

Norms-based intellectual property systems: the case of French chefs
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ABSTRACT

In this paper we propose that “*norms-based*” intellectual property systems exist and are an important complement to or substitute for law-based intellectual property systems. Norms-based IP systems operate on social norms that are held in common by members of a given community and specify the nature and extent of rights that a group member can assert to intellectual property. They also include procedures for the claiming of intellectual property rights, and community-accepted types of sanctions for violators.

We document the existence of a norms-based IP system among a sample of accomplished French chefs. These chefs consider recipes they develop to be a very valuable form of intellectual property. At the same time, recipes are *not* a form of innovation that is effectively covered by law-based intellectual property systems. Via grounded research, we identified three strong social norms related to the protection of recipe IP. Via quantitative research, we found that accomplished chefs do rely on these norms to enhance their economic returns from their recipe-related IP.

In our discussion, we compare the attributes of norms-based and law-based IP systems, arguing that each has different advantages and drawbacks. We also point out that the existence of norms-based IP systems means that the usage of information that is freely accessible and not legally protected may be nonetheless restricted to the benefit of innovators. Indeed, information “commons” may in fact be criss-crossed by norms-based fences, with access by those adhering to community norms controlled by IP owners.

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1. Introduction and overview

When one thinks of intellectual property rights, one tends to think of rights encoded in law like the patent grant, copyright, trade secrecy and trademarks. In these “law-based” IP systems, detailed bodies of legislation and case law spell out the rights an owner can claim to specific types of intellectual property, and the procedures by which these rights can be claimed. The law of contracts then specifies how these rights can be licensed, and bought and sold. Claimed violations to intellectual property rights and contracts can be adjudicated and compensation determined via private legal actions in the courts.

In this paper we propose that “*norms-based*” intellectual property systems also exist and are important in at least some fields. Norms-based IP systems operate on social norms that may not be written down, but that are nonetheless widely known and viewed as valid by members of a community. These norms specify the nature and extent of rights that a group member can assert to intellectual property. They also include procedures for the claiming of intellectual property rights, and community-accepted types of sanctions for violators. Norms-based IP systems can be especially important in fields where valuable IP is not effectively protected by law-based systems.

To document the existence of norms-based IP systems by example, in this paper we explore how accomplished French chefs protect the new food recipes that they develop. Accomplished chefs consider their recipes to be a very valuable form of intellectual property. After all, professional reputations and customer patronage of restaurants can be built around successful recipes. At the same time, recipes are *not* a form of innovation that is effectively covered by law-based intellectual property systems. Recipes are very rarely patentable, and combinations of ingredients cannot be copyrighted. Legal protections are potentially available via trade secrecy laws but, as we will see, chefs very seldom use them.

In brief overview, we find that an IP system based upon social norms does operate among accomplished French chefs. Via grounded research, we identified three strong social norms held by all chefs we interviewed. First, a very strong norm exists that a chef must not copy another

chef's recipe innovation exactly. This norm has a functional effect analogous to patenting: The community acknowledges the right of a recipe inventor to exclude others from practicing his invention, even if all the information required to do so is publicly available. A second norm mandates that, if a chef reveals recipe-related secret information to a colleague, that chef must not pass the information on to others without permission. This norm gives a chef a property right similar to that attainable via a contract under trade secrecy law. That is, protected by this norm, a chef can *selectively* reveal his secret information to another without fearing that as a result, the information will become generally known. A third norm is that colleagues must credit developers of significant recipes (or techniques) as the authors of that information. This norm gives an additional property right to a chef. The chef may choose to selectively or publicly reveal information about his innovation without jeopardizing the valuable related property right of acknowledged authorship. In the case of selective revealing, this right is similar to one that could be contracted for by an owner of a patent or trade secret. In the case of public revealing, this right is similar to that provided to the author of a work under copyright law.

Via quantitative research, we find that accomplished chefs are significantly more likely to provide information to colleagues who they believe will adhere to the three social norms just described. Violators of the norms are punished by a refusal to provide further information and by a lowered reputation in the community. Indeed, in extreme cases a violator will be ostracized. As one accomplished chef said: "If another chef copies a recipe exactly we are very furious; we will not talk to this chef anymore, and we won't communicate information to him in the future."

We conclude that information not afforded the protection of intellectual property law may nonetheless be controlled by an effective intellectual property regime. Indeed, what outsiders may view – and treat - as an information commons may at the same time be treated by community members as a complex of private fields, criss-crossed by norms-based fences, and with access controlled by IP owners.

In section 2, we review related literature. In section 3 we discuss the methods used in our case study. In section 4 we present our grounded research findings on the recipe hiding, trading and revealing choices made by French chefs. In section 5 we present our quantitative

findings. In section 6 we compare the properties of norms-based intellectual property systems with law-based ones. We conclude that norms-based intellectual property systems can be effective, and should be further explored.

2. Literature review

In this section we first review the literature on social norms and also interactions between social norms and the law. Next, to facilitate a comparison of norms-based IP systems with law-based IP systems, we very briefly review the characteristics of law-based intellectual property systems. Finally, we consider the private economic advantages that selective revealing of recipe-related information can afford to chefs who innovate.

Social Norms

Social norms are pervasive and powerful structural characteristics of groups that summarize and simplify group influence processes. They are enforced by a group upon its members and generally are developed only for behaviors which are viewed as important by most group members (Hackman 1976). Social norms can be advantageous for groups (Axelrod 1986). They are rarely written down or explicitly discussed (Feldman, 1984, Gibbs 1965). However, evidence that a norm is in place can be seen if any departure of real behavior from the norm is followed by some punishment (Bendor and Swistak, 2001; Rimal and Real, 2003).

Social norms can deal with matters that both do and do not have important *economic* consequences for the group embracing them (Elster 1989). For example, workplace norms such as output restrictions directly address the economic concerns of a group. Thus, a “ratebuster” who produces significantly more than the average worker in a production group could induce management to lower piece-rate pay for all workers in the group – a matter with significant economic implications for the workers. In contrast, social norms regulating such matters as mode of dress, manners at table and so forth may but need not have important economic significance for group members.

Norms are enforceable when groups control stimuli that are valued (or disvalued) by the target person. The more an individual has a personal need for a social reward controlled by the

group, the more he or she conforms. Group members who do not much need or care about the social rewards which can be provided by their fellows (e.g., very high status members or very low status members not committed to remaining in the group) often conform less than other group members. (Hackman 1976 p. 1506).

Bendor and Swistak (2001) use evolutionary game theory to test the conditions under which social norms are stable. The stability of a social norm, they find, is maintained when all are treated as supporting the norm unless they actually transgress – the “nice” element of a “nice but retaliatory” strategy. However, all participants must punish one who does transgress *and also punish those who do not join in punishing him* – the “retaliatory” element of the strategy. In other words, if a social norm is violated, the obligation to impose punishment must not be restricted to those who were hurt by the initial transgression; the obligation *must* be extended to third parties if the norm is to remain stable. The “if you are not my friend then you are my foe” element of the nice but retaliatory strategy insures that it is in the private interest of third parties to participate in punishing transgressions. Although participation may involve a cost to these parties, they must participate or face the presumably greater cost of being punished too. The net result - assuming that the transgression is not engaged in by too many simultaneously – is that a norm remains stable. Ostrom (1990) details mechanisms by which groups sharing finite natural resources like water supplies and fisheries can maintain stable social norms (and stable supplies of water and fish) without recourse to external sources of authority and enforcement.

Rai (1999) notes that laws and social norms can have interdependent effects. She describes a “...veritable explosion of writing on how positive law and social norms operate to shape behavior.” Early researchers in that field like Ellickson (1991), she says, argued that norms can be used in place of law. But, says Rai, “Subsequent law and norms scholars have argued that law and norms do not generally operate in separate spheres. Rather, they typically operate either to support or subvert each other.” For example, laws prohibiting smoking in public places can be supported by social norms that condemn such behavior – or subverted by social norms that are supportive of smoking in public.

Rai then explores a specific instance of the interdependence of laws and norms related to intellectual property of interest to academic researchers. Prior to 1980, she writes, university-

based communities of molecular biology researchers operated with “communitarian” norms that Merton (1973) and others have argued are characteristic of and central to the functioning of academic communities. These communitarian norms discouraged assertion of property rights to scientific discovery and invention. Then, in about 1980, the U.S. Congress changed the law to enhance the intellectual property rights that universities *could* assert to discoveries by scientists in their employ. [A key element was the Bayh-Dole Act passed by Congress in 1980.] Rai finds that, in line with law-and-norms theory, that these changes in the law did indeed affect the intellectual property-related norms held by university-based molecular biology research communities. “...universities and individual researchers soon began respond to the financial incentives of Bayh-Dole by rejecting communalism and increasing efforts to seek patents. In some circumstances, universities even pressured recalcitrant faculty members to seek patents.” ... “The pattern of norms breakdown also conformed to the predictions of law-and-norms theory: in particular, once a critical mass of norms violators was reached, rapid norm breakdown ensued.” (ibid, p. 109).

Law-based intellectual property rights systems

There are three distinct types of law-based intellectual property rights systems in most countries: the patent grant, the copyright, and the right to protect trade secrets. Each of these systems covers different categories of intellectual property. In this section we briefly review the characteristics and subject matter coverage of each system, and then conclude by pointing out their (minimal) applicability to the subject matter of our case study – novel recipes.

The most general form of patent is the “utility” patent. In the United States, utility patents may be granted for inventions related to composition of matter and/or a method and/or a use. They may not be granted for ideas per se, mathematical formulas, laws of nature, and anything repugnant to morals and public policy. Within subject matters potentially protectable by patent, protection will be granted only when the intellectual property claimed meets additional criteria of usefulness, novelty, and non-obviousness to those skilled in the relevant art. (The tests for whether these criteria have been met are based on judgment. When a low threshold is used, patents are easier to get, and vice-versa (Hall and Harhoff 2004).)

A patent grants an inventor the right to *exclude* others from use of his invention for a limited period of time. (It does not grant him the right to *practice* his invention if by doing so he would violate the patent rights of others.) In return for the right to exclude not only those who copy the invention but also those who independently discover the same thing, the inventor must disclose the invention to the public. This disclosure, contained in the patent itself, must be sufficiently detailed so that those ordinarily skilled in the art may copy and utilize the invention after the patent's expiration. While the patent is in force, however, the inventor is given the right to control the use of the patented knowledge.

Copyright is a low-cost and immediate form of legal protection that applies to original writings and images ranging from software code to movies. Authors do not have to apply for copyright protection; it “follows the author’s pen across the page.” Only the specific original writing itself is protected, *not* – as in the case of patents - the underlying invention or ideas. As a consequence, copyright protections can be circumvented by expressing the underlying idea in a different writing. For example, those who wish to imitate the function of a copyrighted software program can do so by writing new software code to implement that function.

Trade secrets are applicable to any information not generally known in an industry and of demonstrable economic value to a firm possessing the secret. Trade secret law protects only information that *can* be kept secret by a firm while being commercially exploited. Employees and others can be legally bound by contract to not reveal a firm’s trade secrets. A possessor of a trade secret may take legal steps to prevent its use by others *if* he can show that those others have discovered the secret through unfair and dishonest means such as theft or breach of a contract promising to keep it secret. However, the holder of a trade secret cannot exclude anyone who independently discovers that secret or who legally acquires it by such means as accidental disclosure or reverse engineering. In practice, trade secrets have proven to be effective only with regard to (1) product innovations incorporating various technological barriers to analysis, or (2) with regard to process innovations which can be hidden from public view.

Owners of intellectual property rights under all three of these systems can keep their rights entirely to themselves, or license or sell all or aspects of their rights to others. For example, a patent owner can grant another rights to use his patent for any purpose, or only for a

specific type of application. Similarly, the holder of a trade secret can make legally binding contracts with others in which all or only aspects of the secret are revealed in exchange for a fee or other consideration along with a commitment to not diffuse the secret further. Violations to such agreements can be brought to a court of law for adjudication.

The three types of law-based intellectual property just described do not cover and/or are not generally used to protect the novel aspects of newly-developed recipes – the ingredients used, the proportions used, and processing techniques used. A novel recipe seldom fulfills the 3 criteria necessary for claiming a patent: usefulness, novelty, and non-obviousness. (This may change in the future, if and as chefs move towards cooking techniques involving novel science such as sous vide (cooking at low temperatures under vacuum) and “molecular gastronomy.”) A recipe cannot be protected by copyright either – although original literary or graphical writings related to presenting a recipe in a cookbook or other medium can be so protected. Aspects of recipe ingredients and preparation techniques that can be effectively hidden in a restaurant’s kitchen can in principle be protected as trade secrets. For example, a chef may legally require as a condition of employment that employees sign a labor contract binding them to not disclose recipe-related trade secrets. However, as we will see in grounded research findings to be presented later, chefs in our sample seldom take the steps required to legally defend the status of their recipe-related IP as trade secrets. This is because, as chef interviewees told us, they think that the benefits of doing so are unlikely to outweigh the costs.

Informal transfers of intellectual property

As we will see later in our empirical research, chefs often informally exchange or reveal valuable information related to recipes they have developed, with their IP at least partially protected when they do so by the three norms mentioned in the introduction. Law-based IP systems are, of course, designed to enhance the economic returns that innovators may hope to obtain from their innovations. In order to understand whether and how norms-based IP systems can serve the same purpose, in this section we discuss how both selective and free revealing of IP can serve innovators’ economic advantage.

Informal information trading involves the selective revealing of proprietary information to some who ask for it. This behavior was first characterized and explored among operating engineers working for steel minimill companies. It was found that these operating engineers often received requests for specific proprietary technical information from colleagues working in other firms. These engineers would sometimes provide that information informally, without requiring a contract or other documentation. *However*, it was shown that those who did provide valuable information expected reciprocity from the person assisted should he and his firm have a need for information in the future. In other words, as Mauss (1954) and others have observed in other contexts, the pattern involved information trading rather than gifts of proprietary information (von Hippel 1987, Schrader 1991).

Later, Bouty (2000) reported informal information trading among scientists working in the R&D units of firms. She obtained detailed reports of 128 accomplished and attempted "resource exchanges" by firm scientists with external colleagues. In these exchanges, scientists would informally provide information and/or research samples and other research-related services to external colleagues upon request. She found that these incidents involved expectations of reciprocity by participants. As trust built between 'research exchange partners' as a result of a sequence of successful exchanges, Bouty found, the value of the resources exchanged increased. "When research exchange partners have a high degree of trust, they are willing to provide information to each other upon request and without immediate reciprocity. ... more importantly, trust emerges as the confidence that such partners will keep the exchanged resource for themselves and use it as they said they would. For example, remarks like the following are commonplace...: '[It is] someone you trust... someone you can tell "hot" things to, while knowing that he understands, without you making it clear, that he should keep them for himself.'"

Kreiner and Schultz (1993) also found informal information trading in a qualitative study of informal networking and information exchanges among university scientists and industry scientists working in biotechnology in Denmark. They note that: "Without a high level of mutual trust, [information exchange] networking would never emerge. Indeed, trust was a recurrent theme in the researchers' own description of networking. If asked, they would operationalize

trust to mean that entrusted knowledge would not be misused, stolen or leaked to third parties. Anybody being accused of such an act would rapidly become a leper in the field. Illegitimate use of shared information was considered *the* deadly sin of networking, and the sanction against such a sinner would be to close his window on the ‘frontier’ in the future.”¹

Studies of “free revealing” have documented information transfers between rivals that explicitly do *not* require reciprocity from information recipients. Free revealing occurs when all intellectual property rights to specific information are voluntarily given up by an information owner, and all interested parties are given access to it—the information becomes a public good. For example, placement of non-patented information in a publicly accessible site such as a publication or public website or a full presentation of the information on a TV program would be free revealing under this definition (Harhoff et al. 2003). Allen (1983) documented free revealing among firms in the eighteenth-century iron industry. Later, Nuvolari (2004) found free revealing in the early history of mine pumping engines. Contemporary free revealing by users has been documented by von Hippel and Finkelstein (1979) for medical equipment, by Lim (2000) for semiconductor process equipment, by Morrison, Roberts, and von Hippel (2000) for library information systems, and by Franke and Shah (2003) for sporting equipment. Henkel (2003, 2005) has documented free revealing among manufacturers in the case of embedded Linux software.

Information trading and free revealing can be economically beneficial for competing firms (or individuals) that engage in these practices under commonly-encountered conditions (von Hippel 1987). The basic argument is as follows. Suppose that one firm possesses a particular "unit" of know-how prior to a given trade. The total innovation-related profit or “rent,” R_{total} , which a firm (player) possessing that know-how reaps from it can then be expressed as:

$$R_{\text{total}} = R + \Delta R$$

¹ Lissoni (2001) and Dahl and Pedersen (2004) have also documented informal information transfers between engineers employed by different firms, but did not explore whether these transfers involved expectations of reciprocity.

Here, R is the rent which a firm may expect from implementing a unit of know-how if it reveals it to its trading partner and, as a result, two firms possess that know-how. ΔR is the extra increment of rent which the firm can expect to garner if it does not trade the unit of proprietary know-how. (When a given unit of know-how is possessed by only one firm prior to a trade and by two post-trade, R will be a duopoly rent and ΔR will be the monopoly rent associated with exclusive possession of the know-how minus the duopoly rent.)

Assume that two firms each start out with one unit of proprietary know-how unknown to the other. Assume also that each of these two units, although different, has identical R and ΔR associated with it. Prior to the trade, each firm will derive a total rent of $R + \Delta R$ from its unit. Because knowledge is the good being traded here, a trade between the two firms will result in each firm having both units of know-how post-trade, and each having the post-trade rent:

$$R_{\text{total}} = 2R$$

That is, post-trade each will have lost that increment of rent, ΔR , which was associated with a more exclusive possession of its own know-how unit, but will have gained the additional rent associated with an additional know-how unit. Clearly if $R > \Delta R$, making the trade will pay. In other words, for a unit of information where the competitive advantage yielded by exclusive possession is low or moderate (low ΔR) trading will pay. For information where exclusive possession has a high competitive value (high ΔR), information trading will not pay. It has been shown that information trading fits the conditions for a Prisoner's Dilemma when $R > \Delta R$, so cooperating and providing information in exchange for information received is the long-term best strategy for those engaged in repeated informal information exchanges (Axelrod 1984, von Hippel 1987).

The trading behavior just described involves reciprocity: both sides are required to provide information and the model assumes that they do *not* diffuse the information exchanged further. We can also express benefits obtainable from free revealing in this same framework. If an information holder benefits from freely revealing a unit of information, in effect ΔR in the

above equation is actually negative rather than positive. When this is so, free revealing will increase rents for the revealing party even without reciprocity. An example of such a case would be an innovation where the gains in private profit from reputation increase associated with free revealing outweighs the profits obtainable from continued secrecy and exclusive use. This, as we will see later in our case, is sometimes the situation faced by French chefs who choose to publicly reveal information about new recipes that they have developed.

3. Case study context and methods

Our case study explores the operation of a social norms-based intellectual property system among accomplished haute cuisine chefs working in France. Specifically, we focus on norms-based IP related to recipes developed by these chefs. We have selected this arena for a field study because it combines two characteristics useful for our purposes. First, intellectual property in the form of novel recipes has high economic importance to accomplished chefs. Second, as we saw in our literature review, extant law-based intellectual property systems are not applicable and/or are little used to protect this form of intellectual property. As a result, we expect that chefs will rely largely upon a norm-based IP system to protect their recipe-related intellectual property. In turn this will – we hope - simplify our task of understanding the operation of and effects of an IP system of this type.

Our study proceeded in two major phases. First, we conducted grounded field research to identify important social norms dealing with recipe-related intellectual property. Second, we conducted a quantitative, questionnaire-based study of how these norms were applied by a sample of accomplished chefs to protect recipe-related intellectual property.

Our samples for both studies consisted of the chefs de cuisine in restaurants that had received “stars” and/or “forks” from the Michelin Guide as a sign of their culinary excellence. The Michelin Guide is an independent evaluation agency for restaurants and the award of stars by the Guide is a major honor. Forks are also prestigious, but less so than stars. (Forks are given to “good gastronomic restaurants” that also have a good balance between gastronomic level and price of the meal. Awards can range from 1 to 5 forks.) In the 2005 Michelin Guide there are 26 three star, 70 two star, and 405 one star restaurants in France.

Although stars are given to restaurants, not chefs de cuisine – the individuals actually responsible for development of the recipes used in gastronomic restaurants - they are in the main based upon the performance of the chef de cuisine. Hence, when a chef de cuisine leaves a restaurant, the stars are “suspended” until the next examination by the Michelin experts. A major criterion for awarding stars or forks to a restaurant is “renewal” - the ability to offer creative and new recipes on a regular basis. By focusing on the chefs de cuisine who have actually created these recipes, we are focusing on chefs who presumably regard innovation as important to their professional and economic success. Typical comments by awardees and others support this expectation. Three-star chef Guy Savoy (2004): “Gaining a Michelin star is like winning an Olympic medal. It is a great joy, the feeling of an achievement, there is no higher reward.” Thierry Thiercelin (2005) said after gaining his first star: “Now there is no room for error anymore, I must be at 100% of my capabilities and able to answer my customers’ expectations for innovative and renewed recipes.”

Losing or gaining a star has substantial economic consequences. Johnson et al. (2005) report that "the loss of a star is catastrophic - causing [restaurant] sales to drop as much as 50% in some cases". Chefs who have been responsible for winning stars for restaurants often are in a position to profit from increased restaurant sales, and have other types of opportunity to benefit financially as well. There is demand for chefs believed able to help an establishment gain a star: in particular, luxury hotels in Paris seek such chefs. Also, enhanced reputation may enable a chef to profit from lines of prepared food bearing his label in food stores, consulting to agribusiness firms, consulting to restaurants in foreign countries, participation in TV shows; increases in book sales, and so on. An anonymous gastronomy expert summed up the situation nicely for the *Nouvel Observateur* (2005): “Gaining a Michelin star ensures that your banker will be kind to you.”

In our grounded research phase we interviewed 10 accomplished chefs who had a place of business geographically near to Paris and so could be conveniently visited by the first author of this paper. Requests for a meeting were made to 12 chefs, and 10 responded positively. Seven of these were interviewed face-to-face by the senior author, and 3 were interviewed by email.

Seven of the 10 chefs interviewed had Michelin stars. Three had no stars, but were listed in the Michelin guide as chefs de cuisine in “good gastronomic restaurants.”

In the quantitative phase of our study, we again elected to focus on obtaining information from very accomplished chefs. We therefore distributed our questionnaire to chefs given some form of recognition in the Michelin Guide. These included chefs holding 1, 2, and 3 stars, “rising stars,” and chefs holding from 2 to 5 forks. (Rising stars are chefs listed in the Guide as likely to receive their first star within the next year.) Questionnaires were mailed to all sample members at their places of business and respondents were asked to return them by mail. No follow-up was done to increase the rate of response: We did not want to annoy the chefs, and decided to take non-response as a ‘no’. Of 485 questionnaires sent out 104 were returned, a response rate of 21.4%. Ten of these contained essentially no data and so were not included in our analyses.

When chefs did fill out our questionnaires at all, they tended to do so quite completely. However, some questions solicited responses only under some conditions. (For example, “Please only answer the following additional questions about action X if you *did do* action X.”) For this reason, the sample size given in our tables is significantly less than 94 in the case of some analyses.

4. Grounded Research Findings

Chefs interviewed in our grounded research phase told us without exception that the development of novel haute cuisine recipes is a very important activity for them and similarly accomplished chefs. We also learned that these chefs and their colleagues seldom attempted to gain legal protection for their recipe IP. As was noted in our literature review, recipes seldom rise to the level of novelty required to qualify for a patent grant, and copyright is not applicable to the content of recipes, so it is reasonable that chefs would not attempt to apply these forms of protection. However, aspects of recipes can be kept secret even when a recipe is in use at a restaurant – for example, food preparation techniques not visible to diners, and “secret ingredients.” This recipe-related IP *can* in principle be protected by trade secrecy law. Interviewees informed us that accomplished chefs do sometimes send a written notice to those

hiring a former employee saying that that person is prohibited from revealing trade secrets learned from his former employer. However, we were told, if a such a trade secret is revealed by a former employee or by some other means, chefs who suspect their legal rights have been violated will very rarely seek redress through the courts. (Probably instances of this behavior do exist, but our interviewees could not recall any such case.) This is generally regarded as too difficult and too expensive to be worth attempting.

Intellectual property-related norms

When we raised the issue of whether or how rights to recipes *could* be protected given the absence of applicable and effective laws, we were told examples and stories of “proper professional behavior” in this regard. As is generally the case, applicable social norms that appear in these stories have not been clearly codified or written down by chefs. However, three major norms consistently emerged in all our interviews. We encode the first norm as follows: *It is not honorable for chefs to exactly copy recipes developed by other chefs*. Chefs were vehement about how very wrong it was to copy the recipe of a colleague. As was mentioned earlier, one interviewee said: “If another chef copies a recipe exactly we are very furious: we will not talk to this chef anymore, and we won’t communicate information to him in the future.” It is, however, acceptable to develop creative variations on recipes developed by others. How different a new recipe should be to clear the prohibition against exact copying is not precisely specifiable, but chefs think they know a too-close copy when they see it. This norm seems to us to offer intellectual property protection somewhat similar to that offered by a patent grant. Accomplished chefs may be perfectly able to duplicate a valuable recipe developed by a colleague by using only public, legally unprotected information – but the norm will prevent them from doing it.

The second important norm that emerged in our interviews is that *a chef who asks for and is given proprietary information by a colleague will not pass that information on to others without permission*. This condition is important but is generally not stated when information is transferred in response to a request – it is implicit: As one of our interviewees said: “If I give information to another chef I trust him to not pass it on. I do not have to say this.” This norm

gives holders of proprietary information the freedom to *selectively* reveal aspects of what they know. That is, a chef can choose to reveal information to colleague A and at the same time feel confident that A will not tell others. Freedom to selectively and conditionally reveal information seems to us to offer functionality similar to legal contracting related to trade secrets: one can contract to reveal a trade secret to A with the stipulation that A will not pass that information on to others.

A third norm had to do with the *right to be acknowledged as the author of a recipe one has created*. This norm applies to a recipe that one may observe at a creator's restaurant or ask the developer about, and also when the innovator publicly reveals his innovation by, for example, publishing it in a cookbook or a magazine or describing it on TV. A chef that presents the recipe of another as his own is considered not honorable. As illustration, consider an excerpt from a letter of reproach written by a famous chef to a former employee who presented one of the chef's recipes on TV without attribution. A copy of the letter, written in French, was given to us by an interviewee and we translate a portion of it as follows:

"Sir: First, I must tell you that seeing on TV a former employee showing things I have taught him is a real pleasure. Unfortunately this pleasure was brief, as your presentation has revealed a rare ingratitude. Never did I hear you say what you owe to the master I have been for you. You should admit that presenting recipes that are mine and that I taught you without referring to my name constitutes an unacceptable indelicacy. ... I hope that in your future presentations you will repair these errors and shall credit me with what I have taught to you. Only after this honest acknowledgement will I be happy that you receive a share of my notoriety."

This letter was distributed by the writer to a number of colleagues so that the community as a whole would learn of that person's violation of an important norm.

Note that our interviews did not necessarily evoke a *complete* set of IP-related norms. We could have entirely missed an important norm simply because our questions did not happen to trigger stories related to it from our interviewees. (By way of analogy, we could learn about the norm 'thou shalt not kill' from interviewees without necessarily triggering any discussion of the norm 'thou shalt not steal'.) Fortunately, completeness is not necessary to our present

purpose. We simply want to understand whether *some* social norms exist that can serve to at least partially protect the IP of recipe developers.

Transgressions of the norms we identified – and presumably of any additional norms that may also exist in this community - are punished by negative gossip within the community, by a related lowering of a violator’s reputation, and by a lowered likelihood that additional requests for information will be answered by community members. Chefs clearly thought that adherence to the norms described above was very important. Thus: “[If someone were to violate an important norm], ...my esteem for the guy becomes very low. I think the chef has no self-esteem, and does not respect the code of honor.” Famous chefs do not necessarily need to take personal action to insure transgressions are noticed and appropriately punished by their community. “The community knows my style and can recognize when someone is copying me. Therefore I do not need to intervene in any way.” Those who are believed to be norms violators will not find redemption to be easy or necessarily even attainable: even valid priority claims they may make in future will not necessarily be believed by colleagues.

How chefs profit from their intellectual property

The economic utility of an intellectual property system based upon social norms is revealed when developers of recipes engage in behaviors that will be profitable or more profitable when the norms are honored. Accomplished chefs explain that they do benefit from their recipe-related intellectual property in a number of ways. First, famous, accomplished chefs often own or are employed by haute cuisine restaurants. Increased sales and profits result from offering meals created from novel recipes and presentations in their restaurants. Chefs’ profits from these activities are increased if colleagues adhere to the norms we discussed. Often, a novel recipe and presentation devised by an accomplished chef could be quickly and accurately copied by rival chefs using only their own considerable skills and information about the recipe that is publicly available. But, accomplished chefs do not do this – because they honor the norm that prohibits copying exactly.

Chefs may choose to reveal valuable recipe-related secrets to specific *individual* colleagues who seek their advice. If they can assume that the information recipient will not pass

what he has been told to others, they still maintain some control of their IP after they have transferred it. If transferring the requested information increases the likelihood that the information recipient will reciprocate if asked, they can profit from the transaction, as we explained in our review of “information trading” in our literature review.

Chefs also can profit by freely revealing their innovations to all in a cookbook, a magazine or on TV as long as their authorship of that information is generally acknowledged. This raises their reputation with the general public and may, for example, increase their profit from selling cookbooks and/or from increased traffic to their restaurants. Chefs often select their more important and interesting recipes to reveal in this public way, reasoning that their reputation will be more effectively enhanced by revealing major rather than minor innovations.

Chefs’ IP-related strategies are complex, and further work will be required to map and understand them fully. As illustration, an interviewee told us that chefs who publicly reveal a recipe may not necessarily reveal *all* the information required to exactly reproduce it. “Usually, a chef does not disclose everything when publishing a recipe in a cookbook. The published version may exclude important “tricks” (elements of technique), and may even omit some ingredients.” Interviewees also say that some cookbooks they write are intended for an audience of peers primarily rather than for home cooks. An important function of these professional books is to convey information about priority. If an imitator publishes a recipe that a famous chef developed, that chef may later publish the same recipe in a professional cookbook of his own. In this way he signals to colleagues that he believes that he, rather than the first to publish, has priority. Chefs often use the various intellectual property strategies available to them in sequence or as required by events to maximize their private returns. Thus, they often choose to keep exclusivity on new recipes served in their restaurants for a period of time before publishing them in a cookbook.

5. Findings from quantitative research

Our quantitative research is designed to test and elaborate upon the norms-related insights generated in our grounded research study. In this section we first explore whether chefs have valuable recipe-related IP that they can protect via secrecy. Next, we determine whether chefs take adherence to social norms into account when selectively revealing this secret IP. Third, we examine whether patterns in the selective and free revealing of IP can be explained in terms of chefs' efforts to increase their innovation-related profits. If all three of these elements can be seen, then we think we can reasonably conclude that a functioning IP system based upon norms exists in the field of recipe innovations.

Chefs do have valuable secret IP

Chefs in our quantitative sample judged that novel recipes were *very* important to their professional success. When asked about the “importance your customers place upon finding original recipes (your own creations) on your menu,” the average importance ranking given by our respondents was 4.52 out of 5 (std dev : 0.72), where 5 was “very important.” Chefs also reported that a significant fraction of the recipes they develop would be difficult for others to reproduce without their help (table 1). This means that chefs *do* have recipe-related IP that can be kept secret for some period of time unless they choose to reveal it.

Table 1 : Many recipes are difficult to reproduce without help from the innovator

“% of your recipes that another chef would find it difficult to reproduce without your help”	0% of my recipes	25% of my recipes	50% of my recipes	75% of my recipes	100% of my recipes	Do not know	N
% of chefs in total of respondent chefs who ticked the above category	10.5%	39.5%	29%	5.2%	0%	15.8%	94

Chefs' decisions to selectively reveal IP is related to norms

IP that can be kept secret by innovators can also be revealed if innovators elect to do this. In the case of accomplished chefs, one type of opportunity to make such a decision occurs when colleagues working in other restaurants request specific items of recipe-related information. As

can be seen in table 2, this type of event happens often. Ninety percent of the chefs in our sample report being asked for such information at least once in the past year, and 28% report being asked at least 6 times.

Table 2: Most chefs receive recipe-related information requests from colleagues

	Never	1 to 5 times	6 to 10 times	More than 10 times	NA	N
How frequently did you receive recipe-related information requests from colleagues in the past year?	10.2%	61.4%	14.8%	13.6%	3	94

Via our questionnaire, we sought to determine whether chefs’ decisions to reveal their information to a requester on specific occasions was related to expectations that a requester would adhere to the three IP-related social norms that were discussed earlier. To do this, we asked each respondent to tell us about two cases where he had been asked for recipe-related information. First, we asked a number of questions about the most recent case where a chef had been asked for information and *had* provided it. Second, we asked the same questions about the most recent case where a chef had been asked for information and *had not* provided it. We then analyzed the chefs’ responses to see if there *is* an association between expected adherence to the three norms we described earlier and willingness to provide secret IP. As can be seen from table 3 we found that IP holders were significantly more likely to give secret IP to requesters they thought likely to adhere to the three social norms. We also found that this association was strongest when information of high value was being requested.

Note that there is some possibility that this finding reflects *post-hoc* cognitive dissonance reduction on the part of the chefs rather than norm-related choicemaking. That is, when answering our questions, a chef could simply be thinking: “I did refuse to give this person information. I would only have done this if he is a bad person or undeserving in some way – so I will respond to the questionnaire accordingly.” To reduce the risk of this type of artifact, nothing in our letter of introduction to chefs or in our questionnaire indicated we were interested in studying social norms. In addition, we scattered our norms-related questions among others,

did not identify questions as norm-related, and asked the questions in a non value-laden way. We simply asked, for example, how likely the chef thought it was that the specific chef who had requested information from him would exactly copy the recipe he was asking about. We should also point out that we know nothing about the *actual* norms-related behaviors of information seekers because we did not obtain information from information recipients – only providers. However, this does not affect the validity of our finding. The decision to provide or withhold IP is in the hands of the chef holding that IP, and is related to his or her *perceptions* of the attributes of the information seeker, and not to the actual attributes of that person.

Table 3: Chefs are significantly more likely to give information to chefs they think will adhere to IP-related community social norms.

I expect that:	Effect of expected adherence to norms in decision to provide versus not provide requested information ^(a)	N
1. The information recipient will credit me as author ^(b,d)	P < 0.014	72
2. The information recipient will ask my permission before passing on the information I gave him to another ^(b)	P < 0.063	65
3. The information recipient will NOT copy my recipe exactly ^(c)	P < 0.0035	61

(a) Marginal homogeneity test, paired samples, one-tailed.

(b) 5-point Likert scale

(c) Respondents chose one option from 3 descriptions of increasingly-exact copying behaviors.

(d) Recall that our qualitative field research identified a norm requiring acknowledgement of authorship for recipe-related information that was privately *or* publicly-revealed. However, our questionnaire asks information providers only about their expectations that a specific information requestor will adhere to that norm in the case of proprietary information selectively revealed to him as an individual.

Economic nature of decisions to reveal recipe-related IP

As was discussed earlier, social norms do not always have to do with the economic advantage of individual group members or the group as a whole. But intellectual property law is designed specifically to enhance innovators’ likely private economic returns from innovation, and so to increase their incentives to innovate. In this section we explore whether norms-related patterns in the information revealing and hiding behavior of the chefs in our sample are

consistent with a goal of increasing innovators’ economic returns from their innovations. If so, we have evidence that a norms-based IP system exists in this community.

We first see that chefs who *selectively* reveal recipe-related information to a colleague appear to be engaging in informal information trading rather than altruism. As table 4 shows, they expect their decision to provide or not provide requested information will affect the likelihood that the information seeker will reciprocate at a future time. As we saw in our literature review, “informal information trading” can increase profits for participants assuming that there is reciprocity, and also assuming that information recipients adhere to the norm of not passing on the secret that has been shared with them. (If an information recipient violates this norm and freely reveals the secret IP that has been shared with him, the competitive value of that information to the originator would drop below R.

Table 4: Chefs feel that their decision whether to reveal or refuse to supply information requested by a colleague will affect the likelihood of getting information from that individual in the future

Expected change in willingness of requester to provide information in the future :	Decrease	No change ^(a)	Increase
Chef provided requested information	4	42	22
Chef refused to provide requested information	23	43	2
Chi-square = 32.472	p = 0.000		

^(a) “No change” was in most cases chosen when chef and requester had shared information equally in the past. In such cases there was already a trading relationship between the partners involving reciprocity. Under these conditions, there would be no reason for an information provider to expect that a particular exchange in a series would materially affect a recipient’s willingness to provide information in the future.

We asked chefs about the value of the information that they would be willing to freely reveal in two contrasting ways: (1) free revealing “to everyone at once” in a public forum and (2) sequential, person-to-person revealing to “any one who asks.” Chefs were more likely to present high value recipe information in a public forum. In sharp contrast, they were significantly more likely to reveal low-value information privately to anyone who asked (table 5). This makes sense to us as an economically reasonable strategy: increased reputation is likely to result from publicly revealing a recipe only if something valuable and interesting is revealed. In contrast,

private but non-selective revealing of information (“to anyone who asks”) may not yield the reciprocity benefits associated with more selective revealing of information.

Table 5: Value of recipe information revealed privately “to anyone who asks” versus revealed to all in a public forum

Decision to:	High value information ^(a)	Low value information ^(a)	
Reveal in a public forum	78%	22%	100%
Willing to privately reveal to “anyone who asks”	26%	74%	100%
Chi-square	p < 0.000		

(a) The value of the information is an index : high value information is information that is related to a recipe that is both a “must” of the chef’s menu and that is “unique among direct competitors” (rated 4 or 5 on a scale of 5 for both items).

Finally, we asked chefs *why* they would reveal some of their recipes to the public at large (table 6). We did not offer chefs a complete list of possible motives in our questionnaire. However, it can be seen that respondents did tend to agree with the motives we did list that clearly involved direct personal gain in the form of increased restaurant sales and increased personal reputations.

Table 6 : Motivations for publicly revealing recipes

Motivations :	Mean (a)	Std dev	% of high agreement (b)
Attract more customers in your restaurant	3.86	1.12	80%
Increase your reputation	3.91	0.90	80%
Increase the reputation of French gastronomy	3.58	0.96	64%

(a) Scale 1 (totally wrong) to 5 (totally right)

(b) High agreement means a choice of 4 or 5 on a scale from 1 to 5

In an open response section in the questionnaire, some chefs provided additional motivations for revealing recipes in a public forum. Chefs wrote that they were motivated to present their IP to the public at large because doing so would: Increase their personal reputation; generate publicity for their restaurant; inform potential patrons about what is offered in their restaurant; enable

them to claim the “innovation space” before another chef got a related idea; be an enjoyable experience for them; increase likelihood they will receive information requests from chefs they appreciate; be an opportunity to promote regional products. Again and in summation, it appears to us that free revealing is motivated by expectations of private benefit – benefit that is ensured because of the community norm that innovation authorship will be acknowledged by community members.

6. Discussion

A large literature explores how law and social norms interact (Rai 1999). There is also a literature on how there can be ‘order without law’ – how neighbors can settle disputes regarding the division of natural resources, the maintenance of boundaries and other matters (Ostrom 1990, Ellickson 1991). There is also a literature on how owners of intellectual property can reveal their information to a commons while at the same time retaining some legal rights – as in the case of open source software (O’Mahoney 2003). What we have contributed to these literatures in this paper is the concept of a complete norms-based intellectual property system, and initial empirical findings on the functioning of such a system in one narrow professional community – accomplished French chefs.

In the light of our empirical findings, can we conclude that a norms-based IP system worthy of the name really exists among accomplished French chefs? We approach this question by listing the characteristics of the three major law-based IP systems. We also list the analogous characteristics of a norms-based IP system for easy comparison (table 7).

Clearly, norms-based IP systems have characteristics very different from law-based IP systems. However, both types enable innovators to establish and enforce rights to some types of IP to their economic advantage. So we do think it reasonable to dignify norms-based IP systems as “real” IP systems worthy of consideration along with their law-based counterparts.

With respect to some system characteristics listed in table 7, norms-based systems appear to have major advantages relative to law-based IP systems. Recall that social norms are developed by communities to deal with matters of importance to that community. As can be seen from table 7, getting final resolution of a complaint via a law-based system is on average a

Table 7: Comparison of law-based and norms-based IP Systems

	Patents	Copyright	Trade Secrecy	Social Norms Based IP
Source of Authority	Legislation	Legislation	Legislation	Community social norms
Subject Matter Covered	Inventions as specified in patent law	“Writings” as specified in copyright Law	Secrets having business value	Information regarded as proprietary property by a given community
Nature of Control	Right to control use of publicly revealed invention	Right to control production of copies of work	Right to prevent employees from revealing secret	Right to use and call for sanctions against violators of norm-granted property rights
Ownership Rights established by	Date of first filing or Date of Invention	proof of authorship	Proof that secret “not generally known”	Community consensus that an individual is the owner of specific information
Conflict Resolution Method	Court Decision (or out of court settlement)	Court Decision (or out of court settlement)	Court Decision (or out of court settlement)	Community member(s) agreement that norm-sanctioned property rights of A have been violated by B
Av. Time and Admin Cost To determine If violation Has occurred and assess penalty	Several years \$4mm/case paid by litigants (AIPLA 2005)	Several years \$ mm/case (AIPLA 2005)	Several years \$mm/case (AIPLA 2005)	Can be very rapid (days) Cost low and distributed across community.

very costly and time consuming matter at least in the U.S. (AIPLA 2005). Indeed, at those costs one is entitled to wonder what proportion of IP violations nominally covered by law-based

systems are actually resolved by private parties utilizing the processes and sanctions offered by those systems.

In contrast, a complaint can be brought in a social norms-based system by simply bringing the matter to the attention of influential members of the community. If these members view the case as having merit, explanations may be requested of the apparent violator of the norm, and/or sanctions are applied very quickly – perhaps within days. (Of course, this system can also function poorly in some or many instances: “whistleblowers” may be punished along with violators; only a small fraction of norms violations may in fact be detected and/or punished by a community, and so on.)

In one critical respect, norms-based IP systems appear to have a major disadvantage relative to law-based systems. Consider that norms-based IP systems are only effective in controlling behaviors “... when groups control stimuli that are valued (or devalued) by the target person. The more an individual has a personal need for a social reward controlled by the group, the more he or she conforms. Group members who do not much need or care about the social rewards which can be provided by their fellows (e.g., very high status members or very low status members not committed to remaining in the group) often conform less than other group members. (Hackman 1976 p. 1506). In contrast, law-based systems have access to a type of sanction – confiscation of financial resources - that presumably would be of concern to all would-be violators within a particular law’s zone of jurisdiction. This may mean that norms-based IP systems apply to a more limited scope of actors than do law-based systems.

The case of high-fashion clothing design may provide an illustration of the limited scope of a norms-based IP system. Law-based intellectual property systems do not protect clothing designs. Cox and Jenkins (2005) note that, unconstrained by law-based IP, mass merchandisers quickly “knock off” many novel clothing designs created by high fashion designers. Mass merchandisers presumably do not consider themselves to be part of the high fashion designer community, and so would not be constrained by any IP-related social norms held by that group. One may speculate that, in contrast, high fashion designers may well adhere to a norm similar to that of the chefs we studied and not exactly copy the clothing designs of a fellow high-fashion designer. Indeed, the same contrast may apply in the field we have studied in this paper: we

have anecdotally learned that recipes developed by top chefs and protected by norms-based IP systems *within* the community of accomplished chefs are sometimes knocked off by mass market restaurant chains.

Suggestions for further research

If norms-based IP systems are indeed “real” and effective as we propose, there clearly is a great deal of valuable research needed to better understand their characteristics, ubiquity, scope, effectiveness and economic impact. With respect to the characteristics of norms-based IP systems, for example, we think it would be very interesting to understand the extent to which the norms that underlie such systems in various communities and fields are similar. Certainly, some information exchange practices and social norms we have documented among accomplished chefs de cuisine *sound* similar to information exchange norms among scientists reported by scholars. Thus, recall from our literature review that Bouty (2000) found that “... trust emerges as the confidence that [information exchange] partners will keep the exchanged resource for themselves and use it as they said they would. For example, remarks like the following are commonplace...: ‘[It is] someone you trust... someone you can tell “hot” things to, while knowing that he understands, without you making it clear, that he should keep them for himself.’” Recall also from Kreiner and Schultz (1993) that: “Without a high level of mutual trust, [information exchange] networking would never emerge. Indeed, trust was a recurrent theme in the researchers’ own description of networking. If asked, they would operationalize trust to mean that entrusted knowledge would not be misused, stolen or leaked to third parties. All of this sounds very similar to the second norm that was reported to us by accomplished chefs: one should never pass on privately-revealed information without permission. Also, the third norm reported to us – that one must credit innovating chefs with the authorship of their innovations – sounds very similar to the social norm against plagiarism that is strongly present in many communities and fields of authorship. On the other hand the first norm mentioned by chefs – that one should never copy a colleague’s recipe exactly, may *not* have an analog in scientific communities: Copying an experiment exactly may be precisely what is required to validate a finding, and validating findings is considered to be a legitimate scientific activity.

Sanctions applied by ~~to~~ members of scientific communities to colleagues who violate norms also sound very similar to the sanctions applied to violators within the community of accomplished chefs. Merges (1996) reports that there is often "...back-channel gossip regarding a certain lab's unwillingness to share a research tool. ... the point of this gossip-induced social pressure... is simply that the tool be provided, on a reasonable basis, to other interested labs so they can use it in the course of their research. Indeed, other labs understand that they will almost always be required to use the biological material under a duty to not disclose it to others, and certainly not to disclose it to the public generally, until its originator has published a full account of it." (ibid, p.151). Kreiner and Schultz (1993) report that "Anybody being accused of such an act [norms violation] would rapidly become a leper in the field. Illegitimate use of shared information was considered *the* deadly sin of networking, and the sanction against such a sinner would be to close his window on the 'frontier' in the future."

With respect to economic impact, it would be useful to more deeply explore the impact of the more limited scope provided by norms-based IP systems relative to law-based IP systems. What is the *actual* impact of this on innovators' incentives and rates of innovation? There is certainly a great deal of design innovation visible among high fashion designers despite the prevalence of knock-offs by mass merchandisers (Cox and Jenkins, 2005). Would the elite designers innovate even more energetically if knock-offs by out-of-community members were suppressed? It is not clear. Perhaps elite designers have a compensating gain from weak law-based IP protection of clothing designs – they themselves gain the freedom to knock off "street fashions" pioneered by innovating clothing users. Also, presumably high fashion designer firms and mass merchandisers operate in different markets: clearly, clothing sold at an Armani store differs in many ways from "the same design" sold at Wal-Mart. To some extent, the issues addressed here will link to the literatures on incentives for knowledge sharing and free revealing (e.g., Harhoff et al. 2003, von Krogh 2002, Wasko and Faraj 2000).

Norms-based and law-based IP systems, as we see from table 7, have quite different attributes. As we learn more about norms-based systems, we will learn how each type may complement the other, and under which conditions each can most usefully be applied.

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