

# INWEAVE: Intellectual Wealth and Value

Forskerprosjekt proposal to the VERDICT call November 2009

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## Executive summary

The current Intellectual Property Rights (IPR) stalemate is a detriment to society and the free internet, and new modes of collaborative production and dissemination of creative works are not fostered in the current regulatory environment.

The objective of the INWEAVE project is to enable a sustainable, future-proof and successful ecosystem for production, reproduction and distribution of creative works that encourages active participation rather than passive consumption.

INWEAVE will investigate *which mechanisms provide society with Intellectual Wealth of the greatest value*, by performing research into the entire ecosystem around new modes of production and dissemination. The focus of the research will be on reducing transaction costs at technological, legal, organisational and normative levels.

INWEAVE will operate in parallel with the Genero project, which will standardise and implement findings into the Genero ecosystem. INWEAVE will use iterative action research to continually modify its theories and improve upon mechanisms as the ecosystem and our understanding of it evolves.

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## *1. Relevance*

Within the context of the VERDIKT call, INWEAVE addresses the "social networks" topic in two different columns. First it addresses "societal, economical, and cultural challenges and opportunities", and second it addresses "user interfaces, information management, and software technology".

The main objective of INWEAVE is to enable an ecosystem for creative content that fosters creation of alternative business models and encourages active participation in culture and society instead of passive consumption. We are currently experiencing a series of profound changes in the way digital information is produced, disseminated and re-purposed on ubiquitous digital networks. These changes have led to the introduction of a new model of organising production that Benkler has described as Commons Based Peer Production (CBPP) [1]. Free/ Open Source Software (FOSS), Open Content, Hardware, Innovation or even Government are all examples of this new form of production [2] that has as its basis on the assumption that in an interconnected environment information production may be achieved not only by providing incentives, but mainly by abolishing frictions [3].

In order to do this, several objectives must be met. In particular, this ecosystem must be supported by an information management infrastructure that connects consumers of content to the producers of content without creating content monopolies in the process. Also, since participation and involvement in culture is important, there must be a legal framework that facilitates economic compensation in return for reuse of material without pre-written agreements and with low barriers for participation.

The traditional entertainment industry is dominated by a small number of large corporations. These entities operate in a framework of copyright law and rigid legal agreements. Social networks, by contrast, employ non-traditional distribution modes for creative content, and this type of content also forms an important part of social networks. While the two forms of distribution, i.e. traditional entertainment industry vis-a-vis social networks, are often portrayed as antithetical, in fact they are to a great extent complementary: social networks base a lot of their interactions on commercial content and the latter is more effectively and efficiently distributed over social networks. The problem thus increasingly becomes not how to eradicate one of the two, but how to create hybrid business models where value production may be maximized. Existing research [4] indicates that such models are both desirable and feasible and may be applied in the private as well as in the public sector.

The success of the blogging phenomenon and of web sites like YouTube and Flickr are good examples of how these new distribution modes compete with traditional media. Unfortunately the legal framework that has grown out of traditional media is ill suited to these new forms of content production and distribution, so a new licensing framework is also required.

The establishment of the INWEAVE ecosystem is a direct response to the challenge posed by the VERDIKT program with respect to social networks. Primarily, in the column addressing societal, economical, and cultural challenges and opportunities, the creation of such an ecosystem and its associated licensing framework, policies and processes would directly impact participation by individuals in culture and society, while at the same time enabling novel business models. Secondly, in the column addressing information management, the INWEAVE ecosystem requires a new information management infrastructure.

## *2. Aspects relating to the research project*

### **2.1. Background and status of knowledge**

This section describes the status of the current Intellectual Property Right (IPR) stalemate, followed by a description of the relationship between INWEAVE and the Genero project.

#### **2.1.1 Status of the IPR stalemate**

Overall, we may identify two major issues related to IPR regulation and management. The first one is a direct result of the mismatch between the existing regulatory framework and the current material and economic conditions of production. As numerous researchers have indicated in their work (e.g. Benkler [5], Lessig [6] and Boyle [7]), the management of information production should be addressing three key classes of issues: (a) coordinating multiple small contributions, (b) re-purposing existing content and (c) collectively identifying relevant information. The problem is not, hence, how to provide incentives for the production of information good but rather how to assist in their identification, reuse and collective production by a myriad of creators engaged in such production for their own reasons. Such system that seeks to reduce frictions has to be orientated in the reduction of transaction costs in four levels [8], [9]: (a) technological one (e.g. ensuring interoperability) (b) legal one (e.g. reducing legal barriers, especially uncertainty and incompatibility of licensing terms) (c) organisational (e.g. introducing processes in organisations allowing the more efficient management of collective information processing) (d) normative (i.e. assisting the production of norms providing soft-regulatory mechanisms; e.g. citation norms in the academic community).

The second one closely relates to the form of the current regulatory system that is not in accordance to the regulatory instruments that are best suited to support creativity and innovation in an interconnected digital environment. Laws are extremely slow both in their formation and application. The existing institutional ecosystem is not well equipped to deal with the challenged of a CBPP mode of production. We should instead look at more advanced techno-legal models such as the ones supported by CC and its RDF/ XML expressions. At the same time we need to appreciate that most of the regulation of content even today does not happen in the level of law nor that of the end-user contract, both of which are relatively visible and hence make their producers accountable to the business community and society as a whole. On the contrary, regulations about how content is to flow within and between different organisations is regulated by their internal processes, inter-organisational contracts, policies and procedures and in the case of public interest organisations may be governed by circulars or funding agreements that set the baseline for how content is to be disseminated and used.

As a result, when we seek to provide a solution to the problem of the IPR impasse, we should only look at actual legislative amendments as the last target in a chain of other objectives that should first aim at intervening at this gray regulation level that could nevertheless produced the desirable regulatory results. The Genero project, by being able to tackle all the above mentioned four levels of regulatory intervention, is capable of cultivating a regulatory environment most suitable for the current mode of production.

#### **2.1.2 The Genero Project**

The Genero project was launched by the Norwegian non-profit organisation FriBit as an attempt to solve the current IPR stalemate. As an active member of the free culture movement, they have been seeking a solution to the Copyright stalemate that would both preserve the free Internet and civil liberties, while covering the needs of the creators. With inspiration from books such as "Innovation Happens Elsewhere", "Free Culture" and "Long Tail", FriBit launched the Genero project in collaboration with the free culture movement, commercial actors, libraries and academia.

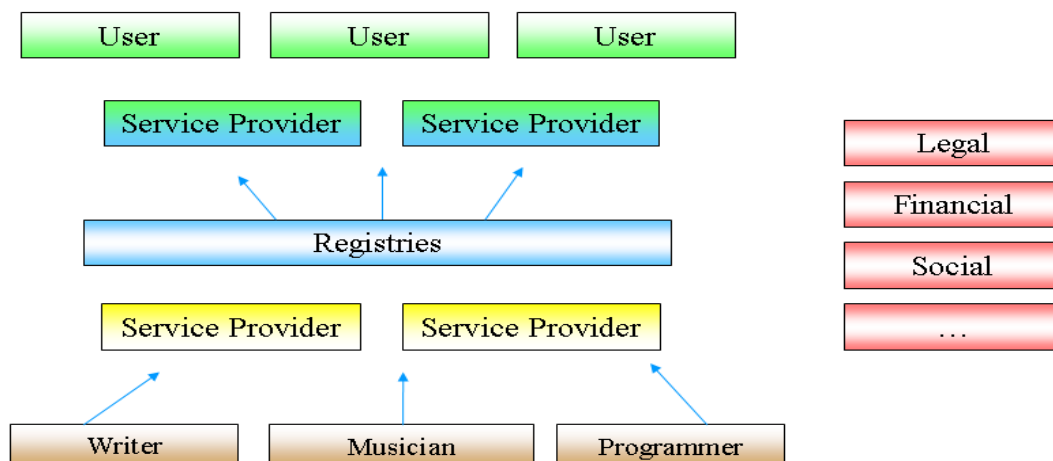
The Genero project is an alternative to existing content production and distribution ecosystems, based on a non-exclusive end-to-end principle, much like the Internet itself. It would serve as a connector between the various "free culture service providers" such as SourceForge, Flickr, Jamendo and Magnatune. The Spanish for-profit company SafeCreative is the Copyright registrar for several such service providers (including Jamendo and Magnatune), and will be a Genero Service Provider and a strategic partner of the Genero Initiative. Organisations like Creative Commons and the Open Knowledge foundation play a key role in the production of legal and technical infrastructures supporting the dissemination of free culture and could facilitate the Genero project to achieve its objectives.

### 2.1.3 The Intellectual Wealth and Value project (INWEAVE)

The purpose of INWEAVE is to determine *Which mechanisms provide society with intellectual wealth of the greatest value*. The mechanisms can be sociological, legal, economical and technical in nature. The project will determine the characteristics of Intellectual Wealth that is of value to society (low price, high degree of participation, free speech, investigative journalism, etc.) [10] and identify measurable parameters (key process indicators). For instance, as the study by Tsiavos and Korn indicates [10] most of memory, cultural and educational organisations using open content licensing seek to produce value that only marginally relates to monetary objective, whereas the study by Pollock et al indicates that Open Data models may be used to produce value in the broader public sector [11]. It will then analyse the Genero model and its compliancy to these mechanisms and propose continual improvements as our understanding of culture, business models, market dynamics and legal frameworks increases. The Genero Initiative will use the INWEAVE research as basis for changes to the standards, licenses and rules.

The Genero project performed an initial study that determined that the ideal distribution ecosystem should have the following characteristics, and arrived at the following distribution model:

- The system must be **non-exclusive**; ownership of content must be functionally separate from content distribution. This allows taking advantage of the full potentials of hybrid open and closed business models. [12]
- The system must be built upon an **end-to-end principle** [13]; similar to internet neutrality, the service providers must be non-discriminatory, and it must be able to account for and handle any type of use for any type of content.
- The system must encourage **new distribution channels and technologies** to gain adoption.
- **Use and reuse** of content must be permitted and promoted.[6]
- **Regular behaviour by regular people must be permitted**. Law must reflect the will of the majority of a population, not criminalize them.[14]
- Conventional law enforcement must be at a minimum, decentralized and contract-based. **Trust and norms** must do the work of enforcement.[15]



A Genero Service Provider on the production side is an agent that provides aggregation services and handles all the necessary registration tasks on behalf of the content creator who merely needs to state his Business Terms. An example of such business terms may be to charge a sum of USD 5.00 per copy. The metadata describing the work is registered with a Genero registry along with a link, in some form or other, to a digital copy of the work itself. Other Genero Service Providers on the consumer side may search the registry, retrieve the content they want to sell, and sell it using any business model and technology they like, provided they adhere to the stated business terms of the work. Other creators may create derived works of existing works as long as they give the owner of the parent work a "fair share" of any revenue. What constitutes a fair share is determined by guidelines provided by the Genero license. A Genero Service Provider cannot assume the copyright of the content he distributes, nor demand other exclusive arrangements. This is done to ensure horizontal separation of the value chain.

The Genero system will also use the separate trust-based system called Informed Individual. The system allows for easy access to reliable and personalised interpretation of any kind of information, by enabling users to generate a web-of-trust by selecting trusted sources for interpretation. The system separates the access to, interpretation and distribution of information. Users choose trusted entities to perform subjective interpretations, and, when accessing information they get a drillable, weighted aggregate of the combined interpretations generated by each users personal web-of-trust. Genero will use the Informed Individual for anti-phishing, soft enforcement and relevance building purposes. The Informed Individual, whose purpose is to "*strengthen the individuals ability to make choices according to their values*", was originally created for the purposes of ethical and environmental consumerism, by granting aggregated, personal and reliable information about the entire production and distribution value chain of products. The rationale is that by solving the problem of asymmetrical information, users can make choices based on characteristics that are important to them beyond price, such as child labour, product quality, deforestation and Co2 emissions.

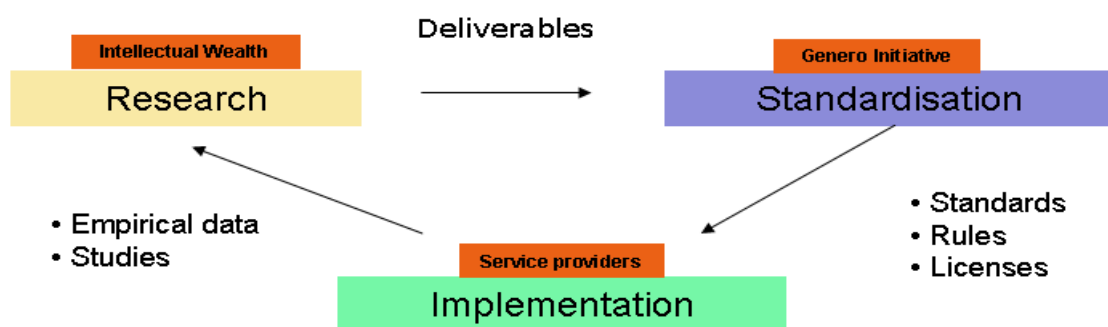
Another component of INWEAVE is the specification and implementation of a framework capable of handling production, management, and distribution of massively collaborative creative works.

## **2.2. Approaches, hypotheses and choice of method**

The main research problem of INWEAVE is: "*Which mechanisms provide society with intellectual wealth of the greatest value?*" In order to start addressing this question, INWEAVE will base its initial research upon the current Genero model. However the project will not be limited by the current structure in its research; the current model will rather be considered as an initial hypothesis. The overall method is iterative action research, and the problem will be approached by reducing transaction costs at the four levels mentioned in section 2.1.1, namely technological, legal, organisational and normative.

### **2.2.3 Iterative research**

INWEAVE will operate in parallel with the Genero project. As illustrated in the following figure, INWEAVE will use iterative action research, where the Genero Initiative and commercial actors will standardise and implement the findings. This constitutes an implementation of the classic action research cycle [16] in the context of a virtual environment [17].



The project will go through 3 iterations comprising the following four steps:

1. INWEAVE will first determine the desirable performance of the Genero ecosystem and determine measurable parameters (low price, high volume, high degree of freedom, high degree of participation etc). Then the project will develop or apply existing theories on how the various mechanisms (social, technical, and economical) should be shaped in order to best achieve the desired outcome. This will be translated into concrete mechanisms (rules, license principles etc) and implemented in project deliverables.
2. The deliverables will be adopted by the standards body called Genero Initiative. These deliverables will then go through a standardization process and release various standards and rules. The releases are in the form of content metadata standards, Genero license versions etc.
3. Once a change is released, the various service providers (Genero Registries, Genero Service Providers, Genero Payment Providers) implement the changes.
4. INWEAVE collects empirical data, qualitative studies, contributions etc from various sources. Based on this data, the next iteration will proceed.

Each iteration will be done in a period of one year, and INWEAVE will disseminate its results continually.

### 2.2.4 Interdisciplinary approach

The research performed by INWEAVE is interdisciplinary by nature. In order to understand the interactions in the participatory culture and network economy, one must understand the legal aspects of free licenses, the sociological and ideological aspects surrounding the free software community and the technologies they employ in order to interact and develop new software (web 2.0, versioning, forums, wiki's). See 2.3.2 for details on an inter-disciplinary master thesis concept.

The project will also try to document the production of different forms of value flows in various contexts. Following the methodology developed by Tsiavos and Korn (2009), the project will try to trace the correlation between different contractual arrangements, the flows of content and the flows of value. Such value could be of monetary or other nature, but needs to be made concrete in a number of areas, such as: (a) Music and Audiovisual Industry (b) Museums, Libraries and Archives (c) Public Sector Information and Open Governance Service provision (d) educational sector. For each of these sectors the following methodology is to be applied:

The methodology employed in this report is based on the identification and analysis of three basic variables that appear in each of the case studies. These variables are a) Value, b) Content and c) Rights. Value, content and rights are closely interrelated and it is useful to trace their relationship, as it sets the management framework for any e-content project. However, they need to be kept analytically separate and examined in juxtaposition to each other:

A. The flow of content produces value: eg when a user downloads a digitised sound recording, the user gains value in terms of knowledge and the public-sector organisation increases the visibility of its collection and hence its cultural value

B. The flow of content is regulated by the rights existing on it: eg when a work is licensed under a Creative Commons Attribution licence, it may be freely exchanged between users provided they make reference to the author of the work<sup>1</sup>

C. The flows of content and rights do not follow the same path: eg in the case of User Generated Content (UGC) that resides in a repository and is licensed under a Creative Commons licence, the content flows from the repository to the user, whereas the licence (rights) flows from the user that has authored the content to the one that uses it.

This methodology features:

a) A series of steps to be followed in order to trace flows of value, rights and content in any project. These constitute an analytical framework that may be replicated and employed in any project involving management of rights protected content for the production value

b) The specific process and rationale of data selection, collection and analysis followed in this project

### 2.3. The project plan, project management, organisation and cooperation

Performing empirical studies into a whole new ecosystem for IPR management depends upon actual implementation and evaluation. Traditionally this would be impractical for a research project, but in this case INWEAVE will collaborate with the Genero project for implementation. INWEAVE can employ the method of iterative Action Research, since the cost of implementation will be borne by other parties.

#### 2.3.1 Project plan

The project is divided into the following 10 tasks, including deliverables.

- **Task 1: Project management.** This task is responsible for the overall coordination and project management.
  - **D1.1:** Final report.
- **Task 2: Identification of key process indicators.** This task is responsible for identifying measurable criteria for the barriers of participation, effectiveness of trust-based enforcement and business models, degree of market adoption.
  - **D2.1:** Report on key process indicators
- **Task 3: Specification of metadata and content standards.** This task is responsible for developing the metadata and content standards and specifying the APIs for the underlying the information management infrastructure for keeping track of creative works.
  - **D3.1:** Design of metadata standards and APIs, version 1.
  - **D3.2:** Design of metadata standards and APIs, version 2.
  - **D3.3:** Design of metadata standards and APIs, version 3.
- **Task 4: Design of revenue and licensing model.** The goal of this task is to design a framework of licensing agreements that represent a barrier to participation that is as low as possible while at the same time preserving the possibility for economic compensation for creative works.
  - **D4.1:** Design of revenue and licensing model, version 1.
  - **D4.2:** Design of revenue and licensing model, version 2.
  - **D4.3:** Design of revenue and licensing model, version 3.
- **Task 5: Development of governance structures.** The goal of this task is to develop an overall framework of rules and norms governing the entire Genero ecosystem, including a trust platform for organic, non-intrusive enforcement. The regulatory framework must also preserve privacy and civil liberties.

- **D5.1:** Report on governance structures.
- **Task 6: Development of prototype system.** This task is the development of a prototype system implementing the metadata standards and APIs specified by Task 3 so that they can be tested.
  - **D6.1:** Implementation of prototype system, version 1.
  - **D6.2:** Implementation of prototype system, version 2.
  - **D6.3:** Implementation of prototype system, version 3.
- **Task 7: Design of collaborative production and versioning models.** The goal of this task is to develop a framework that is capable of handling production, management, versioning, and distribution of massively collaborative creative works.
  - **D7.1:** Requirements specification.
  - **D7.2:** Design document.
  - **D7.3:** Prototype.
- **Task 8: Evaluation of prototype system.** The goal of this task is to evaluate the how well the metadata standards and APIs work in practice and how well they support the envisioned Genero ecosystem.
  - **D8.1:** Evaluation report, version 1.
  - **D8.2:** Evaluation report, version 2.
  - **D8.3:** Evaluation report, version 3.
- **Task 9: Empirical investigation of ecosystem efficacy.** The goal of this task is to evaluate the efficacy of the implemented mechanisms under the stated criteria in Task 2.
  - **D9.1:** Report from empirical investigation, version 1.
  - **D9.2:** Report from empirical investigation, version 2.
  - **D9.3:** Report from empirical investigation, version 3.
- **Task 10: Dissemination.**

The scientific process is an iteration of hypothesis formation, implementation, and evaluation. The project will run in three cycles, each one developing a better version under the key process indicators.

#	Task	Year 1				Year 2				Year 3			
1	Project Management	x	x	x	x	x	x	x	x	x	x	x	x
2	Identification of key process indicators	x				x				x			
3	Specification of metadata standards and APIs	x	x			x	x			x	x		
4	Design of revenue and licensing model	x	x			x	x			x	x		
5	Development of governance structures	x	x				x	x			x	x	
6	Development of prototype system		x	x			x	x			x	x	
7	Design of collaborative production and versioning models		x	x			x	x			x	x	
8	Evaluation of prototype system				x				x				x
9	Empirical investigation of ecosystem efficacy				x				x				x
10	Dissemination		x	x	x	x	x	x	x	x	x	x	x

### 2.3.2 Organisation and cooperation

The project will be organised as an Open Research project [16] to permit massively distributed collaboration. The project team will provide the core researchers with many surrounding contributors and partners. A community manager will coordinate the efforts between the various research groups, standardisation bodies and commercial partners. The community manager will establish contact with the various fields of interest in Norway and encourage them to join the effort. The manager typically also holds presentations at e.g. universities to encourage participation.

One collaborative effort that has already been arranged is the inter-disciplinary master thesis concept between *[Not included in public version]*. Professors at these institutions post master thesis assignments on topics related to INWEAVE. The students receive conventional mentoring, but also mentoring from the professors in other fields as well as the INWEAVE community and their fellow students. The IT student can get perspectives from a law professor, and so forth. The professors *[Not included in public version]* have committed themselves to this effort.

The strategic partner SafeCreative stated that they work closely with Creative Commons, the EU Project Communia, WIPO.org, Spanish Government, National Library of Chile and other institutions, and they already envision the Genero system to provide a unifying or connecting role between all the projects (See attachments).

### 2.3.3 Collaboration with other stakeholders

INWEAVE will collaborate with a number of stakeholders in order to ensure that its deliverables are put to practical use. NR has gained endorsements and concrete commitments from key stakeholders, both in order for the deliverables to become effective standards, and to ensure large scale implementations.

In order to ensure widespread adoption of standards, NR has

- Gained endorsements from influential Free culture notoriety such as Cory Doctorow and Brett Gaylor (see attachments)
- Gained project participation from NPO's such as Creative Commons, Electronic Frontier Norway and FriBit (Prodromos Tsiavos is Legal Project lead in CC England and Wales, Øystein Jakobsen is vice president of FriBit, Thomas Gramstad is president of EFN and voluntary consultant for the Genero project)
- Gained project participation from Biblioteklaboratoriet (see attachments)
- Gained project participation with SafeCreative (see attachments)

In order to ensure widespread technical development and implementation, NR has received

- A commitment from Spanish SafeCreative for 2000 hours of work over 3 years with standardisation, technical and legal support, and has agreed to become a Genero Service Provider. Note that SafeCreative has all the software and hardware necessary for a successful technical implementation.
- A commitment from Norwegian FreeCode for 4000 hours of work over 3 years with technical and community work, as well as offering its chief "ideologist" Øystein Jakobsen to work for INWEAVE at cost price.
- A commitment from Cultura Bank to provide financial services and become the first Genero Payment Provider (see attachments)

### **2.3.3 CV's from project participants**

*[Not included in public version]*

### **2.4 Budget**

*[Not included in public version]*

## **3. Perspectives and compliance with strategic documents**

### **3.1. Compliance with strategic documents**

By following the development of the Genero project from the beginning and be allowed to set the premises for its development, NR has an opportunity to learn about new economies and social dynamics, and bring scientific studies very close to their practical implementations.

The Norwegian Stortingsmelding nr. 17 [17] named "Eit informasjonssamfunn for alle" (An informational society for everyone) speaks in detail about the promotion of the digital commons, participatory culture, free licenses, CBPP and civil liberties.

The Norwegian "Referanse katalog for IT-standarder i offentlig sektor v2" [18] (Reference catalog for IT-standards in the public sector) is the first official policy worldwide stating the use of free content formats and standards in the public sector.

There is also a trend among politicians regarding increased attention to free and participatory culture. Heidi Grande Røys, the former Minister of Renewal (IT) introduced preference policy for free software and established Friprogsenteret (national competence centre for free software). She spoke on several occasions on behalf of free culture, pushed for open access to map data, launched the website [www.deltemeninger.no](http://www.deltemeninger.no) discussing participatory culture and published the following CC licensed book with the same name.

### **3.2. Relevance to society**

One notable effect of INWEAVE is the promotion of free licenses and the expansion of the cultural and technological commons. Intellectual Property such as patents on biology, software patents and copyright stands to keep third world countries from having access to medicines, technology and knowledge. The advancement of free culture and knowledge promises to help third world countries partake in the knowledge economy and bring wealth, cultural identity and stability.

The project is of particular relevance not only to content producers and consumers but also to citizens, as the production and organisation models proposed are applicable to any form of decentralised information production and re-use and is of particular relevance to public sector information structuring and dissemination. In addition, it may serve educational, research and cultural goals by making sure that the material produced by such organisations may be more effectively disseminated and re-purposed.

### **3.3. Environmental perspectives**

INWEAVE would provide a minor beneficial environmental impact through reduced CO2 emissions and waste as content distribution shifts from physical to digital form. The advent of the web-of-trust system Informed Individual would have a major positive environmental impact by revealing unsustainable production methods to consumers. If consumers could easily see products made with palm oil and potentially harmful to the rainforest, the consumer could choose products made with other kinds of oil instead. This stands to have a substantial positive environmental impact, as sustainable production methods would be rewarded.

### **3.4. Ethical aspects**

Current content distribution systems have major negative impacts on the cultural and technological commons, due process of law, privacy, freedom of speech and freedom of communication. The introduction of an alternative system would help to rectify this, by demonstrating that the disconnection of internet users is not necessary in order to promote the creation and dissemination of cultural materials. Also, the advent of the Informed Individual trust system will provide consumers with information to avoid products made with child labour and cruel animal practices, and select products made humanely instead. This stands to have a substantial positive ethical impact, simply by rewarding corporate responsibility throughout the value chain.

### **3.5. Gender equality and gender perspectives**

It is important for INWEAVE that both genders participate, not only in the research project but throughout the Genero initiative. The project will strive for equal representation in all of the initiative's endeavours, as participation from both genders contributes to a more balanced and higher quality result.

## ***4. Communication with users and utilisation of results***

### **4.1 Communication with users**

*When relevant*, information must be provided regarding how principal users will be involved in the project and which information channels will be used to communicate research findings. The stakeholders that INWAVE needs to communicate with includes

- Various scientific communities
- Other related projects (Europeana, Reaktor, Communia-EU etc)
- Genero Initiative
- Genero Service Providers
- Creators (authors, musicians)
- End-users
- Interest groups and Non-profit organisations (Creative Commons, Wikimedia, FriBit)
- Public Sector Organisations (E.g. Office of Public Sector Information)

The project will employ techniques for mass collaboration employed by free software development and open science. The project will use the best collaborative tools available for project management and communication. For external communication, community tools such as forum, blog, wiki, twitter and survey tools will be employed. The project will also attend conferences and present the project and its findings. The project will also maintain a blog that provides informal news. This is not to be considered formal deliveries, but rather as status updates and temporary conclusions from the research.

## 4.2. Dissemination plan

INWEAVE will be organized as an open collaboration project, where all knowledge gained is published continually. A web-page will be set up, where community tools such as knowledge bases and forums are made available. All knowledge will be published continually under free licenses, and scientific journals are invited to publish the articles freely. The project will also publish findings through the Open Access community.

Scientific results will be published as papers in peer-reviewed journals and conferences. We will publish any and all results with free licenses (Creative Commons, GPL) in multiple channels. Presentations are published at Slideshare, videos will be made available both as downloads and streaming.

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