

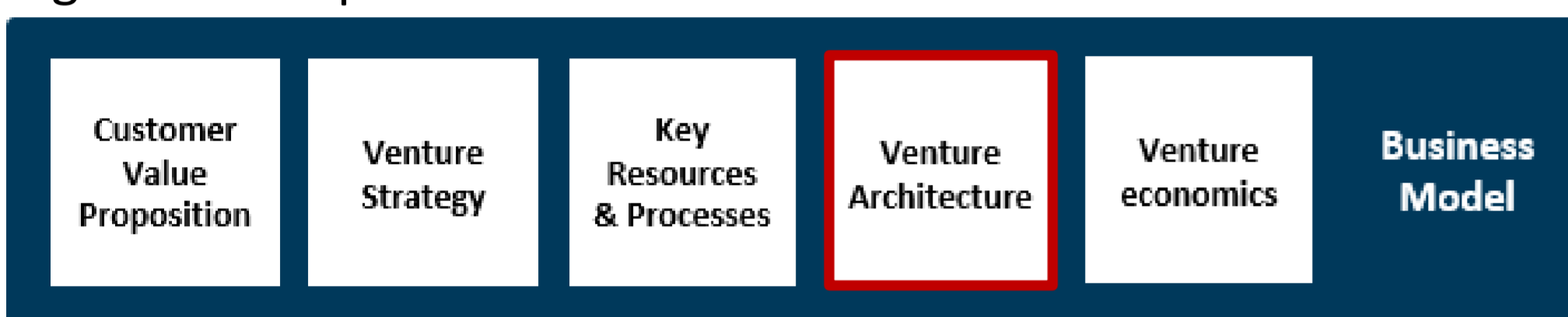
# Firm Boundaries in Platform Markets

## An efficiency-driven analysis of electric vehicle manufacturers

### Introduction

- A **business model (BM)** incorporates different components (Morris/ Schindehutte/ Allen, 2005 and Johnson/ Christensen/ Kagermann, 2008). The **value creation architecture (VCA)** as part of it (compare figure 1) not only includes actors of vertical value chains – it also takes horizontal (cooperating competitors) and lateral actors (e.g. service providers) into account (Dietl/ Royer/ Stratmann, 2009) – and therewith deals with firm boundaries.
- Many markets can be described as two-sided **platform markets (ZSP)** which are characterized by a triangular structure and indirect network effects (compare figure 3). The platform includes components and rules facilitating the interaction of the market sides (Eisenmann/ Parker/ Van Alstyne, 2008).

Figure 1: Components of Business Models.

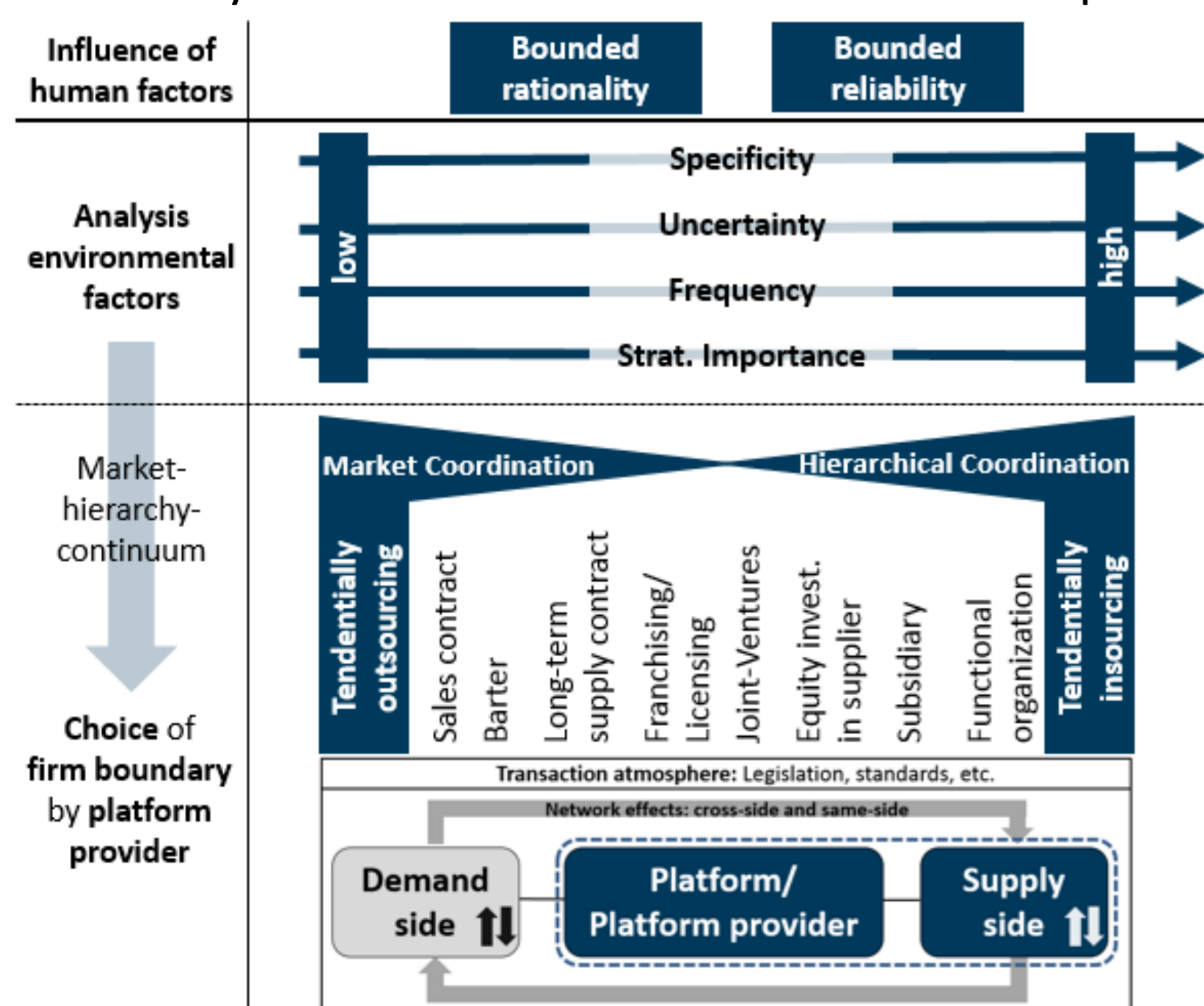


Source: Own graphic.

### Main concept

- Analysis of the impact of the **market structure**, here two-sided platform markets, on the efficiency based choice of the **firm boundary**, hence its VCA as part of the focal actors BM.
- Transaction Cost Economics (TCE)** as a widely applied and discussed concept of the new institutional economics (NIE) supplies efficiency determinants such as frequency, specificity and uncertainty (Williamson, 1975, 2010) and
  - additionally taking the determinant **strategic importance** (Picot, 1992) into account.
  - differently to the human factors opportunism, here the new concept of **bounded reliability** will be used instead (Verbeke/ Greidanus, 2009) in addition to bounded rationality.
- On the basis of these TCE criteria a choice of the governance structure from the **continuum** between market and hierarchy can be made (compare figure 2): A high degree of asset specificity by high uncertainty and frequency e.g. would favor a hierarchical **governance structure** (in-house).
- This coherence of efficiency criteria and the choice of the firm boundary so far has been analyzed mainly without regard to the **market characteristics**. This role shall be taken into account here by focusing on platform markets.

Figure 2: Efficiency based choice of firm boundaries for platforms.



Source: Own graphic based on Burr (2003), Picot (1992).

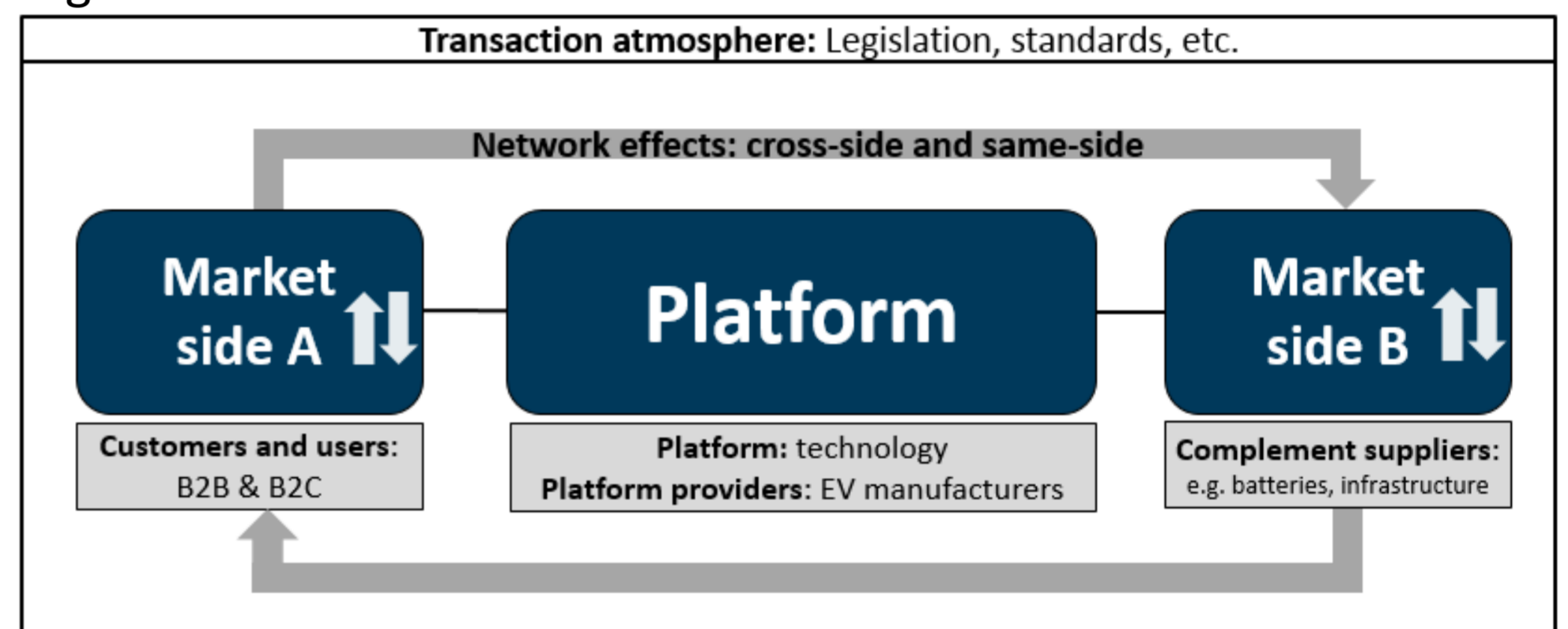
### Method + Hypotheses

Test of six **hypotheses** which are operationalized for the case of electric passenger vehicles (EV) as a platform market (figure 3) applying the **case study** method with triangulation of mainly qualitative data including document analyses and expert interviews:

- H1 The higher the **specificity** of a platform component,
- H2-1 The higher **demand uncertainty**,
- H2-2 The higher **technological uncertainty**,
- H3 The higher the **strategic importance** of a component,
- H4 The higher the **frequency** of a platform component,
- H5 The stronger the **network effects**,

...the higher the **degree of integration** of the focal platform architect (dependent variable).

Figure 3: The Electric Vehicle Sector as Platform Market.

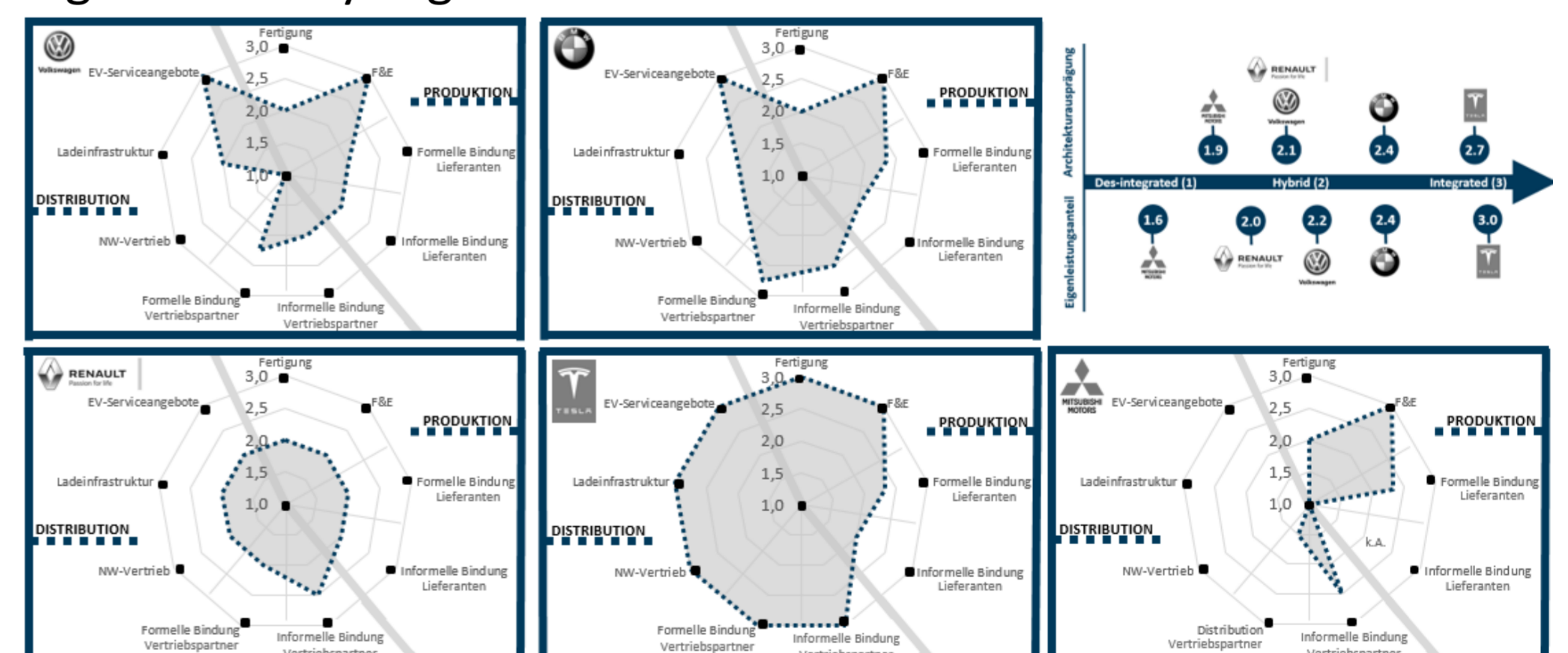


Source: Own graphic based on Eisenmann et. al. (2008).

### Preliminary Conclusions

- High and medium degrees of integration within the analyzed e-mobility manufacturers have been identified (figure 4).
- In the mobilization phase of this industry for some players it seems to be important for being involved to a high degree in the infrastructure end of the value chain to support the weaker market side (B) to strengthen network effects.
- TCE is also valid for platform markets regarding its implications for firm boundaries. The determinant frequency is weak though.

Figure 4: Analyzing VCAs of selected EV manufacturers.



Source: Own graphic.

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