

# Hybridization Revisited: New Insights from the Evolutionary Approach<sup>1</sup>

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## Abstract

**Purpose:** This article is a conceptual paper based on an extensive literature review performed as a preparation for replicating a study of Japanese hybrid factories in Central and Eastern Europe.

**Methodology:** It focuses on hybridization showing that although the concept itself originates in evolutionary biology, its application in the field of International Business bears a strong resemblance with the cultural approach and Japanization.

**Findings:** Given some recent criticism of the hybridization studies, this article argues that the literature applying the concept would benefit from going back to its origins (i.e. the evolutionary approach), which in itself is a well know paradigm in organizational studies and could help in overcoming current conceptual limitations.

**Keywords:** evolutionary theory, international Business, hybridization

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## Introduction

The process of globalization resulting in an international spread of business operations has led to an immense increase in the processes of divergence, convergence and crossvergence of social values, practices and organizational populations (Pieterse, 1994; Sułkowski, 2002; Pudelko, 2005; Ralston, 2008; Witt, 2008). In the field of International Business the beginning of this trend can be traced back to studies Japanese multinationals, which were the first major studies of the populations of non-western companies (Westney, 2009). Initial studies concerning the characteristics of a Japanese company (Abegglen, 1958; Dore, 1973; Ouchi, 1981; Athos and Pascale, 1982) have gradually given way to studies on the transfer of Japanese and Japanization of Western business practices (Oliver and Wilkinson, 1988; 1992). This in turn has paved the way for more general studies of hybridization (Bird et al. 1998; Cieślik and Ryan, 2002; Meardi and Tóth, 2006, Becker-Ritterspach, 2009; Gamble, 2010), among which the most extensive and influential one is the 25 year-long study of Japanese subsidiaries across the globe led by Prof. Abo Tetsuo and conducted by a Japanese Multinational Enterprise Study Group (JMNESEG) (Abo, 1988; 1994; 2007; 2015; Abo et al., 2011; 2013; Itagaki, 1997; Kumon and Abo, 2004; Yuan, 2006).

Despite the fact that hybridization is a well-established concept with valuable contributions both in the International Business (IB) and institutional literature (Becker-Ritterspach, 2009), in recent years studies based on this concept have come under some criticism, including for their lack of methodological transparency, confusion in terms of terminology and theoretical limitations (Abo, 2007; Zhang et al., 2013; Giroud, 2015; Strange and Kawai, 2015).

This conceptual article argues that both the lack of transparency and limitations of these studies could be overcome by retracing back the origins of hybridization to evolutionary biology and employing an evolutionary approach (Hannan and Freeman, 1993; Aldrich, 1999; Nelson and Winter, 2009; Sułkowski, 2010), as one of the most known and developed paradigms in organizational theory (Sułkowski, 2010; 2013). First of all, by assuming that the terminology developed by the evolutionary approach hybridization studies would increase its conceptual transparency and theoretical rigour while reconnecting with the mainstream of organizational theory and IB. Secondly, applying well established theoretical frameworks from the evolutionary approach such as variation, selection, retention mechanism (Aldrich, 1999), would permit the identification of gaps in the hybridization research and enhance the focus on its processual and dynamic nature. Finally, by subscribing to one of the most abundant paradigms in organizational theory and indeed in science, hybridization

researchers would benefit from potential new paths of research that would help to embrace a more generalized and multilateral concept of hybridization and overcome its current overreliance on cultural and geographical approaches.

## Method

This article is a conceptual paper based on an extensive literature review performed as a preparation for replicating a study of Japanese hybrid factories in Central and Eastern Europe. The literature review was conducted in line with existing methods (Hart, 1998; Jesson et al., 2011) including systematic keyword queries of Web of Science, SCOPUS and CiNii databases, reference snowballing techniques and detailed, in-depth content analysis of articles, books and handbooks conducted with the use of MAXQDA software and initial coding strategy (Saldana, 2013). Given the atomization of 'hybrid' literature, the predominance of books rather than journal articles and its strong, but not always implicit relation to the Japanese management debate, snowballing proved to be a much more effective method than a systematic keyword based query. Snowballing began with JMNSEG publications as these were the most recognized works geographically extending over all continents and over 25 years. As a result it was possible to identify the publications concerning Japanese management and Japanization, which provided the original inspiration for the study, publications by numerous members and research partners of JMNSEG, as well as publications, which build upon and extended the original studies. A systematic keyword query supplemented the search with articles, which undertook the issue of hybridization but were not necessarily related to the JMNSEG study. Finally, a separate keyword query has been performed to identify the definition and usage of the hybridization concept in evolutionary biology and evolutionary studies of organization. All publications were reviewed and analysed with the help of MAXQDA software for coding and qualitative analysis.

## An overview of hybridization debate

### The origins

Summarizing the stream of the debate concerning hybridization is not an easy task, as over the years this concept has appeared under various names and in various fields of inquiry (Becker-Ritterspach, 2009). One thing that is not a matter for debate is the definition of hybridization. This is understood as a process of transfer and adaption of a complex organizational system from one social context to another, resulting in

a completely new system which is neither a copy of the original model nor a replica of existing local patterns (Westey, 1999; Bird, 2002). Another thing that is certain is that hybridization is by no means a new concept in the business literature, as its origins can be traced back to early studies of Japanese multinationals, which were the first heavily studied populations of non-western companies (Westney, 2009). The earliest studies concerning the Japanese companies and organization of production (Abegglen, 1958; Yoshino, 1969; Dore, 1973; Ouchi, 1981; Athos and Pascale, 1982) have revealed a number of unique characteristics and deep socio-cultural embeddedness of Japanese management. Further theoretical developments have included a debate concerning a potentially important role to be played by Japanese firms in supporting the economic development of Asian countries (Ozawa, 1979; Kojima, 1978) as well as socio-cultural aspects of the international transfer of Japanese management practices (Hall, 1976; Trevor, 1983; Yoshihara, 1989). Following the spread of Japanese foreign direct investments first to the United States and then to the United Kingdom in the 1970's and 1980's, purely theoretical discussions have gradually evolved into empirical studies of the international transfer of Japanese business practices (Turnbull, 1986; Bratton, 1992; Oliver and Wilkinson, 1988; 1992). It is among these studies that an idea of hybridization has been developed initially taking the form of so-called 'Japanization', a term that was first used in 1986 by Peter Turnbull from Cardiff Business School (Turnbull, 1986) to describe new production practices implemented by the Japanese in the British factory Lucas Electric. The term was later on popularized and extended to the entire British manufacturing sector by Oliver and Wilkinson studies (1988; 1992) and to this day it continues to extend its boundaries and inspire authors (Elger and Smith, 2010). Looking back at the early days of the hybridization debate and cultural embeddedness of the 'Japanization' term, it becomes clear, that the origins of the debate were dominated by the Japanese management and cultural approaches (Keeley 2001; Herren et al., 2012).

In the subsequent years, however, one can observe a gradual detachment from the cultural paradigm and a transition towards more focus on production management and manufacturing. This is especially visible in the works of Wommack and Jones (1991) concerning lean management, as well as a series of articles by MacDuffie and Pil (1995; 1996; 1999) concerning High Performance Work Practices. When put in a historical context, these publications were the first to undertake the issue of the hybridization of Japanese production practices immediately after the collapse of the Japanese 'bubble economy'. It can therefore be argued that due to a heavy criticism of cultural aspects of Japanese management it was necessary to distance these studies from the cultural context. This tradition has been carried on by the GERPISA research consortium, whose researchers have focused on a hybridization in the automotive industry (Fujimoto,

1999). Most notable the topic of hybridization in the auto industry has been undertaken by Boyer (1998), who begins his work with a criticism of Lean Production as the best way to make room for the hybridization debate. Boyer contributes to the hybridization debate by refining the concept of hybridization based on its scope that can range from a straightforward imitation in a different context to a development of innovative and original solutions as the result of a two-way interaction. He also adds a second dimension of a production model to an existing dichotomy of host and home country institutional contexts, which makes us look at Japanese car manufacturing subsidiaries as hybrids not only in terms of culture but also in terms of 'hard' production practices. Finally Boyer (1998) is also one of the first to note that hybridization is an on-going process and not a one-time event.

The Japanese context and the notion of culture did not disappear completely and continued to reappear in a number of subsequent studies. For example Elger and Smith (2005) undertake once again the issue of transfer and transferability of Japanese production practices in the institutional and social context of the British industry. One of the main points they make is that the cultural contexts of home and host countries is only one out of many factors that influence the process of transfer, with others being the pressure of efficiency as well as best practices established in a given industry. They also note that the process of hybridization is not fully random but often targets and sometimes ends in the achievement of a certain 'fit' between the local and foreign pressures.

Although starting from the same assumption about dual contextual pressures from foreign and local environments Bird, Taylor and Beechler (1998) ended up with slightly different results, i.e.. a typology of hybrid models representing patterns of organizational learning in Japanese multinationals. These patterns included the exportive model which was supposed to be focused on transferring parent company solutions; the adaptive model whose primary focus was to fit in with the local environment; a closed hybrid which assumed the mixing of host and home country contexts but at the same time limited the scope of hybridization to a single subsidiary; and finally an open hybrid model in which hybridization was not only encouraged but the results of which were shared across the entire organization. Based on their experience from a large number of empirical studies, the authors also presented processes that led to the development of each of the hybrid models and discussed the implications of each model from a strategic and HRM point of view.

When discussing empirical studies concerning hybridization one cannot overlook the most extensive study both in terms of geographical scope and historical length. By this we mean the famous research project of Japanese hybrid factories around the

world led by Prof. Tetsuo Abo and conducted by numerous researchers from a Japanese Multinational Enterprise Study Group (JMNESG) (Abo, 1988; 1994; 2007; 2015; Abo et al., 2011; 2013; Itagaki, 1997; Kumon and Abo, 2004; Yuan, 2006). The JMNESG study began in the late 1980s and has been carried out for more than 25 years, collecting data from more than 500 Japanese subsidiaries located in more than 30 countries on 5 continents including North America (1988–1989 and 2000–2001); East Asia (1992–1993); UK and Western Europe (1997–1998); South America (2001 and 2006); China (2002); Central and Eastern Europe (2003); and most recently Africa (2009–2010). What is most striking about JMNESG hybridization research is that throughout all these years and rounds of empirical field studies it has been consistently undertaking a single topic of application/adaptation, a dilemma faced by Japanese companies in different locations all over the world. What is more important it has been consistent in terms of methodology applying the same research instrument based on 23 qualitative criteria grouped in 6 dimensions (that is, work, organisation & administration; production control; procurement; group consciousness; labour relations; parent–subsidiary relations). As a result it measured and described the extent of the hybridization of Japanese subsidiaries all over the world. Despite the criticism that JMNESG studies faced over the years for sticking to the ‘old paradigm’ of unique features of Japanese management, as well as questions concerning the validity of comparing results from different institutional contexts, the consistency of JMNESG researchers have resulted in an enormously rich dataset, which constitutes a unique point of reference for future follow-up studies, replications or comparative research.

### Current state

Recent years continue to bring new developments in the hybridization studies. Some of the authors have managed to extend hybridization studies to non-Japanese samples (Meardi and Tóth, 2006; Becker-Ritterspach, 2009; Kuhlmann, 2013). For example Becker-Ritterspach have conducted an extensive in-depth study of subsidiary production systems in India, involving German, Italian, Czech as well as Japanese multinationals (2009). On the other hand Meardi and Tóth undertook an interesting topic of reverse transfer and hybridization of Western multinationals in Central and Easter Europe (2006). The concept of hybridization is gradually being extended beyond manufacturing both in terms of industry and as a field of inquiry (Gamble, 2010; Schlunze, 2012). For example, Schlunze (2012), who for many years has been a member of JMNESG working side-by-side with Abo, has managed to develop an original concept of ‘hybrid managers’ and developed a method for assessing their characteristics. On the other hand, Gamble (2010) has extended the concept of hybridization to a retail sector analysis of the dynamics of organizational practices in Japanese multinational retail firms in

Japan and their subsidiaries in China. Despite these contributions and some notable efforts to locate and fill in the gaps in the debate (Becker-Ritterspach, 2009), it is safe to say that to this day the debate about hybridization remains atomized, unstructured and detached from the mainstream of organizational theory.

## Criticism

In recent years hybridization studies have come under some criticism. First of all, since individual hybridization studies were developed in insolation from one another, they usually employ original methodologies and terminology (Abo, 2007; 2015; Schlunze, 2012), some of which are impossible to replicate (Bird et al., 1998). As a result commentators argue that hybridization studies would benefit from more transparency including more theoretical as well as empirical rigour especially in terms of terminology it applies and the measures that are employed (Abo, 2007; Giroud, 2015; Strange and Kawai, 2015). Various authors also point to the fact that hybridization studies have a number of serious limitations. These include the failure to consider the dynamic aspects of hybridization (Abo, 2007; Giroud, 2015) and the joint impact of both strategic and contextual differences on the process of hybridization between the parent and subsidiary (Becker-Ritterspach, 2009; Strange and Kawai, 2015); or a failure to consider changing roles of subsidiaries as knowledge creators and the possibility of reverse transfer (Giroud, 2015; Zhang et al., 2013). Finally, all authors seem to share a conviction that hybridization studies should abandon their original cultural approach and implicit assumption about the superiority of home country practices, which is especially prevalent in the case of studies of Japanese multinationals and their subsidiaries (Strange and Kawai, 2015; Giroud, 2015). They further argue that this could be achieved by hybridization researchers subscribing to one of the existing paradigms or research fields such as knowledge management (Strange and Kawai, 2015).

While accepting all the critical points towards hybridization, this article will show in the following way how most of these challenges could be addressed and solved if hybridization would go back to its roots and reconnect with the evolutionary paradigm from which the concept itself originated.

## Hybridization: insights from evolutionary biology

In biology the concept of hybridization appeared as early as 1865 in the works of Mendel (Bateson, 1901), which coincided with Darwin's seminal contribution entitled "The Origin of species" (Futuyma, 2005). Over the years hybridization continued to



attract the attention of evolutionary biologists because of the fact that hybrid populations represented intermediate stages in the process of speciation that could eventually result not only in adaptation but possibly in the creation of a completely new species (Arnold, 1997). In modern evolutionary biology hybridization is defined as ‘a process by which an offspring is produced as a result of gene flow between two genetically distinct populations or species’ (Harrison, 1990; Arnold, 1997; Buerkle, 2013). This biological definition consists of at least two elements, which need to be further clarified and in a way translated, before the biological understanding of hybridization can be transposed to the business reality.

First of all, the concept of species, which constitutes the basis of evolutionary biology, is in fact one of the most unclear concepts and remains a subject of constant debate. Although some authors mention as many as twenty four possible definitions (Harrison, 2013), in general species are actually understood as groups or populations of organisms possessing similar hereditary characteristics, which reproduce among each other and the gene flow of which is limited with other such groups (Harrison, 1993; Arnold, 1997). In evolutionary biology species are the basic unit of analysis located in the biological taxonomy in between *genera* and *populations* (also known as *subspecies*). Although evolutionary biology and economic theory have developed largely separate and incompatible taxonomies they share the need of classifying individual entities into larger groups based on similar functions or characteristics. As a result of the growing interest of organizational researchers in the evolutionary paradigm (Scholz and Reydon, 2013), the notion of species has found its way into organizational studies on numerous occasions in the form of organizational species (Lemos, 2009; Pagano, 2013), flagship species (Kim et al., 2010), leading species (Knight and Cavugil, 2004), or ecosystem species (Guegen and Isckia, 2011). One of the most recent and interesting attempts is the concept of *technospecies* (Weber and Hine, 2015), which is defined as “an organizational form consisting of a distinct combination of routines expressed as capabilities that combined with technology encompass the core competencies of that *technospecies* (p. 5). Authors of this concept argue that it would be beneficial to distinguish the meaning of species between the biology and business domains. They reject the biological notion of species on the grounds of that it is too restrictive, since representatives of a given species may only exchange genetic material with members of its own species’ (Weber and Hine, 2015, p. 5). Authors in turn argue that in the case of business ecosystem this is not the case and that Nelson and Winter understanding of ‘genes’ as organizational routines are exchanged or diffused regardless of species (1982). Despite their scepticism towards biological parallels, Weber and Hine (2015) put forward an interesting comparative taxonomy of biological and organizational concepts. This taxonomy, however, is limited to the lower order of concepts such as



‘genes’ or ‘routines’ and does not include an organizational equivalent to a biological ‘organism’ (p. 5). Although the purpose of this article is not the creation of taxonomies, an extension of Weber and Hine’s taxonomy to higher order concepts is a key to the correct understanding of ‘hybridization’ in the context of the evolutionary paradigm.

**Table 1.** Comparative taxonomy of biological and organizational concepts

Generic definitione	Biological concept	Organizational concept
Basic elements of information code	Genes (ex. beta-carotene oxygenase 2)	Routines (ex. quality control)
Functional elements of an entity	Cells (ex. skin cells)	Capabilities (ex. kanban)
Distinctive elements of an entity	Physical characteristics (ex. white fur)	Core capabilities (competence) (ex. just-in-time)
Single entity	Organism (ex. individual animal)	Specific companies (ex. Toyota Kyushu)
Group of similar entities populating given geographical space	Populations (subspecies) (ex. panthera tigris altaica commonly known as Siberian tiger)	Industries in a given country (ex. Japanese car manufacturers)
Group of similar entities	Species (ex. panthera tigris)	Industries (ex. car manufacturer)
More general group	Genera (ex. panthera)	Business sectors (ex. manufacturing)

Source: own work based on Weber and Hine (2015).

Table 1 presents a comparative taxonomy of biological and organizational concepts supplemented with some generic definitions, which present the underlying similarities between the two. Lower order concepts built upon the taxonomy put forward by Weber and Hine (2015, p. 4), concepts of the higher order are based upon the author’s own work. The highest conceptual level in this taxonomy will be a biological concept of *genera*, which in organizational terms will correspond to the business sector that can be defined in accordance with international standards of manufacturing, services, finance, etc. For the purpose of undertaking the discussion about hybridization, the most important concept will be a biological concept of species, which will be understood as industries (i.e. a group of companies operating in the same field of activity such as for the former car manufacturing industry). What is equally important are sub-species or populations that could be defined as groups of companies from the

same industry operating in isolation from other such groups and as a result developing unique features. Japanese car manufacturers could be one such example, as in the 1960s' they managed to develop a number unique characteristics that for many years distinguished them from American or European automakers (Abegglen, 1958). Finally the single organism, which was one of the levels lacking from Weber and Hine's comparative taxonomy, could in organizational terms be understood as a single business entity or company such as the Toyota Kyushu car factory. The concepts of lower order in accordance with existing evolutionary literature include organizational routines and capabilities, which constitute genes and building cells of every business entity (Nelson and Winter, 2009).

Apart from species, another concept that needs to be clarified in order to adapt the biological understanding of hybridization to organizational terms is the mechanism of the gene flow between different populations and species. When strictly following the taxonomy presented earlier, hybridization would require a Joint Venture between companies from different industries. Although such joint ventures are not uncommon in the business world, they do not do justice to the existing scope of hybridization studies. It is therefore necessary to focus more on the mechanism of gene transfer itself. The concept of genes is well established in evolutionary theory and it has been widely accepted that biological genes are the equivalent of organizational routines (Nelson and Winter, 2009). Similar to genes, routines are supposed to carry a code that is responsible for hereditary traits in companies possessing the same lineage or ancestors. However some authors perceive the evolutionary metaphor in the case of gene transfer as being quite limiting, since the biological gene transfer usually includes members of the same species mating with each other (Weber and Hine, 2015). What Weber & Hine fail to notice, due to their strong focus on the technological aspects of business ecosystems, is that in evolutionary biology the phenomenon of asexual gene transfer across different species, similar to diffusion of organizational routines, is not something uncommon. First of all, many types of living organisms hybridize by a means of cloning themselves or mimicking traits of other organisms exactly as companies do (Futuyma, 2005). Second of all, although traditionally most thinking in genetics has been focused upon vertical transfer of genes from the parental generation to offspring, in recent years there is a growing interest in the so-called Horizontal Gene Transfer (HGT), which refers to the transfer of genes between organisms in a manner other than traditional reproduction (Buerkle, 2013). There is a growing awareness among evolutionary biologists that HGT represents a highly significant phenomenon, which, among some organisms, can constitute a dominant form of genetic transfer and evolution. In organizational terms the HGT mechanism and significance of its influence on evolution could be compared with the interdisciplinary mechanism

of knowledge transfer and its influence on organizational development. Finally, evolutionary biology, similarly to many existing hybridization studies, places the mechanism of gene transfer in a very specific context of the so-called hybrid zones, which represent geographical space in which hybrids as well as other species are subjected to a process of natural selection. All of these concepts represent very interesting potential lines of hybridization studies.

## Hybridization: insights from evolutionary theory

The preceding paragraphs focused on understanding hybridization from the point of view of evolutionary biology. Apart from these direct insights from the original biological context of the concept it is necessary to consider how existing frameworks of evolutionary theory can enrich the debate about hybridization. Previous paragraphs have somewhat introduced evolutionary theory into the picture by touching upon the notion of organizational routines, which constitute a fundamental unit of evolutionary analysis (Becker, 2004) and are understood as repetitive or recurrent patterns of action or a particular way of doing things in a given organization (Aldrich, 1999). From the hybridization perspective organizational routines are useful since they can be used to explain long-term change similar to the manner in which mutation occurs in DNA (Fujimoto, 1999). It has been shown that the repetition of routines varies due to improvisation or error and increased variation inevitably leads to routine mutation and change (Tsoukas and Chia, 2002). Most importantly, however, organizational routines are linked with one of the underlying theoretical constructs of evolutionary theory: the variation – selection – retention mechanism (Aldrich, 1999; Nelson and Winter, 2009). This framework describes the process of organizational evolution by analysing the variation of routines across a population of firms. Then organizations are ‘selected’ by the environment on the basis of fitness of their routines to the environment they function in. Finally routines, which proved to be successful are retained and passed on to the next generation of organizations (Nelson and Winter, 2009). When applied to hybridization this construct does not only help to position existing hybridization studies but immediately clarifies the gaps that need to be filled in by subsequent research.

Table 2 depicts variation, selection and retention as separate columns and distinguishes two levels of evolutionary theory as separate rows (i.e. a semi-macro level represented by Hannan and Freeman studies of population (1993) and a micro level represented by Nelson and Winter studies of organizational routines (2009)). This matrix provides a framework against which one can plot the hybridization studies included in the literature review section comprising the questions and issues they address.

**Table 2.** Existing hybridization studies plotted against the matrix of the main streams and frameworks of evolutionary theory

Theoretical Level	Evolutionary mechanism		
	Variation	Selection	Retention
<b>Semi-macro Perspective (population) (Hannan and Freeman, 1993)</b>	Why hybrids occur? What are the characteristics of a given hybrid population? What kind of variation can we observe in a given population (Genetic variation i.e. industry specific variation, Environmental variation)  <b>(for ex. Abo et al., 2007; 2015)</b>	How and which superior hybrids are selected from a given population? What are the mechanisms of selection on a population level?  <b>(for ex. Bird et al., 1998)</b>	Which hybrids have the highest survival rates? What hybrid characteristics are retained in a population? How hybrids influence local species (industries)?  <b>(for ex. Oliver and Wilkinson, 1988; 1992)</b>
<b>Micro perspective (routines) (Nelson and Winter, 2009)</b>	Why certain routines undergo hybridization? What routines are hybridized and to what extent? What kind of variation can we observe in a given set of routines (Genetic variation i.e. industry specific, Environmental variation)  <b>(for ex. Abo et al., 2007; 2015)</b>	How and which superior routines are selected? What are the mechanisms of routine selection?  <b>(for ex. Boyer, 1998; Olejniczak, 2015)</b>	Which superior routines are retained? How does their retention influence the evolution of species or creation of new species?  <b>(for ex. Womack and Jones, 1991; MacDuffie and Pil, 1995; 1996; 1999)</b>

Source: own work.

As a result of this structural approach to the current state of the hybridization debate, so its shortcoming and limitations becomes immediately visible. For example, it becomes clear that Abo's JMNESG studies of hybridization tended to focus solely on the 'variation' part of the evolutionary mechanism. By accumulating a rich dataset concerning the activities of Japanese manufacturing companies on six continents and providing a wide description of local socio-economic environments (Abo, 2015), JMNESG studies address the question of why hybrids occur, what are the characteri-

stics of the hybrid populations of Japanese manufacturing companies and what kind of variation can be observed in this specific population. Additionally, since JMNESEG studies are based on an in depth analysis of 23 qualitative criteria concerning organizational routines from six different areas (Abo, 2015), the variation can be analysed at a micro level. As a result, it is possible to address questions such as why certain routines undergo hybridization, what routines are hybridized and to what extent and what kind of variation can be observed in a given set of routines. Abo's studies do not, however, explicitly analyse, which populations of Japanese subsidiaries can be treated as superior and under which conditions this can apply; nor do they discuss the process of selecting superior configurations of routines taking place within the subsidiary. Finally, since with the exception of the United States, almost all of Abo's studies were conducted in a single point in time, based on their results it is impossible to address the issues of the long-term survival of hybrid factories or of the retention of hybrid practices.

Even though Abo's studies fail to consider the mechanism of selection, such issues were in fact undertaken in other studies of hybridization. For example, the typology of four affiliate archetypes and organizational learning systems present, in fact, a complex process of selection of certain types of hybrid in certain environmental or strategic conditions (Bird et al., 1998). Similarly, studies focusing on the strategic roles of foreign subsidiaries provide some insight into the internal selection mechanisms (Birkinshaw and Hood, 1998). Most notably, the process of selection on a level of organizational routines has been described by Boyer, who put forward a comprehensive framework of hybridization trajectories and as one of the first conceptualized hybridization as process of permanent adaptation and learning in response to economic and social changes peculiar to a new space' (Boyer, 1998).

Finally, the mechanism of retention both on the level of population and on the level of organizational routines has been considered by yet another group of hybridization researchers. For example Oliver and Wilkinson studies of 'Japanization' (1988; 1992) explicitly address the issue of the development of a dominant hybrid species and the advantages they possess over the local population of British manufacturing companies. What is interesting is that a similar discussion has been conducted on the level of organizational routines in studies concerning the development and global diffusion of lean management (Wommack and Jones, 1991) and so-called High Performance Work Practices (MacDuffie and Pil, 1995; 1996; 1999).

As presented above, the variation, selection and retention framework drawn from evolutionary theory offers a well-structured, innovative and useful way of organizing the hybridization debate. Most importantly, however, the application of this framework

clarifies that the process of hybridization has never been undertaken in a comprehensive study of a single hybrid population, which would illustrate the full extent of the evolutionary mechanism. Such studies could, however, still be conducted for example by replicating Abo's studies of hybridization in a given hybrid population and collecting information about its current situation as along with retrospective data about the process of change that they underwent.

### Discussion: Does it make sense to revisit hybridization?

Previous paragraphs have illustrated some insights from evolutionary biology and evolutionary theory for hybridization studies. However, the main question is does this new perspective help hybridization to overcome its limitations and how would future evolutionary studies of hybridization contribute to the organizational theory?

One of the first ways in which assuming an evolutionary approach would benefit hybridization researchers is by making them more self-reflective in terms of terminology and as a unit of analysis (Scholz and Reydon, 2013; Weber and Hine, 2015). To take the example of Abo's JMNSEG study (2015), *hybridization*, as used in this study, could in an evolutionary perspective be much more specifically understood as a study focusing on multiple populations (or *sub-species*) of Japanese manufacturing companies, some of which belong to different species (i.e. industries), but at the same time all belonging to the same *genera* (i.e. manufacturing business sector). Such clarification would be beneficial as it immediately draws our attention to the fact that differences in routines between *species* understood as industries such as automobile, electronics, apparel etc., might be much more significant than between different populations or subspecies in different locations. This clarification would also immediately help to address the criticism that too much focus has been placed by Abo's hybridization study on country specific routines (Abo, 2007). In fact, from the point of view of the evolutionary paradigm, the country specific focus of the Abo study makes it not so much a study of 'hybridization', as a global study of 'hybrid zones' in which multiple populations of Japanese manufacturing companies come into contact with local populations of similar species.

As for the criticism related to the implicitly assumed cultural uniqueness and superiority of home country practices (Giroud, 2015; Strange and Kawai, 2015), the evolutionary approach by its nature makes such assumptions difficult to maintain as it advocates the idea that hybrids can actually possess superior qualities compared to their parents and that hybridization should be judged on the basis of its final outcome

i.e. the rate of adaptation and survival (Futuyma, 2005). The application of the evolutionary paradigm to the hybridization process could also enrich Abo's definition of adaptation which is understood solely as 'adjusting to local conditions' (2007). In light of the evolutionary approach it rather becomes a 'survival and successful replication of hybrids in a hybrid zone' (Futuyma, 2005). As a result, it becomes necessary to conduct follow up studies and confirm whether the population of Japanese hybrid factories in Europe has survived, achieved profitability and possibly even increased in number.

As for the suggestion put forward by some authors that hybridization would be best served by subscribing to the knowledge management debate (Strange and Kawai, 2015), it is worth noting that such a discussion is still possible even within the evolutionary paradigm. Since the mechanism of horizontal gene transfer (HGT) in evolutionary biology assumes a transfer of genetic data between completely unrelated species, it seems possible to incorporate the knowledge transfer debate within the abundant scope of evolutionary theory.

As we have shown in the previous paragraphs, many of the biological concepts have already been successfully translated by evolutionary theorists. The hybridization literature studies can therefore, with little effort, apply existing concepts and definitions to fit the bigger picture of evolutionary theory. When considering the potential position that hybridization studies could occupy in that wider context, it would be reasonable to expect that it would be similar to the one occupied in evolutionary biology. One of the leading themes could therefore be the development of new species by means of hybridization and their adaptation to the environment. In this sense hybridization would join the wider stream of organizational ecology (Hannan and Freeman, 1993), while bringing attention to the important questions of whether and under what circumstances hybrid factories can become a dominant species and if they in fact constitute an intermediate phase that could lead to the development of new industries or a distinct population such as for former global car manufactures. Another line of research, which hybridization studies could contribute to the evolutionary theory, may be the issue of industry specific organizational routines, specifically modes of their inheritance, diffusion and hybridization across industries. Such research could for example bring attention to business groups as non-geographic hybridization zones that facilitate the transfer of organizational routines across different industries or even business sectors such as from auto to electronics or from finance to manufacturing. This would in fact provide an interesting discussion in the business ecosystems and technospecies (Weber and Hine, 2015). Finally, by introducing the concept of 'hybrid zones' into the evolutionary theory, hybridization could open up a line of research re-introducing



geography and the notion of space, distance and physical barriers into the evolutionary approach.

## Conclusion

This article argues that applying an evolutionary approach to the hybridization debate will help to overcome its limitation, address the criticism that it currently faces and open up new promising lines of research.

The main theoretical contributions of this article result from overcoming the dominant cultural approach to the issue of hybridization and tracing back its origins to the evolutionary paradigm (Sułkowski, 2010). This article, is merely a conceptual paper based on an extensive literature review performed as a preparation for replicating a study of Japanese hybrid factories in Central and Eastern Europe, which becomes an increasingly important region for subsidiary studies (Cieślik and Ryan, 2002; Cieślik and Kaćiak, 2011). As discussed in the preceding paragraphs, the evolutionary perspective on hybridization shows great promise since it clarifies the terminology, facilitates structuring of the exiting debate and opens up lines of new research. As a result this article is a first attempt to reconnect hybridization with the mainstream of organizational theory.

Despite the purely conceptual nature of this article, it is also worthwhile considering some potential practical contributions. Insights into the mechanisms of hybridization and factors determining the successful local adaptation or extinction on the level of industries, individual countries or business sectors will certainly be met with interest of practitioners. Familiarizing business practitioners with evolutionary advantages resulting from the increasing diversity and genetic abundance achieved by the means of hybridization as well as with the notion of the evolutionary equality of all species might also be inspiring and help to overcome problems in the parent-subsidiary relationship. This is especially vital in case of Japanese multinationals, for which the notion of the relative superiority of hybrid species in local conditions might prove to be truly revolutionary and facilitate shaping the future of the Japanese management system in a more global and interconnected world.

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