

# **UTILITARIAN INFORMATION WORKS – IS ORIGINALITY THE PROPER LENS?**

by

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## **ABSTRACT**

As the information society advances, vastly increased numbers of utilitarian information works (UIW) are being produced. In general, these works are deemed protected by copyright law, even though the philosophical underpinnings of copyright law clash with the attributes of utilitarian information works. This article examines the cause for the uneasy relationship between utilitarian information works and the concept of “originality.”

Part I discusses the role of information and utilitarian information works as one of the core wealth-producing assets of the knowledge-based economy. This economy is characterized by a rapid pace of innovation, which in turn, requires unrestricted access to information. Part II examines copyright law as it relates to protectability of fact-intensive works. In recognition of the global nature of the issue, the law of the U.S., as a representative common law jurisdiction, and the law of Germany, as a representative civil law jurisdiction, are discussed. Relevant authorities from other jurisdictions are mentioned as well. Part III points to the tension between utilitarian information works and the concept of “originality” as the sole standard for evaluating copyright protectability. While originality encourages subjective diversification of creation, the functional nature of utilitarian information works constrains expression by requiring uniformity and conformity. Evaluating copyrightability of utilitarian information works through the lens of originality alone, may lead to results that adversely impact the flow of information required for innovation. The article concludes with possible alternative approaches that would avoid jeopardizing the free flow of information.

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## INTRODUCTION

We live in an information society. Many of the most valuable assets in today's economy come in the form of information products. It has become the practice to claim copyright protection for virtually every piece of "writing" or its electronic equivalent, created by knowledge professionals – from the iPod version of train schedules<sup>2</sup> to instruction manuals for use of motorized saws<sup>3</sup> to spare parts numbering systems.<sup>4</sup> As a result, copyright law may be called upon to operate as gate-keeper to the very building block of our society – information.

This paper examines the tension between the mechanism by which copyright protection is evaluated and the utilitarian nature of works that serve the information society. It emphasizes the fact that copyright law encourages diversification through individuality, originality and deviation from the routine, while the functional nature of utilitarian works dictates uniformity and conformity, rendering the individuality of authorial input irrelevant.

It is posited that evaluation of copyrightability through the lens of "originality" cannot capture the utilitarian functional nature of certain information works, even though utility is their *raison d'être*. Originality further ignores the broader economic impact of protectability, which in a knowledge-based economy (KBE) is of critical

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<sup>2</sup> Nicholas Deleon, *Berlin Metro Claims Copyright Over iPhone Timetable Application*, Crunchgear, November 5, 2008, available at [www.crunchgear.com/2008/11/05/berlin-metro-claims-copyright-over-iphone-timetable-application/](http://www.crunchgear.com/2008/11/05/berlin-metro-claims-copyright-over-iphone-timetable-application/)

<sup>3</sup> Bundesgerichtshof [BGH] [Federal Court of Justice of Germany] *Gewerblicher Rechtsschutz und Urheberrecht [GRUR]* 1993, 34 – *Bedienungsanweisung*

<sup>4</sup> *Toro Co. v. R & R Products Co.*, 787 F.2d 1208 (8th Cir. 1986).

importance. As a result, use of originality as sole standard for determining protectability, risks to obstruct the flow of information necessary for innovation, cause waste of resources and adversely impact competition.

## **PART I**

### **A. INFORMATION, UTILITARIAN INFORMATION WORKS AND THE KNOWLEDGE-BASED ECONOMY**

Utilitarian information works (UIW) are products of human creative expression, whose *raison d'être* is performance of concrete, useful functions.<sup>5</sup>

Despite their utilitarian nature, these works fall under the category of “literary” works under the Berne Convention<sup>6</sup> and “writings” under the US Constitution.<sup>7</sup> Scholars and courts have always viewed such works as borderline protectable, placing them at varying times either above or below the protectability threshold. Yet, the issue has never received a great deal of attention, possibly because of its limited overall significance. This has now changed. Utilitarian information works form the core of the KBE.<sup>8</sup> This fact prompts a re-evaluation of the extent to which copyright law should apply to protect UIW.

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<sup>5</sup> *E.g.*, instructions for use of a motorized saw - BGH GRUR 1993, 34 – Bedienungsanweisung; component part lists - *Toro Co. v. R & R Products Co.*, 787 F.2d 1208 (8th Cir. 1986); TV schedules - *Radio Telefis Eireann (RTE) and Independent Television Publications Ltd (ITP) v. Commission of the European Communities (“Magill”)*, Joined cases C-241/91 P and C-242/91 P (European Court of Justice [ECJ] Judgment 6 April 1995); digital geographic base maps - Bundesgerichtshof [BGH] [Federal Court of Justice of Germany] *Gewerblicher Rechtsschutz und Urheberrecht [GRUR]* 1998, 916 – Stadtplanwerk Ruhrgebiet; taxonomies - *American Dental Association v. Delta Dental Plans Association*, 126 F.3d 977 (7th Cir. 1997); yacht sale listings - *BUC International v. International Yacht Council Ltd*, 489 F. 3d 1129 (11<sup>th</sup> Cir. 2007); horse racing information - *British Horseracing Board Ltd. v. William Hill Organization Ltd.*, C-203/02, European Court of Justice [ECJ] Judgment 9. November 2004). These works are referred to as “utilitarian” or “functional. “Functional” means: “designed or developed chiefly from the point of view of use” also “performing or able to perform a regular function.” [www.merriam-webster.com](http://www.merriam-webster.com). “Functional” works, for the present purpose, are works whose function it is to fulfill a given specific, concrete, practical and useful task. *Baker v. Selden*, 101 U.S. 99, 104 (1879); *see also* PAUL GOLDSTEIN, *COPYRIGHT* (3d ed. Aspen Publishers 2007) § 10.5 at 10:77 [GOLDSTEIN ON COPYRIGHT]; Pamela Samuelson, *Questioning Copyrights in Standards*, 48 B.C. L. Rev 193, 211 (2007).

<sup>6</sup> Berne Convention, Article 2.

<sup>7</sup> The U.S. Constitution, Article I, § 8, Clause 8, grants Congress the power “to promote the Progress of Science and useful Arts, by securing for limited Times to Authors ... the exclusive Right to their respective Writings.”

<sup>8</sup> *See*, *KSR Int’l. Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (U.S. 2007).

## **B. THE ROLE OF INFORMATION WORKS IN THE KNOWLEDGE-BASED ECONOMY**

In the pre-digital age, the economic role of copyrightable works was relatively limited. The technologies available for production and distribution of creative works were costly and cumbersome.<sup>9</sup> Creation of protectable works occurred primarily by way of individual effort. As a result, the risk of an inappropriate decision on protection had only insignificant economic ramifications.

With the advent of digital technology the potential impact of copyright protection has changed. Information that previously came in printed form was digitized. With reproduction and circulation facilitated by technology, access to information became widespread. This led to creation of increasing numbers of works,<sup>10</sup> which, in turn, fuelled the creation of works in even greater numbers. Information works have now become the primary products of the KBE. They are created by trained professionals, or "knowledge workers,"<sup>11</sup> who, unlike their counterparts in agricultural or manufacturing economies, produce goods by working with their minds.<sup>12</sup>

New types of expressive works have emerged to meet the specific realities of the KBE. They have come to perform the "work" of the information society:<sup>13</sup> from TV program schedules to DNA sequences to software programs that run the Space Shuttle, these utilitarian information works lie at the core of the knowledge-based

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<sup>9</sup> Jerome Reichman, Pamela Samuelson, *Intellectual Property Rights in Data?*, 50 Vand. L. Rev. 51, n. 334, (1997), citing Henry H. Perritt, Jr., *Tort Liability, The First Amendment, and Equal Access to Electronic Networks*, 5 Harv. J. L. & Tech. 65, 68-69 (1992), discussing the role of the "modern print publisher").

<sup>10</sup> *E.g.*, the world's largest particle accelerator Large Hadron Colliders experiment at the European Council for Nuclear Research (CERN) is to produce petabytes (a petabyte is one quadrillion bytes) of raw data each year, data that will be pre-processed, stored and analyzed by teams of thousands of physicists around the world, a process that will generate even more data. DON TAPSCOTT & ANTHONY WILLIAMS, *WIKINOMICS: HOW MASS COLLABORATION CHANGES EVERYTHING* (2006).

<sup>11</sup> Term first used in PETER DRUCKER, *THE EFFECTIVE EXECUTIVE* (1996). Knowledge workers include professionals of all kinds, scientists, engineering and accounting professionals, scholars, etc.

<sup>12</sup> See Carlaw, Oxley, Walker, Thorns and Nuth, *Beyond the Hype: Intellectual Property and the Knowledge Society/Knowledge Economy*, Journal of Economic Surveys, Blackwell Publishing Ltd. Oxford, UK, Vol 20. No. 4, 633 (2006) Departments of Economics and School of Sociology and Anthropology, University of Canterbury, 660, 669, available at [http://www.econ.canterbury.ac.nz/personal\\_pages/paul\\_walker/pubs/beyond\\_hype\\_joes.pdf](http://www.econ.canterbury.ac.nz/personal_pages/paul_walker/pubs/beyond_hype_joes.pdf), analogizing to the period of the Industrial Revolution in terms of innovation culture. The difference lies in technologies, the relative mix of land, labor, capital and knowledge.

<sup>13</sup> UIW have "an instrumental role, in accomplishing the world's work. Lotus Dev. Corp. v. Borland Int'l, 49 F.3d 807, 819 (1st Cir. 1995).

economy and have a direct and powerful influence on society's aggregate economic performance.<sup>14</sup>

### C. THE CRITICAL NEED FOR INFORMATION

The essential ingredient of utilitarian information works is information; it operates as the "building brick" of the KBE.<sup>15</sup> Information is recombinant,<sup>16</sup> i.e. it can be used, re-used, processed, combined and cumulated, in a way that gives rise to new, increasingly complex and useful combinations of information<sup>17</sup> that fulfill practical needs, solve problems or improve upon existing solutions. Simply stated information becomes innovation.<sup>18</sup> As a result, information is the principal wealth-generating asset in a KBE.<sup>19</sup>

Information configured in such a way that it is marketable, becomes an information product or work.<sup>20</sup> The value of such products in the market derives from their practical utility. In order to achieve their intended utility, information works must be created in accordance with certain pre-established objective rules as to their form, order, structure, precision, completeness, etc.<sup>21</sup> The creative process is therefore subordinated to the works' functionality.

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<sup>14</sup> Danny Quah, *Digital Goods and the New Economy*, LSE Economics Department, December 2002, 7, available at [http://ifestos.teilar.gr/index.php?option=com\\_docman&task=doc\\_view&gid=7&Itemid=27](http://ifestos.teilar.gr/index.php?option=com_docman&task=doc_view&gid=7&Itemid=27); Carlaw et. al., *supra*, note 12, at 651- 652.

<sup>15</sup> Information products are the predominant products in an information society. The economy depends on information as its building block. Inventions rely upon building blocks; discoveries almost necessarily will be combinations of what, in some sense, is already known. *KSR Int'l. Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (U.S. 2007).

<sup>16</sup> The term is borrowed from "recombinant DNA". As recombinant DNA allows genes from one chromosome to be re-combined with those of another, pieces of information can be "re-combined" to create new information. Quah, *supra* note 14, at 19.

<sup>17</sup> *Id.*

<sup>18</sup> See generally John Perry Barlow, *The Economy of Ideas: Selling Wine Without Bottles on the Global Net* (1994), available at <http://homes.eff.org/~barlow/EconomyOfIdeas.html>.

<sup>19</sup> "We are now an information society in a knowledge economy." Carlaw et. al., *supra*, note 12, at 633, 634, 651-652, 670; Quah, *supra* note 14, at 19. The term was first used in PETER DRUCKER, *THE AGE OF DISCONTINUITY* (1969), where "Knowledge Economy" appears as the heading to Chapter 12; see also *Antitrust and the Information Age: Section 2 Monopolization Analyses in the New Economy*, 114 Harv. L. Rev. 1623-1646, 1628, 1635 (2001); see generally ALVIN TOEFFLER, *THE THIRD WAVE* (1980).

<sup>20</sup> The term "utilitarian information product" considers the work from the market perspective; the term "utilitarian information work" (UIW) considers the work from the copyright perspective. For present purposes they are used interchangeably.

<sup>21</sup> A telephone directory, for instance, must provide telephone numbers in organized fashion so they can be retrieved.

More than 70% of the work force of developed countries currently consists of knowledge workers.<sup>22</sup> They produce information products. In other words, a vast operation of “manufacturing” utilitarian information works is under way. The creative effort supporting the KBE’s scientific and technological innovation, demands increasingly large quantities of information. The accelerated pace of innovation requires information to be available in its most “fluid,” i.e. accessible form. Restricting the flow of information can have a detrimental impact on economic and technological progress.<sup>23</sup>

Copyright protection, when applied to UIW, has the ability to restrict the flow of information.<sup>24</sup> The extent to which copyright law can effectively function as a gate-keeper of information in a KBE must therefore be re-examined from the perspective of ensuring a predictable and sufficient flow of information.<sup>25</sup>

#### **D. POSSIBLE APPROACHES TO RE-EXAMINING THE RELATION BETWEEN COPYRIGHT AND UTILITARIAN INFORMATION WORKS**

The relation between UIW and copyright has always been an uneasy one. Copyright encourages subjective diversification, while UIW must reflect reality in an objective manner.<sup>26</sup> At the level of protectability, couching UIW into the evaluation mechanism intended for subjective expression can give rise to distorted results. Other aspects of copyright law are also at odds with the requirements of UIW. Technological protection measures coupled with anti-circumvention laws can block access to information,<sup>27</sup> the broad scope of derivative rights conflicts with the need for

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<sup>22</sup> “More than 70 percent of new jobs created since 1998 in the U.S. require significant abstract thinking and judgment.” Marla Capozzi, *Knowledge Management Architectures Beyond Technology* (2007), available at [http://www.firstmonday.org/issues/issue12\\_6/capozzi/index.html](http://www.firstmonday.org/issues/issue12_6/capozzi/index.html).

<sup>23</sup> See Carlaw et. al., *supra*, note 12, at 659.

<sup>24</sup> Application of DRM and anti-circumvention laws have had a further limiting effect. See generally Dana Beldiman, *Copyright and the Challenges of Digital Age—Can All Interests be Reconciled* in LEGAL ISSUES IN THE GLOBAL INFORMATION SOCIETY (Oceana Publications Inc. of Dobbs Ferry, New York 2005).

<sup>25</sup> “It is important that we undertake robust analysis of whether IP protection facilitates or restricts the flow of new innovations and creative activities in twenty-first century societies.” Carlaw et. al., *supra*, note 12, at 659.

<sup>26</sup> “Functional works depend for their value primarily on the ingenuity, accuracy and efficiency – the utility – of their underlying system, concept or method.” GOLDSTEIN ON COPYRIGHT § 10.5 at 10:77.

<sup>27</sup> Pamela Samuelson, *Mapping the Digital Public Domain*, 66 Law & Contemp. Probs. 147, 160-163 (2003).

incremental improvement of existing works<sup>28</sup> and collaborative creation is rendered difficult by the absence of parameters for defining the contours of successive creations.<sup>29</sup> All of these aspects tend to inhibit the free flow of information.

The present paper is but one step towards a more comprehensive solution for easing the flow of information. It examines the tension between UIW and the mechanism by which copyrightability is evaluated. The analysis will focus on the fact that in UIW, expression is constrained by the works' utilitarian functionality. The paper argues that originality is not a good fit as standard for evaluation of copyrightability of UIW. Originality seeks subjective diversification and deviation from the routine. Expression of UIW, on the other hand, must follow the dictates of uniformity and conformity, and must, accordingly, subordinate to their utilitarian function. Authorial individuality is, for the most part, irrelevant. Originality being the only criterion of protectability, copyright law remains "blind" to the economic impact of protectability, in particular as to non-creator stakeholders.

The author posits that evaluating copyright protectability through the lens of "originality" does not capture the functional nature of utilitarian information works. Evaluation through this lens may result in obstruction to the flow of information necessary for innovation, in waste of resources and in an adverse impact on competition. While this thesis constitutes a departure from traditional copyright doctrine, changed times and circumstances prompt consideration of new approaches.

Finally, it must be kept in mind that we live in a global world. Legal solutions must have universal applicability across legal systems. In this spirit, the present work examines legal authorities from the U.S., a significant representative of copyright law and from Germany, a significant representative of author's right law and refers to authorities from other jurisdictions as well.

## **PART II**

### **A. COPYRIGHT PROTECTION OF UIW**

At present, copyright presumptively covers all materials that is expressed in digital form, regardless of its nature.<sup>30</sup> Yet, even a cursory look at the values upon which copyright law is predicated reveal a tension with UIW.

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<sup>28</sup> See generally Dennis Karjala, *Distinguishing Patent and Copyright Subject Matter*, 35 Conn. L. Rev. 439 (2003).

<sup>29</sup> Dana Beldiman, *FUNCTIONALITY, INFORMATION AND INFORMATION WORKS* (Yorkhill Law Publishing, Salzburg, Austria 2008).

Copyright law is designed to encourage the production of abundant information with the widest possible differentiation.<sup>31</sup> This goal is achieved by rewarding even minimal differences from prior works, each distilling the individual author's perception of reality.<sup>32</sup> Value is placed on individuality, originality and deviation from the routine. A creator is encouraged to be imaginative and fanciful and inject his or her personal imprint into a work. In the realm of literary artistic works this results in many protectable versions of a common plot, theme, situation or landscape, each reflect the creator's unique personality and subjective imagination.<sup>33</sup> Diversification through individuality is an appropriate measure for evaluating the protectability of such works.

Utilitarian information works, on the other hand, are governed by entirely different rules. Their sole *raison d'être* is fulfillment of their functionality. Their functional nature requires them to adhere to physical realities and established formulae;<sup>34</sup> it demands uniformity and conformity. Deviation, fanciful and imaginative treatment are not virtues in the creation of UIW, to the contrary they are fatal to the work's utility.<sup>35</sup> For this reason, diversification through individuality is an uneasy measure for evaluating the protectability of such works.

## **1. STANDARDS FOR PROTECTION APPLIED TO UIW**

The tension between the conceptual underpinnings of the originality doctrine and UIW has long been a challenge to copyright law. Works of a fact-intensive nature, such as directories, databases and other compilations of information, do not fit the mold of conventionally copyrightable works, such as fictional writings, paintings and musical compositions.<sup>36</sup>

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<sup>30</sup> With the advent of digital technology, the scope of "writings" has been expanded to include "writings" in computerized format, i.e. bitstrings. Quah, *supra* note 14, at 4. Thus copyright now presumptively covers all material that can be expressed in digital form, regardless of its nature.

<sup>31</sup> GOLDSTEIN ON COPYRIGHT § 2.15, at 2:179.

<sup>32</sup> GOLDSTEIN ON COPYRIGHT § 2.15, at 2:179.

<sup>33</sup> Jerome Reichman, *Computer Programs As Applied Scientific Know-How: Implications of Copyright Protection for Commercialized University Research*, 42 Vand. L. Rev. 639, 683 (1989).

<sup>34</sup> Such works must adhere to physical realities or to well-known formulae. See GOLDSTEIN ON COPYRIGHT § 2.21, at 2:11.

<sup>35</sup> Insisting on such treatment would "place a premium on evasion." *Crume v. Pacific Mut. Ins. Co.*, 140 F.2d 182, 184 (7th Cir.), *cert. denied* 322 U.S. 755 (1944).

<sup>36</sup> Originality becomes problematic in factual works, such as telephone directories, maps and legal forms, that characteristically adhere to physical realities or to well-known formulae. GOLDSTEIN ON COPYRIGHT § 2.21, at 2:11.

In deciding whether to grant or withhold copyright protection when it comes to UIW, two competing policy concerns come into play. The first is that courts are generally, inclined to reward work with a view to promoting further creation<sup>37</sup> and to discourage free-riding.<sup>38</sup> The second concern, in tension with the first, is the principle of freedom of facts, information and ideas, which forms the foundation of a robust public domain and future innovation.<sup>39</sup>

Yet, absent a more specific mechanism to address the competing concerns of incentive and freedom of ideas, copyright protection constitutes a convenient default. The easily manipulable doctrine of originality can be pressured to give rise to doctrines that justify protection of information works under its guise.<sup>40</sup> Thus at one end of the spectrum, courts have rewarded mere industriousness under the doctrine of the “sweat of the brow,” regardless of the level of originality.<sup>41</sup> In such cases,

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<sup>37</sup>Jane Ginsburg, *No “Sweat”? Copyright and Other Protection of Works of Information after Feist v. Rural Telephone*, 92 Colum. L. Rev. 338, 340 (1992).

<sup>38</sup>Mark Lemley, *Property, Intellectual Property, and Free Riding*, 83 Tex. L. Rev. 1031, 1043 (2005). This concern also became obvious in the reasoning of the European Court of Justice, *IMS Health GmbH & Co, OHG v. NDC Health GmbH & Co KG*, Case C-418/01 (European Court of Justice [ECJ] Judgment April 2004).

<sup>39</sup>Ideas are precluded from protection out of the concern that their protection would preclude, or render too expensive, subsequent authors’ endeavors. William Landes, Richard Posner, *An Economic Analysis of Copyright Law*, 18 J. Legal Stud. 325, 347-349 (1989).

<sup>40</sup>Inclusion is justified by doctrines such as “small change,” (*see infra* note 77) “selection and arrangement,” and “judgment and expertise,” etc. *See* discussion accompanying notes 184-190 *infra*. These doctrines have been criticized by commentators. *See* GERHARD SCHRICKER, URHEBERRECHT, Kommentar (3. Ausgabe, C.H.Beck, München 2006) Schricker/Loewenheim, § 2, Rn. 38; Ginsburg, *supra* note 37, at 340. Accommodations are made to reflect the purely informational nature of the work, largely occur in the form of limits to the scope of protection. Thus information works are granted greater leeway in permissible copying. “Similarity of expression may have to amount to verbatim reproduction or very close paraphrasing before a factual work will be deemed infringed.” *Landsberg v. Scrabble Crossword Game Players, Inc.*, 736 F.2d 485, 488 (9th Cir. 1984); *Cooling Sys. & Flexibles v. Stuart Radiator*, 777 F.2d 485, 491 (9th Cir. 1985).

<sup>41</sup>The UK and jurisdictions guided by UK precedent protect mere industriousness under doctrines such as “sweat of the brow” or “judgment and experience,” or “labor skill and capital” expended by an author in creating a work. *See* WILLIAM CORNISH, INTELLECTUAL PROPERTY, PATENTS, COPYRIGHT, TRADEMARKS AND ALLIED RIGHTS ¶10-08 (4<sup>th</sup> ed. Sweet and Maxwell, London, 2000). Pre-*Feist* U.S. courts have held that “the man who goes through the streets of a town and puts down the names of each of the inhabitants, with their occupations and their street numbers, acquires material of which he is the author.” *Jeweler’s Circular Publishing Co. v. Keystone Publishing Co.*, 281 F. 83, 88 (2d Cir. 1922). Similarly, a telephone white pages directory was original enough for copyright protection, because the directory’s author had “solicited, gathered, filed, sorted, and maintained the information” used in the directory, the directory was “derived from information compiled and generated” by the author’s efforts. *Hutchinson Telephone Co. v. Frontier Directory Co.*, 770 F.2d 128, 132 (8th Cir. 1985).

copyright simply protects the creator's investment, and thus operates as a de facto unfair competition rule.<sup>42</sup> The disadvantage of this approach is that copyright protection is likely to obstruct access to large amounts of facts, information and ideas and thus impact innovation.<sup>43</sup>

At the other end of the spectrum, information works have been denied protection for lack of originality.<sup>44</sup> This solution however, is discomfoting to many courts and scholars, as it leaves a "protection gap"<sup>45</sup> and results in perceived unfairness, reward of free-riders, or failure to provide an incentive for further creation. The standards applied in various jurisdictions have fluctuated between these extremes.<sup>46</sup>

The following section will discuss how fact-intensive works have been handled under these standards.

Copyright protectability is determined by whether a work displays sufficient "originality" or "individuality." Under German law, the standard for protectability is the presence of "personal intellectual creation."<sup>47</sup> The fact intensive nature of works has been taken into account by varying the originality/individuality threshold over time and from one jurisdiction to another. This standard lens applies regardless of a works functional nature.

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<sup>42</sup> Absent specific unfair competition law in the UK, copyright fills this void, as evidenced by the fact that the defendant in such cases tends to be a direct business competitor. CORNISH, *supra* note 41, ¶10-09.

<sup>43</sup> See NORBERT REICH & HANS W. MICKLITZ, *EUROPÄISCHES VERBRAUCHERRECHT* 267 (4. Auflage, Nomos Verlagsgesellschaft, Baden-Baden 2003).

<sup>44</sup> Ginsburg, *supra* note 37, at 340

<sup>45</sup> This "protection gap" is particularly abhorrent to continental European law, which envisions law as an overall structure, which governs all aspects of human behavior. The closest form of protection in the EU would be the database protection under EU Directive 96/9 EC.

<sup>46</sup> While UK and Australian law protect industriousness, French law imposes a quantitative standard, requiring an "original or personal character" for protectability, which further implies "differences from prior works or matters, differences that originate in the author's own efforts. Jerome Reichman, *Goldstein on Copyright Law: A Realist's Approach to a Technological Age*, 43 *Stan. L. Rev.* 943, n. 51(1991), Italian law protects works of a "creative character" and requires that they be "the result of an intellectual effort" although the requisite degree of differentiation from prior works is unsettled. *Id.* n. 51. When the desire is to limit protection of information works, a heightened standard of qualitative or quantitative creativity is imposed above and beyond pure independent creation. *Id.* n. 75.

<sup>47</sup> Urheberrechtsgesetz [UrhG] [Author's Rights Law of Germany] §2 ¶ 2. Personal intellectual creation ("persönliche geistige Schöpfung"). While the concepts of "originality" and "individuality" do not refer to identical standards, for present purposes they will be treated as roughly equivalent.

**a. STANDARD IN THE U.S.**

In the U.S., up to 1991, independent creation was the sole criterion for protection.<sup>48</sup> Protection was granted to information works such as telephone directories,<sup>49</sup> databases,<sup>50</sup> user interfaces,<sup>51</sup> listings of baseball cards,<sup>52</sup> credit rating listings,<sup>53</sup> maps,<sup>54</sup> and others.<sup>55</sup> The Supreme Court decision in *Feist Publications v. Rural Telephone Service*,<sup>56</sup> limited this practice by ruling that copyright does not protect the “sweat of the brow” and requiring at least a modicum of creative originality in selection or arrangement. In other words, courts could no longer look to investment of labor and resources alone to constitute originality.<sup>57</sup> Originality had to be found elsewhere, most often it is found in the selection and arrangement of information.

However, as far as the impact on protectability of UIW is concerned, the *Feist* decision may not have been as far-reaching as one would expect. The precise amount of requisite creativity is merely defined as a “slight amount,” even a “crude, humble and obvious”<sup>58</sup> amount. Telephone directories clearly fall below this standard.<sup>59</sup> Apart from telephone directories, however, the manner in which this standard is to be applied is far from clear. A court can easily limit non-protectability to the kind of mechanical selection and arrangement that is dictated by alphabetical, maybe also numerical order. Not surprisingly, post-*Feist* courts have found

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<sup>48</sup> The Copyright Act of 1976 imposed a uniform standard, of “original work of authorship.” 17 U.S.C. § 101. Many courts and commentators have construed the 1976 Act definition of compilations to impose the same standard of originality on low and high authorship works. Jane Ginsburg, *Creation and Commercial Value: Copyright Protection of Works of Information*, 90 Colum. L. Rev. 1865, 1895 (1990).

<sup>49</sup> *Hutchinson Telephone Co. v. Frontier Directory Co.*, 770 F.2d 128, 132 (8th Cir. 1985).

<sup>50</sup> *West Pub. Co. v. Mead Data Cent., Inc.*, 799 F.2d 1219, 1226-1227 (8th Cir. 1986).

<sup>51</sup> *Lotus Dev. Corp. v. Paperback Software Int'l*, 740 F. Supp.37 (D. Mass. 1990).

<sup>52</sup> *Eckes v. Card Prices Update*, 736 F. 2d 859 (2d Cir. 1984).

<sup>53</sup> *National Business Lists, Inc. v. Dunn & Bradstreet, Inc.*, 552 F. Supp. 89 (N.D. Ill. 1982).

<sup>54</sup> *Rockford Map Publishers, Inc. v. Directory Services Co.*, 768 F.2d 145 (7th Cir. 1985) *cert. denied* 474 U.S. 1061 (1986).

<sup>55</sup> *E.g. Illinois Bell Tel. Co. v. Haines & Co.*, 683 F. Supp. 1204 (N.D. Ill. 1988), *aff'd* 905 F.2d 1081 (7th Cir. 1990), holding copyrightable telephone directory listings where defendant rearranged entries according to address and phone number.

<sup>56</sup> *Feist Publications, Inc. v. Rural Telephone Service Co., Inc.*, 499 U.S. 340, 349-350 (1991).

<sup>57</sup> Ginsburg, *supra* note 37, at 340.

<sup>58</sup> “Even a slight amount will suffice, so that a creative spark, no matter how crude, humble or obvious it might be.” *Feist Publications v. Rural Telephone*, 499 U.S. 340, 345.

<sup>59</sup> *See generally Feist Publications v. Rural Telephone*, 499 U.S. 340.

information works such as taxonomies,<sup>60</sup> parts numbering systems,<sup>61</sup> technical drawings,<sup>62</sup> used car values,<sup>63</sup> used coin wholesale values,<sup>64</sup> and others protectable.

## **b. STANDARD IN GERMANY**

Under German law, the principal prerequisite for protection is the presence of “personal intellectual creation.”<sup>65</sup> In the past, German law has differentiated standards satisfying the individuality requirement by categories of works,<sup>66</sup> ranging from simple individuality to an unusually high standard that requires a work to clearly rise above the level of average craftsmanship.<sup>67</sup>

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<sup>60</sup> *American Dental Association v. Delta Dental Plans Association*, 126 F.3d 977 (7th Cir. 1997).

<sup>61</sup> *Southco, Inc. v. Kanebridge Corp.*, 390 F.3d 276, 282-283 (3d Cir. 2004).

<sup>62</sup> *Gemel Precision Tool Co. v. Pharma Tool Corp.*, 1995 U.S. Dist. LEXIS 2093, 35 U.S.P.Q.2D (BNA) 1019 (E.D. Pa. 1995).

<sup>63</sup> *CCC Information Services, Inc. v. Maclean Hunter Market Reports*, 44 F.3d 61 (2d Cir. 1994).

<sup>64</sup> *CDN v. Kapes*, 197 F.3d 1256 (9th Cir. 1999).

<sup>65</sup> Author’s Rights Law of Germany (Urheberrechtsgesetz) §2 ¶ 2. Personal intellectual creation (“persönliche geistige Schöpfung”) characterized by Schricker as a cryptic formula, left largely to the courts to interpret, GERHARD SCHRICKER, URHEBERRECHT §2, Rn. 5; *see also* Gerhard Schricker, *Farewell to Level of Creativity*, IIC 1995 Heft 1, 41-48, at 47. This requirement, also referred to as “individuality” can be viewed as a rough equivalent of “originality.”

<sup>66</sup> THOMAS DREIER & GERNOT SCHULZE, URHEBERRECHTSGESETZ, Kommentar §2, Rn. 24-28 (C.H.Beck, München, 2006); GERHARD SCHRICKER, URHEBERRECHT, §2 Rn. 74. Thus scientific works enjoy a very low level of protection as long as they are prepared in commonly used terminology. *See, e.g.*, Bundesgerichtshof [BGH] [Federal Court of Justice of Germany] Gewerblicher Rechtsschutz und Urheberrecht [GRUR] 1984, 659, 661 – Ausschreibungsunterlagen. Utilitarian texts, such as user instructions and representations of technical and scientific nature, are held to a higher standard, *see* BGH GRUR 1993, 34, 36 – Bedienungsanweisung. As to graphic representations of scientific or technical nature the law imposes a creativity requirement that is set at the low level of small change, out of concern that otherwise most of these works would be excluded, a result that would go against the legislator’s intent. THOMAS DREIER & GERNOT SCHULZE, URHEBERRECHTSGESETZ §2, Rn. 28; Bundesgerichtshof [BGH] [Federal Court of Justice of Germany] Gewerblicher Rechtsschutz und Urheberrecht [GRUR] GRUR 1991, 529 et. seq. – Werbepläne.

<sup>67</sup> Originally, the term “level of creativity” (“Schöpfungshöhe”) had been reserved to evaluate the protectability of works of applied art to draw a border line between artistic protection and design protection; their exclusion from copyright law being justified by the availability of design protection. This approach was then broadened to cover all categories of borderline protectable works. Gerhard Schricker, *Farewell to Level of Creativity*, IIC 1995 Heft 1, 41-48. The question then arises whether the degree of individuality in the work is sufficient to qualify for copyright protection. The reasoning is that such content belongs to the public domain and must remain accessible to all. Consequently, individuality would be found primarily in the Form (as opposed to the Content) of the work. Bundesgerichtshof [BGH] [Federal Court of Justice of Germany] Gewerblicher Rechtsschutz und Urheberrecht [GRUR] 1991, 449, 453 – Betriebssystem.

The high standard stems from the area of applied arts and was then broadened to apply to factual works and other categories of borderline protectable works.<sup>68</sup> This standard applied to, inter alia, computer programs,<sup>69</sup> maps, technical drawings,<sup>70</sup> etc. Its use was justified by the need for free access to information.<sup>71</sup>

At the other end of the spectrum a standard of simple individuality applies. This latter standard has subsequently been mandated by EU Directives for computer programs<sup>72</sup> and databases<sup>73</sup> and has been implemented into German law.<sup>74</sup> In addition to databases and computer programs, this low protection standard is also applicable to other various types of information works, which are of high economic significance, yet irrelevant from the cultural-artistic standpoint.<sup>75</sup>

Protection of works such as telephone directories, catalogues, price lists, etc., falls under the so-called “small change,” the lowest level at which a work is deemed protectable as a personal intellectual creation.<sup>76</sup> Protection is granted despite the fact that in such works, typically, external dictates impose limitations on the author’s expression and, therefore, little, if any, individual creation is involved.<sup>77</sup> Some

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<sup>68</sup> Gerhard Schricker, *Farewell to Level of Creativity*, IIC 1995 Heft 1, 41-48, at 42; BGH GRUR 1993, 34/35 – Bedienungsanweisung.

<sup>69</sup> BGH GRUR 1991, 449, 453 – Betriebssystem.

<sup>70</sup> Scientific works, lawyer’s briefs and letters continue to be subject to a higher standard, in that they must demonstrate additional creativity (“schöpferische Fantasie und Gestaltungskraft”), HAIMO SCHACK, URHEBER- UND URHEBERVERTRAGSRECHT Rn. 175, at 92. (3. Auflage, Mohr Siebeck 2005).

<sup>71</sup> GERHARD SCHRICKER, URHEBERRECHT, Schricker/Loewenheim § 2, Rn. 34.

Imposition of a high standard has however been criticized. According to some commentators, the high standard should be limited to the field of applied art where applied art from where Geschmacksmusterschutz provides back-up protection and “protection gaps” can therefore be avoided. GERHARD SCHRICKER, URHEBERRECHT, Schricker/Loewenheim §2, Rn. 35.

<sup>72</sup> Directive of 14 May 1991 on the Legal Protection of Computer Programs (91/250/EEC).

<sup>73</sup> Directive of 11 March 1996 on the Legal Protection of Databases (96/9/EC).

<sup>74</sup> UrhG 69a sets forth the protectability of computer programs following the amendment to implement EU Directive 91/250/EEC.

<sup>75</sup> HAIMO SCHACK, URHEBER- UND URHEBERVERTRAGSRECHT Rn 262, at 175.

<sup>76</sup> Thus protection has been granted under the small change doctrine to catalogues, price lists, telephone directories, collections of recipes, etc. on the ground that for writings a very limited amount of individual creativity is sufficient for protection (“äusserst geringer Grad individuellen Schaffens”). GERHARD SCHRICKER, URHEBERRECHT, Schricker/Loewenheim, § 2, Rn. 38; *see also* Bundesgerichtshof [BGH] [Federal Court of Justice of Germany] Gewerblicher Rechtsschutz und Urheberrecht [GRUR], 1994, 39 – Buchhaltungsprogramm.

<sup>77</sup> *See* BGH GRUR, 1998, 916/918 – Stadtplanwerk; Bundesgerichtshof [BGH] [Federal Court of Justice of Germany] Gewerblicher Rechtsschutz und Urheberrecht [GRUR], 1991, 529 et. seq. – Explosionszeichnungen; MANFRED REHBINDER, URHEBERRECHT 14. Auflage, (Verlag C.H. Beck München 2004) Rn. 59, at 27. The doctrine of small change or “kleine Münze” in German copyright law refers to the lowest threshold at which works are copyrightable.

commentators feel that such creations may be best left to the law of unfair competition.<sup>78</sup>

Overall, despite some fluctuations, a general trend in both the U.S. and Germany, towards lowering the thresholds of copyrightability is apparent. Lower thresholds result in a larger number of UIW being covered by copyright and an increasingly detrimental impact on the free flow of information and on innovation.

We will next turn to the question whether copyright's limiting doctrines can counterbalance this trend and ensure a flow of information that is adequate to the needs of innovation in a KBE.

## **2. LIMITATIONS ON PROTECTABILITY APPLICABLE TO FUNCTIONAL WORKS**

Most modern copyright laws share the categorical rule of non-protectability of ideas and factual information, intended in large measure to ensure the free flow of information.<sup>79</sup> While these rules result in a reduction in the overall scope of copyright protection, this reduction is accepted because of the compelling nature of the public interest in access to the underlying facts. Access is important because it allows third parties to build freely upon existing ideas and information from a prior author's work.<sup>80</sup>

While these principles are without controversy, their actual implementation in legislation and by the courts has proved much less clear-cut.

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MANFRED REHBINDER, URHEBERRECHT Rn. 38, 87; GERHARD SCHRICKER, URHEBERRECHT, Schricker/Loewenheim §2, Rn. 38.

<sup>78</sup> “The so-called small change of copyright should be left to the province of competition law, or to some yet to be legislated form of protection of services.” MANFRED REHBINDER, URHEBERRECHT Rn. 61, 117 at 28, 51; *see also* GERHARD SCHRICKER, URHEBERRECHT, Schricker/Loewenheim §2, Rn. 39, citing Manfred MANFRED REHBINDER, URHEBERRECHT Rn. 61, at 28. Some commentators consider that granting protection to works of such low originality, dishonors copyright law, since copyright law contemplates only protection for truly creative works, which merit protection of 70 years *post mortem auctoris*. By lowering the standard, the law has included “seasonal goods” within its purview. *See* Schricker, Comment to Bundesgerichtshof [BGH] [Federal Court of Justice of Germany] Gewerblicher Rechtsschutz und Urheberrecht [GRUR] 1986, 739/740 – Anwaltsschriftsatz

<sup>79</sup> Sony Corp. of America v. Universal City Studios, Inc., 464 U.S. 417, 429 (1984); also GERHARD SCHRICKER, URHEBERRECHT, §2, Rn. 50; MANFRED REHBINDER, URHEBERRECHT Rn. 59 at 27.

<sup>80</sup> It allows “others to build freely upon the ideas and information conveyed by a work.” Feist Publications v. Rural Telephone, 499 U.S. 340, 349-350.

**(a) LIMITATIONS ON PROTECTION IN THE U.S.**

**(i) THE IDEA EXPRESSION DISTINCTION**

In U.S. law, the policy of non-protectability of ideas is implemented by granting protection to original expression, i.e., that part of a work that is unique to the author,<sup>81</sup> while withholding protection from “ideas.”<sup>82</sup> This doctrine, known as the idea expression distinction, is viewed as the “most universal axiom of copyright law.”<sup>83</sup> Courts and scholarly literature have written much, but clarified little, in relation to this doctrine. The primary reason for this is that the distinction between non-protectable idea and protectable expression is fundamentally nebulous and troublesome.<sup>84</sup> One court noted that this distinction is “more of an amorphous characterization than it is a principled guidepost,”<sup>85</sup> as it leaves courts without a clear rule on when an imitator has gone beyond copying the “idea,” and has borrowed its “expression.” A case-by-case analysis is required in each instance to separate idea from expression.<sup>86</sup> The determination is made entirely based on the subjective judgment of the examining party.<sup>87</sup> As a result, decisions are inevitably ad hoc.<sup>88</sup>

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<sup>81</sup> *Bleistein v. Donaldson Lithographing Co.*, 188 U.S. 239 (1903).

<sup>82</sup> 17 U.S.C. §102(b)

<sup>83</sup> *Feist Publications v. Rural Telephone*, 499 U.S. 340, 344-345.

<sup>84</sup> *Nichols v. Universal Pictures Corp.*, 45 F.2d 119, 121 (2d Cir. 1930); *see also* NIMMER ON COPYRIGHT § 13.03(a) (1986); *Digital Communications Associates Inc. v. Softklone Distributing Corporation*, 659 F. Supp. 449, 2 U.S.P.Q. 2d 1385, 1390 (N.D. Ga. 1987) (“The inherent problem with applying the idea (and expression merged with idea) versus expression (copyrightable) distinction to any specific case is defining the underlying ‘idea’ of the copyrighted work.”).

<sup>85</sup> *Chuck Blore & Don Richman Inc. v. 20/20 Advertising Inc.* 674 F. Supp 671, 676 (D. Minn. 1987).

<sup>86</sup> *See* SHELDON HALPERN, COPYRIGHT LAW- PROTECTION OF ORIGINAL EXPRESSION 51(Carolina Academic Press 2002).

<sup>87</sup> The absence of any clear rules prompted one aggravated court to note: “The first axiom of copyright is that copyright protection covers only the expression of ideas and not ideas themselves.... The second axiom of copyright is that the first axiom is more of an amorphous characterization than it is a principled guidepost.” *Chuck Blore & Don Richman Inc. v. 20/20 Advertising Inc.* 674 F. Supp 671, 676 (D. Minn. 1987).

<sup>88</sup> “Conceptually, the problem arises because the “critical distinction between ‘idea’ and ‘expression’ is difficult to draw. As Judge [Learned] Hand candidly wrote, ‘Obviously no principle can be stated as to when an imitator has gone beyond copying the ‘idea,’ and has borrowed its ‘expression.’” [Citations]. We have endorsed Judge Hand’s abstractions formulation laid out in *Nichols v. Universal Pictures Corp.*, 45 F.2d 119, 121 (2d Cir. 1930). [Citations] The formulation recognizes that every work can be described at varying levels of abstraction, and the higher the level of abstraction copied, the less likely this taking will be infringement of a copyright. As Judge Hand noted, the difference between idea and expression is one of degree.”

Some commentators have abandoned the hope of true differentiation by way of idea-expression and use the distinction simply as a metaphoric phrasing for the outcome of protectability.<sup>89</sup> Others dismiss the idea-expression distinction altogether as a “formalism from another era,” because of the practical inability to apply it to music, video, pictures, cartoons, movies.<sup>90</sup> This may simply be a line that is artificial<sup>91</sup> and cannot be drawn.<sup>92</sup>

UIW present a particular challenge when it comes to the idea-expression distinction, in that they do not fit the traditional author-centric copyright mold.<sup>93</sup> The vast majority of material contained in UIW consists of non-protectable ideas, facts and information. They are created by knowledge workers with specialized education and training, likely in collaboration with others, and build on the work of prior knowledge workers. UIW are governed by pre-established rules inherent in the subject matter at issue. These rules range from alphabetical arrangements to the rules of physics. The knowledge worker must comply with these rules in order to create a work that is useful. All of these facets of UIW are not captured by the idea-expression distinction. For this reason, some commentators believe that the idea-expression analysis and UIW are incompatible.<sup>94</sup> Nevertheless, the idea-expression distinction is the primary tool available to assess the copyrightability of UIW. If couched into traditional analysis, UIW would generally hover in the non-protectability range, leaving the idea-expression doctrine subject to constant pressures to justify protectability of UIW in order to protect the creator’s investment.

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CDN Inc. v. Kapes, 197 F.3d 1256, 1261-1262 (9th Cir. 1999); *see also* Matthew Bender & Co. v. Kluwer Law Book Publishers, Inc., 672 F. Supp. 107, 109 (D.N.Y. 1987).

<sup>89</sup> Lloyd Weinreb, *Copyright for Functional Expression*, 111 Harv. L. Rev. 1149, n. 105 (1998) “idea and expression should not be taken literally, but rather as metaphors for a works unprotected and protected elements respectively,” citing 1 GOLDSTEIN ON COPYRIGHT § 2.3.1 (2d ed. 1998).

<sup>90</sup> Lawrence Lessig, *Interview with Intellectual Property LawCast*, March 3, 2002.

<sup>91</sup> CHRISTOPHE GEIGER, DROIT D’AUTEUR ET DROIT DU PUBLIC À L’INFORMATION – APPROCHE DE DROIT COMPARÉ 179 (LITEC, Paris 2004).

<sup>92</sup> Lawrence Lessig, *Interview with Intellectual Property LawCast*, March 3, 2002.

<sup>93</sup> *See generally* Peter Jaszi, *Toward a Theory of Copyright: the Metamorphoses of Authorship*, 41 Duke Law Journal 455 (1991), arguing that the concept of “authorship” is being used strategically to extend copyright protection to new kinds of subject matter by disassociating it from the “author-genius” concept and re-associating it with low levels of creative activity.

<sup>94</sup> Weinreb, *supra* note 89, at 1179.

## (ii) EXCLUSION OF IDEAS, PROCEDURES, PROCESSES, SYSTEMS, METHODS OF OPERATION

The principle of non-protection of ideas is further reflected in the statutory prohibition that “[i]n no case ...[shall]... any idea, procedure, process, system, method of operation, concept, principle, or discovery” be protectable.<sup>95</sup> While data, “facts” and “factual information” are not expressly mentioned, they are generally considered to be unprotectable, in the same way as ideas.<sup>96</sup> Application of section 102(b) should, in theory, broadly exclude functional works from copyright protection. This exclusion differs from the idea-expression approach in that it does not focus on the authorial creativity, but instead on the nature of the work. It is unclear, however, whether the section 102(b) categories are exempt *per se*, or whether they must undergo a case-by-case protectability analysis.<sup>97</sup> In other words, is it sufficient for a court to conclude that a work is a procedure, process, system, etc. under the statute, to exclude the work from protection? Or, would a court, once a work has been found to be such a procedure, process, system, etc., then examine its individuality? If so, the effect of the prohibition would be largely undermined. On the other hand, outright exclusion of works belonging to these categories may be difficult, given the high level of abstraction at which these categories are articulated. This difficulty is compounded by the lack of definition of procedures, processes, systems, etc., as well as the lack of guidance on how they would differ from non-procedures, non-processes, non-system, etc. Courts may therefore hesitate to conclude with confidence that a given work is a non-copyrightable procedure, process, system, method of operation, etc. Possibly for this reason, these exclusions have been given relatively little in-depth attention by courts and scholarly writing.<sup>98</sup>

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<sup>95</sup> 17 U.S.C. 102(b).

<sup>96</sup> *Harper and Row Publishers v. Nation Enterprises*, 471 U.S. 539, 556-557 (1985); see also GOLDSTEIN ON COPYRIGHT § 2.2.3, at 2:17 (“facts are building-block ‘ideas’”); *Sony Corp. of America v. Universal City Studios, Inc.*, 464 U.S. 417, 429 (1984).

<sup>97</sup> The language of section 102(b) is intended to be a codification of the rule of *Baker v. Selden*, 101 U.S. 99 (1879). Pamela Samuelson, *Why Copyright Law Excludes Systems and Processes from the Scope of its Protection*, 8 Tex. L. Rev. 1921, 1923 (2007). In that case, *Baker* could constitute precedent for applying a *per se* exclusion for all works falling within the categories listed by 102(b), without subjecting them to an idea/expression analysis. However, post *Baker* case-law in many instances, examines the facts in terms of originality and idea expression, an analysis which will inevitably reduce the scope and effectiveness of 102(b).

<sup>98</sup> Pamela Samuelson, *Why Copyright Law Excludes Systems and Processes from the Scope of its Protection*, 85 Tex. L. Rev. 1921, n. 4 (2007).

### (iii) THE MERGER DOCTRINE

Facts and ideas are additionally insulated from monopolization by the “merger doctrine.” Normally facts and ideas do not appear in isolation. They are surrounded by protectable expression, and are, in fact, often inextricably intertwined. The merger doctrine operates by forming a *cordon sanitaire* around the fact or idea. It thus precludes protection of the fact or idea, as well as of the associated expression, if essential to conveying the fact or idea. In other words, “if there is just one way to express an idea, the idea and expression are said to merge, and the expression is not protectable under the copyright laws.”<sup>99</sup> This is particularly important if the idea can only be expressed in one or a limited number of ways. In such instances, protection of expression would inevitably accord protection to the idea.<sup>100</sup> Merger thus ensures that ideas are protected from private ownership and that public access to the idea is free.<sup>101</sup> Courts have however been generally cautious in applying the merger doctrine to UIW, out of concern about depriving authors of their entitlement to protection.<sup>102</sup>

Furthermore, as regards UIW, application of the doctrine raises additional issues. Unlike section 102(b), the merger doctrine remains an author-centric approach, which couches UIW into a mold of individuality. A court would thus focus on originality instead of the work’s utilitarian purpose. In addition, the outcome of the merger analysis varies with the level of abstraction at which the idea is formulated. If the creator’s idea is identified at a low level of abstraction, the idea would always merge into its expression, and no copyrightable work could ever exist. For instance, one creator could formulate the idea of a work at a high level of abstraction, as a “collection of legal authorities,” whereas another could formulate the same work at a low level of abstraction as an “alphabetical listing of cases on copyright functionality in the 9<sup>th</sup> Circuit between 1990 and 2005.” In the latter formulation, the idea would merge with the expression and the work would be unprotectable. While formulation of the idea at a high level of abstraction does not guarantee that the work will be

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<sup>99</sup> *Yurman Design, Inc. v. PAJ, Inc.*, 262 F.3d 101, 111 (2d Cir. 2001).

<sup>100</sup> *N.Y. Mercantile Exch., Inc. v. Intercontinental Exchange, Inc.*, 389 F. Supp. 2d 527, 540-541 (D.N.Y. 2005).

<sup>101</sup> *CCC Information Services, Inc. v. Maclean Hunter Market Reports*, 44 F.3d 61, 68 (2d Cir. 1994).

<sup>102</sup> *E.g.* *CCC Information Services, Inc. v. Maclean Hunter Market Reports*, 44 F.3d 61, 70 (2d Cir. 1994) noted that every compilation represents an idea, which in order to be conveyed accurately must be conveyed only by its expression; *Educational Testing Services v. Katzman*, 793 F.2d 533, 540 (3d Cir. 1986) held the doctrine inapplicable to the selection of test questions; *Toro Co. v. R & R Products Co.*, 787 F.2d 1208 (8th Cir. 1986) held the doctrine inapplicable to the selection of data for numbering parts.

protected,<sup>103</sup> it provides courts with many more opportunities to find protectable expression. In summary, the merger doctrine does not provide a reliable method for excluding factual and utilitarian works from protection.

## **(b) LIMITATIONS ON PROTECTABILITY IN GERMANY**

Other jurisdictions effect non-protectability of ideas in different ways, with essentially similar results. Under German law, copyrightable works are created by the author's molding of intellectual "Content,"<sup>104</sup> the rough equivalent of an idea, into a particular "Form,"<sup>105</sup> the rough equivalent of expression.<sup>106</sup> As in U.S. law, the distinction between Form and Content is relevant to protectability<sup>107</sup> and the transition between the two is fluid with no clear dividing line.<sup>108</sup>

Older German law held Form to be protectable and Content to be non-protectable.<sup>109</sup> Modern law has, however, distanced itself from this view, holding that protection can reside in either Content or Form, as the creator can inject his or her individual intellectual contribution into either. Both Content and Form can therefore be subject to protection.<sup>110</sup> The requisite individuality can thus be found in any of the following:

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<sup>103</sup> "Even with an idea formulated at a somewhat high level of abstraction, circumstances might occur where the realistic availability of differing expressions is so drastically limited that the idea can be said to have merged in its expression." *Kregos v. Associated Press*, 937 F.2d 700, 706 (2d Cir. 1991).

<sup>104</sup> MANFRED REHBINDER, URHEBERRECHT Rn. 51, at 24; the term "content" is used here as a translation of the German "Inhalt."

<sup>105</sup> *Id.* The term "form" is used here as a translation of the German "Form." also described as the concrete shape of an unprotectable idea, THOMAS DREIER & GERNOT SCHULZE, URHEBERRECHTSGESETZ §4, Rn. 43.

<sup>106</sup> *See, e.g.*, UrhG §§ 1 and 2 protect "persönliche geistige Schöpfung" (personal intellectual creation) which underlies the distinction between "Form" (form) and "Inhalt" (content). The former, akin to the concept of protected expression is protected in all instances, while the latter is protected only as expression of individuality and not if part of common cultural property. Ideas are not protected. MANFRED REHBINDER, URHEBERRECHT Rn. 51, at 24.

<sup>107</sup> THOMAS DREIER & GERNOT SCHULZE, URHEBERRECHTSGESETZ §4, Rn. 43.

<sup>108</sup> *Id.*; MANFRED REHBINDER, URHEBERRECHT Rn. 51, at 25. In contrast to U.S. law, the dividing line between protectability and non-protectability does not coincide with the Form/Content separation.

<sup>109</sup> THOMAS DREIER & GERNOT SCHULZE, URHEBERRECHTSGESETZ, §4, Rn. 43.

<sup>110</sup> German law differentiates between outer form (the means of expression, sentences, etc.) which is protectable if it reflects the creator's individuality, and inner Form (the plan, sequence of ideas, argumentation in *e.g.* a scientific work) which may also be protectable to the extent it reflects the creator's individual manner of thinking. Content generally reflects the content of the human mind. The former division was made along the line of protectable Form and unprotectable Content. Current thinking adheres to a differentiation based on individual characteristics of a work, which as a result is protectable, as opposed to commonly owned works ("Gemeingut"). Excepted from this rule are scientific works, in which Form is deemed easily separable from

(a) a particular structuring of the train of thought (Content),<sup>111</sup> (b) a particularly creative manner of collecting, categorizing and organizing material (the inner Form) in a compilation,<sup>112</sup> or (c) in the particular style and language (the outer Form).<sup>113</sup> Expressly excluded from protection are ideas and Form at an abstract level, in other words, when they are not actually represented or fixed in a work. Ideas, instructions, methods, systems formulae, mathematical systems, separated from their concrete fixation, would accordingly not be subject to copyright protection.<sup>114</sup>

In technical works, the “technical substance,” or content of the work cannot form the basis of protectability, because it must remain free for all to use.<sup>115</sup> Thus, it is said that, in technical works<sup>116</sup>, the possibility of an original train of thought does not exist.<sup>117</sup> Individuality, if any, would be found in the inner or outer Form in which the material is presented.<sup>118</sup> However, if the Form is dictated by external factors,<sup>119</sup> such

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Content, and where the concern of monopolization of ideas and research prevails. MANFRED REHBINDER, URHEBERRECHT Rn. 51, 59, at 24, 27; *see also* Schricker, Informationsgesellschaft, at 37.

<sup>111</sup> MANFRED REHBINDER, URHEBERRECHT Rn. 58, at 274.

<sup>112</sup> UrhG. §4; MANFRED REHBINDER, URHEBERRECHT at 37; BGH GRUR 1981, 352 – Staatsexamensarbeit (selection and arrangement of elements); Bundesgerichtshof [BGH] [Federal Court of Justice of Germany] Gewerblicher Rechtsschutz und Urheberrecht [GRUR] 1999, 92 – Tele-Info CD.

<sup>113</sup> MANFRED REHBINDER, URHEBERRECHT Rn. 58, at 274.

<sup>114</sup> *Id.*

<sup>115</sup> GERHARD SCHRICKER (Hrsg): URHEBERRECHT AUF DEM WEG ZUR INFORMATIONSGESELLSCHAFT 37 (Baden-Baden 1997). In such works the concern of monopolization of ideas and research prevails. MANFRED REHBINDER, URHEBERRECHT Rn. 51, at 24.

<sup>116</sup> THOMAS DREIER & GERNOT SCHULZE, URHEBERRECHTSGESETZ §2, Rn. 93. This information must remain freely accessible to all (“Gemeingut”); BGH GRUR 1981, 352, 353 – Staatsexamensarbeit.

<sup>117</sup> GRUR 1984, 659,660 – Ausschreibungsunterlagen; Bundesgerichtshof [BGH] [Federal Court of Justice of Germany] Gewerblicher Rechtsschutz und Urheberrecht [GRUR] 1985, 1040 – Inkassoprogramm; BGH GRUR 1999, 92 – Tele-Info CD.

<sup>118</sup> BGH GRUR 1984, 659, 661, 662 – Ausschreibungsunterlagen and Comment thereto. “The technical content of a work – the technical “teaching” as such cannot be the object of copyright. Copyrightability of such works [containing technical teachings] can be based only on the creative form of presentation.... on a particularly intelligent manner of collection, categorization and arrangement of the material... [However] [t]he arrangement and categorization, the concrete form, the presentation of the technical content normally result from the nature of things. In principle one must assume that the customary manner of expression in a given field lacks the individuality for required for copyrightability. The same applies to structure and form of presentation dictated by scientific reasons or customary in the respective field, whose use can therefore not be considered an individual creation.” (Translation DB); *see also* BGH GRUR 1981, 352, 353 – Staatsexamensarbeit.

<sup>119</sup> Oberlandesgericht [OLG] Frankfurt a.M. Multimedia und Recht [MMR] 2002, 687 – IMS Health, 19.6.2001, citing GERHARD SCHRICKER, URHEBERRECHT,

as the nature of things, scientific reasons,<sup>120</sup> customary forms of expression in the field, the purpose of the work, logic<sup>121</sup> or the nature of technology, even the Form will generally not display the requisite individuality for copyright purposes. Thus the requisite individuality should be absent when business, technical or functional constraints, such as efficiency or compatibility, limit the room for creativity.<sup>122</sup>

### **PART III**

#### **A. COPYRIGHT LAW AND FUNCTIONALITY**

None of the doctrines discussed so far expressly addresses the concept of functionality. Yet there seems to be agreement that functional creations do not, in general, pertain to the realm of copyright law, but to that of patent law, because a work with “utilitarian elements is better left to the more exacting standards of patent and trade secret law.”<sup>123</sup> Functionality is therefore commonly accepted as the dividing line between patent and copyright law.<sup>124</sup>

With mass production of UIW and their increasing value to the economy, both patent law<sup>125</sup> and copyright law are under pressure to find ways to protect these new creations.

If functional works pertain to the patent side, or at least not to the copyright side, the question arises: Does copyright have a mechanism to ensure that functional works, in fact, stay on the “non-copyright” side of the dividing line? In other words,

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Schricker/Loewenheim, UrhG, 2. Aufl. § 4, Rn. 9: “If selection and arrangement result from the nature of things or if they are dictated by purpose or logic, there is no room for individual creation.” (Translation DB).

<sup>120</sup>“The need for future scientific treatment of the subject matter, leaves relatively little free room for individual creative presentation and formulation.” (Translation DB). BGH GRUR 1981 352, 355 – Staatexamensarbeit.

<sup>121</sup> OLG Frankfurt a.M. MMR 2002, 687 – IMS Health.

<sup>122</sup> ARTHUR-AXEL WANDTKE & WINFRIED BULLINGER, URHEBERRECHT, Rn.35 (2. Auflage 2006).

<sup>123</sup> GOLDSTEIN ON COPYRIGHT §10.5, at 10:78; *see generally* Dennis Karjala, *Distinguishing Patent and Copyright Subject Matter*, 35 Conn. L. Rev. 439 (2003).

<sup>124</sup> *See generally* Karjala, *supra*, n. 123.

<sup>125</sup> For instance, because copyright protection of software is unpredictable, owners tend to seek protection under patent laws. This has resulted in patentability of business methods in the U.S., *see* *State Street Bank & Trust Co. v. Signature Fin. Group*, 149 F.3d 1368 (Fed. Cir. 1998). Other countries’ laws however, *e.g.* the European Patent Convention, still preclude patentability of computer programs “as such.” European Patent Convention, Art. 52.

are functional works excluded from copyright protection, as they are, for instance, from trademark protection?<sup>126</sup>

In U.S. law, provisions relating to exclusion of functional works from copyrightability appear in two areas: (1) the exclusion of “ideas, procedures, processes, systems, methods of operation, concepts, principles or discoveries”<sup>127</sup> discussed above, and (2) the exclusion of utilitarian applied art.<sup>128</sup>

The latter exclusion relating to functional works is set forth as part of the statutory scheme surrounding protection of pictorial, graphic and sculptural articles.<sup>129</sup> The purpose of this provision is to separate copyrightable aesthetic works from uncopyrightable “useful articles” (i.e. utilitarian works) in the area pictorial, graphic and sculptural works. As relevant for present purposes, such works include maps, globes, charts, diagrams, technical drawings and architectural plans.<sup>130</sup> The utilitarian aspects of such works are separable from their aesthetic aspects and are not subject to protection.<sup>131</sup> If separability cannot be achieved, neither utilitarian nor aesthetic aspects are protectable.<sup>132</sup>

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<sup>126</sup> See, e.g., *Traffix Devices, Inc. v. Marketing Displays, Inc.*, 532 U.S. 23 (2001), defining a product feature as functional, “if it is essential to the use or purpose of the article or if it affects the cost or quality of the article.” *Traffix Devices v. Mktg. Displays*, 532 U.S. 23, 32-33 (U.S. 2001).

<sup>127</sup> 17 U.S.C. § 102(b). The works excluded under this section are functional, even though the language does not expressly state it.

<sup>128</sup> 17 U.S.C. § 101 (definition of pictorial, graphic, sculptural works)

<sup>129</sup> 17 U.S.C. § 101 (definition of pictorial, graphic and sculptural works).

<sup>130</sup> “Pictorial, graphic, and sculptural works” include two-dimensional and three-dimensional works of fine, graphic, and applied art, photographs, prints and art reproductions, maps, globes, charts, diagrams, models, and technical drawings, including architectural plans. 17 USC §101.

<sup>131</sup> “[a] ‘useful article’ is an article having an intrinsic utilitarian function that is not merely to portray the appearance of the article or to convey information . . . .” 17 USC §101. (Once a work falls into this category, it must be determined whether the utilitarian aspects are separable under the requirements of the “pictorial, graphic and sculptural works” definition).

<sup>132</sup> “This definition was adopted in an effort to deal with the problem of industrial design by excluding utilitarian functions other than to inform or portray an appearance, from copyright protection and by excluding even expressive aspects of useful articles to the extent they are not separable from the utilitarian functions.” Dennis Karjala, *A Coherent Theory for the Copyright Protection of Computer Software and Recent Judicial Interpretations*, 66 U. Cin. L. Rev. 53, 58 (1997); see also Jane Ginsburg, *Toward a Third Intellectual Property Paradigm: Comments: Four Reasons and a Paradox: The Manifest Superiority of Copyright over sui generis Protection of Computer Software*, 94 Colum. L. Rev. 2559, 2568 (1994). “Such works shall include works of artistic craftsmanship insofar as their form, but not their mechanical or utilitarian aspects are concerned; the design of a useful article, as defined in this section, shall be considered a pictorial, graphic or sculptural work only if, and only to the extent that, such design incorporates pictorial, graphic or sculptural features that can be identified separately from, and are capable of existing independently of, the utilitarian aspects of the article.” 17 USC §101.

As the only provision in U.S. copyright law that expressly addresses the issue of functionality,<sup>133</sup> the “useful article” provision could, in theory, serve as a model for evaluating protectability of information works. Unfortunately, U.S. courts have not been able to agree on an interpretation of the statutory language. Separability has variously been viewed alternatively as 1) treatment of artistic features as “primary” and the utilitarian features as “subsidiary;”<sup>134</sup> or 2) the fact that the article “stimulates in the mind of the beholder a concept that is separate from the concept evoked by its utilitarian function;”<sup>135</sup> or 3) the fact that the artistic design was not significantly influenced by functional considerations;<sup>136</sup> or 4) the fact that artistic features “can stand alone as a work of art traditionally conceived, and the useful article in which it is embodied would be equally useful without it”<sup>137</sup> or 5) simply that artistic features are not utilitarian.<sup>138</sup> In short, efforts to define separability have remained inconclusive.

More importantly, the “useful article” exception is specifically tailored to applied art in that it excludes from protection “useful articles” with an “intrinsic utilitarian function.”<sup>139</sup> “Useful articles” however do not include works that are intended to “convey information.”<sup>140</sup> Simply stated, under this definition,<sup>141</sup> works that “convey information” do not fall within the “useful article” category, and are therefore not covered by the exclusion under this section.

Consequently, the functionality bar contained in the “useful article” definition does not translate well to information works. All information works, by definition, convey information, yet many are unquestionably functional, e.g. accounting systems

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<sup>133</sup> The only statutory definition of functionality in U.S. law. Karjala, *supra*, n. 132, at 58.

<sup>134</sup> Kieselstein-Cord v. Accessories by Pearl, Inc. 632 F. 2d 989, 993 (2d. Cir. 1980).

<sup>135</sup> Carol Barnhart, Inc. v. Economy Cover Corp, 773 F.2d 411,422 (2d Cir. 1985).

<sup>136</sup> See Brandir Int’l., Inc. v. Cascade Pacific Lumber Co., 834 F.2d 1142, 1145 (2d Cir. 1987).

<sup>137</sup> GOLDSTEIN ON COPYRIGHT § 2.5.3, at 2:67.

<sup>138</sup> Under the hybrid differentiating mechanism, articulated in the Pivot Point Int’l, Inc. v. Charlene Prods case, if the design elements of a useful article reflect the independent, artistic judgment of the designer, conceptual separability exists. If, on the other hand, the design of a useful article is “as much the result of utilitarian pressures as aesthetic choices,” the useful and aesthetic elements are not conceptually separable. Pivot Point Int’l, Inc. v. Charlene Prods, 372 F.3d 913, 923, 931 (7th Cir 2004). Another test articulated is that the useful article “would still be marketable to some significant segment of the community simply because of its aesthetic qualities,” NIMMER ON COPYRIGHT § 2.08 [B][3], at 2-101.

<sup>139</sup> 17 U.S.C. § 101 “[a] ‘useful article’ is an article having an intrinsic utilitarian function that is not merely to portray the appearance of the article or to convey information.”

<sup>140</sup> 17 U.S.C. § 101 (useful article definition).

<sup>141</sup> It should be kept in mind that this section was developed for the area of applied art, and is not specifically intended to be used in the context of information works.

convey information about debits and credits;<sup>142</sup> TV program schedules convey information about timing of TV programs to users;<sup>143</sup> futures settlement values convey information to buyers and sellers about the prices to be paid.<sup>144</sup> Applying the definition contained in 17 U.S.C. § 101 to UIW would exclude these works from being “useful articles” and would render the “useful article” limitation inapplicable. Given the inapplicability of this exception, courts might be inclined to grant protection.<sup>145</sup> In short, in the broader context of information works in a KBE, it is unlikely that the exclusion of “useful articles” finds productive application.

Some commentators have tried to reconcile the “useful article” definition with the concept of functionality for purposes of information works.<sup>146</sup> Others have attempted to extrapolate from the treatment of “useful articles” in applied art, a rule that would apply to useful or utilitarian information works of authorship, or applied literature.<sup>147</sup> None of these efforts has yielded a bright line which would allow functional information works to be excluded from copyright protection on a principled basis. In light of this, the “useful article” exception may best be left to the area of applied art.

German law makes no express reference to functionality. Nonetheless, the exclusion from protection of works whose form is dictated by the nature of things,<sup>148</sup> scientific reasons or the nature of technology,<sup>149</sup> sounds in functionality. However, this apparent functionality language is tied into the individuality analysis. The reasoning is that works, whose form is dictated by functional considerations, do not leave

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<sup>142</sup> *Baker v. Selden*, 101 U.S. 99 (1879); Weinreb, *supra* note 89, at 1178.

<sup>143</sup> *Radio Telefis Eireann (RTE) and Independent Television Publications Ltd (ITP) v. Commission of the European Communities (“Magill”)*, Joined cases C-241/91 P and C-242/91 P (European Court of Justice [ECJ] Judgment 6 April 1995).

<sup>144</sup> *N.Y. Mercantile Exch., Inc. v. Intercontinental Exchange, Inc.*, 497 F.3d 109 (2d Cir. 2007); Weinreb, *supra* note 89, at 1178.

<sup>145</sup> *Gemel Precision Tool Co. v. Pharma Tool Corp.*, 1995 U.S. Dist. LEXIS 2093, 35 U.S.P.Q.2D (BNA) 1019 (E.D. Pa. 1995).

<sup>146</sup> Karjala, *supra* note 123, n. 38. To reconcile the useful article exception, outside the context of applied art, Prof. Karjala distinguishes “functional” from “useful” works. Properly excluded works which have a “utilitarian function” in “useful articles” are different from the kind of usefulness or functionality inherent in items such as maps, recipe books, directories, dictionaries, accounting systems, which may be protected by copyright. While “maps enable us to go from one place to another; recipes tell us how to bake cakes; accounting books explain how to implement a particular system of accounting; pictures are useful for decorating homes and offices,” these are simply part of the many works that are “useful” to human beings protected by copyright; *see also* Karjala, *supra* note 132, at 117.

<sup>147</sup> Ginsburg, *supra* note 132, at 2568 (arguing that in appropriate cases such an extension is not inconsistent).

<sup>148</sup> GERHARD SCHRICKER, URHEBERRECHT, Schricker/Schricker, § 4, Rn. 195, et. seq.

<sup>149</sup> BGH GRUR 1984, 659, 661 Ausschreibungsunterlagen; BGH GRUR 1981, 352, 355 - Staatsexamensarbeit.

sufficient room for individuality for purposes of copyright.<sup>150</sup> Since existence of such functional constraints is merely a question of degree in the general spectrum of individuality, drawing the correct line is often problematic, yielding results such as the Frankfurt OLG ruling in IMS Health.<sup>151</sup>

## **B. THE TENSION BETWEEN “ORIGINALITY” AND “FUNCTIONALITY”**

As shown by the preceding discussion, copyright law provides no clear basis for excluding works based on their functional nature. The result is that protectability will be assessed primarily based on the measure of the work’s originality.

However, an inherent tension exists between the concept of originality in copyright and the value system of UIW. The originality requirement reflects the value system of copyright: it encourages subjective imagination and deviation from routine. It seeks and rewards diversification based on expression of the creator’s individual perception of reality. The “originality lens” is therefore focused on the creator’s subjective creative input.

In UIW, the creator’s subjectivity is virtually irrelevant. Functional works require expression that conforms to objective reality and pre-established rules inherent in the work’s functionality. A creator’s expressive choices must conform to it. A creator’s expression is therefore constrained by the work’s functionality. The following section will discuss some of the constraints to expression encountered in UIW and how they have been approached by courts.

### **(1) CONSTRAINTS ON EXPRESSION IN UIW**

Constraints to expression can be inherent in the functionality of utilitarian works, or imposed by external limitations, such as standardization,<sup>152</sup> interoperability,<sup>153</sup> the market<sup>154</sup> or convention.<sup>155</sup>

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<sup>150</sup> “If selection and arrangement result from the nature of things or if they are dictated by purpose or logic, there is no room for individual creation.” (Translation DB). OLG Frankfurt a. M. of 19.6.2001, MMR 2002, 687 - IMS Health, citing GERHARD SCHRICKER, URHEBERRECHT, Schricker/Loewenheim, UrhG, 2. Aufl. §4, Rn. 9.

<sup>151</sup> *Id.*

<sup>152</sup> American Dental v. Delta Dental, 126 F.3d 977, 981.

<sup>153</sup> Expression is “constrained” by the requirements of interoperability. Pamela Samuelson, *Questioning Copyrights in Standards*, 48 B.C. L. Rev 193, 218 (2007). In software the expression is “necessarily result from external factors inherent in the subject matter of the work.” *Mitel, Inc. v. Iqtel, Inc.*, at 137.

<sup>154</sup> A teaching manual must imitate the leading manual, because “in teaching, a noticeable style is a hindrance. Two simple and straightforward explanations of an economic law or principle must

## (a) INHERENT CONSTRAINTS ON EXPRESSION

UIW are generally governed by rules, ranging anywhere from the alphabet to the laws of physics, dictated by the work's functionality. In large part, these rules determine the creator's expressive choices. A creator's expressive choice can thereby be rendered "inevitable,"<sup>156</sup> "functionally constrained,"<sup>157</sup> "dictated by the nature of things"<sup>158</sup> or "dictated by logic."<sup>159</sup>

Consider, for instance, the construction of a tangible utilitarian work, such as a machine. A machine will only work if parts are assembled precisely in accordance with a blueprint. If its assembly deviates from the blueprint, the functionality is destroyed and the machine will not work. The same is true for intangible utilitarian works: their expression must observe the work's "blueprint." For a phone directory, for instance, the "blueprint" generally is alphabetical order. If the order were changed, say by reversing some letters in the alphabet, so that "a" follows "s" etc., the product would be useless to users who expect to find entries in alphabetical order.

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bear a close resemblance, so greater similarity must be allowed." *McGraw-Hill, Inc. v Worth Publishers, Inc.*, 335 F Supp 415, 420 (SDNY 1971).

<sup>155</sup> "Even if multiple possibilities exist, the room for individual creation is limited by the fact that such directories are generally subject to conventions which have developed in alphabetically organized directories in general, and in telephone directories in particular, and which, consciously or unconsciously, are expected by the user." (Translation DB). BGH GRUR 199, 923 – Tele-Info CD. Similarly, expression may be dictated by the nature of things, logic, or the purpose of the work. OLG Frankfurt a. M. of 19.6.2001, MMR 2002, 687 - IMS Health, citing GERHARD SCHRICKER, URHEBERRECHT, Schricker/Loewenheim, UrhG, 2. Aufl. § 4 Rn. 9.

<sup>156</sup> *Feist Publications v. Rural Telephone*, 499 U.S. 340, 343.

<sup>157</sup> Julie E. Cohen, *Reverse Engineering and the Rise of Electronic Vigilantism: Intellectual Property Implications of "Lock-Out,"* 68 S. Cal. L. Rev. 1091, 1138 (1995); see generally Pamela Samuelson, *Why Copyright Law Excludes Systems and Processes from the Scope of its Protection*, 85 Tex. L. Rev. 1921 (2007).

<sup>158</sup> BGH GRUR 1981, 352, 353 – Staatsexamensarbeit.

<sup>159</sup> "If selection and arrangement result from the nature of things or if they are dictated by purpose or logic, there is no room for individual creation." (Translation DB). OLG Frankfurt a. M. of 19.6.2001, MMR 2002, 687 - IMS Health, citing GERHARD SCHRICKER, URHEBERRECHT, Schricker/Loewenheim, UrhG, 2. Aufl. §4, Rn. 9. This in turn may be determined by the broader context of its purpose. See Jerome Reichman, *Computer Programs As Applied Scientific Know-How: Implications of Copyright Protection for Commercialized University Research*, 42 Vand. L. Rev. 639, 685 (1989).

The rules governing expression vary with the work's function.<sup>160</sup> A telephone directory, arranged by ascending order of telephone numbers, is useless when searching by name, but useful for retrieving a subscriber's name based on an existing number.

The constraints carry through to consecutive iterations of the work. "If an original invention is highly constrained by the laws of physics, subsequent developers cannot simply ignore those laws – they must work within the parameters of the physical laws."<sup>161</sup>

### **(i) THE "MOST EFFECTIVE EXPRESSION" PRINCIPLE**

In creating UIW a creator is generally bound to seek the expression that optimally or most effectively achieves the work's particular functionality.<sup>162</sup> In other words,, expression tends toward maximum effectiveness. Creation of UIW follows the same principle as innovation in technical fields: among a number of solutions, one solution will work better than others, because it achieves the desired result overall more effectively, i.e. faster, simpler, more cost-effective, etc. The optimal solution in any given circumstance is dictated by the purpose of the work, logic, the laws of science, etc.<sup>163</sup> In some regards, a creator would then merely execute the pre-established rules that achieve the work's functionality, by e.g. placing component parts in a particular order. Naturally, different creators might give different interpretations to the rules governing the work, and might place a given part differently than others. However, their choices must always be in accordance with the dictates of functionality, i.e. to create a work that functions optimally for the given purpose.

Consider, for instance, the graphic instructions for the use of a motorized saw.<sup>164</sup> In evaluating their copyrightability, court noted that the designer who created the

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<sup>160</sup> See OLG Frankfurt a. M. of 19.6.2001, MMR 2002, 687 - *IMS Health*, citing GERHARD SCHRICKER, URHEBERRECHT, Schricker/Loewenheim, UrhG, 2. Aufl. § 4, Rn. 9.

<sup>161</sup> Mark Lemley, *The Economics of Improvement in Intellectual Property Law*, 75 Tex. L. Rev. 989, 1036 (1997). Artists and writers presumably face no similar constraint (or at least a less restrictive one), since it is possible simply to create a new work "from scratch" in a completely different genre. *Id.*

<sup>162</sup> The process of improvement at one point reaches the point it is the "best" that can be accomplished. Changing the wording even slightly, changes the product's functionality. Karjala, *supra* note 123, at 524.

<sup>163</sup> "Any useful collection of facts . . . will be structured by a number of decisions regarding the optimal manner in which to collect the pertinent data in the most efficient and accurate manner." *Bellsouth Advertising. & Publishing. Corp. v. Donnelley Info. Publ'g, Inc.*, 999 F.2d 1436, 1441 (11th Cir. 1993) (en banc).

<sup>164</sup> BGH GRUR 1993, 34 – Bedienungsanweisung.

instructions was free to choose any technique of line drawing, use of gray tones, perspectives, colored arrows and markings. Exercise of these choices was deemed to be evidence of individuality.<sup>165</sup>

However, had the court considered these choices, in light of their purpose, rather than in an abstract manner, a different result might have obtained. Assume the motorized saw has a safety switch. In deciding whether to highlight the switch by having an arrow point to it, the designer has two options. The designer may think an arrow will increase the ease of understanding, in which case she would use the arrow; or, she may think the arrow does not contribute to easier understanding, in which case she would not use the arrow.<sup>166</sup> In either scenario, the action is determined by the designer's desire to use the expression that will achieve the work's functionality, i.e. to facilitate understanding of the saw's operation, most effectively, otherwise stated, she will use the "most effective expression." Therefore one could say that the creator's freedom of expressive choice is subordinated to the work's functionality.<sup>167</sup>

## **(b) EXTERNAL CONSTRAINTS ON EXPRESSION**

Constraints on expression may also be imposed by external factors.

Standardization in information products occurs as a result of treatment or arrangement of information in accordance with a given, consistently applied format or method ("language"), regularly used within a given group. Examples of standards are taxonomies, mathematical formulae, the periodic table of chemical elements, industry standards of all kinds, Internet communication standards. Standards are characterized by each user's knowledge that other users will strictly observe the "language" and will readily understand it. Their value lies in facilitated

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<sup>165</sup> "The court appeal has not sufficiently taken into consideration that selection and arrangement of the drawings and images, as well as cross-referencing images and text can contain creativity." (Translation DB) *Id.* at 36.

<sup>166</sup> The same process would occur with respect to decisions such as the color of the arrow, its size, whether to use an arrow as opposed to another means of highlighting the switch, etc. All of this assumes, of course, rational action on behalf of the designer, in other words that she would follow her best judgment and not act against it. It also assumes that she is motivated by the functional objective of making the arrow as visible as possible, and not by the objective of making the drawing aesthetically appealing, in which case the works' functional nature is subordinated to its aesthetics.

<sup>167</sup> *See, e.g.*, *Miller v. Universal City Studios, Inc.* 650 F.2d 1365, 1375 (5th Cir. 1981); Karjala, *supra* note 123, n. 230. Furthermore, observing the dictates of functionality leads to substantial efficiencies, whereas deviating from them leads to unnecessary social cost.

communication within the group.<sup>168</sup> Gratuitous variation from the “language” impedes communication.<sup>169</sup>

Consider the case of the classification of dental procedures (the “ADA Code”) at issue in *American Dental v. Delta Dental*.<sup>170</sup> The classification was based on a standard categorization of procedures accepted in the industry.<sup>171</sup> Its precise terminology was fought out in a number of different committees, in the process of long and careful deliberations.<sup>172</sup> The result of this preparatory process was that each procedure was assigned a number, a short description, and a long description. In this manner, an exhaustive listing of all procedures, organized in the most logical way, became available to facilitate communication within the ADA’s constituency of dentists, patients and insurers. The very value of this Code lies in its uniformity and conformity.<sup>173</sup> Each user can predictably rely on the fact that e.g. guided tissue regeneration will be found under section 4200, along with related procedures and not randomly under section 2500, or elsewhere. Were the Code’s preparers to use any different “language,” the Code would be useless to its constituency of users. Consequently, in preparation of the Code; the expression is limited by the standard’s “language.”

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<sup>168</sup> See Karjala, *supra* note 123, n. 230, citing Mark A. Lemley & David McGowan, *Legal Implications of Network Economic Effects*, 86 CAL. L. REV. 479 (1998); see also David Friedman, *Standards as Intellectual Property: An Economic Approach*, 19 U. Dayton. L. Rev. 1109, 1120 (1994).

<sup>169</sup> Pamela Samuelson, *Questioning Copyrights in Standards*, 48 B.C. L. Rev 193, 211 (2007). Similarly, “[t]he fact that Delta used most of the Code but made modifications is the reason ADA objects, for variations salted through a convention impede communication.” *American Dental v. Delta Dental*, 126 F.3d 977, 981.

<sup>170</sup> *American Dental Association v. Delta Dental Plans Association*, LEXIS 5809; 39 U.S.P.Q. 2D (BNA) 1715 (N.D.Ill. 1996).

<sup>171</sup> “The choice of which categories to include, and correspondingly, which procedures to list under each category, is entirely dictated by standard practice and custom in dentistry. ... [T]he organization of the Code merely restates the divisions of dentistry understood by the profession,” *Id.* at 44.

<sup>172</sup> *Id.* at 6-7. As the District Court pointed out, classification means the action of classifying or arranging according to common characteristics or affinities (Oxford English Dictionary) constrained by these characteristics. *Id.* at 22.

<sup>173</sup> American Medical Association, *How a Code Becomes a Code*, available at [www.ama-assn.org/ama/pub/category/print/3882.html](http://www.ama-assn.org/ama/pub/category/print/3882.html). Similarly, “[s]ince its first publication, the ADA has actively encouraged everyone in the Dental Industry to use the Code. To foster the ADA’s stated goal of uniformity in dental coding, the ADA has consistently asked third parties, including Delta, to make their own Codes as similar as possible to the Code.” *American Dental v. Delta Dental* (District Court opinion) LEXIS 5809, at 12. “[S]tandardization of language promotes interchange among professionals.” *American Dental v. Delta Dental*, 126 F.3d 977, 981.

A further limitation on expression in functional works results from different products' need to interoperate. Interoperability is the "ability of a system to work with or use the parts or equipment of another system."<sup>174</sup> Thus the developer of the one "system," be it data to be input into a database, or a computer program that must work on specified hardware must abide by the "language" dictated by a system with which it needs to interoperate. Failure to do so deprives the work of its functionality and renders it useless.

Consider for instance a computer program. The program must work on a given hardware platform, and must interoperate with a multitude of other programs, operating systems and applications. The criteria that limit a software developer's expression are numerous. They include, to mention just a few, the mechanical specifications of the computer on which the particular program is intended to run, compatibility requirements of other programs with which a program is designed to operate in conjunction, computer manufacturers' design standards, end-user technical requirements, industry programming practices, and practices and demands of the industry being served.<sup>175</sup>

Once all the relevant criteria have been taken into consideration, the space for individuality is virtually nil,<sup>176</sup> because a programmer's decisions "necessarily result from external factors inherent in the subject matter of the work."<sup>177</sup> Suggestions that "there is nearly limitless choice" in how to approach a programming task<sup>178</sup> have

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<sup>174</sup> [www.merriam-webster.com](http://www.merriam-webster.com).

<sup>175</sup> See *Mitel, Inc. v. Iqtel, Inc.*, 124 F.3d 1366 (10th Cir. 1997). The parameters an interface establishes for the effective communication of information between one program and another constrain the design choices of subsequent programmers. Pamela Samuelson, *Questioning Copyrights in Standards*, 48 B.C. L. Rev 193, 218 (2007).

<sup>176</sup> In this setting the command codes of a hardware product "necessarily result from external factors inherent in the subject matter of the work." *Mitel v. Iqtel*, at 137. In *Mitel*, a telecommunications equipment producer had developed a computer hardware and software for telephone applications, and published over sixty four digit numeric command codes instructing how to program its hardware with the program codes. Competitor Iqtel, who manufactured its own hardware, realizing that it could compete with Mitel only if its hardware is compatible with Mitel's, programmed Mitel's command codes into its own controllers, translated into Iqtel's commands. Iqtel also published a manual cross referencing the two command codes. When Mitel claimed copyright protection for its codes, the court held the elements of the code to be "necessarily the result of external factors inherent in the subject matter of the work, and could not be protected by copyright." *Mitel v. Iqtel*, at 137.

<sup>177</sup> *Id.*, at 137.

<sup>178</sup> "There is nearly limitless choice in how a particular data structure or algorithm . . . . A programmer has a choice from among many programming languages, each having a distinct idiom which may lend itself more or less readily to a particular programming task. . . . Within the confines of a single programming language and a given programming task, a programmer has

been referred to as a myth.<sup>179</sup> If these constraints are ignored, the methodology of evaluating copyright protection becomes flawed.<sup>180</sup>

Functional constraints on expression exist in other contexts as well, such as industry practices and norms,<sup>181</sup> government mandates,<sup>182</sup> or commercial reasons,<sup>183</sup> etc.

## 2. ORIGINALITY IN SELECTION AND ARRANGEMENT

The legal theory most frequently used to justify protectability of UIW is that originality in the “selection and arrangement” of the data contained in work.<sup>184</sup> A judge-made theory of similar nature holds that originality can reside in the “judgment and expertise” in processing the data.<sup>185</sup> How can these theories be reconciled with the fact that expression of UIW is constrained by functionality?

Originality in selection and arrangement is premised on the fact that an author, in his discretion, “chooses which facts to include, in what order to place them, and how to arrange the collected data so that they may be used effectively by readers.”<sup>186</sup> If this process displays more than “a minimal degree of creativity,”<sup>187</sup> originality is present.

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great discretion as to how to structure and organize the code, how to comment the code, and how to format the code so it is comprehensible to other programmers....” Aharonian v. Gonzales, U.S. Dist. LEXIS 13 (N D Cal. 2006).

<sup>179</sup> Suggesting that independent creation based on the availability of “nearly limitless choice” is a myth. Jerome Reichman, *Computer Programs As Applied Scientific Know-How: Implications of Copyright Protection for Commercialized University Research*, 42 Vand. L. Rev. 639, n. 246 (1989), quoting from Laurie & Keefauver, *Protection of Computer Software* (American Group of A.I.P.P.I. Report Q57, 1989), reprinted in Arizona State University College of Law, Cases & Materials for LaST Frontier Conference on Software Protection 230, 233 (Feb. 13-14, 1989).

<sup>180</sup> Software remains an uneasy fit with copyright and has been viewed by many with skepticism. See Weinreb, *supra* note 89. Nonetheless, courts have found software protectable, *Computer Associates International, Inc. v. Altai, Inc.*, 982 F.2d 693 (2d Cir. 1992)

<sup>181</sup> *E.g.* *American Dental v. Delta Dental*, 126 F.3d 977; see Pamela Samuelson, *Questioning Copyrights in Standards*, 48 B.C. L. Rev 193, 196 (2007).

<sup>182</sup> Pamela Samuelson, *Questioning Copyrights in Standards*, 48 B.C. L. Rev 193, 220 (2007).

<sup>183</sup> See *Telstra Corporation Limited v Desktop Marketing Systems Pty Ltd* [2001] FCA 612 (Federal Court of Appeal of Australia), at 19.

<sup>184</sup> *E.g.*, 17 U.S.C. § 101 (compilations).

<sup>185</sup> *CDN v. Kapes*, 197 F.3d 1256 (9th Cir. 1999); *CCC Information Services, Inc. v. Maclean Hunter Market Reports*, 44 F.3d 61 (2d Cir. 1994).

<sup>186</sup> *Feist Publications v. Rural Telephone*, 499 U.S. 340, 348.

<sup>187</sup> *Id.*; Karjala, *supra* note 123, at 486.

Some scholars have questioned whether the doctrine of “selection and arrangement” can ever be truly original.<sup>188</sup> Compilations are generally designed to perform a specific function. The selection and arrangement of the information contained in the compilation is simply a “system to carry out the compilation’s intended function”<sup>189</sup> and therefore dictated by the requirement of fulfilling that function.<sup>190</sup> In that case, the author’s expression is accordingly limited by the compilation’s functionality. A closer look at the doctrines of selection and arrangement individually lends support this view.

### **(a) SELECTION**

The act of selection involves identifying information suitable for inclusion in a compilation. Yet the value of a compilation of information lies, in most instances, in its comprehensiveness and exhaustiveness in light of the given purpose.<sup>191</sup> A provider of compilations does not have a great deal of discretion as to what data from a given body of information should be included.<sup>192</sup> For instance, there is no discretion in selecting data for a phone directory, because a directory must include the entire universe of individuals in the respective category, in this case subscribers,<sup>193</sup> nor does it make sense to include some dental procedures into a comprehensive classification of dental procedures and to exclude others. If there is no discretion as to which facts should be included, does the creator have discretion as to which categories of data to include? Likely not, as the categories are dictated by the compilation’s function, in other words, the creator must include those categories that will allow a user of the compilation to use it most effectively.

### **(b) ARRANGEMENT**

Arrangement does not allow for a great deal of discretion either. Compilations are created for a certain purpose, usually to satisfy the information need of a given group, on a given topic and for a given purpose. Their measure of success is the

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<sup>188</sup> The selection and arrangement doctrine is “often largely pretextual.” Ginsburg, *supra* note 37, at 340. See also L. Ray Patterson, *Copyright Overextended: A Preliminary Inquiry into the Need for a Federal Statute of Unfair Competition*, 17 Dayton L. Rev. 385, 394 (1992).

<sup>189</sup> Because they are almost always constrained by functional considerations “to treat these acts as authorship for computer databases is a fiction.” Patterson, *Copyright Overextended*, at 394.

<sup>190</sup> See generally Weinreb, *supra* note 89.

<sup>191</sup> Ginsburg, *supra* note 37, at 345.

<sup>192</sup> “[W]here functional considerations or commercial reasons limit the areas of discretion...there will be no “selection” at all.” *Telstra Corporation Limited v Desktop Marketing Systems Pty Ltd* [2001] FCA 612, at 19.

<sup>193</sup> Karjala, *supra* note 123, at 363.

usefulness of the target group in light of the intended purpose. Usefulness for a particular purpose turns on functional criteria such as alphabetical order for phone directories, physical and chemical properties in a chemical data database, regional arrangements or arrangement by trade for yellow pages,<sup>194</sup> etc. User-friendliness is an essential criterion for measuring the compilation's success. It derives from qualities such as predictability and an obvious and objectively intuitive arrangement. In short, arrangement is not an opportunity for the producer of the information to be arbitrary.

For instance, consider legal databases, such as Westlaw or Lexis.<sup>195</sup>

The underlying material included in these databases consists to a large extent of judicial decisions that are in the public domain. The value of the compilation resides in its comprehensiveness, as it is critical for research that the entire universe representing a given category, e.g. all U.S. judicial decisions, be included.<sup>196</sup>

Selection in this setting could occur within the category (e.g. which Federal cases to include) or at the level of which category to include (which categories to include). Selection within the category is automatic because comprehensiveness dictates inclusion of all decisions. When it comes to the decision which category to include, the decision is an economic one: is the investment justified in light of consumer interest? In short, as to selection, there is little room for individual discretion.

The arrangement's goal is to make the database as user-friendly as possible (preferably more so than the competitor's), by creating categories that are intuitive and easily accessible based on (a) existing arrangements in the outside world, in the way one would find such books in a library: state court reporters, federal court reporters, law review articles, particular subject matters, etc., (b) researchers' patterns of use: court decisions, secondary sources, legislation, etc., (c) cost considerations, e.g. access to certain segments of the database at lower cost.

In addition, legal resources databases may contain numerous other facilities that simplify the reader's task: e.g. star pagination system, hyperlinks to cross-references, search functions, "quotation and cite," etc. All of these functionalities are simply a "mechanical utility,"<sup>197</sup> which performs step-by-step implementations of the

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<sup>194</sup> See Ginsburg, *supra* note 37, at 344.

<sup>195</sup> See, e.g., *West Pub. Co. v. Mead Data Cent., Inc.*, 799 F.2d 1219, 1226-1227 (8th Cir. 1986), where copyright was granted to West's case arrangements.

<sup>196</sup> See *id.* at 1226-1227.

<sup>197</sup> *Lotus Dev. Corp. v. Borland Int'l, Inc.*, 49 F.3d 807, 819 (1<sup>st</sup> Cir 1995).

compilation's elements. These functionalities replicate a user's research process by means of software programs that automate the steps involved, in order to save researchers time and effort. "To treat these acts as authorship for computer databases is a fiction,"<sup>198</sup> because the Lexis, Beck's Online or Westlaw databases are in their entirety dictated by functional considerations. In this context, the argument that the selection and arrangement of such a database reflects the creator's subjective perception of reality may be hard to make.<sup>199</sup>

There is support for the argument that in function works, the creator's selection and arrangement of material is subordinated to the work's functionality and constrained by its rules.

### **3. ORIGINALITY IN JUDGMENT AND EXPERTISE**

In works of more complex nature courts have found originality in the exercise of a creator's "professional judgment and expertise."<sup>200</sup> Creation of utilitarian works in a knowledge-based economy, usually requires a certain level of qualification, training and expertise, particularly so, in more complex and specialized works. In many cases, a creator's exercise of professional judgment and expertise is construed as evidence of originality. Such a finding would then be justified by stating that the "judgment to distil and extrapolate from factual data gives rise to creativity."<sup>201</sup> Let's examine the nature of this doctrine in further detail.

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<sup>198</sup> L. Ray Patterson, *Copyright Overextended: A Preliminary Inquiry into the Need for a Federal Statute of Unfair Competition*, 17 Dayton L. Rev. 385, 394.

<sup>199</sup> West Pub. Co. v. Mead Data Central, at 1226-1227. Unless protectability is based on "labor and industry," in the post-*Feist* era the outcome might have been different.

<sup>200</sup> Copyright protection granted "based not only on a multitude of data sources, but also on professional judgment and expertise." *CDN v. Kapes*, 197 F.3d 1256, 1261; *see also* *CCC Information Services, Inc. v. Maclean Hunter*, at 67.

<sup>201</sup> *CDN v. Kapes*, 197 F.3d 1256, 1261. In *CDN*, court granted copyright protection based not only on a multitude of data sources, but also on professional judgment and expertise. In so doing, the court noted that "[w]hat is important is the fact that ... *CDN* arrive at the prices they list through a process that involves using their judgment to distill and extrapolate from factual data. It is simply not a process through which they discover a preexisting historical fact, but rather a process by which they create a price which, in their best judgment, represents the value of an item as closely as possible.... The prices *CDN* creates are compilations of data that represent its best estimate of the value of the coins." *Id.* at 1261. "Dealers looking through [raw data of historical facts of transactions] would have to use their own judgment and expertise to estimate the value of a coin. What *CDN* has done is use its own judgment and expertise in arriving at that value for the dealers." *Id.*, at 1261.

<sup>201</sup> For instance, guided by the complexity of the facts involved in the work, a selection of 5000 baseball cards out of a universe of 18,000. In *Eckes v. Card Prices Update*, 736 F.2d 859 (2d Cir. 1984).

In utilitarian information works, the exercise of judgment and expertise consists largely of a process of selecting, calculating, extrapolating, and evaluating information, for communication to and use by others.<sup>202</sup> Stripped down to basics, these functions primarily involve two types of actions: “mechanical” work and “discretionary” decision-making. The mechanical work follows pre-set rules and procedures, and involves no discretionary component, regardless of the complexity of subject matter and rules, and regardless of the creator’s level of expertise. No originality or individuality is associated with this type of activity. For instance, for a highly qualified mathematician, performing a calculation using a complex mathematical formula may be nothing but a mechanical task.

The decision-making component, on the other hand, may involve a certain amount of discretion. Many facts can only be estimated.<sup>203</sup> A professional may not “know” how to solve a given problem. However, she will provide her “best” professional judgment. By definition, a “best” judgment is only one judgment. In other words, after weighing all factors involved – professional training, knowledge of the rules, experience culled from personal know-how and empiric observation, the requirements of the product, etc., the creator will select one option. The selection will be the one that, in her view, most effectively achieves the work’s intended functionality. In accordance with the “most effective expression” principle discussed above,<sup>204</sup> the creator’s discretion is therefore limited to a single choice, the most effective one.

One might argue here that the very fact that one person’s “best” judgment differs from that of another, is precisely the individuality copyright is seeking to reward. While this is in keeping with traditional copyright doctrine, such author-focussed approach does not ensure that the work’s functionality is achieved. The more productive approach for UIW is to focus on their purpose. Once the focus is directed

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<sup>202</sup> For instance, “CDN’s process to arrive at wholesale prices begins with examining the major coin publications to find relevant retail price information. CDN then reviews this data to retain only that information it considers to be the most accurate and important. Prices for each grade of coin are determined with attention to whether the coin is graded by a professional service (and which one). CDN also reviews the online networks for the bid and ask prices posted by dealers. It extrapolates from the reported prices to arrive at estimates for prices for unreported coin types and grades. CDN also considers the impact of public auctions and private sales, and analyzes the effect of the economy and foreign policies on the price of coins.”<sup>202</sup> *CDN v. Kapes*, 197 F.3d 1256, 1261.

<sup>203</sup> For instance, it would be difficult to imagine a court holding an estimated value of gravity to be a figure protected by copyright, even if some “judgment and expertise” went into its formulation. Alan Durham, *Speaking of the World: Fact, Opinion and the Originality Standard of Copyright*, 33 *Arizona State Law Journal* 791, 828 (2001).

<sup>204</sup> See *infra* text accompanying notes 162-167.

to the work's purpose, it becomes readily apparent that, in order for the work to accomplish the desired purpose, the creator's discretion is limited by pre-determined, objective, external factors, which must be complied with. But then one might ask, is a fiction writer's product not also intended for a specific purpose, for instance, to cause sympathy, laughter, etc. in the reader? To answer this question, one must consider the fact that whether the work achieves the intended purpose, i.e. makes the reader laugh, cry, etc. depends on the individual recipient's subjective reaction, pre-disposition to humor, mood at the time of reception etc. By contrast, a utilitarian work must predictably achieve its functionality, in accordance with pre-set objective criteria, every time, for every user, and under every circumstance. If it does not work it is useless and therefore has no value.<sup>205</sup> On the other hand, an artistic work's value lies not in the function it performs, but in the expression of the author's personality. It would therefore retain its value, regardless whether it obtains the desired effect on the audience.

Finally, there is also the risk that in evaluating the copyrightability of judgment and expertise, courts mistake subject-matter complexity for originality. Because information works in a knowledge-based economy involve a higher level of knowledge, they are often not transparent to the average layperson or to the courts. It is therefore easy to lose sight of the fact that, to a specialist in the field, calculating coin prices based on pre-determined formulae and extrapolating values from reported prices may be as mechanical and routine as the phone directory is to the layperson.

### **C. METHODOLOGY - USE OF ILLUSORY HYPOTHESES AS EVIDENCE OF ORIGINALITY**

The functional constraints on expression discussed above, make it difficult to evaluate the presence of originality. Evidence of originality, i.e. of the author's expressive discretion, is often sought in expressive alternatives. In other words, the hypothesis that another creator could have made a different expressive choice would support the conclusion that originality is present.<sup>206</sup> In functional works these expressive alternatives are limited or non-existent. In applying the conventional analysis, courts may be forced to "invent" hypothetical alternatives, even though

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<sup>205</sup> "Functional works depend for their value primarily on the ingenuity, accuracy and efficiency – the utility – of their underlying system, concept or method." GOLDSTEIN ON COPYRIGHT § 10.5 at 10:77.

<sup>206</sup> *Telstra Corporation Limited v. Desktop Marketing Systems Pty Ltd* [2001] FCA 612, at 26, 28, where the court considers evidence of the scope of possible choices for the expression at issue (in that case, headings of yellow page directories), and sought "logical alternatives".

they are not, and cannot be based on reality. Consider a simplified example: assume a form that contains data organized by 5 different criteria. The form is to be input into a data system set up to receive 5 data fields. The form's creator is constrained by the dictates of functionality to create a form with 5 criteria. A suggestion that he was free to produce a form based on 4 or 6 criteria, is illusory.<sup>207</sup> Use of such illusory alternatives obscures the fact that the actual expression is the only one possible and that copyright protection, as a result, would monopolize the only means of expressing the idea.

One of the most telling instances of such illusory hypothetical alternatives is the decision in *American Dental Association v. Delta Dental*.<sup>208</sup> The American Dental Association ["ADA"] prepares and publishes a classification of procedures ("Code")<sup>209</sup> to facilitate communication among dentists, patients and insurance companies.<sup>210</sup> The Code is the product of laborious work by several committees, which have classified dental procedures into categories and assigned to each procedure an identifying number.<sup>211</sup> Delta Dental modified and reprinted the classification without the ADA's authorization.

In evaluating the Code's protectability, the court considered whether the Code's author exercised discretion in classifying the dental procedures at issue, a fact which would denote originality.<sup>212</sup> Supporting evidence was sought in the existence of

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<sup>207</sup> For instance, no discretion is involved in the compilation of categories for a pitching form, where "the public and the newspapers apparently have come to expect this standard order and most of the forms that include these four statistics list them in this very order." *Kregos v. Associated Press*, 731 F. Supp 113, 118 (D.N.Y, 1990), rev'd by 937 F.2d 700 (2d Cir. 1991), denying protection to a pitching form, a decision subsequently reversed by the Court of Appeal.

<sup>208</sup> *American Dental v. Delta Dental*, 126 F.3d 977.

<sup>209</sup> The "Code" stands for Code of Dental Procedures and Nomenclature.

<sup>210</sup> "The ADA encourages this use; standardization of language promotes interchange among professionals." *American Dental v. Delta Dental*, 126 F.3d 977, 981.

<sup>211</sup> In the Code "all dental procedures are classified into groups; each procedure received a number, a short description, and a long description. For example, number 04267 has been assigned to the short description 'guided tissue regeneration – nonresorbable barrier, per site, per tooth (includes membrane removal),' which is classified with other surgical periodontic services." *Id.* at 977.

<sup>212</sup> The 7<sup>th</sup> Circuit criticized the District Court's analysis as inapplicable to this context, indicating that the district court mixes two different issues: originality and functionality. In the Circuit Court's opinion, the line to be drawn is "not is not a line between intellectual property and the public domain; it is a line among bodies of intellectual-property law." *Id.* at 980. This rather cursory remark merits questioning. The court implies that functionality would put a work beyond the realm of copyright and automatically within the realm of patent law. While functionality may be a line between patent and copyright law, it also operates as a limitation to copyright, regardless of a work's protectability under patent law. For instance, the classes of works listed in 17 U.S.C. §102(b) are all functional works, excluded from copyright law.

creative alternatives. The court noted that dental procedures could be classified, for instance, “by complexity, or by the tools necessary to perform them or by the parts of the mouth involved, or by the anesthesia employed or in any of a dozen different ways.”<sup>213</sup> Other creative alternatives noted by the court were the fact that “the number assigned to any one of the three descriptions could have had four or six digits rather than five; or that guided tissue regeneration could have been placed in the 2500 series rather than the 4200 series.”<sup>214</sup> According to the court, the availability of such hypothetical alternatives denotes discretion in devising the Code’s overall structure and assigning numbers to given procedures, and amounts to the requisite originality to render the Code copyrightable.

Did the ADA Code developers have true creative discretion in structuring the classification? The evidence presented in the case indicated that “the choice of which categories to include, and correspondingly, which procedures to list under each category, is entirely dictated by standard practice and custom in dentistry. ... the organization of the Code merely restates the divisions of dentistry understood by the profession.”<sup>215</sup> These circumstances leave little room for discretion. The suggestion that the Code’s creator had discretion in setting up the classifications is therefore illusory.

Similarly, did the ADA Code developers have the freedom to determine the number of digits of the procedures’ identifying numbers? The court suggested that placing a zero in front of the Code numbers and assigning six digits to the number was evidence of the Code developers’ discretion. However, placing a zero in front of a number to allow for future supply of unused numbers is a standard procedure dictated by electronic data processing. If a system is programmed for 6 digits, the Code creator’s cannot use 5.

Finally, the court found that placement of the “guided tissue regeneration” procedure in the 2500 series rather than the 4200 series displayed originality. In the context of the Code, the only acceptable placement of this or other procedures was in a location in which dentists would readily find them, i.e. in a location in which such procedures are ordinarily placed in accordance with the standards established in the

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<sup>213</sup> American Dental v. Delta Dental, 126 F.3d 977, 979.

<sup>214</sup> *Id.*

<sup>215</sup> American Dental v. Delta Dental (District Court opinion) LEXIS 5809, at 44. The creator’s lack of discretion in describing the procedures is made evident by the deposition of an ADA employee which clearly indicates that for purposes of the Code there was a single way of describing the procedures: “You can’t split a procedure and call it two different things. It has to be a unique procedure. And there has to be no other ways [sic] to report it ... if it’s a composite, it’s a composite. If it’s an amalgam, it’s an amalgam.” *Id.* at 39.

industry.<sup>216</sup> The creator's choice in this regard is therefore illusory. In all of the above examples, the use of illusory alternatives does nothing to prove originality, to the contrary, closer scrutiny indicates that creative discretion is absent.<sup>217</sup>

The *American Dental* case is not a isolated instance.<sup>218</sup>

#### **D. RAMIFICATIONS OF USE OF FAULTY METHODOLOGY**

What are the consequences of holdings based on faulty premises such as the ones discussed above? Are the results obtained in these cases consistent with the policy concerns underlying copyright law?

In *Bedienungsanweisung*, graphic instructions for a motorized saw were held protectable.<sup>219</sup> Let's consider the impact on the stakeholders involved.

The rightholder is the prevailing party. This is not merely because the rightholder has prevailed on its copyright claim, but because by doing so, it has also successfully excluded a competitor from importing motorized saws. The finding of copyrightability precludes the defendant-competitor from using the information necessary to operate

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<sup>216</sup> Exercising the freedom suggested by the court to assign procedures randomly would have rendered the Code useless.

<sup>217</sup> *American Dental v. Delta Dental* (District Court opinion) LEXIS 5809, at 39.

<sup>218</sup> In *OLG Frankfurt a. M.* of 19.6.2001, MMR 2002, 687 - *IMS Health*, the external factors relevant to creation of the brick structure included political boundaries of the municipalities, postal codes, whether an urban or rural district is involved, communications structures and geographical concentration of pharmacies and doctors' practices. The brick structure was developed with input from the pharmaceutical industry and required to interoperate with the clients' data processing system and was therefore determined by external factors. *IMS Health GmbH & Co. OHG v. NDC Health GmbH & Co. KG*, European Court of Justice Case C-418/01, Opinion of Advocate General Tizziano, 2 October 2003, ¶ 6; 15. Nonetheless, the court suggested that options, such as for instance, the different number of bricks used (IMS's structure had 1860 bricks and the competitors' 2201), constitute evidence of the discretion in selecting the number of bricks. The problem of this type of reasoning becomes apparent when the argument is followed to its logical extreme. While theoretically IMS could have built a system consisting of a different number of bricks, when the clients' data system is built based on 1860 bricks, only a system with 1860 bricks will satisfy the need. A system with any other number of bricks is useless. In reality, neither IMS nor its competitors had any discretion in creating the structure, since it was determined by outside factors. Similarly, in *Key Publications v Chinatown Today Publishing Enterprises*, 945 F.2d 509 (2d Cir 1991). In this post-*Feist* case protectability was based on evidence of Originality that relied on two aspects of the selection. (1) exclusion of businesses that would soon close she excluded from the directory those businesses that would not soon close and (2) selection of businesses that were of particular interest to Chinese Americans. Yet the selection was dictated by the needs of Chinese-American business community, to whom the directory was addressed. *Key Publications, Inc. v. Chinatown Today Pub. Enterprises, Inc.*, 945 F.2d 509, 513 (2d Cir. N.Y. 1991).

<sup>219</sup> BGH GRUR 1993, 34 – *Bedienungsanweisung*.

the saw. The information is necessary to prepare use instructions. Without instructions, the saws cannot be sold; consequently, the defendant is effectively excluded from the market. The cost of the rightholder's success is borne by the other two stakeholders, the defendant-competitor and the public. Were the defendant to attempt to re-create the instructions, sales would be lost during the time required to do so. Re-creation of the instructions is an economically inefficient use of resources, given the fact that the instructions already exist. The cost associated with the re-creation would be passed on to consumers. Finally, the consumer would lose a source of lower priced products.

Consequently, the net effect of the finding of copyrightability by the *Bedienungsanweisung* court is that (1) information in its most fluid form<sup>220</sup> is prevented from circulating, (2) the rightholder receives a benefit that exceeds the intended scope of the exclusive rights under copyright law and is objectionable under European competition law<sup>221</sup> and (3) consumers are adversely impacted through loss of an alternative source of product and potential price increases.

On the other hand, this ruling promotes no copyright policy interests. Holding the instructions copyrightable does not give rise to an incentive to create to either the rightholder or the designer. Their economic gain is derived from marketing the tangible product, not from creating the instructions.<sup>222</sup>

What caused this overall debacle? The result is attributable to faulty methodology: evaluation of a functional work through the lens of originality. Originality looks for subjective diversification. Absent true diversification, evidence of an illusory reality was used to justify originality. As to the broader economic impact, e.g. on the other stakeholders, copyright law is blind. Overall, the result is flawed and its ramifications go far beyond copyright law. The conclusion is that copyright protection of UIW can produce undesirable economic results.

## **E. AUTHORSHIP, INNOVATION AND CREATIVITY**

If however copyright were denied to UIW, would that not imply that creators of UIW are less "creative" than creators of non-utilitarian works? Surely a developer of an

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<sup>220</sup> *I.e.* in an accessible form. It may have required the defendant to reverse engineer the machine in order to obtain the information necessary to prepare the instructions.

<sup>221</sup> EC Treaty Art. 81 (abuse of a dominant position); *Radio Telefis Eireann (RTE) and Independent Television Publications Ltd (ITP) v. Commission of the European Communities*, ("Magill"), Joined cases C-241/91 P and C-242/91 P RTE and ITP v Commission, 6 April 1995.

<sup>222</sup> While the designer is in fact compensated for creation of the instructions, such compensation is contingent on the sale of the saws. It does not operate as an independent incentive to create.

ingenious software patch, that elegantly fixes a critical bug would be offended by the claim that creating a utilitarian work is less “creative” than one who creates an artistic work?

“Creativity” is a multifaceted term. It encompasses all types of human creation, regardless whether the creator is limited by external objective considerations or by personal subjective ones.<sup>223</sup> Creativity is defined as a mental process in the course of which new associations between existing ideas or concepts are made and new ideas or concepts are generated.<sup>224</sup> When the result of a creative process is a product of practical utility, we can speak of “utilitarian creativity.” This is the type of creativity that underlies innovation for purposes of scientific and technological advances. Its goal is to respond to objective needs by combining information in a way that creates new and useful products, devising functional solutions to practical problems and, generally by “making things work.” The external objective constraint of having to “make things work,” in turn, limits the creator’s expression.<sup>225</sup> While a creator in this setting will follow her subjective creative intuitions in the same manner as the one who creates a non-utilitarian work, she must also ensure that these intuitions abide by the objective constraints of the work’s functionality.<sup>226</sup>

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<sup>223</sup> An interesting distinction between “creation,” properly protected under copyright law and “quasi-creation,” i.e. low creativity efforts which require protection under different theories is made by MIREILLE BUYDENS, *LA PROTECTION DE LA QUASI-CREATION* (Larcier, Bruxelles 1997) cited in Christophe Geiger, *Flexibilizing Copyright; Remedies to the Privatization of Information by Copyright Law*, (2008) IIC 179; see generally Teresa Amabile, *How to Kill Creativity*, Harvard Business Review, at 76 (1998).

<sup>224</sup> Creativity is defined as the “ability to produce something new through imaginative skill, whether a new solution to a problem, a new method or device, or a new artistic object or form.” Encyclopaedia Britannica, [www.britannica.com](http://www.britannica.com). “Creativity is a mental process involving the generation of new ideas or concepts, or new associations between existing ideas or concepts.” <http://en.wikipedia.org/wiki/Creativity>. “Creativity, it has been said, consists largely of re-arranging what we know in order to find out what we do not know.” GEORGE KNELLER, *THE ART AND SCIENCE OF CREATIVITY* (1965).

<sup>225</sup> See generally Peter Menell, *Can Our Current Conception of Copyright Law Survive the Internet Age? Envisioning Copyright Law’s Digital Future*, 46 New York Law School Law Review 63 (2003); “Creativity is the ability to produce work that is novel (i.e., original, unexpected), high in quality, and appropriate (i.e., useful, meets task constraints)”); Robert Sternberg, *The Creativity Conundrum: A Propulsion Model of Kinds of Creative Contributions*, Taylor and Francis, Inc., at 3 (2002).

<sup>226</sup> Technological creativity is not devoid of “aesthetic” considerations (that what mathematicians have called “beauty,” “elegance,” etc., but one must keep in mind that these subjective intuitions must ultimately answer to objective tests. Steven Harnad, *Creativity: Method or Magic?* 19 June 2001, Cognitive Sciences Centre, Department of Psychology, University of Southampton, UK, available at <http://www.ecs.soton.ac.uk/~harnad/Papers/Harnad/harnad.creativity.html>.

Conversely, when the result of the creative process has little to do with practical utility, and instead addresses an audience's aesthetic sense and emotions, it might be referred to as "artistic creativity."<sup>227</sup> Here, the creator's freedom is limited primarily by her own subjective considerations, rather than by external (technological) requirements. Thus, unlike the utilitarian creator, the artistic creator has considerable leeway to follow subjective intuitions, without having to answer to objective constraints. Accordingly, it is not unreasonable to conclude that creativity involved in a functional work "is of a different order from that involved in producing a work of art or literature."<sup>228</sup>

The difference has been neatly summed up by saying that originality is a sufficient condition for non-utilitarian (artistic) creativity, whereas both originality and appropriateness (in other words, following the dictates of functional constraints) are required for utilitarian creativity.<sup>229</sup> The condition of originality has been discussed earlier. The appropriateness condition resembles to the type of creativity found in patentable inventions, where the creator's discretion is also severely limited by functionality.

Should this distinction affect the calculus of copyright protectability and raise the threshold of protection to exclude works of utilitarian nature<sup>230</sup>? If so, copyright protection would be limited to artistic works. Hypothetically, such a policy could be expressed by taking the *Feist* standard one step further to require "a minimum of artistic creativity." Utilitarian creativity would then implicitly fall into the category of "practically inevitable" expression, and be excluded in the same manner as a telephone directory under *Feist*.

Despite its superficial appeal, this option does not provide a principled solution. The approach would remain author-centric, in that only the "input" side would inform the evaluation of protectability. In other words, "originality", even though at a higher threshold, would remain the measure of protectability. An "input"-only evaluation

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<sup>227</sup> *Id.*

<sup>228</sup> *Telstra Corporation Limited v Desktop Marketing Systems Pty Ltd* [2001] FCA 612, at 23. The same court noted that dealing with the commercial implications of an expressive choice is an effort that "has nothing to do with copyright." *Id.* at 29.

<sup>229</sup> Originality is a sufficient condition for artistic creativity, whereas both originality and appropriateness are required in other fields. Teresa Amabile, *How to Kill Creativity*, Harvard Business Review, at 76 (1998).

<sup>230</sup> A UIW (here a component of a software program) "has a mechanical utility, an instrumental role, in accomplishing the world's work. Granting protection, in other words, can have some of the consequences of patent protection in limiting other people's ability to perform a task in the most efficient manner. Utility does not bar copyright...but it alters the calculus" in that the stakes are higher. *Lotus Dev. Corp. v. Borland Int'l*, 49 F.3d 807, 819 (1st Cir. 1995).

would miss the work's functionality and would perpetuate the "blindness" of traditional copyrightability analysis to the concerns of non-author stakeholders.

## **PART IV**

### **CONCLUSION**

Because copyright law effectively functions as gatekeeper of information in the KBE, copyright protection, if improperly applied, risks impeding the flow of information and adversely impacting innovation. It is therefore necessary to re-evaluate the relation of copyright law and UIW to ensure a predictable flow of information, adequate to the needs of the KBE.

The discussion has shown that the relation between UIW and copyright law has been an uneasy one. Copyright law is intended to encourage expression of subjective imagination, by rewarding diversification through individuality. UIW, on the other hand, are governed by the rules dictated by their functionality. Their creation demands uniformity and conformity. As a result, originality, the measure of protectability of copyright law, is an uneasy fit for UIW.

This tension has caused scholars and courts to struggle with copyright protectability of UIW. The standards applicable to fact-intensive works have hovered both above and below the line of protectability, without very clear guidance as to whether and under what circumstances fact-intensive works, such as UIW, are protectable. The limitations on protection of ideas, facts, etc. are of limited effectiveness. There is no generally applicable exclusion for functional works.

The main reason for the tension between the doctrine of originality and UIW is that creation of UIW is subject to constraints on expression. Rather than allow fancy and imagination to flow free, the creator of a functional work must follow the work's "blueprint," in order to ensure that it can fulfill its functionality. Constraints on expression can be inherent in the work or imposed by external conditions, such as standardization or interoperability requirements. It is argued that the principle of "the most effective expression" requires the creator to select the expressive choice that "best" achieves the work's optimal functionality. The doctrines of originality in "selection and arrangement" and "judgment and expression," which most often form the basis for copyrightability of UIW, are subject to similar constraints on expression. The acts of selection, arrangement and exercise of judgment and expertise, are all geared to creation of utilitarian works that have an objectively defined function. It is

therefore posited, that, in most instances, these doctrines do not reflect true originality.

For courts it is a challenge to seek subjective expression in a work whose expression is constrained by objective rules. The analytical method employed by many courts to evaluate originality is identification of hypothetical expressive alternatives. In UIW, such alternatives are, for the most part, not existent. In an effort to make UIW fit the mold of conventional copyright analysis, courts have therefore resorted to the use of illusory hypothetical expressive alternatives. This methodology is flawed. It merely serves to demonstrate that expressive choices are non-existent. In such cases, the requisite originality is lacking, or, at a minimum, protection should be precluded by the merger doctrine. Under German law, expression dictated by the nature of things, or is (pre) determined by logic or a particular purpose is equally not protectable.<sup>231</sup>

An incorrect finding of copyrightability can have ramifications far beyond the interests of the litigants. Such a finding can impact the free flow of information, necessary for innovation and adversely affect competition in the marketplace.

This conclusion places into question the applicability to UIW of the originality standard, in its present form. However, a comprehensive, implementable solution to the problem of copyright law's incompatibility with UIW and resulting ineffectiveness as gate-keeper of information requires additional questions to be answered.

Initially, any specifically tailored solution for UIW must be able to clearly differentiate of UIW from non-UIW. This is necessary because, as discussed above, in the presently accepted conception of the term, creativity can be found in non-UIW as well. Therefore "utilitarian" creativity must be differentiated from the "non-utilitarian" creativity which is more appropriate for copyright protection. Once differentiation has been resolved, an appropriate treatment for UIW must be devised.

Venturing into largely uncharted territory, in one alternative UIW could be to subject to stronger scrutiny as to of the economic impact of copyrightability. This approach could help alleviate anti-competitive conduct enabled by copyright protection.

Alternatively, procedural methods could be used to avoid the current "all-or-nothing" outcome of copyright disputes. If all parties to a dispute are in the end granted some

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<sup>231</sup> GERHARD SCHRICKER, URHEBERRECHT, Schricker/Loewenheim, § 4, Nr. 9.

form of access to the underlying information, the free flow of information would not be jeopardized.

Finally, UIW could be exempt from copyright protection altogether. However, if so, how is the creator to be compensated? Do UIW constitute a category of works for which a specifically tailored *sui generis* protection method would be appropriate? This option would preserve the incentive mechanism.

In the final analysis, whether by way of the options discussed above, or otherwise, a solution will have to be found to the question whether and to what extent copyright can effectively act a knowledge management mechanism in the KBE.

As the KBE advances, solving the problem becomes increasingly pressing.