The innovation development process of Michelin-starred chefs

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Abstract

Purpose – This paper aims to compare and contrast the innovation process described by Michelin-starred chefs with existing theoretical innovation process models.

Design/methodology/approach – Semi structured interviews with Michelin-starred chefs in Germany were conducted to better understand the underlying factors and dimensions that describe process practices. A sample of 12 Michelin-starred chefs awarded one, two or the maximum of three stars were interviewed about how they develop new food creations in their restaurants.

Findings – Research results indicated that the development process of Michelin-starred chefs has similarities and differences to traditional concepts of new product development. Michelin-starred chefs’ innovation processes do not include a business analysis stage and because of the simultaneity of production and consumption and the importance of human factors in service delivery, employees play a more important role in fine dining innovation than in other product innovation situations. Furthermore, Michelin-starred chefs’ innovation processes do not implement an all-encompassing evaluation system.

Research limitations/implications – The study was conducted in only one country and on a small sample. Based on an analysis of the findings, the innovation development process of Michelin chefs can be broken down into seven main steps.

Originality/value – The present study expands the scope of hospitality innovation research and the findings have not only important implications for high-end restaurant settings but also other restaurant segments, and other hospitality service endeavors.

Keywords Innovation, Product development, Restaurants

Paper type Research paper

There are several benefits of innovation, but in the context of hospitality and restaurants, the major benefit of successful innovation is to be or become more competitive (Ottenbacher and Gnoth, 2005). Because innovations in the food and hospitality industries can (generally) be quickly copied or imitated, a continuous innovation process has been theorized to heighten “barriers to imitation” to the competition (Harrington, 2004). Thus, innovation helps restaurants keep their portfolio competitive and thereby achieve long-term competitive advantages. Although many restaurants recognize the importance of innovation, it is not always clear how to successfully create and design new dishes and menus. This article will seek to address this challenge by providing insight about the development process for fine dining food innovations.

Because new restaurants constantly come to the market with new food creations that change the basis of competition, fine dining restaurants operate in a highly competitive environment. Successful chefs must be able to adapt and evolve if they want to be successful in the short- and long-term. Thus, to succeed in this competitive
environment, fine dining restaurants must systematically develop innovations. While many fine dining restaurants recognize the importance of innovation, the authors found little published research on the topic. Consequently, how to successfully create innovations is not always clear for hospitality managers and chefs.

This article presents a contemporary view of Michelin-starred chefs’ innovation development process. The objective is to advance the knowledge of innovation, specifically fine dining innovations and thus provide hospitality managers and chefs with the knowledge to understand how to manage innovation. To achieve these objectives, we compare and contrast the process described by three-star, two-star, and one-star Michelin chefs with existing theoretical innovation process models.

The authors focus on the innovation process of Michelin-starred chefs for several reasons. First, compared to other foodservice segments, the innovations developed in high-end, fine dining settings are very likely to be individual and original in nature, feature the finest quality products and service, and require high-level tacit skills by chef participants to adapt and survive in this environment. This situation seems particularly likely of chefs in Michelin-starred settings. Other restaurant and foodservice segments are likely to utilize centralized R&D techniques, use pre-made products, and have standardized menus across the organization. Finally, Michelin-starred and other high-end operations are likely to be the top level of “trickle down” effects on the use of food products, trends in cooking style, use of new cooking technology, and creative innovations in service (NDP Group, 2004).

The Michelin Guide
The first Michelin Guide was published in 1900 in France by the Michelin Tyre Company. In Europe, the Michelin Guide (sometimes called Guide Rouge) is the most respected ranking system for fine gastronomy and cuisine (Johnson et al., 2005). The Michelin Guide is based on anonymous inspections and independence, featuring a selection of the best hotels and restaurants in all comfort and price categories. Regardless of the style of cuisine, Michelin stars are awarded to restaurants on five criteria: the quality of products, mastering of flavors and cooking, personality of the cuisine, and value for money and consistency. One star is considered “a very good restaurant in its category”, two stars reflect “excellent cooking, worth a detour”, while three stars display “exceptional cuisine, worth a special journey” (Michelin, 2006).

The guide has a strong influence on consumers’ choice of fine dining establishments. Gaining or losing a Michelin star often results in enormous changes in business and profits. The loss of a Michelin star can cut a restaurant’s sales by as much as 50 percent (Johnson et al., 2005) and consequently lead to the closure of the enterprise. Therefore, the risk involved in food innovation implementation is high.

The generic innovation process
NASA’s space program in the US was one of the pioneers in implementing a product development process during the 1960s (Cooper, 2001). These first generation processes were largely engineering driven and more a measurement and control tool. Most of the innovation process models implemented today are second generation models, which usually involve six required steps for managing the process effectively and transforming new ideas into new products or services. According to Cooper and Edgett (1999), the innovation development process can be defined as a formal blueprint,
roadmap or thought process for driving a new project from the idea stage through to market launch and beyond. These process models, if applied in a disciplined way, help firms to improve effectiveness and efficiency of innovations so that scarce resources are not wasted (Trott, 2005). The use of development process models will not necessarily guarantee success, but the use of a model does increase the chance for success (Cooper and Edgett, 1999). Innovation process models tend to follow the format of the Booz, Allen & Hamilton (1982) model (Urban and Hauser, 1993). These models consist of the following six steps:

1. Idea generation.
2. Screening.
4. Concept development.
5. Final testing.

**Innovation process specific to foodservice operations**

Harrington (2004) points out several limitations of generic product and food product innovation process models and their applicability to “real-time” foodservice settings. Specifically, he suggests the need for a more organic model that is interdisciplinary in nature integrating strategic action planning, marketing considerations, food science and culinary knowledge perspectives to achieve a truer representation of the process. In addition, several assumptions in generic innovation and food product process models do not address the foodservice situation: the assumption of the R&D department as a separate unit, clear lines of distinction among the sequential steps, and secrecy prior to and during introduction. According to his framework, these assumptions generally do not hold true in the foodservice environment and this situation limits the obstruction of imitation by competitors.

Harrington’s basic model appears to be derived from earlier food product development models integrating many links and feedback loops among and between its phases. This four-phase framework appears useful in that it integrates the need to balance and adjust for internal and external tensions throughout the process. The four proposed phases include innovation formulation, innovation implementation, evaluation and control, and innovation introduction.

**Methodology**

Little empirical research has been conducted on this topic and no reliable instrument has been developed by which to measure how Michelin-star chefs create new dishes for their operations. The intended research plan was to conduct interviews with Michelin-starred chefs in Germany to better understand the underlying factors and dimensions that describe process practices. We decided that the most appropriate methodology would be to seek qualitative data using semi-structured interviews. This method allows the researcher to ask supplementary questions to attain deeper understanding of complex issues, thus creating new knowledge. Qualitative research is appropriate when the research problem is exploratory and intuitive and the focus is on social processes rather than social structures (Ghauri _et al._, 1995). Therefore, in June
and July 2006, semi-structured interviews were conducted, in person, with the chefs. These interviews lasted 60 to 90 minutes each.

The researchers identified the restaurants in Germany that were awarded at least one Michelin star in the 2006 edition. In order to compare the innovation process of the three Michelin star categories, we choose chefs from each star category. From these 190 restaurants, a purposeful sample of an equal number of three, two and one Michelin-starred chefs were selected. Due to a lack of new emerging information and themes, the researchers decided to conclude the data collection after the completion of 12 in-depth interviews.

All of the interviewed chefs were male, 31 to 56 years of age, and familiar with the innovation development process. Each had sound background knowledge of the research issues being investigated. Furthermore, a variety of perspectives was sought, as well as maximizing perspectives and heterogeneity. The research strategy included the development of a theoretical innovation framework based upon the results of the interviews.

Findings
Based on an analysis of the Michelin-starred chefs’ descriptions, it appears the innovation process can be broken down into seven main steps. These steps will be discussed in the order defined by the research participants (see Figure 1 for a complete diagram of the process).

1. Idea generation

Product consideration. Strategy and idea formulation is proposed as the first step in the development process and both parts are performed interchangeably or simultaneously. Strategy guides the development of a new dish. Michelin-starred chefs regarded food product as being the basis for their strategy or their idea (reported by 12/12 interviewees). While, Michelin-starred chefs spend a lot of time and effort in creating new dishes, the first question is always “what produce are in season?” All chefs stressed that the product quality is the critical point, however, the supply of high quality food products is becoming more and more challenging. They spend considerable time in finding the best or better food product quality by not only searching and investigating new suppliers but also by strengthening ties with existing suppliers.

Ideally, a Michelin chef wants to find products that are not available for the competitor because it would give the operation a competitive advantage. This is most challenging in today’s hospitality world. The reason is that with respect to innovative new dishes the differentiator is not the product itself but rather the quality of the product. As one chef explained: “you can get lamb everywhere but you cannot get the same quality and taste of lamb anywhere”. Another chef claimed that he searches for “an authentic taste of the food product”. Purchasing regional products results in a shorter delivery channel and thus has the advantage of fresher product quality and better taste.

Tacit skills in creative thinking. Following the decision on which food product to focus on or which products to bring together in the strategy stage, the idea generation starts. Chefs play around with ideas in their heads about which food items fit together or can be combined so that they will harmonize and end in a flavorful composition.
Further, they search for a “harmonized contrast” and ask themselves: “how can I mix different elements together?” (9/12), “how can I combine different flavors?” (11/12). These harmony/contrast combinations were described as relating to three main aspects:

1. Taste (sweet-salty, sweet-sour).
2. Texture (soft-crispy, lean-rich).
3. Color (earth tones-vibrant colors).

Chefs might focus on classic dishes (e.g. Beef Wellington) with the idea of a new, modern interpretation of the dish (8/12). Furthermore, chefs are searching for an idea in which a regional product is combined with an exotic spice (e.g. rabbit and Indonesian
pepper) or in which an extravagant product (e.g. lobster, truffles, foie gras) is combined with a rustic product (e.g. tripe, calf's head). These harmony/contrast combinations are necessary to create what the chefs describe as “light bulb” moments during the gourmets' dining experience. Several chefs stressed that fine dining food should include a “taste experience in the mouth” (11/12) and a “surprise” (4/12) which they call dining delight (“Essvergnuegen”).

**Sources of inspiration.** The two most popular sources of ideas identified in this study were: visiting a colleague’s restaurant (10) and reading cooking literature (9) (Table I). However, the chefs indicated that from both sources they do not copy the idea one-to-one; instead, they get inspired from the creation. For example, they might get the idea to use a specific spice in another combination or might adopt a cooking technique for a different dish. Cooking on such a high level means that just copying ideas would be the start of the end.

Further, inspirations can come from a number of different sources, such as new availability of new cooking technology (4) and while working in the kitchen (4). As several chefs explained: “when I work with a specific product, I get an idea to do something else with this product”. Less common are sources for ideas from TV cooking shows (2), walking through food markets (3), traveling abroad (2), cooking experience from previous employers (2), and customers (2).

This step as outlined by Michelin-starred chefs follows an iterative process and to some extent relies on tacit knowledge (a learned-by-doing process) or “chefmanship”. Chefmanship relates to the focus on seasonal ingredients, regional/local products, and a concern for both raw food product and final culinary product differentiation (Harrington, 2004). The idea that Michelin chefs look to colleagues’ restaurants and cooking literature for inspiration relates to a sense of chefmanship as well as an informal benchmarking process based not on a specific comparison to competitors’ product but on creating substitutes based on trends and an inspiration of ingredients, production techniques, presentation techniques, or taste combinations.

The idea generation step also appears to include a raw product definition as part of the idea generation stage – i.e. determining which food products to include in the final dish; then determining how to combine the elements, how to present them, and in a new way. Thus, this step seems to be part of a continuous learning process using feedback (memory) from previous successful dishes to generate new ideas and inspiration using informal benchmarking.

The idea generation process is diagrammed in Figure 2. It includes an outline of the direct effects of product considerations, tacit creativity skills, and sources of

<table>
<thead>
<tr>
<th>Source</th>
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<tr>
<td>Visiting colleague’s restaurants</td>
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</tr>
<tr>
<td>Cooking literature</td>
<td>75</td>
</tr>
<tr>
<td>New cooking technology</td>
<td>33</td>
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<tr>
<td>Visiting food markets</td>
<td>25</td>
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<tr>
<td>Cooking shows</td>
<td>17</td>
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<tr>
<td>Traveling abroad</td>
<td>17</td>
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<tr>
<td>Experiences from previous employers</td>
<td>17</td>
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<tr>
<td>Ideas from customers</td>
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*Table I. Sources of inspiration*
inspiration as well as there interacting effects and the feedback to all these issues from past experiences.

2. Screening
Seasonality of the ingredients and consequently product quality considerations were the most common screening criterion. All 12 chefs use this screening criterion when developing new dishes. Ten out of 12 Michelin-starred chefs screen ideas in regard to a “fit” with their cooking style. Michelin-starred chefs are very concerned about having a signature cooking style; therefore, they believe new ideas should correspond to their unique approach. Financial considerations were not the most common screening criterion, which in general includes considerations like sales and expected returns on investment. Only eight out of 12 chefs are concerned about cost efficiencies, profitability and cost of the product. In addition, seven of the 12 chefs are concerned about the price that can be charged for the dish. The fit of the idea into the menu was also a concern for firms (7/12). This is closely related to the concern over whether or not the dish has a balance with the rest of the dishes on the menu; for example, ensuring there are not only fish dishes on the menu but a variety of fish, meat and perhaps vegetarian main courses.

More customer-oriented considerations included whether or not the idea will be accepted by the market and consumers (3/12). Chefs ask themselves if customers will order the dish. As one chef indicated:

I can’t be too trendy because my customers have a conservative taste; therefore, I always use a conservative filter before advancing with the new idea.

Because they have to screen if it is possible to keep the high cooking quality standards when they have a maximum business level, operational issues are also of concern to some chefs (3/12). Fine dining restaurants experience inconsistent business levels; on weeknights, they might only have half of the level of patronage they might have on the weekend.

Screening is not only done at this stage of the process but also in the later stages of the process where the innovation project has to pass the specific list of criteria in order to move to the next stage (Table II). In contrast to generic innovation process models,
suggesting a formal screening, the screening of the chefs was very informal (12/12) and often only performed using a “gut feeling”.

3. Trial and error
Following the screening stage, Michelin-starred chefs start working further on the idea by first “cooking the idea in their head” rather than actually cooking or testing in the kitchen. In this theoretical cooking process, they juggle around and combine the main ingredient with different ingredients, spices, aromatics, and textures. In order to do so, chefs need to have a strong background and experience in food innovation. They stress that at the start of their careers they did not have this ability; however with more experience and knowledge, they slowly developed this talent. This ability also could be seen as a further screening technique because they already have examined if the combinations result in a contrasting harmony. This ability allows chefs to anticipate the taste of the combination without actually tasting the food.

After “cooking the idea in their head” and passing the next screening stage, they “take a shot on the idea and give it a try”. This means that they are testing first individual parts and elements of the dish (often several times) prior to the finished product. When the individual elements pass the next screening stage, all elements are combined and then the entire dish is cooked and assembled. The testing of the individual elements is less common in the one Michelin star segment (only 1/4) but more common in the two and three star segments (7/8). A popular method to test parts of the whole dish is to give it to customers as an *amuse gueule* (free appetizer) and get feedback.

The initial formulations and prototype are generated using the original CAD – chefs cooking in their heads based on tacit memory. This step appears to occur prior to the actual concept development step but in actuality may be an iterative and nearly simultaneous step with the next one.

4. Concept development
In this phase, the idea that has been decided upon and pre-tested is developed into a full concept. The amount of planning and concept development conducted by the chefs in the sample varied considerably. In general, the higher the star rating, more time was allocated to testing and extensive planning prior to execution.

The concept can consist of several details. Eight chefs developed a recipe-date file for the innovation. The concept might further include written working instructions (2) presentation/arrangement instructions (5) and photographing the final dish (7)

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<th>Criteria</th>
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<tr>
<td>Seasonality of products</td>
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<tr>
<td>Quality of products</td>
<td>100</td>
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<tr>
<td>Fit with cooking style</td>
<td>83</td>
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<tr>
<td>Cost and profitability</td>
<td>67</td>
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<td>Menu pricing considerations</td>
<td>58</td>
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<tr>
<td>Fit with menu style</td>
<td>58</td>
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<td>Customer acceptance</td>
<td>25</td>
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<td>Operational factors</td>
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Table II. Concept screening criteria
On the other hand, several chefs were satisfied with a rough plan that was just a theoretical plan in the inventor’s head.

Developing usable recipes for innovative dishes does not appear as simple as one might think. We all know recipes from cookbooks or magazines, which seem to provide an easy road map to produce great food. Two chefs argued that a recipe is helpful for developing new dishes; however, it has its limitations. For example, a recipe for a meat dish is very challenging because when you pan-fry meat it is nearly impossible to achieve the exact same degree of frying for each piece of meat. As a result, the meat tastes slightly different, which can have a critical impact on success. To address this weakness, Michelin chefs use substantial training of chefs for the new creations to alleviate much of this ambiguity.

Formal market research was used in none of the cases in this study; however, all respondents implemented informal market research through conversation with customers or feedback from their restaurant manager. The result from this informal process is a better understanding of customer needs and wants (Table IV). Furthermore, the competition is mainly only analyzed in regard to pricing (5) and cooking trends (10). It seems that there are unwritten but known pricing levels that customers accept according to the Michelin star level so that competitive pricing seems the major source for pricing decisions.

A total of 11 of the 12 interviewees eat several times a year at other Michelin-starred restaurants. As one chef suggested:

You want to keep an ear on the market but we have our own style and we don’t want to imitate anybody.

They not only eat in German fine dining restaurants but also look for trends in other countries, such as France, the UK, Spain and the US. Such restaurant visits keeps them updated on the cooking evolution and might provide them with new inspiration. Michelin-starred chefs need to be original and novel especially in the two and three-star segment, and indicate “we are searching for light bulb moments”. Or, as a three Michelin-starred chef summarized:

We have to be trend-setting and create new impulses.

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<th>Technique</th>
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<tr>
<td>Recipe-date file</td>
<td>67</td>
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<tr>
<td>Photographing concept</td>
<td>58</td>
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<tr>
<td>Presentation and arrangement instructions</td>
<td>42</td>
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<tr>
<td>Written working instructions</td>
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<table>
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<tr>
<th>Technique</th>
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<tbody>
<tr>
<td>Dining at other Michelin-starred restaurants</td>
<td>92</td>
</tr>
<tr>
<td>Cooking trends used by competition</td>
<td>83</td>
</tr>
<tr>
<td>Pricing of competitors</td>
<td>42</td>
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Having a differentiating approach or an “authentic cooking style” is a most important aspect. Several chefs stressed including their regional roots into their cooking or as one chef described having “terroir” in his cooking style. The term “terroir” is uniquely French in origin; while it is most commonly applied to wine, a good description of the concept is “an umbrella term for a subtle interaction of natural factors and human skills that define the characteristics of [a]... growing area” (Fanet, 2001). Thus, local influences should be transmitted into the character of the food so that it reflects the distinctiveness and uniqueness of the place of origin.

During the concept development, the harmonized contrast is further refined. The main product of the dish (e.g. fish, poultry, game) is combined with side dishes (e.g. vegetables, rice), the sauce(s) and the spices. In this stage the “harmonized contradiction” relates to the flavor/taste (e.g. sweet-sour), texture (e.g. crispy-soft) and color. In addition, the proportions of the individual elements are experimented with in an iterative fashion. For example, it is important to find the right amount of sauce with a lobster dish, not too much (which might dominate the lobster taste) and not too little (which might lack enough contrast and harmony). Furthermore, chefs might experiment using different cooking styles for the elements in a dish. For instance, should the chef roast or poach the fish? However, the main goal is “how can I best increase the flavor of the food product”. Several chefs (8) stressed that different textures within a dish enhanced the taste experience.

Additionally, chefs described the significance of plate selection. Many chefs have 20-30 different plates, and they have to decide which creates the best combination of presentation value and impact on the ultimate taste. Thus, the decision of the plate might be influenced by the layout of the dish and thinking through how the customer might consume the dish. Very often a dish needs to be eaten in the correct sequence, in order to achieve the best taste result. Therefore, the layout of the dish should make it easy for the customer to eat it in the correct sequence. One chef stressed that:

I have to make sure that the customer can’t eat it in the wrong order, and I have to give him guidance how to eat it.

5. Final testing
Most (10/12) Michelin-starred chefs test the new dish on one or more sources. One popular testing resource are employees in leading positions (10/12), such as the restaurant manager (Table V). These employees should be “experienced eaters whose tastes have good sensibility and sensitiveness”. Another important final testing source is the sommelier (9/12) who is responsible for the wine service in the restaurant. The “wine has to fit with the food. I might compromise for the wine and slightly change the
dish – for example use less spice in the sauce". Regular customers and friends (9/12) are also often involved in the final testing. These customers and friends are regarded as competent gourmets who provide constructive feedback. Often the new dish is not immediately offered as a separate dish on the menu but as part of a five to eight course tasting menu or as *amuse gueule*.

Final testing should again include “how the customer eats the dish” – the sequence. It is “critical that the customer understands how to eat the dish”. Two chefs further emphasized that “the new creation is tested in the right environment – it should be tested in our restaurant under normal conditions”. Normal conditions involve two aspects. First, it means to test operational issues to determine if the cooking quality standards are as expected when it is executed at high business levels. Second, “normal conditions” relates to the entire dining experience in the restaurant with silverware and enjoying the elegant and relaxing atmosphere. The whole “atmosphere of the restaurant, china, décor, and service impact evaluation of new creation – not only the food quality – therefore, it must be tested under real conditions”.

Furthermore, as one chef mentioned, the “architecture of the restaurant should also reflect the cooking style”. This step appears to be a final method of evaluating the innovation to determine if it provides a good fit with the entire restaurant experience.

6. Training

In many cases, the training and the final testing stages might be reversed. Some restaurants first train their staff; then, do the final testing. However, the majority do final testing before they train their staff for the new dish. All Michelin-starred chefs discuss and explain in detail the new creation before it is offered to the customers. Ten out of the 12 chefs then cook it together with the involved kitchen crew. Sometimes the Michelin-starred chef might first cook the dish by himself and demonstrate his expectations and standards before the other chefs participate in the cooking process. This cooking together may happen only once, but (especially in the two and three star segment) it may occur several times. A two Michelin-starred chef commented that:

> We train as often or long until the kitchen employees can cook it 100 percent perfect. The dish must be perfectly cooked without the boss being involved in the cooking process.

One chef described haute cuisine as:

> Best products, best preparation, best logistic and consistency. Consistency means training your employees so that the operational procedures are consistent and that if they cook a dish a 100 times – it always tastes the same.

Training is described as not only important for the chefs but also for the service employees of the restaurant. All Michelin-starred chefs discuss and explain the new dish in detail. This is important because service employees need to know both the elements of dish and if those elements should be eaten in a particular sequence. In addition, service employees need to know the origin of the product. As several chefs explained more and more fine dining customers want to know background information about specific products on the menu. The greater importance of training at establishments that perform at the highest levels of service is emphasized in Michelin restaurants, including this step prior to the commercialization step and in some cases prior to the final testing step.
7. Commercialization

The final stage of the process is the commercialization of the innovation. This is performed when the new dish is offered to the customers in the restaurant. According to the literature, the commercialization also implements an effective evaluation system. This evaluation system should analyze sales, market reactions and problems; managers should benchmark the performance and undertake necessary changes. However, this step in Michelin-starred restaurants only reflect two aspects of the performance of the innovation project. The first is customer satisfaction (8/12), which they get directly from conversations with customers or feedback from the restaurant manager. The second is the number of sales for the new dish compared with other items on the menu. Surprisingly, financial measures are rarely utilized; only two respondents use profitability as a performance evaluation.

Managerial implications

Based on a synthesis of Michelin-starred chefs’ descriptions, Figure 1 provides the stages and interacting factors in the new product development process. Many of these factors and steps highlight important implications for high-end restaurant settings, other restaurant segments, and other hospitality service endeavors.

1. Idea generation: product, source of inspiration, and tacit creativity skills

Chefs at Michelin-starred operations in our sample addressed three main issues during the idea generation stage: product consideration, sources of inspiration, and tacit creativity skills to bring it all together. The implication here is that success in this arena depends on several intangible factors to achieve on-going success in strategy generation and idea formulation.

For example, product considerations are aligned to the old adage “garbage in, garbage out” in any setting. For hospitality organizations in general, the successful product development is derived by creating a network system that allows flexibility (to take advantage of seasonality and quality), a regional focus (to differentiate the firm), and creating a sense of trust between the firm and its suppliers. While these characteristics fly in the face of centralized procurement practice, these more tacit characteristics are at the heart of innovation creation. Many hospitality firms today use procurement practices featuring national accounts, make purchasing decisions based on price, and create a separation between the supply and unit-level managers. These practices have many positive attributes such as centralization (efficiency), standardization, consistency, and lower prices. But, the hidden cost of such practices is that they do not maximize a firm’s ability to create an innovative culture by providing the opportunity for unit managers to learn-by-doing; thus, creating a tacit ability to continually innovate. To achieve success in the idea generation phase, hospitality firms need to balance the tension between efficiency (centralization and standardization) and effectiveness (creative service and food innovations).

2. Screening: intuition and fit

The Michelin chefs used two main screening criteria of new product ideas: a fit with the organization and customers, and a basic “gut feel” or intuition as to its possible success. Explicit financial analysis was less frequently used as a main criterion in this setting. The reason for this lack of use in financial analysis for this setting is that the
chefs in this situation had an innate sense of cost and price based on experience. Secondly, the ultimate cost is derived through the loss of customers or heaven forbid a loss of a Michelin star, rather than driven by a food cost percentage criterion.

The chefs’ description of the screening process points out important qualitative factors and the importance of longer-term focused decision-making, which applies to all hospitality service settings. First, managers in all settings should not discount the value of “gut feel” and intuition in the decision making process. Good intuition is problem identification and problem solving based on a long history of systematic education and experience (Khatri and Ng, 2000). Intuition in this sense can also be described as “situated judgement” and features the ability to synthesize isolated pieces of information as well as to double check more formal analyses (Harrington, 2004).

3. Trial and error: learning and knowledge management
A central concept in any innovation process is ensuring that organizational learning takes place and that knowledge within the organization is managed effectively to ensure continuous improvement in innovation management. In the case of Michelin chefs, time for trial and error is central to the mission of creating new and distinctive food products to differentiate the firm.

Therefore, a main implication of the Michelin-stared chef example is the willingness and demonstration by organizations to make trial and error a core part of the daily routine (or at least regular routine) by key individuals at the unit level. Organizational norms supporting behaviors such as “thinking in unique and independent ways”, “helping others to grow and develop”, “taking on challenging tasks”, and “thinking ahead and planning” are cultural characteristics of firms that have consistently shown to promote creativity, innovation, consistency and quality (Lafferty and Cooke, 1993). Leaders of firms in hospitality industries should assess the cultural norms of their units and determine if explicit indicators of these characteristics are in place. By doing so, the innovation management process will be enhanced for their firm.

4. Concept development: standardization, market research and differentiating factors
For most large-scale hospitality operations, standardization is a central part of business unit action plans to enhance consistency and control costs. Too much standardization and the behavior in the organization becomes one of using standards as an excuse for mediocre service rather ensuring reliability. Therefore, innovative organizations balance standardization with the value of creativity to ensure “exceeding customer expectations”, adaptation, and survival.

Market research and differentiating factors are interrelated issues when it comes to concept development. The market research process can be formal or informal but needs to include an assessment of customer perceived benefits and differentiating factors (compared to competitors). In today’s hospitality field, traditional thought processes on benefits such as “low cost” and “differentiation” are becoming less relevant as service innovations address emerging consumer needs. Recent research in service innovation management indicates a need to challenge the envisioning process used by service industry leaders (Ottenbacher et al., 2006). This change is no more relevant than in the current environment of hospitality industries.
In regards to innovations, differentiating factors also take on new meaning. Following the lead of Michelin-starred operations, foodservice and other service firms may use regional factors as a method of differentiation. Rather than creating an experience that can be replicated at “anywhere USA” or anywhere in the world for that matter, firms that focus on regional differences can achieve a differentiating factor. This factor may also include cultural elements that provide value-added to the customer with features such as historical information, story-telling, and authenticity as part of the intangible experience. This notion has been used successfully by a number of restaurateurs as a means for differentiation and is at the heart of what can be called “gastronomic identity” (Harrington, 2006). The gastronomic identity of a locale may be defined by its environment (climate and geography) and culture (religious, historical, level of ethnic diversity, innovations, capabilities, traditions, beliefs and values).

5. **Final testing and training**
The final testing and training process in Michelin operations has three main implications for other hospitality situations. First, the use of multiple sources to assess final food dishes highlights the need to receive knowledgeable feedback from a variety of perspectives: customers, colleagues, and staff members. Second, it points out the need to assess the robustness of the food item or service by subjecting it to the worst (e.g. busiest) situations. Finally, the Michelin process points out the need to assess the sequence of dining or other service consumption. In final testing, managers should ask: what is the “best” sequence of consumption?

As described in the Michelin situations, the training process can be implemented before, after or in an iterative process during final testing. Of course in all service situations, the service staff are part of the product being provided. Leaders in hospitality setting should determine a training process that enhances trial and error, concept testing, innovation and learning as an integrative situation. This type of integrative process increases the possibility of creating an innovative service culture across the firm (Harrington, 2004; Sharfman and Dean, 1997).

6. **Commercialization: quantitative and qualitative issues**
The Michelin-starred commercialization process points to the use of more qualitative and long-term thought processes prior to bringing a food item to market. Due to the severe costs of making a mistake in this creative environment (loss of customers or loss of a Michelin star), chefs in this situation focus on customer satisfaction and long-term reputation rather than food cost analysis or contribution margin. Traditional financial considerations are probably implicit as part of this tacit process but the “hidden” costs associated with losing a high-end customer or Michelin star make individual financial considerations a mere shadow of other more catastrophic results.

While this is not to discount the importance of achieving defined cost percentages in other parts of the hospitality field, but, it does highlight the value in balancing the quantitative (cost) issues with more qualitative ones.

**Conclusions**
The process used in these Michelin establishments both aligns with and contradicts the general NPD model or those shown in the food product development literature. Generally, the Michelin-starred chefs’ process is more organic, less formal, less reliant
on explicit financial and market analysis, and more iterative in nature than models provided in the new product development and food product development literatures. Much of the successful outcomes from the process seem to be derived from tacit skills/knowledge by the chefs and a sense of causal ambiguity to those who are on the outside looking in. These tacit skills and ambiguity in the causes of success along with a Michelin-starred chef’s or restaurant’s reputation that develops over time appear to heighten barriers to imitation for competitors wanting to enter this segment of the fine dining world.

Michelin chefs used a more sequential and top-down process than the one proposed for culinary operations in general and much of the participative decision making literature (Harrington, 2004; Nutt, 1989; Papadakis et al., 1998). Costs due to any failure in the Michelin-starred chefs’ world are far greater than a menu innovation that fails to make the grade in a typical restaurant. Therefore, in this high-risk situation, greater care is taken to control the process and ensure successful outcomes.

One area that emerged as something of supreme importance to Michelin-starred chefs that was not articulated in any model is the role of a closely-connected network. The network in this situation includes colleagues throughout the globe to tap into for inspiration, farmers to obtain superior local products, and a sense of trust and commitment from specialty purveyors to obtain a variety of high-end, limited quantity items.

Based on this study and earlier research, it appears innovation and organizational culture may be two sides of the same coin. In other words, the creation of an organizational culture that facilitates innovative thinking, creativity, and adaptability is an important intangible characteristic of organizations that excel in innovation management. The Michelin-starred chef example provides a visible example of an innovative process used in an environment that demands creativity, surprise, and continuous innovations to succeed.

Current procurement practices, centralization techniques, and standardization processes can have both positive and negative impacts on the potential for innovation in hospitality organizations. Leaders in hospitality firms need to assess the trade-off between the efficiency of these processes with the effectiveness created by facilitating innovative behaviors across the firm. Research in other industries suggests managers should design organizations to neither maximize efficiency nor effectiveness but instead to optimize the two (Reed, 1991). This practice seems particularly relevant for leaders in hospitality environments that are dependent on continuous innovation to create a barrier to imitation by competitors and to maintain a defensible competitive position against new entrants in the marketplace.

Limitations and future research
Future research should consider the process used at what could be termed micro (individual menu items or a specific service), meso (an entire menu or defining a service level) and macro (a restaurant concept as innovation) levels of innovation in the restaurant industry.

While this study provides much insight into the innovation process used by chefs in the restaurant industry, it has several limitations. First, the sample is based on chefs from one country, one segment of the industry, and is gender bias toward a male perspective. Further, findings are based on a small sample (12 interviews) at one time.
period. Additional study needs to be done considering different and larger samples, new locations, and other segments of the hospitality industry.

References
Further reading

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