the lead of the LSM regarding their dissemination strategies because he believed that they were on the right path to enhance their visibility and engagement. So, he has initiated various programs such as LinkedIn networks, newsletters, and certification programs for teaching assistants to improve communication and dissemination within the academic community.

We can conclude this summary by saying that Cédrick has provided us with various dissemination strategies in different sector, and he also gave us the challenges associated with measuring their effectiveness. With his insights, we will now be able to make a more accurate mapping by taking into account the reality of using dissemination tools.

3.3. First mapping of communication tools

In this part, we will create a first draft for the map of communication tools using the empirical research and the interview. The goal is to have the most relevant tools that can be used for a dissemination in any scientific field. With our literature review and our empirical

research, we were able to identify 12 effective ways to disseminate scientific research, aligning with the specific requirements of our promotor and the nature of our knowledge.

All 12 dissemination tools received ratings above 3, indicating their effectiveness and cost-efficiency (**appendix 1**). In the article used for the empirical research, they also highlight the most common channels used, such as websites, social media, and email, which are all online platforms (EFSA, 2021, p.77).

In the digital era, videos, interactive tools, podcasts, and social media content effectively engage diverse audiences. Videos raise awareness and simplify complex concepts, while interactive tools like quizzes and databases offer dynamic engagement with scientific knowledge. Podcasts provide in-depth exploration, and tailored social media content maximizes research visibility. Traditional tools, such as press releases, newsletters, FAQs, blogs, Op-Eds, training courses, and education programs, remain valuable for reaching different audiences and ensuring comprehensive dissemination.

Cédrick Fairon, highlights the importance of combining traditional and modern dissemination strategies. Traditional tools like scientific journals, conferences, and media coverage complement modern platforms such as ResearchGate, Academia, Facebook, and LinkedIn. Despite challenges in measuring the effectiveness of dissemination tools, indicators like research centre growth and media-driven project support serve as measures of success. The dynamic nature of dissemination platforms necessitates constant adaptation, and a balanced mix of strategies is crucial for effective knowledge dissemination in the scientific field.

Even though Benoit Gailly said that he would not do any physical events, after the literature review and after the interview, we saw that the physical events are an asset in a dissemination strategy. So, we will add the dissemination tools from the EFSA report that concern the meeting and events as above, more information ca be found on the **appendix 1**.

In the meetings and events category, first there is the **physical event**. It is a face-to face meeting that can last several days, and the experts are invited to present topics and then exchange ideas. They strengthen collaboration and they engage directly with non-specialist groups or stakeholder groups. The physical event is both a channel and a tool, it can be used with several other tools such as Videos, printed products, etc.). The physical event as the particularity that, itself, can be promoted via several communication tools.

The **webinar** is a seminar but online. There is a speaker who share its knowledge to an audience and the audience can interact with him. The webinar is a cost and time saving tool while being extremely accessible. In this way, they can engage with non-specialist and specialist participants.

Finally, there is the **press conference**. It is a meeting organized by the organization to communicate new to the media representatives. The journalists are allowed to ask questions and interact with the organization, and this can help build stronger relationship with the media. The kind of knowledge we are trying to disseminate does not does really apply to the characteristics of the press conference tool, so we can already remove it from the choices.

Now, here is the first mapping that contains the 14 different tools and their ratings:

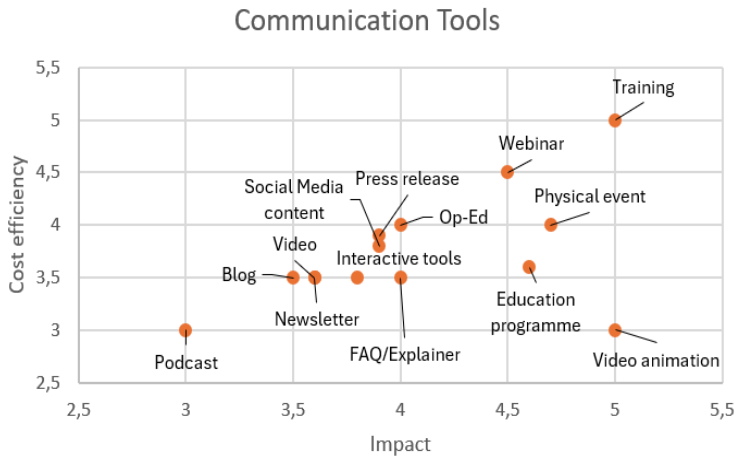

Figure 1: Most relevant communication tools after a first analysis rated out of 5 for their impact on the target audience and their cost efficiency.

In the next part, we will do a benchmark analysis to refine those first 14 communication tools gathered and see which ones can be used in the innovation management field more particularly.

4. Benchmark analysis

In this section, we will analyse how research from the same sector as the research of my promotor, the innovation management, is being disseminated. The goal is to refine our selection from the initial pool of 14 choices found in the previous section and do a new mapping that applies for the scientific research in the field of the innovation management.

Firstly, 6 relevant articles or websites that you can find below are analysed. They were chosen because they are in the innovation management field, and I looked if all the tools cited earlier were used in this kind of field. To be concise, I put one article for one main communication tool used. By discerning the dissemination strategies employed and evaluating their effectiveness in reaching the intended audience, we will be able to keep only the dissemination tools most suitable for our knowledge dissemination objectives in the field of innovation management. In the **appendix 4**, you can find a table with small summary of the different article found, with their target audience and the dissemination tools they have used.

I then did an interview with Françoise de Viron of which there is a transcription in the **appendix 3**. She gave us insights on the reality of the dissemination in the field of the innovation management that we will cite later on. Her interview helped us have a more refine and achievable map of communication tools.

In the last part, there is the new mapping of the most relevant communication tools in the sector of the innovation management made from the mapping we did earlier.

4.1. Benchmarking

4.1.1. A new approach to Strategic Innovation

Let's analyse the article "A new approach to Strategic Innovation", the main topic of this article is in the same sector as the research of Benoit Gailly. In their article, they introduce a new strategic innovation tool kit designed to assist leaders and organisations in effectively aligning their innovation investments with their unique competitive strategies. (Si, 2023). The authors have chosen to use different dissemination ways to ensure widespread access to their research.

First, they wrote an article that they posted on the prestigious Harvard Business Review (HBR) platform. It is a group from Harvard Business Publishing which is an affiliate of Harvard Business School. It aims to provide professionals around the world insights and practices to

help lead their organisations more effectively and make a positive impact. It disseminates digital content to the target audience, which is academic, corporate, and individual managers (About Us, 2023).

They also used as dissemination tool a podcast, offering an audio version of their article for those who prefer auditory learning. We saw above that the podcast had a medium cost efficiency and impact, so they leveraged its popularity. They gave the possibility to subscribe to their monthly Newsletter, ensuring a regular updates and continued engagement with their audience.

Note that the platform used by the authors (hbr.org) operates on a freemium model, allowing non-subscribers to read a limited number of articles before requiring a subscription for further access gives 2 free articles to read.

4.1.2. The eight essentials of innovation

McKinsey & Company is renowned for its expertise in strategy and management consulting. They offer assistance to clients across industries and sector aiding them in solving their challenges, innovating and growing. Among their array of resources is the business magazine called McKinsey Quarterly and these magazines are mostly written by employees of the McKinsey & Company firm and available in digital editions (McKinsey Quarterly, n.d.).

There is also an application available for free whether on Apple Store or on play that everyone can download on their Iphone, Ipad or Android devices. The application offers business news and analysis on the biggest issues facing senior executives, it gives access to new articles on the themes of leadership, strategy or sustainability and there is a possibility to customize it to suit our preferences. (App Store, 2013)

The article of particular interest is titled “The eight essentials of innovation”, authored by De Jong et al. (2015), which is about how strategic and organizational factors are what makes a company innovator successful (De Jong et al., 2015). This piece is disseminated through various channels, prominently featured on the Mckinsey & Company website and you can access to article or download it.

Upon subscription, you can choose to receive weekly or monthly newsletters about the activities of the company. You can also choose to have a membership to the Mckinsey Quarterly to read all the digital editions and receive email alerts when new ones are available (McKinsey Quarterly, n.d.). Note that all the different subscriptions are free.

They produced a video animation offering a simplified overview of the article's key insights. This format incorporates animated visuals and excerpts from conferences, facilitating a deeper understanding. Additionally, you can have direct contact with the authors enabling readers to pose questions and seek clarifications. Furthermore, there is a comprehensive FAQ section that addresses common queries.

4.1.3. Innovation management – The Ultimate Guide

The article that interest us here is addressing the efficient handling of innovation within organisation. The main goal of this article aims to demystify and clarify the topic for broad audience. It covers the most important themes in the innovation management, and it is the main article of a comprehensive series (Nieminen, 2023). To enhance the comprehension, the authors complemented their articles with video animation, and they created "The Innovation Management Fundamentals" from the content of this article (Viima Solutions Oy, n.d.b). It is a free eight-week crash course that provides structure to start innovation management. The course is a sequence of 8 emails, one by week and it is made of toolkits, videos, articles, … so that they can go through it at their own pace.

This article was found on VIIMA'blog. It aligns with the blog's mission of fostering innovation, it also helps gather ideas from diverse sources and analyses innovation processes. We can say that it serves as a dynamic hub for knowledge exchange (Viima Solutions Oy, n.d.a). This blog allows the editors to share all their idea about the innovation management in their organization and it accommodates to the evolving needs of its clientele, which reflects their commitment to flexibility and adaptability.

The blog offers a free trial period, but continued access requires a subscription fee. Users can also opt to receive regular newsletters, which ensure an ongoing engagement with the latest insight.

4.1.4. What is innovation Management? Definition, Process and Best Practices

I found this article on the IDEASCALE platform, renowned for its innovation management software. The platform offers a space to share on ideas, it also offers services, and a crowdsourcing platform designed to help any organization in their innovation management endeavours.

Initially, you can access the platform for free but eventually, a subscription fee is required to continue utilizing its features and software tools. To summarize, they offer a software to help you manage the innovation in your company (Stone, 2024).

On this platform, I found an article wrote by Nick Jain who is the CEO of the platform (Jain, 2024). Jain leveraged his own platform to showcase his research on effective innovation management within an organisation. By disseminating his research, his goal was to make them available to anyone interested. Moreover, they offer a comprehensive demonstration of its capabilities, allowing the users to navigate the process seamlessly. From launching ideas among community members to collecting feedback, reviewing ideas and final implementation, the platform serves as an interactive tool for innovation management within the organization.

4.1.5. Online Courses: Innovation management

For a comprehensive analysis of the benchmark, I decided to look up if there was online courses available in the innovation management sector. This investigation revealed several online courses so, we can say online courses are a commonly used dissemination tool within this field. As a notable example, is the online course of Jasmien Kattab et al. titled “Innovation management” (Gestion De L’innovation, n.d.).

This online course was found on the learning platform ‘Coursera’ or in other words, it is a widely recognized MOOC (Massive Open Online Course) platform that provides courses, degrees, certificate programs and tutorials over a broad range of subjects. The average rating across courses on the Coursera platform is 4.7 out of 5 stars. Upon completion of a course, the participant receive a Coursera certificate and this certificate contains the course name, the signature of the instructor and the logo of the affiliated institution. Note that there are more than 300 universities and companies contributing content to the platform. There is a possibility to try the courses for free, full access requires the payment of a tuition, though financial aid and scholarship are available (Staff, 2023).

The “Innovation Management” course is affiliated with is the Rotterdam School of Management, which is ranked among the top three business schools for research in Europe. This course allows a flexible planning, so the participants have to possibility to adjust their schedules to study, it determines the time needed to complete it and the level required. There are also details of the competencies to be gained. The course is divided into 6 different modules and the modules contain videos, lecture, discussions, quizzes, and peer-reviewed exams. You can also find information on the participating teachers. Although the course is not free, you can

still access it for free, but you will not be receiving any certificate (Gestion De L'innovation, n.d.).

4.1.6. John Bessant – Managing innovation

Here, it is a special case. John Bessant is originally an engineer. Originally a chemical engineer, he has been active in research, teaching and consultancy in technology and innovation management for over 25 years. He also has now his own website on which he uses several different communication tools. I thought it was important to mention this website because it shows how websites are a very effective channel, and that the combination of several tools is more efficient. His websites feature a "Home", "About", "Innovation resources", "Learn with me" and "Blog" as different sections (John Bessant, 2021).

Given the different section, we can say that he uses his website as a channel to his blog on which he posts all his research, and he updates it regularly. He defines his websites as an interactive hub for all those interested in creativity, entrepreneurship and the process of managing innovation. There is also a possibility to subscribe to newsletter to be alerted for any updates, and a link to his LinkedIn or Twitter account to communicate with him. Finally, there is a link to a YouTube channel on which he posts his video animation to explain his research in an accessible way and there is a link to Spotify to listen to the podcasts he has made. In the section "Learn with me", he offers the possibility to participate to his teaching and coaching sessions also as video animation and audio cases. Note that everything is free except for the teaching sessions.

4.2. Interview with Françoise de Viron - Summary

During the redaction of this thesis, I was able to do an interview with Mrs Françoise de Viron who gave me her opinion on the tools I have gathered so far and gave me her insight on the most efficient tools, according to her, for the innovation management.

Françoise de Viron is a long-time collaborator of Benoît Gailly and I interviewed her to gain insights on effective dissemination strategies for innovation management research. She is a professor at the LSM and an administrator at the company SYENCSQO sa. After I presented her my findings for my literature review and benchmarking which included various dissemination tools such as blogs, podcasts, videos, FAQs, newsletters, and interactive tools, she emphasized the fact that these tools often complement each other and are more useful when used together.

Her insights highlighted the importance of a combination of different approach to disseminate, such as a combination of traditional methods, digital tools and a personalized consulting approach. More precisely, Françoise firstly introduced me to the concept of dissemination through consulting and administrative roles in companies. She defined consulting as a dissemination of research during innovation committees or advisory committees or other specific dedicated committees, as she is an administrator such as Benoit Gailly. It is a service providing advice in bodies designated by the board of directors, those can be dedicated to innovation.

She highlighted the benefits of live interactions such as workshops, consulting and training sessions. In her opinion, live sessions offer personalized, tailored dissemination and foster mutual support among participants. This approach, although time-consuming, allows for a deeper and more impactful exchange of knowledge. She emphasized on the fact that consulting complements all the training, video, podcast, blog, newsletter, etc., but it doesn't necessarily promote the blog itself, it promotes the ideas more.

As another dissemination tool, she told us that she also used more about traditional methods such as publications in scientific journals and LinkedIn, along with executive education. She acknowledged that social media, despite being a more modern tool, is effective for dissemination due to its wide reach. As I explained to her the criteria I used to determine the efficiency of the dissemination tools, so the cost and the impact on the target audience, she stressed the importance of considering both material costs and the time investment required for creating and updating dissemination tools and that the updating of the research to stay relevant can incur additional costs.

Finally, Françoise advised obtaining qualitative feedback from the target audience to assess the actual impact of the dissemination tools. This feedback will be too difficult to obtain given my resources but to go even further in the analysis of the dissemination tools, I thought I was important to point at. It could be focusing on how the tools have helped implement innovation management or improve practices within companies.

4.3. Mapping of communication tools for innovation management

We have initially identified fourteen dissemination tools that align with the specific demands of my promotor and the nature of our scientific knowledge. To refine this selection, we did a benchmark analysis on how research in the innovation management sector is being disseminated. This involved an analysis of relevant articles or research and the assessment of

their objectives, target audiences and dissemination channels. You can find a summary of these in the appendix 4.

As a reminder, from the document EFSA, we learned that websites are one of the most common dissemination channels (EFSA, 2021, p.77). Consequently, we focused our research of relevant articles that utilized one or several of the twelve tools from our initial selection.

Our benchmarking revealed that a successful dissemination strategy in the innovation management sector often combine multiple tools and channels in order to maximize the reach and the impact. We see that almost all of them uses website content, but as said earlier, we are not able to use our own website. I wanted to emphasize the fact that the websites are used by almost everyone so it would a good strategy for my promotor to find a good partner that owns a website on which he could share his research.

As other commonly used dissemination tools, we found that blog, podcast, video animation, training, newsletter, and interactive tools are the most used. During the interview with Françoise, she emphasized on the fact that the consulting is a very efficient way to disseminate in an organisation, but this applies more to the definition of knowledge transfer than knowledge dissemination, as defined in the literature review. We can still say that the physical events are relevant as she also cited conference and workshops. All of those tools are typically combined with the textual tool, which is a transcript of their research, to enhance their impact. Except for the online course, we always have to take into account the fact that all the dissemination tools we kept after the benchmarking are not used alone but are complementary to the transcription of the research.

Effective communication channels are also crucial, with the company of Françoise de Viron using intranet, newsletters, and internal social media platforms. Challenges in ensuring the relevance and timeliness of information are addressed by regularly updating the knowledge repository and encouraging employee contributions. Engaging employees and integrating the knowledge management system into daily workflows are also key strategies.

We now have eight dissemination tools instead of fourteen. Here is the new graph that represent their impact on the target audience and the cost efficiency (EFSA, 2021):

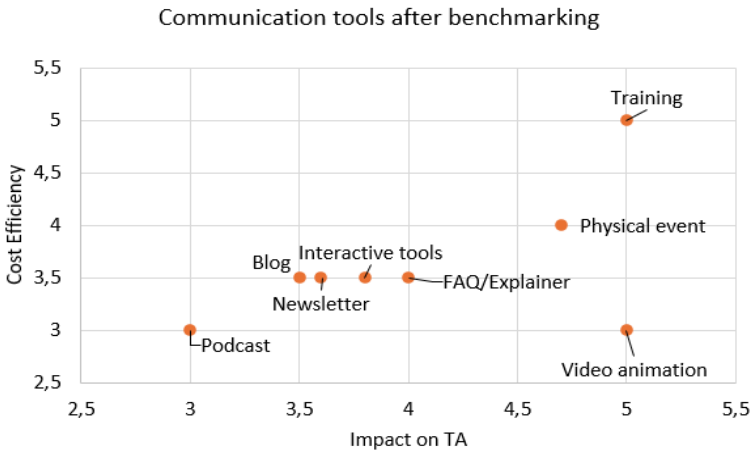

Figure 2: Most relevant communication tools after benchmarking rated out of 5 for their impact on the target audience and their cost efficiency.

As we can see on the graph, they all are ranked between 3 and 5 and the training has a perfect score. Compared to the graph we had after the first mapping, we can see that the Op-ed are not commonly used, and neither is the press release. The training is preferred compared to the education programme; this would be explained by the fact that the innovation management is complementary to initial knowledge learned through education programmes. The trainings are for a continuous training. Finally, the social media are used as dissemination channels rather than dissemination tool.

Let's note also that the dissemination channel the most used are websites, social media, and email. They mostly used their websites to invite the readers to follow them or the authors of the articles on social media and to get a subscription to get their newsletters, by email, like we can see as an example on the website IDEASCALE (Stone, 2024). These channels help them get more visibility by increasing their reach as we saw earlier that these are the most efficient channels (EFSA, 2021, p.77).

They also combine free access with subscription models to ensure widespread reach and engagement. Most of their strategies are designed to attract a broad audience initially and convert users into subscribers for sustained access and financial support, as they give a first look for free and then, for a complete access, the users must pay. The return on investment of these strategies contains a lot of uncertainties and the organizations must carefully consider the resources at their disposal (Cooper, 2014).

In conclusion, combining our benchmarking insights with Françoise's experiences provides a new and more precise mapping of tools for effective dissemination of innovation management

research. This map highlights the importance of multiple, complementary tools and channels, structured knowledge management, regular training, effective communication, and engagement strategies to maximize the reach and impact of research dissemination. We can now apply these findings to the research of my promotor in the following part, the application.

5. Application

Now that we have established a map with the most relevant tools to disseminate scientific knowledge in the innovation management field, we are able to apply it to the actual research we want to dissemination at the end of the thesis, the research of my promotor.

To do this, first I will explain more about this research in question, explain the current dissemination strategy in place and then establish the objective of the dissemination and the target audience as those influence the choice of the tools to use.

As the last part, I will make recommendations based on all the findings above and the research of my promotor. This will be the final mapping only applicable to the research of my promotor. I will present a series of combinations of tools in order to have the most effective dissemination as possible.

5.1. For Navigating Innovation.

In this section, we will apply all the knowledge gathered throughout this work and apply it to the actual research my promotor has conducted (IPdigIT, 2024). The goal is to identify which of the most effective dissemination tool to reach his target audience and to achieve its objective while maintaining cost efficiency.

After reviewing his research and the way it is currently presented, we found that his work was primarily posted on a blog with some chapters supported by video animation. We will first analyse the existing dissemination efforts made by my promotor, then we will analyse his target audience and his objective.

5.1.1. Current dissemination strategy

First, let's talk about the blog on which Benoit Gailly posted his research. The blog is called IPdigIT and focuses on intellectual property, the digital economy and information technology from a European perspective. This platform primarily targets scholars interested in law and economics of innovation. It also serves as a platform of interaction between students

from Louvain School of Management, the Université Saint-Louis – Bruxelles and the UCLouvain (Law Faculty). It was created in 2010 by Paul Belleflamme and Alain Strowel (IPdigIT, 2017).

On this blog, we can find Navigating Innovation: The Manager's Guide to the Innovation Literature is available as an Ebook and as a physical book format (IPdigIT, 2024). This research has as goal to develop your capabilities to identify, prioritize and capture opportunities for strategic success. It reveals the misconceptions of what innovation is and offer strategies to convince stakeholder to buy into your strategy. The content is supported by illustrations and graphs as support to make his research more understandable for everyone (Navigating Innovation, 2018).

Additionally, Benoit Gailly used video animation as a tool. He created them as executive summary for every sub-chapter of the chapter 1 of his research. Plus, the accessibility to the blog is free. You can also find a way to find information on the authors and links to follow them on social media.

Out of the seven tools we have identified as suitable so far, he already utilized 2 of them: blog and video animation. However, these tools could be improved to be made more accessible and enhance the dissemination. For example, he could post his research on a blog that as more visibility, but we will see this later. Currently, on IPdigIT, there is no possibility to subscribe to newsletter nor is there an FAQ, but it does allow to leave a comment.

5.1.2. Objective and Target Audience

To determine the objectives of the dissemination strategy wanted by Benoit Gailly and to ensure continuity, we base our denomination of the objectives on the ones displayed on the EFSA articles as we did in the analysis of the benchmark.

The main purpose of this dissemination strategy is obviously to improve the visibility of the research to optimise the reach to the target audience. After our discussion with my promotor, we determined that his objectives was to inform people about ways to handle innovation in an organization and to explain its content in a way that is easier to understand. He also would like other people, other specialist to be able to use his research or to help him improve them.

He also told me that his target audience are the students and the professionals from the same field as him.

5.2. Recommendations based on the typology developed.

To optimize the dissemination of Professor Gailly's research, we need to focus on tools and strategy that align with his objective of this dissemination, the target audience, and his exigence, I have formulated the following recommendations.

My promotor wants something that necessitate minimum maintenance. He also wants something that is long-lasting and entirely virtual. Only with the exigence of my promotor, we can narrow down the options. The excluded tools are the newsletter, as they require updates and he wants to have the most stable article as possible, and the interactive tool as he does not have the resources and materials for the development of an interactive tool. Also, the podcast is too expensive for such a low impact on the target audience, we will also exclude it.

For the tools I recommend, there is training, FAQ, video animation, physical event and blog left. Here is a reminder of their impact on the target audience and their cost efficiency (EFSA 2021):

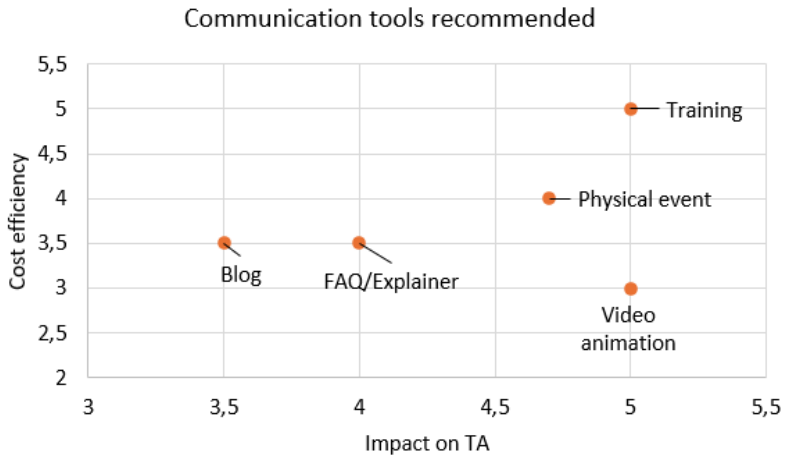

Figure 3: Recommended communication tools rated out of 5 for their impact on the target audience and their cost efficiency.

First, **the Blog** can be combined with **Video Animation**, as it is already utilized (IPdigIT, 2024) but the visibility can be enhanced. My promotor should consider publishing on a more prominent blog platform, a most renowned blog to reach a wider range of his target audience.

The **FAQ** tool can be combined with the blog or on the website he decided to put his research into. Of course, this can also be combined with the **video animation** to provide comprehensive support. As seen on the articles of the EFSA, the FAQs are more effective on a

website, so it would benefit Benoit Gailly to find a partner to help him disseminate his research on their website as said earlier and the websites are one of the most efficient dissemination channel. Given his background, he could have the possibility to partner with platforms like UCL, LSM, or professional networks where Professor Gailly has contacts, such as McKinsey. This can leverage the reach and credibility of his research.

The **training** tool has a very high impact on the target audience and a very high cost-efficiency. The structure of the training could consist in video lectures, as video animation, they would explain in an understandable way for the target audience, so they can learn and get a certificate at the completion. The training is more for professionals who want to improve their knowledge on the innovation management as a continuous training as said earlier. The UCL utilize EDX for its online courses for example, Benoit Gailly could also use it. There are similar platforms available such as Coursera or LinkedIn Learning on which he could post his research in the form of video lecture/animation to ensure maximum reach and maximum cost efficiency.

I would like to emphasize the fact that Professor Gailly's connections with UCL, LSM, McKinsey, and the European Commission can be valuable. He could use the fame and credibility of institutions like UCL or LSM to host the research content, enhancing its visibility. He could also collaborate with Mckinsey for example, to publish excerpts or summaries, directing readers to the full content.

The **physical event** can be combined with several tools also as we saw in the literature review. The interaction with the audience is direct and feedback so, there is no need for an FAQ but it can be supported by a video animation to help the audience understand better. The physical event can be with whomever he chooses, and he can promote it on several channels, such as email and also use the fame of the institutions he collaborates with the attract his target audience.

Finally, we saw all throughout this report that **the social media** also are one of the most efficient dissemination channels, so he could take advantage of them. The are plenty of possibilities. He could post excerpts and links to his research via platforms such as LinkedIn or Twitter. The use of the social media offers the possibility to engage with his target audience, answer questions, etc.

By implementing these recommendations, Professor Gailly could enhance the reach and impact of his research while ensuring a dissemination strategy to remain aligned with his requirements, objectives, and budget.

To summarize, the recommendations I made for enhancing his current dissemination strategy are the following. First, utilize **complementary tools**. Combine traditional methods, digital tools, and personalized consulting approaches for effective dissemination. Then, **enhance the blog visibility**. He should consider posting research on a blog with higher visibility for increased accessibility. Consider **partnering** for website sharing. Exploring partnerships with websites to be able to share the research content and have a broader dissemination. There is also the **incorporation of podcasts and interactive tools**, this helps expand dissemination efforts by incorporating podcasts, interactive tools, and other mediums to engage the audience. Incorporating **conferences and physical events** as part of the dissemination process can complement various digital tools and traditional methods to enhance the reach, impact, and engagement with the target audience. Finally, there is still the possibility **to improve the existing tools**, the enhancing of the existing tools, such as blogs and video animations, can ensure that they are more accessible and impactful.

Now, with the use of a prominent blog, Pr. Gailly can publish his research for free, combining it with video animation and FAQs. He can use a freemium model where the users could access some content for would have to pay for the complete access. For the training tool, he could providing educational content that may have a cost for certification but allows free access to basic materials. About the physical events, these would be free and the main goal would be to build partnerships. The use of social media has as goal to engage directly with the audience so, there should not require any payment.

These recommendations aim to develop a comprehensive dissemination strategy that maximizes the visibility and accessibility of Professor Gailly's research, aligning with his goals and engaging his target audience effectively.

6. Limitations and challenges

The main challenge of this kind of thesis and the evaluation of the efficiency of dissemination tools is to assess the impact on the target audience, cost efficiency, and feasibility of implementation. I did not have the possibility to measure that myself due to the lack of resources so I based it entirely on the results of my empirical research, so the article of the EFSA, which is a limit in itself that must be taken into consideration, even if it is a reliable source.

The interviews were also a challenge as no one was an expert in the dissemination field, but they explained what dissemination tools they mostly used in their specialty while not being able themselves to measure the efficiency. They are also just 2 interviews due to the lack of time and availability on both part is also a limitation.

The different combinations of the final dissemination tools were made to maximize the reach and impact, but the combinations are infinite and there are none that are inefficient. So, the combination is only from my judgement, they are not absolute.

As for the limitations of the dissemination in itself, assessing the impact and effectiveness of a tool is complex and the resources are limited, such as time or funds. To overcome these limitations, the strengthening of partnerships can prove highly effective.

7. Conclusion

The thesis has aimed to classify various communication tools to enhance the dissemination of scientific knowledge, particularly in innovation management and for Professor Benoit Gailly's research. It firstly involved conducting a literature review where we have developed a nuanced understanding of the different knowledge processes, and several communication tools were identified as most common tools available for dissemination purposes. As reminder, dissemination is defined as making research results known by publishing them and promoting their availability. It includes publishing research results and making it known that they are available through various strategies tailored to different fields. This focus ensures that research is widely accessible, thereby maximizing its societal and academic impact.

Then, empirical research was conducted, where we used the data found in an article (EFSA,2021), to establish the first mapping. The criteria established from here to determine the efficiency of a tool are the impact on the target audience and the cost efficiency. From this, we have identified 14 communication tools and done a first mapping to see each of their efficiency based on their impact on the target audience and their cost-efficiency. These tools can be used for a dissemination in any scientific sector.

The third part was a benchmark analysis in the sector of innovation management was done, reviewing relevant articles. The research highlighted the importance of combining multiple tools and channels to maximize impact and reach in innovation management. After narrowing the 14 choices of communication, the new mapping contained then 8 dissemination tools such as blogs, video animation, training, newsletters, FAQs, physical events, podcasts, and interactive tools.. The empirical analysis and the benchmark analysis were both supported by an interview for a realistic and achievable result.

Finally, the refined findings were adapted to the specifics of Pr. Gailly's research, and we were able to find the most suitable recommendations for his case. The recommended tools include blogs, video animation, FAQs, training, and physical events. These tools align with his objectives of minimal maintenance, long-lasting impact, and virtual dissemination and each tool's impact on the target audience and cost efficiency was assessed, leading to recommendations for their use in the innovation management sector.

Professor Gailly's current dissemination efforts primarily involve posting research on a blog and supporting some chapters with video animations. However, there is room for improvement in the accessibility and enhancement of these tools given the fact that the research also identified the importance of combining dissemination tools for more effective results, as emphasized by collaborator Françoise de Viron. Combining traditional methods with modern digital platforms tailored to the organization’s needs and the nature of the knowledge being shared ensures accessible, up-to-date, and reliable information. This combination fosters innovation and maintains a competitive edge while enhancing the accessibility and engagement of research findings.

The combination of blogs with video animation, the use of FAQs on a partner's website, and leveraging training platforms like Coursera or LinkedIn were suggested to maximize reach and cost-efficiency. Additionally, physical events and social media channels were emphasized for their direct engagement and broad visibility.

The dynamic nature and visibility of dissemination platforms necessitate continuous adaptation to enhance visibility and engagement. Engagement through platforms like LinkedIn networks, newsletters, and certification programs can improve communication and dissemination within the academic community.

The final recommendations for Professor Gailly's dissemination strategy should focus on a tailored and practical approach that considers his objectives, target audience, and specific constraints. By leveraging a variety of dissemination tools and channels effectively, Professor Gailly can optimize his research's impact, cost efficiency, and reach in the field of innovation management.

As way to improve this thesis, Françoise suggests obtaining qualitative feedback from the target audience to assess the actual impact of the dissemination tools. The evaluation should focus on how tools have helped implement innovation management or improve practices within companies.

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Appendices

Appendix 1: The Catalogue at a Glance

Click on the tool name to access its full information card.

Tool	Impact and Cost-efficiency (scale 1 to 5)	% of mentions	Top objectives	Top targets	Top channels
MULTIMEDIA					
Video	Impact **3.6/ 5** Cost efficiency **3.5/ 5**	58.3%	▪ Inform/raise awareness (100%); ▪ Produce content that complements other communication (63.6%); ▪ Explain complex processes or scientific concepts (45.5%); ▪ Make scientific content easier to understand (45.5%).	▪ Consumers / citizens (90.9%); ▪ NGOs (72.7%); ▪ Industry (72.7%).	▪ Social media (90.9%); ▪ Website (81.8%); ▪ Email (36.4%).
Infographic	Impact **3.6/ 5** Cost efficiency **3.5/ 5**	50%	▪ Inform/raise awareness (90.9%); ▪ Make scientific content easier to understand (81.8%); ▪ Explain complex processes or scientific concepts (81.8%).	▪ Consumers / citizens (90.9%); ▪ NGOs (72.7%); ▪ Policy makers at EU level (72.7%).	▪ Social media (90.9%); ▪ Website (81.8%); ▪ Physical event (54.5%).
Website content	Impact **4.4/ 5** Cost efficiency **4.5/ 5**	33.3%	▪ Inform/raise awareness (85.7%); ▪ Make scientific content easier to understand (85.7%); ▪ Produce content that complements other communication (57.1%); ▪ Explain complex processes or scientific concepts (57.1%).	▪ Consumers / citizens (85.7%); ▪ Academia (85.7%); ▪ Media (85.7%); ▪ NGOs (85.7%); ▪ Industry (85.7%).	▪ Website (100%); ▪ Social media (42.9%); ▪ Email (28.6%).
	Impact **5/ 5**		▪ Inform / raise awareness (100%); ▪ Explain complex processes or scientific concepts (100%);	▪ Consumers / citizens (100%);	▪ Physical event / meeting channel (100%);

Video animation	Cost efficiency **3/ 5**	25%	▪ Produce content that complements other communication (100%); ▪ Make the key findings of scientific reports or scientific opinions easier to understand for the TAs (100%).	▪ Media (100%); ▪ Policy makers at EU level (100%); ▪ NGOs (100%).	▪ Virtual, online event /meeting channel (100%); ▪ Email (100.0%); ▪ Website (100%); ▪ Social media (100%).
Interactive tools	Impact **3.8/ 5** Cost efficiency **3.5/ 5**	12.5%	▪ Inform / raise awareness (100%); ▪ Explain complex processes or scientific concepts (66.7%); ▪ Provide timely information about scientific outcomes (66.7%); ▪ Produce content that complements other communication (66.7%).	▪ Consumers / citizens (100%); ▪ Academia (66.7%); ▪ Media (66.7%); ▪ Policy makers at EU level (66.7%); ▪ Risk assessors (66.7%); ▪ NGOs (66.7%); ▪ Industry (66.7%).	▪ Email (100%); ▪ Website (100%); ▪ Social media (100%).

Tool	**Impact and Cost-efficiency (scale 1 to 5)**	**% mentions**	**Top objectives**	**Top targets**	**Top channels**
MULTIMEDIA (CONTD)					
Podcast	Impact **3/ 5** Cost efficiency **3/ 5**	8.3%	▪ Inform / raise awareness (100%); ▪ Explain complex processes or scientific concepts (100%); ▪ Produce content that complements other communication (100%).	▪ Consumers / citizens (100%); ▪ Policy makers at EU level (100%); ▪ NGOs (100%); ▪ Industry (100%).	▪ Website (100%); ▪ Social media 100%); ▪ Email (50%).

Video interview	Impact **3/ 5** Cost efficiency **5/ 5**	8.3%	▪ Inform / raise awareness (100%); ▪ Explain complex processes or scientific concepts (50%); ▪ Provide timely information about scientific outcomes (50%); ▪ Produce content that complements other communication (50%); ▪ Make the key findings of scientific reports or scientific opinions easier to understand for the TAs (50%).	▪ Consumers / citizens (50%); ▪ Academia (50%); ▪ Risk assessors (50%); ▪ Policy makers at national level (50%); ▪ NGOs (50%).	▪ Social media (100%); ▪ Website (50%); ▪ Email (50%).
Mobile application	Impact **5/ 5** Cost efficiency **3/ 5**	4.2%	▪ Inform / raise awareness (100%); ▪ Make the key findings of scientific reports or scientific opinions easier to understand for the TAs (100%).	▪ Consumers / citizens (100%).	▪ Website (100%).
EDITORIAL					
Social media content	Impact **3.9/ 5** Cost efficiency **3.8/ 5**	66.7%	▪ Inform/raise awareness (100%); ▪ Produce content that complements other communication (61.5%); ▪ Provide timely information about scientific outcomes (53.8%); ▪ Make scientific content easier to understand (53.8%).	▪ Consumers / citizens (100%); ▪ Media (76.9%); ▪ Policy makers at EU level (61.5%).	▪ Social media (100%); ▪ Website (38.5%); ▪ Internal communication (38.5%).
Press release	Impact **3.9/ 5** Cost efficiency **3.9/ 5**	50%	▪ Inform/raise awareness (100%); ▪ Make scientific content easier to understand (90%); ▪ Explain complex processes or scientific concepts (70%); ▪ Provide timely information about scientific outcomes (70%).	▪ Consumers / citizens (90%); ▪ Media (90%); ▪ Policy makers at EU level (80%).	▪ Email (100%); ▪ Website (100%); ▪ Social media (90%).
News story	Impact **3.3/ 5** Cost efficiency **3.4/ 5**	50%	▪ Inform/raise awareness (100%); ▪ Make scientific content easier to understand (81.8%); ▪ Provide timely information about scientific outcomes (81.8%).	▪ Media (81.8%); ▪ Consumers / citizens (72.7%); ▪ Industry (63.6%); ▪ Policy makers at EU level	▪ Website (100%); ▪ Email (63.6%); ▪ Social media (54.5%).

				(63.6%).	

Tool	Impact and Cost-efficiency (scale 1 to 5)	% mentions	Top objectives	Top targets	Top channels
EDITORIAL (CONTD)					
Newsletter	Impact **3.6/ 5** Cost efficiency **3.5/ 5**	29.2%	▪ Inform / raise awareness (100.0%); ▪ Provide timely information about scientific outcomes (71.4%); ▪ Produce content that complements other communication (57.1%); ▪ Make the key findings of scientific reports or scientific opinions easier to understand for the TAs (57.1%).	▪ NGOs (85.7%); ▪ Industry (85.7%); ▪ Policy makers at EU (71.4%).	▪ Email (100.0%); ▪ Website (57.1%); ▪ Internal communication (28.6%); ▪ Social media (28.6%).
Printed products	Impact **3.1/ 5** Cost efficiency **3.4/ 5**	33.3%	▪ Inform / raise awareness (100%); ▪ Make the key findings of scientific reports or scientific opinions easier to understand for the TAs (75%); ▪ Explain complex processes or scientific concepts (50%); ▪ Provide timely information about scientific outcomes (50%); ▪ Produce content that complements other communication (50%).	▪ Consumers / citizens (100%); ▪ Industry (87.5%); ▪ NGOs (75%).	▪ Website (100%); ▪ Email (62.5%); ▪ Internal communication (50%); ▪ Social media (50%).
Infocard	Impact **5/ 5** Cost efficiency **5/ 5**	12.5%	▪ Inform / raise awareness (100%); ▪ Explain complex processes or scientific concepts (50%); ▪ Produce content that complements other communication (50%); ▪ Make the key findings of scientific reports or scientific opinions easier to understand for the TAs (50%).	▪ Consumers / citizens (100%); ▪ Academia (100%); ▪ Policy makers at EU level (100%); ▪ Policy makers at	▪ Website (100%); ▪ Social media (50%); ▪ Email (50%).

				national level (100%); ▪ NGOs (100%); ▪ Industry (100%).	
Product alert	Impact **4.3/ 5** Cost efficiency **5/ 5**	8.3%	▪ Inform / raise awareness (100%); ▪ Provide timely information about scientific outcomes (50%); ▪ Produce content that complements other communication (50%); ▪ Make the key findings of scientific reports or scientific opinions easier to understand for the TAs (50%).	▪ Consumers / citizens (50%); ▪ Media (50%); ▪ Industry (50%).	▪ Email (100%); ▪ Website (100%); ▪ Social media (100%).

Tool	Impact and Cost-efficiency (scale 1 to 5)	% mentions	Top objectives	Top targets	Top channels
EDITORIAL (CONTD)					
FAQ/ Explainer	Impact **4/ 5** Cost efficiency **3.5/ 5**	8.3%	▪ Inform / raise awareness (100%); ▪ Explain complex processes or scientific concepts (100%); ▪ Provide timely information about scientific outcomes (100%); ▪ Produce content that complements other communication (100%); ▪ Make the key findings of scientific reports or scientific opinions easier to understand for the TAs (100%).	▪ Consumers / citizens (100%); ▪ Media (100%); ▪ Policy makers at EU level (100%); ▪ Risk assessors (100%); ▪ Policy makers at national level (100%); ▪ NGOs (100%); ▪ Industry (100%).	▪ Website (100%); ▪ Social media (100%); ▪ Email (50%).
	Impact **3.5/ 5**		▪ Explain complex processes or scientific concepts (100%); ▪ Produce content that complements	▪ Consumers / citizens (100%);	▪ Website (100%); ▪ Social media

Blog	Cost efficiency **3.5/ 5**	8.3%	other communication (100%); ▪ Make the key findings of scientific reports or scientific opinions easier to understand for the TAs (100%).	▪ Academia (100%); ▪ Policy makers at EU level (100%); ▪ Risk assessors (100%); ▪ NGOs (100%); ▪ Industry (100%).	(100%); ▪ Email (50%).
Op-Ed (Opposite the Editorial page)	Impact **4/ 5** Cost efficiency **4/ 5**	4.2%	▪ Inform / raise awareness (100%); ▪ Provide timely information about scientific outcomes (100%).	▪ Consumers / citizens (100%); ▪ Academia (100%); ▪ Media (100%); ▪ Policy makers at EU level (100%); ▪ Policy makers at national level (100%); ▪ NGOs (100%); ▪ Industry (100%).	▪ Internal Communication (100%); ▪ Email (100%); ▪ Social media (100%).
Product information	Impact **4/ 5** Cost efficiency **N/ A**	4.2%	▪ Inform / raise awareness (100%); ▪ Explain complex processes or scientific concepts (100%); ▪ Provide timely information about scientific outcomes (100%); ▪ Produce content that complements other communication (100%); ▪ Make the key findings of scientific reports or scientific opinions easier to understand for the TAs (100%);	▪ Consumers / citizens (100%); ▪ Academia (100%); ▪ Policy makers at EU level (100%); ▪ Policy makers at national level (100%).	▪ Website (100%).

Tool	Impact and Cost-efficiency (scale 1 to 5)	% mentions	Top objectives	Top targets	Top channels
EDITORIAL (CONTD)					
Feature story/ Interview	Impact **N/A** Cost efficiency **1/ 5**	4.2%	▪ Inform / raise awareness (100%); ▪ Explain complex processes or scientific concepts (100%); ▪ Provide timely information about scientific outcomes (100%); ▪ Make the key findings of scientific reports or scientific opinions easier to understand for the TAs (100%).	▪ Consumers / citizens (100%); ▪ Media (100%); ▪ Policy makers at EU level (100%); ▪ Industry (100%).	▪ Internal Communication (100%); ▪ Email (100%); ▪ Website (100%); ▪ Social media (100%).
MEETINGS & EVENTS					
Physical event	Impact **4.7/ 5** Cost efficiency **4/ 5**	16.7%	▪ Inform/raise awareness (100%); ▪ Make scientific content easier to understand (66.7%); ▪ Explain complex processes or scientific concepts (33.3%).	▪ Media (66.7%); ▪ Consumers / citizens (66.7%); ▪ Policy makers at EU level (66.7%).	▪ Physical event (100%); ▪ Website (33.3%); ▪ Social media (33.3%).
Webinar	Impact **4.5/ 5** Cost efficiency **4.5/ 5**	8.3%	▪ Explain complex processes or scientific concepts (100%); ▪ Inform/raise awareness (50%); ▪ Make scientific content easier to understand (50%); ▪ Provide timely information about scientific outcomes (50%).	▪ Policy makers at EU level (100%); ▪ Risk Assessors (100%); ▪ Policy makers at national level (100%); ▪ NGOs (100%); ▪ Industry (100%).	▪ Virtual event (100%); ▪ Email (100%); ▪ Website (100%).

Press conference	Impact **5/ 5** Cost efficiency **N/A**	4.2%	▪ Inform/raise awareness (100%); ▪ Make scientific content easier to understand (100%); ▪ Provide timely information about scientific outcomes (100%); ▪ Produce content that complements other communication (100%);	▪ Media (100%).	▪ Physical event (100%); ▪ Virtual event (100%); ▪ Website (100%);
EDUCATIONAL					
Training	Impact **5/ 5** Cost efficiency **5/ 5**	8.3%	▪ Inform / raise awareness (100%).	▪ Others (100%).	▪ Physical event (100%); ▪ Virtual event (100%);
Education programme	Impact **4.6/ 5** Cost efficiency **3.6/ 5**	4.2%	▪ Inform / raise awareness (100%).	▪ Consumers / citizens (100%); ▪ Others (100%).	▪ Physical event (100%); ▪ Virtual event (100%).

Appendix 2: Interview with Cédrick Fairon.

Alice: So, let me introduce myself. I am working on my thesis with Benoît Gailly. The goal of the thesis is to establish a sort of mapping of all the dissemination tools. Well, the most effective dissemination tools so that I can, so he can then make his research accessible to as many people as possible. The people concerned, that is, in innovation management and in his field.

Cédrick: And is this for him or is it about each researcher, the way each researcher views this

Alice: Right now, it's for him in the end. It's his research. He has already published on a blog and also a book. And he wants to go further so that many more people have access to it. And so the purpose of the thesis is really to do a mapping for him, for his research.

Cédrick: That's interesting. If you want to do a second thesis, you could do that for my research later.

Alice: Then you can use my thesis and see.

Cédrick: If it can be transferable to others. Yes, it’s not necessarily very specific to his research context.

Alice: At first, I generalize, and the more I progress in my thesis, the more I focus on his research. So for now, I have done a whole literature search and benchmarking in the field of innovation management. And so the questions I have for you are about the practical side of all these dissemination tools. Because literary research is often not very feasible in practice. First of all, could you give me your definition of what dissemination is?

Cédrick: Yes, making research results known in general. We do this by publishing. But the ways we publish are not necessarily known, recognized, or easily found. So we need to promote, do a bit of marketing of our work, publish. So, it’s a two-step process: dissemination is publishing research results, and dissemination is also making known that we have published research results and that they are available.

There are strategies regarding this, depending on the choice of types of journals or conferences we target. It can be very different from one field to another. In my field, for example, there are more major conferences than major journals, so it's more important to be visible and publish in major conferences than in major journals. Acceptance rates in major conferences are very low, comparable to acceptance rates in journals. So disseminating results

involves choosing the way to do it. If we are lucky enough to get into major conferences, they become visible spontaneously. But with the significant flow of conferences, they can get lost. So second-order dissemination, promoting the publication, remains important.

Alice: What exactly is your field?

Cédrick: My field is natural language processing. It's artificial intelligence applied to language, all the tools used to manipulate texts or spoken language. In my lab, we particularly work on texts.

Alice: Besides major conferences, have you used other tools to disseminate your research?

Cédrick: Yes, we've tried a bit of everything. I've published in journals, major journals, to get recognized. When I launched my research lab, I also created a series of publications that compile the center's work. It's a series published by the Presses Universitaires de Louvain, where we have complete control over what we publish. This series does not spontaneously enjoy recognition because it doesn't have international fame. It's something we created from scratch, and the Presses Universitaires de Louvain aren't necessarily well-known either. But it's a dissemination tool for our work, allowing us to target certain communities or activities we would have difficulty publishing elsewhere. We actively ran this series for about fifteen years, and for the past five or six years, it has been less active.

We also targeted the media at one point; some of our work captured public interest. We had significant media coverage, particularly when we worked on SMS language at the beginning of this type of communication. We had hundreds of articles in various Belgian journals, magazines, and some European, Canadian, and even from Réunion Island. So the popularization of research can also accelerate dissemination.

We want to communicate with our peers so they can be inspired by our work, but we also want the general public to understand what we do and why it's important. This aspect of dissemination is important. So there are four axes: standard journal publications, major conferences, the creation of a series of reviews (Les Cahiers du Santal, named after my research center), and popular scientific dissemination. The latter has a broad spectrum: from scientifically oriented popularization magazines to very basic, overly simplified journal articles. Popularizing science is more challenging because we often lose control of the message, and what we say can get distorted. We also did radio shows, TV interviews, etc.

At one point, around 2008 or 2010, we organized a forum in Louvain-La-Neuve for language industries. It was like a trade show but for language industries, with companies showcasing their products and services related to language. We aimed to reach students and the general public, and invited the press to raise awareness about natural language processing, which was still confidential then. Promoting my research field, which can be another challenge, as you are with innovation management, I don't know much about it, but its title seems straightforward. It involves guiding people towards innovation.

Alice: Yes, that's true. Do you know now, with technological advances, how dissemination is currently done in your field?

Cédrick: There are a few important things. All the major conferences I mentioned are linked in a giant consortium, gathering all the publications presented in these conferences on a single site. It's a major initiative under American leadership, very Anglo-Saxon, with no papers in French, but it allows for consulting the best work presented at these conferences.

Many also create accounts on ResearchGate or Academia, sharing their publications through these academic networks. I used to do it more systematically, but I plan to resume as many people search for documents through these tools. I didn't often publish the full texts, just the references and abstracts, but now it's increasingly accepted to post the final version before publication. Networks like LinkedIn are also effective. People announce important achievements on LinkedIn, creating an art of boasting subtly.

We target different communities through different networks. LinkedIn is for broad professional communication, while Facebook is for more local professional communication, like announcing seminars. We also promote our research center's activities on Facebook. It's less systematic on LinkedIn, but we do that too.

Alice: How do you know if it was effective, if it reached your target audience or was cost-effective?

Cédrick: That's an excellent question, and I have no tools for measuring that. No return on investment measure. My center grew from three people to twenty, gaining recognition and securing projects. We don't have a marketing strategy to measure the impact of specific actions. It's a great question, though.

Alice: I found an article by a European organization. They surveyed many people, asking them to rate the effectiveness and cost-efficiency of different dissemination tools subjectively.

Cédrick: More objective data can come from monitoring article reads on platforms like ResearchGate and Academia, seeing if articles are read, shared, liked, or if you receive questions about them. But this can also be time-consuming and not always quantitative. Our book series, for example, indirectly boosts our visibility and reputation. Hosting editors and collaborating also help. Media coverage once helped us secure sponsorship for a PhD, showing significant impact.

Alice: Do you know anything about innovation management?

Cédrick: Not specifically, but I have launched several spin-offs, which involves some innovation management. But I don't know the domain in depth.

Alice: It's about helping companies manage innovation effectively.

Cédrick: I don't know much about that beyond general concepts.

Alice: Okay, I don't have any more questions. You've answered a lot.

Cédrick: I hope you can organize everything and put it in the right categories.

Alice: Yes, it was interesting. Each interview offers a different perspective.

Cédrick: This focus on promotion also influenced my work as a dean. We created LinkedIn networks, newsletters, and other initiatives, inspired by some ideas from LSM. They had great ideas, like certifications for teaching assistants, which we adopted. LSM's newsletters and communications are also very well done.

Alice: Yes, I received one earlier. Thank you very much. I have a lot of material to work with.

Cédrick: Okay, good luck with your work!

Alice: Thank you very much

Appendix 3 : Interview with Françoise de Viron

Alice: I am writing my thesis with Benoît Gailly. The topic is that I have to help him find the most effective way to disseminate his research on innovation management. I don't know if you're familiar with his work.

Françoise: Yes, I have been collaborating with Benoît for 23, 25 years, I can't remember exactly. For a long time, particularly within the framework of the certificate in innovation management.

Alice: He asked me to work with his blog "Navigating Innovation" and find the most effective way to disseminate information. So from there, I have already done extensive literature research and benchmarking on innovation management. And then he asked me to seek the advice of experts like you to establish a mapping and create a plan.

Françoise: And in your literature review, what have you identified, what important elements have you found?

Alice: So I already created a plan after the benchmarking and literature review, and courses for training emerged, as well as blogs, podcasts, videos, FAQs, newsletters, and interactive tools. But it's a lot of tools to use together, and each one fills the gaps of the others.

Françoise: So that's what you found by doing both literature research and consulting?

Alice: Consulting, how so?

Françoise: Well, regarding dissemination, I am a professor at Louvain, among other things, at the management school. I am also an administrator in the company ScienceCo. What I find is that if you want to disseminate research results in terms of knowledge management, whether it's through being an administrator in companies or through consulting, i.e., providing services to companies in innovation committees or advisory committees or specific dedicated committees, for example, selecting a balanced portfolio of innovation projects, it also allows for dissemination. So that's what I call consulting or being an administrator.

That's another form of consulting, yes. It complements all the training, video, podcast, blog, newsletter, etc., but it doesn't necessarily promote the blog itself, it promotes the ideas more, but it allows for research dissemination.

Alice: I hadn't thought about it that way, it's perfect.

Françoise: So it's services, providing advice, studies, or being actively involved in the board of directors or in bodies often designated by the board of directors, which can be dedicated to innovation.

Alice: Otherwise, have you used dissemination tools for your own research?

Françoise: No, so I'm not the right person for that. I've only disseminated through publications. Sincerely, publications in scientific journals. And then I disseminate via LinkedIn or through contacts I have. I've disseminated via certificates, that is, through training in executive education essentially. But I'm from the older generation, I'd say. So I haven't created a blog, podcast, or video.

Alice: But social networks are one of the simplest and most effective means of dissemination, so already that.

Françoise: Yes, so via social networks and publications. Now, in terms of publications, there are two types. There are purely scientific publications and general public publications. So in newspapers, what we call grey literature, it can be either daily newspapers or journals published by the Walloon region or by press groups dedicated to entrepreneurship or innovation.

There are more in entrepreneurship than in innovation, so that's one way to do it. The other way, and I've created two, one with Benoît Gailly, is to create certificates or shorter training sessions, workshops. So also, shorter training sessions, the certificate, that's a very specific designation of the French Community of Belgium. It grants ECTS credits, so in this currency set up by Europe concerning training, so these are all credits, a master's degree is 120 ECTS credits.

So these certificates are credit-bearing, but otherwise, it's shorter training sessions of half a day, a day. So I have mainly disseminated by speaking and writing, but no video, no podcast, that's it. I've done live sessions.

Alice: Ok, that's fine. Could you mention some advantages or disadvantages of live dissemination like what you've done?

Françoise: Well, the advantages are a better understanding of the person or people you meet. So it's not very far from the service or expertise or consulting because you can interact indirectly. So it's custom-based, you could say. So it's customized, tailored, it responds more to people's demands. The disadvantage is obviously it's time-consuming.

So as we are limited in time, we contact and are in contact with a large number of people. I also see it a bit like a snowball effect, that is, the advantage when you provide personalized service or in a workshop, a workshop where you can have people from different companies, ten companies for example or a dozen. You have a privileged contact with this dozen or fifteen people but the people among themselves also have contacts and I think that for the people who benefit from the workshop or training, whether it's long or short, meeting other professionals who may be in similar or different businesses but have the same problems and hearing them appropriate, I would say, the research results or advances in certain areas. Mutual help is very important.

So the advantage of live is indeed that it is customized, personalized, tailored to the need. The other advantage is that it is often collective, so there is mutual support among the participants and the fact that they share their discoveries or the difficulty of implementing certain tools. So for me, that's really very beneficial.

The big disadvantage is clear, it's that it's time-consuming. But I think it still has the capacity to multiply through these quite intense interactions, sometimes in the training or the service we provide, the consulting service we provide is quite light.

Alice: That’s good, thank you. So I made a kind of chart and as axes, the criteria I used to judge whether the tools were effective or not are the impact they have on the target audience and the return relative to the cost. So after what you told me, do you think it would be wiser to include effectiveness relative to the time it takes us? What do you think of the criteria I chose for sorting?

Françoise: The cost, whose cost?

Alice: For the person doing the dissemination, for example. Making podcasts or whatever still requires mobilizing equipment.

Françoise: Yes. Because time is also a cost, so the time I spend on something, it's an investment. Work time is never free. It’s either time paid by the employer to do something, or if you're self-employed, it's the time, it's part of the investment you make, so what will be the

return on investment. Yes, you could maybe broaden it by saying investment can cover several things, but then you risk having a chart with three or four dimensions, or you look at different schemes, I mean you make different schemes, that is, the impact on the target audience and then the return relative to the investment and the investment could be on the one hand material, video, etc. Because it means either we have all the capabilities to do it, or we call on other more expert people than ourselves. And so there indeed it's a cost. Now the individual's time, I would say the expertise time, I think I would tend to break that down.

That is, on the one hand really the cost, whether it's the cost in material or the cost in video expertise, expertise... In podcasts, in videos rather than what we did in the context of innovation management training, we called on a screenwriter, we called on a designer, I mean, there is a whole expertise there. And the expert's time as such, maybe to be distinguished.

Alice: Ok, yes that's true. After that, it's going to be very subjective depending on the experts.

Françoise: I don't know if the data is available, but I think it would be interesting to see, because obviously the advantage of everything that is podcast, video, is that it can be repeated infinitely, that's clear. The question is how to update them and what is the cost of updating them. So when things evolve, do we have to throw everything away, or while I would say in live intervention, we adapt, we adapt all the time.

We never give the same course. It's a dream to think we give the same course. We never give the same course because firstly, the questions are not the same and at the same time we continue our research and so we continue to advance, we continue to refine our thinking, we continue to discover other tools or combine other tools, make articulations, combinations.

So on the other hand it's fixed, it allows reaching more people, but it's fixed, it's like a book, like an article, as we are asked to say regularly, but the articles we update, books a bit less often.

Alice: Benoît Gailly then told me that he didn't want to do conferences or live meetings.

Françoise: Yes, but on the other hand consulting, I know he does some.

Alice: Ok, but that's very interesting as a new way to disseminate.

Françoise: What is interesting is maybe to propose new things to him or combinations of new things. In fact, that's it. What is always interesting is to have a fresh perspective on a practice

and how to improve this practice. Have you interviewed people who have used these podcasts, these videos or something?

Alice: No, you are the first person I am interviewing, so I haven't yet...

Françoise: Would it be interesting to know how people perceive them and how the articulation is made between these interventions, because he intervenes in quite a few places, between these interventions where I put live and deferred? Now on social networks you will say, well, that's live, it's deferred, it's a bit of both but once it's written, it's written.

Alice: Yes, and there is always a way to update or...

Françoise: Yes, yes, to complete.

Alice: Well I don't have any more questions then. Would you like to add something or anything?

Françoise: No, I think I have given you what I could give you. I have been retired for 2-3 years now, so I am not going to invest a lot either. That also explains, I think, my current position, it's that I am rather in a phase where I am stopping a number of things. I have stopped research, I am just finalizing one or two, and I am no longer looking to disseminate my research.

What I would invite you to do is indeed maybe to question younger academics than me but perhaps also in innovation try to have contact with one or two people who are either on LinkedIn, who watch the videos or who have attended a training or conference or workshop given by Benoît.

So, I would try to know their point of view. If I understand correctly, the impact on the target audience is more in quantitative terms and it would be worth having qualitative feedback. To what extent has it helped or not to implement innovation management or promote, accelerate or improve the innovation management they have in their company. Is it in terms of audience or in terms of action perspective. So, who read the book, the number of people who watched the videos and what is most interesting to me is "what did they do with it?". That's why I'm talking about a qualitative aspect. Were the videos sufficient or was it a hook to access Benoît Gailly's live expertise.

Alice: Well, Thank you very much for your insights.

Françoise: Good completion and good work, goodbye

Appendix 4: Table I

Article	Objective	Target Audience	Dissemination Tools
Strategic Innovation Tool Kit	Align innovation investments with competitive strategies.	- Academic - Corporate - Individual mangers	- Website content - Podcast - Newsletter
The Eight essentials of Innovation	Identify strategic and organizational factors for successful innovation.	- Senior executives - Managers	- Website content - Video animation - Newsletter - FAQs
The Ultimate Guide	Clarify innovation management for a broad audience.	- General public - Professionals	- Blog - Video animation - Training
What is Innovation Management?	Provide comprehensive guidance on innovation management.	- Organizations - Professionals	- Website content - Interactive tools
Online Course	Educate participants on innovation management.	- General public	- Website content - Training
John Bessant	Share the challenges of innovation management and entrepreneurship	- General public	- Website content - Training - Interactive tool - Video animation - Blog - Podcasts - Newsletter

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