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Linking Business Ecosystems and Transaction Cost Theory: Between Market and Hierarchy and the Role of Power

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Purpose: Business ecosystems increasingly substitute the idea of linear value chains as a conceptual idea of economic value creation. There are two conditions to make sense to establish an ecosystem. Firstly, complementarity: the complements of the actors have to be compatible with each other. Secondly, there must be a need for coordination between the economic actors. This is given if the complements have a certain minimum degree of specificity, i.e. if they aren't generic. Specificity links the transaction cost theory, which knows two extreme forms of coordination: market and hierarchy. This article argues why ecosystems should be placed between the two. Moreover, we consider dominance in ecosystems and the transition to oligopolistic situations. Oligopolies hamper the functioning of ecosystems. This article aims to provide a clear conceptual view of ecosystems by linking different theories.

Study design/methodology/approach: The study design is conceptual. By linking conceptual considerations about business ecosystems to transaction cost theory, their basic analytical categories can be elaborated and considered more focused. The conceptual clarification leads to new and deeper questions.

Findings: The main finding is the clear elaboration of complementarity and the need for coordination as the basic preconditions for business ecosystems to make sense for creating economic value. Moreover, it was shown that oligopolies can hamper ecosystems' advantages and function.

Originality/value: The main value is providing a clear and overall precise view of ecosystems. The originality lies in clearly showing the basic analytical categories. This provides a clear picture of the basic structure of ecosystems.

Introduction and aim of the article

When considering the economic environment of a company, in many cases, the idea of a linear value chain, as described by, e.g. Porter (1980), is substituted today by the idea of (business) ecosystems. The linear value chain describes the creation of value along the clearly outlined, successive sequences from (1) suppliers that deliver, e.g. raw material, via (2) the focal company producing a product to (3) distribution of the product to the customers. In contrast, the view of a company's environment as an ecosystem is less clearly arranged. However, it can better capture the complexity of how today's economic value is being created.

Against this background, we will examine the business ecosystem on a conceptual basis. In particular, we conceptually deepen the productive link to transaction cost theory that has already been made to some extent in the ecosystem theory. Thereby, also new conceptual questions open up. Additionally, we look at the importance of dominant actors and the consequences of them for the ideal-typical functioning of an ecosystem. Here, too, new and more in-depth questions arise. In the next section, we first go into more detail to consider the concept of business ecosystems.

From ecological to socio-technological ecosystems

Moore (1993) was among the first authors who wrote about ecosystems as a form of economic organisation. His thoughts start with natural ecosystems in which a wide variety of organisms coexist and cooperate, collaborate and compete with each other in sophisticated ways (Farhadi, 2019; Moore, 1993). Accordingly, in business, an ecosystem describes a group of interacting companies and actors mutually dependent on each other's activities to create value.

The reason for Moore's (1993) idea was that he recognised already in the early Nineties that, at the time, young digital technologies were enabling new ways of interaction and linkages between social actors. In a business context, this meant new opportunities for organising economic activities. The new technologies were, moreover, decisive for establishing digital platforms. Those often are the basis of business ecosystems and their ways of interaction. Trapp et al. (2020) describe business ecosystems as socio-technical systems. A digital platform is the core technological aspect comprising interconnected services, programmes and software, which together form a coherent system (Dolata, 2015; Staab, 2019; Trapp et al., 2020). This technological infrastructure provides the basis of a social space in which users do economic activities such as offering, searching, communicating, interacting, consuming and advertising, etc., depending on their role.

Autonomous actors collectively provide the value proposition.

As already indicated, a business ecosystem exists to create value. The benefit that the customer receives from the ecosystem is called *value proposition*: "The value proposition is the articulation of the benefit that the collective effort of the ecosystem will create […]" (Adner, 2021, p. 11). The (platform-based) ecosystem can be understood as a structure of interacting actors, such as companies which make a "collective effort" aimed at fulfilling a value proposition for a user or customer (Adner, 2021).

A known definition of ecosystems that includes this idea and additionally goes beyond this is the following one from Baldwin (2020, p. 5): "Business ecosystems is a group of autonomous firms and individuals whose actions, decisions and investments are complementary in the sense that their value as a system is greater than the sum of the values of the separate parts".

Where this definition goes beyond the idea of a mere "collective effort" of a group of interlinked (economic) social actors is that their contributions are *complementary*. Complementarity of contributions is essential to provide the aimed systemic value proposition, which is larger than the sum of the single pieces. Complementarity is considered in detail in the next chapter.

Furthermore, Baldwin's (2020) definition says that the actors are *autonomous*. This is a central characteristic of an ideal-typical ecosystem. Farhadi (2019) emphasises the idea that actors of an ecosystem are legally and financially independent of each other. This prerequisite makes it easier and uncomplicated to cooperate (often on a project basis) with others, to develop it further or dissolve it again. At the same time, there is a strategic dependence on such value proposition-focused cooperation. If one value-contributing actor in the ecosystem is missing, the value proposition can't be provided to customers. Farhadi therefore states (2019, p. 16): "Partners share their fate".

In practice, the financial and legal autonomy is not seldom compromised or limited, especially in cases where one actor has a monopolistic or oligopolistic position in the ecosystem. An example is the duopoly of the Apple Store and the Google Play Store, from which app developers depend. Without them, it would be nearly impossible for them to distribute and scale their solutions because there are simply no other widely known app distributors.

What is not part of Baldwin's (2020) definition is the *role of technology*. This may have to do with the fact that ecosystems can also exist without a technological core in the form of a platform. This is, for example, the case with Nespresso. We have Néstle-Nespresso as the main actor pushing the value proposition to "enable anyone to create the perfect cup of espresso coffee – just like a skilled barista" (Nestlé Nespresso, n.d.). Based on this, "the world's first portioned coffee system" (Nestlé Nespresso, n.d.) was established in 1986 and was continuously developed further. The ecosystem consists of diverse globally dispersed partners, e.g. coffee farmers or NGOs, but also of own and thus vertically integrated factories producing the coffee capsules in Switzerland and of own shops selling the capsules etc. Manufacturers of coffee machines for the Nespresso system, like De Longhi, Krups or Sage, are also part of the ecosystem, but they are financially and legally independent from Néstle-Nespresso. However, they and Nespresso are strategically interdependent, at least in the field of Nespresso coffee machines.

Conceptual preconditions: complementarity and the need for coordination

How the different actors cooperate in an ecosystem to materialise their value proposition depends on its alignment structure. Alignment structure means the conditions of cooperation in the ecosystem with which all actors agree (Adner, 2017). The conditions may be negotiated more or less openly, depending on the power distribution among the ecosystem's actors. If an unequal power distribution characterises an ecosystem, few actors will have much power and can dictate their conditions to the other actors. If the power is distributed more equally, conditions can be negotiated more openly and fair.

But, before an alignment structure can be established, two preconditions must be considered: *complementarity* and the *need for coordination* (Jacobides, Cennamo, & Gawer, 2018).

Complementarity

Complementarity (often also named modularity) means that different independent producers make single complements, all parts of an overall value proposition (Wang, 2021). The single complements have to be compatible with each other. As mentioned above, complements as individual performance contributions have more value when brought together in a composite than as the sum of single parts next to each other (Baldwin, 2020). Individual contributions are compatible if they complement each other, i.e. are complementary.

Need for coordination

Although complementarity is necessary for establishing an ecosystem, but it is not sufficient. Establishing an ecosystem is only meaningful when coordination between the individual complements is needed to align them to get the value proposition (Jacobides et al., 2018; Wang, 2021). If there is no need for coordination between the economic actors and their individual complements, an ecosystem is also unnecessary. Thus, the need for coordination between economic actors is sufficient to establish an ecosystem as a form of economic organisation (if the necessary condition of complementarity has been met).

But at what point is the need for coordination between the actors achieved? In this respect, it is useful to look at the transaction cost theory, which tells us that we have to consider whether the complements are of a *specific* or of *generic* nature (Jacobides et al., 2018; Picot, Dietl, Franck, Fiedler, & Royer, 2020; Shipilov & Gawer, 2020; Williamson, 1985). Picot et al. (2020) say that if the difference between a complement's primary, intended use and its second-best use is high, then this complement is specific. In other words, specific complements are compatible in a composite with other (specific) complements only and exactly in the intended way. Thus, the

tuning of specific complements is very sophisticated. Because of this property of exact fitting, it would be difficult to find another use for a specific complement (as mentioned). Secondly, because of this property, there is a *need for coordination* between the economic actors of an ecosystem to establish the value proposition. The end customers themselves can hardly coordinate specific complements.

Specific complements: example

For example, most customers of an app can't coordinate the technical interface between the app and an app shop (normally Application Programming Interfaces API). The app-shop company provides the source code, and the app manufacturers programme their apps to be connectable and thus compatible with this code. Hence, the app-shop company and the app manufacturers coordinate their specific complements (whereby the source code provider has the lead) to establish their value proposition (useful and easily downloadable apps on every mobile). Moreover, there is hardly a second-best use. The app could only be offered in another app shop when the needed technological adjustments are made.

Generic complements: example

If complements are of a generic nature, they can be utilised for the second-best use quite easily, and they basically can be coordinated by the end customer herself or himself. Jacobides et al. (2018) explain this with the example of a cup of tea: "A teacup, boiling water and a tea bag may all be needed to make a cup of tea, but the complementarities are generic, not specific". It is generic because the end customer can put the tea bag herself in the cup, and she can also pour the hot water from the kettle into the cup. To get the value proposition of *a cup of tea,* no coordination between the economic actors, tea-bag company, cup company, water supplier, and kettle company are necessary. Therefore, the condition of a need for coordination is not given, and consequently, there is no need for an ecosystem as a form of economic organisation. Furthermore, most complements can easily be utilised for another use: the cup may be filled with tea bags from other brands, with coffee or hot chocolate etc.; water can be used for countless things; for a cup of tea, the kettle from another company can be used etc.

Link to transaction cost theory: degree of specificity and forms of coordination

Until now, we differentiated between generic and specific in a dichotomous way only: if coordination between economic actors is needed to get the value proposition, the complements are specific. For the coordination, an ecosystem is established. Conversely, complements are generic if no coordination is needed between economic actors to get the value proposition. There is no need for an ecosystem.

In practice, there exists no simple dichotomy. The values of specificity are dynamic. It is a continuum on which specificity can have all possible values. The transaction costs theory states that depending on the degree of specificity of complements, different forms of economic organisation are appropriate (e.g. Picot, 1991; Picot et al., 2020; Williamson, 1985). Appropriate is understood in the meaning of minimising transaction costs: based on the degree of specificity, the theory always proposes the organisational form of coordination, which promises the lowest transaction costs.

The market for generic complements

If a value proposition consists of completely generic components (i.e., the lowest degree of specificity), the appropriate form of economic organisation is the *market*. For generic complements, transaction costs are the lowest on the market. For example, the single

complements of a cup of tea can all be bought on the market. The low-level coordination between them can be made by the end customer herself.

The hierarchy for highly specific complements

If a value proposition consists of highly specific complements, the transaction cost theory proposes integrating them into the *hierarchy*. With hierarchy, an organisation, normally a company, is meant. Thus, all specific components are manufactured and coordinated *inside* a company. No specific component comes from outside of the company border. The reason is that transaction costs are lowest for specific components when made and coordinated in the hierarchy (Picot et al., 2020; Williamson, 1985). If a company sources highly specific components from outside, it may fall victim to the opportunistic behaviour of the external supplier: if the external supplier charges higher prices, the company cannot switch to another supplier, as is the case in the market, and must ultimately pay the higher price.

Between the two extremes of market and hierarchy of the continuum, Picot et al. (2020) and Picot (1991) place so-called *hybrid forms* for organising coordination, which are in between the two. In fact, they are different combinations between the two extremes. In Figure 1, on the right side, some hybrid forms are mentioned in italics (e.g. Equity investments). Depending on the degree of specificity, they are either closer to the market or the hierarchy. We do not look at those hybrid forms of organisation but consider the functioning of business ecosystems as a form of organisation between market and hierarchy.

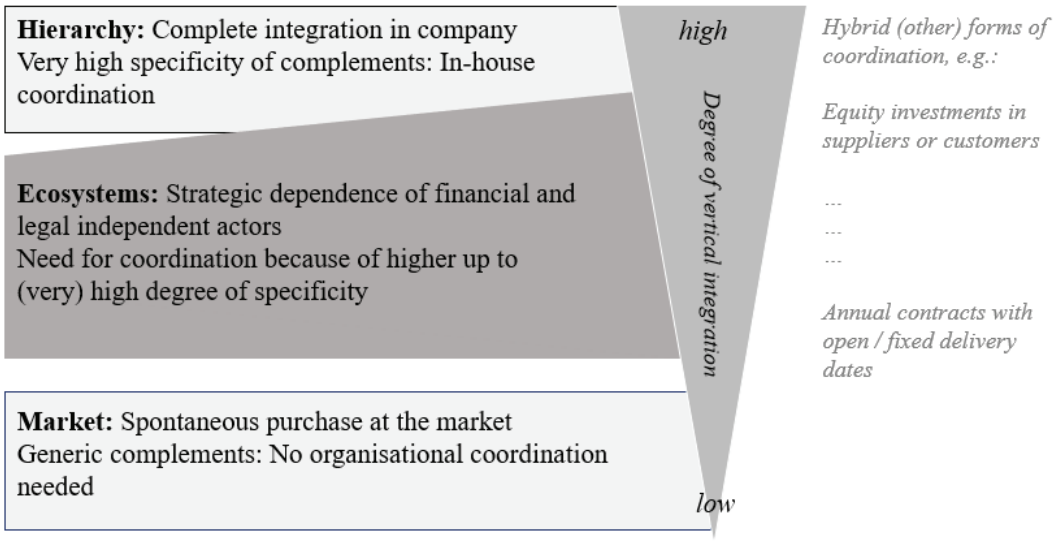

Figure 1: Degree of vertical integration: from market to hierarchy
Adapted from Picot (1991, p. 340)

Business ecosystems: what range of specificities do they cover?

For now, business ecosystems may be placed in the middle of the continuum between market and hierarchy. For their existence to make sense, firstly, there must be a certain minimum level of specificity of complements, namely, coordination between economic actors is required (as mentioned; e.g. Jacobides et al., 2018). Secondly, there is, ideal-typically (and as also mentioned), a strategic dependence between the economic actors in the sense that their complements need to be aligned to be able to provide the aimed value proposition. At the same time, the actors are ideal-typically financially and legally independent from each other (Farhadi, 2019).

This means there must be the highest possible level of specificity of complements and hierarchical integration of an ecosystem. On this highest level, the financial and legal independence of the economic actors basically still have to exist. The actors would have lost their independence if they were completely integrated with the hierarchy. In this case, we had to speak no more of an ecosystem but of a company. From a purely conceptual point of view, this differentiation can be done well.

Closed innovation systems: still ecosystems or already companies?

In practice, it is less clear. When considering, e.g. Apple do we have to speak of a completely integrated organisational construct in the form of a hierarchy, i.e. do we have to speak of a company? Or do we have to speak of Apple as a company at the centre of an ecosystem? This question comes up especially in the case of Apple because it is overall a closed innovation system that is principally not accessible for independent external developers. The development of its operating system Macintosh was basically made inside the hierarchy of Apple. West, Salter, Vanhaverbeke, and Chesbrough (2014) describe a "closed innovation". Although Apple focuses on developments inside the hierarchy, this approach has its limits. Concerning, e.g. Apps, there is no other way than to cooperate with external, independent developers (in 2008, Apple launched its App Store in which external developers could place their offers). It is simply not possible to create millions of Apps or to always have the most innovative ideas internally. And, in the field of electronic maps, after a long, moderately successful development phase, Apple went for Google Maps, its competitor's solution. Despite such punctual openings, Apple stays a closed innovation (eco)system overall. Its own software and hardware are highly specific: inside the system, it is compatible, but when it comes to compatibility with external complements, there are quite clear boundaries. Then compatibility is limited or not given. Because of these conditions, talking about Apple as a highly integrated ecosystem could be appropriate. This has to do with Apple's integration-focused strategy, which leads intentionally to a value proposition based on highly specific complements.

Open innovation systems are ecosystems.

In contrast, e.g. Microsoft and Alphabet-Google took a more open innovation approach (Almirall & Casadesus-Masanell, 2010; Yun, Jeon, Park, & Zhao, 2018). From the early beginnings, they involved external developers. The idea was to complement their systems with outside innovations that enhance the attractivity of their value propositions. This can be seen in the operation system Android from Open Handset Alliance, which belongs to Alphabet-Google. The operations systems could be used principally by all mobile phone manufacturers. Therefore, hardware brands such as Samsung, OnePlus, and Asus, besides Google itself, have installed Android. In December 2022, Android's worldwide market share was around 72%, while competitor Apple (whose operation system iOS is exclusively installed on its own hardware iPhone) had only around 27% (StatCounter, n.d.). Microsoft's operation system Windows for computers and notebooks, is similarly open. It can be installed by computer hardware producers such as Lenovo, hp, Dell, Acer etc. These examples are closer to the ideal-typical idea of ecosystems, characterised by cooperation coordinating complements between financially and legally independent actors. What is called an open approach in this section corresponds exactly to this. The complements in these ecosystems are specific but not as high as in the case of Apple. Because of the openness, the universe of compatible complements and, thus, the entire ecosystem is larger. Because of this, it is appropriate to talk of ecosystems and not *highly* integrated ecosystems, as in the case of Apple. Thus, they may be placed in the middle of the continuum from market to hierarchy.

Derived conceptual questions

In conclusion, this means that in cases of closed innovations, it is conceptually not finally clear how ecosystems and hierarchy can be finally delineated. Therefore, questions like the following one come up (consider also Figure 1):

- Are closed innovation ecosystems either to be understood as fully integrated and thus as a company *or* an ecosystem with complements of a very high specificity?
- Or, is it, on the contrary, adequate to think of such forms of organisations as a new phenomenon and, thus, indeed, as a new form of organisation on the specificity continuum (see picture 1)?
- Or, is the case of the very high specificity of complement both forms of economic organisation, i.e., hierarchy and ecosystem, appropriate for coordination?
- If this would be the case, which would be preferred in the light of different contexts? Could closed innovation ecosystems be the new hierarchy, i.e., they substitute the so-far-known vertically integrated company?

From dominant actors to oligopolies and their consequences

Although Microsoft and Alphabet-Google can be taken as centrepieces of ecosystems (and hence are not fully integrated hierarchies), they limit, as other Big-Tech companies such as Apple or Meta, ideal-typical conditions of ecosystems in different ways.

Favouring oligopolies or monopolies: high operating distance and coverage

Firstly, they limit ideal-typical conditions because of the dominant role that they established in their fields of activities. Due to this, especially financial independence from other economic actors in the ecosystem is restricted. A dominant and thus powerful role of an actor is based mostly on a monopolistic or oligopolistic situation linked to a high geographic operating distance and coverage (often worldwide). Also, network effects (i.e. the larger the pool of users, the higher the benefit for each individual user in an ecosystem) and switching costs (i.e. the costs of changing an ecosystem as, e.g. a customer) support dominance (e.g. Dolata, 2015). In an oligopolistic constellation, the dominant actor sets and enforces rules and terms of cooperation (i.e., the abovementioned alignment structure) unfavourable for the other actors in the ecosystem. These may range from, e.g. (too) high fees to biasing competition (e.g. by refusing access). To proceed against such behaviour is generally only possible on the legal path (e.g. Sander, 2020; Städeli, 2020).

A good example of oligopolistic structures in ecosystems is the Play Store from Google and the App Store from Apple. It is practically impossible for app developers to offer their apps in other app stores because such exist only marginally, and/or developers are not allowed to offer them elsewhere. The power of Play Store and App Store caused by their duopoly is decisively determined by their worldwide geographic operating distance and coverage. Moreover, the technological aspect itself is highly specific and decisive. App developers have to understand and accept the technical conditions (codes etc.) provided by the app stores and designed in their favour. Furthermore, and related to this, the app developers can't use their developments in other settings. This increases their dependence on the two app-shop actors even more. Sander (2020), e.g. reports on the case of the game developer Epic, which was no more willing to pay a 30% fee for in-app sales to the app stores. In September 2020, Epic and other companies with similar challenges founded the "Coalition for App Fairness" based in Washington, D.C. The coalition aims to create a level playing field. It objects that no developer will be forced anymore to use a certain app store exclusively, as well as to remove other restrictions. Some members of the coalition already filed lawsuits against app-store operating companies.

Favouring oligopolies or monopolies: Expansion

Secondly, ideal-typical conditions of ecosystems are endangered or are already (partly) limited by the expansion of Big-Tech companies. Expansion means extending established business fields into new ones, some unrelated to the original business (Staab, 2019). An example is the development of Amazon from an online bookseller to a universal marketplace and a provider of cloud capacities (Amazon Web Services), among others. Amazon had in 2021 a share of the cloud market of 31%, Microsoft of 20% and Google of 7% (Perragin & Renouard, 2021). That those Big-Tech companies today are competitors in the cloud market, among others, shows that they all expanded from their original fields of business to new ones, which may be considered as loosely connected to their original ones at best, if at all. They thereby went so far that they compete in different areas today. Staab (2019) sees empirical evidence for the expansion in the high investments and acquisitions of Big-Tech in new business fields.

The expansion's object is to gain higher returns. But, Staab (2019) states that they are still making the largest part of their returns in their traditional business. In the case of Amazon, this indeed is true. Although its business volume in cloud computing grew over the years permanently to around USD 60 billion in the first three quarters of 2022, the volume in its original business e-commerce grew permanently up to nearly USD 470 in 2021 (Statista, 2022a; Statista, 2022b). This expansion path based on large capital investments supports establishing oligopolistic structures: the whole capital is concentrated in a few powerful companies of Big Tech, dominating large ecosystems and their actors. The other actors become more and more dependent in different ways. And unwelcome independent competitors with innovative ideas are simply bought up. Moreover, with, e.g. cloud computing, actors like Amazon, Google and Microsoft are becoming providers of critical infrastructure for private, business and state actors. Some authors meanwhile recognise in the expansion of Big-Tech a relatedness to the highly diversified industrial conglomerates, such as, e.g. Asea Brown Bovery (ABB), Siemens, Mitsubishi or General Electric (GE), that were powerful and popular in the second half of the 20th century (e.g. Biswas, 2021). Possibly the actual resizing of Big-Tech is a consequence of lower demand for digital services after the Covid pandemic and an overly offensive expansion that hasn't brought at least partly the objected returns.

Violating the ideal-typical conditions and advantages of business ecosystems

Oligopolistic structures and the expansive behaviour of the most powerful actors violate the ideal-typical conditions of business ecosystems. They hamper the functionality of ecosystems and their advantages as a form of economic organisation. Concretely, the legal and financial independence of actors participating in an ecosystem is affected. Followingly, the advantage of an overall easy and uncomplicated entering into a cooperation with other actors and an easy dissolving from it, as mentioned by Farhadi (2019), is restricted. As a result, the coordination of the complements becomes more cumbersome. In the presence of oligopolistic structures, the coordination between actors does not take place easily. Practically automatically matching the most suitable complements to provide the optimal value proposition fades away. Although also in oligopolistic structures, the strategic dependence between the actors of an ecosystem stay present, the strategic interests of the oligopolistic actors are strongly dominant. This impacts the value proposition, increasing the likelihood of providing it sub-optimally.

Dominant actors in ecosystems overtake central coordinating tasks.

However, it doesn't matter when one actor has more power than others in an ecosystem. On the contrary, it is common for one actor to be the central coordinator. Kawohl and Krechting (2022) call this role orchestrator. Jacobides et al. (2018) define three different categories of ecosystems in their literature review. In two of them, a single company or a single platform is owned by a

company in a central coordinating role. In the first case, e.g. Iansiti and Levien (2004) write of "hub" companies. Powerful central actors in an ecosystem alone are not problematic. On the contrary, they often overtake central coordinating tasks and costs, which are in the interest of all actors and provide stability (Iansiti & Levien, 2004; Olson, 1971).

But, the ideal-typical functioning of an ecosystem becomes problematically affected when there is no competition between different ecosystems in a market. Or in other words, the situation becomes problematic when one or only a few ecosystems and their central actors have obtained a monopolistic or oligopolistic position in their field of economic activities (Staab, 2019). In such a situation, for many or even most actors, it is hardly possible to switch to another alternative ecosystem because this simply doesn't exist. Consequently, they depend on the dominant actor(s). The example of the app shops showed this.

Derived conceptual questions

In conclusion, this means that monopolistic or oligopolistic structures in business ecosystems have, similar to the classical functioning of a market, undesirable, biasing effects on the ideal-typical functioning of ecosystems. At the same time, it is quite common and desirable that in an ecosystem, a powerful actor overtakes the role of a central coordinator. This leads to the following questions:

- Is it possible to draw a conceptual line between a powerful actor in an ecosystem which is desirable or at least unproblematic for the functioning of an ecosystem and a monopoly or oligopoly that is problematic?
- Are activities that lead or object to a high geographic operating distance and coverage as well as an expansion a natural striving towards a monopoly as the known striving towards monopolies in markets (e.g. Holcombe, 2009)? If yes, the same measures against establishing monopolies and oligopolies may help.
- Generally, how can fair and productive competition between local and worldwide operating ecosystems be provided and sustained?

Conclusion

The conceptual considerations show that linking business ecosystems and transaction cost theory is meaningful because the criterion of a *need for cooperation* between the business actors as a precondition for establishing ecosystems is directly linked to a complement's specificity level (e.g. Jacobides et al., 2018). In transaction cost theory, the specificity level is decisive for choosing the form of economic organisation that minimises transaction costs (Picot et al., 2020). The considerations in this article showed that business ecosystems could, as a form of economic organisation, cover a quite high range of specificity levels of complements. However, the higher the level of specificity, the closer it comes to hierarchy.

As we have seen, conceptually, it is not fully clear where the optimal or actual boundary between ecosystem and hierarchy exists in the case of highly specific complements. This question has to be considered in more detail in future research. More clarity would support a better conceptual understanding of *closed innovation ecosystems* (i.e. such as, e.g. Apple, see above), which are exactly on the boundary between ecosystem and hierarchy.

A structural constellation that limits the ideal-typical advantages of ecosystems as an organisational form for coordination between economic actors are oligopolies and monopolies. If there is an overly dominant actor, the advantage of an easy, uncomplicated and low-risk entering into a cooperation with others (as well as dissolving from it) is hampered (e.g. Fahrhadi, 2019). The other actors become dependent on the dominant actor and can't switch to an alternative ecosystem. The line between the simple existence of a dominant actor opposite

an oligopoly or monopoly is generally crossed when an already dominant actor gains a high geographic operating distance and coverage. Moreover, tendencies towards oligopolies are supported by expansion (Staab, 2019).

However, dominant actors are common in ecosystems and often take over important coordination tasks and costs. This is in the interest of all actors and provides stability (Iansiti & Levien, 2004; Olson, 1971). The upcoming question in this context is where the line between powerful actors and oligopoly/monopoly has to be drawn. Moreover, the specific processes and conditions in the case of business ecosystems that favour oligopolies and monopolies have to be investigated in future research more deeply. Then it will become clear which measures effectively support the ideal-typical functioning of business ecosystems. This is in the interest of all actors, including end-costumers.

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