


# Internationalization of Enterprise Resource Planning Vendors: A Case Study of SAP and Oracle in the Chinese High-End Market

Shijie Li, Graduate School of Social Sciences, Waseda University, Japan\*

 <https://orcid.org/0009-0002-7448-3220>

## ABSTRACT

International business theory suggests that multinational corporations are usually disadvantaged compared to local firms when competing in a host market. However, we find that foreign enterprise resource planning (ERP) vendors in the Chinese high-end ERP market perform significantly better than local vendors. To understand this gap, the authors first analyze the ERP business model and its four characteristics as a service and use Dunning's OLI paradigm to specify the ownership-specific, internalization-incentive, and location-specific advantages (O-, I-, and L-advantages) required for foreign ERP vendors to compete in the host country's high-end market. Then, after conducting case studies of the two foreign vendors with the highest share in the Chinese high-end ERP market, SAP and Oracle, they confirm that the O-advantages from strong brand and reputation, high research and development capabilities, professional partners, I-advantages from wholly owned subsidiaries, and L-advantages from economically developed regions cause SAP and Oracle to excel in the Chinese high-end ERP market.

## KEYWORDS

Chinese High-End Market, Dunning's OLI Paradigm, Enterprise Resource Planning, Information and Communication Technology Service, International Business, Multinational Corporation, Oracle, SAP

## INTRODUCTION

In the early 1990s, the popularity of the Internet and the development of information and communication technology (ICT) brought enterprise management into the information technology era. The construction of an information management system is a complex undertaking for most nonprofessional enterprises, so most choose ICT service outsourcing to external professional ICT service providers to help them implement information management. Many companies favor enterprise resource planning (ERP), customer relationship management (CRM), supply chain management (SCM), and other enterprise application software (EAS) as representative information management

DOI: 10.4018/IJBSA.326515

\*Corresponding Author

This article published as an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0/>) which permits unrestricted use, distribution, and production in any medium, provided the author of the original work and original publication source are properly credited.

systems, which provide benefits for business operations management. For example, ERP can improve the coordination of departments; increase business efficiency; reduce operating costs such as inventory management, production, and marketing; facilitate daily management efficiency; provide faster access to decision-making and management information; and better plan business strategies (Al-Mashari et al., 2003; Amoako-Gyampah, 2007; King, 2005; Scott & Kaindl, 2000; Seo, 2013; Umble et al., 2003; Willis & Willis-Brown, 2002). As the demand for EAS expands, the global EAS market is growing rapidly. Subsequently, an increasing number of EAS service vendors are no longer satisfied with serving only local markets and are starting to establish worldwide subsidiaries through foreign direct investment, thus launching their business activities in overseas markets.

Chinese companies have recently witnessed a significant increase in the demand for ERP services to improve their business processes and increase productivity. Given the immense potential of the Chinese market, an increasing number of foreign ERP vendors have begun to enter the country. Although China's domestic ERP software has a market share of more than 70%, its primary market is dominated by small- and medium-sized enterprises. In the high-end ERP market, dominated by large enterprises and multinational corporations (MNCs), the share of foreign ERP vendors is far greater, with SAP and Oracle ranking first and second at 33% and 20%, respectively, exceeding China's leading domestic ERP vendors, Yonyou at 14% and Kingdee at 6%<sup>1</sup>.

Traditional international business theory posits that MNCs will face various difficulties when competing with local firms in unfamiliar overseas markets and must take advantages to overcome these difficulties to succeed there (Hymer, 1960). The barriers to entry are generally significant in high-end markets. This raises a question as to how foreign ERP vendors achieved success in China's high-end markets. Furthermore, what advantages have they possessed? To answer these questions, this in this study, we first use Dunning's OLI paradigm to clarify the advantages foreign ERP vendors need to compete in the Chinese high-end ERP market. Then, SAP and Oracle are used as case studies to further identify the critical determinants of their success.

## **DUNNING'S OLI PARADIGM**

Dunning's OLI paradigm is considered the most comprehensive analytical tool for studying MNCs overseas. Dunning (1977, 1993) argued that MNCs must have ownership-specific, internalization-incentive, and location-specific advantages (O-, I-, and L-advantages) to succeed.

O-advantages include the factor endowments, product manufacturing processes, and management skills that MNCs possess, which are either unavailable or difficult for other firms to obtain. Dunning argued that MNCs can only compensate for the cost of operating abroad by having O-advantages to effectively compete with local firms and competitors in the host country. I-advantages mean MNCs have more advantage in exploiting O-advantages by transferring them within the organization rather than trading them in an incomplete external market. MNCs recognize that using international markets to trade their own intermediate products or services is not the best option and that internalization can reduce transaction costs. L-advantages refer to the degree of a favorable market environment in a foreign market compared with an enterprise's home market. This refers to the host country's advantageous conditions in terms of investment environment factors such as the local foreign investment policy, economic development level, market scale, infrastructure, resource endowment, labor, and cost. If a foreign market is particularly favorable to the enterprise's production and operations regarding the market environment compared with the enterprise's home market, then the foreign market will be extremely attractive for cross-border operations.

O-advantages can be used to analyze why companies start an overseas business, or internationalization motivation. I-advantages can be used to analyze how companies enter overseas markets, either through joint venture subsidiaries (JV) or wholly owned subsidiaries (WOS). L-advantages help in analyzing where it is advantageous for MNCs to start business. Therefore, we

have used the OLI paradigm as the primary tool to identify what advantages foreign ERP vendors must possess to compete in the Chinese high-end market.

## INTERNATIONALIZATION OF ERP VENDORS

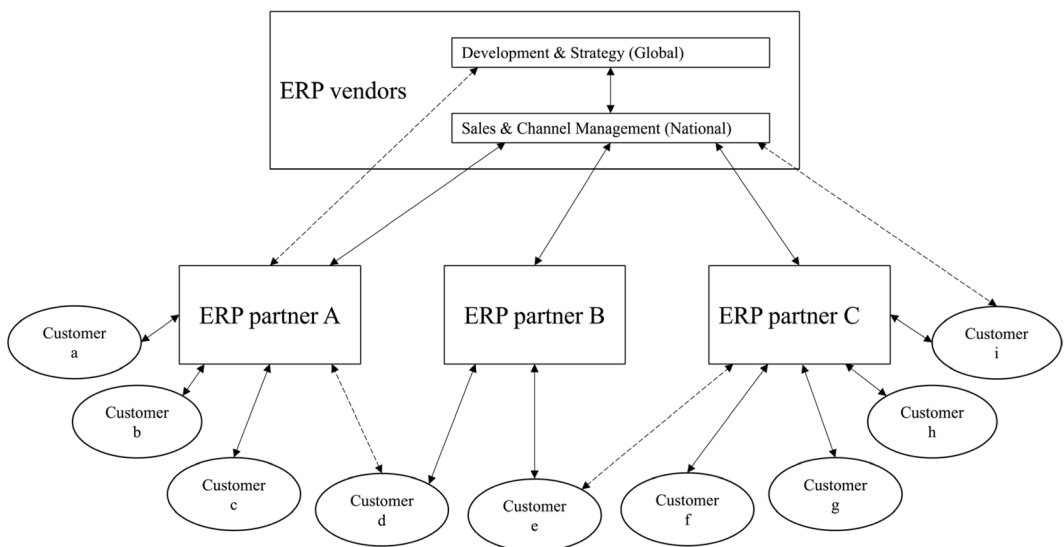
When using the OLI paradigm to analyze an industry’s internationalization, it is important to first identify the industry’s characteristics, especially in the service sector. There are service industries with low technical complexity of knowledge such as hotels, restaurants, and retail industries, as well as industries with high technical complexity such as consulting, software system development, and scientific research. The differences in technical and knowledge complexity bring about different internationalization behaviors (Li, 2020, 2023). Here we clarify the O-, I-, and L-advantages of ERP vendors through ERP business models and service characteristics.

### ERP Business Models

ERP is a concept introduced by the Gartner Group in 1990 that evolved from material requirements planning (MRP)<sup>2</sup> in the 1970s and manufacturing resource planning (MRP II)<sup>3</sup> in the 1980s. The definition of ERP in the literature varies slightly (Davenport, 1998; Gattiker & Goodhue, 2005; Holland & Light, 1999; Klaus et al., 2000; Kumar & Van Hillegersberg, 2000). From these definitions’ commonalities, we believe that ERP refers to a set of software used by enterprises to manage daily business activities including accounting, procurement, project management, risk management and compliance, supply chain operations, and enterprise performance management, aimed at optimizing resource allocation through integrated management to maximize the benefits of enterprise management.

Generally, ERP business models have three members: ERP vendors, ERP partners, and customers. ERP vendors are responsible for developing the core of the system and “selling” it to their partners, while ERP partners modify the system or develop relevant add-ons according to customer needs and then implement the ERP system (Johansson & Newman, 2010). Figure 1 illustrates the ERP business model. The sales and channel management department of ERP vendors is responsible for working

Figure 1. ERP business models (Source: Sarker et al. (2012))



Straight arrows show direct collaboration and communication.  
Dashed arrows show communication only in rare cases.

and communicating directly with ERP partners, and in rare cases, this department is directly involved in customer interaction. Customers generally interact closely with only one ERP partner; sometimes multiple ERP partners collaborate or compete for a customer's business.

Similarly, the development and strategy department generally does not communicate directly with customers; although, in a various cases, it communicates with selected ERP partners (Sarker et al., 2012). In other words, ERP vendors, as producers and developers of ERP systems, usually do not contact customers but rather provide their services through ERP partners. This is because ERP system implementations are complex; thus, customers need to use professionals with extensive knowledge of software and hardware, either within the organization or externally, during the implementation process. External consultants usually have more expertise in ERP than an organization's internal IT staff, so most customers prefer to, or must, use them (Nikookar et al., 2010; Thong, 1999; Thong et al., 1994). Some ERP partners specialize in sales-, consulting-, and customization-related activities, while others focus on development; only a small number do both (Sarker et al., 2012). ERP vendors must rely on the collaboration of various external professional partners to ensure that the ERP system better meets the needs of their customers, especially those in more demanding high-end markets.

ERP partners play a key role in ERP business models as bridges between vendors and their customers. Foreign ERP vendors who wish to compete in the host country's high-end market must obtain many local professional partners because they can communicate more effectively with local customers and grasp their needs. We believe that relationships with local partners is an O-advantage for foreign ERP vendors to compete in the host country's high-end markets. In general, economically developed regions (EDRs) have higher demand, and as a result, a large number of professional partners are concentrated in those regions. If foreign ERP vendors want more professional partners, EDRs will bring L-advantages for them.

#### **Four Important Characteristics of Services**

ERP vendors have the four service characteristics of (1) intangibility, (2) inseparability, (3) heterogeneity, and (4) perishability (Zeithaml et al., 1985). Intangibility means that services cannot be viewed and touched until they are purchased. Inseparability implies that service production and consumption occur simultaneously. Heterogeneity implies that service quality changes with the provider. Perishability means that a service ceases to exist as soon as it is provided and cannot be stored. The four properties mentioned above affect the O-, I-, and L-advantages in the following three aspects.

First, intangibility makes it impossible for customers to judge and evaluate the quality and content of a service before purchasing it; therefore, customers face greater perceived risk<sup>4</sup> when purchasing services than when purchasing tangible goods (Garner, 1986; George et al., 1996; Guseman, 1981; Lewis, 1976; Mitchell & Grottel, 1993; Murray & Schlacter, 1990). The higher the perceived risk, the lower the customer's purchase intention (Tsiros & Heilman 2005). This is especially true in higher-end markets, where products are priced higher, which leads to higher perceived risk (Hoyer et al., 2018). Service MNCs must focus on reducing perceived risks when competing in the high-end markets. Aharoni (2000) argued that in the internationalization of the service industries, the strong brand and reputation of MNCs increase customers' peace of mind and trust, thus reducing perceived risk. A company's brand and reputation are essential O-advantages for ERP vendors to compete. According to Caves (1982), MNCs with high brand power often choose the WOS model to protect their brand names when entering overseas markets. In JV mode, there is a risk that the brand image will be damaged by the inappropriate behavior of the JV partner owing to weakened control over the subsidiary. To avoid the risk of brand power dissipation, companies with strong brands and reputations avoid the JV model and opt for the WOS model.

Second, inseparability and perishability make it necessary for ERP vendors to provide services in the host market and understand its size and growth in a timely manner. If foreign ERP vendors want to serve the host country's high-end market, they must understand where the high-end demand

is concentrated. In general, high-end demand is concentrated in EDRs; therefore, a large city with substantial high-end demand will become an important L-advantage for foreign ERP vendors.

Third, heterogeneity prevents the service industry from producing products of the same quality as tangible products through machinery. Service providers often influence service industry quality. In the high-end market, customers are more concerned with service quality than price. As a service provider in the ERP business model, the EPR partner's level directly impacts implementation. Foreign ERP vendors need highly professional partners to provide superior services in local high-end markets. Professional partners can be considered necessary O-advantages for foreign ERP vendors to compete.

ICT is a knowledge-intensive service that emphasizes research and development (R&D) and innovation in knowledge and technology more than traditional labor-intensive services (Miles et al., 1995). R&D and innovation capabilities are important O-advantages for ERP vendors to compete in the high-end market. MNCs with superior R&D capabilities tend to choose the WOS mode because the knowledge generated in R&D has the characteristics of a public good, which may lead to free-riding problems in the JV model. To achieve oligopoly R&D achievements and prevent the leakage of these O-advantages, foreign ERP vendors prefer to set up a WOS to achieve I-advantages.

### ERP Vendors' O-, I-, and L-Advantages

Based on the previous analysis, Table 1 illustrates the O-, I-, and L-advantages that foreign ERP vendors must have to compete in the host country's high-end market. In addition, to better observe and analyze the O-, I-, and L-advantages of ERP in the case study, we refer to the previous literature for measures of these advantages. In O-advantages, a company's brand and reputation are measured by the rankings in Kantar BrandZ Most Valuable Global Brands<sup>5</sup> (Rajavi et al., 2023; Rust et al., 2021; Steenkamp, 2020, 2021), with a high ranking indicating a stronger brand. A company's R&D intensity is measured by the ratio of R&D expenditure to total sales (Lee & Rugman, 2012; Leung & Sharma, 2021; Li, 2022a; Muñoz-Bullón & Sanchez-Bueno, 2011; Padgett & Galan, 2010 Purkayastha et al., 2018), with a higher ratio indicating a higher R&D capability. And the number of local partners is confirmed through the Partner Finder system on the official website of ERP vendors (Thomassen, 2022).

**Table 1. ERP vendors' O-, I-, and L-advantages**

ERP Vendors' Characteristics	Implications for Entering the High-End Market	What Advantages Are Needed
Intangibility	Need to overcome the high perceived risk of customers	O-advantages: brand and reputation I-advantages: WOS (for brand protection)
Inseparability	Need to find where the high-end market is in the host country	L-advantages: EDRs
Perishability		
Heterogeneity	Need more local professional ERP partners	O-advantages: professional partners L-advantages: EDRs
ERP implementation services are provided by the ERP vendor's partners		
Knowledge-intensive service	Need a high level of knowledge to maintain its competitiveness	O-advantages: R&D intensity I-advantages: WOS (to prevent the leakage of knowledge and R&D achievements)

*Note.* The sources were compiled by the author.

In I-advantages, the entry mode of the subsidiary is used as a main method of measure, and the WOS model means that foreign ERP vendors have a strong I-advantage (Erramilli & Rao, 1993; Gatignon & Anderson, 1988; Li, 2022b; Wooster et al., 2016). In L-advantages, gross domestic product (GDP) per capita is used to measure the degree of regional economic development (Haase et al., 2004; Stel et al., 2005). Higher GDP per capita indicates that the region is more economically developed. Table 2 illustrates the measurement methods and relevant data sources for the above advantages.

## CASE STUDIES OF ERP VENDORS

We selected the two foreign ERP vendors with the highest share in the Chinese high-end market, namely SAP and Oracle, as case studies. We analyzed their internationalization in the Chinese high-end market based on the ERP vendors' O-, I-, and L- advantages seen above in Table 1.

### SAP

SAP is a German multinational software company founded by five former IBM employees (Dietmar Hoppe, Hasso Plattner, Klaus Villenlund, Klaus Zira, and Hans Werner Hector) on April 1, 1972. Their idea was to create a standard enterprise software to integrate all business processes and enable real-time data processing. In 1973, SAP launched its first financial accounting system, RF ("R" for "Real Time"), the cornerstone of a modular system that came to be known as SAP R/1. SAP released upgraded versions of R/2 and R/3 to the market in 1979 and 1992, respectively. With SAP R/2 and SAP R/3 software, SAP set the standard for ERP software. It was taken to a new height in February 2015 with the introduction of SAP S/4HANA. This software uses in-memory computing technology to manage massive amounts of data and supports advanced technologies, such as artificial intelligence and machine learning<sup>6</sup>.

After 50 years of development, SAP is currently the largest ERP vendor worldwide. According to statistics, the global ERP market was €53 billion in 2019, and SAP holds the highest at 10.8% (Sarferaz, 2022).

### *SAP's O-, I-, and L-Advantages*

SAP's O-advantages are primarily manifested as follows. First, in terms of brand and reputation, SAP has become the world's largest ERP provider and has remarkably high visibility and influence globally. According to Kantar's Top 100 Global Brand Values, SAP was ranked 26th in 2021. In the Chinese high-end market, this strong brand and reputation reduce the perceived risk faced by customers purchasing high-priced ERP services and allow SAP to launch its business smoothly. Second, in terms of R&D intensity, the SAP Annual Report 2022 shows that in 2022, the company

**Table 2. Measures of the O-, I-, and L-advantages**

Advantages		Measurement Methods	Data Source
O-advantages	Brand and reputation	Ranking in the Kantar BrandZ Most Valuable Global Brands	Kantar's official website
	R&D intensity	Ratio of R&D expenditure to total sales	Company's annual report
	Professional partners	Number of local partners owned	Company's official website
I-advantages	WOS	100% ownership by the parent company	Company's official website
L-advantages	EDRs	Regional GDP per capita	China city statistical yearbook

*Note.* The sources were compiled by the author.

spent €6.166 billion on R&D activities accounting for 20.0% of total revenue<sup>7</sup>, while the average R&D intensity of the top 100 companies in China's software industry in 2019 was only 10.1%<sup>8</sup>. Finally, in terms of cooperation with partners, according to SAP Partner Finder, SAP has 115 partners in China in various industries<sup>9</sup>. These partners help customers purchase, build, implement, and operate the right SAP solutions, and provide related maintenance and support services to meet the unique needs of high-end market customers. The O-advantages mentioned above allow SAP's ERP system to surpass China's local ERP in terms of technology, performance, and service quality, and gain first place in high-end market share.

SAP's I-advantages are reflected mainly in the entry mode of its Chinese subsidiary. SAP was formally established as a WOS in Beijing in 1995 (Wan et al., 2020). Through the WOS mode, SAP monopolizes and protects its brand, reputation, and technological advantages from dissipating under the JV model. This SAP was better able to leverage its I-advantage and maintain its position in the Chinese high-end market.

SAP's L-advantages mainly manifest in its location selection. In nearly 30 years of development in China, with rapid business growth, SAP has successively established branches throughout the country. It has established branches in Beijing, Shanghai, Guangzhou, Dalian, Chengdu, Wuhan, Shenzhen, Nanjing, and Jinan<sup>10</sup>. These cities and their surrounding areas are more economically developed than others and are home to many large enterprises and concentrated high-end markets. This allows SAP to enter the high-end market more rapidly and effectively, providing services in a timely manner. In addition, in large cities with rich resources, SAP can find potential professional partners easier.

Based on the aforementioned O-, I-, and L-advantages, SAP has performed extremely well in China's high-end ERP software market, controlling 33%.

## Oracle

Oracle is a U.S. multinational software company that originated as Software Development Laboratories, founded by Larry Ellison, Bob Miner, and Ed Oates in June 1977. The company changed its name to Relational Software Corporation in 1979 and Oracle Systems in 1982. The first version of Oracle's database management system was released in 1978; it was written in assembly language and run on programmed data processor (PDP) computers. The release of Oracle Version 2 in 1979 was a major milestone in the history of computing because it became the world's first commercially available structured query language (SQL) relational database management system. Oracle is recognized as the world leader in relational database technologies. Their software products have changed the scope of business computing. In addition, Oracle engages in enterprise application markets, including ERP, CRM, and SCM (O'Regan, 2015).

Oracle also boasts excellent performance in the ERP market. According to 2019 statistics, Oracle occupies 6.1% of the global ERP market share, second only to SAP. In the North American ERP market, Oracle is overpowering SAP in the first place. (Sarferaz, 2022).

### *Oracle's O-, I-, and L-Advantages*

Oracle's O-advantages are primarily manifested as follows. First, as a 45-year-old software company, Oracle has a strong reputation worldwide. In Kantar's BrandZ Top 100 Global Brand Value 2021, Oracle is ranked 28th, second only to SAP among ERP vendors. Similarly, relying on its strong brand and reputation, Oracle successfully reduced the perceived risk of customers purchasing high-priced ERP services in the Chinese high-end market, attracting a large number of customers. Second, Oracle attaches considerable importance to R&D; the Oracle Annual Report 2022 shows that in 2022 it spent a total of \$7.219 billion on R&D activities for 17% of total revenue<sup>11</sup>. This rate far exceeds the average 10.1% R&D intensity of the Top 100 companies in China's software industry in 2019. Finally, Oracle has built many partnerships. The Oracle Partner Finder shows that the number of Oracle partners in China reached 624, distributed across various industries<sup>12</sup>. Oracle can thus expand its high-end market more quickly and provide its professional services to meet the needs of various customers.

The above O-advantages helped Oracle increase its competitiveness in the high-end market, of which it holds the second-largest share.

In terms of I-advantages, like SAP, Oracle also implements I-advantages through a WOS mode. Oracle established the WOS in Beijing in 1991 (Wan et al., 2020), which helped the company protect and monopolize O-advantages of brand, reputation, and R&D results, and gain internalization benefits.

Regarding L-advantages, Oracle has established branches in various cities in China (Beijing, Shanghai, Guangzhou, Chengdu, Shenzhen, Dalian, Suzhou, Shenyang, Jinan, Nanjing, Xi'an, Chongqing, Hangzhou, Fuzhou, Wuhan, Changsha, Shijiazhuang, Nanchang, Hefei, Zhengzhou, Nanning, and Kunming) to access local markets<sup>13</sup>. These cities are invariably among the EDRs of China, bringing Oracle closer to the high-end market and providing access to more competitive resources. We also see from the number of Oracle partners in China that its multi-location presence helps build partner relationships.

Oracle holds a 20% share of the Chinese high-end ERP software market through the aforementioned O-, I-, and L-advantages and ranks second after SAP.

## **ERP Implementation Cases**

To further confirm how the O-, I- and L-advantages of foreign ERP providers help them succeed in the Chinese high-end market, we analyze two cases of ERP implementation.

### *The Case of Supor*

Supor Company Limited, founded in 1994 and headquartered in Hangzhou, Zhejiang, China, with over 12,000 employees, is the largest manufacturer of cookware in China and the second largest in the world, as well as a leading brand of small kitchen appliances in China. Supor has four major business areas: cookware, small kitchen appliances, environmental home appliances, and kitchen and bathroom appliances, with a wide range of product lines<sup>14</sup>.

In 2017, to expand its business scope and improve its brand influence, Supor acquired the German high-end kitchenware brand Württembergische Metallwarenfabrik (WMF) in China and launched the Supor-WMF ERP implementation project to ensure the unification and standardization of the company's business management and processes. Implementing the ERP project has promoted the transformation of Supor's information technology, standardized business processes and management procedures, and realized the unification and standardization of the system<sup>15</sup>.

Supor chose SAP ERP because of its well-functioning products, stable technology, customized business modules, and complete industry solutions for large-scale or divisional management types of businesses, which provide important support for business expansion. Also, Supor chose Shanghai Wise Consulting, an SAP Gold Partner, to help complete the ERP implementation. An SAP Gold Partner has extensive experience in project implementation, forward-looking industry solutions, and technically competent implementation teams, as well as pioneering business consulting solutions, which solve problems encountered by different industries and enterprises of different sizes at different stages and achieve certain value delivery<sup>16</sup>.

Through this case, we can understand that SAP's product R&D capability (O- and I-advantages) and local professional partners (O- and L-advantages) allow it to implement its ERP project smoothly.

### *The Case of BYD*

BYD Company Limited, founded in 1995, is headquartered in Shenzhen, Guangdong, China, with over 500,000 employees. BYD's business layout covers electronics, automobiles, new energy, and rail transportation, and it is one of the largest manufacturers of new energy vehicles in China<sup>17</sup>.

In recent years, BYD has urgently needed to build a digital management approach in the wave of digitalization. The company's business has started to involve multiple international, regional, and industrial sectors. To cope with the increasingly complex organizational structure and business change needs, BYD implemented an SAP ERP project. This has optimized BYD's cost-processing



procedures, improved financial management compliance, and business visualization, and enabled real-time integration of financial and management accounting<sup>18</sup>.

The first reason for BYD choosing SAP was trust in the brand. Second, SAP ERP has better stability and scalability and can flexibly, quickly, and deeply respond to various challenges enterprises face. In addition, BYD chose Deloitte as its ERP implementation partner. Deloitte, as a strategic SAP partner, has rich experience in SAP ERP upgrade implementation and successful customer cases, which guarantees the successful launch of the project and smooth operation of the system<sup>19</sup>.

We observe that SAP brand power, strong product performance (O- and I-advantages), and local professional partners (O- and L-advantages) helped its ERP project to be implemented successfully.

## Summary

By analyzing the case studies of SAP and Oracle, first, we argue in this study that the O-advantages of high brand power, reputation, strong R&D capabilities, and professional partners allow SAP and Oracle to remain competitive in the Chinese high-end market and dominate local ERP vendors. Second, to better use and monopolize these O-advantages, both SAP and Oracle adopted a model of WOS to achieve I-advantages. Finally, SAP and Oracle located their branches in the more economically developed major cities in China, taking full advantage of large cities and the number of professional partners in the high-end market. This allowed them to expand their business in more efficiently and strengthen their O-advantages. In Table 3, we collated the O-, I-, and L-advantages of SAP and Oracle.

## CONCLUSION, LIMITATIONS, AND FUTURE RESEARCH

With the growing ERP demand in the Chinese market, foreign ERP more vendors are beginning to enter. Although local vendors have an advantage in the low-end market, foreign ERP vendors have an overwhelming advantage in the high-end market where entry barriers are high. Theoretically, MNCs face greater difficulties than local firms when competing in the host market. So, how do foreign vendors outcompete local vendors in the Chinese high-end ERP market? Against this background, we first analyzed the ERP business model and the four characteristics of the services (intangibility, inseparability, heterogeneity, and perishability). We used Dunning's OLI paradigm to exemplify the O-, I-, and L-advantages that foreign vendors should have when competing in the host country's high-end market. A case study was conducted on two foreign vendors, SAP and Oracle, with the highest share of China's high-end ERP market. The results demonstrate that the O-advantages of strong brand and reputation, high R&D capabilities, professional partners, I-advantages from the WOS model, and L-advantages from EDRs make SAP and Oracle successful in the Chinese high-end ERP market.

Table 3. O-, I-, and L-advantages of SAP and Oracle

Advantages	Details	SAP	Oracle
O-advantages	Brand and reputation	Ranked 26th in the 2021 Global Brand Value Top 100	Ranked 28th in the 2021 Global Brand Value Top 100
	R&D intensity	20%	17%
	Number of local partners owned	115	624
I-advantages	Overseas Subsidiaries Mode	WOS	WOS
L-advantages	EDRs	Established branches in nine EDRs	Established branches in 22 EDRs

Source(s): Compiled by the authors

The results of this study bring some implications for the internationalization strategies of ERP vendors and ICT industries, especially in high-end markets. When ICT, a knowledge-intensive service industry, starts its business in the host market, it first needs to build its brand and reputation to overcome customers' perceived risk and continuously improve its product competitiveness to meet the needs of the high-end market. Second, it is better to enter the host market through WOS to protect and monopolize the brand and knowledge advantages. Finally, local partners play a pivotal role in the ICT services and MNCs must actively seek them out and establish a wide range of partnerships.

The limitations of this study and future research directions are as follows. First, because we included case studies, this research lacks generalizability and cannot effectively present the overall phenomenon owing to the sample size. Therefore, future research should be conducted by collecting a larger number of samples and using quantitative analysis techniques to verify our findings. Second, the findings we analyzed here are mainly used to explain the success factors of foreign ERP vendors in the high-end ERP market in China, and whether these success factors work in the high-end market in other countries remains a question. Future research could complement and strengthen our findings by analyzing high-end ERP markets in other countries.

## **CONFLICT OF INTEREST**

The author declares there is no conflict of interest to disclose.

## **FUNDING STATEMENT**

This research received no external funding.

## REFERENCES

- Aharoni, Y. (2000). The role of reputation in global professional business services. In Y. Aharoni & L. Nachum (Eds.), *Globalization of services: Some implications for theory and practice* (pp. 125–141). Routledge. doi:10.4324/9780203465363-15
- Al-Mashari, M., Al-Mudimigh, A., & Zairi, M. (2003). Enterprise resource planning: A taxonomy of critical factors. *European Journal of Operational Research*, 146(2), 352–364. doi:10.1016/S0377-2217(02)00554-4
- Amoako-Gyampah, K. (2007). Perceived usefulness, user involvement and behavioral intention: An empirical study of ERP implementation. *Computers in Human Behavior*, 23(3), 1232–1248. doi:10.1016/j.chb.2004.12.002
- Bauer, R. A. (1960). Consumer behavior as risk taking. In Hancock R. S. (Ed.), *Dynamic marketing for a changing world* (pp.389-398). American Marketing Association.
- Caves, R. E. (1982). *Multinational enterprise and economic analysis*. Cambridge University Press.
- Davenport, T. H. (1998). Putting the enterprise into the enterprise system. *Harvard Business Review*, 76(4), 121–131. PMID:10181586
- Dunning, J. H. (1977). Trade, location of economic activity and the MNE: A search for an eclectic approach. In B. Ohlin, P. O. Hesselborn, & P. M. Wijkman (Eds.), *The International allocation of economic activity* (pp. 395–431). Macmillan. doi:10.1007/978-1-349-03196-2\_38
- Dunning, J. H. (1993). *Multinational enterprises and the global economy*. Addison Wesley.
- Erramilli, M. K., & Rao, C. P. (1993). Service firms' international entry-mode choice: A modified transaction-cost analysis approach. *Journal of Marketing*, 57(3), 19–38.
- Garner, S. J. (1986). Perceived risk and information sources in services purchasing. *The Mid-Atlantic Journal of Business*, 24(2), 49–58.
- Gatignon, H., & Anderson, E. (1988). The multinational corporation degree of control over subsidiaries: An empirical test of a transaction cost explanation. *Journal of Law Economics and Organization*, 4(2), 305–336.
- Gattiker, T. F., & Goodhue, D. L. (2005). What happens after ERP implementation: Understanding the impact of interdependence and differentiation on plant-level outcomes. *Management Information Systems Quarterly*, 29(3), 559–585. doi:10.2307/25148695
- George, C., Kaplan, N., & Main, M. (1996). *Adult attachment interview Protocol* (3rd ed.). University of California. [Unpublished manuscript]
- Guseman, D. S. (1981). Risk perception and risk reduction in consumer services. In J. H. Donnelly & R. G. William (Eds.), *Marketing of services* (pp. 200–204). American Marketing Association.
- Haase, A., Steptoe, A., Sallis, J. F., & Wardle, J. (2004). Leisure-time physical activity in university students from 23 countries: Associations with health beliefs, risk awareness, and national economic development. *Preventive Medicine*, 39(1), 182–190. doi:10.1016/j.ypmed.2004.01.028 PMID:15208001
- Holland, C. R., & Light, B. (1999). A critical success factors model for ERP implementation. *IEEE Software*, 16(3), 30–36. doi:10.1109/52.765784
- Hoyer, W. D., Macinnis, D. J., & Pieters, R. (2018). *Consumer behavior* (7th ed.). Cengage Learning.
- Hymer, S. (1960). *The international operations of national firms: A study of direct foreign investment* [Doctoral dissertation]. Massachusetts Institute of Technology.
- Johansson, B., & Newman, M. (2010). Competitive advantage in the ERP system's value-chain and its influence on future development. *Enterprise Information Systems*, 4(1), 79–93. doi:10.1080/17517570903040196
- King, W. R. (2005). Ensuring ERP implementation success. *Information Systems Management*, 22(3), 83–84. doi:10.1201/1078/45317.22.3.20050601/88749.11
- Klaus, H., Rosemann, M., & Gable, G. G. (2000). What is ERP? *Information Systems Frontiers*, 2(2), 141–162. doi:10.1023/A:1026543906354

- Kumar, K., & Van Hillegersberg, J. (2000). Enterprise resource planning: Introduction. *Communications of the ACM*, 43(4), 22–26. doi:10.1145/332051.332063
- Lee, I. H., & Rugman, A. M. (2012). Firm-specific advantages, inward FDI origins, and performance of multinational enterprises. *Journal of International Management*, 18(2), 132–146. doi:10.1016/j.intman.2011.11.001
- Leung, T. Y., & Sharma, P. (2021). Differences in the impact of R&D intensity and R&D internationalization on firm performance—Mediating role of innovation performance. *Journal of Business Research*, 131, 81–91. doi:10.1016/j.jbusres.2021.03.060
- Lewis, W. F. (1976). *An empirical investigation of the conceptual relationship between services and products in terms of perceived risk* [Doctoral dissertation]. University of Cincinnati.
- Li, S. J. (2020). An empirical analysis of foreign direct investment's (FDI's) determinants in knowledge-intensive business services (KIBS) in China: A focus on location-specific advantages. *Waseda Review of Sosio-Science*, 26, 76–94. doi:10.20556/00070476
- Li, S. J. (2022a). Determinants of foreign direct investment in knowledge-intensive business services in China from the ownership-specific advantages perspective: An empirical analysis based on microdata of Japanese IT service firms. *Waseda Review of Sosio-Science*, 28, 23–48. doi:10.20556/00084274
- Li, S. J. (2022b). The determinants of the ownership structure of MNC subsidiaries in China from the standpoint of internalization advantage: An empirical analysis using the microdata of Japanese and U.S. IT service companies. *The Waseda Journal of Social Sciences*, 39, 52–65.
- Li, S. J. (2023). Determinants of foreign direct investment and the advantages theory: A literature review and future research agenda. *International Journal of Applied Management Theory and Research*, 5(1), 1–14. doi:10.4018/IJAMTR.322772
- Miles, I., Kastrinos, N., Bilderbeek, R., Hertog, P. D., Flanagan, K., Huntink, W., & Bouman, M. (1995). Knowledge-intensive business services: Users, carriers and sources of innovation. European Innovation Monitoring System (EIMS) Reports, European Commission.
- Mitchell, V. W., & Groatorex, M. (1993). Risk perception and reduction in the purchase of consumer services. *Service Industries Journal*, 13(4), 179–200. doi:10.1080/02642069300000068
- Muñoz-Bullón, F., & Sanchez-Bueno, M. J. (2011). The impact of family involvement on the R&D intensity of publicly traded firms. *Family Business Review*, 24(1), 62–70. doi:10.1177/0894486510396870
- Murray, K. B., & Schlacter, J. L. (1990). The impact of services versus goods on consumers' assessment of perceived risk and variability. *Journal of the Academy of Marketing Science*, 18(1), 51–65. doi:10.1007/BF02729762
- Nikookar, G., Safavi, S. Y., Hakim, A., & Homayoun, A. (2010). Competitive advantage of enterprise resource planning vendors in Iran. *Information Systems*, 35(3), 271–277. doi:10.1016/j.is.2009.09.002
- O'Regan, G. (2015). *Pillars of computing: A compendium of select, pivotal technology firms*. Springer International Publishing. doi:10.1007/978-3-319-21464-1
- Padgett, R. C., & Galan, J. I. (2010). The effect of R&D intensity on corporate social responsibility. *Journal of Business Ethics*, 93(3), 407–418. doi:10.1007/s10551-009-0230-x
- Purkayastha, S., Manolova, T. S., & Edelman, L. F. (2018). Business group effects on the R&D intensity-internationalization relationship: Empirical evidence from India. *Journal of World Business*, 53(2), 104–117. doi:10.1016/j.jwb.2016.11.004
- Rajavi, K., Kushwaha, T., & Steenkamp, J. B. E. (2023). Brand equity in good and bad times: What distinguishes winners from losers in consumer packaged goods industries? *Journal of Marketing*, 87(3), 472–489. doi:10.1177/00222429221122698
- Rust, R. T., Rand, W., Huang, M. H., Stephen, A. T., Brooks, G., & Chabuk, T. (2021). Real-time brand reputation tracking using social media. *Journal of Marketing*, 85(4), 21–43. doi:10.1177/0022242921995173

- Sarferaz, S. (2022). *Compendium on enterprise resource planning: Market, functional and conceptual view based on SAP S/4HANA*. Springer Nature Switzerland AG. doi:10.1007/978-3-030-93856-7
- Sarker, S., Sarker, S., Sahaym, A., & Bjørn-Andersen, N. (2012). Exploring value cocreation in relationships between an ERP vendor and its partners: A revelatory case study. *Management Information Systems Quarterly*, 36(1), 317–338. doi:10.2307/41410419
- Scott, J. E., & Kaindl, L. (2000). Enhancing functionality in an enterprise software package. *Information & Management*, 37(3), 111–122. doi:10.1016/S0378-7206(99)00040-3
- Seo, G. (2013). *Challenges in implementing enterprise resource planning (ERP) system in large organizations: Similarities and differences between corporate and university environment* [Doctoral dissertation]. Massachusetts Institute of Technology.
- Steenkamp, J. B. (2021). Building strong nation brands. *International Marketing Review*, 38(1), 6–18. doi:10.1108/IMR-10-2019-0253
- Steenkamp, J. B. E. (2020). Global brand building and management in the digital age. *Journal of International Marketing*, 28(1), 13–27. doi:10.1177/1069031X19894946
- Stel, A. V., Carree, M., & Thurik, R. (2005). The effect of entrepreneurial activity on national economic growth. *Small Business Economics*, 24(3), 311–321. doi:10.1007/s11187-005-1996-6
- Thomassen, M. L. (2022). *ES Implementation as a Context for Digital Innovation: How SAP Partners Organize for Digital Innovation* [Master's thesis]. University of Oslo, Norway.
- Thong, J. Y. (1999). An integrated model of information systems adoption in small businesses. *Journal of Management Information Systems*, 15(4), 187–214. doi:10.1080/07421222.1999.11518227
- Thong, J. Y., Yap, C. S., & Raman, K. S. (1994). Engagement of external expertise in information systems implementation. *Journal of Management Information Systems*, 11(2), 209–231. doi:10.1080/07421222.1994.11518046
- Tsiros, M., & Heilman, C. M. (2005). The effect of expiration dates and perceived risk on purchasing behavior in grocery store perishable categories. *Journal of Marketing*, 69(2), 114–129. doi:10.1509/jmkg.69.2.114.60762
- Umble, E. J., Haft, R. R., & Umble, M. M. (2003). Enterprise resource planning: Implementation procedures and critical success factors. *European Journal of Operational Research*, 146(2), 241–257. doi:10.1016/S0377-2217(02)00547-7
- Wan, F., Williamson, P., & Pandit, N. R. (2020). MNE liability of foreignness versus local firm-specific advantages: The case of the Chinese management software industry. *International Business Review*, 29(1), 101623. Advance online publication. doi:10.1016/j.ibusrev.2019.101623
- Willis, T. H., & Willis-Brown, A. H. (2002). Extending the value of ERP. *Industrial Management & Data Systems*, 102(1), 35–38. doi:10.1108/02635570210414640
- Wooster, R. B., Blanco, L., & Sawyer, W. C. (2016). Equity commitment under uncertainty: A hierarchical model of real option entry mode choices. *International Business Review*, 25(1), 382–394. <https://doi.org/ibusrev.2015.07.00610.1016/j>
- Zeithaml, V. A., Parasuraman, A., & Berry, L. L. (1985). Problems and strategies in services marketing. *Journal of Marketing*, 49(2), 33–46. doi:10.1177/002224298504900203

## ENDNOTES

1. Qianzhan Industrial Research Institute: <https://en.qianzhan.com/> (Accessed: 2023-06-01).
2. The MRP system was developed in the 1960s to develop production and manufacturing plans. The system solves corporate material management problems by identifying the materials needed, estimating quantities, determining when materials are needed according to production schedules, managing delivery times, providing comprehensive material planning designed to meet corporate material requirements, and improving overall productivity.

3. The MRP II was born in the 1970s and the early 1980s as an extension and expansion of the MRP. MRP II is a comprehensive inheritance of MRP and closed-loop MRP, which incorporates business planning, sales/distribution, purchasing, manufacturing, finance, costing, simulation functions, just-in-time (JIT), multilingual, multicurrency, and multitax capabilities to meet international business needs, and incorporates functions such as macro business planning, sales/distribution, purchasing, manufacturing, finance, costing, simulation functions, JIT production, multilanguage, multicurrency, multitax, and computer-aided design (CAD) technology interfaces to form a comprehensive production management integrated system.
4. Bauer (1960) defined perceived risk as the risk that consumers actively perceive because they do not understand product information.
5. Kantar's BrandZ is an internationally renowned global brand equity platform that measures brand sales and publishes the 100 Most Valuable Global Brands and other lists covering more than 100,000 brands in 45 countries and regions.
6. From the official SAP website: <https://www.sap.com/> (Accessed: 2023-06-07).
7. From SAP Annual Report 2022: <https://www.sap.com/integrated-reports/2022/en.html> (Accessed: 2023-06-07).
8. From 2019 China Software Business Revenue Top 100 Companies Development Report: <http://tradeinservices.mofcom.gov.cn/article/yanjiu/hangyezk/202001/97253.html> (Accessed: 2023-06-07).
9. From SAP Partner Finder: <https://www.sap.com/partners/find.html> (Accessed: 2023-06-07).
10. From SAP official website: <https://www.sap.com/> (Accessed: 2023-06-07).
11. From Oracle Annual Report 2022: <https://investor.oracle.com/financials/default.aspx> (Accessed: 2023-06-09).
12. From Oracle Partner Finder: <https://partner-finder.oracle.com/catalog/> (Accessed: 2023-06-09).
13. From Oracle official website: <https://www.oracle.com/> (Accessed: 2023-06-09).
14. From Supor official website: <https://www.supor.com.cn/> (Accessed: 2023-06-26).
15. From SAP official website: <https://www.sap.com/> (Accessed: 2023-06-26).
16. Ibid.
17. From BYD official website: <https://www.bydglobal.com/cn/index.html> (Accessed: 2023-06-26).
18. From SAP official website: <https://www.sap.com/> (Accessed: 2023-06-26).
19. Ibid.