Design protection in managing sustainable user-driven innovation in SMEs

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Abstract

Innovative products and services – which are an essential precondition to economic prosperity and welfare in society as such – result increasingly from cross-sectorial combination of technologies, design and business models. The recent design "wave" in management and innovation gained growing attention in the context of entrepreneurship and innovation. In recent decades, design became also part of the discourse of social responsibility. Designers interpreted their social role as complementarity to business strategies, and design was meant to bridge pure industrial thinking and social responsibility. Today, design adopts a comprehensive holistic thinking and addresses social, cultural, environmental, political and economic provinces in the context of globalisation, industrial expansion, increasing consumption.

Numerous approaches came to light under design management or design-driven innovation provinces. Indeed, they have been a promising key to develop, perform competitively and grow in a sustainable way. Yet, sustainable and responsible innovation development and the outputs thereof on the product, service or marketing level embrace also issues that are linked to the ownership and stakeholders involved in the innovation process, namely, intellectual property right (IPR) aspects – in both national and international contexts.

From an IPR perspective, it has to be taken into account that design-driven innovation is becoming a more and more prominent example of user-driven innovation, resulting in the challenge of how to distribute to prosumeristic users a "fair share" of the company's profit based on the economic exploitation of the prosumer's contribution. Indeed, industrial design issue here is just as significant as in patents or utility models.

The authors took part in several European research projects on design management, open innovation and related IPR topics with a focus on transnational entrepreneurship. The research is based on semi-structured interviews, qualitative and quantitative surveys, expert assessments from diverse European countries as well as on a comparative analysis of the legal national and international regulations on the issue. The paper highlights and discusses results of important aspects of IPR for design management processes, thus forging innovation and

sustainable entrepreneurial growth.

Keywords
Design management, IPR, open innovation, user-driven innovation, SMEs

(1) Introduction

Design-driven innovation enjoys growing importance on the entrepreneurial agenda and cases like "Braun" products of Dieter Rams that inspired Apple's designers or the Russian "Gopniki" look. But most approaches and concepts for design-driven innovations are oriented on large-scale companies, i.e. realistic and feasible management concepts of design-driven innovation for entrepreneurs and specific SME-suitable implementation concepts are hardly to find. This makes it complicated for SMEs to benefit from design-related cost saving, business processes' improvements and sustainability, which have been proven by research studies (GDC, 2010; Gerlitz & Prause, 2017). Indeed, traditionally design has been affiliated with products and their uses, their shapes, colours, etc. or just been treated as a matter of mere styling but today, however, design has been "repositioned", and new possibilities were opened up for design to play: within manufacturing, business development, industrial and social innovation and, recently, digital and responsible economy domains (Hack et al., 2013; Inglewood & Young, 2014; Morelli, 2007).

Design is used not just for manufacturing any longer, but also for daily life. It acts as a driving force on the entire manufacturing process and the entire lifecycle. Design affects the entire ecosystem and leaves positive ecological, environmental, sustainable imprints, e.g. in the manufacturing sector, enables to generate technological innovations or achieve social inclusion through being heart within social innovation development process (Brown & Wyatt, 2010). Indeed, as the scholarly discourses showcase, design has become an important tool related to the business development, innovation and entrepreneurship (Borja de Mozota, 1998, 2003a, 2003b, 2006; Raulik et al., 2008; Prause & Thurner, 2014). By echoing Zhao (2005) an interplay of organizational (cultural), social (external environmental), managerial (entrepreneurial), technological and environmental domains that integrate design can drive innovation, accelerate new knowledge and experience generation. Therefore, the focus turns from traditional design towards design management (DM), i.e. the efficient and feasible collaboration between design and business in the SME context, leading to innovation (Norman & Verganti, 2014). Innovation is the key to both competitiveness and growth (Borja de Mozota, 2011). Consequently, DM is rather placed within the area of strategic management where network dimensions play a crucial rule, connecting and intertwining dimensions that affect SME performance in the regional context.

But today, innovation is increasingly complex, fast, interactive, and requires the connection of external and internal

knowledge bases (Pavitt, 1984; Chesbrough, 2003; Asheim & Gertler, 2005; Malerba, 2005; Prause & Thurner, 2014). Consequently, firms acquire knowledge from a variety of sources and actors at various spatial scales (Smith, 2000; Tödtling et al., 2006), combining it with internal knowledge and competences. For this purpose, firms may maintain and use different types of interactions and transfer channels (Gilsing et al., 2011). Localized design expertise is crucial for competitiveness as innovation processes rely on the interplay between local and complementary global knowledge and design expertise (Gertler & Levitte, 2005; Boschma & Ter Wal, 2007). Thus, globalisation and emergence of global networks, new social and environmental challenges have jeopardised innovation and growth opportunities. This is especially true for the SME sector and performance of individual regions of the EU. Certain EU regions located outside the core of industrial activity or being more remoted from metropolitan areas are subject to a fiercer competition from other economically strong regions or global players. SMEs are regarded as a backbone and vehicle of regional and national economy. Thus, in order to strengthen regions that are exposed to competition more than the other, there is needed support for SMEs. They play crucial role in generating growth, attracting new investments and businesses, enabling clusters to evolve and ensuring employability of regional people (EC, 2012a, 2013a, 2013b, 2013c, 2015, 2017; GII, 2018).

Since product design plays an important role for the company's business success, the questions arise how to protect intellectual property rights as well as safeguard that unique product design that is distributed and used globally. Unfortunately, protection of design is not unique organised globally. Furthermore, there exists huge difference compared to patents that are applicable all around the world. In the EU member states, one needs just to pay a fee and meet other formal requirements for registration (e.g. Community design at EUIPO, Germany, France, Spain). Another approach appears for the Member States of the World Intellectual Property Organisation (WIPO), where a registration of product design within the WIPO protects the design in line with an examination by the designated Member States as well as in accordance with the Geneva Act of the Hague Agreement (DPA, 2017).

Protection of product design can be located in the context of Responsible Research and Innovation (RRI), which is the most recent and mainstream discourse in the EU (EC, 2012b, 2013d). RRI can be considered as part of a set of ideas and initiatives addressing socially responsible innovation. It describes research and innovation processes taking into account effects and potential impact on the environment and society. This approach is part of the European Research Agenda and has been integrated into EU programmes and projects. Until now, a large number of EU projects have been funded by the European Commission in order to develop the RRI governance framework (Res-AGorA, 2014).

By accessing protection of product design from the IPR point of view, the questions appear often in the context of open

source and user-driven innovation. It is because of the open distribution of forms and their products in the globalised economy.

(2) Theoretical background

Traditional manufacturing SMEs are forced to search for new innovative and sustainable solutions in order to survive on the macro-regional or global scale. It might be argued here that in order to better equip for the global competition, local and regional needs and challenges need to be tackled first, before proceeding to the global scale. Generating innovation and focusing on the local and regional context needs to be focused on in order to make a stronger use of the "glocalisation". This term refers to addressed local and regional needs and challenges instead of concentrating on global integration (Courchene, 1995; Porter, 2000; Wolfe, 2002). Here, Design Management (DM) concept can help SMEs to strive and achieve innovation as well as to better adopt to globalisation. This might happen by developing new ways of making and selling products, services, adopting organisational processes and implementing visions that are in line with the needs and challenges of the local and regional setting (Candi, 2006; Steffen, 2010; Figurska, 2014).

Despite increasing trends of DM utilisation within the global scale and in large organisations, DM theoretical contributions and practical applications within the SMEs context is rather scarce (Hack et al., 2012, 2013; Gerlitz & Prause, 2017). Screening of the worldwide databases, DM concepts for SMEs yield just a few entries (Gerlitz, 2018). Parallel, DM is marginally utilised in SMEs and entrepreneurial management practices. Existing DM concepts appear to either to be absent or distant from their feasibility in SMEs (EC, 2009, 2013; Prause et al., 2012). Existing approaches and models are rather driven by transfer of best practices from large companies, which made them less feasible for SMEs, as they were detached from considering the environmental ecosystem of SMEs, addressing less their specific needs and challenges, SMEs performance practices and networking interactions (Gerlitz et al., 2016; Gerlitz, 2018; Gerlitz & Prause, 2017). Consequently, there is missing a conceptual DM approach to innovation in SMEs from the processual perspective: how to employ tools, what challenges and opportunities are related to the DM embeddedness process and how does management of design integration take place. Furthermore, knowledge is missing on organisational changes that are based on opportunity recognition, innovation, organisational strategy and culture (Gerlitz, 2018). In addition, we deal here with non-utilised potential of DM: design integration and utilisation. This appear to be especially true for the SME context as well as in policy and governance domains and measures that would enable to decrease the gap in knowledge and research on what processes and frameworks may be adopted by enterprises to assist them in becoming design-oriented. As noted by Whicher & Walters (2014), only a few regions in Europe have integrated design into their regional or macro-regional innovation policy on regional and local policy levels (p. 4). Thus, practical application of DM concepts through research projects is demanded (Acklin et al., 2006).

New dynamics in the interaction of innovation, entrepreneurship, DM and regional development appear with the rise of the smart specialisation and the Industry 4.0 concepts (Gerlitz, 2016; Prause, 2014). Both approaches embrace distributed networking interaction and allow acquisition of knowledge and expertise from a variety of different sources. Especially, for the design sector, an inspiration and use of global patterns, icons, forms or ornaments together with the protection of their intellectual rights becomes crucial for competitiveness and the prospect of a company. The no-universal "design patent" as a global form of legal protection of design until now made first steps toward patenting industrial design right in some countries and institutions. On the European level, there are forms of registering design for both the WIPO members and several countries all around the world (DPA, 2017).

Special forms of exchange of design patterns is related to open and user driven processes that are organised by online communities. Following Bartl (2008), these processes are covered by an open innovation approach, which underscores the way of going beyond the corporate boundaries, i.e. an active strategic deployment of environmental cloud or external factors of influence to increase its own innovation potential (Hack et al., 2012, 2013). As a result, innovation occurs and ideas and design are generated in such a society through the interactive creation of value. Additionally, open innovation encompasses such manifestations as to be open for the knowledge of the other, generation of the knowledge as a joint action as well as the share of the knowledge with the other. Here, again the already mentioned cases for open design driven innovation like Braun products of Dieter Rams or the Russian "Gopniki" fashion look underpins the importance of the flow of design innovations among open innovation and online communities around the world. But there should be a legal framework for these considerable transfers of value, providing sustainability and a minimum of balance of interests of both users and companies. Legal practitioners should familiarise themselves with user-driven innovation business models and the implemented technologies (Kerikmäe et al., 2018).

From a legal point of view, there is little demand for a balance of interest to be achieved by instruments of intellectual property law, as free use of otherwise protected rights forms the essence of the "Open Source Scene's Spirit". This means that all parties involved in open source innovation are aware that they – expressly or impliedly – waive their respective IP rights, driven by the awareness that they jointly improve a "common good". But not all open or user-induced innovations contribute to public goods. The innovation beneficiary more and more often happens to be a private and profit-oriented company, making the private user providing innovation not any more to a public good, but to private assets of that company, e.g. the photography of an amateur carpenter's design cupboard creation on Instagram, which is then found and copied by a furniture company (see further examples at Baldwin et al. 2006). The value generated by this innovation is not any more freely

available on the market, but has to be purchased by each buyer (or other kind of customer) individually. In this situation, the exchange of interest is not as balanced as in the "Open Source Scene", and correction measures imposed by law may be required. As these contributions are of immaterial character, these correction measures – in other words forms of legal protection – must be sought among the existing protection schemes intellectual property.

On the European level, the question of protection of product design falls into the area of RRI, which *refers to the comprehensive approach of proceeding in research and innovation in ways that allow all stakeholders that are involved in the processes of research and innovation at an early stage (A) to obtain relevant knowledge on the consequences of the outcomes of their actions and on the range of options open to them and (B) to effectively evaluate both outcomes and options in terms of societal needs and moral values and (C) to use these considerations (under A and B) as functional requirements for design and development of new research, products and services* (EC, 2012b, 2013d). A framework of RRI consisted of six key points and is described by the European Union highlighting engagement, gender equality, science education, open access, ethics and governance. As a result, RRI can be defined as "a transparent, interactive process by which societal actors and innovators become mutually responsive to each other with a view to the (ethical) acceptability, sustainability and societal desirability of the innovation process and its marketable products in order to allow a proper embedding of scientific and technological advances in our society (Schomberg, 2013). The first steps on the EU level have been scientifically narrowed down by Owen et al. (2012) to the three key points of democratic governance, responsiveness and framing of responsibility, which are to large extent overlapping with the EU framework. In addition, Stilgoe et al. (2013) highlight as main features for RRI the four dimensions of anticipation, reflexivity, inclusion and responsiveness. Thus, meanwhile the RRI approach found their way into the strategic documents and objectives of the Europe 2020 Strategy to create Smart Growth or into the Horizon 2020 programmes and related projects of the European Union, including the Res-AGorA project (Res-AGorA, 2014).

(3) Methods

The research process described in the paper followed a manifold research path. Diverse research methods have been intertwined, considering respective research approach and research tool. Five techniques were employed in exploring the objectives of the present paper:

- Research types: analytical, qualitative, historical, empirical, practice-based;
- Research approach: qualitative;
- Research methods: descriptive and qualitative – case studies, semi-structured interviews, expert assessments and observations; and
- Research scope: different research activities between 2013 and 2018.

The reasoning behind the selection of the following techniques in the research process is elaborated in the following.

With regard to the research types, the

paper has chosen analytical, qualitative, empirical and practice-based way, since during the research process the facts and empirical evidence gathered were appropriately analysed and subject to a critical assessment. The core of the research process is the qualitative research approach. Important insight views were given in qualitative expert interviews and the analysis of case studies (Hack et al., 2012, 2013; Prause & Thurner, 2014; Hoffmann & Prause, 2015; Gerlitz & Prause, 2017).

(4) Design protection schemes in user-driven innovation

1. International design protection

Protection of designs is globally not yet harmonised, as it is e.g. already in case for patents, which can be effective all around the world. In contrast to other industrial property rights, protection is granted not only upon registration, but also – similar to copyrights – by making design available to the public, despite the fact that the scope and period of protection is lower for these unregistered designs. Both design protection forms share anyway some common protection criteria: It can either protect the design of a flat surface, e.g. of a textile or wallpaper, or the design of a three-dimensional object. In this context, the following features as lines, contours, colours, shape, texture or the materials of a product play a crucial role. Here, a product is any industrial or handicraft item, including packaging, get-up, graphic symbols and typographic typefaces as well as parts intended to be assembled into a complex product.

A design must be new on the date of filing in the application (respectively on that date, where a first alleged infringement has taken place in case of non-registered designs),. This means that no design that is identical or differing only in immaterial details from the design in question has been published, exhibited or put on the market in any other way before that respective date. Furthermore, a design must have individual character, thus meaning that its overall impression must differ from already existing designs. In this context, neither the view of a layman nor the opinion of a product designer is decisive. It is rather an overall impression produced by the design on the so-called “informed user” that is relevant.

These criteria are covered by the national design protection law in terms of the following contents that are generally harmonised: The U.S. design patent, for instance, is a form of legal protection granted to the ornamental design of a functional item, e.g. jewellery, furniture, beverage containers or logos. Providing another example, the German registered designs protect the appearance of industrially manufactured or manually crafted products, e.g., clothes, furniture, vehicles, fabrics, decorative objects or graphical symbols. Parts of products can also be protected by a registered design, for example, the sole of a sports shoe or the cap of a writing instrument. Under the German law, a registered design (German: “Eingetragenes Design”), formerly called “Geschmacksmuster” (in English, “aesthetic model”), is a form of intellectual property that extends industrial design rights over the visual design of objects that is not purely utilitarian. The term of a “Geschmacksmuster” is twenty-five years (§

27 (2) GeschmMG) old. It is used for the Community design (Bulling et al., 2004; Eichmann & Kühne, 2015; GPA, 2017).

In general, international design protection follows the principle of territoriality, i.e. design rights are granted by and under the legal systems of individual states. Thus, their protection is generally restricted to the territory of the state that is granting the design right. As a result, any protection beyond that territory can only be achieved on this basis if parallel national design rights are obtained in several individual states, usually chosen by the degree of economic interest for product sales. On this basis, a bundle of rights can be created, covering the relevant geographic area as a whole. But in fact, such "bundled national rights" are rarely applied for in practice, considering there is a basic protection as unregistered design anyway, and there are substantial costs involved in the accumulation of national rights (filing fees, publication fees, legal fees, etc.), especially in case of design protection of non-durable consumer goods as produced by the fashion industry or toy industry, etc. Yet, even companies in branches producing longer-lasting products as, e.g. in the automotive industry, electronics industry, etc. usually restrict themselves to design protection in key sales markets (Hasselblatt, 2017).

Still, a maximum of international protection is and has always been envisaged by producers, just as measures of harmonisation have been induced and partly also already achieved by the international community. These measures consist of international treaties harmonising the national application and registration process (multilateral treaties) or autonomous international regulations works establishing new, uniform design rights applicable on the territory of several nation states. An example for the latter – here for the EU legal space – is the Council Regulation (EC) No. 6/2002 of 12 December 2001 on Community Designs (Community Designs Regulation), which grants a unitary right covering all the EU Member States for up to 25 years for registered rights (as far as every fifth year the renewal fees have been paid) as well as three years for unregistered design rights.

The community design is granted additionally to national design protection, which in the European legal space has anyway to large degree already been harmonised by the respective implementations into national laws of the Directive 98/71/EC of the European Parliament and of the Council of 13 October 1998 by setting up the harmonised standards for eligibility and protection of most types of registered design.

Beyond the EU, the Hague Model Convention is today the most important treaty providing uniform registration procedures (but no direct effect, as substantial national design law remains applied) in all the Member States. This is similar to the Madrid Trade Mark Convention, which also unifies only the filing and registration procedure. Registration procedures are maintained by the WIPO Office located in Geneva.

The Hague Model Convention consists of three separately amended versions of the original Convention of 1925, being the

"London Version" (2 June 1934), the "Hague Version" (November 28, 1960) and the "Geneva Version" (July 2, 1996), which are all parallel in force, as they addressed different international needs. It is thus essential to specify exactly to which version of the Hague Model Convention is referred to.

2. Design protection in user-driven innovation

From an IPR perspective, there are two types of user-driven innovation, which differ by the nature of the "innovation target", which may be either a public (i.e. freely available) good to which innovators contribute on an entirely private and voluntary base to a public good, or innovators contribute their achievements in corporate environments on behalf of the employing company, which has to re-finance these investments via licenses or selling items in which the innovation has been realised. The first model is known as "private-collective innovation" (von Hippel & Krogh, 2003) and is regularly found in the IT branch, where this way open source software is developed or maintained (see e.g. Linux); eventual arising IP rights are deliberately waived. The second, traditional model, has on the other hand to protect their innovation in form of IP rights in order not to be deprived of the profits of its investments

Anyway, also companies often waive their IPRs, as they realise more and more that making their technical state-of-the-art freely available has the potential to generate a much higher return in innovation than the private-investment model (Henkel et al., 2013), as the intrinsic motivation of the contributors for their free commitment exceeds by far employees' motivation (Alexy & Reitzig, 2013).

In spite of this, there are at present no gratification schemes, which would enhance a balance of interest between these voluntary innovators and companies "harvesting" these contribution, which – being of immaterial character – can only be corrected by adjustments in the existing intellectual property protection schemes for design among protection systems discussed above. A granted registered design is a strong and effective right, and also the unregistered design grants the creator of the design a range of rights ranging from monetary compensation for past infringements to injunctions against future infringements.

In fact, every design made available via online communities is (if the respective criteria in terms of novelty individuality are given) is at least protected as an unregistered design holder according to national law or – in the EU – according to the community design regulation. As most users making their designs available in public are not aware of this, in most cases there is little practical impact of their disclosure. But the situation changes if the private company copies that design found online and seeks protection of its legal position from the usage of that design against other third persons: In the case presented above, the furniture company may eventually intend to apply itself for design protection based on the design disclosed on the internet by the amateur carpenter. When it will hand in a respective application for a design at the competent office, in most legal systems the office will check – among other conditions – the novelty of the design. If the

company did not disclose itself the origin of the design, a research by the office may reveal the amateur carpenter as creator, who, in this case, also made his design publicly available – depriving it from its novelty. But the company's situation is even at stake if it does not apply for design protection, but simply starts mass production within three years after design disclosure, as the initial creator will in many cases be protected at least as holder of an unregistered design right. Depending on the respective legal regime (national or international law, depending on the function of the design office), the amateur carpenter could file a notice of opposition within a special opposition period, and also without such an opposition the company remains endangered that the user will later hand in an action for nullification of the design, as the conditions for its grant had not been met, or sue for cease and desist from the usage of his design in case the company did not apply for design protection, but trusted to have an unregistered design.

In other words: If a company endeavours the complete exploitation of a design – and the more attractive the design is, the more probable this endeavour will be –, it has in some way to cooperate with the creator of that design. Otherwise, it will run the constant risk of a later revocation of its design right, including a court order to cease and desist from usage of that design.

(5) Findings and Discussion

A closer look at the German statistics concerning design protection reveal that in 2017 about new 44,300 design registrations were executed, and the largest number of registrations concerned furniture (ca. 12,000), followed by clothes (ca. 10,000) and graphic design objects (ca. 7,000). All in all, the number if design registrations decreased by about 22% compared to 2016 but during the period from 2010 to 2016, the number of annual design registrations ranged around 50,000. Interesting wise, the 2016 figures reveal that the top three leading company with design registrations consisted of an Italian company (4,200 registrations), a German enterprise (2,230) and an Austrian company (1,116). At the end of 2017, altogether 312,860 design registrations were enrolled in the databases of the German Patent and Trademark Office (GPTMO, 2017).

Although a clear demand for the regulation of these forms of cooperation exists, the legal protection of user's interest in the context of user-driven innovation has not yet been settled. Still, there is a similar constellation of interests, which already has been regulated in detail by law. Just as in user-driven innovation, an employee not holding any personal shares in the profit of a company generates innovation through own design creations he or she develops through daily contact with products or their production, which usually – if they are high-quality design ideas – find their way to the company's management, are respectively implemented into production, hence lead to the attraction of these products and increase the profit of the producing company.

The European Commission took from 2010 cross-cutting RRI actions and financed a couple of international research projects in order to develop a RRI governance framework. Driving force were here the EU constitutional

values comprising *respect, for human dignity, liberty, democracy, equality, the rule of law and respect for human rights, including the rights of persons belonging to minorities*. Background idea was that innovation and new technologies should meet the global challenges by respecting the European values and safeguarding development, social cohesion and the maintenance of economic prosperity in the frame of the EU2020 Strategy (EU, 2012b, 2013d). Important key points were dedicated to *open access* and *ethics* as well as to certain extent *governance,* which are covering the topics of this paper. Among the initiated EU research projects on RRI, some were touching design protection and user-driven innovation including the Res-AGorA and the IRRESISIBLE projects (Res-AGorA, 2018). Both projects looked at the case studies in design and smart manufacturing sector and investigated the contextual RRI framework. Yet, the legal aspects of our research have not been discussed, especially employee's design rights were not in the centre of the research projects so that a clear and generally accepted legal framework is still missing.

In terms of law, employee's design rights generally are automatically transferred to the employer, see e.g. sec. 7 II German Design Act (DesignG), unless the design has been created explicitly beyond the creator's contractual tasks. In contrast to employee's inventions, which entitle the employee in return to a respective monetary gratification (art. 9-12 ArbNErfG), the German Design Act does not provide any regulation gratifying the employee for his or her contribution. Still, in cases of truly successful and artistic design creations, German Copyright Law grants the author in sec. 32 II 2 an equitable remuneration at an amount which "corresponds to what in business relations is customary and fair, given the nature and extent of the possibility of use granted, in particular the duration, frequency, extent and time of use, and considering all circumstances" (Schwab, 2014; Hasselblatt, 2017).

This regulation provides at least a general approach of how interests of the creator of a successful design and the employer in the situation of "employee-driven innovation" can be balanced. It may be argued that this model cannot be applied directly on the situation of user-driven innovation, as there is an essential difference. While the designing employee and his employer are bound by a joint employment contract, there is no contractual relationship between the user providing attractive design in a virtual community and the innovation-exploiting company.

But just as the gratification paid to the designing employee does not arise from contractual relationships, but simply distributes a respective share of the profit made by the company expected on base of the new design, the duty to pay a respective gratification on base of copyright law – in our example sec. 32 I UrhG, including its calculation methods – can be respectively applied to the favour of users in user-driven innovation as well, serving exclusively that balance of interest also envisaged in user-driven innovation and rendering the company's design strategy sustainable. As the user does often not know, which company may

exploit his design in future, and as there would not be any duty to inform anybody about eventual designs for users anyway, the information duties would be reversed, i.e. the interested company would be obliged to disclose its intention to make use of a specific design to its respective author (as far as possible). If the author does not react within a period of time still to be determined, his consent would be assumed, thus leaving untouched his claim for gratification, if he only finds out about the use of his design later.

(6) Conclusions

The way technical innovation is generated in companies has essentially changed in recent years, and the trend has just started. No internal design department of any company has the resources to compete with the "creativity of the crowd" provided by millions of private product users every day – in real time, based in real experiences, and – so far – at no costs. Thus, companies access design ideas or users provide these designs to companies so far for free, as the "Open Source Spirit", which is based on an informal understanding of mutual benefit of all actors involved, leaving any claims for monetary compensation aside, is still alive in the internet community, and as many users do not realise that their designs disclosed on the web have indeed an eventually considerably high market value at all.

The European Union has recognised the importance of these issues and initiated activities to develop a RRI governance framework addressing socially responsible innovation. It describes a research and innovation process that takes into account effects and potential impacts on the environment and society. These cover important basic points dedicated to open access, ethics and governance, which are covering the protection of design rights in open access environments. Some initiated EU research projects on RRI were touching design protection and user-driven innovation but a clear legal framework was still missing.

The estimation of the benefits of user innovation communities for companies is manifold, comprising sustainability aspects due to stronger user orientation in product development as well as significant cost aspects due to their analysis of all success dimensions. All phases of the life-cycle supply chain of a product are also covered. Consequently, large potentials in the usage of design innovations from user communities have to be kept in mind when it comes to the evaluation of related tentative IPR payments to users.

While the exploitation of this design knowledge is at present basically free for private companies and therefore is becoming more and more essential in the firms' scheme, the "Open Source Spirit" will sooner or later fade: This is because users will realise that there is not much of a mutual benefit left if their creative contributions that do not serve a public good but rather the profit of private companies. This does not mean that the trend to even more user-driven innovation should be stopped or even reverted. On the opposite, the abundant resource of user's creativity should even be explored further, and much more, the communication between users and private companies should further intensify.

Hence, a legal framework for these

considerable transfers of value is required, providing sustainability and a minimum of balance of interests of both users and companies. Legal practitioners should familiarise themselves with user-driven innovation business models and implemented technologies. Such a framework is so far lacking in most legal virtual systems, as the dogmatically closest legal mechanism – employee's invention law and copyright law – cannot be directly applied on user-driven innovation. This is due to the lack of any legal relationship existing between the innovating user and the exploiting company. There is still one element in employee's copyright law, which is not based on a contract between both parties – a duty to pay a respective gratification to the private designer. This duty should be imposed on companies exploiting user-driven innovation, respectively – at least as far they want exclusively exploit the innovation on base of the existing design.

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