Stanford Law School
Law and Policy Lab

TO: Catherine Rowland, Senior Advisor to the Register of Copyrights, U.S. Copyright Office, 202–707–8350, crowland@loc.gov

FROM: Marta Belcher, Danielle Benecke, Shuk Ting (Candy) Cheng, Amit Gressel, Andrew Grimm, Greg Keenan, Elizabeth Lowell, Sarah Salomon, Nick Sidney, Olga Sunsini, Antoni Terra, Jessica Verran-Lingard, and Kevin Xu, J.D., LL.M. Candidates, Stanford Law School; and Zach Sorenson, B.S., M.P.A. Candidate, Stanford University, Stanford Law School Copyright Policy Lab Practicum

cc: Maria Pallante, Register of Copyrights; Jacqueline Charlesworth, General Counsel, United States Copyright Office

cc: Paul Goldstein, Luciana Herman, and Brian Weissenberg

Attachment: Research Report, "Low-Cost Licensing of Photographs in the Digital Age: Options and a Proof of Concept"

RE: Response to the Copyright Office's April 24, 2015, Notice of Inquiry Regarding Copyright Protection for Certain Visual Works

DATE: July 23, 2015

The Law and Policy Lab at Stanford Law School is composed of students who are committed to improving public policy in a variety of fields. As Stanford Law students enrolled in the Copyright Policy Lab Practicum, we have spent the 2015 Winter and Spring Quarters under the supervision of Professor Paul Goldstein and Lecturer Luciana Herman conducting policy research on the issues facing photographers in registering their works with the United States Copyright Office, licensing those works for use, and enforcing their rights. We have developed possible options for improving the registration, licensing, and enforcement processes, and we have developed a proof of concept licensing website for photographers and consumers. This research and analysis informs our response to the Copyright Office's Notice of Inquiry, and is included in an accompanying report, "Low-Cost Licensing of Photographs in the Digital Age: Options and a Proof of Concept." Our goal is to provide an informed and objective perspective to the Copyright Office as it considers improvements to its current procedures concerning certain visual works.

1. What are the most significant challenges related to monetizing and/or licensing photographs, graphic artworks, and/or illustrations?

Ownership information for many photographs uploaded to the Internet is often separated from the work, or is fragmented, or otherwise unavailable. Copyright registration is of limited help – photographers face special barriers to registration because of the sheer volume of the works they produce, and have few incentives to record ownership transfers. Even for registered

photographs and illustrations, metadata and security mechanisms are often missing or, if present, are relatively easy to strip out, making many photographs instantaneously orphan works. Moreover, even if a work is registered and ownership transfers are duly recorded, there is often no ready mechanism for potential users to connect a work they encounter on the Internet with the corresponding copyright registration. Without ownership information, mutually beneficial licensing of photographs cannot occur. Potential buyers or licensees cannot contact the owner for the privilege to use the work and therefore must risk an infringement lawsuit or simply walk away. Moreover, many low-value users may be unfamiliar with licensing laws and procedures, and so will use images without appreciating the infringement risk. These barriers to licensing undermine one of copyright's central goals – to encourage production of creative works by granting authors a bundle of exclusive rights from which they can profit.

2. What are the most significant enforcement challenges for photographers, graphic artists, and/or illustrators?

Digital technologies have vastly expanded the proliferation of images that have no clearly linked ownership rights. Social media sites have a standard practice of stripping out metadata, making rights to images difficult to track. Easy access to these images entices copying by consumers who may not fully understand the liability they incur when they fail to secure rights from an owner or author. Consumers' perception that limited enforcement against such uses is rare contributes to a norm of not pursuing ownership information.

We studied the community of independent bloggers who typically believe that attribution to the creator or owner of an image is all that is legally required for use. Many bloggers complain that they encounter problems in finding and obtaining authors' permission to use copyrighted works. They say that they often lack access to the original image owner, and many find that commercially available products that can help track ownership rights are too costly for their limited budgets. A system that allows for quick and seamless connection between image owners and users would be a powerful tool for bloggers, as well as help secure rights and enforcement mechanisms for photographers and graphic artists.

3. What are the most significant registration challenges for photographers, graphic artists, and/or illustrators?

The most significant challenge is the lack of a low-friction, low-cost, integrated, automated registration and licensing platform. Associated with the absence of such a platform are a series of related issues, which we have framed in terms of options that may help lower barriers to registration and licensing.

As the Copyright Office aligns its own its own practices and initiatives to support an automated licensing system, it may resolve the challenges that photographers, graphic artists, and illustrators face, by:

- Developing multiple API's: (1) for access to copyright information and (2) for registration itself.
- Contracting with third-party companies to help process applications.

- Improving the process for registering bundles of photographic works and illustrations.
- Working with social media websites to encourage them to preserve embedded metadata and license information.
- Soliciting design solutions for an online licensing system through a Notice of Inquiry and subsequent public roundtable.
- Conducting a market survey and publicizing a subsequent research report that highlights areas where transaction costs and other barriers to negotiation are the highest, with the goal of helping to spur private entities to develop a licensing solution.
- Promoting a license search tool, raising awareness among photographers and disseminating information to the public. Such a seal of approval would help any license search tool gain legitimacy and support.
- Working with image search providers, such as Google Images, to embed a license search tool.
- Proposing and implementing congressional legislation to spur private licensing solutions.

These options have varying feasibility and may intertwine and overlap according to the role that the Copyright Office pursues in facilitating online licensing

4. What are the most significant challenges or frustrations for those who wish to make legal use of photographs, graphic art works, and/or illustrations?

Current digital licensing solutions are often tailored to the needs of high-value users, such as commercial publishers, and print and broadcast media, and typically neglect low-value, "long-tail" users, such as small businesses, website and mobile application developers, graphic designers, bloggers, and community organizations. For long-tail users, the limited licensing options and high transaction costs of existing solutions act as barriers to lawful, licensed uses of photographs or other images. Bloggers, for example, are a vibrant portion of Internet communities, yet many encounter problems in finding and obtaining authors' permission to use copyrighted works. Bloggers complain that they often lack access to the original image owner, and many independent bloggers find that commercially available products are too costly for their limited budgets. A system that allows for quick and seamless connection between image owners and users would be a powerful tool for bloggers.

5. What other issues or challenges should the Office be aware of regarding photographs, graphic artworks, and/or illustrations under the Copyright Act?

Please see our full report, *Low-Cost Licensing of Photographs in the Digital Age: Options and a Proof of Concept,* submitted with this response memo. Please also see our proof of concept prototype licensing website for photographs, as referenced in Part II of the report.

Stanford Law School

Copyright Policy Lab Practicum

Low-Cost Licensing of Photographs in the Digital Age: Options and a Proof of Concept

Marta Belcher, Danielle Benecke, Shuk Ting (Candy) Cheng, Amit Gressel, Andrew Grimm, Greg Keenan, Elizabeth Lowell, Sarah Salomon, Nick Sidney, Olga Sunsini, Antoni Terra, Jessica Verran-Lingard, and Kevin Xu
J.D. J.D./M.B.A. and LL.M. Candidates, Stanford Law School; and Zach Sorenson, B.S./M.P.A. Candidate, Stanford University

Professor Paul Goldstein
Lillick Professor of Law, Stanford Law School

Luciana Herman
Lecturer, Stanford Law School

Brian Weissenberg
J.D. Candidate, Teaching Assistant, Stanford Law School

2015

559 Nathan Abbot Way Stanford, CA 94305 law.stanford.edu/organizations/programs-and-centers/law-and-policy-lab

Stanford Law School

Copyright Policy Lab Practicum

Low-Cost Licensing of Photographs in the Digital Age: Options and a Proof of Concept

Winter and Spring 2015 Practicum Teams: Marta Belcher, Danielle Benecke, Shuk Ting (Candy) Cheng, Amit Gressel, Andrew Grimm, Greg Keenan, Elizabeth Lowell, Sarah Salomon, Nick Sidney, Olga Sunsini, Antoni Terra, Jessica Verran-Lingard, and Kevin Xu

J.D., J.D./M.B.A. and LL.M. Candidates, Stanford Law School

Zach Sorenson

B.S./M.P.A. Candidate, Stanford University

Paul Goldstein

Lillick Professor of Law, Stanford Law School

Luciana Herman, Ph.D.

Lecturer, Stanford Law School

Brian Weissenberg

J.D. Candidate, Teaching Assistant, Stanford Law School

July 23, 2015

Acknowledgements

This collective project follows on the work of the first Stanford Law School Law and Policy Lab Copyright Practicum in Fall 2013 and Winter 2014. That work, embodied in the report to the Copyright Office, "Improving Copyright Information Management: An Investigation of Options and Areas for Further Research" (March 2014), helped this year's Practicum to focus on the issues that image creators face in licensing and marketing their work in an online marketplace. Thus the first acknowledgement for the thinking that grounds this work goes to the Copyright Practicum of 2013-14: Ariel Green, Sean Harb, Peter Holm, Kingdar Prussien, Kasonni Scales, and Juliana Yee. Without their comprehensive research and creative thinking, this project may never have come to fruition.

A second, no less heartfelt, word of gratitude goes to PLUS President and CEO Jeff Sedlik. A noted—and busy—professional photographer, Jeff generously offered insights and guidance throughout the project. His insights as a professional photographer helped us to better understand our stakeholder findings from surveys and interviews with photographers. His wealth of knowledge about licensing protocols around the world helped extend our vision and goals for our own simple licensing platform. And his astute understanding of the technical aspects of building an Internet platform helped us frame questions for our coding team with Code the Change. Jeff's patience with our questions, thorough responses, and unstinting generosity with his time and knowledge, have helped to smooth our research path.

Similarly, Oliver Goodenough, Professor of Law and Director of the Center for Legal Innovation at the University of Vermont, generously offered his time to help us think through a licensing flowchart for the proof of concept platform. Professor Goodenough works at the cutting edge of legal technology scholarship and design, building interactive, automated legal licenses in his role as a fellow with the Stanford CodeX project. His CodeX presentation on legal licensing design, *Contract as Automaton: The Computational Representation of Financial Agreements,* catalyzed new thinking in our team about a licensing mechanism for our prototype platform. His thought-provoking lecture to the Practicum on the technology behind automated legal licensing helped translate general ideas into a specific vision that will gird future Practicum research.

Finally, this project must sing the praises of Code the Change, a team of Stanford University volunteer coders, led by Andrew Suciu, who translated our academic thinking into the code that now grounds the proof of concept platform. Busy with their own studies and classes, the Code the Change team members managed to carve out time to bring this project to fruition. Thanks to their expertise – and the unflappable and amiable leadership of Andrew Suciu – this project, specifically the coded prototype for the proof of concept, has entered the working world of the Internet where we now look forward to beta testing and developing the project's central idea for new licensing technologies for photographers and image creators.

Table of Contents

EXECUTIVE SUMMARY **9**
PART I: POLICY CONSIDERATIONS **12**
I. PROBLEM STATEMENT **13**
INTRODUCTION 13
CHALLENGES FOR PHOTOGRAPHERS 13
CHALLENGES FOR CONSUMERS 13
KEY ELEMENTS FOR A SOLUTION 14
OPTIONS FOR THE COPYRIGHT OFFICE 15
II. STAKEHOLDER ANALYSIS – PHOTOGRAPH CONSUMERS **16**
INTRODUCTION 16
THE PHOTOGRAPH CONSUMER LANDSCAPE 16
High-Value and Low-Value Users *16*
Segment Monetization *17*
Current Licensing Mechanisms *17*
Current Licensing Needs of Consumers and Producers *17*
ONLINE LICENSING PLATFORM – OPTIONS AND TRADEOFFS 18
High-value versus Low-value users *18*
Leveraging the Picture Licensing Universal System (PLUS) Standards and Interface *18*
Value-Add Services *19*
RECOMMENDATIONS 19
NEXT STEPS 19
III. LICENSE TERMS **20**
INTRODUCTION 20
OPTIONS AND TRADEOFFS 20
CUSTOM LICENSE QUESTIONNAIRE 21
1. Permitted Users *22*
2. Media *22*
3. Number of Copies *23*
4. Regional Constraints *23*
5. Duration *23*
6. Exceptions to Usually Prohibited Uses *23*
FURTHER CONSIDERATIONS 24
IV. LICENSING STRATEGY **25**

INTRODUCTION 25
A DATA-DRIVEN LICENSING SYSTEM 25
LESSONS FROM EXISTING SOLUTIONS 28
Creative Commons *28*
Copyright Hub *28*
Stanford Intellectual Property Exchange (SIPX) *29*
Shutterfly *29*
Shake Mobile *29*
SIMPLIFYING LICENSE TERMS WITH DATA 30
COLLABORATION AND INTERFACE WITH PLUS 30
NEXT STEPS 30
V. TRUST IN AN ONLINE LICENSING PLATFORM 32
INTRODUCTION 32
THE IMPORTANCE OF TRUST 33
THE TWO COMPONENTS OF TRUST – COMPETENCY AND WARMTH 33
UNIQUE TRUST BARRIERS FOR ONLINE LICENSING PLATFORMS 34
CURRENT APPROACHES TO TRUST IN INTERNET LICENSING 36
OPTIONS FOR DEALING WITH TRUST 37
Option 1: Data-driven License Terms *37*
Option 2: Automated Originality Screening *38*
Option 3: Facilitate Efficient Self-Policing *38*
NEXT STEPS 39
VI. SEARCH FUNCTIONALITY OPTIONS 40
INTRODUCTION 40
OPTION 1: LICENSE SEARCH, NOT IMAGE SEARCH 40
Image Search *40*
License Search *40*
License Search, Not Image Search *41*
OPTION 2: TARGET USE CASES – IMAGES FOUND ON WEBSITE OR VIA GOOGLE SEARCH 41
OPTION 3: SOLUTION DISTINCT FROM PLUS AND OTHER THIRD PARTY PLATFORMS 42
OPTION 4: LICENSE SEARCH DESIGN 43
OPTION 5: COPYRIGHT OFFICE INITIATIVES 43
CONCLUSION 43
NEXT STEPS 44

VII. SEARCH TECHNOLOGIES 45
INTRODUCTION 45
USERS' SEARCH NEEDS 45
CONNECTING OWNERSHIP INFORMATION AND LICENSING TERMS WITH PHOTOGRAPHS 45
Option 1: Use of Metadata 45
Option 2: Use of Watermarks 47
Option 3: Image Recognition 49
CONNECTING USERS WITH A PARTICULAR PHOTOGRAPH 49
NEXT STEPS 50
VIII. INTEROPERABILITY 51
INTRODUCTION 51
COPYRIGHT WORKFLOWS 51
AMATEUR VERSUS PROFESSIONAL PHOTOGRAPHERS 52
OUR INTERVENTION IN PHOTOGRAPHER WORKFLOWS 53
SHORT-TAIL VERSUS LONG-TAIL LICENSEES 53
OUR INTERVENTION IN LICENSEE WORKFLOWS 54
POTENTIAL INTEROPERABILITY MODELS 55
CREATIVE COMMONS 55
Basic Model 55
Interoperability Features 56
CORBIS/GETTY 57
Basic Model 57
Interoperability Features 58
PLUS 58
Basic Model 58
Interoperability Features 59
BEST INTEROPERABILITY PRACTICES 60
CONCLUSION 61
IX. TECHNICAL FEASIBILITY 63
INTRODUCTION 63
OPTION 1: ADOPTING A STANDARD DATA FORMAT 63
OPTION 2: IMAGE SEARCH 64
OPTION 3: TECHNOLOGICAL IMPROVEMENTS AND INTEGRATIONS 65
OPTION 4: CODING 65

Reverse-Image Lookup *65*

Simplified License and Payment Processing *66*

CONCLUSION 67

X. ROLE OF THE COPYRIGHT OFFICE 68

INTRODUCTION 68

OPTION 1: DEVELOP AN API, REGULATED BY THE COPYRIGHT OFFICE, THAT SUPPORTS PRIVATE SECTOR INNOVATION IN DEVELOPING LICENSING SOLUTIONS 69

OPTION 2: ENHANCE COLLABORATIONS WITH PLUS (AND POTENTIALLY OTHER PHOTOGRAPH LICENSING ENTITIES) TO FACILITATE A FULLY FUNCTIONAL AND CONSISTENT ONLINE LICENSING PLATFORM. 70

OPTION 3: IMPROVE THE TECHNOLOGICAL INTERFACE TO UPLOAD LARGE COLLECTIONS OF VISUAL WORKS . 72

OPTION 4: ESTABLISH A UNIQUE PERSISTENT IDENTIFIER FOR INDIVIDUAL VISUAL WORKS 73

OPTION 5: SUPPORT THE MARKET RESEARCH LICENSING NEEDS SURVEY 74

OPTION 6: CLARIFY AMBIGUITIES ON GROUP REGISTRATIONS AND THE REGISTRATION PRACTICES OF STOCK AGENCIES 74

OPTION 7: INCENTIVIZE PRIVATE REGISTRATION THROUGH LEGISLATION THAT SPURS PRIVATE LICENSING SOLUTIONS 75

NEXT STEPS 76

CONCLUSION 76

PART II: PROOF OF CONCEPT 78

XI. PROOF OF CONCEPT – ONLINE MARKETPLACE PROTOTYPE 79

POLICY CONSIDERATIONS 80

TABLE 1: COMPARISON OF CURRENT AND POTENTIAL PHOTOGRAPHIC LICENSING MODELS 80

THE PROTOTYPE 81

NEXT STEPS 82

CONCLUSION 84

ILLUSTRATION: PROOF OF CONCEPT FLOWCHART 85

XII. PROOF OF CONCEPT – CASE STUDY OF BLOGGERS 86

PROBLEM STATEMENT 86

RESEARCH METHODOLOGY 86

FINDINGS 86

Bloggers do not consider it infringement to post an image without permission, so long as the source is provided. *86*

Bloggers want to provide correct attribution because they support content creators. *87*

Bloggers view an action for infringement as extremely unlikely *88*

OPTIONS FOR POLICY 88

PROOF OF CONCEPT AS IT APPLIES TO BLOGGERS 89

CONCLUSION 89
TABLE 3: BLOGGER QUESTIONNAIRE 90
XIII. PROOF OF CONCEPT – INTERFACE WITH PLUS 92
INTRODUCTION 92
VISION FOR PLUS 93
ABOUT PLUS 93
The PLUS Registry – A way to record and search for image rights information 94
PLUS Standards: Industry standards for rights communication and recordation 95
The PLUS Coalition: A nonprofit organization with corresponding resource limitations 96
ADVANTAGES OF THE PLUS PLATFORM FOR LICENSORS AND LICENSEES: 96
PLUS Interface and our Licensing Platform 99
TABLE 2: SUMMARY OF PLUS REGISTRY FEATURES 100
XIV. PROOF OF CONCEPT – LICENSING PROTOCOL 102
INTRODUCTION 102
A. OVERVIEW OF LICENSES IN AN ONLINE MARKETPLACE 102
B. CUSTOMIZED LICENSES FOR IMAGES USED IN BLOGS 103
1. Permitted users 103
2. Permitted media 104
3. Number of copies 104
4. Regional constraints 105
5. Duration 105
6. Exceptions to Usually Prohibited Uses 105
C. LICENSING PROCESS 107
D. WAY FORWARD 107
ILLUSTRATION: FLOWCHART OF THE LICENSING PROCESS OF THE PROTOTYPE 109
XV. SUMMARY OF OPTIONS AND NEXT STEPS 110
PRACTICUM OPTIONS FOR DEVELOPING ONLINE LICENSING SYSTEM 110
COPYRIGHT OFFICE ADMINISTRATIVE OPTIONS 112
PRACTICUM NEXT STEPS 114
APPENDIX A – SUMMARY OF TOPICS AND RESOURCES CONSIDERED – WINTER 2015 118
APPENDIX B – LICENSING NEEDS SURVEY 123
APPENDIX C – QUESTIONS TO GUIDE PURPOSE OF LICENSING NEEDS SURVEY 127
APPENDIX D – SAMPLE LICENSING QUESTIONNAIRE 128

EXECUTIVE SUMMARY

One of the great challenges for creative production in the digital age is to efficiently connect users of copyrighted works with the works' owners in order to enable licensed uses. A particularly compelling illustration of this is the millions of copyrighted, unlicensed photographs and other visual works uploaded to the Internet daily without permission from the copyright owner. Digital technologies have democratized the creation and distribution of visual works – nearly everyone has the tools at their fingertips or, for the billions of smartphone users globally, in the palm of their hand. However, the digital age has also brought significant challenges in protecting and profiting from such works.

Ownership information for many photographs uploaded to the Internet is often severed from the work, fragmented, or otherwise unavailable. Copyright registration is of limited help – photographers face special barriers to registration because of the sheer volume of the works they produce, and have few incentives to record ownership transfers. Even for registered photographs and illustrations, metadata and security mechanisms are often missing or, if present, relatively easy to strip out, instantaneously making many photographs orphan works. Moreover, even if a work is registered and ownership transfers are duly recorded, there is often no ready mechanism for potential users to connect a work they wish to use with the corresponding copyright registration. Without ownership information, mutually beneficial licensing of photographs cannot occur. Potential buyers or licensees cannot contact the owner for the right to use the work and, therefore, must risk an infringement lawsuit or simply walk away. Moreover, many low-value users will be unfamiliar with rules and procedures, and make use of images without appreciating the risk. These barriers to licensing undermine one of copyright's central goals – to encourage production of creative works by granting authors a bundle of exclusive rights from which they can profit.

Yet the digital age also offers tools and opportunities to meet these challenges. However, these solutions are often tailored to the needs of high-value users, such as commercial publishers, and print and broadcast media, and typically neglect low-value, "long-tail" users, such as small businesses, website and mobile application developers and designers, bloggers, and community organizations. For long-tail users, the limited licensing options and high transaction costs of existing solutions act as barriers to lawful, licensed uses of photographs or other images. Bloggers, for example, are a vibrant portion of Internet communities, yet many encounter problems in finding and obtaining rights owners' permission to use copyrighted works. Bloggers complain that they often lack access to the original image owner, and many independent bloggers find that commercially available products are too costly for their limited budgets. A system that enables quick and seamless connection between image owners and users would be a powerful tool for bloggers.

In the face of these challenges, the Stanford Law School Law and Policy Lab Copyright Practicum (the "Practicum") will, in this briefing book, advise the U.S. Copyright Office on an array of options, tradeoffs, and next steps, including a proof of concept, for the development of an efficient online licensing system for photographs and visual images. Sections II through IX investigate the development of an efficient and trustworthy online licensing system for photographs according to the needs for *all* users. In particular, Section II briefly discusses the Practicum's development and implementation of the Licensing Needs Survey (Appendix B) to be distributed to members of the Picture Licensing Universal System Registry ("PLUS") and

trade organizations within the industry—the results of which are to be analyzed in a later project. Section X prioritizes options for the Copyright Office to align its own practices and initiatives to enable

- potential licensees to quickly find accurate and up-to-date information about a photograph's author and copyright owner, and any licensing terms; and
- copyright owners to efficiently license their photographic works in low-friction, low cost transactions with licensees.

We envision a system with low transaction costs which will have particular appeal to long-tail consumers, but which may be equally attractive to commercial high-value users eager to maximize profits.

We have developed options and tradeoffs through close, in-depth qualitative stakeholder analysis, complemented by examination of relevant law and existing and potential solutions, tools, and technologies. Part I (Sections II through X) describes the policy framework for a licensing system that leverages existing public and private solutions, as well as the operations of existing industry stakeholders and service providers. As existing technology is poised to move rapidly towards possible solutions, Section X recognizes that, in the near-term, the most cost-effective and feasible option for the Copyright Office may be to develop an API that helps to encourage private-sector solutions.

Proof of Concept Prototype

In the spirit of furthering private-sector solutions, Part II, "Proof of Concept," describes our development of a proof-of-concept prototype to demonstrate that a low-cost, scalable, trustworthy, and automated online licensing system can be built to serve both the creators and the consumers of digital photography. This basic prototype was made possible through our partnership with Code the Change, a Stanford University team of coders led by Andrew Suciu. The prototype is designed to interface with the PLUS API and Registry as a means of ensuring more accurate registration data across global networks. The prototype highlights the importance of a Copyright Office API to empower innovation by third party developers.

This proof-of-concept platform:

- Simplifies license and payment processing through an online marketplace portal for photographs. This platform should enable photographers—amateur or professional—to license their works directly to end user consumers. Payments could be processed by a third party—potentially Stripe since it offers the lowest transaction fees in this industry and the most powerful API tools.
- Demonstrates that an API can enable third-parties to directly access and link registration information to their databases.
- Generates customized licenses and pricing schemes through an automated questionnaire that supports variable inputs.
- Relies on industry empirics and best practices to develop an automated, customizable license that integrates easily with other platforms.
- Adopts a standardized data format for embedding copyright and license data in photographs via the PLUS Registry.

- Encourages the adoption of image tracking mechanisms, including embedded metadata and watermarks, or enhanced image-recognition, building on tools within the PLUS Registry.

Copyright Office Options to Facilitate the Development of a Low-Friction, Online Licensing Platform

The following options emerge from our analysis of stakeholder needs, licensing terms and strategies, issues of trust, search functionality and technologies, interoperability, technical feasibility, and the administrative role of the Copyright Office. [See Section XV, "Summary of Options," for more details on options relating to each category. See also Appendix A, "Summary of Topics and Resources Considered," for further background.] As the Copyright Office aligns its own its own practices and initiatives to support an automated licensing system, it may:

- Contract with third-party companies to help process applications.
- Improve the process for registering bundles of photographic works and illustrations.
- Work with social media websites to encourage them to preserve embedded metadata and license information.
- Solicit design solutions for an online licensing system through a Notice of Inquiry and subsequent public roundtable.
- Conduct a market survey and publicize a subsequent research report that highlights areas where transaction costs and other barriers to negotiation are the highest, with the goal of helping to spur private entities to develop a licensing solution.
- Promote a license search tool, raising awareness among photographers and disseminating information to the public. Such a seal of approval would help any license search tool gain legitimacy and support.
- Work with image search providers, such as Google Images, to embed a license search tool.
- Propose and implement legislation to spur private licensing solutions.

These options have varying feasibility and may intertwine and overlap according to the role that the Copyright Office pursues in facilitating online licensing (see Section XV, "Summary of Options and Next Steps").

Although photographers and image creators have exclusive rights to reproduce their creative works, digital technologies have overtaken their ability to license, distribute, and monitor those works. Through its leadership in guiding and developing online licensing for photographs and illustrations, the Copyright Office can help photographers and image creators exercise control over their work, thereby fulfilling the mission of promoting creativity by protecting creators' rights and livelihoods.

PART I: POLICY CONSIDERATIONS

I. PROBLEM STATEMENT

Introduction

Disseminating and using online photographs presents challenges for photographers and consumers alike. Photographers find it increasingly difficult to monitor and profit from their works, while consumers find it difficult to uncover rights information associated with images found online. At a minimum, a solution to these challenges should involve creating a trusted means for photographers and image creators to embed license information in their online photographs and works, and a method for consumers to connect their search for an image with a search for the image's license terms. A solution could also involve a means for photographers to monitor the use of their photographs online and users to be alert to changing or expiring license terms.

The Copyright Office can aid in the development of these solutions by making copyright rights information more transparent and searchable, by actively soliciting private sector solutions, or by developing a solution itself.

Challenges for Photographers

Photographers want both to increase awareness of their photographs online and to profit from the use of these works. The more frequently a photograph appears through online channels, the more likely it is that someone interested in using or purchasing a license to use the photograph it will find it. Photographs accessed through traditional stock photograph agencies, Google Search, blogs, or social media platforms may sometimes prompt potential users to seek a license, yet, at the same time, the more that a photograph is posted and reposted through online platforms, the more likely it is that ownership information and any terms of use become lost or separated from the photograph. Photographers therefore face the challenges of:

- registering their works with the Copyright Office;
- selecting appropriate license terms;
- attaching copyright and license information to their photographs distributed online;
- ensuring that the license terms remain attached to the photograph as it travels through online platforms; and
- ensuring that users only use the photograph subject to its licensed terms.

Challenges for Consumers

This Practicum has proceeded on the assumption that, if accurate licensing information were tied to photographs distributed online, consumers would be more likely to use those photographs legally, and more widely. Currently consumers find photographs distributed online by either actively searching for a type of photograph or a particular photograph, or by encountering a photograph that they find useful, either immediately or at some later point. Some consumers will then use the photograph regardless of any rights information available (in our view, often out of ignorance of the legal implications). Others will seek a license to use the photograph only if ownership and licensing information is readily available. Another

category of users will not use the photograph if they cannot find accurate license information. Consumers therefore face the following key challenges:

- finding the right photograph for a given use;
- finding accurate licensing information associated with the photograph; and
- agreeing on the terms of a license appropriate for a given use.

Key Elements for a Solution

A solution to the challenges faced by photographers and consumers would ideally incorporate the following elements:

- A trusted and "permanent" means for photographers to record copyright ownership and license information to their photographs, typically distributed online.
- A search function that would enable users to connect photographs typically found online with the relevant ownership and license information.
- A mechanism for photographers to track use of their photographs online, and for consumers to keep abreast of any changes to rights information.
- Ongoing contract monitoring after the execution of a license.

Technologies and solutions exist which address aspects of these elements, but there is no single solution that addresses them all in a way that comprehensively meets the challenges of photographers and consumers. For example, it is possible to record copyright and license information for digital photographs, using HTML tags or metadata. In fact, there are several existing and emerging platforms that give photographers the tools to do this, such as Creative Commons and the Picture Licensing Universal System (PLUS).[1] However, Creative Commons licenses are arguably indifferent to the needs of photographers seeking to monetize their work, and PLUS licenses are too complicated. In either case, existing technologies can easily strip licenses from photographs, making use difficult or impossible to track. Further, consumers who seek to license photographs may not always trust that the licenses attached to a photograph at a particular time remain accurate.

Assuming that license information could be reliably associated with photographs desired by consumers, photographers and users would need to be able to "read" these licenses to understand what their respective rights are. Further, to encourage adoption, searching for a license should integrate seamlessly with the ways in which consumers find photographs online. Google Images' Advanced Search function currently enables users to search for photographs subject to a variety of Creative Commons license forms, but it does not provide information regarding any other license forms. Other licensing platforms, such as PicScout or the emerging PLUS registry, are not widely used by consumers of photographs – presumably because either they are not yet a "go-to" source of licenses for photographers, or consumers haven't been made aware of their potential.

Attaching license information to a photograph, and enabling consumers to read it, are essential steps in encouraging the legal use of photographs and images. A more robust system, however, would offer mechanisms that allow photographers to track online use of their photographs and update license terms, and enable consumers to confirm that their licenses are

[1] PLUS Registry, https://www.plus.org. *See* also https://www.plusregistry.org, which is in beta format until June 2016.

up to date. Services such as PicScout, which is owned by Getty Images, enable photographers to track their photographs online, and enable consumers to find license information about photographs stored in the PicScout database. However, our research reveals that some photographers and users find that PicScout fails to provide a sufficient array of license types; also its database of photographs is insufficiently comprehensive to meet photographer and consumer needs.

Options for the Copyright Office

The Copyright Office could play an instrumental role in motivating private parties to contribute to potential solutions. We have identified the following options:

1. By developing an API that would enable third parties to access photograph registration information, the Copyright Office could enable third-parties such as PLUS to link copyright information with photographs and associated licenses.
2. The Copyright Office could actively motivate parties to develop solutions by soliciting proposals and offering rewards. Rewards could come in the form of official sponsorship by the Copyright Office, and partnership with the Copyright Office to develop joint solutions.
3. The Copyright Office could create its own system internally for photographers to attach rights and license information to photographs, and store the photographs and up-to-date information in a comprehensive online database.

The first two options would benefit from encouraging innovation from a variety of sources, although privately developed solutions may also impose fees on photographers or consumers. The Copyright Office could develop its own tools internally, and would be better positioned to offer a free service to photographers and consumers; however, an internally developed solution may suffer from lack of resources. In the near term, encouraging private sector solutions may be the most feasible option for the Copyright Office.

II. STAKEHOLDER ANALYSIS – PHOTOGRAPH CONSUMERS

Introduction

This section of the briefing book focuses on the needs of consumers of photographs as they pertain to licensing.[2] In doing so, it addresses the following key questions:

- What does the photograph consumer landscape look like?
- Are there segments of the market that are currently not being monetized?
- How does licensing currently occur?
- What license terms are required by both consumers and producers?

The section addresses several options and challenges for creating an online licensing platform, both for the platform itself and for the Copyright Office in supporting the platform. It then makes several recommendations, and outlines next steps as the Practicum moves forward with additional research.

The Photograph Consumer Landscape

High-Value and Low-Value Users

The photograph consumer landscape can be divided into two distinct user segments:

1. high-value users; and
2. low-value users.

The following table provides a non-exhaustive list of typical users within each segment:

High-value users	**Low-value users**
Universities and other educational institutions	Bloggers
Book publishers	Internal corporate development
Advertising agencies	Self-publishers
Small businesses and startups	Internal classroom use
News outlets	Individuals

[2] For purposes of clarity, this section of the briefing paper uses "consumers/producers" and "licensees/licensors" of photographs interchangeably.

Characteristics typical of high-value users include the following:

- systematic, repeated use of photographs; use of photographs on a large scale (e.g. printing or generating hundreds or thousands of copies or views of a single photograph for official purposes in a published book, poster, online format, or other vehicle); and
- specific, tailored licensing agreements that require negotiation and maintenance.

Characteristics typical of low-value users include the following:

- limited or one-off use of photographs;
- use of photographs on a small scale (e.g. one-time or limited use in a presentation or blog post); and
- general licensing language that could be used in many other licenses.

Segment Monetization

Currently, high-value users generate the most profit for creators and rights holders of photographs. Low-value users, on the other hand, often make unauthorized use of photographs, reflecting high licensing transaction costs, lack of ownership information, low risk of enforcement, or these users' unfamiliarity with licensing laws. There is, therefore, little to no monetization of the low-value user segment.

Current Licensing Mechanisms

Unless they use a stock photograph agency, high-value users will ordinarily license photographs directly from the copyright owner, using their own resources to find out rights information. Existing IP licensing aggregators such as the Stanford Intellectual Property Exchange (SIPX) do not have the resources or capabilities to handle photograph licensing, despite requests from some of their users. There is no licensing mechanism that directly addresses the needs of low- value uses. Indeed, more often than not, the transaction costs and other challenges of finding rights information for a photograph exceed the value of obtaining a license to use it.

Current Licensing Needs of Consumers and Producers

The Practicum's efforts to determine the licensing needs of consumers and producers of photographs are addressed in subsequent sections of this briefing book. To assist these efforts, we have developed a comprehensive draft survey for consumers and photographer (Appendix B – "Licensing Needs Survey") and a list of questions to guide further drafts of the survey (Appendix C).

Online Licensing Platform – Options and Tradeoffs

High-value versus Low-value users

The pilot version of our online licensing platform should, at least initially, pursue either high-value or low-value users, but not both. High-value and low-value users each have different (and potentially mutually exclusive) licensing needs, and should therefore be served in different ways.

Focusing on high-value users would give the creators of any online licensing platform the benefit of experience. Significant guidance could come from existing IP licensing players such as Stanford Intellectual Property Exchange (SIPX). SIPX provides an open marketplace for frictionless licensing of online course materials. While the SIPX marketplace hosts some individual self-publishers and standalone students, its main user base is comprised of institutional entities that provide and seek out content for coursework. An online licensing platform for photographs that focuses on high-value users could take a similar approach and learn a great deal from SIPX's business model. Our platform could become a content aggregator and license generator for major institutions, potentially operating as an intermediary between stock photography agencies and institutions, such as corporations and schools.

On the other hand, a platform focusing on the high-value segment might not create as much overall copyright licensing value as one focused on low-value users. In contrast, focusing on low-value users would engage a segment that has yet to be monetized and, thus, which offers the potential to create significant value, including reducing unauthorized uses of photographs online. Many low-value users (e.g. internal corporate users and bloggers) are not currently engaged with the photograph licensing market – they typically use photographs without obtaining a license. Further, they often have relatively simple licensing needs, increasing the possibility of creating an automated license generator that satisfies the majority of their needs. However, the segment is also fragmented, making it difficult to acquire users and create a sufficiently robust information base. Moreover, the value of the segment joining the photograph licensing market may not be high enough to convert certain high-value users. Here, the challenge is likely to be achieving transaction costs that are lower than those associated with using photographs without obtaining a license.

Leveraging the Picture Licensing Universal System (PLUS) Standards and Interface

A key option for developing an online licensing platform is to leverage the PLUS Registry API interface and standardized rights language.[3] PLUS is developing a global non-profit, image rights registry and "hub" for image rights information, which is designed to link all registries, hubs and online databases. The registry will also provide ready access to standardized information regarding image creators, copyright owners, image rights information and license-specific information. Although still developing its user base, the current PLUS audience spans 154 countries and the PLUS Registry system is becoming

[3] See PLUS Registry, at www.PLUS.org. The PLUS Registry site, plusregistry.org, is currently a beta site in the process of merging with the legacy site, useplus.org. Until June, 2016, the useplus.org site will remain active, at which time the glossary of standards and coalition information will migrate to the www.PLUS.org site.

increasingly accessible across the global market of image creators and consumers. See Section XIII for a detailed description of PLUS, including the interface with the prototype platform.

Value-Add Services

Current licensing platforms do not yet offer the following services:

- keyword search (e.g. a search for "tree" returns photographs of trees);
- subject-matter search (e.g., search for "flora" returns photographs of trees, as well as other flora-related images);
- image browsing; and
- licensing transactions.

These are all potentially of high value to consumers. However, current technologies (particularly image recognition) are not yet at the stage where some of the preferred services can be implemented effectively.

Recommendations

We recommend the following concerning consumer licensing:

1. The Copyright Office should consider supporting the Practicum's Licensing Needs Survey (Appendix B). The Copyright Office should also consider making the results of the survey public, as it could stimulate public and private innovation.
2. The Copyright Office should explore further opportunities to stimulate the creation of high value services that are not currently offered by existing players. It could also use its scale and resources to improve or add to its own services.

Next Steps

As the Practicum continues to research consumer licensing, the project will:

1. Deepen an understanding of stakeholder practices and goals regarding photograph licensing.
2. Implement the licensing needs survey to gain further insights into user licensing needs (see Appendix B).
3. Evaluate how the licensing prototype supports low-value users, and assess the means to expand its reach for high-value users, understanding that each segment has potentially different needs. In considering the needs of high-value users, the Practicum may further research SIPX as a model.

4. Analyze the points of interaction between each type of user and the platform. This will require more research into technological capabilities – what is necessary and feasible to create the platform, and do necessity and feasibility align?
5. Determine the value proposition of any licensing platform for its users – what is the differentiating factor, and how does it add value? Does the platform reduce copyright infringement of photographs distributed online in a way that adds unique value to existing services?

III. LICENSE TERMS

Introduction

The success of a copyright transaction depends on both parties—the rights holder and rights purchaser—agreeing on licensing terms. Copyright transactions inherently require multi-dimensional agreements, unlike transactions involving the purchase of tangible goods. Such transactions often rely on parties agreeing on only one variable term—price—for a well-defined and easily transferable physical item. By contrast, informational goods like digital photographs are by nature non-exclusive (that is, easily shareable) and non-rivalrous (that is, able to be consumed by multiple people simultaneously).[4] Copyright artificially introduces exclusivity,[5] and a rights holder in a copyright transaction leverages that artificial exclusivity in order to sell something that would otherwise be free. The "good" that a copyright holder owns is therefore inherently undefined, and selling that good requires first defining what exactly that good is, which is accomplished through a license. A license has many potential terms, and a licensing transaction is thus multi-dimensional. However, multi-dimensional transactions introduce complexity, particularly at a large scale.

Options and Tradeoffs

Given the inherently multi-dimensional nature of copyright licensing, generating a license agreement requires a tradeoff between flexibility and scalability. On one end of the spectrum is a licensing option that offers maximum flexibility (a strength) and minimum scalability (a weakness), individually negotiating each term (perhaps even each word) of a license agreement. Large entities with the resources to engage in individual negotiations for every license agreement might be attracted to such an option because its flexibility ensures that the license ultimately fits the entity's policies and specifications. This option is thus

---

[4] John P. Conley & Christopher S. Yoo, *Nonrivalry and Price Discrimination in Copyright Economics*, 157 U. PA. L. REV. 1801, 1805–06 (2009).

[5] WILLIAM M. LANDES & RICHARD A. POSNER, THE ECONOMIC STRUCTURE OF INTELLECTUAL PROPERTY LAW 12–13 (2003).

potentially attractive for short-tail users. On the other hand, this option would be nearly impossible to scale, and would be onerous for less sophisticated, long-tail or one-time users.

At the other end of the spectrum is a licensing option that offers maximum scalability (a strength) and minimum flexibility (a weakness): rights holders offering purchasers a take-it-or-leave-it license for a specified price. This is advantageous to many long-tail purchasers, who may not care about the vast majority of license terms, but who care a great deal about a quick and easy transaction. It is also beneficial to the rights holder in that it minimizes the resources needed to scale. However, it could be disadvantageous for both long-tail and short-tail purchasers who have a specific use for a photograph in mind that is not covered by the license. While this option has the advantage of being quick and easy and minimizing transaction costs, it is not necessarily efficient in the economic sense. That is, a purchaser might be willing to pay more for a certain licensing term, and the seller might be happy to accept that increased price in exchange for this term, but with a take-it-or-leave-it licensing approach, the parties cannot customize the license to include that term, and both parties end up worse off.

While both of these options represent extremes, they are both widely exercised in the current copyright transactions market. For example, the former method is often the licensing option of choice in complex commercial transactions involving sophisticated entities. The latter option is commonly exercised by public-facing stock photography licensing entities like Getty.[6] Another common practice is a middle-of-the-road approach, trading some flexibility for scalability and vice versa. This approach, used by Shutterstock[7]—is to offer multiple take-it-or-leave-it licensing options at different price points. While this option may not be perfectly economically efficient, it adds some flexibility for purchasers while still maintaining scalability for rights holders. However, this option might also be problematic in the sense that it could be tantamount to price fixing.[8]

Another option that balances scalability and flexibility is to generate a custom license based on a form or questionnaire, based on the license generator standards used by PLUS.[9] The following paragraphs discuss the challenges and benefits of adopting such an approach.

Custom License Questionnaire

A custom license based on a standardized licensing questionnaire could be accomplished by asking users about terms that vary from license to license, leaving the boilerplate and seldom-altered terms static in the final document. In order to demonstrate how this could work, we have created a sample ten-question licensing questionnaire which is in

---

[6] Getty Images Editorial, Rights-Managed and Rights-Ready Image and Video License Agreement, available at http://www.gettyimages.com/corporate/licenseagreements.aspx.

[7] Shutterstock, "Choose the right image license," available at http://www.shutterstock.com/license_comparison.mhtml.

[8] More research into this issue is needed, and it is included in the paragraphs under the "Next Steps" header in this section.

[9] PLUS, "License Generator: Generate a PLUS Universal License Statement," http://www.useplus.com/pluslicensegenerator/Steps/Start.aspx.

Appendix D to this briefing book. We read and compared existing license agreements for similar copyright transactions and identified the terms that tend to vary. We condensed these variable terms into a questionnaire. The answers to the questionnaire could automatically be combined with non-variable (or less variable) terms to generate a custom license for each transaction. The variable terms in our sample questionnaire fell into six general categories:

1. permitted users;
2. permitted media;
3. number of copies;
4. regional constraints;
5. duration; and
6. prohibited uses/exceptions.

These six categories should offer enough flexibility to enable basic licensing customization.

1. Permitted Users

This general category defines the purchaser—and the employees and agents of the purchaser—who will be permitted to use the photograph under the license agreement. This category does *not* refer to the end users who will ultimately consume the photograph. Existing licenses usually state that only the purchaser (and sometimes employees of the purchaser) can use the photograph, but allow for transfers to agents of the purchaser—such as clients or printers. Occasionally, licenses place a cap on the number of users of the photograph. Practically, this term simply answers the question of who, exactly, the purchaser/licensee is.

To indicate the scope of this term using the questionnaire, we have proposed a check-box question (check all that apply) and a fill-in question. The check-box question is "Who will the purchaser-users (as opposed to the end users) of the image be?" The options were pulled from the categories that most often came up in existing licenses:

- the purchaser, if an individual;
- employees of the purchaser, if a corporation;
- client(s) of the purchaser; and
- printers.

Additionally, it may be useful to have a sense of how many people will be licensed to use the image, so we suggested a fill-in question asking for the approximate number of users of the image under the license agreement.

The "permitted users" section is relatively similar from license to license, so if the licensing questionnaire needs to be shortened, this category could be eliminated and included as part of the static portion of the license.

2. Media

This section appears to be the most varied among existing licenses, and is essential to reaching an understanding between licensee and licensor, as it answers the fundamental question for the licensor of how the image is going to be used. While some existing licenses have different "packages" available, with different media permissions in each package, ideally a custom license would match the exact needs of each licensee to ensure that the licensee does not have to pay for more permissions than needed.

We have proposed a check-box (check all that apply) question asking, "In which media will the image be used?" with 14 possible categories: 1. print ads; 2. digital ads; 3. printed promotional projects; 4. corporate presentations; 5. film/movies; 6. books; 7. printed publications for editorial purposes with attribution; 8. printed publications for editorial purposes without attribution; 9. online publications; 10. prints (not for resale); 11. items for resale; 12. electronic templates for resale; 13. part of a trademark or logo; and 14. other: (fill in).

Not all of these categories are present in existing licenses, but we included some of these usually prohibited categories to allow for more flexibility. For example, typically "printed publications for editorial purposes" require attribution, but to add more flexibility, we added an option of "printed publications for editorial purposes without attribution." Items and electronic templates for resale are also usually prohibited or limited in existing licenses, but we also included that option to add flexibility for the purchaser as well as the licensor.

3. Number of Copies

The third question asks for the estimated number of reproductions of the images to be made, in fill-in form to allow for maximum flexibility. This is relatively straightforward for printed materials, but could be more difficult to gauge for online uses. In both cases, there might be an issue with ex ante estimation. Existing licenses sometimes handle the *ex ante* estimation issue by providing ranges (up to a certain number of copies costs a certain amount). However, doing so creates an economic inefficiency, and standardization of these ranges could be anticompetitive.[10]

4. Regional Constraints

While some existing licenses impose regional constraints, even on online content, such a distinction seems problematic. In answer to the question, "Where will the image be used or distributed?" it may make sense to, like PLUS, allow purchasers to select "online" but, if the purchaser does so, grey out the rest of the options. Another question is whether regional constraints should be defined in the questionnaire by continent, country, state or even city. An additional fill-in option could help to add specificity and flexibility.

5. Duration

The start and end dates of the license agreement are relatively straightforward, and could be fill-in questions or could potentially be selected from a drop-down calendar. However, the meaning of even a clearly specified end date could be ambiguous for online uses.

6. Exceptions to Usually Prohibited Uses

We gathered a list of the prohibited uses of photographs in many existing license agreements, and separated them into three categories. Rather than simply banning these uses outright like many existing licenses do, we decided to enable maximum flexibility by asking whether any of these usually prohibited uses would be necessary. If so, the price can be negotiated with that in mind.

---

[10] More research into this issue is needed, as indicated in the "Next Steps" section.

The first category is sub-licensing, sharing, or transferring the image, with the following options:

- resale of the image;
- online print-on-demand products (e.g. Zazzle, CafePress);
- printing on consumer goods for resale;
- posted on social media;
- posted on a website where the image is extractable as an electronic file;
- allowed to be shared on a peer-to-peer network; and
- removing metadata or notice of copyright.

"Posting on a website where the image is extractable as an electronic file" is admittedly vague, since essentially any online use is extractable with a simple screenshot, but we included it in the list because many licenses use this language. We did *not* include "reverse-engineering," which inexplicably appears on some existing photograph copyright licenses.

The second category is pornographic and obscene uses. Most existing licenses prohibit pornographic, obscene, immoral, infringing, defamatory, or libelous uses. Clearly, our license would not provide an option for illegal (infringing, defamatory, or libelous) uses, and "immoral" seemed too nebulous to include. However, it is possible that some purchasers may want to use an image in a pornographic or obscene way. It is an open question whether a license generator would enable pornographic or obscene uses, but excluding the multi-billion dollar pornography industry from a licensing technology could be a major oversight.

The third category of usually prohibited uses includes uses that depict the model in certain lights, including:

- depicting personal endorsements; or
- portraying the model in a sensitive, unflattering, or controversial way (e.g. in connection with content regarding substance abuse or mental health).

The latter is sometimes allowed in existing licenses if a disclaimer is included, so we added an option with and without a disclaimer.

Further Considerations

Our research has identified additional questions related to licensing that may lead to complex and interconnected future policy. First, standardizing prices would be anticompetitive, but would standardizing other licensing terms similarly be anticompetitive? For example, would standardization of ranges in the number of copies permitted lead to market inefficiencies that would be anticompetitive? Second, how can a license best account for online uses when determining terms like region, duration, and extractability? Third, could (or should) a public photograph-licensing engine prohibit licensing for pornographic uses? Finally, how could a seamless photograph-licensing engine affect the scope of the fair use doctrine for online photographs?

IV. LICENSING STRATEGY

Introduction

Our stakeholder analysis identified the need for simple licensing terms, but also the need for flexibility of terms for different types of users (Section III). To that end, our licensing strategy investigates best practices in predicting user licensing preferences. A licensing platform tailored to the needs of low-value, long-tail users should be easy to use because it involves parties who are not represented by lawyers and who may not fully appreciate the value of licensing. However, it should also be comprehensive enough to cater to more sophisticated users. One or more standardized licensing contracts may not be suitable for all potential licensors and licensees. We have, therefore, developed a simple, questionnaire-based standardized license tailored to an initial niche long-tail user segment -- *e.g.,* bloggers. Our goal is to develop a flexible license that can be later modified for other users. As the licensing platform is adopted by more (and more types of) users, the licenses will need to remain simple enough to be used by non-lawyers. Initially, our simple license manages complexity by using a standardized licensing questionnaire with plain English questions that approximate the legal terms of user preferences. Later, the questionnaire can be supplemented with statistical analysis to predict user preferences. Building upon this initial questionnaire with a method for data production will result in tailored licenses with little time costs. This "data-driven" approach is an essential part of any licensing platform that seeks to achieve both universal use and tailored outcomes.

A Data-Driven Licensing System

The term "Moneyball," popularized by a recent book and film, references the basic idea that statistical inference when applied to sports beats raw human intuition. The same insight applies to legal services: statistical inference will trump intuition in legal services, specifically for a licensing engine.[11] This is especially true for the licensing system envisaged by the Practicum, which would connect copyright owners and users in legally binding transactions without the representation of attorneys.

Any licensing engine should be data-driven from the outset. It should involve extensive survey evidence on the needs of the targeted rights holders (the photographers) and the rights purchasers (the purchasers), before it is developed. It should also be based on a review of existing licenses being used in the field. We have developed a prototype standardized license that is targeted to a particular segment of users. This license will later serve as a baseline from which licenses can be generated and customized for other users. The license terms will be constructed using empirics from industry practice, and may even be a synthesis of terms commonly used in relevant licenses today.

---

[11] Charles J. Snyder, *Moneyball Lawyering*, 65 ARK. L. REV. 837, 838 (2012).

The creation of a licensing engine for a wide audience requires flexibility in the license terms. From a software developer's perspective, the simplest way to add flexibility would be to allow users to select terms themselves. But non-lawyer users would likely prefer not to deal in legal minutia.

Another option to add flexibility is to ask potential licensees plain English questions in a standardized licensing questionnaire. The answers to those questions should map to certain license specifications and terms. The key limitation of this approach is that it requires effort, and potentially significant time costs, from the contracting parties to answer the questions. There is also the risk that poor design means that answers do not map to the appropriate legal outcomes. However, a careful development process (including multiple rounds of testing) should mitigate this risk. The possible answers to questions should be limited to a manageable amount. One model of an operational standardized licensing questionnaire is the mobile application Shake Mobile's licensing process.[12]

Beyond a licensing questionnaire, a further, more sophisticated approach would involve predicting user preferences, prediction of course being "a core component of the guidance that many lawyers offer."[13] Prediction could improve the platform's suggested answers to questions over time, by using accumulated data to predict how particular users will answer questions. For example, the Practicum's solution might over time gather demographic data about both rights holders and rights purchasers (e.g. the nature of the work and typical uses of the content). This data could be used to predict the preferred initial format of a license design for particular types of users. For example, if rights purchaser A regularly seeks licenses to make up to 500,000 reproductions of a work, then the standardized license could initially provide for that. By contrast, rights purchaser B who regularly seeks licenses for up to 500 reproductions could be presented with an initial license along those lines.

The licensing engine could also predict correlations among the license provisions. For example, rights purchaser A may prefer unlimited reproductions when seeking a license for worldwide display. By contrast, that same rights purchaser, A, may want only 500,000 reproductions when seeking a license for use of a work in a particular territory. A sophisticated licensing platform could predict the correlation between the number of requested reproductions and the scope of the license geography.

There might also be cross-user prediction, which involves even more sophisticated forms of prediction. For example, if the licensing platform finds that content-user A has very similar preferences to rights purchaser B, then in the absence of knowing how many reproductions rights purchaser A would want when licensing for a particular territory, the system could predict 500,000 because user B has expressed such a preference. As the system develops, these predictions could become more refined, by finding correlations among the increasing categories of data.

As with any prediction-based product recommendation service (*e.g.*, Amazon on what to buy, or Netflix on what to watch), initial predictions will not always be accurate. For

---

[12] *See* http://www.shakelaw.com/.

[13] Daniel M. Katz, *Quantitative Legal Prediction—or—How I Learned to Stop Worrying and Start Preparing for the Data-Driven Future of the Legal Services Industry*, 62 EMORY L.J. 909, 912 (2013).

example, newly predicted license terms might need to be reviewed by the contracting parties. However, the review process would lead to more accurate predictions over time. This process would broadly follow the general data-driven process for predicting preferences:

> *(1) identify the relevant comparison class; (2) generate a baseline prediction; (3) identify case-specific factors and find the likelihood that those factors will be present if the prediction is true; and (4) calculate the probability of the prediction given the presence of the factors.*[14]

The system should then always compare its predictions to what was actually chosen by users, to refine its model.

After running a survey to establish a basic standardized license for an initial niche user type, the next step for the Practicum would be to build a data collection infrastructure that can be used to develop further licenses and increase flexibility. This would entail establishing "a massive relational database or network" to connect the various data points.[15] The basic elements of the data would be:

- demographic information about content-users and content-creators ;
- license parameters; and
- the process the users employ to reach final terms of a license.

It should be noted that this model of data collection is similar to some forms of eDiscovery, insofar as it is a supervised model that inductively fits to historical data, before attempting to predict the future by extrapolation.[16] Licensees and licensors would also need to review their licenses.

An automated, data-driven method of predicting the preferences of users will also assist with reducing the transaction costs associated with licensing. We further contemplate that the system could eventually take into account legislation and case law to indicate to users the legal outcome of certain license provisions.[17]

---

[14] Charles J. Snyder, *Moneyball Lawyering*, 65 ARK. L. REV. 837, 862 (2012).

[15] Daniel M. Katz, *Quantitative Legal Prediction—or—How I Learned to Stop Worrying and Start Preparing for the Data-Driven Future of the Legal Services Industry*, 62 EMORY L.J. 909, 924 (2013).

[16] Daniel M. Katz, *Quantitative Legal Prediction—or—How I Learned to Stop Worrying and Start Preparing for the Data-Driven Future of the Legal Services Industry*, 62 EMORY L.J. 909, 946 (2013) ("Such approaches are inductive and typically involve the seeding of the algorithm with training (or labeled) data from which the machine infers the "true" function for assigning a document to a particular group (i.e., relevant versus not relevant). This inference is achieved using some sort of a cost function where the goal is to minimize that cost function while at the same time not over fitting the relevant data.").

[17] Quantitative legal prediction could, given enough litigation under the standardized contract terms, begin to explain the consequences of certain licensing decisions. *See* Daniel M. Katz, *Quantitative Legal Prediction—or—How I Learned to Stop Worrying and Start Preparing for the Data-Driven Future of the Legal Services Industry*, 62 EMORY L.J. 909, 928 (2013) ("What will happen if we leave this particular provision out of this contract?").

Lessons from Existing Solutions

Creative Commons

Creative Commons demonstrates the importance of standardization in any licensing system. The organization offers six core licenses, which together provide users with only two key choices as to how they may distinguish a license.[18] The limited options mean that an interested content-creator can license their works under a Creative Commons license in a matter of seconds.[19] The Creative Commons approach has been extraordinarily successful: it has licensed nearly 900 million works throughout the world. The key point here is that licenses with only a few provisions that matter to users assist with widespread adoption.

That said, Creative Commons licenses are free, and it is likely that users entering into paid licenses demand greater flexibility. When money is at stake, content-users will look for ways to reduce price so far as is possible without impinging their desired use of the work.

Copyright Hub

An ideal copyright licensing system would be flexible enough to accommodate the specific needs and interests of creators and content-users. However, flexibility in licensing terms introduces greater complexity for lay users. It also is likely to reduce efficiency and increase transaction costs.

The Copyright Hub offers one means to manage complexity: effective communication. In pursuit of its mission to "make licensing simpler,"[20] it provides clearly worded content on its website directed to both content-users ("Permissions"[21]) and content-creators ("Protect."[22]). It uses simple, action-oriented language throughout, and a tool that enables users to scroll over the word "Images" to reveal a short description of the types of copyright content and uses.[23]

Going forward, any licensing engine should tailor messages to its users based on the demographic data it collects. As users return the content would become increasingly tailored to them. This concept is not revolutionary – Facebook users, for example, only see what their closest "friends" are doing, rather than the world at large. Our solution should also tailor its website and messages based on the particular types of users it serves.

---

[18] *See* http://creativecommons.org/licenses/. Licenses are distinguished first by the extent to which they allow adaptations/derivative works (not at all, freely, or only so long as the adaptation is available for free), and if the work can be used commercially (yes/no).

[19] *See* http://creativecommons.org/choose/. Creative Commons asks only two questions when users select a license, and each answer option is associated with clear symbols.

[20] http://www.copyrighthub.co.uk/home.

[21] http://www.copyrighthub.co.uk/get-permission.

[22] http://www.copyrighthub.co.uk/protect.

[23] The description reads as follows: "Includes: print and digital images, photographs, illustrations, infographics, diagrams, paintings, publication covers Typical uses: websites, apps, adverts, marketing, books, magazines, blogs, photocopying, scanning, teaching materials, news items, events, backdrops, packaging, print design."

Stanford Intellectual Property Exchange (SIPX)

SIPX offers two key lessons from a licensing perspective. First, it reveals that licenses should not be duplicative – in other words, that the content-user does not already have rights to use the work in the intended manner. Second, it demonstrates that non-exclusive licensing can be nearly automated.

As to the first, SIPX performs a thorough search to ensure that content is not already licensed to the content-user for the intended purpose. For example, it partners with university libraries to ensure that professors and students don't purchase academic articles that the libraries have already purchased access to from publishers. Similarly, our licensing engine team should coordinate with PLUS and other rights management services to ensure that the rights purchaser, whether it is an individual or organization, has not already purchased the rights to the relevant work. This is especially true for organizations whose individual members may not know what has been purchased by other members. The potential cost savings would also likely act as an incentive to use the licensing platform more generally.

As to the second, SIPX deals with non-exclusive licenses that are not open to negotiation – publishers set a price, and SIPX displays that price. It can do this because it has the demographic information from the get-go – the rights purchasers are college professors, Massive Open Online Course (MOOC) instructors, and students. Likewise, the envisioned licensing platform should use demographic data and intended use information to streamline licensing, by automatically directing individuals to an appropriate standardized license, allowing for edits and negotiation if necessary. (Any edits could, of course, have pre-set effects on pricing. In this way, the system could achieve non-exclusive licensing that is also flexible, without requiring extensive negotiation.)

Shutterfly

Shutterfly offers an online scrapbooking service that allows customers to create personalized prints, booklets, calendars and even mugs incorporating selected photographs. The company could potentially be a useful partner for the licensing platform, as it could connect the platform with a general public audience of content-creators and content-users who are often unaware or disinterested in the copyright aspects of digital photograph use. When a Shutterfly customer makes a scrapbook, the company could offer photographs for licensed uses through the envisioned licensing engine. Such a partnership would also help create network effects and grow our user base by word of mouth. The general public audience is also arguably part of the long tail – those who would not ordinarily seek a license from traditional stock photograph agencies such as Corbis, Getty, or iStockPhoto.

Shake Mobile

Shake Mobile[24] is an example of a successful, standardized, and automated licensing engine that also has some flexibility. Although it does not currently offer copyright licensing for photographs, it does offer other types of low-value contracts. Shake focuses on freelancers, which would include individuals who fall into the long-tail user category. It offers a series of contract options. When a contract is chosen, Shake asks the parties a few basic questions to finalize the terms, logs their signatures, and then emails the signed contracts to the parties.

[24] *See* http://www.shakelaw.com/.

Shake's user-friendly interface and crisp design represent features for our proposed licensing engine. Further investigation and potentially a partnership with Shake would indicate how Shake has used data in tailoring its questions to its users.

Simplifying License Terms with Data

License terms will depend upon whether the license is given prior to the creation of works (e.g. in the case of a wedding photography contract), or after its creation (e.g. as for a typical stock photography license). Any licenses created should avoid as much as possible the complex language commonly used in one-size-fits-all stock photography licenses. Ironically, it is in an effort to simplify the contract process that stock photography agencies create one-size-fits-all licenses, covering all possible uses and violations. These licenses are difficult to comprehend, even for those versed in the law. It is important to note that complexity may also erode trust, which this briefing book identifies as a key element of any licensing system.

Further, a licensing engine should ensure that licenses can be easily accessed. It can accomplish this in three key ways:

1. Licenses should be immediately distributed to all parties and those they designate to also receive the license, subject to any limitations or non-disclosure clauses.
2. The engine should itself store all licenses that have been entered into. As well as being useful for future conflicts over terms, this internal storage system should also help with data collection.
3. The licensing information could be noted on relevant third-party websites, such as the PLUS Registry.

Collaboration and Interface with PLUS

One of the big questions for any licensing platform is the role of collaborations with third-party solutions. PLUS is uniquely situated both as a partner with industry connections, including both owners and users of photographic works, and as a platform. As a platform interface, PLUS can help identify and connect our proposed licensing system with prospective content-users with content-creators, and it can enable licensors and licensees manage their rights after giving or obtaining a license. Further, it offers useful search and management tools to complement our licensing system.

Next Steps

In developing a robust licensing strategy,

1. The Practicum should continue to gather information regarding bloggers as the niche content-creator user type that the prototype will focus on initially. This could take the form of interviews and surveys. The qualitative information gathered could be supplemented by a thorough review of license terms currently used by the niche user

segment. Interviewees may also be able to provide examples, along with such third parties as Bloomberg Law, which offer examples of contracts and clauses.[25]

2. The Practicum will then develop a standardized license for the niche user type. The language used might reference PLUS's glossary of terms, or it could incorporate PLUS's terms directly. The Practicum should also look to Shake Mobile for design inspiration,[26] or consider a partnership.
3. The Practicum should test the draft license to get further information regarding user needs. This process should continue until there is widespread consensus among potential users as to the viability of the license.
4. Our licensing system should focus its services on the niche user type. Once the system has traction among those users, we should begin testing variations of the license for an expanded array of users and uses.
5. Once the licensing system launches, we should collect data to accurately model predictions regarding user license preferences.

[25] Bloomberg Law provides examples of "Dealmaker Contracts" and "Dealmaker Clauses".

[26] *See* http://www.shakelaw.com/.

V. TRUST IN AN ONLINE LICENSING PLATFORM

Introduction

It is essential for the success of any Internet-based photograph licensing platform to cultivate trust among content consumers. Trust is consumers' willingness to rely upon a particular service to meet their needs. Services achieve trust where consumers' perception of risk is low, and their expectations of having their needs met is high. For a licensing platform, trust will be achieved if users can be assured that they are successfully licensing the uses of images that they need in a way that avoids exposure to liability.

Perception of risk is the enemy of trust. An online licensing platform faces trust barriers similar to those faced by other Internet-based marketplaces, where the service being offered is that of facilitating sales between selling-users (i.e. photographers) and consuming-users (i.e. content consumers). However, a licensing platform will also face additional trust barriers that reflect its nature as a legal service. Licensing implicates legal terms, concepts, and consequences that many users may be unfamiliar with, or with which they may feel uncomfortable, especially in an online environment. A robust, successful licensing platform will need to be sensitive to these concerns.

Ultimately, trust can be achieved by:

- assuring consumer-users that the seller-photographers with whom they are contracting are reliable and trustworthy;
- ensuring that consumer-users acquire the rights, uses, and guarantees that serve their needs; and
- reducing the risk that users will misunderstand or accidentally exceed the scope of licensed uses.

This section of the briefing book focuses on enhancing existing models of trust for our licensing prototype. It also proposes some novel options for cultivating trust among users. These include:

- offering additional flexibility in licensing provisions (including risk-allocation provisions and guarantees);
- conveying such flexibility through an interactive interface;
- adopting quality assurance measures to authenticate both licensors and content offered;
- employing standardized licensing terms; and
- effectively facilitating post-licensing rights management.

Issues of trust are further addressed in Sections II and III and in Appendix B, which each provide detailed options for acquiring survey information regarding consumer licensing needs.

The Importance of Trust

Trust can be understood as the average customer's willingness to rely on the ability of a service to perform its stated function and satisfy their needs.[27] It is one of the single most important factors influencing online consumption/purchasing behavior.[28] Where a service is perceived as trustworthy, consumers display an increased willingness to consume it.[29] By contrast, where consumers perceive risk, they are significantly less likely to use and rely upon the service.[30] The urgency of addressing the issue of trust stems from the fact that even the most useful service is of little value if consumers are unwilling to trust that it meets their needs.

The Two Components of Trust – Competency and Warmth

Trust is made up of two essential components:

- perceptions of competency; and
- perceptions of good-intentions (or "warmth").[31]

The competency-component essentially answers the question of whether the platform is capable of carrying out its promised service.[32] Where a service is perceived as competent, the user believes that they will get what they want by using it. One of the means by which competency-based trust is cultivated is through ease of use.[33] In particular, ease of searching, entering into transactions, and website functionality have all been associated with changes in competency-based trust in the online environment.[34]

The intentions-component of trust answers the question of whether the user's interests and the service's interests are aligned.[35] Where a service is perceived as well-intentioned, the user believes that if something goes wrong with the service they will be taken care of and the issue will be remedied satisfactorily. Warmth is cultivated by conveying friendliness, projecting integrity, having cooperative or altruistic intentions, and possessing sincerity of purpose.[36] The

---

[27] Alam and Yasin, *What Factors Influence Online Brand Trust*, Journal of Theoretical and Applied Electronic Commerce Research. Volume 5, Issue 3 (2010).

[28] Kim and Benbasat. *Trust-related Arguments in Internet Stores*, Journal of Electronic Commerce Research, vol. 4, no.2 (2003).

[29] Aaker, Garbinsky, and Vohs. *Cultivating Admiration in Brands: warmth, competence, and landing in the "golden quadrant".* Journal of Consumer Psychology (2012).

[30] Verhagen, Meents, and Tan. *Perceived Risk and Trust Associated with Purchasing at Electronic Marketplaces*. European Journal of Information Systems (2006).

[31] Alam and Yasin, *What Factors Influence Online Brand Trust.*

[32] Aaker, Garbinsky, and Vohs. *Cultivating Admiration in Brands*

[33] Corritore, Kracher, and Wiedenbeck *Online Trust: concepts, evolving themes, a model*. International Journal Human-Computer Studies (2003).

[34] *Id.*

[35]Aaker, Garbinsky, and Vohs. *Cultivating Admiration in Brands*

[36] Aaker, Garbinksy, and Vohs. *Cultivating Admiration in Brands*.

online environment presents unique hurdles for the warmth component of trust due to its impersonal nature. This is especially true for a service such as an Internet-based licensing platform, where users will need to trust not only the service itself, but the numerous content-supplying photographers with whom they have little interaction and likely little previous transaction history. Such trust could be cultivated through a Help Desk that supports the automated system to help guide photographers and consumers through transactions.

The competency component and the intentions component each address a different aspect of perceived risk associated with using a service. Competency is aimed at ensuring the user perceives that using the service will yield benefits that exceed the cost (or harm) of using it. Warmth is aimed at ensuring the user that the service has their best interests in mind, and it is reliable enough to mitigate any unexpected cost (*i.e.*, harm). Being perceived as both competent and warm corresponds to an increased willingness in customers to rely upon a service.[37]

Unique Trust Barriers for Online Licensing Platforms

An online licensing platform is essentially a marketplace in which selling-photographers and consuming-users transact, and it acts as an intermediary facilitator for those transactions. Unique complications emerge for services occupying this dual role. In this context, users perceive two independent types of risk that affect their willingness to engage the licensing platform:

1. intermediary risk; and
2. seller-related risk.[38]

Intermediary risk refers to the risk stemming from potential failures of the licensing platform.[39] This can take the form of weak contracts, which fail to capture a party's needs, or insufficient monitoring of the quality of sellers and content in the marketplace.[40] Seller-related risk, on the other hand, would reflect consumer-user unease stemming from uncertainties regarding the selling-photographers, their intentions, and their ability to effectuate the desired granting of rights.[41] For example, lack of previous transactions with a particular selling-photographer undermines both perceived warmth and competency.[42] Further, where it is easy for selling-photographers to offer photography for licensing on the platform, users will display increased wariness towards the selling-photographers.[43] The more effort that sellers must invest in a venture, the more sincere users perceive their intentions to be. By contrast, where the barrier to entry is low, users are likely to be less trusting. They may worry that the

---

[37]Aaker, Garbinsky, and Vohs. *Cultivating Admiration in Brands*

[38] Verhaged, Meents, and Tan. *Perceived Risk and Trust Associated with Purchasing at Electronic Marketplaces*.

[39] *Id.*

[40] *Id.*

[41] *Id.*

[42] Josand, Ismail, and Boudy *A Survey of Trust and Reputation Systems for Online Service Provisions*. Decision Support Systems Journal (2006).

[43] *Id.*

potential licensor does not actually own the rights being negotiated, even if that perceived risk is disproportionate to the actual risk.

Perceptions of seller-related risk have a significant direct effect on users' trust of the intermediary service itself. Where perception of seller-related risk is high, users will be less likely to use the licensing platform. As such, any licensing platform will benefit from instruments that help decrease seller-related risk. These include guarantees, monitoring of sellers, and providing feedback mechanisms and forums for users to comment upon their experience. User forums promote transparency (which breeds warmth-based trust) and demonstrate that other users have had successful experiences using the service (conveying competency-based trust).[44]

Another useful way to decrease seller-related risk is for the intermediary service (i.e. the licensing platform) to take a more active and supervisory role in transactions.[45] This is because it is easier for users to develop trust in a single branded service that they can repeatedly interact with, rather than multiple, separate licensor-photographers that they might come across in the digital marketplace. eBay is famous for cultivating trust in the user-to-user electronics marketplace (initially a low-trust environment) by reducing seller-related risk through transparent rating systems of sellers.[46] This active monitoring cultivates trust by "acting as a trust proxy," thereby freeing sellers and users "from the responsibility of assessing each other's trustworthiness".[47] Other services, such as AirBnB and Lyft, have succeeded in cultivating trust in the emerging sharing economy (also initially a low-trust environment) by employing similar methods of active supervision.[48] These companies use data and analytics to flag low-trust selling-users, and employ transparent rating systems. Further, AirBnB offers a "Host Guarantee" of up to $1,000,000 in property damages stemming from any unforeseen accident. [49] In the Internet-based licensing context, iStock similarly offers a $10,000 per work indemnification for users who are compliant with iStock's licensing terms and conditions.[50]

The take-away for an Internet-based licensing platform, seeking to cultivate trust in a low-trust user-to-user licensing context, is to act as a trust proxy by taking an active and visible supervisory role in transactions. This will help mitigate the perception of seller-related risk and is the most promising way for the Practicum to progress the issue of trust in the Internet-based licensing market.

---

[44] Pavlou and Gefen, *Building Effective Online Marketplaces with Institution-Based Trust*. Information Systems Research Journal (2004).

[45]Pavlou and Gefen, *Building Effective Online Marketplaces with Institution-Based Trust.* Information Systems Research Journal (2004).

[46]P. Kollock, "The Production of Trust in Online Markets," *Advances in Group Processes* 16 (1999): 99–123.

[47]How Airbnb and Lyft Finally Got Americans to Trust Each Other, http://www.wired.com/2014/04/trust-in-the-share-economy/.

[48] How Airbnb and Lyft Finally Got Americans to Trust Each Other, http://www.wired.com/2014/04/trust-in-the-share-economy/.

[49]https://www.airbnb.com/guarantee

[50] http://www.istockphoto.com/license.php

Current Approaches to Trust in Internet Licensing

Existing industry players understand the importance of trust but no one entity appears to have successfully optimized user trust by simultaneously conveying competency and warmth, and mitigating user perception of seller-related risk. The latter leaves particular room for improvement.

To convey competency, a service must convey an ability to satisfy customer needs with ease.[51] For an Internet-based photography licensing platform, this means ease and effectiveness from the point of the customer's initial search through to successful licensing, and onto post-transaction rights management.

A key area lacking for several industry players is that they do not provide a one-stop shop where each part of the licensing process can be accomplished. For example, PLUS offers its users several useful tools, including standardized licensing language that can be incorporated into contracts, but it does not enable users to complete transactions. Creating a one-stop shop that could strategically partner with a service like PLUS (which provides only a discrete part of the solution) would be a significant improvement that would cultivate competency-based trust.

Cultivating competency-based trust also requires responsiveness to users' individual needs. A licensing contract that doesn't capture a user's needs, or one that contains too many unrelated terms, will undermine competency-based trust. This is where traditional stock photograph licensing services such as Getty and iStock fall short. Standardization of licensing terms is necessary to mitigate risk, and it facilitates frictionless transactions. However, this is at the expense of flexibility (i.e. responsiveness to users' individualized needs). This, in turn, increases the risk of post-transaction rights mismanagement and unexpected liabilities. This is especially the case for standard royalty-free licenses. Such licenses simplify transactions, but create complexity[52] for post-transaction rights management.[53]

A strategic partnership with PLUS could create significant benefits for post-transaction rights management. One of PLUS' key objectives is to reduce the risk of accidental infringement, and thereby reduce liability risk. It accomplishes this by providing standardized licensing language in the form of computer-readable code,[54] which gives licensors and licensees a clear understanding of the scope of licensed uses and relevant prohibitions.

Looking at current approaches to cultivating intention-based trust through warmth, two excellent examples are Creative Commons and the Copyright Hub. Creative Commons' approach is to convey a co-operative intention (e.g. "Open Textbooks Have Saved Students 100

---

[51] Aaker, Garbinsky, and Vohs. *Cultivating Admiration in Brands.*

[52] iStock images prohibited uses http://www.istockphoto.com/license.php

[53] Jeff Sedlik presenting at IPTC Machine Readable RIghts and the News Industry day (https://www.youtube.com/watch?v=l8-wyiT8s6g) (2013) at 10:30-11:50

[54] http://www.useplus.com/aboutplus/about_coalition_detail.asp?cid=5191420256932

Million Dollars"). Its mission also conveys concern for its users (e.g. "helps you share your knowledge") and noble aims (e.g. "maximizes digital creativity, sharing and innovation). [55]

The Copyright Hub focuses on communicating its message of simplicity – making complex legal concepts more accessible to its users. It also conveys a concern for user needs (e.g. "The Copyright Hub is making licensing simpler" by "making the process of getting and giving permission quicker and easier"). Further, it conveys a cooperative intention, stating that its services are "for everyone". This is facilitated by a series of well-made videos that explain legal concepts in simple, accessible language. Each video has a discrete message that addresses a particular user concern (*e.g.*, "Is your business copyright compliant?").

Options for Dealing with Trust

We propose the following options for dealing with trust.

Option 1: Data-driven License Terms

Two key options considered in other sections of this briefing book are to:

1. survey consumer needs; and
2. collect data of actual use patterns over time, as the user base of the platform grows.

These options could be used to craft standardized licenses that are also responsive to users' needs on a more particularized level than those currently available. Such information could enhance warranty and indemnification terms that address the particular risk concerns of certain user types. We could also use the data collected to suggest licensing terms that are more appropriate or common for particular user types, through a user-friendly interface.

This would have the following benefits:

- Nudging users toward more appropriate licensing terms reduces transaction friction, as well as satisfies individual needs. An analogous service in the online consumer context is a recommendation agent that reduces consumer search efforts and ultimately improves the quality of their purchase decisions.[56]
- Implementing a user-friendly, accessible interface (or interactive prompt) that generates suggestions would reduce any user anxiety or uneasiness associated with being presented with complex legal terms.

For consumers, a desirable form of interactivity would be sophisticated tools that customize shopping options based on individual preferences.[57] This is especially important when targeting less sophisticated users engaged in high stakes purchases, or entering

---

[55] https://creativecommons.org: "Creative Commons helps you share your knowledge and creativity with the world. Creative Commons develops, supports, and stewards legal and technical infrastructure that maximizes digital creativity, sharing and innovation."

[56] Huble and Thrifts. *Consumer Decision Making in Online Shopping Environments: The Effects of Interactive Decision Aids*

[57] Huble and Thrifts. *Consumer Decision Making in Online Shopping Environments: The Effects of Interactive Decision Aids*. Journal of Marketing Science (2000).

unfamiliar purchasing contexts. Packaging options with user-friendly surveys, and generating helpful suggestions (e.g. "given your needs, you might be interested in this type of license," "users like you like these types of licenses"), would build warmth-based trust by expressing concern for the user's welfare. Appropriate messages and educational videos, along the lines of those offered by the Copyright Hub, could also be suggested to users based on their particular needs.

Finally, by tailoring options to users' individual needs, any platform we create would take an active and visible role in monitoring transactions between parties. As noted, when a facilitating service takes such a role, user perception of seller-related risk goes down, thereby increasing trust in the service.

Option 2: Automated Originality Screening

As copyright images are submitted for licensing through the prototype website, reverse image search technologies (or services such as PicScout) could be used to identify matching images. This would address trust by serving as a gate-keeper of sorts for ownership claims. Such protection and screening is not currently offered by the Copyright Office's current registration process.[58] Such a service could automatically identify duplicate registration efforts and suspicious licensors. This, in turn, could mitigate seller-related risk.

Photographers would also benefit from a built-in defense against others laying claim to their works as well as against potentially infringing works that are nearly identical. Ancillary benefits would include the following:

- authors would be incentivized to enter their photographs into the system; and
- the service would provide some degree of screening at the registration stage for originality, which (while far from perfect) would be more efficient and robust (and make better use of technology) than existing services provided by the Copyright Office.

Option 3: Facilitate Efficient Self-Policing

A centralized database with reverse image (or PicScout-style) search would enable photographers who have yet to enter their photographs into the platform to see if anyone else is claiming ownership to their works, or distributing potentially infringing works. This would serve two key purposes:

1. It would incentivize photographers to visit the platform and, hopefully, enter their works into the database; and
2. It would reduce the perception of seller-related risk among users, by giving the platform a visible supervisory role and weeding out suspicious seller-photographers.

---

[58] US Copyright Offices Practices, Third Edition §602.4 (C). No Searches or Comparison of Works: When examining a claim to copyright, the US Copyright Office generally does not compare deposit copy(ies) to determine whether the work for which registration is sought is substantially similar to another work. Likewise the Office generally does not conduct searches to determine whether the work has been previously registered.

Together, these options would make novel advancements for the issue of trust, going beyond the services offered by existing licensing platforms and the Copyright Office.

Next Steps

We have identified the following next steps relating to trust:

1. As one of several discrete consumer-user segments, bloggers offer a promising stakeholder group with particular trust-related needs, attitudes, and perceptions of risk. The spectrum of bloggers, ranging from amateur to professional, offers a case study on how related needs, attitudes, and perceptions of risk, along with sophistication, change across the spectrum.
2. Collect and analyze warranty and indemnification terms in licensing agreements. Standardized yet flexible terms could then be drafted for use as part of an overall data-driven license strategy.
3. Conduct user surveys regarding trust-related needs, to develop an empirical understanding of relevant needs, attitudes, and perceptions of risk. Drafts of trust-related license terms should also be subject to user surveys and testing. Discord between user preferences and industry standards should be studied for insights and understanding.
4. User surveys should focus on changes in trust-related needs, attitudes, and perceptions of risk when users compare online dealings with conventional licensing. Seller-related risk should be given special attention as it appears to be the most neglected aspect of trust management for current licensing platforms.
5. The prospect that someone has patented, or could ultimately patent, the proposed originality screening mechanism should be investigated, as well as the ability of government entities (or their contractors) to license or use a patented mechanism.

VI. SEARCH FUNCTIONALITY OPTIONS

Introduction

A key question in designing a system to easily find license information about images online is how to incorporate search functionality. This could encompass image search and/or license search, and could work within or outside of the PLUS system, or similar third party systems.

It makes sense to work with existing user workflows for finding images online, providing a license search function only and not an image search function. The license search function should be built apart from the PLUS system, to maximize the number of license types available to photographers. However, this should not prevent the Practicum from working with PLUS to help build out other elements of its system – a license search platform requires that there be sufficient photographs with reliable licenses to search.

Option 1: License Search, Not Image Search

License search would involve finding license information for a given image, while image search would require us to create a system for users to search for images online (along with their corresponding licenses). It makes sense for the Practicum to focus on license search and not image search, at least in the near term.

Image Search

Creating an image search function would require compiling a database of images with verified license and rights information. The advantage of such a platform would be that users could enter the system knowing that any image found could be legally used. In addition, the system would cut out fees to "middlemen" such as Getty Images and iStockPhoto, and instead enable users to directly pay photographers. However, compiling a comprehensive database of useful photographs, with verified license information, would be a very slow process, and would likely not provide a sufficient choice of images to the consumer in the near-term to facilitate widespread adoption.

License Search

Creating a license search tool would enable a user to find a photograph through any means online, and to match an appropriate license to the photograph. The advantage of creating a license search function as opposed to an image search function is that it integrates with the ways users already find images online. In addition, it is easier to build than a full image search database. The system would work well in the event that a license could be easily "found," and the user could directly submit any license payments to the photographer or other copyright owner. However, in the near term it may be difficult to find license information for many photographs already distributed online. This could dissuade users from adopting the system.

License Search, Not Image Search

It is unlikely that we could create in the near term a searchable database of images that would substitute for existing sources of online images. Thus, to encourage user adoption of any system we create, we should work with existing user workflows for finding images online. The system's search function should also initially be oriented to finding license information for a given image. Further, we should target image search use cases in which license information is more likely to be linked to a photograph, as discussed below.

Option 2: Target Use Cases – Images Found on Website or via Google Search

Users find photographs primarily through the following three channels, in order of escalating difficulty in finding license information.

- Providers of images for purchase (e.g. Getty Images, Flickr and iStockPhoto) – Users search collections of photographs and can easily view license terms and author contact information, making licensing easy.
- Google Images – Google presents images by crawling the websites on which they are located. Google's general licensing philosophy is that licensing information should be found on the website from which the photograph originates. It offers an advanced search option, which uses Creative Commons designations to categorize photographs according to license type.[59] However, it is difficult to find license information for photographs accessed in a simple search by going to an image's website. We believe that simple search is how most people search for images online.
- Blogs/other Websites – Users can find images by visiting a website that contains a photograph. The difficulties in finding license information for such images are the same as those found via simple search on Google Images.
- Social media (e.g. Facebook, Pinterest and Instagram) – Finding license information is very difficult as photographs found on social media, as they have often been shared and re-shared. Most social media websites also strip any metadata from a photograph when it is uploaded to the website.[60]

In the interest of narrowing the scope of the Practicum's initial tasks, it makes sense to focus on the use case of photographs found through Google Images or directly on a website. The likelihood that any metadata has been stripped from these photographs is not as likely in

[59] Its license types are "not filtered by license," "free to use or share," "free to use or share, even commercially," "free to use share or modify" and "free to use, share or modify, even commercially."

[60] See the following website for a list of social media websites, and the extent to which metadata remains intact for photographs uploaded to them: http://www.embeddedmetadata.org/social-media-test-results.php

this use case.[61] This means that the technological aspects of our solution would be less complex.[62]

There are currently some limitations on finding license information through Google Image Search. Google's advanced search functions, which incorporate Creative Commons licenses, may not be sufficient for categorizing image licenses. Photographers looking for more varied license types or specific monetization schemes may avoid Creative Commons licenses, and as a result their images will show up under Google's simple search only. Users could go to the image's underlying website to discover licensing information, but the information may be absent or difficult to find, especially if the image appears on a website that the photographer did not create.

In addition, the Creative Commons licenses featured in Google's advanced search may not provide sufficient assurance to the user of the photograph that the Creative Commons license was originally approved by the photographer. According to Copyright Counsel at Stanford University, it's not uncommon to see photographic works in Creative Commons and similar services such as Wikimedia that were uploaded without the consent of the photographer.[63] An ideal system would have a "stamp of approval" – a verification by a third party organization that the offered license is valid.

The extent to which Google incorporates alternate license types in its search function depends on the prevalence of these license types on the Internet, and the resulting incremental benefit to users. At this point in time, there is no other license type that has a large enough base for Google to incorporate in its search engine.

Option 3: Solution Distinct from PLUS and other Third Party Platforms

There are a variety of ways to convey image license information. For example, Creative Commons uses HTML tags to designate license information, while the PLUS Registry uses metadata embedded in the image file itself. As other tools may emerge with varying photographer adoption for describing and storing license types, our system should be flexible enough to accommodate as many services as possible – especially as the popularity of a given service may change over time.

Building a license platform that is separate from PLUS and other platforms would give the platform the flexibility to adapt to and profit from whatever emerges as photographers' preferred licensing method. The fact that Creative Commons licenses are so prevalent suggests that, at the least, we should create a system that can search both PLUS and Creative Commons licenses. It is possible to create a license reader within PLUS that would read a variety of different types of licenses, but the Practicum would have more freedom to interpret different or emerging license types if our solution remained distinct.

---

[61] According to a Google Image Search Product Counsel, the majority of Google Images copyright complaints relate to distribution, and not metadata stripping.

[62] Where metadata has been stripped, image recognition technology must be used to identify a photograph. Image recognition technology is in its infancy, and currently has significant limitations.

[63] Acting according to licensing information in Creative Commons might help mitigate a damages award for copyright infringement, but it would not be a guard against liability.

Having a license search function separate from PLUS and other platforms should not prevent us or the Copyright Office from working with PLUS to incorporate standard licenses and other features which would assist photographers preparing their works for license.

Option 4: License Search Design

The license search function should be able to read a variety of different licensing formats, in order to convey to users as much information as possible about a photograph. So that it is operative with the many ways in which users find images online, it could function either as a browser plug-in, or as a standalone website on which users could "drag and drop" photographs for license analysis. The license search tool could also involve a seal of approval function, in which a third party could verify that the license information is correct.

A key challenge is that the license search function can only operate if there are enough licenses to read. Thus, its success relies on our efforts to encourage photographers to record licensing information to their photographs when they upload them. Raising consumer awareness of a license search function may also present a challenge, but it could be greatly assisted by t Copyright Office initiatives, as discussed below.

Option 5: Copyright Office Initiatives

The Copyright Office could undertake several initiatives that would aid the process of developing a valuable license search tool:

- Soliciting design alternatives – To encourage innovation, the Copyright Office could solicit proposals from a variety of different entities to design a solution, and reward the most feasible proposals.
- Promotion – The Copyright Office could actively promote a license search tool, raising awareness among photographers and disseminating information to the public. Such a seal of approval would help any license search tool gain legitimacy and support.
- Partnerships – The Copyright Office could partner with image search providers such as Google Images to embed a license search tool prominently.
- Working with social media websites to prevent metadata stripping – The Copyright Office could play a role in motivating social media and other websites to preserve embedded license information and deter metadata stripping.

Conclusion

The Practicum's ultimate vision is a trustworthy license search tool that users can rely on to obtain a license to for any image found online. The tool would differentiate between photographs that users are free to use, and those which have restrictions on use. Ideally, use of the tool could become a safeguard against damages in the event of unintended copyright infringement.

The viability of this vision depends on the emergence of standardized platforms for photographers to record rights and license information to their photographs. It also depends on the emergence of standardized licenses, which could be included in search engines such as Google Images.

Next Steps

The following research tasks are central to the issue of trust in a licensing platform. The Practicum continues to refine its research in these areas for the licensing prototype:

- Draft a set of simple licenses for photographers, and research the best way to embed them in photographs – Any licensing platform should encourage photographers to record license information in their photographs by providing simple, easy-to-use license terms. The licenses should also have the ability to be reliably embedded in photographs.
- Design and prototype a platform that would enable photographers to easily choose and embed license information in photographs – The Practicum should consider whether it is more feasible to work with or separate from PLUS and other services during this phase.
- Document the different types of licenses that a license reader should be able to read – This should include the way in which the licenses are coded in photographs, and the technical requirements for translating the licenses. The Practicum should also brainstorm how best to convey the embedded license information to a consumer.
- Research how PicScout's technology works, including its advantages and limitations as a source of license information.
- Document core elements of a license search tool and test the best way to present a license search function to the public – This should yield insights as to how a license search tool should work technically. It would also be useful to conduct user tests of license search design, and consider what it would take to motivate our target audience to use such a tool. Further, we should test user adoption in the event that the tool was either a separate plug-in, or part of an existing search function such as Google Images.
- Build a license search tool that would be able to read the most common types of image licenses available – This is, of course, one of the ultimate goals of the Practicum. We will also, ultimately, need to design a way to raise awareness of the tool among photographers and consumers.

VII. SEARCH TECHNOLOGIES

Introduction

Search function is crucial to any online copyright licensing platform. Relevant user needs can be grouped along two broad themes:

- connecting copyright ownership and licensing information with photographs; and
- connecting users with a photograph.

This section of the briefing book presents findings on existing technologies that address these key needs, and highlights areas for further exploration.

For users, search function is where interaction with any copyright licensing platform begins, shaping their first impression of the platform. If a user cannot find the photograph they desire, or relevant ownership details, licensing will not occur. In this way, search is the gateway to licensing on the platform.

Users' Search Needs

Users of any licensing platform may either:

- have a specific photograph at hand; or
- look for a photograph that fits certain criteria.

Each user category, of course, has different search expectations. For the former category, the platform should accept a preselected photograph from the user and then return relevant ownership and licensing information, including, if possible, pre-set licensing deals with price and payment information. For the latter category, the platform should accept keywords and then return a list of relevant photographs that fit those keywords. After a user selects a photograph from the list, the platform should then display the ownership and licensing information, and permit the user to proceed with the licensing process. Thus, together, the search functionality for any licensing platform should:

- connect ownership and licensing information with photographs; and
- enable users to locate photographs of interest.

Connecting Ownership Information and Licensing Terms with Photographs

Option 1: Use of Metadata

Digital photographs can be stored in different file formats, for instance JPEG (Joint Photographic Experts Group), TIFF (Tagged Image File Format) and RIF (Raw Image Format).

These files can store not only the images, but also information about the images. This is generally referred to as metadata, which literally means "data that provides information about other data."[64]

Many different classes and types of metadata can be embedded in an image file. As noted in the Photo Metadata Project created by the Stock Artists Alliance, this broadly includes technical, descriptive and administrative metadata.[65] Technical metadata describes the technical aspects of photographs, such as the file resolution, color mode and other camera settings (including lens used, shutter speed and ISO setting). Descriptive metadata describes the content of photographs – photographers can supply titles, captions and keywords, as well as the locations where the photograph was taken. This is particularly useful for organizing and identifying photographs. For the purposes of any search function we create as part of a licensing solution, we should look to administrative metadata, which might include the identity of the photographer and contact information for the copyright owner (if they are a different person or entity).

Over the last few decades, different schemas for image metadata have emerged to address different needs. The Information Interchange Model (IIM) developed by the International Press Telecommunications Council (IPTC) in the late 1990s was the first of these. Although initially created for all types of content, IPTC's IIM became known as an image metadata schema after its adoption by Adobe's Photoshop in 1995.[66] The standard has since been widely adopted by third party applications. In 2004, IPTC and Adobe jointly launched the IPTC Core Standard, which defines largely the same set of photo metadata fields as IIM, but is built upon Adobe's Extensible Metadata Platform (XMP) technology.[67] In 2007, after receiving feedback from different sectors of the professional photography industry (especially news photography and stock photography), IPTC launched the IPTC Extension Schema.[68] This is supplemental to the IPTC Core, and provides fields to provide additional information about the content of photographs and improve administration.[69] More recently, the Picture Licensing Universal System (PLUS) Coalition developed a PLUS License Data Format (LDF) metadata schema for licensing language and formats.[70] It appears that the latest version of IPTC Extension Schema has incorporated the PLUS fields.[71]

If photographers want to embed metadata into their photographs, they can do so through relevant image processing software such as Adobe's Photoshop and Creative Suite. IPTC maintains

---

[64] Merriam-Webster Dictionary, entry on "metadata" available at http://www.merriam-webster.com/dictionary/metadata

[65] "Meta101: Classes of Metadata", The Photo Metadata Project, available at http://www.photometadata.org/META-101-metadata-classes

[66] IPTC Standard: Photo Metadata (October 2014), International Press Telecommunications Council, available at http://www.iptc.org/std/photometadata/specification/IPTC-PhotoMetadata

[67] *Id.*

[68] *Id.*

[69] For an overview of the IPTC Core and IPTC Extension schemas, please see the introductory webpage of IPTC. "IPTC Core & Extension = the IPTC Photo Metadata Standard", Intentional Press Telecommunications Council, available at http://www.iptc.org/site/index.html?channel=CH0099

[70] "License Data Format", The Picture Licensing Universal System Coalition, available at http://www.useplus.com/useplus/license.asp

[71] IPTC Standard: Photo Metadata (October 2014), International Press Telecommunications Council, available at http://www.iptc.org/std/photometadata/specification/IPTC-PhotoMetadata

a list of software that supports all or some of these schemas,[72] which indicates that they are not universally supported by software that accesses photograph metadata. In other words, some types of software endorse just one, some, or even none, of the schemas.

Any licensing platform we create should provide a metadata viewer that is compatible with all popular metadata schemas, to retrieve ownership and licensing information embedded in photographs submitted by users. A potential challenge, however, is that there may not be a sufficiently high number of photographs embedded with metadata related to copyright ownership. For example, amateur photographers may not bother inputting such information. Moreover, even if photographers do embed copyright ownership information in their photographs, it is not always well preserved. According to a study by IPTC in 2003, major social networking websites (such as Facebook, Twitter and Flickr) routinely remove metadata from photographs uploaded to their websites.[73] It is also relatively easy for individuals to strip metadata from digital photographs.

There are some movements that advocate against removal of embedded metadata from photographs, particularly copyright ownership information. A prominent example is the Embedded Metadata Manifesto created by the IPTC.[74] It is possible that social media sites could improve their practices, but there is no readily available information on this point. Looking forward, the Practicum should conduct further research on how widespread the practice of embedded photographs with metadata is, and the relative proportion of photographs on the Internet. It should also consider ways to encourage more photographers (especially those who are interested in monetizing their photographs) to embed copyright ownership and licensing information.

Option 2: Use of Watermarks

Photographers may also apply watermarks on their photographs to establish ownership. The simplest and most common way to do so is to apply a visible watermark. Most photograph-editing software offers this feature, and if it does not the text tool in any photo-editing software (including the most primitive versions of Microsoft Paint) can be used. Photographers can choose where and how to place the visible watermark, ranging from very obvious (e.g. an opaque mark that covers most of the photograph) to relatively discreet (e.g. a small corner mark). The most common form consists of the copyright symbol, the name of the copyright owner (usually the photographer) and his contact method (usually an email address or website). The watermark generally serves the purpose of giving credit to the photographer, and reminding users that the photograph is subject to copyright protection. It also deters users from misappropriating the photograph without the authorization of the copyright owner. For these photographs, a copyright licensing platform need not offer any service to reveal ownership information. Instead, it should act as a gateway for potential users to contact the copyright owner to obtain a license.

---

[72] "Software supporting IPTC photo metadata standards IIM and "IPTC Core"", International Press Telecommunications Council, available at http://www.iptc.org/site/Photo_Metadata/Software_list/

[73] "IPTC study shows some social media networks remove rights information from photos" (2013), International Press Telecommunications Council, available at http://www.iptc.org/site/Home/Media_Releases/IPTC_study_shows_some_social_media_networks_remove_rights_information_from_photos. See also the test results available at http://www.embeddedmetadata.org/social-media-test-results.php

[74] "Embedded Metadata Manifesto", International Press Telecommunications Council, available at http://www.embeddedmetadata.org/index.php

Although applying visible watermarks to a photograph appears to be the simplest way to connect it with ownership information, it is not always suitable. Photographers often have mixed feelings on the subject, and not all support the idea.[75] Some photographers argue that visible watermarks are inherently distracting and undermine the aesthetics of their photographs. There is, of course, also the problem of watermarks being removed or cropped out by those with malicious intent.[76]

To address these issues, technologies have developed which apply invisible watermarks (so-called "digital watermarks") to digital photographs. Digital watermarking enables identifying information (including copyright ownership information) to be woven into media content. [77] Digital watermarks are invisible to the human eye, and thus do not change the quality of the photographs to which they are applied. However, they are easily recognizable by special software detectors.[78] Further, they are designed to survive even after the subject matter to which they are applied has been manipulated, compressed or edited.[79]

The most prominent digital watermark offering for images is Digimarc Guardian for Images.[80] The service is offered as an annual subscription, priced from $49 per year.[81] Using the Digimarc plug-in for Adobe Photoshop and Photoshop Elements, subscribers can embed a unique Guardian ID and other information (such as contact details) to their photographs.[82] The information embedded is imperceptible, but persists through file copying, format changes, encryption and decryption, and other manipulations, and it does not disturb the visual quality of the photographs.[83] The information can be retrieved by a designated Digimarc Guardian ID reader, through the Adobe plug-in or otherwise. These technologies are proprietary and covered by various patents.[84] Thus, for any copyright licensing platform we create to retrieve ownership information embedded using Digimarc technologies, there would need to be consent (perhaps in the form of a licensing

---

[75] See, for instance, D Travis North, "The Great Photo Watermark Debate" (2012), Shutter Photo Magazine, available at http://www.shutterphoto.net/article/the-great-photo-watermark-debate/; Trey Ratcliff, "Why I Don't Use Watermarks" (2013), available at http://www.stuckincustoms.com/2013/06/25/why-i-dont-use-watermarks/

[76] RC Concepcion, "I can remove your watermark with no problem…" (2010), available at http://scottkelby.com/2010/i-can-remove-your-watermark-with-no-problem/

[77] Communication of ownership and copyright, Digital Watermarking Alliance, available at http://www.digitalwatermarkingalliance.org/app_comm.asp

[78] *Id.*

[79] *Id.*

[80] Digimarc Guardian for Images, Digimarc Corp., available at http://www.digimarc.com/products/guardian/images. Other offerings include StegMark Image (by ST Electronics), available at http://www.stee.stengg.com/group/infocomm/solutions/digitalwatermarking/ and Image Watermarking (by MarkAny), available at http://www.markany.com/eng/?page_id=84.

[81] A basic account costs $49/year, with the ability to digital watermark up to 1000 images. See Select your Digimarc Guardian for Images Account, Digimarc Corp., available at https://dfi.digimarc.com/selectProduct aspx?family=pro

[82] Digimarc Guardian for Images, Digimarc Corp., available at http://www.digimarc.com/products/guardian/images

[83] *Id.*

[84] About Digimarc Proprietary Technologies, Digimarc Corp., available at http://www.digimarc.com/technology/about-our-technology

agreement) from Digimarc. It should also be noted that the costs involved in applying digital watermarks may deter some photographers from using the technology.

Option 3: Image Recognition

If a photograph submitted by a user to our copyright licensing platform does not contain any useful metadata or watermarks, the only way to retrieve contact and/or licensing information would be to employ image recognition technology to match the photograph to records in a database (assuming there is a matching record).

Image recognition would not require any processing of the photographs before they are released on to the Internet. In other words, this method could be used for photographs that are already circulating in the Internet. The gist of the technology is that a unique fingerprint would be generated for each photograph, based on its features using certain advanced algorithms. A matching engine, for example, can be developed to track photographs altered by cropping or compression, matching the altered version to the original. A prominent image matching service is MatchEngine, developed by TinEye.[85]

If this method is employed, all photographs on the platform would potentially need to be indexed. A unique "fingerprint" could be created for each photograph, based on its features and patterns (according to algorithms). When a photograph is submitted by a potential user, the photograph's fingerprint would be compared to those stored in the database. If there is a match, the photograph's ownership information would be displayed.

A key challenge for employing this method is that the database of photographs would need to be sufficiently large so that a photograph submitted by a user is likely to have a match in the database. Thus, our next steps should include exploring how to attract photographers to register with the platform, and whether it can access the registry maintained by the Copyright Office.

Connecting Users with a Particular Photograph

A very high level of artificial intelligence and machine learning ability is required for a computer to understand the subject matter of a photograph (e.g. whether it contains a man, a dog or a tree). Thus, computer search of un-annotated images based on subject matter is extremely challenging. There are, however, some promising technological advances on this front, but they are far from reliable at this point. The most recent developments are improved technologies to detect objects shown in photographs,[86] and to produce captions to describe complex scenes in images.[87] These technologies are still in their infancy stages – for example, MIT evaluators recently rated the

---

[85] For details, see MatchEngine (by TinEye), available at http://services.tineye.com/MatchEngine. Other similar offerings include PicScout, available at http://www.picscout.com/what-is-picscout/ and LTU Technologies, available at http://www.ltutech.com/technology/image-matching/

[86] Google Research Blog, "Building a deeper understanding of images" (2014) (http://googleresearch.blogspot.com/2014/09/building-deeper-understanding-of-images.html#uds-search-results)

[87] Google Research Blog, "A picture is worth a thousand (coherent) words: building a natural description of images" (2014) (http://googleresearch.blogspot.com/2014/11/a-picture-is-worth-thousand-coherent.html)

latest software-generated descriptions of images as only 2.5 out of 4.[88] This software is also not yet viable for the commercial market. Until the software is more robust, it is not yet commercially ready to conduct search among un-annotated images.

The most common form of image search engine actually matches keywords input by users with tags applied to or accompanying images. Thus, regardless of whether any licensing platform is built upon the registry maintained by the Copyright Office or a third party registry such as PLUS, photographers who are interested in using the platform should be invited to describe their images manually to increase searchability. To ease this burden for photographers, the platform could provide keywords for them to choose from. The platform could then build a custom search engine based on Google's image search.[89] Importantly, Google's image search is capable of showing photographs connected with identical, equivalent or substantially similar keywords input by photographers.

Next Steps

There are several challenges to delivering good user experience for search in any copyright licensing platform. Looking forward, the Practicum should explore how best to encourage photographers to embed metadata and/or apply watermarks (preferably both visible and digital) to their photographs to facilitate connections with copyright ownership and licensing information. We should also explore how to attract a sufficient number of photographers to register with our platform.

---

[88] MIT Technology Review, "Google's Brain-Inspired Software Describes What It Sees in Complex Images" (2014) (http://www.technologyreview.com/news/532666/googles-brain-inspired-software-describes-what-it-sees-in-complex-images/)

[89] See Google Custom Search Engines (https://www.google.com/cse/)

VIII. INTEROPERABILITY

Introduction

Interoperability is the ability to make systems and organizations work together. If any platform created by the Practicum is to meaningfully reduce the transaction costs of licensing and instances of copyright infringement, it must consider how best to integrate with other platforms such as Google and Flickr. If we do this well, users will encounter our product at a natural point in their workflow, rather than having to search for it. Integration is especially important for long-tail users, who have little economic incentive to seek out better licensing information. Moreover, if we create a service that works well with existing services, we can more easily route photographer users to copyright registration. Developing interoperability strategies and *Application Programming Interfaces (*APIs) are significantly parallel activities.

This section examines the options and tradeoffs of building, enhancing, and scaling interoperability, including by way of a platform that is integrated with existing licensing and search services. Understanding both short-tail and long-tail workflows is crucial to identifying the junctures at which our platform can be integrated most seamlessly. Looking at the interoperability models of other platforms also helps us understand how best to get our service in front of users at those junctures. In summary, this section discusses:

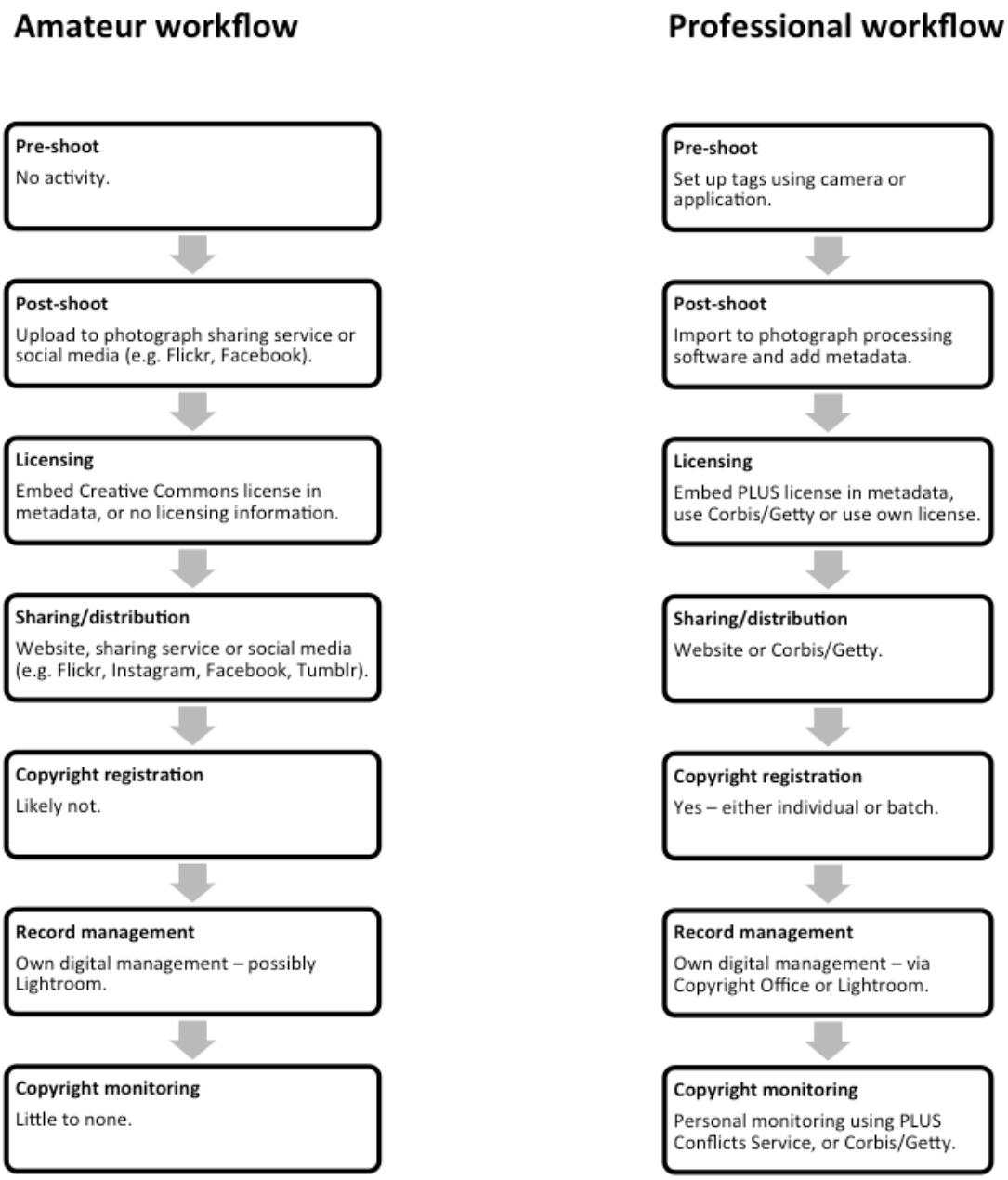
- Copyright workflows – Before we can determine where our platform best fits, we must examine the workflows of amateur and professional photographers, as well as long- and short-tail licensees.
- Potential interoperability models – A comparison of the services and interoperability strategies of three existing approaches, Corbis/Getty, Creative Commons and PLUS, informs how we might structure our platform. Of the three, Creative Commons has been the most successful at attracting users via interoperability strategies. However, PLUS has created the most rigorous metadata collection, and its platform could feed directly into copyright registrations.
- Interoperability practices – To ensure that the system reaches as many users as possible, it must meet industry standards including APIs for any applications.
- Recommendations and Next Steps: We recommend an "API-first" strategy. The Practicum team should research API management vendors and interface with both the Copyright Office and PLUS regarding this approach.

Copyright Workflows

Thoughtful consideration of user workflows will help locate interventions at the most useful junctures. Those points of intervention will then guide building an API, which will enable other services to use components of the proposed licensing platform.

Amateur versus Professional Photographers

Amateur and professional photographers have different needs and practices affecting their workflow. The figure below approximates the different approaches that are useful for determining the junctures at which an automated licensing platform could improve the user experience.



Our Intervention in Photographer Workflows

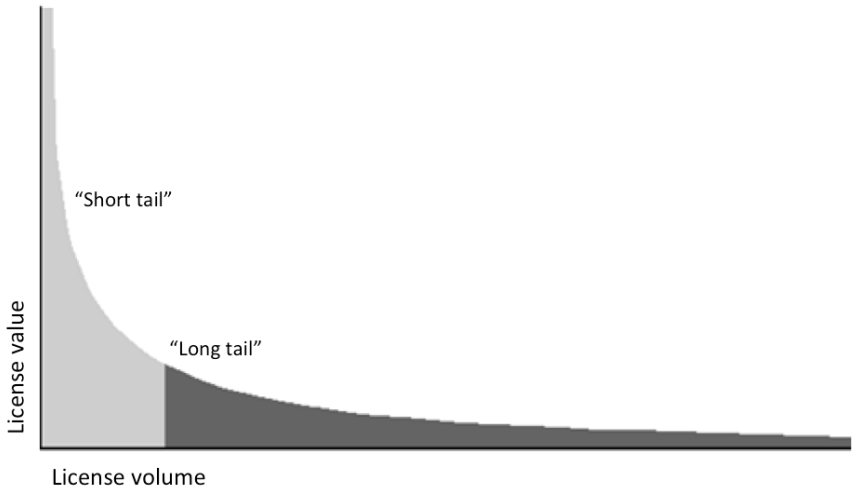
We have identified the following potential interventions:

- Exploring ways to make rights information "stickier" would involve interventions at the pre-shoot or post-shoot phase (e.g. an application standardizing metadata production), or licensing phase (e.g. by using a third party application such as Digimark). If we choose to make this our focus, we would need to intervene at the point where a license is added to a photograph's metadata or watermarked into its pixels.
- A licensing engine to standardize negotiation would require intervention at the pre-shoot and post-shoot phases (e.g. an application standardizing metadata production), and the licensing phase (e.g. an application standardizing licensing mechanisms). Metadata should be standardized at these phases in a way that contributes to easy copyright registration (e.g. auto-population of the form). This intervention would also involve looking at the PLUS and Creative Commons models and collecting survey evidence to determine what standards or pre-settings users want.
- A data-driven warranty/indemnity model would involve intervention at the licensing phase. For this intervention, we would need to obtain survey information regarding consumer needs, desires, and use patterns, so that we can suggest licensing models.

Short-tail versus Long-tail Licensees

Photography licensees can be broken roughly into two categories, as illustrated by the following figure:

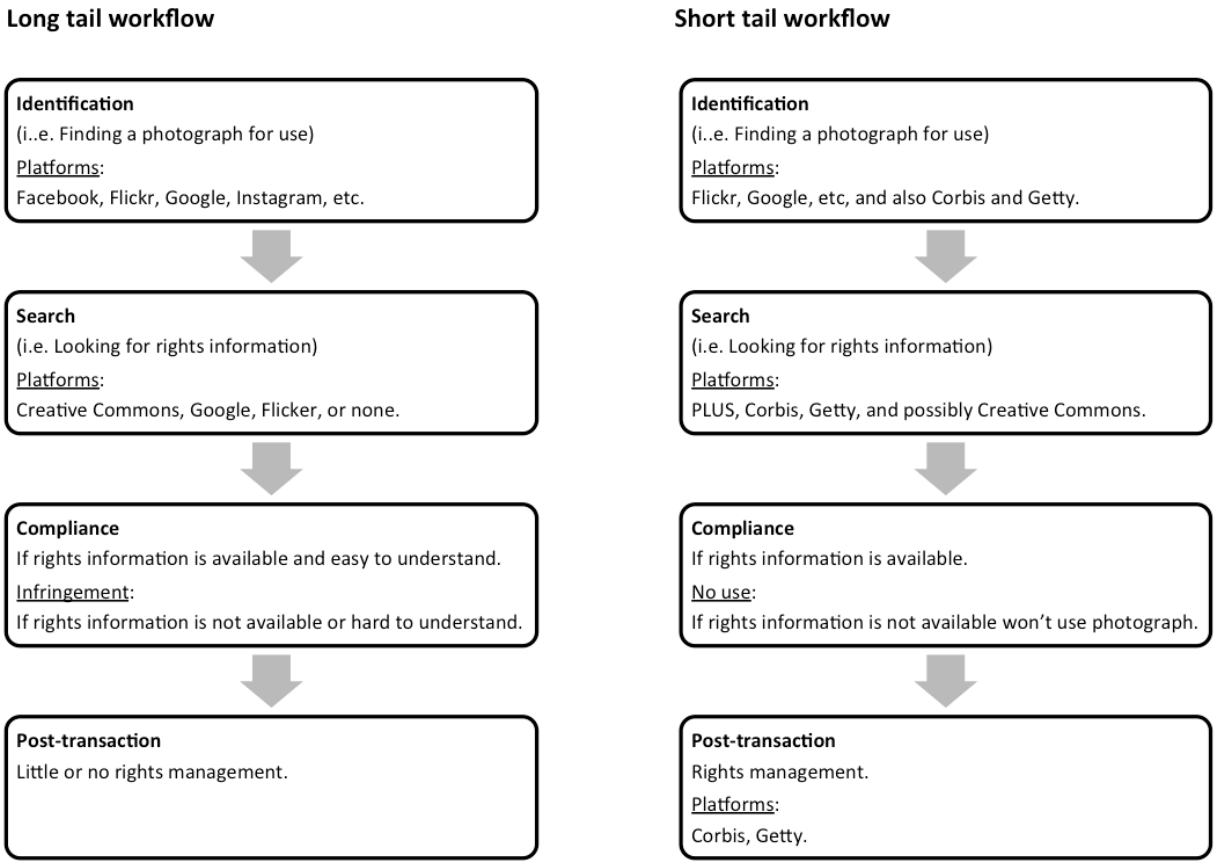
- High-value, low volume "short-tail" licensees; and
- low-value, high-volume "long-tail" licensees.



An example of a long-tail licensee is a blogger – someone who may want to use a third party photograph on his or her blog, but will not make highly lucrative commercial use of it. In contrast, a publisher who wants to license a photograph to publish alongside academic content in a large print run would be a prototypical short-tail user. The lines can, of course, be blurred – for example, a blogger who wants to monetize his or her blog may actually be making "high value" uses of the photographs that appear on it.

As a general rule, long-tail users are less attuned to copyright issues than short-tail users and have less incentive to seek out copyright information. If they do infringe, they are less likely than short-tail users to be detected and sued. On the other hand, short-tail users are strongly incentivized to seek out accurate copyright licensing information, given the real possibility of litigation for high value infringement.

The following figure approximates the different workflows of long-tail and short-tail licensees.



Our Intervention in Licensee Workflows

We have identified the following potential interventions:

- Originality testing would involve intervention at the search phase. Once our platform has built up a significant number of registrations, it could offer users assurances at the

search phase that the photographs they select are original as compared to other photographs in the database.

- Building a "license reader" would involve an intervention at the search phase. A pop-up notice directing users to the license reader at the identification phase could also induce short-tail users to look for rights information and reduce infringement.
- A licensing engine would involve intervention at the compliance/infringement phase by allowing rights to be quickly and easily agreed upon.

Potential Interoperability Models

The interventions we have described would reach a greater number of users if third-party services are able to integrate with our platform. For example, in order for Google to route users to our license reader, a plug-in would need to be developed. This section of the briefing book explains why Creative Commons has been more successful than either Corbis/Getty or PLUS at having other services integrate with its platform.

Creative Commons

Basic Model

Creative Commons all but eliminates the need for negotiation with its set of six, easy-to-use licenses. Using the Creative Commons License Chooser, a photographer can decide to label his photograph with one of the following licenses:

1. Attribution;
2. Attribution – Share Alike;
3. Attribution – No Derivatives;
4. Attribution – Non-Commercial;
5. Attribution – Non-Commercial – Share Alike; and
6. Attribution – Non-Commercial – No Derivatives.

For the first three licenses listed, the work can be used for commercial purposes as long as attribution, sharing, and use conditions are met. For the last three licenses listed, the work cannot be used commercially, even if those conditions are met. As of 2014, Creative Commons estimates that there are 882 million creative works of various types using their licenses.[90]

The Creative Commons licenses incorporate a "three-layer" design – including a legal document, a "human readable" version of the license, and a machine-readable version of the

[90] STATE OF THE COMMONS, https://stateof.creativecommons.org/?utm_campaign=2014fund&utm_source=carousel&utm_medium=web (last visited Mar. 18, 2015).

license. The machine-readable license is embedded in the photograph's metadata using Creative Commons' REL language.[91]

Interoperability Features

Of all of the platforms discussed, Creative Commons has done the most to ensure that its services are integrated with other websites that its users visit. They have done so in two key ways:

1. Accessibility – Creative Commons has made its platform accessible to laypersons. Instead of a long list of license specifications, a user need only understand six, basic licenses to use the Creative Commons system. This has enabled Creative Commons to cultivate a large enough user base that other platforms recognize it as a major player and want to incorporate its features.
2. APIs that enable seamless Creative Commons integration – Creative Commons has made it easy for other platforms to incorporate its features by making its APIs widely available to third party applications. Creative Commons provides free access to APIs that allow third-party applications to make a license choice upon file upload, set default license choices in their account settings, include license code on content pages, include copyrightable attribution language, and create license aware user interfaces.[92] Using these APIs, platforms like Flickr have been able to seamlessly integrate Creative Commons licenses into their users' upload workflow. Platforms like Google have also included Creative Commons licenses as layers in an advanced search

Although Creative Commons has been successful in making its platform ubiquitous, one drawback of the platform is that it cannot ensure the trustworthiness of the rights information transmitted by its licenses. This is for the following reasons:

- Inaccurate licensor information and no tracking services – Creative Commons licenses are not backed by a database of accurate licensor information. Without access to photographers, licensees have difficulty verifying that the Creative Commons licenses accurately reflect rights ownership. Creative Commons also offers no services to track infringement of licensed works, so licensors are unable to determine infringement in a cost-effective manner.
- The lack of cooperation with the Copyright Office – Creative Commons does not meaningfully tie its services in with Copyright Office registration. There is no way to auto-populate a registration application with information you have already provided to Creative Commons, for example. Given Creative Commons' "open sharing" ethos,[93] the

---

[91] ABOUT THE LICENSES, http://creativecommons.org/licenses/ (last visited Mar. 18, 2015).

[92] WEB INTEGRATION/HOW TO, https://wiki.creativecommons.org/Web_Integration/HowTo (last visited Mar. 18, 2015).

[93] "Our vision is nothing less than realizing the full potential of the Internet — universal access to research and education, full participation in culture — to drive a new era of development, growth, and productivity." ABOUT, http://creativecommons.org/about (last visited Mar. 18, 2015). With this vision of universal access in mind, Creative Commons is less likely to encourage copyright registration and its stronger protections.

organization is unlikely to form a more meaningful partnership with the Copyright Office.

- License terms are unclear – Creative Commons does little to make unsophisticated licensors aware of what their chosen license communicates in terms of permissible uses. For example, in December 2014 Flickr was heavily criticized for allowing members to order printed photos of Creative Commons images without compensating the photographers.[94] The 50 million Creative Commons-licensed photographs selected for this service were licensed under Creative Commons' "CC-BY" (Attribution) or "CC BY-SA" (Attribution Share-Alike) settings, which meant that they were available for commercial use. This is not a typical case of unwitting or intentional infringement; arguably, long-tail licensees would have abided with Creative Commons' license terms in using the Flickr service. This is, however, a case where better communication between creators and licensees might have resulted in more mutually advantageous uses.

Perhaps to acknowledge the information deficits of its system, Creative Commons is taking some steps to foster better data retention and transparency. It is now working with a group from Seneca College to develop "an open source library . . . that can . . . give developers a simple way to encode and decode license information from images."[95] Seneca College students are exploring whether license data can be embedded by a camera application, an Internet service (e.g. PLUS), or in a browser, so that as user can obtain a license information simply by interacting with a photograph on a website. This partnership indicates that Creative Commons believes that its users might be interested in better licensing information and licenses that are more strongly bonded to photographs available online.

Corbis/Getty

Basic Model

Corbis and Getty are the largest stock photography companies – together, they share more than 80% of the world market for stock photography.[96] For a photographer, the key benefits of working with either company are:

- exposure of his or her works to image buyers worldwide; and
- avoiding the time-consuming process of individual negotiation.

After negotiating licensing terms and a royalty structure for copyright owners, the agency collects royalties and deducts a commission.[97] Any remaining profits are passed

---

[94] FLICKR REMOVES CREATIVE COMMONS-LICENSED PHOTOS FROM WALL ART PROGRAM, http://creativecommons.org/weblog/entry/44586 (Mar. 18, 2015).

[95] EMBEDDING LICENSE DATA IN IMAGES, http://blog.humphd.org/embedding-license-data-in-images/ (Mar. 18, 2015).

[96] THE GETTY IMAGES VERSUS CORBIS PHOTOGRAPHY WAR, http://www.fastmediamagazine.com/blog/2011/04/06/9423/ (Mar. 18, 2015).

[97] *Id.* Photographers have balked at high commissions taken by the companies. In 2008, Corbis announced a royalty rate cut for rights-managed contributors. In the same year, Getty was sued by photographers for making its subscription pricing unreasonably low – in some instances, as low as $2.08 per download. In 2010,

upstream to the copyright owner. The companies typically conduct significant monitoring of infringement activities on the Internet and elsewhere.[98] They may also assist photographers with protecting their rights, by handling bulk submission of images to the Copyright Office.[99] The stock photos organized by Corbis and Getty are primarily used by publishers and advertisers who want high quality stock photos, and have photographers who are economically incentivized to pay more for monitoring services.

Interoperability Features

Because Corbis and Getty cater primarily to short-tail users, they do very little to integrate their service with other platforms. The workflow that the companies expect is self-contained – for example, an advertiser might come to Corbis's website looking for a picture of a tree, search through its numerous collections, inform the service of its final selection, and be apprised of price. Since each has an established reputation, and together they control most of the market for stock photography, neither has much incentive to publish APIs or implement other creative strategies for seeking out users. Additionally, they have no real incentives to update the services they offer absent real competition from other platforms.

PLUS

Basic Model

Like Creative Commons, PLUS functions as a standards body that provides photographers with a way to embed licenses into the metadata of their images. PLUS offers its users a set of rights bundles from which they can choose. These bundles, called "PLUS Packs," are more striated than Creative Commons' six licenses. There are 18 PLUS Packs in total, which cover uses ranging from "Book Cover" to "Personal Display."[100] In addition to the PLUS Packs, PLUS provides users with the option of generating a customized license using its Media Summary Code.

---

iStockphoto, which is now owned by Getty, changed its royalty structure such that photographers receive as little as 15-20% in royalties for non-exclusive content.[97] In addition to these compensation disagreements, photographers struggle to maintain control of the way their image is used after signing with Getty or Corbis. For example, Getty prohibits customers from using any of its images in a way that is defamatory, pornographic or illegal, but does not institute any other use limits. This strategy is aimed at maximizing profits, but some photographs want greater control over the commercial uses of their images. *Id.*

[98] COPYRIGHT, LICENSE MODELS, AND "MORAL RIGHTS," http://contributors.gettyimages.com/article_public.aspx?article_id=2721. If one of these companies brings a copyright action on the behalf of the photographer, some litigation costs are subtracted from the photographer's royalties. *Id*.

[99] Jeremiah A. Armstrong, *Digital Era of Photography Requires Streamlined Licensing and Rights Management*, 47 SANTA CLARA L. REV. 785, 795 (2007).

[100] PLUS PACK HELP, http://www.useplus.com/pluslicensegenerator/License/DisplayPlusPacks.aspx (last visited March 18, 2015).

As well as operating as a standards body, PLUS has created the PLUS Registry to house a comprehensive database of rights information. The Registry is operated as a hub of hubs and advised by a global coalition of communities engaged in creating, using, distributing and preserving images. Once the Registry is out of its beta testing phase, users will ideally be able find rights and descriptive information (i.e. metadata) for any image, and to find current contact information for related creators, rights holders and institutions.[101]

Interoperability Features

The PLUS system includes numerous components aimed at interoperability:

- *PLUS Picture Licensing Glossary* – This free listing, created and scrutinized by a broad cross-section of professionals, is aimed at promoting agreement on license parameters across organizations. The Glossary promotes interoperability by seeking to standardize the "language" that third party services and platforms use to codify licenses.[102]
- *The Media Matrix* – This is designed to reside "under the hood" of Internet and desktop applications used in image licensing, digital asset management, and imaging. Building off the PLUS Glossary, the Media Matrix uniformly specifies international media categories and organizes them by type, with universal billing codes co-developed and approved by image providers and users alike.[103]
- *The Media Summary Code* – This is the machine-readable summary of the Media Matrix. This data form ties the entire system together, providing a single, worldwide standard for describing licenses.[104]

PLUS has developed a comprehensive and impressive standards system, and machine-readable code summarizing its system, that could presumably be integrated into third party applications. However, PLUS' design is in transition for maximum interoperability, with beta testing expected to be completed in June 2016.

- The platform's design is in transition – As the PLUS Registry migrates from the legacy platform of useplus.org, amateur photographers may not fully understand the value of PLUS Packs or appreciate the ability to craft a custom license. The legacy system was especially well adapted for short-tail, high-value users who parse the PLUS system in their search for accurate rights information. The new beta version PLUS Registry promises long-tail, low-value users heightened access to the PLUS interface.[105]
- The PLUS API is in transition – The legacy useplus.org offered the Media Matrix to reside under the hood of Internet and desktop applications, but gave no portal for

---

[101] THE SYSTEM: WHAT IS PLUS, http://www.useplus.com/aboutplus/system.asp (last visited March 18, 2015).

[102] *Id.*

[103] *Id.*

[104] *Id.*

[105] *See PLUS Registry, at www.PLUS.org. The PLUS Registry site, plusregistry.org, is currently a beta site in the process of merging with the legacy site, useplus.org. Until June, 2016, the useplus.org site will remain active, at which time the glossary of standards and coalition information will migrate to the www.PLUS.org site.*

developers to easily access the PLUS API. The new PLUS Registry promises an API that can be easily integrated into external licensing systems.

Best Interoperability Practices

These models of Interoperability offer lessons to guide the development of an automated licensing platform:

- Streamlined standards and specifications – A successful platform will define its terms according to specifications that reflect industry norms to allow it to be integrated with other platforms more easily. Possible options:
    - Rely on the PLUS Picture Licensing Glossary –This would not only save us the substantial work of creating our own glossary but also enable us to engage terms that are increasingly authoritative in the field as PLUS gains international recognition and users.
    - Develop a glossary of terms unique to our system – Developing our own glossary would be time consuming. However, we would be able to cull from various industry standards to create a glossary that represents those standards. The time and effort required to develop a comprehensive glossary that may ultimately replicate PLUS's may make this option less attractive or feasible.
- Disaggregate each usable part of our platform – We may decide to focus on multiple issues in photography licensing at once. For example, we may decide to design both originality testing and data-driven indemnity models. If that is the case, we should disaggregate our usable components. Doing so will give third-party applications the flexibility to pick the component of our system that is right for their platform. For example, PLUS offers the PLUS Registry and its PLUS Packs as separate services. While it is likely easier to list works on the PLUS Registry if a user is already using a PLUS Pack, PLUS does not require that licenses be listed on its Registry. In this way, PLUS captures users who still want to use the Registry, but who may not be attracted to its licensing features.
- Make metadata creation easy and automatic – Metadata is necessary for effectively managing, finding, and assessing rights information. However, creating quality metadata is challenging because users may not want to spend time inputting their data. We have the following options:
    - Ask only for basic information, along the lines of Creative Commons' approach – Creative Commons has reduced user inputs to the bare minimum. However, as the Flickr debacle indicates, its system does not capture enough rights information. For example, it would be impossible to auto-populate a copyright registration form using the information a photographer inputs for a Creative Commons license.
    - Ask for more information, along the lines of PLUS' approach – The legacy usePLUS.org metadata collection relies on an unwieldy number of fields that may deter amateur or unsophisticated photographers from registering their rights information. Our prototype can efficiently target required inputs while still obtaining enough data to auto-populate a copyright registration form.

- Pursue an API-first strategy. An API-first strategy would involve developing an API for our services first, and then deciding on a channel through which to make those API resources available to developers. As the product or service makes its way to production, we should ensure that the API is well-documented, easy-to-use, and prepared to scale. Approaching the problem in this way will foster speedier integration of our services once we decide to make them publicly available. The potential downside of an API-first approach is that our first release will be further off. There is also the additional overhead of creating two applications (a front end application and a back end API),[106] and additional work involved in simultaneously making decisions about the product and API. However, a truly scalable and adaptable solution to photography licensing requires an API-first strategy.

Conclusion

During the Winter 2015 quarter, the Practicum investigated several potential interventions to improve the licensing of photographs. Looking critically at the workflows of short-tail and long-tail users, and amateur and sophisticated photographers, we have identified numerous points of entry. The purpose of this section of the briefing book is not to advocate any particular point of entry or product, but rather to survey the interoperability models of other platforms and to glean best practices for making our product accessible and scalable. The solution to the diffuse problems of photography licensing on the Internet requires a flexible solution that takes into account interoperability concerns. If our system is to make meaningful inroads into reducing transaction costs (and curbing copyright infringement), it is crucial that it is developed with interoperability in mind at every step.

To that end, we have identified the following next steps in developing a low-friction licensing platform:

- Short-tail and long-tail users:
    - User experience survey – The Practicum should conduct research on where photographers and licensees have the most satisfaction and complaints about the current user experience. Doing this research will enable the group to narrow its focus and decide which products should be developed first.
    - Close counsel with the Copyright Office – The group should regularly communicate with the Copyright Office to ensure that the problems identified by photographers and licensees are ones that the Copyright Office also cares about solving. We should also encourage the Copyright Office to consider an API-first approach to ensure that a new system is integrated into as many third party applications as possible.
- Further research on interoperability models – Given that PLUS is a potential partner, we should obtain more information from PLUS' founder, Jeff Sedlik, on his vision for the service. What is his view of an API-first approach? What avenues has he already pursued with respect to getting his Media Matrix integrated with other platforms?

---

[106] YOUR HOW-TO GUIDE FOR DEVELOPING IN A MULTI-PLATFORM WORLD, http://www.api-first.com/blog/when-does-this-not-apply.html#.VP-3sEaYlJg (Mar. 18, 2015).

- Best Practices for API Management – If we decide to pursue an API-first model, we may want to research API management vendors. API management is the process of publishing, promoting and overseeing APIs in a secure, scalable environment. It also includes the creation of end user support resources that define and document APIs.[107] The best-known API management vendors are CA, SOA Software, and *Apigee.*[108]

[107] API MANAGEMENT, http://searchcloudapplications.techtarget.com/definition/API-management (Mar. 18, 2015).

[108] FORRESTER NAMES TOP API MANAGEMENT VENDORS, http://www.informationweek.com/cloud/platform-as-a-service/forrester-names-top-api-management-vendors/d/d-id/1316520 (Mar. 18, 2015).

IX. TECHNICAL FEASIBILITY

Introduction

Each step of the producer and consumer workflow could potentially be improved by new technologies. This section of the briefing book outlines technologies that we consider have the greatest potential for improving copyright licensing workflow for photographers and potential licensees, and the extent to which the Copyright Office could either develop them in-house, contract them out, or use other means to "nudge" third parties into creating them. In improving its approach to photography licensing, the Copyright Office should focus on making copyright registration easier for photographers, streamlining the search and licensing processes for consumers, and promoting technology systems that enable deep third-party integration without the need for constant and expensive maintenance and upgrades.

Our working assumption thus far has been that the outcome of our research would be a single system that addresses some of the most pressing issues with digital photography licensing. However, an alternative to the Copyright Office pursuing a single "one size fits all" system would be pursuing strategies that allow any number of third-party systems to interact and share information easily, including with the Copyright Office's own databases. It would probably be difficult for a single new system to gain enough user traction to become the go-to source for digital photographs, but by working to develop customizable integrations across a range of third-party sites, the Copyright Office could greatly improve the experience for producers and users.

Option 1: Adopting a Standard Data Format

The first and most important step the Copyright Office can take is to adopt an official data format for embedding copyright and license data in photographs. Using PLUS — the Picture Licensing Universal System — probably makes the most sense. PLUS, which operates as a nonprofit, has created a set of standards and is working on developing an online registry. The PLUS standards include:

- A picture-licensing glossary to establish a common set of terminology for license parameters.
- A media matrix, being a short, machine-readable code that specifies the category and type of an image.
- A license data format, being a metadata schema that provides a wide variety of fields that can be used by licensors and licensees to embed the terms of a license in a digital photograph. The set of fields is comprehensive, so most users would only use a small subset.

The PLUS Registry, which is currently available only to a select group of users in beta form, hopes to become an industry-neutral, nonprofit registry that will enable users to find rights and descriptive metadata for any image, as well as contact information for rights holders. The system will create a unique identifier for each image and license registered through the

site, and users will eventually be able to search by this unique "PLUS ID," or by reverse-image search (*i.e.*, image recognition).

After analyzing PLUS, including through discussions with its founder Jeff Sedlik,[109] we consider that the Copyright Office should continue to collaborate with PLUS and officially adopt PLUS's glossary and license data format. PLUS has already created a cross-industry coalition of consumers and producers of digital photography, and worked with makers of third party tools like Adobe to integrate their metadata standards. Official endorsement by the Copyright Office could provide the impetus for further adoption and, as a leader in digital copyright, the Copyright Office could also work with PLUS to implement any changes to the data format that they think would improve it.

Although the PLUS Registry addresses another important problem with digital photography copyright — that is, being able to actually *find* the license data for an image, and contact the producer — we do not consider that this is a problem the Copyright Office should address directly. Adopting PLUS as an open data format does not interfere with the functionality of the PLUS registry, but it also leaves an open option for other platforms (*e.g.*, Flickr or Google) to use the PLUS format in their operations without needing to use the PLUS Registry.

The Practicum should conduct further research into the integrations that PLUS has already made available and those that PLUS foresees in the next generation of the PLUS Registry. PLUS already has a number of partner organizations, including Adobe, but the Practicum research team should examine how each of these partner organizations uses or plans to use PLUS in their own workflow, and which PLUS metadata fields they choose to use or make available.

Option 2: Image Search

Before users can even consider paying to license an image, they first need to find an image that suits their need. Our research thus far has considered that any new system, either standing alone or integrated with PLUS, might include search functionality that enables users to search for images by keyword. From a technical perspective, we do not consider that it makes sense for the Copyright Office to create a new system for searching for images. Google Image Search, Bing Image Search, Flickr, and other sites already employ the latest technologies to do so, and have high usership.

Thus, rather than developing its own search functions, the Copyright Office should instead focus on making it as easy as possible for existing online search tools to display copyright and licensing information about the images in their systems. Adopting PLUS as a standard license data format would be a useful first step in helping to inspire such sites as Google+ or Facebook to track and store license metadata along with the actual image files. If license data and artist contact information are stored in the actual image files, then the Copyright Office could leave it up to these third-party sites to decide how best to integrate this data into their existing user workflows.

---

[109] Jeff Sedlik, Lecture to Copyright Practicum, February 2015.

The Practicum team should investigate why Google Image has not to date introduced PLUS as an advanced image search filter in the way it has introduced Creative Commons. Is it simply because PLUS is not as widely adopted as Creative Commons? Or is it because users are more likely to search for images that they can use freely, rather than those that are subject to license? Further insights on these points could help guide the Copyright Office as it determines how best to approach further integrations with search tools.

Option 3: Technological Improvements and Integrations

As outlined in a recent report, the Copyright Office is considering a number of upgrades to its technology systems.[110] Modernizing these internal systems is a critical baseline for improving copyright management across third party systems. Specifically, it would enable the Copyright Office to improve the public record, as well as open up direct access to its systems through application programming interfaces (APIs).

Copyright Office APIs could make it possible for sites like Flickr or SmugMug to offer direct copyright registration as photos are uploaded — saving time and money for their users, and for the Copyright Office. Improving its own internal technology would also give the Copyright Office more legitimacy and flexibility as it works with other organizations. As the Practicum research progresses, the team needs to learn more about the Office's plans for technological upgrades, and consider potential barriers to an online licensing system.

Option 4: Coding

Whether or not the goal of the Practicum is to develop an all-encompassing, one-size-fits-all system for registering, storing, and searching for digital images and their relevant copyright data, its technology plan should focus on discrete and feasible technical challenges. The most pressing of these challenges are likely to be reverse-image search, and a marketplace that offers simple payment and licensing to long-tail users and photographers. We propose that these be subject to a coding project undertaken individually with a team of Stanford computer science students.

Reverse-Image Lookup

One of the biggest issues with any potential metadata schema that embeds copyright and licensing information in digital photographs is that it is easy for this important information to be stripped from the file (whether intentionally or unintentionally). Even if users or websites do not intend to remove this information, simply converting or compressing a file type may cause it to occur.

Any new system must therefore address this problem. One potential solution would be to create a reverse-image search tool. The tool would be designed for users who have already selected an image and have the corresponding digital file, but do not have the copyright

[110] *Report and Recommendations of the Technical Upgrades Special Project Team*.

owner's contact information or other licensing information. The tool would enable them to upload the file, and then try to find matching images for which such information is available.

While this is conceptually simple, technical execution would be complicated due to the large size of image files and the many places where images can be stored. As a result, whether or not such a tool is eventually integrated into the PLUS registry or a new system created by the Copyright Office, a coding project attempting to solve this specific "piece of the puzzle" could be beneficial as a learning exercise and as a starting point to more robust integration.

A simple, usable image search tool would need to meet the following requirements:

- Allow users to upload an image file to search for the producer's contact information, copyright information, and licensing information.
- Query the image against image databases that track producer information. This could include sites like Flickr, iStockPhoto, Google Images, or the PLUS Registry (eventually). Ideally, this aspect of the tool would not be created from scratch. For example, we understand that PLUS plans to use a third-party API to perform image matching on its platform. The Practicum aims to accomplish something similar.

A one-day code-athon is not likely to result in a product that is remotely close to the robust Google reverse-image search. However, a short coding project with a Stanford team of computer science students could be a valuable exercise that could yield insights on the technical limitations of image recognition, and the amount of computing power necessary to query and match across multiple databases of large image files.

Simplified License and Payment Processing

A more important (and potentially commercially viable) challenge that could be a good fit for a short coding project would be to create a simple online marketplace for digital photography, similar to a stock photo house, but that would enable photographers to sell directly to consumers. By eliminating the "middlemen," this could hopefully drive prices down enough that long-tail users, such as bloggers, would be willing to pay for photos while also ensuring that photographers receive a higher proportion of the profits that come from their work, and are able to more directly set their terms of use. It should be feasible to create a minimally viable product that addresses this problem through a short coding project. The product would need to include the following key components:

- For photographers:
    - Photographer profiles: Photographers/image creators should be able to register for an account and create a public profile. This public profile would include their name, contact information, and potentially the option to display a selection of the photographer's work, and their standard pricing.
    - Media upload or linking: Photographers should be able to upload their work directly to the site, or alternatively link photos that have already been uploaded to third party sites (e.g. Flickr or Facebook). If this site were to gain traction, image storage would be a major contributor to data costs —the site may eventually need to consider charging photographers for accounts, or taking a larger cut of transaction costs to pay for the storage. During the upload phase,

photographers should also provide a description of their images, as well as tags or keywords to make them easily discoverable by potential purchasers.

  - Set license terms and pricing: Photographers should have some degree of control over the types of uses they want to license, as well as setting prices for each of these. We will need to leverage the licensing work of the Practicum covered elsewhere in this briefing book to come up with a simple way to present these options to photographers. It will also be helpful for photographers to be able to set personal "defaults" — that is, terms and pricing that they want to use as standard for all photos they upload and list.
  - Payment: The system will need a way to process disbursements to photographers — potentially contracting this out to a third party, ideally at minimal cost.

- For consumers:
  - Search: Using the description, keywords, and tags provided by photographers, users should be able to search for images matching their intended use. This search feature should also include filters for price and licensable uses.
  - Licensing and payment: Once a user selects a photo, they should be able to easily select which uses they would like to license, and pay for them online. Payments could be processed by a third party — potentially Stripe, Square, or Venmo.

The coding project participants should also take into account the other critical aspects of the licensing system – particularly trust. Further, the coding team should be sensitive to the balance between addressing the needs and concerns of photographers, and not creating a system that is overly complicated for users.

Conclusion

By pursuing strategies that enable third-party systems to interact and share information easily, the Copyright Office can not only enhance the usability of its own databases but facilitate universal access to customized licensing.

X. ROLE OF THE COPYRIGHT OFFICE

Introduction

In addressing the complex challenges outlined in this briefing book, the Copyright Office can play a critical part in fostering private sector approaches to low-friction licensing for photographs. The Office can deploy its data collections and institutional knowledge to strengthen its internal technical interfaces with the private sector. The Office also has the political clout and policy expertise needed to support private sector innovators. As more services and solutions come to market, the Office and the public it serves would benefit from a more robust, user-friendly, copyright ecosystem.

Our research and stakeholder analysis motivate several options for Copyright Office action according to relative benefits and tradeoffs:

Option 1: Develop an API. The Copyright Office could make significant progress in upgrading its technology infrastructure by building an API for its copyright data and records. As demonstrated by our proof-of-concept with Code the Change and a potential partnership with PLUS, an API could enable frictionless, scalable, automated communication between private organizations and official copyright records. This API could empower developers to build affordable, high quality solutions for the copyright community and promote additional copyright registrations, while maintaining a level of control that would help ensure that these open data are not abused. Although the cost of building and maintaining an API is not insignificant, the investment presents both immediate and long-term benefits.

Option 2: Partner with PLUS. The Office could form a partnership with PLUS to facilitate the development of an external, fully functional online licensing platform. This option would expand the capacity of the Copyright Office by outsourcing some of the tasks related to collecting and producing copyright information, but could potentially reduce private sector innovation by limiting access to and experimentation with the underlying licensing project.

Option 3: Improve the technological interface to upload large collections. The Office could technologically improve the process for registering collections of visual works. This option would dramatically decrease the technological burdens of creating a robust database of visual works. This option entails additional programming costs to develop a better upload solution for large collections.

Option 4: Establish a unique persistent identifier for each individually copyrighted visual work in bundled collections. In contrast to batch registration, unique, individual, persistent identifiers for copyrighted visual works could enable more accurate identification and support licensing for individual works. This measure will have limited impact without the development of a robust API that helps to incentivize new search and metadata technologies.

Option 5: Support the Licensing Needs Survey. The Office could leverage its stature to help generate more helpful market data and insight by promoting photographers' engagement with the Licensing Needs Survey (Appendix B). Wider engagement with the survey can help the Copyright Office, and organizations that are looking to serve the copyright community, gather

relevant, up-to-date information on the latest trends and needs of copyright users and generators.

Option 6: Clarify ambiguities in regulations on group registrations. The Office could review and revise its regulations on group registrations and the registration practices of stock agencies. This would benefit photographers who find ambiguity in current regulations and case law.

Option 7: Promote private innovation through legislation and policy changes. The Register of Copyrights could propose new legislation to encourage private investment and make internal policy changes to improve the efficiency of automated image processing. Such a shift, however, could depend significantly on the development of an API.

Option 1: Develop an API, Regulated by the Copyright Office, that Supports Private Sector Innovation in Developing Licensing Solutions

In partnership with industry stakeholders, the Copyright Office's Chief Information Officer has explored improvements that the Office could undertake to resolve certain current copyright challenges.[111] Among the possible solutions, industry stakeholders widely support an "API-first" architecture. Our research leads us to concur with the API-first strategy.

An Application Programming Interface (API) is a standardized software interface that enables otherwise discrete and independent computer systems to interact with each other. A well-designed API would enable programmers to develop applications that rely on a common interface. A Copyright Office API would standardize the software protocols for querying records, submitting registrations, and other actions. For example, an API would allow an organization to emulate copyright registration functions using the Copyright Office's records on its own website or to embed such functions into desktop and mobile applications, while the Copyright Office would continue to maintain control over official records and uses of the data. Registrations sent via an API could be formatted to fit the Copyright Office's specifications, enabling a seamless transaction between private sector solutions and governmental recordkeeping. Moreover, creating an API would bring the Copyright Office into line with industry standards and best practices. Such key industry leaders as Microsoft, have already expressed their support for a future Copyright Office API.[112]

An API would have two distinct advantages. First, an API's flexible and scalable nature enables the Copyright Office to collaborate with the private sector in ways that are more responsive to the needs of different stakeholders. Different parties have different needs. For example, a professional event photographer may seek a solution that allows for mass registration of thousands of photos from a specific photo shoot, whereas an independent blogger may seek a simple solution to license her use of a single photograph. Instead of controlling the process and progress of innovation, a Copyright Office API would simply make its data useful and accessible to allow developers to conceive creative solutions that respond to the needs of the market and stakeholders.

Second, a robust ecosystem of registration systems via an API could encourage content producers to register their works sooner and at a lower cost, ultimately enhancing the national

---

[111] U.S. COPYRIGHT OFFICE, REPORT AND RECOMMENDATIONS OF THE TECHNICAL UPGRADES SPECIAL PROJECT TEAM (2015).

[112] Letter from Tom Rubin to Register of Copyrights Maria Pallante (Mar. 14, 2014).

copyright system, while generating additional revenue for the Office. As the volume of registrations increases, the Copyright Office may find that it can offer the same or better service at a lower per-registration cost due to a more efficient system and robust technological environment. This would again encourage more registrations, creating a virtuous cycle that could bolster copyright registration.[113]

Although the Copyright Office would be joining a growing number of government agencies in implementing an API that facilitates private sector innovation and public engagement, there are associated challenges. Perhaps the most significant government challenge is data security. An API would reduce Copyright Office control over the platforms and services built from the data. The Office may, however, be able to combat this potential disadvantage by implementing regulations that require independent institutions to maintain certain security mechanisms in order to gain access to its API. One potential solution would ensure that the quality and security of systems maintained by private companies are compatible with the integrity of the system. The IRS, for example, manages an "E-File" program that allows registered software developers to electronically transmit tax return information directly to IRS systems in a standardized format.[114] Given the sensitive nature of the data, the IRS requires that E-File participants undergo a background check and fingerprinting. The Copyright Office could use a similar, though less invasive, background process for certifying developers to ensure that they meet requirements such as server security. These requirements could be imposed through traditional rulemaking procedures.

An additional drawback of this option is cost. The development and maintenance of an API would require significant investment in human resources and capital improvements to ensure that the system is able to handle a high volume of query traffic. The Copyright Office will also need to obtain the authority from the Library of Congress to develop a separate technology platform focused on the unique needs of a resource-heavy API. Yet, overall, the Copyright Office could help catalyze licensing platforms and innovations through the creation of multiple API's that would allow private parties to access up-to-date copyright information and execute registrations.

Option 2: Enhance Collaborations with PLUS (and Potentially Other Photograph Licensing Entities) to Facilitate a Fully Functional and Consistent Online Licensing Platform.

The Copyright Office faces a variety of options in developing public-private partnerships to enhance access to copyright and licensing information for photographs online. Enhancing access to copyright and licensing information would enable photographers and users alike to create and negotiate licenses more efficiently. One potentially fruitful partnership would be with PLUS. The Copyright Office could tackle the issue of rights information in the following ways: 1) Rely on PLUS to provide accurate information; 2) partner with PLUS to ensure that rights information reflects accurate copyright terms; or 3) create its own independent system

---

[113] The Copyright Act requires that collected fees be retained "for necessary expenses of the Copyright Office." 17 U.S.C. § 708(d). Fifty-eight percent of the Copyright Office's budget is simply a request for authority to spend collected fees. *See* Fiscal [Year] 2016 Budget Request Before the H. Subcomm. on Legislative Branch Appropriations, 114th Cong. (2015) (statement of Maria A. Pallante, U.S. Register of Copyrights).

[114] INTERNAL REVENUE SERVICE, *Become an Authorized e-file Provider*, http://www.irs.gov/Tax-Professionals/e-File-Providers-&-Partners/Become-an-Authorized-e-file-Provider (last visited Mar. 12, 2015).

for verifying image rights information. The Practicum recommends that the Copyright Office pursue a partnership with PLUS that facilitates consistent online licensing information and the development of an online licensing platform.

Among the benefits of partnering with PLUS is the ease and efficiency of delegating certain tasks. The Copyright Office could delegate to PLUS the task of making rights information available while the Office focuses its efforts on developing an API. This cooperation would save the Copyright Office the cost of hosting all publicly available rights information, though the Office would need to oversee the accuracy of PLUS's rights information.

Easily finding copyright and licensing information about photographs found either online or in non-electronic formats would help both photographers and users of online images to efficiently and legally transact licenses.[115] As PLUS continues to gain status as an authoritative source for finding image rights information, the Copyright Office should continue to rely on PLUS as a source of information, and enhance collaborations with PLUS to ensure that rights information reflects accurate copyright terms. Such collaboration is likely to be more time-, cost-, and administratively efficient than if the Office were to create and operate an independent system for verifying image rights information.[116]

Currently the Copyright Office system does not allow rights information searches for images. Moreover, the Copyright Office relies entirely on assertions made by registrants as to ownership and authorship and, unlike PLUS, provides no effective means by which the public may challenge information stored by the Copyright Office. The information stored by the USCO is dynamic but the USCO records are static and not easily updated. The public has access only to a small sampling of information submitted on a registration and has no access to deposits (except access by/for litigants). Thus the Copyright Office is not a fully authoritative resource for rights information.

The Copyright Office has had significant influence in the development of the PLUS standards and registry, and could essentially "outsource" to PLUS the task of making rights information publicly available. Because PLUS efficiently facilitates the discovery and communication of rights information for images, the Copyright Office could save administrative costs and avoid the responsibility for overseeing the accuracy of the type of data managed by

---

[115] Whether an image is found online, or on a server (offline), or in a non-electronic format – books, magazines, broadsides, etc. – the challenge is the same: PLUS allows users to identify the authors, owners, licensors and rights information for all such images. For images that are not in electronic form, a user need only use a mobile camera or scanner to capture a digital file in order to perform an image recognition search and potentially connect the image with its rights information via the PLUS registry. With that information, the image could then potentially be licensed.

[116] The Copyright Office can leverage PLUS to ensure the accuracy of rights information by: (1) Uniquely identifying images using asset IDs interoperable with other systems worldwide; (2) allowing rightsholders to keep accurate track of the dates of creation and publication of their works for later use in registering copyrights, thus simplifying USCO registration and increasing the accuracy of information provided; (3) via the PLUS Registry API, providing a database of rightsholders and images for potential use in collective licensing programs and other royalty distribution schemes overseen by the USCO; (4) via the PLUS Registry API, or embedded metadata, using PLUS standards information to ensure more comprehensive USCO records; and (5) via the PLUS Registry API, allowing the public to determine any conflict claims in relation to a USCO registered work.

PLUS. Indeed, the PLUS registry serves as a global resource, serving the citizens of all countries and has worked closely with, for example, the UK IPO and with the UK Copyright Hub effort. However, relying on a private entity—even one as reliable as PLUS—heightens the Copyright Office's responsibility for effective oversight of its own registration data.

PLUS was inspired initially at the suggestion of the Copyright Office and maintains close cooperation with Office and other government agencies and their peers in all countries.[117] The Copyright Office should continue its decade-long collaboration with PLUS to help ensure that PLUS rights information is reliable and up-to-date. Such an approach enables the Copyright Office to leverage PLUS capabilities while maintaining more rigorous oversight. However, optimal collaboration may also require the Copyright Office to invest resources in making sure its system is interoperable with PLUS and that reflects accurate information. By developing its own API, the Copyright Office can encourage the mission of PLUS and ensure a more complete solution for storing and tracking rights information through low-friction platforms that enable parties to easily negotiate image license rights.

Option 3: Improve the Technological Interface to Upload Large Collections of Visual Works

Any comprehensive database of visual works, whether publicly or privately created, will require that individual works be easily searchable, but this requirement is inconsistent with the current Copyright Office practice of permitting group registrations. At present, creators have a strong financial incentive to register bundled collections of unpublished or published photographs as a single "work" because that registration incurs a single registration fee, instead of a fee for each individual photograph.[118] For unpublished collections, the Copyright Office currently permits registrants to upload the deposit copy; alternatively, for published collections, registrants may mail the deposit copy. In both instances, the Copyright Office permits registrants to submit a "contact sheet" of the photographs instead of individual image files.[119] A contact sheet typically arranges 6-10 small images on a single sheet of paper.

This practice of depositing contact sheets, rather than individual image files, substantially increases the technological burdens of creating a robust database of visual works for several reasons. First, the contact sheet does not retain the metadata associated with each visual work, making it difficult to identify their characteristics. Second, there are no consistent formatting guidelines for the creation of contact sheets so it would be burdensome to develop automated software to read the sheets generated by individual copyright holders. Third, the difficulties of image recognition are dramatically increased by placing hundreds of images in a single file.

Instead of permitting contact sheets, the Copyright Office should dramatically improve its system for uploading collections and should require, by policy, that the individual image files that constitute a collection be uploaded in separate files. The Office could explore the development of simple desktop applications for Windows and Macintosh operating systems

---

[117] Conversation with PLUS President and CEO Jeff Sedlik, July 1, 2015.

[118] U.S. COPYRIGHT OFFICE, *Fees*, http://copyright.gov/about/fees.html (last visited Mar. 12, 2015).

[119] CHRISTOPHER S. REED, COPYRIGHT WORKFLOW FOR PHOTOGRAPHERS, 57, 76 (2014).

that would enable users to upload large quantities of data and attach the data to the registration record. This would resolve the software processing obstacles presented by the use of contact sheets.

This option does entail additional programming costs to develop a better upload solution for large collections. These costs, however, will almost certainly be lower than the costs of developing software to analyze and process contact sheets. This approach is also unlikely to generate significantly greater data storage costs because the individual image files could be stored at a relatively low resolution.

Option 4: Establish a Unique Persistent Identifier for Individual Visual Works

The Copyright Office can also spur rapid and efficient licensing by issuing unique persistent identification numbers for each work or, alternatively, allowing creators to specify an industry-standard identifier.[120] Providing or participating in a system for accurate, persistent identification of specific visual works would support and encourage the creation of voluntary databases regardless of whether the Copyright Office implements a public API. For example, when a user registers a work with the Copyright Office, the system could then generate a unique ID number on the registration form. This ID number could then be used in databases such as the PLUS Registry to enable third parties to easily search for and find the specific record associated with the work in the registration system.[121]

Alternatively, the Copyright Office could alter the current system to enable registrants to specify an external identification number created by them or by another nongovernmental entity. For example, photographers, illustrators, stock agencies, museums, libraries and other rights holders who use the PLUS Registry could supply the Asset ID that is generated by PLUS, which would enable third-parties reviewing the registration record to easily and accurately identify that photograph both in the PLUS Registry and through the registration record in the Copyright Office database.

This type of platform-agnostic improvement would support efforts—such as by the PLUS Coalition—by providing a reliable, credible link between the record(s) stored by the nongovernmental system and the corresponding copyright registration. Further, by not restricting this feature to a specific platform, the Copyright Office would be broadly supporting any effort that links private databases to registration records.

---

[120] We refer to CNRI Handle identifiers in particular, which are designed for longevity and required by government, scientific and cultural heritage institutions, http://www.handle.net/. PLUS Identifers are CNRI Handle identifiers. The Stanford Law School Copyright Office Practicum of 2013-14 explored persistent identifiers in STANFORD LAW SCHOOL, IMPROVING COPYRIGHT INFORMATION MANAGEMENT: AN INVESTIGATION OF OPTIONS AND AREAS FOR FURTHER RESEARCH 37-38 (2014).

[121] PLUS is able to designate the Copyright Office as a sub-registry and assign a distinct Copyright Office ID prefix. This would allow the Copyright Office to issue PLUS identifiers directly to registrants in real time. By identifying works associated with registrations, a search using an ID for the work would find the registration record associated with that work, even if the deposit for the work is in a PDF or other format not conducive to queries. This ID would be listed for each work included in a group or individual registration, along with the title of the work.

Providing this feature would be substantially less burdensome than undertaking a complete overhaul of the current information technology architecture, and help the Copyright Office conserve resources in the short-term. Although this would provide a seemingly small piece of a larger private registration system, it actually represents a reasonable solution to a significant challenge faced by any potential new service: how to uniquely identify each work across various services. Notably, the PLUS Registry provides an ID Federalization mechanism, allowing for the use of all manner of identifiers issued by all authorities, worldwide. Federalization ensures that no matter which ID is used, a query using that identifier will resolve to the correct record in the PLUS Registry.

On the other hand, this improvement would be imprudent if it distracts from the larger and necessary changes to the Copyright Office's technological capabilities. Ultimately, it would not make sense to invest in this stopgap measure if it distracted from more significant improvements, such as a robust API.

Option 5: Support the Market Research Licensing Needs Survey

The Licensing Needs Survey (Appendix B) should generate insights into the licensing needs of industry photographers and other stakeholders who are already engaged in licensing transactions. Robust response to the Survey could potentially reveal areas with high transaction costs and other barriers to copyright negotiations. Public access to these data could also encourage private sector solutions. The Survey is limited by its relatively narrow circulation to members of the PLUS Registry and PLUS-affiliated trade organizations. With Copyright Office support, however, industry stakeholders may be more willing to respond to the survey and provide new insight on photographers' needs. This option offers a no-cost means to leverage Copyright Office stature to lead a broader policy discussion.

The Licensing Needs Survey focuses on general industry needs and perceived barriers to flexible, online licensing. Fundamental to the Survey is the assumption that the Copyright Office needs to improve its technology infrastructure. The Survey recognizes that commercial entities wishing to mitigate barriers to negotiation for online licensing of visual works currently face considerable costs in building redundancy between their private databases and Copyright Office systems.

Beyond support for the Licensing Needs Survey, the Copyright Office could conduct detailed market research by working with a market research firm through the Library of Congress's standard contracting procedure. Such market research can help to counter the possible self-selection bias of the Notice of Inquiry process by soliciting information from a wider array of stakeholders.

Option 6: Clarify Ambiguities on Group Registrations and the Registration Practices of Stock Agencies

A tension exists between the service that stock agencies provide to photographers and the goals of this Stanford Law Practicum project. Stock agencies give photographers the ability to batch process their images. Because many professional photographers can shoot up to 5,000 images a week, batch processing is a critical feature for an online licensing system. This project,

however, is currently more granular, encouraging the development of technology and processes that enable individual identification of images, rather than registration in batches or bundles.

Should individual registration and licensing succeed, stock agencies may find their competitive advantage of batch registration eroded. Batch registration may become irrelevant as technological advances lower the cost of individual registration. In the face of these technological advances, stock agencies may have to reposition themselves within the industry. This project's proof of concept may imply the reduced salience of stock agencies as an important economic player. Such reduced value is similar to the challenges that record labels face as they reposition within the music industry to accommodate new music distribution realities. This project implies market shifts in licensing patterns as licensors seek to avoid the high overhead and management fees that characterize stock agencies' profit streams.

Further complicating imminent market shifts is the uncertainty in case law surrounding the efficacy of batch registrations under section 412 in securing statutory damages and attorneys' fees for rights holders in the event of infringement. Electronic photograph registration could occur through an API-backed registration mechanism. Pursuant to Section 202.3(b)(5) of the Copyright Office Regulations, electronic registration would benefit photographers who want to register their unpublished images via API-automated databases.

Option 7: Incentivize Private Registration through Legislation that Spurs Private Licensing Solutions

The Copyright Office could propose legislation to Congress that would amend the Copyright Act's infringement provisions to encourage users of copyrighted works to conduct a search for the rightful copyright holder before engaging in specified uses. In exchange for conducting the search, the potential user would be absolved of some financial liability in the event of a legal finding of infringement. This framework would ultimately encourage content creators to develop robust and easy-to-use search mechanisms in order to protect against diminished recovery from infringement claims.

This option has some distinct advantages. First, a proposal of this sort would be consistent with the Copyright Office's past approach to orphan works. In 2008, the Copyright Office proposed the Orphan Works Act, which would have limited the damages for a user that conducted a "diligent effort to locate the owner" of an orphan work.[122] Although the bill was never passed, the Copyright Office has again sought public comment on further legislative changes.[123] Second, this legislative proposal would enable the Copyright Office to influence private sector investment in a new solution and alleviate the burden of having to build the solution itself.

New legislation also has notable weaknesses. First, the Copyright Office may be unwilling to rely upon Congress to pass any proposed legislation and pursuing this option alone would make no interim, incremental progress towards the overall goal of reducing the

---

[122] H.R. 5589, 110th Cong. (2008).

[123] Notice of Inquiry, 79 Fed. Reg. 7,706 (Feb. 10, 2014).

transaction costs to visual works licensing. Second, the bill could spark complaints from creators of visual works because it would have the effect of shifting some of the technological burdens of developing a robust and easy-to-use search tool toward the creator instead of the potential infringer. As we have identified in this briefing book, there are notable challenges in developing an accurate search tool for images and it may be unfair to expect creators to shoulder this burden. Third, this proposal, taken alone, does not resolve the information technology improvements that would likely be necessary for a workable solution. Any commercial entity seeking to enter this market would almost certainly wish to integrate with the Copyright Office's registration system in order to ensure accurate data.

Next Steps

As subsequent research to these options, we recommend that the Copyright Office undertake the following cost analysis studies:

- Actual projected costs of rebuilding the Copyright Office's information technology system. A multitude of web services designed for government use are currently available and could substantially lower the expected costs.
- Conduct user testing or surveys to collect information about how long it takes users to submit relatively simple registration applications and compare the average time to a mock-up of an optimized registration system.
- Analyze the potential costs of outsourcing registration functions to private contractors.

Conclusion

The Practicum has proposed these options with the goal of facilitating low-friction, online licensing for photographs, thereby contributing to one of the Copyright Office's missions, promoting creativity by protecting creators' rights and livelihoods.

Perhaps the most compelling improvement for next-generation copyright is the development of multiple API's that would enable a variety of private parties, including PLUS, to access up-to-date copyright information and execute registrations. While the Copyright Office would have to invest resources to create an operative API, once the system was established, maintaining the API would require minimal resources or oversight. Indeed, the development of an API – or multiple API's for access to information and for registration – most feasibly supports Copyright Office goals of seamless rights management and licensing.

In general, the Copyright Office can support and encourage the development of private sector solutions by improving its own technology infrastructure and proposing necessary changes to the relevant laws and policies. In total, these steps will ease the burden on new entrants to the visual works licensing market and will help to encourage their success by lowering transaction costs. Without these changes, a robust licensing system will be disadvantaged from the start by an inability to easily integrate official and unofficial records, thereby undermining the trust and reliability that is central to a widely adopted licensing platform. Through the steps outlined in this section, the Copyright Office can more flexibly adjust to and guide market shifts that will enable low-cost licensing across the visual arts industry.

PART II: PROOF OF CONCEPT

XI. PROOF OF CONCEPT – ONLINE MARKETPLACE PROTOTYPE

In response to the Copyright Office's expressed interest in fostering online marketplaces with simplified and automated licensing and payment mechanisms, the Stanford Copyright Practicum has designed a proof of concept for an online marketplace ("website prototype"). The Practicum worked closely with Code the Change, a community of Stanford computer science students (https://codethechange.org) led by Andrew Suciu, to design a low-friction licensing proof of concept for images.[124] The prototype is now accessible to Copyright Office personnel on a preliminary basis for review and commentary at **https://copyright-license.herokuapp.com**. The prototype is not yet in service as a licensing venue.

The proof of concept consists of a free-to-use website that serves as an online marketplace for photographs with a scalable, low-friction (in terms of transaction costs), automated system for licensing photographs and illustrations. The marketplace enables photographers—amateur or professional—to license their works directly to end user consumers. Providing this user-friendly, free, and fast online platform to the public, which simplifies the online licensing environment for photographs, should (1) reduce photographers' exposure to copyright infringement, (2) foster monetization of their pictures, (3) alleviate the orphan works problem, and (4) increase social awareness of the importance of copyright licensing for images.

The licensing process within the proof of concept website is being developed as follows:

(1) Photographer attaches basic license terms and price. When a photographer "uploads" a picture to the website, he or she can attach basic license terms to that image, as well as the license price. For further details on the licensing process of our proof of concept, please see Section XI, "Proof of Concept – Licensing Protocol." The full image is not stored on the website database but is hosted on such third-party platforms as Flickr. (Our website hosts only a low-pixel version of the photograph.) This method leverages existing complementary technologies to avoid the high cost of maintaining a database of thousands of full images.

(2) User purchases an image license. Anyone can purchase a license for an image through our website. This requires an online payment system. Here, we have used Stripe, which has two main advantages over PayPal: (1) Lower transaction fees and (2) powerful API tools that ease the implementation of this payment system into both website and mobile applications.

(3) User exports a photo. Once an image license is purchased, the user can download the image directly from the platform.

[124] For an illustrated flowchart of the licensing process, please see Section XI, "Proof Of Concept – Licensing Protocol."

Policy Considerations

Why should the Copyright Office (by itself or through third parties) adopt or support a system structured along the lines of the proof of concept? Implementation of a system developed from this proof of concept could help to solve two central problems for photographic licensing in the digital era: (1) It helps to alleviate the current challenge of finding a work's author and/or rights information, and (2) it simplifies obtaining a license, reducing inclination for unauthorized use even when author and/or rights information is known. Such proof of concept, implemented according to the following categories, would enable (1) potential licensees to find author and/or rights information quickly and (2) photographers to license and monetize their work in a flexible, user-friendly way.

Table 1: Comparison of current and potential photographic licensing models

	(A) Website hosted by the CO	**(B) One or more websites hosted by independent institutions with potential API access and oversight from the CO**	**(C) Websites without API access by the CO (Corbis, Getty, iStock, Shutterstock)**
Control of the platform	Full—safer in terms of data security	Partial—potential data security concerns	No
Transaction costs	Potentially low	Potentially low	Potentially low
Support from the CO	Yes—it would expand the platform's public reach, thus probably increasing its user base	Not directly—smaller user base?	No—smaller (and different) user base?[125]
Integration with PLUS	Yes	Yes	No
Potential integration with the CO's registration and recordation processes	Yes	Yes	No
Costs	High—developing and maintaining the website	High—developing and maintaining an API	No
Source of revenue for the CO	No—if no fees are charged to users	Yes—since third parties should pay to use the API on their websites	No
# of solutions in the market	Only 1 (CO's monopoly)	Several	Several

[125] Image stock agencies' user base targets short- over long-tail users. Instead, this proof of concept—and its API—focuses on long-tail consumers.

The Prototype

The prototype, which is in an early Beta phase, enables anyone with the link to purchase and create licenses for photographs. The website works with Stripe, an online payment tool. Currently the website will not accept actual payment. Rather, it enables the mock "purchase" of a license through the use of credit card number 4242 4242 4242 4242 (with any future expiration date and any CCV number).

The prototype operates as follows:

(1) Create an account. The following information would be required (*) to create an account. The items without the asterisk are optional:

- Name* and username* (they can be the same)
- Password*
- Email*
- Profile picture
- Website
- Short biography
- Payment/deposit account information

This information should also be reflected in the image owner's profile. Moreover, the image owner's profile page should enable her to:

- Edit name and username, change password, change email, edit profile pic, edit website, and edit short bio.
- See/edit uploaded photos ("portfolio").
- Export purchased photos.
- Edit payment/deposit information and keep track of purchases/sales.
- Log out.

(2) Upload an image and receive a unique identifier (URI-URL) for the image based on PLUS functionality (the current version is not yet integrated with PLUS). The mock system enables a user to "upload" (links) a photograph to the website and be assigned a unique identifier (URI-URL) that shows:

(1.a) A low-pixel thumbnail.

(1.b) Basic rights information, including the owner's name as specified in the image owner's user profile (*see section 4 below*).

(1.c) The license terms (plus price) and terms of use (*see section 5 below*).

(1.d) Descriptive information, including category, description, hashtag/s, and the date and hour when the picture was uploaded (*see section 3 below*).

The URI-URL information shall be indicated in a button called "Identifier" located next to the current "Purchase" button.

(3) Image owner attaches basic license terms and price. Upon uploading a picture to the website, in addition to setting the license terms and the price for a photograph, the image

owner could also specify a category, and add a description of the image and hashtag/s. Specifying a category, a description, and hashtag/s will all be optional information.[126]

(4) Basic search function. Then the search function would enable the consumer to search an image by image owner's name, by category, and by hashtag. This search feature should also include filters for price and licensable uses (*see section 5 below*).

(5) Customizable licenses. There are (A) license terms (variable) and (B) terms of use (mandatory) for all the photographs uploaded to our platform:

Variable license terms:

- Image views per month: High (>=10,000 views/month) or Low (<10,000 views/month).
- Whether the user receives a financial benefit directly attributable to the blog: Yes or No.
- Whether the user intends to edit the photograph (including cropping and changing its color): Yes or No.
- Length of the license: Perpetual, 1 year, or 3 months.

Mandatory terms of use:

- Online reproduction only (i.e. no physical copies can be made).
- The license is non-exclusive, non-transferable, and non-sublicensable.
- Attribution to the photographer is required.
- No metadata stripping.
- Images used to depict a model in a sensitive, unflattering, or controversial way (i.e. substance abuse, mental health, pornography) are not allowed.

(6) User purchases an image license. Anyone can purchase an image license through the website via an online payment system. The website is currently connected (though not live) to the online payment system, Stripe, which works similarly to PayPal with two main advantages: (1) Its transaction fees are lower, and (2) it provides powerful API tools that ease the implementation of this payment system into both website and mobile applications.

(7) User exports an image. Once an image license is purchased, the user can download the picture directly from the platform. Copies of the license and the photo are also sent to both the consumer's and the image owner's email addresses.

Next Steps

(A) Completion of the basic licensing model (prototype). In the near term, a fully developed prototype will include:

(1) Actual integration with PLUS. When an image owner "uploads" an image to the website, it should be assigned a unique identifier (URI-URL) that dynamically shows its rights, license terms, and descriptive information. A good method to attach that

[126] DeviantArt.com, for example, offers 18 categories that describe a wide array of image types (http://www.deviantart.com/browse/all/photography/). The prototype will eventually offer categories that reflect image owners' needs.

identifier to the picture is implementing the IPTC-PLUS Photo Metadata Toolkit into our platform combined with the PLUS API (www.useplus.com).

PLUS (Picture Licensing Universal System) provides both a global searchable database or repository for connecting images online with their associated rights information ("PLUS Registry") and a simple universal language for licensors and licensees to communicate and understand their rights. After a careful analysis of alternatives, we conclude that PLUS offers the most efficient method available for recording, updating, monitoring, and understanding image rights information. Moreover, partnering with PLUS enables access to a large user base for the prototype with a minimum investment in terms of technological implementation. Therefore, it is the preferred system to be integrated into the proof of concept.

(2) Search function. Using the photographer's name, category, description, keywords, and tags provided by photographers, users should be able to search for images fitting their intended purpose. This search feature should also include filters for price and licensable uses.

(3) Embedding HTML tracking code. Instead—or on top—of basic export options,[127] the system should provide the user that purchased a licensed image with a very short piece of HTML code to embed the picture into his website (or a hyperlink for its use on, for instance, Facebook). This way it is possible to track views of the images, which is essential for licensing aspects.

(B) Development of the full-fledged website.

(1) Features and development timeline. Three full-time programmers and a designer will be needed for approximately three months to build a licensing website robust enough to meet the needs of long-tail users. Building on the current prototype, as illustrated in "Flowchart of the Licensing Process for the Prototype" at the end of this section, the fully developed platform should encompass a sign up/login option, user profiles, top charts for images, and a deeper system of customizable licenses.

(2) Terms of use. In parallel with designing the licensing terms for the transaction between the photographer and the user, the terms of use for the platform (website) shall protect the platform from claims from both photographers and users. The terms of use contain rules for using the website and, importantly, limitations and disclaimers of liability for the platform. Such terms will, for instance, provide rules for photographers relating to acceptable and unacceptable content (no obscene or pornographic content.). These terms also include warranties from users that they will not assert any claims against the platform itself as, for example, if they cannot execute the payment for the license because the payment system doesn't work in the user's country. Lobster offers an example of such terms of service in the exclusion of its platform as a party to the transaction between the photographer and the user.

[127] *I.e.,* e-mail, WordPress, Dropbox, Facebook, Flickr, Google Drive, Instagram, Pinterest, Tumblr, and Twitter.

(C) Scalability: Future developments of the platform to accommodate the full spectrum of photographers and creators (as licensors) and consumers (as licensees). In order to accommodate the full spectrum of needs, including those of photographers and consumers who currently license through stock agencies, the marketplace platform should address the following issues:

(1) Enforcement. Explore further the possibility of monitoring the licensee's traffic volume and alert the licensee to upgrade or extend a license that is nearing the limit of views agreed under the image license terms. Moreover, the platform should include mechanisms to notify a licensee when a license's term is about to expire so that she can renew it if she wishes.

(2) Trust. The platform should include an option to report an image whose author is false. From an *ex ante* perspective, the Copyright Office should analyze how to prevent or deter users from uploading images that are not theirs. Regarding the *ex post* time frame, further research is needed on tools that will help assess the authenticity of a photo's ownership rights. In the case of false claims, the platform will need an online dispute resolution mechanism (*e.g.*, eBay).

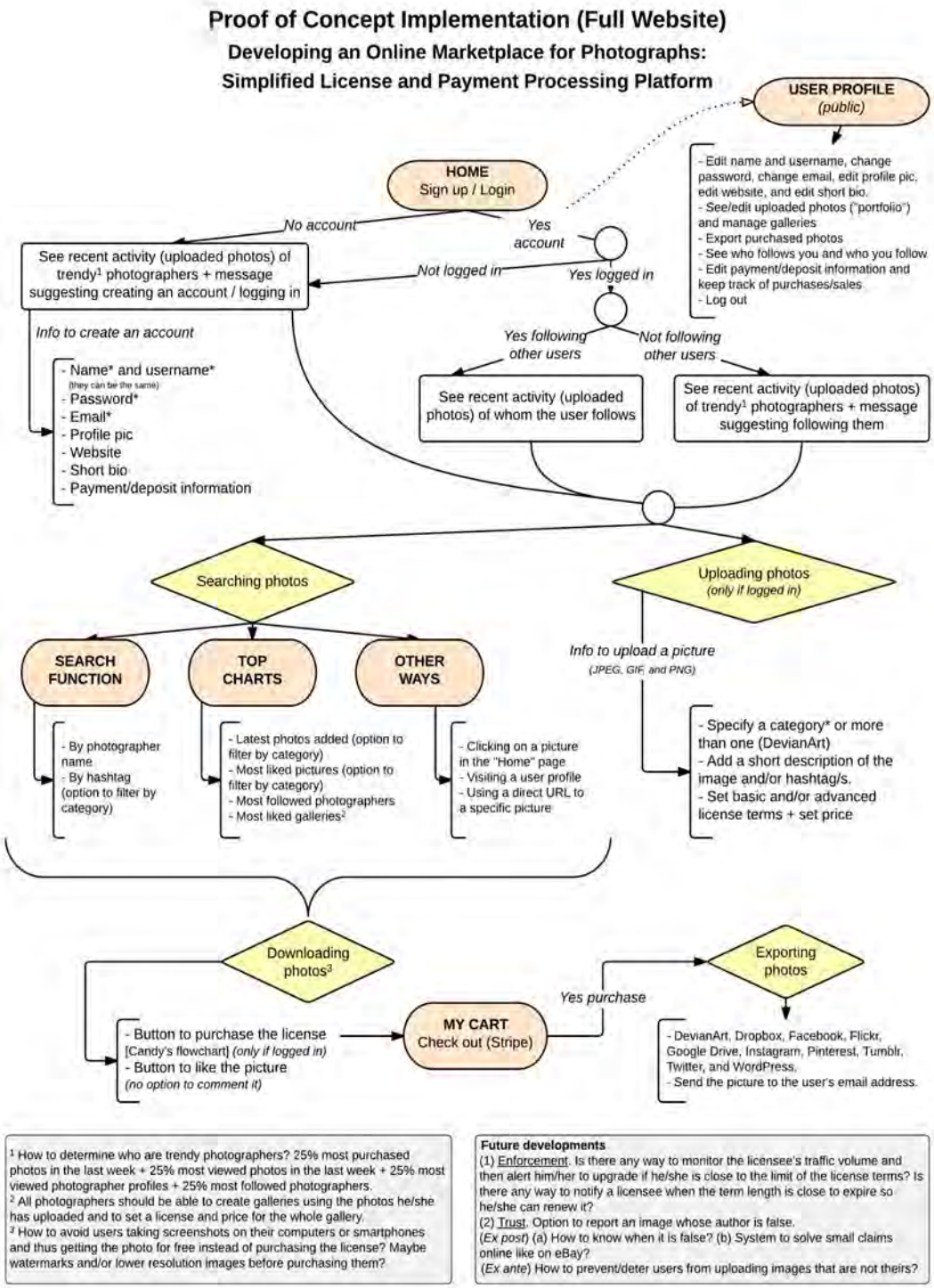
(3) Potential integration with the Copyright Office's registration and recordation processes. As an eventual goal, integration would require the platform to invest significant resources in technological development and data security.

Conclusion

There are two central problems for licensing photographs in the digital era: (1) It is usually difficult to find a work's author/rights information, and (2) unauthorized use is much easier than obtaining a license, even after the author/rights information is known. Thus, the Copyright Office (by itself or through third parties) should evaluate this proof of concept model as a platform that would enable potential licensees to quickly find author/rights information and enable photographers to license their work.

The most significant barriers that could prevent the Copyright Office from realizing this online licensing model are (A) the high costs of developing and maintaining such platform, and (B) the lack of sources of revenue for the Office if no API is built and no fees are charged to users. Yet, providing such a marketplace for digital photographs would (1) reduce photographers' copyright infringement rates, (2) foster monetization of their pictures, (3) alleviate the orphan works problem, (4) increase social awareness of this intellectual property concern, and (5) offer a user-friendly, free, and fast online platform to the public that simplifies the online licensing environment for photographs and offers integration with the Copyright Office's registration and recordation processes.

Illustration: Proof of Concept Flowchart



XII. PROOF OF CONCEPT – Case Study of Bloggers

Problem Statement

Digital photography and the internet have helped created an entire world of online bloggers, who create, share, and use imagery. These blogs can range from individuals running small hobby blogs on niche topics, to large blogs owned and operated by corporations as part of their social media and marketing strategy. The ease with which images can be created and shared has helped bloggers build followings and reach new audiences. With platforms such as Pinterest and Tumblr that are geared towards sharing images, bloggers can reach a large audience with limited resources. Similarly, bloggers can easily find and share other users' content through these platforms.

Unfortunately, the ease with which a blogger may find and share an image also poses a problem with copyright law. Current systems are not set up to properly find and license images. Additionally, imperfect knowledge of U.S. Copyright law seems to have contributed to a general practice where bloggers (a) mostly strive to source and credit an image properly on the premise that this will exonerate them from liability and (b) feel comfortable using an image without permission, because it can be easily removed from a website if the image owner complains.

In the absence of a simple platform to find and license images, bloggers are faced with a difficult proposition – they can expend a great deal of energy and time to possibly find the image owner and ask permission, or they can share an image without permission, and remove it if they receive complaints.

Research Methodology

This research focuses on bloggers in a range of industries—fashion, home goods, beauty products, and lifestyle blogs. It includes both a survey and in-depth interviews about bloggers' preferred search platforms, their understanding of copyright law, and their practices with respect to finding, sourcing, and licensing images. The goal of this research was to understand what motivated bloggers to find and share images, their expectations in licensing images, and their experiences as content creators in sharing their content.

Although the response rate to the survey was low, the answers corresponded to findings from the in-person interviews. (See Table 3 for a list of blogger survey questions.)

Findings

Bloggers do not consider it infringement to post an image without permission, so long as the source is provided.

In general, bloggers do not consider reproducing an image without permission to be copyright infringement. Instead, bloggers believe that their responsibility in sharing an image

is linked to attribution. Bloggers feel confident sharing an image, so long as they attribute it to the original source.

Corporate bloggers describe their companies' policies similarly: No image may be posted unless the original source is found and provided. Ironically, some of these same corporate blogs have a practice of not contacting the original owner to seek permission. This is a strategic decision born out of efficiency. In one instance, the blog managers said that, in their experience, a vast majority of image owners gladly give permission so long as an attribution link is provided. Most content creators simply want credit and, ideally, web traffic that comes from sharing their images. As a result of the overwhelmingly positive responses among content creators, the blog management team decided that a proactive attribution policy seeking permission from each image owner was not worth the time. Instead the team adopted a reactive policy where it simply removes images at the request of a copyright owner. This puts the burden of tracking proprietary images on the content creator and/or copyright owner.

Bloggers who create their own images and content support these findings. Multiple bloggers reported that they would prefer not to be contacted to request permission – they simply want attribution. A few independent bloggers reported mixed feelings about sharing their images with high-end users. For example, if a fellow independent blogger wanted permission to share an image, most blogger image owners would want attribution and a link to their blog. On the other hand, these same bloggers would like to be asked for permission when large corporate entities wish to share an image. While attribution is important, these bloggers say that they would like the option of denying permission for usage rights to entities who may not share their goals, principles, or vision for the meaning of the image.

A system that could efficiently identify who the content user is, and the characteristics and size of the estimated audience, might solve blogger needs. A low-end, independent blogger may not need to negotiate direct permission before sharing an image. The independent blogger may be able to license an image automatically by simply guaranteeing attribution, whereas a large company may need to contact the image owner in advance to explain and negotiate terms. Bloggers, generally, would support a platform that allows for this flexible permission process.

Bloggers want to provide correct attribution because they support content creators.

Bloggers typically believe that proper attribution is crucial. In the blogging community, sharing an image without proper attribution can be construed as a form of plagiarism or passing off an image as one's own. This is especially true when bloggers share content that is similar to images they personally create for their blog. For example, a lifestyle blogger who shoots and creates images may want to share an image from a peer blogger. If this image is shared without attribution, readers may not only mistakenly believe that the blogger created the image herself but the content creator also potentially loses web traffic and publicity for her own lifestyle blog.

Bloggers are willing to search for original content creators for attribution of images they use. Unfortunately, many bloggers find images through such platforms as Pinterest and Tumblr, which strip metadata and original sources from the image. Bloggers will use whatever tools are available to help them attribute the images they use, including searching through Pinterest, Tumblr, and similar platforms, and reverse Google Image searching. Yet, current metadata practices among hosting applications often lead to dead ends. This is the point when bloggers are forced to choose between sharing an image without a source or not sharing the image at all.

Bloggers strongly prefer to share images that can be sourced to their creators. Attribution is a behavioral norm within the blogging community. Because most bloggers are both content creators, and content users, they consider what they would want done if another user found their image but could not find its original source. Thus, most corporate bloggers will not share an image without its source. They (or their legal department) view the risk as too high. Individual bloggers differ. Some, for example, will reproduce an image with a link to where they found it (e.g., "found on Pinterest"). In instances when a blogger reproduces an orphan image without any source or attribution, it is usually with mixed feelings.

Bloggers view an action for infringement as extremely unlikely

Ultimately, there will come a point when a blogger is faced with a choice – they can either share an image without a source, or decide not to use the image. Even in a community where bloggers are extremely supportive of each other by giving proper credit, there is little incentive not to use an image that has no associated source information. Indeed, the strongest reason against using an image without permission is not the threat of an action for copyright infringement, but instead the moral feeling of wanting to properly support the original content creator.

Bloggers who choose to use an image without an original source face relatively low risks. In general if an image owner comes forward and protests the use of their copyrighted work, a blogger can quickly and easily remove the image from their blog. Even if a copyright owner wants to pursue an action for damages, the chances of success are low – most bloggers are small fish and would not justify a copyright owner doing anything more than sending an email requesting that the image be taken down.

When the risk of using a work without permission is so low, bloggers will naturally feel more comfortable using a copyrighted work without first seeking permission. Any alternative platform must offer a seamless, efficient approach that enables bloggers to easily find a copyright owner and license photos for little or no cost. Additionally, a campaign to educate bloggers on copyright law and liability may help bolster bloggers' moral sensibilities and encourage them to adopt a low-friction licensing system.

Options for Policy

(1) A platform that easily connects image owners and users

At the heart of blogger needs is the ability to connect easily with the image owner – either to ask permission, or to provide a link for attribution to the original source. This system needs to expand on bloggers' ethical preference for providing attribution for shared content, and educate them on copyright law and liability. Bloggers will be more inclined to use an online licensing system that easily provides information for the original content creator and a no-cost or low-cost, one-stop clearinghouse for official copyright information. Independent bloggers are not likely to respond enthusiastically to photographers who wish to monetize their work. Thus, bloggers are more likely to rely on the online marketplace as a source of ensuring creative attribution, not monetary value.

(2) A platform that enhances protection for images

Bloggers who create images would find valuable a system that enables an image creator to monitor and track the proliferation of their images. Such a system may also encourage photographers and image creators to track their images and enforce their rights more effectively. A platform that helps photographers and content creators ensure that their images are not being reproduced without permission may also spur more education about copyright laws generally.

This system of enforcement is counter to blogger culture and norms and, thus, independent bloggers may resist adopting it. Moreover, reverse image search is currently technologically challenging, making accurate enforcement difficult to execute. Yet, bloggers understand the value of acknowledging creative attribution. As they become more attuned to the value of effective rights protection for digital images, bloggers may be willing to adopt a low- or no-cost version of the platform.

Current standards of enforcement typically target the needs of content creators who are professional photographers whose work is their livelihood. To expand rights management, the platform should adapt to the needs of low-end users such as independent bloggers.

Proof of Concept as it Applies to Bloggers

Our proof of concept is a simple online platform that would enable bloggers to search by content, quickly find ownership information and seamlessly obtain a license. The platform would allow content creators to preset basic license terms, and negotiate customized licenses directly with users. At its most basic level, the platform can enable bloggers to obtain a license without having to track or contact the copyright owner, assuming that the content owner selected those options. In essence, the platform could facilitate bloggers' current interest in proper attribution, without having to track down ownership information.

While our proof of concept would be helpful to bloggers, both as content users and content creators, major limitations will likely be search functionality and the challenge of gaining traction in the marketplace. So long as bloggers believe that the penalty for unauthorized reproduction of an image is, in effect, illusory, they will likely only adopt licensing that is seamless and that offers content comparable to other sources. Imperative to this system are bloggers' values and their general willingness to overlook infringement. The system needs to leverage and make visible bloggers' general desire to support other content creators, and it should educate bloggers on statutory damages for infringement, which can be as much as $30,000 per work infringed. As a baseline operation, the platform must be able to replicate the quality and breadth of images found in other databases to attract bloggers who otherwise may be slow, or refuse, to adopt the platform as a new standard practice.

Conclusion

Our proof of concept offers a novel opportunity to solve the challenge of attribution common for bloggers. As new image-sharing platforms expand and continue the practice of stripping out content creators' metadata, the challenge of attribution will escalate and reinforce bloggers' willingness to overlook or ignore copyright ownership. A change in norms among bloggers and other low-end users is contingent upon the Copyright Office supporting an effective, low-friction licensing platform for digital images.

Table 3: Blogger Questionnaire

1) Name / Blog Name (optional!)
2) How do you find photos to use? (check all that apply)
   a) Pinterest
   b) Tumblr
   c) Google Image
   d) Other:
3) If you find an image without its source, what do you do to find the source of the photo? (text paragraph)
4) How long would you spend looking for the source of a photo? (choose one)
   a) Less than 10 minutes
   b) 10-20 minutes
   c) 20-30 minutes
   d) More than 30 minutes
5) What do you do if you cannot find the source for a photo, but still want to use it? (choose one)
   a) Will not use photo
   b) Will use photo without attribution
   c) Will use photo and link to where image was found
   d) Other:
6) If a site existed that enabled you to license the photo for a fee, how much would you be willing to pay? (Select all that apply)
   a) Would not pay
   b) Less than $.50 per image
   c) $.50 - $1.00 per image
   d) $1.00 - $2.00 per image
   e) $2.00 - $5.00 per image
   f) More than $5.00 per image
7) If you knew the photo you wanted to use was copyrighted, but it was impossible to find the source to ask permission, would you still use the photo? (choose one)
   a) No
   b) Yes
   c) Yes, but with link to source

d) Other

8) If you use a photo without finding its source, what measures do you think are adequate to show that you did not create the photo? (select all that apply)

a) No measures necessary

b) Note that source is unknown

c) Link to where photo was found

d) Other

9) What would you want to see happen if someone else found a photo you took or created, but could not find you to ask permission before using it? (select all that apply)

a) No acceptable use without my permission

b) No acceptable use without attribution

c) Use, with link to where they found the image

d) No measures necessary

e) Other

XIII. PROOF OF CONCEPT – INTERFACE WITH PLUS

Introduction

The PLUS Registry and PLUS Standards together represent a major step forward in making image rights information easily accessible. First proposed in 2003 by the Copyright Office, the PLUS Registry is a non-profit global "hub of hubs" that connects images to rights holders and rights information through an API. The PLUS Registry, was created by the PLUS Coalition (also known as PLUS – Picture Licensing Universal System), an international non-profit organization in which publishers, designers, advertising agencies, museums, libraries, educational institutions, researchers, photographers, illustrators and others collaborate on a mission *"to simplify and facilitate the communication and management of image rights."*[128]

Users of online images have long faced significant challenges in finding and understanding the rights and permissions associated with images found online. For images found through search engines, social media, and blogging sites, it is difficult to determine the copyright owner or to find rights information. Once found, rights information can be opaque and difficult to monitor, especially for heavy users of online images. Visual artists – and in particular, photographers—similarly face difficulties in ensuring that rights and attribution information remain attached to their works, and in updating and tracking that information. Because there is no central repository of rights information with widespread user awareness, it is difficult for photographers and other visual artists to ensure that image users are able to find, understand and manage the rights information associated with their images. As a result, users of images online who are unaware of image rights or, though willing to pay fees to photographers or stock agencies, cannot identify rights owners or applicable license terms. Thus, such users may infringe copyright, making it difficult for professional photographers to operate sustainable businesses. PLUS solves the problems faced by users and photographers by offering an efficient method for recording, updating and discovering rights information, while providing a universal image rights language that enables for increased automation and could make licenses easier to understand.

While PLUS provides ready access to image rights information, PLUS does not offer image licenses. PLUS, instead, serves as the entry point to a global database of image rights information, providing a foundation for the exchange of information supporting myriad license models and image licensing tools and platforms. Such licensing tools and platforms will enable photographers and users of online photos to interact efficiently, leverage automation and understand their rights. Our project provides a prototype of a licensing solution that relies on the PLUS Registry as a foundation. The Copyright Office could maximize public benefit and aid the mission of PLUS and other registries by creating an API for accessing accurate copyright registration information in USCO records.

---

[128] PLUS, https://PLUS.org and https://plusregistry.org. Note that PLUS is designed to support discovery and management of image rights information for both online and offline images, whether digital or analog. See Table 2, "Summary of PLUS Registry Features."

Vision for PLUS

By linking images found online with creators, rights holders and rights information, the PLUS Registry attempts to address issues common to a variety of stakeholders:

- Photographers and illustrators face the challenge of disseminating their work while also monetizing and minimizing unauthorized use of their work. It is critical that the receiving party have access to sufficient information to avoid infringement and to manage the rights for that image.
- Distributors that are licensees or even rights holders of licensed images, such as stock agencies or museums and libraries, desire to freely and broadly distribute images to the public or to particular users. With the goal of promoting knowledge and culture, the cultural heritage sector seeks to ensure that the public has access to rights information sufficient to avoid the perception of liability in relation to the use of the images. Distributors face the common issue of monitoring unauthorized image uses on behalf of photographers. Thus, the PLUS Registry is a valuable resource to cultural heritage institutions as well as a tool that supports commercial licensing.
- Users of images, from online and offline publishers, to ad agencies, to designers, to cultural heritage institutions, to the public at large, face the challenges of finding a photograph with certain specifications, and also finding and abiding by an image's terms of use.

The PLUS API and Registry together aim to ease the challenges faced in discovering, understanding, and monitoring image rights. As a "hub of hubs" designed to connect image repositories, registries, databases and hubs in all countries, PLUS provides a globally networked, system for the discovery of image rights information. In addition, PLUS provides an extensive image rights language, designed to enable automated machine-to-machine communication of image rights, and to provide a simple universal language for licensors and licensees to communicate and understand their rights. In order to become a trusted rights management platform for a variety of stakeholders, PLUS is operated by a neutral, non-profit organization, with representation for all communities engaged in creating, distributing, using or preserving images. PLUS is not a platform for photographers and users to actively broker licensing agreements. Instead, PLUS has focused efforts on developing standards and systems for use in categorizing, communicating and storing image rights, and a vocabulary for expressing rights and license terms. PLUS collaborates with standards organizations in the countries where it is used, and works closely with such organizations as Creative Commons, in order to maximize interoperability, avoid duplication and to ensure that PLUS standards and systems support all existing rights models and the development of new models.

About PLUS

PLUS consists of the "PLUS Registry," which is a global hub of hubs for the discovery of image rights information, as well as a system of industry standards for communicating image rights information.[129] PLUS is supported and managed by the PLUS Coalition, a non-profit

[129] See http://www.plus.org.

organization consisting of a board of directors as well as "Supporting Members" and "Sustaining Members" across over one hundred and fifty-five countries. PLUS is funded by voluntary contributions received from stakeholders and stakeholder groups.[130]

The PLUS Registry – A way to record and search for image rights information

The PLUS Registry enables registrants to register images and rights information, and allows searchers to find this information.[131] In lieu of embedding detailed rights information in image files, PLUS encourages the use of image identifiers. Storing detailed image rights in image files makes it difficult for rights holders to update licensing terms, increases the size of the image file, and makes it more likely that rights information will be separated from the image, potentially resulting in an orphan work. In contrast, by using image identifiers in image files, each identifier is resolvable to information stored remotely, which can be updated and modified.

PLUS enables the communication of image rights across national systems through a form of ID federalization grounded in three primary categories of identifiers:

- The Party. This identifier is associated with a creator, copyright owner, licensor, licensee or end user, and is searchable in the Registry.
- The Asset. This identifier differentiates an individual record for an image, created by an individual Registrant. The Asset ID is searchable; by giving a unique Asset ID to each image, a registrant can ensure that a search using that ID will find the registrant's information about the image, together with rights information that the searcher is entitled to access. Asset ID, combined with the party ID of the searcher, enables the searcher to see both the rights that the searcher may obtain in the image (if any) and publicly available rights information.
- The Rights. This identifier provides a link to information describing a grant of rights from the Registrant to one or more parties.

ID federalization, as provided through these search categories, is perhaps the single-most important feature of the PLUS registry. The PLUS registry API will process searches by any ID (issued by PLUS or any other authority in any country) and will map those IDs to existing records in the PLUS Registry and in any other registry or database connected to the PLUS Hub.

PLUS identifiers may be stored and used in image files, in "sidecar" files accompanying images, in databases and in electronic and printed documents. The storage of identifiers in image files requires that identifiers are stored in the image file "header," a location reserved for the storage of metadata. PLUS identifiers are stored in a number of dedicated fields, including the "Registry ID field" specified by the International Press Telecommunications Council (IPTC),

---

[130] Interview with PLUS President & CEO Jeff Sedlik, 5/6/15.

[131] Registrants may be photographers, illustrators, painters, graphic designers, videographers, stock agencies, corporate image owners, estates, museums, libraries, and image *users* as well. Registrants need not own images in order to upload them. People searching PLUS may or may not be users. They may be researchers seeking information without seeking the right to use.

which, along with PLUS, has created standards for the communication of image metadata. Anticipating that image identifiers and other information stored in image file headers may be removed or lost from image files, PLUS provides for the recovery of the identifiers using invisible watermarks. If neither an embedded identifier nor an invisible watermark is present, PLUS provides reverse image search capabilities, using advanced image recognition technology, to enable a searcher to identify all creators, copyright owners, licensors and others who have registered an asset. Reverse image search also enables the identification of legacy copies of images that were distributed or published before the existence of PLUS.

PLUS Standards: Industry standards for rights communication and recordation

The PLUS Registry does not assist photographers in generating licenses for their work. Rather, PLUS's goal is to be the source that photographers use to record information about their work through a common language that makes it easier to communicate rights information. The PLUS Standards consist of a number of interdependent elements developed collaboratively by over two thousand representatives from all industries engaged in creating, distributing, using and preserving images:

- Glossary: The PLUS Glossary offers definitions for the most common terms that stakeholders use when communicating rights information. (It currently consists of approximately 1500 terms, developed for an international audience in order to facilitate multilingual communications in cross-border licensing transactions.) In addition to definitions, the Glossary includes synonyms and antonyms, and assigns a "Usability Rank," established by stakeholder consensus, indicating whether a given term is encouraged or discouraged for use in communicating image rights.
- Matrix Codes: Each photograph receives a code to facilitate precise automated translations of rights information.
- Media Matrix: The "PLUS Media Matrix" organizes media categories and options into a standardized hierarchy to enable precise communication of image rights when offering or requesting image licenses and when declaring, asserting, recording or discovering rights information.
- The "PLUS Media Summary Code" summarizes one or more "usages" in a machine-readable alphanumeric string.
- PLUS Identifiers link parties, assets, and rights.
- License Data Format. PLUS specifies a "schema" or series of fields that allow users to describe associated rights for images, including information about the image, licensor, licensee, permissions, constraints, requirements, and other fields.
- PLUS Packs. Plus Packs provide standard combinations of rights for a variety of common uses. The PLUS Standards Library provides detailed descriptions of the rights included in each PLUS Pack. Ultimately, PLUS Packs allow users to upload their own custom packs to share with others.

The PLUS Coalition: A nonprofit organization with corresponding resource limitations

The PLUS Coalition is organized as a non-profit organization in an effort to remain a neutral, independent party dedicated to enabling rights management for a wide variety of stakeholders and users. PLUS does not allow advertising or promotion; instead it operates via donations, and nominal contributions incurred when a user creates records in the PLUS Registry. Moreover, PLUS has expressly refrained from becoming a site where artists and users broker agreements, or actively license or purchase works. In remaining separate from commercial negotiations, PLUS serves a variety of commercial entities that may otherwise compete with one another. As a result, PLUS is uniquely positioned to provide a universal image rights language and to operate global systems for the communication and management of image rights.

While maintaining its status as a non-profit organization has enabled PLUS to engender the trust of a variety of stakeholders, avoiding monetization mechanisms means that PLUS has historically been dependent on contributions. As a result, one long-term challenge that PLUS faces is recruiting and retaining the technical and administrative talent necessary to continue the operation and maintenance of the various components of its system once developed. The participants in the PLUS Coalition have agreed to address that challenge by operating the PLUS Registry on a non-profit, cost-recovery basis, with registrants contributing small amounts based on the quantity of records maintained by each registrant, in order to ensure that PLUS will no longer be reliant upon stakeholder contributions. [132]

Advantages of the PLUS Platform for licensors and licensees:

By enabling a comprehensive system of rights management, the PLUS platform offers a variety of advantages for licensors and licensees. Its primary advantage is framed in its mission: PLUS is a broad international coalition of stakeholders cooperating to develop and operate a non-proprietary global hub of hubs, connecting all systems worldwide. The system allows users to register with any system and permits queries of any system to extend to all connected systems (including PLUS database). Thus, searches of the PLUS database extend to all connected systems, and users may access the system via whatever applications they normally use in their workflows, whether amateur or professional. Perhaps the greatest advantage is ensuring that such a system is not owned and operated by a single for-profit entity that would then own and control a proprietary means of accessing the information. The PLUS Coalition was formed to ensure that searches across the marketplace are controlled through a neutral, non-profit, open and transparent manner by the stakeholder communities engaged in that connection.

The advantages of using PLUS as a rights management platform include an array of technological features, including an API, which help to reduce misunderstandings over license terms, and to enhance the ability of large image licensors and licensees to manage image rights and choose between license terms. In the long-term, the use of PLUS may reduce copyright infringement, reduce the incidence of orphan works, reduce liability associated with

---

[132] According to CEO Jeff Sedlik, PLUS will transition to a cost recovery system with the launch of the PLUS Registry in the next year. This plan supports ongoing operating and maintenance of the PLUS Registry at minimal cost to individual users, while providing free services to the majority of the users.

distributing and using images, provide for more efficient, automated rights management at any scale, and encourage the development of new models for licensing works.

- The PLUS Registry API. The Registry operates on an API that enables third party connections from myriad websites and applications. The PLUS Registry website is an example of a website connected to the API. While the API supports third party connections, it will not open fully until October, 2015, after security issues have been tested. Since 2007, PLUS has relied on secondary APIs for such issues as decoding PLUS codes.
- Scaled Machine-Interpretable Image Identification and Rights Information: PLUS offers automation that manages great quantities of information for images and allows participants from all countries to offer, request, grant and receive image rights, without linguistic limitations. As the first successful effort to achieve international standards by consensus of all stakeholder groups, the PLUS Registry API standards aim to be adopted by other standards organizations and connect systems for global registration and discovery of image rights information. However, systems may also use the PLUS standards independently of the PLUS Registry and registry API. Image rights management at scale regardless of the rights holder's language makes PLUS a leader in the field.
- Reduction of License Ambiguity: By assembling a set of common license term definitions that can be read internationally, regardless of language, the PLUS platform enables a more precise understanding for both licensors and licensees of the terms they are either offering or accepting. This mutual understanding should facilitate international trade while reducing misunderstanding and minimizing disputes and litigation.
- Monitoring and Rights Management**:** By hosting rights information in a globally networked, distributed database, licensors can ensure that licensees and potential licensees have ready access to accurate, current information critical to the management of image rights. This ability may be particularly useful for large players such as publishers and advertisers, tasked with managing licenses for a large number of images. Similarly, the availability of the PLUS Registry may be useful to small players who lack digital asset management systems or other software used to manage image rights.
- License Simplification: By providing common or useful arrays of terms in its glossary and in custom PLUS packs, PLUS may make it easier for licensors and licensees to offer or request the most appropriate rights for their work.
- Discouraging infringement: Once a large number of works are registered with PLUS, registration with PLUS could become a standard for enabling the discovery and clear communication of image rights. While this may protect image users, the goal is to provide information to allow stakeholders to communicate informed decisions**.**
- Neutral Repository of Rights Information: As a neutral repository of rights information, PLUS by design does not enable photographers to create commercial licenses or engage in transactions on its platform. Now that the International Press Telecommunications Council (iptc.org) has adopted the PLUS license data format, its member photographers are able to capture their license information accurately and

easily on the PLUS platform through Adobe products and other image management software. As a result, photographers may design their licenses on an array of other platforms, but use PLUS to store that information for universal access. The lack of a licensing platform is key to the success of PLUS, which offers standards and a registry to photographers and illustrators who may use PLUS from within the applications standard to their daily workflow. PLUS expects that less than 1% of PLUS users will ever visit the PLUS registry website.

- Trust: Much of the driving force behind PLUS arises from licensees –publishers, ad agencies, designers, etc.—who may be faced with the managing hundreds of millions of images licensed from tens of thousands of suppliers in hundreds of countries. Through PLUS, licensees have access to licensing information that guides them on usage rights from licensors. The licensees' need for guidance motivates licensors to upload image licensing information. This ease of access is now leading licensees to require PLUS IDs on works delivered by their suppliers. Licensors (photographers and illustrators) see significant value in the ability to identify their works across global networks.
- Conflict Resolution: PLUS provides for "conflicts" and conflict resolution through a social forum that helps to ensure that searchers relying on information in the PLUS Registry are advised that certain information has been questioned. Although there is no comprehensive mechanism for ensuring that image license claims are correct, or that any rights claim made regarding an image is correct, the social response forum allows users to register conflicts and/or conflicting rights and ownership information.

In summary, PLUS offers an effective, neutral, inter-connected system to store and track rights information. Like the UPC, the ISBN, the DDEX, and the EIDR identifier systems and rights languages PLUS offers the primary language for licensing platforms to negotiate image rights. Data for the PLUS Registry system can be stored in any database, worldwide. Among the databases connected to the PLUS Registry API is the PLUS records database, which operates on a non-profit, cooperative, cost-recovery basis. This is just one of many possible, external databases, registries, or hubs available to users, which ideally will be inter-connected through the PLUS Registry API. PLUS anticipates that hundreds of thousands of websites, applications, and hubs will eventually inter-connect through the PLUS Registry API for registration and search. Thus, the PLUS Registry website is just one means by which a user can register or search the PLUS system. The PLUS Registry website is attached to the PLUS Registry API to ensure that users have access to at least one website operated on a non-profit, cost recovery basis. Overall, the PLUS Registry system is designed to support and indirectly promote licensing innovation through outside forums.

By enabling integration with other systems, the PLUS registry and API encourage the development of a complete solution for photographers and image users seeking to sell and purchase photographs, as well as manage their license terms. The PLUS system is a highly effective platform that integrates easily with our own innovative licensing prototype.

PLUS Interface and our Licensing Platform

Our project consists of a licensing platform on which photographers and image users can efficiently interact. It utilizes the PLUS Registry as an effective resource for making image data discoverable. In particular, PLUS IDs efficiently convey image rights information such that image data are easily discoverable without creators and registrants having to store a large database of photographs and their associated rights. At the same time, a licensing platform can fully leverage the PLUS standards and PLUS Registry in order to maximize the effectiveness for all users. The prototype that we have designed provides a model for such a licensing platform. By automatically integrating with PLUS, our platform will enable photographers to easily license their work, while at the same time recording their rights information in the PLUS Registry.

By leveraging the PLUS standards and PLUS Registry rights information management system, our prototype provides a means for photographers to easily license their work and to update and manage license information. Our licensing management website creates negotiation and distribution platform, apart from stock photo agencies, that provides photographers a direct path to monetization. With the PLUS interface, this prototype offers a technological path forward in building a low-barrier-to entry, low-friction, low-cost, and low-friction licensing and registration system for photographs.

Table 2: Summary of PLUS Registry Features[133]

In summary, the PLUS Registry will:

1. *Provide unique persistent identifiers for owners of visual works in all countries*
2. *Provide current contact information for the owners of visual works in all countries*
3. *Identify the authors and owners of billions of visual works in all countries*
4. *Provide current, detailed rights information for billions of visual works in all countries, including general rights information and license-specific rights information.*
5. *Provide access rightsholder opt-ins and opt-outs (in relation to all manner of licensing schemes and royalty distribution schemes) at the rightsholder level and at the asset level*
6. *Allow rightsholders to declare representation by specific entities on a global level and on a regional level, for the purposes of licensing representation and royalty distribution.*
7. *Provide orphan works search certification.*
8. *Provide for identification of responsible parties after the death of rightsholders in visual works.*
9. *Allow for queries via identifiers issued by any and all authorities, in addition to PLUS identifiers. AKA "id federalization."*
10. *Allow for queries via image recognition to ensure that authors, owners and authorized licensors can be identified even for images stripped of identifying information.*
11. *Provide a means by which users of visual works may assert the right to use such works under agreements, policy or law.*
12. *Serve as a "hub of hubs," globally connecting all manner of hubs, registries, databases and similar systems, to ensure that a search of any one system will search all connected systems, and to ensure that the operation of the "connection":*
    a. *is not subject to the whim of any one government or governmental agency in any one country*
    b. *is not otherwise controlled by participants any one country or region*
    c. *is not operated by any one industry or stakeholder group*
    d. *is "industry-neutral" and is impervious to undue influence by any one industry or stakeholder group*
    e. *is impervious to takeover or acquisition*
    f. *is conducted in a neutral, open and transparent manner allowing for participation by any person or organization in any industry or region*
    g. *is performed on a not-for-profit, cost-recovery basis*
    h. *is as efficient as possible so as to minimize costs of operation*

[133] Jeff Sedlik, Email to Copyright Practicum, July 20, 2015.

i. *is operated without bias as to legal and legislative issues or perspectives*

j. *is accessible via API to a variety of systems operated on a non-commercial or commercial basis by a variety of persons and organizations in all countries (subject to security controls and to the permission of registrants where applicable)*

k. *allows for access via a variety of third-party interfaces – whether websites, digital asset management systems, or mobile apps, among others, to ensure maximum access to the connection*

l. *Enables new business models and innovations*

m. *Enables external systems to more efficiently identify rightsholders, assets, and rights information*

n. *Enables external systems to more efficiently complete rights transactions and communicate rights information*

XIV. PROOF OF CONCEPT – LICENSING PROTOCOL

Introduction

Our stakeholder analysis reveals that existing solutions are inadequate to address the needs of low-value, "long-tail" users who seek to license photographs. As the most popular one-stop marketplaces for online photograph licensing, the stock photography agencies act as gatekeepers between photographers and users. Instead of directly connecting photographers and users, the agencies purchase the rights from photographers and then develop their own licenses which they sell to users. These licenses are often tailored to the interests of high-end professional photographers and high-value users, and often do not align with the needs of middle- and low-value individual photographers and users.

Through the proof of concept, we demonstrate that online licensing for photographs can be low friction for all stakeholders. The proof of concept aims to welcome equally all photographers, professional or amateur, but targets the needs of under-served, low-value, "long-tail" users. The prototype builds on existing technologies with the goal of establishing search and payment functions for a robust database of photographs and images. The primary innovation focuses on the licensing process as the heart of the online marketplace.

Our licensing protocol offers a user-friendly, efficient venue for both photographers and users, reflecting findings from stakeholder interviews[134] as well as our study of the licensing processes of stock photography agencies.[135] As a way of distilling the prototype for a representative user, we focus on the use of photographs and images in online blogs. This representative user illustrates the low-value, long-tail market.

This section offers a general overview of licenses in an online marketplace, and then elaborates on a set of licenses for the use of photographs in online blogs based on a framework of six general licensing term categories. The section includes a flowchart that illustrates the simple licensing mechanism for the proof of concept. The section concludes with next steps to further develop customized licensing protocols for an array of user needs.

A. Overview of licenses in an online marketplace

To balance between scalability and flexibility,[136] licenses used in an online marketplace should comprise two parts, namely (a) a small number of variable terms and (b) a list of mandatory terms of use. While some flexibility allows users to choose the variable terms that best suit their needs, the process remains relatively simple and user-friendly.

---

[134] See Section II, "Stakeholder Analysis." Also, special thanks to Jeff Sedlik, founder of PLUS and a seasoned photographer, for extensive conversations about the online licensing landscape and stakeholder needs. In future research, the Practicum will work with PLUS to distribute a licensing needs survey and extend our sample size.

[135] See Section VIII, "Interoperability," describing image licensing through stock photography agencies.

[136] For the needs on balancing between flexibility and scalability, see "Options and Tradeoffs," Section III "License Terms."

Our licensing protocol aims at flexible, customized licenses. Rather than a generic set of variable terms and mandatory terms of use, a licensing protocol should offer customized licenses for different user needs. The significance and relevance of a licensing term varies with the particular use of a photograph. For instance, geographical limitations are irrelevant and unworkable for photographs used in online blogs due to the relatively borderless nature of the Internet. The condition of geographical limitations, however, may be important for photographs included in a printed magazine advertisement. In addition to inapplicability of terms, there are varied expectations and norms in different usages. For instance, while trust in a licensing protocol may not be significant to low-end bloggers, trust is a crucial component for photographs used in large budget advertising campaigns. These variable factors demonstrate the importance of customizable licenses.

B. Customized licenses for images used in blogs

Our prototype develops a set of simple licenses based on the needs of both bloggers who desire to use photographs in their blogs and photographers who are willing to let their photographs to be used in blogs. Our simple licensing protocol identifies both the variable terms and the mandatory terms of use, relying on the framework of the following six general categories of licensing terms identified in Section III:

1. Permitted users;
2. Permitted media;
3. Number of copies;
4. Regional constraints;
5. Duration; and
6. Prohibited uses/ exceptions.

Not all of the categories are equally relevant across different uses of photographs. The relevance of each category depends on the characteristics of a particular use. For instance, the use of photographs in blogs is relatively simple in terms of permitted users in that no entity, other than bloggers, needs to be licensed to enable the use. Similarly, as the Internet is global, it is unrealistic to impose any regional constraints on the use of photographs in blogs. While these categories provide the basis for an array of licensing protocols beyond this current focus on bloggers, our discussion centers exclusively on licensing between bloggers, as users or licensees, and the photographers who will permit such use of their work, as licensors.

1. Permitted users

Any license concluded in the online marketplace between a blogger and a photographer should enable a blogger licensee to reproduce and display the licensed photograph in her online blog. Display of the photograph is, after all, why the blogger came to the marketplace in the first place. Photographers who are willing to license for the particular use should have similar expectations. Thus, reproduction and display of the licensed photograph in an online blog is a necessary component of the mandatory terms of use for our prototype license.

As far as permitted users are concerned, there does not appear to be any need for any third party to be granted rights to facilitate use. In other words, bloggers themselves, but no third parties, are the *permitted users* under the licenses.

2. Permitted media

As the license is solely for inclusion of a selected photograph in an online blog, the mandatory terms of use should clarify that the license does not permit the user to make or authorize any physical copy (i.e., non-online reproduction) of the photograph.

Not all blogs are equal in the eyes of photographers. Photographers are generally concerned about whether their photographs are used in a commercial or non-commercial manner. Very often, photographers demand a higher fee for a commercial use. Thus, as a variable term, the prototype asks users to indicate whether their use of the photograph is commercial or not.

The term "commercial" has varying definitions,[137] yet photographers must rely on it as a boundary for licensing their photographs. According to the PLUS Glossary of Picture Licensing, "commercial" is "a descriptor for image uses that are part of sales or marketing efforts."[138] For clarity, the marketplace can further elaborate the definition by highlighting that the definition encompasses the reproduction or display of the licensed photograph in a blog on which third-party advertisements are shown (e.g., through Google AdSense).

Any license should avoid ambiguities in using terms that may lead to misunderstandings between licensors and licensees – or photographers and users. As a way of securing a foundation for our licensing terms, we rely on definitions in accordance with the PLUS Glossary of Picture Licensing. We specify those definitions as needed in describing the licensing protocol.

3. Number of copies

The number of copies is a direct measurement of the extent to which the user has the licensed right of reproduction or public display. It is, however, not easy to measure number of copies in the context of using a photograph in a blog. While past – or average -- monthly views on a blog may approximate the number of copies, there is no guarantee that future views will be consistent with past monthly viewing numbers. In some instances, a photograph used on a blog may draw significantly more traffic than past averages. Although further adaptation will be needed to customize licenses for certain photographs, the number of copies based on past views offers a starting place for a simple license.

Photographers generally prefer to be compensated according to the actual usage of their works.[139] Thus, the licensing fee should peg directly to the number of views of the photograph. This type of access is achievable if, instead of permitting bloggers to download the licensed photograph after payment, the licensing mechanism provides only an embeddable link to the photograph. The number of views of the photograph can be accurately recorded by the number of times the link to the photograph is loaded.

---

[137] For instance, some users believe that copyrighted works for individual use, not commercial entities, constitute non-commercial use. Vice versa, some creators think that use of a copyright by a commercial entity, even for internal use, constitutes commercial use. Still more debates focus on whether or not a copyrighted work that is used by a non-profit organization for fund-raising purposes should be classified as commercial.

[138] Definition of "commercial," PLUS Glossary of Picture Licensing, http://www.useplus.com/useplus/glossary_term.asp?pggl=1&tmid=10930002.

[139] Jeff Sedlik in his briefing with Copyright Practicum, May 7, 2015.

One necessary consequence of providing a link to the photograph, instead of allowing a full download, is that the licensee will not be able to edit the photograph. It means that no derivative work can be created from the photograph. Indeed, photographers are generally opposed to authorizing derivative works based on their photographs, as they would like to retain control of how their photographs are used. Thus, the prototype licenses specify that no derivative work can be created from a licensed photograph.

The license pricing model consists of (a) a basic fee covering a certain number of views, plus (b) a variable amount depending on the subsequent number of views. The basic fee is charged when the user checks out, after which she receives the link to the photograph. The subsequent payment (if any) can be charged monthly.

4. Regional constraints

Because the Internet is borderless, it is difficult to impose any regional constraints on licenses for photographs in online blogs. Although certain licenses for photographs used on commercial websites stipulate regional constraints based on where the company's customers are located,[140] regional constraints are not meaningful for many bloggers. For simplicity and clarity, the prototype states explicitly that the licenses are global and not subject to any regional constraints.

5. Duration

Photographers prefer licensing terms that enable them to control the rights to their photographs and, thus, they generally reject perpetual licenses.[141] Consumers, on the other hand, may prefer unrestricted usage rights. To strike a balance between a blogger's preference for unrestricted usage rights and a photographer's preference for flexible terms and the right to termination, photographers should retain the option to terminate the licenses granted in the online marketplace. Thus, our prototype permits photographers to terminate a license by submitting a 30-day written notice to the user at any time following the first 6 months of the license. Upon the end of the 30-day period, the link to the licensed photograph will be deactivated, regardless of the accumulated number of views. Even if the blogger fails to remove the link embedded in his blog, the photograph will no longer be displayed in the blog. Instead, there will be a message stating that the license has expired.

6. Exceptions to Usually Prohibited Uses

Because the prototype targets the long-tail market, the licenses should include the usual terms about exceptions to usually prohibited uses for simplicity. They are uncontroversial to the majority of the bloggers. For instance, it is highly unlikely that bloggers would mind that the rights licensed are non-exclusive, non-transferrable, and non-sub-licensable, nor would bloggers typically be concerned about restrictions on removing metadata from the photographs.

---

[140] Sedlik briefing with Copyright Practicum, May 7, 2015.

[141] Sedlik briefing with Copyright Practicum, May 7, 2015.

In sum, the licenses for the use of photographs in blogs will consist of only one variable term, namely whether the use of the photograph in the blog is commercial[142] or not. The licenses will further contain the following list of mandatory terms of use:

(i) The license authorizes worldwide[143] reproduction[144] and display[145] of the photograph in an online[146] blog (subject to other terms and conditions in the license). No print[147] can be made.

(ii) Attribution of the photographer is required.

(iii) The photographer can terminate the license by giving 30-days written notice at any time following the first 6 months of the license.

(iv) Any right granted under the license is non-exclusive[148], non-transferrable[149] and non-sub-licensable[150].

(v) No derivative work[151] of the photograph can be created.

(vi) Metadata[152] of the photograph cannot be removed.

---

[142] "Commercial" is understood as "A descriptor for image uses that are part of sales or marketing efforts." See "Commercial" in the PLUS Glossary of Picture Licensing, available at http://www.useplus.com/useplus/glossary_term.asp?pggl=1&tmid=10930002.

[143] "Worldwide" is to be understood as "any country in the world". See the definition of "Worldwide use" in the PLUS Glossary of Picture Licensing, available at http://www.useplus.com/useplus/glossary_term.asp?pggl=1&tmid=47300000.

[144] "Reproduction" is to be understood as "The act of copying or the condition or process of being copied." See the PLUS Glossary of Picture Licensing, available at http://www.useplus.com/useplus/glossary_term.asp?pggl=1&tmid=44600000.

[145] "Display" is to be understood as "[exhibit] for groups of people to view, generally, but not always, in public". See the PLUS Glossary of Picture Licensing, available at http://www.useplus.com/useplus/glossary_term.asp?pggl=1&tmid=28160001.

[146] "Online" is understood as "Media, information or digital data that exist on a computer or network of computers." See the PLUS Glossary of Picture Licensing, available at http://www.useplus.com/useplus/glossary_term.asp?tmid=18570002.

[147] "Print" is understood as "A photographic black and white or color image that is reproduced on paper using either film-based or digital methods." See the PLUS Glossary of Picture Licensing, available at http://www.useplus.com/useplus/glossary_term.asp?tmid=27000004.

[148] "Non-exclusive right" is understood as "A legal claim, title, or privilege granted by a licensor to a licensee giving official permission that does not preclude the licensor from transferring to other licensees the same permission within the same scope." See the PLUS Glossary of Picture Licensing, available at http://www.useplus.com/useplus/glossary_term.asp?pggl=1&tmid=12790000.

[149] "Non-transferrable" is understood as "When the conveyance of rights from one party to another is specifically prohibited" See the PLUS Glossary of Picture Licensing, available at http://www.useplus.com/useplus/glossary_term.asp?pggl=1&tmid=16340000.

[150] "Non-sub-licensable" is understood as prohibiting the licensee from granting a further license to a third-party.

[151] "Derivative work" is to be understood as "A work derived from or based upon one or more pre-existing works. An alternative version of a copyrighted work" See the PLUS Glossary of Picture Licensing, available at http://www.useplus.com/useplus/glossary_term.asp?pggl=1&tmid=16300000.

(vii) Pornographic or obscene use of the photograph is prohibited.

(viii) The photograph cannot be used to depict personal endorsement by the model in the photograph (if any) or depict the model in the photograph (if any) for any sensitive issue.[153]

C. Licensing process

The goal of the online marketplace is to enable low-friction licensing of photographs. Thus, the licensing process should be as simple and smooth as possible for both photographers and users.

As photographers may be slow in responding to users' requests, the marketplace should not rely on their individual input on each transaction. Instead, the online marketplace platform enables photographers to pre-authorize licenses (commercial and/or non-commercial) by stipulating the terms and prices for each photograph they upload to the platform.

For users, the online marketplace platform streamlines licensing steps. The goal is to facilitate users in obtaining a license that suits their needs with only a few clicks of the mouse. After a user has selected a photograph in the marketplace, he will be asked how and where he plans to use the photograph. If he intends to use the photograph in his blog, he will be further asked if his use is commercial or not. Assuming that the photographer has pre-authorized such use, the marketplace will display a human-readable summary of the licensing terms (including the commercial/non-commercial use as selected by the user and the list of mandatory terms of use) and (at a click) the full legal text of the license. To facilitate the user's understanding of the licensing terms, the marketplace will offer a glossary. If the user is satisfied with the licensing terms, the prototype will add the photograph with the selected licensing terms to his shopping cart. In any event, if the photographer has not pre-authorized the use requested by the user, or the user is not satisfied with any of the licensing terms, the user can opt to select another photograph or contact the photographer directly. A flowchart illustrating the licensing process from the user's perspective appears at the end of this section.

D. Way forward

While this prototype focuses exclusively on bloggers as low-value, "long-tail" users, we believe that a simple licensing model would be helpful to high-value users as well. After all, the model has the benefit of decreasing transaction costs – a feature that is favorable to all users. Yet, to bridge the gap between our prototype and a full-fledged marketplace application, future researchers should expand their understanding of different users' needs.

To better understand users' needs for different types of licenses, future researchers should conduct additional stakeholder interviews, building on the findings from the Licensing Needs Survey (Appendix B) and on the six licensing factors (Part B above) as a design

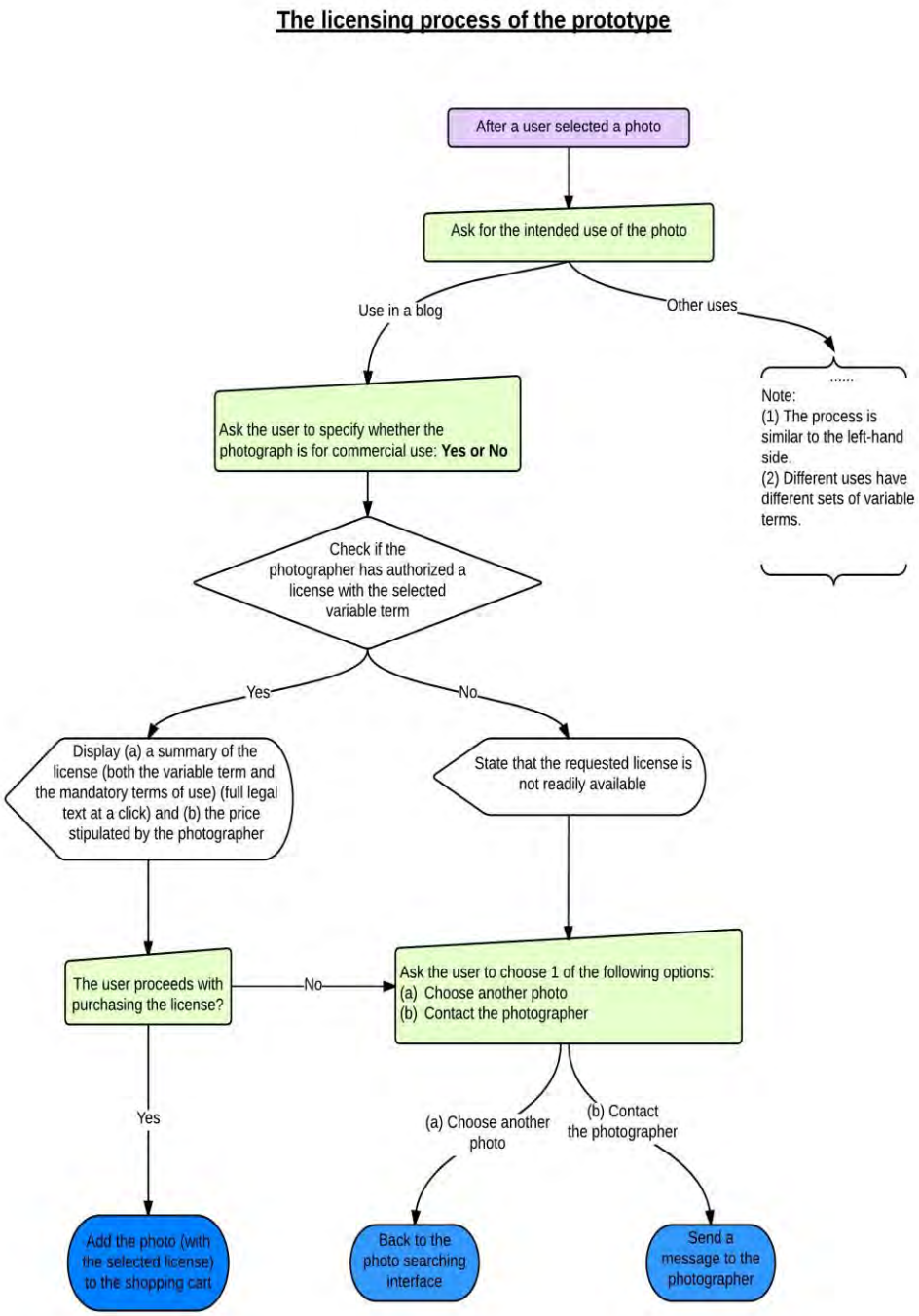
---

[152] "Metadata" is to be understood as "Data embedded or stored within a digital image file that provides information about copyright, credit, restrictions, captions, keywords, or other quality characteristics, etc." See the PLUS Glossary of Picture Licensing, available at http://www.useplus.com/useplus/glossary_term.asp?pggl=1&tmid=32400000.

[153] "Sensitive issue" is to be understood as "A topic that, when depicted visually, May be considered offensive to a person's sensibilities." See the PLUS Glossary of Picture Licensing, available at http://www.useplus.com/useplus/glossary_term.asp?pggl=1&tmid=13100000.

framework. Such licenses should strive to maintain simplicity by relying, at their core, on basic variable terms that licensees and licensors can adapt through direct communication. Indeed, a primary benefit of both the online marketplace and our prototype is direct communication between users and photographers. As the marketplace matures, photographers and users will glean such further information as statistics on pricing and terms, which can aid both sides of the licensing equation. With careful attention to photographers' and users' licensing needs, the Copyright Office can help to grow the online prototype as a flexible, low friction licensing solution.

Illustration: Flowchart of the licensing process of the prototype



XV. SUMMARY OF OPTIONS AND NEXT STEPS

The options and next steps proposed in each of the preceding sections of this briefing book are summarized in the following tables. This includes action to be taken by the Practicum as part of its online photography licensing project, as well as by the Copyright Office in its administrative role.

Practicum Options for Developing Online Licensing System

Briefing Book Section	**Summary of Options**
Problem Statement	• Trusted way for photographers to record copyright ownership and licensing information. • Search function that enables users to connect photographs with ownership and licensing information. • Mechanism for photographers to track use of photographs online, and for consumers to keep abreast of ownership and licensing changes.
Stakeholder Analysis – Photograph Consumers	• Focus on either high value or low value photograph consumer users. • Pursue partnership with PLUS. • Offer value-add services, such as keyword and subject matter search, image browsing and license transactions.
License Terms	• Flexibility versus scalability – licensing solution with maximum flexibility and minimum scalability, or with minimum flexibility and maximum scalability? • Custom license based on a form of questionnaire.
Licensing Strategy	• Data-driven licensing approach based on standardized license forms with questionnaires to introduce flexibility. • Prediction of user preferences using accumulated user data, including correlations between license terms and users. • Tailored messaging to users based on demographic data.

Briefing Book Section	**Summary of Options**
	• User-friendly interface design, inspired by Shake Mobile. • Immediately distribute licenses to parties following completion. • License storage, along with notation on third party websites. • Partnerships with PLUS and potentially Shutterfly.
Trust in an Online Licensing Platform	• Employ a data-driven approach to license terms, to create standardized licenses with a sufficient degree of flexibility. • Offer automated originality screening using reverse image search technologies. • Facilitate efficient self-policing, also using image search.
Search Functionality	• Focus on license search, rather than image search – at least in the near term. • Focus on the use case of photographs found via Google Images or directly on a website, as metadata is not likely to be have been stripped. • Solution distinct from PLUS and other third party platforms. • License search function that can read a variety of license formats.
Search Technologies	• Use metadata to connect ownership and licensing information with photographs. • Licensing platform with metadata viewer that is compatible with all popular metadata schemes. • Licensing platform enables users to retrieve ownership and licensing information embedded using Digimarc and other digital watermark technologies. • Employ image recognition technologies to retrieve ownership and licensing information for photographs that do not contain metadata or digital watermarks. • Invite photographers to manually describe images submitted to licensing platform, using selected keywords. • Build custom search engine using Google's image search.

Briefing Book Section	**Summary of Options**
Interoperability	• Make rights information stickier, by standardizing metadata and using third party solutions. • Data-driven licensing approach, including standardized licenses with some flexibility. • Originality testing that compares photographs submitted to platform with those in database. • Build a license reader. • Enable third party services to integrate with platform, along the lines of Creative Commons. • Implement interoperability best practices, including streamlining of standards, disaggregation of platform, easy metadata creation and an API-first strategy.
Technical Feasibility	• Instead of a one-size-fits-all model, pursue strategies to enable third party systems to interact and share information, including with the Copyright Office. • Search functionality that enables users to find a photograph using keywords. • Reverse-image search to overcome problem of metadata stripping. • Online marketplace for digital photographs that cuts out stock agency middlemen.
Role of the Copyright Office	- See next table

Copyright Office Administrative Options

Briefing Book Section	**Summary of Options**
Problem Statement	• Develop an API that enables third parties to access photograph copyright registration information. • Solicit proposals and offer rewards to motivate parties to develop photograph licensing solutions. • Create internal system for photographers to attach ownership and licensing information to photographs, and

Briefing Book Section	**Summary of Options**
	store the information in an online database.
Stakeholder Analysis – Photograph Consumers	• Consider making the results of a licensing survey public. • Explore opportunities to stimulate the creation of high value services not offered by existing photograph licensing players. • Improve or add to its copyright registration services as regards photographs.
License Terms	-
Licensing Strategy	-
Trust in an Online Licensing Platform	-
Search Functionality	• Solicit proposals to design a license search tool, and reward the most feasible. • Promote and raise awareness of a license search tool among photographers and photograph users. • Partner with image search providers to embed a license search tool in its website. • Take steps to curb metadata stripping by social media and other websites.
Search Technologies	-
Interoperability	-
Technical Feasibility	• Adopt an office data format for embedding copyright and license data in photographs, potentially the PLUS format. • Adopt the PLUS glossary and license data format. Work with PLUS to implement necessary and desirable changes to the glossary and data format. • Take steps to enable third party search tools to connect photographs with copyright registration information. • Modernize technology systems, including APIs that enable third parties to access and use copyright registration

Briefing Book Section	**Summary of Options**
	information.
Role of the Copyright Office	• Improve internal technology systems to enable automated communication between private-sector solutions and government records. • Encourage the use of unique identifiers for copyrighted works. • Contract with private entities to conduct faster and cheaper review of copyright applications. • Conduct and make publicly available market research regarding photograph licensing solutions. • Propose legislation to encourage private investment. • Make policy changes to increase efficiency of copyright registration for visual works.

Practicum Next Steps

Briefing Book Section	**Summary of Next Steps**
Problem Statement	- Complete
Stakeholder Analysis – Photograph Consumers	• Continue to examine relevant stakeholders, and deepen understanding of their practices as regards photograph licensing. • Implement licensing needs survey with PLUS and the Copyright Office, to leverage their scale and relationships. • Refine photograph consumer focus to address the needs of high-value as well as low-value users. • Test the use case of any licensing platform we create, including what is necessary and technologically feasible. • Determine the value proposition of any licensing platform for users.
License Terms	• Issues for further research: *Could standardized licensing terms that do not relate to price*

Briefing Book Section	**Summary of Next Steps**
	be anti-competitive? *How can license terms best account for online use, including terms relating to region, duration and extractability?* *Could (and, if so, should) a public photograph-licensing solution affect the scope of the fair use doctrine?*
Licensing Strategy	• Continue to gather further information regarding initial niche content-creator user type, via interviews, surveys and review of common license terms. • Collect input from the Copyright Office on initial version of standardized license for niche user type, including PLUS license terms. • Test license until users have consensus on viability. • Pilot licensing system focusing on niche user type, and test variations for further users. • Following launch of licensing system, collect data to model predictions regarding user license preferences.
Trust in an Online Licensing Platform	• Conduct further research on niche consumers' (bloggers') needs. Conduct further research among additional target consumers. • Collect and analyze warranty and indemnification terms in licensing agreements. • Conduct user surveys regarding trust-related needs, and analyze discord with industry standards. • User surveys should focus on differences in user needs between online and conventional licensing, with special attention to seller-related risk. • Investigate ability of government entities (and contractors) to license a patented originality screening mechanism.
Search Functionality	• Draft a series of simple licenses for photographers. • Research technologies to enable photographers to embed license information in photographs. • Enhance platform interface with PLUS. • Document the different types of licenses any license reader should read, and associated technical requirements.

Briefing Book Section	**Summary of Next Steps**
	• Document core elements of a license search tool. • Build a license search tool that can read the most common image license forms.
Search Technologies	• Conduct further research regarding embedding metadata into photographs. • Explore how to attract photographers to register with prototype licensing platform • Explore API interface that would enable platform to access the Copyright Office registry. • Explore how to encourage photographers to embed metadata and/or apply watermarks to photographs.
Interoperability	• Carry out user experience survey to identify key areas of satisfaction and complaint of photography licensing users. • Further explore an API-first strategy that would allow platform integration with the Copyright Office registry. • Research API management vendors, including CA SOA Software and Apigee.
Technical Feasibility	• Conduct further research into PLUS' integrations with its partner organizations. • Investigate why Google Image has not introduced PLUS as an advanced image search filter as per Creative Commons. • Continue working with Code the Change to enhance licensing prototype platform.
Patent Issues	• Examine existing patents that may overlap with proposed licensing system
Role of the Copyright Office	• Research costs of rebuilding the Copyright Office's information technology systems. • Consult with Copyright Office regarding its willingness to improve its information technology systems, and any likely timelines. • Conduct user surveys and testing to determine average times for users to submit copyright registration application for photographs, and compare with times for proof of

Briefing Book Section	**Summary of Next Steps**
	concept platform alternative. • Conduct survey to determine whether content creators would be more likely to see copyright registration of the process as simpler and/or cheaper. • Analyze potential costs to the Copyright Office to outsource registration to private parties. • Consider the implications of any photograph licensing platform for fair use. • Study the failed orphan works legislation introduced in 2008, to better understand why it was not implemented. • Compare the Copyright Office's registration processes to those of other countries, including Canada, Germany and the United Kingdom.

Appendix A – Summary of Topics and Resources Considered – Winter 2015

The following is a summary of topics and resources considered by Practicum students during the Winter 2015 quarter.

1. Users

(a) Owners/photographers

- Types of photographers (February 12)
- Lessons from Christopher Reed, *Copyright Workflow for Photographers* (2014) (December 19)
- Further lessons from Christopher Reed email (January 21)
- Analysis of photographer workflow (February 12)
- Analysis of key needs (January 9)

(b) Consumers of photographs

- Types of consumers, 'long tail' versus 'short tail' (February 12)
- Analysis of key needs (January 9)

(c) Next steps for Spring Quarter

- Proposal to focus on 'long tail' (February 5)
    - Enables us to put complex trust issues to one side
    - Idea to pick a test market for small-scale beta test (e.g. bloggers)

2. Existing players

(a) Image search

- GoogleImages (January 15, February 5)

(b) Social media

- Facebook (January 15, February 5)
- Flickr (image-sharing) (January 15)
- Instagram (image-sharing) (January 15)
- Pinterest (image-sharing) (January 15)
- Tumblr (blogging) (January 15)

(c) Other products/services

- Shutterfly (image books) (January 15)

(d) Image stock agencies

- Corbis (January 15)
- iStock (Getty) (January 15)
- ThinkStock (Getty) (January 22)

(e) Licensing-specific solutions

- Creative Commons (January 15, February 5)
- Image Rights International (January 15)
- Ozmo (January 15)
- PLUS (January 15)
- SALLIE (Stanford All-Image Exchange) (January 15)

(f) Tracking use

- PicScout (January 15)
- Digimark (February 5)

(g) Other solutions

- Copyright Hub (December 19, February 26)
- SIPX (February 19)

(h) Next steps for Spring Quarter

- Further discussions with PLUS (February 4)
- Copyright Hub - photography demo (February 26)

3. Licensing

(a) Lessons from existing players

- Tumblr – link to sites where can purchase images (January 15)
- Flickr – easy to use (January 15)
- Corbis – standard stock licenses (January 15)
- iStock – one option, all uses (January 15)
- Creative Commons – standardized (January 15)
- SALLIE – non-commercial university purposes only (January 15)
- PLUS
    - Jeff Sedlik email, comments on royalty free model (February 4, All):

        'At first glance, simple, frictionless, fewer choices. In reality, permissions, constraints and duties are far more complex, making compliance onerous, near impossible. Avoid judging the license model by user interfaces. Royalty free simple moves constraints and obligations into the terms and conditions. Royalty free is prominent among stock agencies. A typical user would assume

that the license includes unlimited use in unlimited media, without restriction. However, constrains and duties buried in GettyImages royalty free license terms…'

- 'Data-driven'/personalized licenses (February 5)
- Limitations of PLUS licenses – warranties, pricing (February 5)
- Need for 'click-through' (February 5)

(b) Academic literature

- *All of this has happened before and all of this will happen again: Innovation in copyright licensing* 28 Berkeley Tech. L. J. 1447 (2014) (innovations in licensing, approaches by Getty, YouTube and Amazon (Kindle) (February 27)

(c) Available technologies

- 'Off the shelf' software, including for payment – examples (February 5)
- Literature on relevant software, including for payment (January 15)

(d) Next steps for Spring Quarter

- Preliminary recommendations for our solution (January 15)
- License questionnaire (February 5, 12)

4. Search

(a) Lessons from existing players

- SALLIE – provision of owner information (January 15)
- Corbis –advanced functionality (January 15)
- Flickr – Provision of contact information (January 15)
- PLUS - limitations of approach to search (February 5)

(b) Next steps for Spring Quarter

- Preliminary recommendations for our solution (January 15)

5. Monitoring use/compliance

(a) Available technologies

- Metadata and digital watermarks (February 5)
- Image recognition technology, including developed at Stanford – examples (February 5)

(b) Lessons from existing players

- GoogleImages - report infringing use, metadata, watermarks (January 15, February 2)
- Facebook, Instagram – take down (January 15)
- Tumblr – attribution, re-posting (January 15)
- PicScout – metadata, fingerprinting, tracking use (January 15)
- Image Rights International – tracking works, fingerprinting, web crawler, service to recover damages (January 15)
- iStock – some patrolling of use (January 15)
- PLUS – three-pronged approach, how can we complement? (February 5)
- Creative Commons - metadata only (February 5)

(c) Next steps for Spring Quarter

- Preliminary recommendations for our solution (February 5)

6. Trust

(a) Lessons from existing players

- Ozmo – credit card information required to search (January 15)
- Corbis – some images unavailable without registration/payment (January 15)
- iStock – credit card details, payment required upfront, indemnity if comply with terms of use (January 15)
- PLUS – warranties, issue of right of publicity (February 5)
- Creative Commons – limitations for trust (February 5)
- GoogleImages – use of disclaimers (February 5)

(b) Next steps for Spring Quarter

- Preliminary recommendations for our solution (January 15)

7. Integration

(a) Lessons from existing players

- Creative Commons - relationship with GoogleImages (January 15)
- GoogleImages – relationship with Creative Commons, PLUS, need for us to integrate with Google (February 2)
- PLUS - limitations of partnering with PLUS (February 5)

(b) Next steps for Spring Quarter

- Preliminary recommendations for our solution

8. Copyright Office/legislation/policy

(a) Existing legislation/policy

- US Copyright Office, *Compendium of US Copyright Office Practices* (2014, 3rd Ed.) (January 9, Nick)
    - How Government can use private data, and the Copyright Office can cooperate with private actors
    - How the Copyright Office can improve the registration system for photographers

- How Governments works with voluntary industry standards (January 15)
    - Law is favorable
    - Voluntary consensus standard
    - Agencies can use private, non-consensus standards

- Restrictions on contracting out (February 5)
    - NGOs/private entities
    - Ban on personal service contracts
    - Inherently governmental activities
    - Significant discretion

(b) New developments

- *US Copyright Office releases report on document recordation* 565 Copyright NewsNet (Jan 7., 2015) (January 7)

- *US Copyright Office releases report on technical upgrades project* 569 Copyright NewsNet (Feb. 19, 2015) (February 19)

- Tamlin Bason, *More control for Copyright Office? House lawmakers discuss how best to provide the Copyright Office with the resources and autonomy that it needs to meet user demands* 89 PTCJ 1129 (Feb. 26, 2015) (February 27)

- Tamlin Bason, *Development: The Copyright Office, in a report detailing much needed technological upgrades, seeks more autonomy over its IT systems, which are currently controlled by the Library of Congress* 89 PTCJ 1128 (Feb. 26, 2015) (February 27)

(c) Other

- Microsoft, *Submission of comments to Copyright Office's Notice of Inquiry regarding strategic plan for recordation of documents* (Mar. 14, 2014) (February 26)

- Andrea Shutz (Counsel, Policy and International Affairs) talk on March 16 (February 25)

Appendix B – Licensing Needs Survey

1. What do you consider yourself primarily to be?

    a. A creator/licensor of photographs
    b. A user/licensee of photographs

2. CREATORS: Please check all of the following formats in which your own photographs have been previously used or licensed:

    a. Print advertising
    b. Digital advertising
    c. Printed promotional projects
    d. Internal corporate presentations
    e. Film/television
    f. Books
    g. Printed publications for editorial purposes with attribution
    h. Printed publications for editorial purposes without attribution
    i. Online publications – News
    j. Online publications – Other (blogs and other non-promotional websites)
    k. Prints (not for resale)
    l. Items/prints for resale
    m. Electronic templates for resale
    n. Part of a trademark or logo
    o. Other

3. USERS: Please check all of the following ways you have previously used or licensed photographs:

    a. Print advertising
    b. Digital advertising
    c. Printed promotional products

d. Internal corporate presentations
e. Film/television
f. Books
g. Printed publications for editorial purposes with attribution
h. Printed publications for editorial purposes without attribution
i. Online publications – News
j. Online publications – Other (blogs and other non-promotional websites)
k. Prints (not for resale)
l. Items/prints for resale
m. Electronic templates for resale
n. Part of a trademark or logo
o. Other

4. Please rank your selections from the previous question in order of frequency, with 1 being the most frequent use. You may rank by dragging each selection to the correct order.

[Selections will be choices from previous question pre-populated with the ability to rank from 1 to last in order of frequency]

5. Please rank these selections again in order of value, with 1 being the most profitable/expensive per use. Note this is not what is most profitable/expensive in the aggregate; rather, it measures the relative profit/expense of each individual use.

[Selections will be choices from above pre-populated with the ability to rank from 1 to last in order of financial importance. This assumes that financial value is the primary or main driver of licensing decisions, when in fact there might be other drivers (e.g. if a creator is happy to grant a royalty-free license, but requires attribution or limited geographic use).]

6. Please check all of the following uses of photographs that you have licensed/for which you have acquired a license:

a. Reproduction of the photograph
b. Ability to prepare works that are derived from the photograph
c. Distribution of copies of the photograph
d. Publicly displaying the photograph
e. Other

7. CREATOR: Please check the top [3] most important characteristics of a license from your perspective.

    a. Time limitations (or lack thereof)
    b. Geographic limitations (or lack thereof)
    c. Attribution
    d. Control over particular uses (e.g. obscene, pornographic, or other potentially offensive uses)
    e. Price
    f. Other

8. USER: Please check the top [3] most important characteristics of a license from your perspective.

    a. Time limitations (or lack thereof)
    b. Geographic limitations (or lack thereof)
    c. [other characteristic]
    d. Price
    e. Other

9. CREATOR: What kind of creator do you primarily see yourself as?

    a. Professional photographer – licensing photographs is my primary source of income
    b. Semi-professional photographer – licensing photographs is a supplemental source of income
    c. Amateur photographer – licensing photographs is not/a negligible source of income
    d. Novice – I have never licensed my photographs for any use or income
    e. Other

10. USER: What kind of user of photographs do you primarily see yourself as?

    a. Expert – I use and/or license photographs almost every day and for a variety of uses
    b. Proficient – I use and/or license photographs on a consistent basis OR for up to 2 particular uses
    c. Novice – I have only used or licensed photographs sporadically for a very limited number of uses

d. Other

11. What types of entities do you primarily work with in licensing of photographs?

a. Corporations and/or other large institutional players (e.g. schools, publishing houses)
b. Photograph stock houses (e.g. Getty)
c. Individuals requesting public use (e.g. bloggers)
d. Individuals requesting private use (e.g. internal corporate development)

Appendix C – Questions to Guide Purpose of Licensing Needs Survey

The following high-level questions provide guidance as to the purpose of the Survey:

1. Who is the target for this survey? Professional/repeat players? Long tail/amateurs? Or both?

    - Impacts wording and accessibility
    - Currently drafted to appeal to individuals on both sides; might not necessarily take into account organizational players

2. What are the overall goals of the Survey?

    - Understand what the main uses of photographs are (both on consumer and producer side)

        - Format – Where/in what format are photographs commonly used?
        - Frequency/Volume – What are the most frequent uses of photographs?
        - Importance – What are on average the most profitable/expensive uses of photographs?
        - Rights – What rights are being commonly licensed/requested?

    - Needs

        - What are the most commonly desired characteristics of a license? (both on consumer and producer side)

    - Demographic-based data

        - Are there certain "types" of users and creators that can be distilled into distinct categories?
        - What is the perception of the market, and what does it actually look like?
        - Basic demographic information (e.g. age, income) [Currently not included in the survey]

Appendix D – Sample Licensing Questionnaire

- Permitted Users
    - **Question 1A**: Who will the purchaser-users (as opposed to the end users) of the image be? *(Check all that apply)*
        - The purchaser, if an individual
        - Employee(s) of the purchaser, if a corporation
        - Client(s) of the purchaser
        - Printers
    - **Question 1B:** Approximate number of users of the image: ___ *(Fill in)*
- Media
    - **Question 2:** In which media will the image be used? *(Check all that apply)*
        - Print ads
        - Digital ads
        - Printed promotional projects
        - Corporate presentations (AV)
        - Film/movies
        - Books
        - Printed publications for editorial purposes with attribution
        - Printed publications for editorial purposes without attribution
        - Online publications
        - Prints (not for resale)
        - Items for resale
        - Electronic templates for resale
        - Part of a trademark or logo
        - Other: (fill in)
- Number of copies
    - **Question 3:** Number of reproductions of the image to be made: ___ *(Fill in)*
- Regional Constraints
    - **Question 4:** Where will the image be used or distributed? *(Check all that apply)*
        - Online

        - U.S.
        - Europe
        - Asia
        - Africa/Middle East
        - Worldwide
        - Other: ___ *(Fill in)*

- Time

    - **Question 5A**: Start date: ___ *(Fill in)*
    - **Question 5B:** End Date: ___ *(Fill in)*

- Exceptions to Usually Prohibited Uses

    - **Question 6:** Will the image be sub-licensed, shared, or transferred in any of the following ways? *(Check all that apply)*
        - Resale of the image
        - Part of online print-on-demand products (e.g. Zazzle, CafePress)
        - Printing on consumer goods for resale
        - Posted on social media
        - Posted on a website where the image is extractable as an electronic file
        - Allowed to be shared on a peer-to-peer network
        - Removing metadata or notice of copyright

    - **Question 7:** Will the use of the image be any of the following? *(Check all that apply)*
        - Pornographic
        - Obscene

    - **Question 8:** Will the image be used in a way that depicts the model in any of the following ways? *(Check all that apply)*
        - Depicting personal endorsements by the model
        - Depicting the model in a sensitive, unflattering, or controversial way (e.g. substance abuse, mental health) with a disclaimer
        - Depicting the model in a sensitive, unflattering, or controversial way (e.g. substance abuse, mental health) without a disclaimer