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## A SYSTEMS APPROACH TO UNDERSTANDING CREATIVE INNOVATION IN GASTRONOMY SERVICES

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*Using the example of how elite Nordic chefs use a relatively novel food such as seaweed in Nordic cuisine, we describe and develop a model of creative innovation in gastronomy services from a systems perspective. Seaweed has long had a connotation of poverty and austerity in the Nordic regions and had thus been a forgotten or marginalized food ingredient. In the early 2000s, the New Nordic Cuisine manifesto was launched, aiming amongst other things, to reintroduce seaweed in the Nordic diets as part of the broader picture to increase vegetable consumption. 25 relevant industry sources were identified to help develop our model of understanding innovation in gastronomy services. The data gathered were transcribed and used to build a small data corpus. The data was analysed using both VOSviewer and AntConc for content analysis. Using a four quadrant systems framework, we identified some of the major challenges and barriers to innovation in gastronomy services. They include it being a new food, lack of advanced mechanised harvesting technologies and regulatory uncertainty in terms of harvesting rights.*

### 1. Introduction

A substantial part of what makes food an interesting topic of study is due to its constant evolution in the culinary arts and gastronomic sciences (Lin & Mattila, 2010; Steins et al., 2019). In the food services context, creativity and innovation in culinary research have gained steady academic interest over the last decade. This interest ranges from its co-created artistic value (Stierand & Lynch, 2008), its scientific (gastrophysical) aspects in cooking (Mouritsen, 2012; Mouritsen, Rhatigan, & Pérez-Lloréns, 2018), how its product-service processes (PSP) are managed (Feuls, 2018), to haute cuisine service innovations (Messeni Petruzzelli & Savino, 2014). Creative innovation is after all considered the very ingredient needed for organization and enterprise success (Harrington & Ottenbacher, 2013; Tohidi & Jabbari, 2012). It can for instance also be

applied when developing novel seaweed based materials for creations in fashion (Buet, 2020; Hurtado, Magdugo, & Critchley, 2020).

We use the term “creative innovation” in food services following the example of scholars in the field of international business (Feldman, 2008). These creativity researchers, in light of the global marketplace and increasing convergence of technology and science, tend to view creativity and innovativeness as essentially synonyms (Amabile & Pratt, 2016; Woodman, Sawyer, & Griffin, 1993). Similarly, creativity and innovation are co-constructing of product-services, particularly in the field of culinary research and experiential dining, where advancements in technology enable new food applications, new ways of presenting and serving culinary creations (Feuls, 2018; Mele & Russo-Spena, 2016; Schumpeter, 1947). Creative innovation in international business has also been studied from various theoretical perspectives, such as enterprise or firm ambidexterity in the field of international business studies (Chang, Chen, Chi, & Lee, 2014; Kurniawan, Hartati, Qodriah, & Badawi, 2020; Vahlne et al., 2012), relational sociology in economic theory (Feuls, 2018), actor network theory (Huggins & Thompson, 2015; Voeten, Haan, Groot, & Roome, 2015), and entrepreneurship theory in small social businesses (de Bruin & Shaw, 2011; Messeni Petruzzelli & Savino, 2014).

Holistic models of culinary innovation have been created in order to understand the phenomenological or lived experience of chefs (Stierand, 2009) and to understand personality, socio-culture, time and the development of talent in the field of art (Csikszentmihalyi, 1988). Using phycogastronomy (seaweed gastronomy) set in the context of the Nordic culinary scene as example, this empirical based study builds upon these studies to develop a systems integral model of creative services innovation in culinary research. The development of a creative services innovation systems integral model in this study is based on integral methodological pluralism shown in Figure 1. The novelty of our contribution is both practical and theoretical. The model contributes to business practice knowledge by using transcribed empirical data and turn it into a small corpus database. As creative services innovation is both an activity and a process that takes place in culinary related arenas, from drawing boards to kitchens, and in the contexts of HoReCa (hotels, restaurants and cafés), we used text analysis to uncover common creative innovation elements across different contexts and individuals.

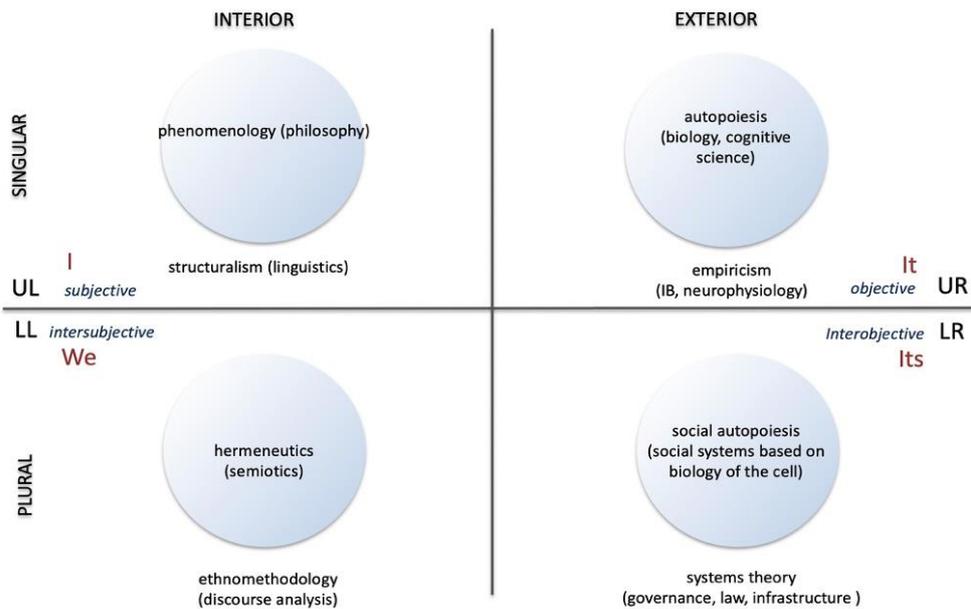
The research questions (RQ) addressed in this study include:

RQ1: What general elements can be identified in creative service innovation process?  
RQ2: How does a systems integral approach contribute towards a deeper understanding of creative services innovation compared to other holistic models in extant literature?

The first RQ pertains to the pragmatic aspect of identifying creative service innovation elements. The second RQ addresses theory in the study of creative services innovation.

**Figure 1.** Integral methodological pluralism (IMP) model (Wilber, 2007: 36-37)

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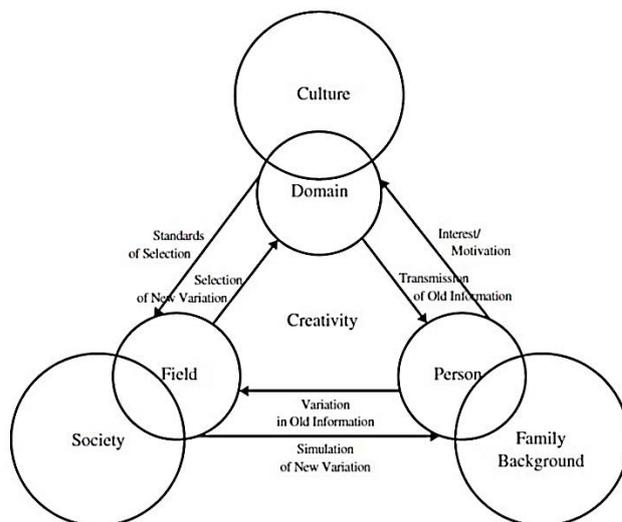
## 2. Creative innovation applied to food services

Using normative definitions in language use, creativity refers to the act of conceiving something original or unusual. Innovation refers to the act of implementing something new. Creativity and innovation have mostly been studied as separate concepts. In the context of culinary research, the material process of creative services innovation, which is the conception and implementation of new gastronomic delights in various culinary settings is key to success for the organization's (as well as industry) competitiveness. If one were to however, consider 'creative services innovation' in its own semantic context, the very nature of 'creativity' flouts the rigidity of structure and labeling/naming. Its very naming pigeonholes and constrains its very conceptual development. For this study of 'creative services innovation' as a process, one could attempt to name its elements and characteristics in a structural form that is allowed to morph and be malleable according to its context. As early as the late 1800s (Galton, 1869) different schools of thought have approached the study of creativity from various perspectives. They include: the Freudian and Jungian psychoanalytic frameworks (Ferrell, 2015; Freud, 1971; Oremland, 1999), behaviourist theory from the works of Skinner and Watson (Skinner, 1984, 1985; Watson, 1926) and human cognition from the works of Maslow (Maslow, 1961, 1962, 1964).

Moving beyond normative definitions however, processes of creative innovation seem to permeate human evolution. Humans have been solving problems and facilitating efficiency from the fashioning of tools in the Palaeolithic Age, through the development of organized agriculture and the domestication of animals in the Neolithic Age, to modernity. Humans constantly strive to better organize ways of human living in accordance to different contexts, from tribes to urban cities (Stearns, Adas, Schwartz, &

Gilbert, 2014). The multidisciplinary nature and omni-contextual presence of creative innovation has encouraged a systems approach in both the practitioner world and in scientific theory building. This is defined as a framework that is pluralistic, with elements that are constantly evolving and interacting, striving towards a way of living that is ecologically sustainable (Capra, 2005, 2009). A systems approach has been used to understand creative innovation processes from an organizational perspective of creativity at the work place (Puccio & Cabra, 2012); by delving into the understanding of individuals and using case studies as method as a means towards a deeper understanding of the human mind as it goes through various stages of cognitive development (Gruber, 1983, 1988); by studying personality types and creativity (Krippner & Combs, 1998); by studying tangent outcomes of creativeness such wisdom in later life and lifelong learning (Rathunde, 1995) and growth of talent in adolescents (Rathunde & Csikszentmihalyi, 1993). A systems perspective characterises the context for experiencing productivity and flow, where ‘flow’ is defined as optimal states of performance without seemingly much effort was introduced by Csikszentmihalyi (Csikszentmihalyi, 1988, 1996; Nakamura & Csikszentmihalyi, 2001). Figure 2 presents Csikszentmihalyi’s systems model of creativity (Csikszentmihalyi, 2006).

**Figure 2.** Systems model of creativity by Csikszentmihalyi (2014, p.166)



Csikszentmihalyi’s body of work that began more than four decades ago has several illustrative models on creative processes derived from various contexts of study (Csikszentmihalyi, 1988). Figure 1 (Csikszentmihalyi, 1988) is a key example, if not the most comprehensive model of the creative processes developed by Csikszentmihalyi. The model is based on the model of Darwinian biological evolution where Csikszentmihalyi views creativity as part of the developmental force that drives cultural evolution. For Csikszentmihalyi, “Creativity” occurs at the interface of 3 subsystems. They include the Individual who is selected by the Field of gatekeepers (part of Society) into the Domain from where the novelty will then be accessible to the next generation.

The use of Csikszentmihalyi’s systems model of creativity is used here as comparative foundation to the systems integral model/tool developed and presented in this article.

### 3. Method

A total of 25 interviews and presentations were retrieved from online sources both in text as well as audio-visual formats. The texts are transcribed in accordance to the Gothenburg Transcription Standard (GTS) 6.4 (Nivre et al., 2004), using Modified Standard Orthography version 6 (MSO6) reflecting spoken language. The transcribed texts were compiled into a small, topic focused corpus that consists of 82 427 word tokens. The text examples shown in this study occur in GTS 6.4 MSO6.

This study is corpus (data) driven the visualisation followed a two-step data extraction process using (i) VOSviewer, a software tool for constructing and visualizing bibliometric networks (Cordeiro, 2019; van Eck & Waltman, 2014; Van Eck & Waltman, 2007; Waltman, van Eck, & Noyons, 2010) and (ii) AntConc, a concordance software designed to facilitate text queries / text mining for regular phrases and expressions, performing kwic (keyword in context) analysis (Anthony, 2019).

### 4. Synopsis of findings and discussion

The main difference between a systems model such as Csikszentmihalyi’s and the systems integral model developed in this study, is how the systems integral model can give multi-levelled, multi subjective / objective perspectives. In this developed model, there are two types of perspectives reflected. Table 1 shows in broad outline, the human-centric perspective “A” and the product-centric perspective “B” as well as their elements that contribute to creative services innovation into the four quadrants through applying language-based pronouns.

**Table 1.** Systems integral model, human-centric (“A” perspective) and product-centric (“B” perspective).

Per- spec- tive	I (UL quadrant)	We (LL quadrant)	Its (UR quadrant)	Its (LR quadrant)
<b>A</b>	Consciousness	Social practices	Technology enablers in the kitchen for the Chef	Industry structure and network
	Commitment	Organizational support	Digitalisation / Internet for HoReCa	Business Environment Network
	Belief	Culture	New food product	Governance
	Passion	Consumer awareness	Novel ingredients	Logistics Infrastructure
	Inspiration	Intergroup communication and feedback		Trade agreements
	Aspiration	Values		
		Heritage		

B	Terroir	Product-consumer proximity	Geographic proximity and access to raw produce	Industry structure and network
	Product Identity	Product branding through cultural practices, values, food heritage	Geographic proximity of product to consumers	Systems architecture and network
	Country of origin (COO)	New product support through purchase and consumption	Harvesting technologies Food processing technologies	Logistics infrastructure Trade agreements

## 5. Conclusion

Our data corpus revealed that phycogastronomy in the context of Nordic cuisine remains an emerging concept that leaves potential for innovation in food services. Its challenge is reflected through the entire supply chain from harvest to consumer acceptance. Within our small corpus, several chefs and food enterprise owners as stakeholders have voiced how technology affects their businesses, as well as given them inspiration towards new ways to co-create / enhance dining experiences for consumers by offering new types of services. Our data has found a clear effect of technology enablers in gastronomic services innovation. They include digital, technical and novel food preparation technologies. It has, according to those who implement it, accelerated and structured the process of creative services innovation, suggesting that there are clear advantages of a more widespread implementation of such technology enablers.

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