GLOBAL STRATEGY GAME: A SERIOUS GAME FOR TEACHING INTERNATIONAL BUSINESS

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ABSTRACT
The Global Strategy Game is a serious game for blended learning classes in international business. It serves as an appetizer to introduce relevant topics on competing in the global marketplace: (1) The assessment of the corporate’s strategic environment, (2) the evaluation of opportunities to expand internationally and, (3) the implementation and execution of a corporate and market entry strategy in a competitive environment adhering to agglomeration and deglomeration effects. Based on the four P’s of marketing (price, promotion, product and placement) and the AAA framework for global strategies (adaptation, aggregation and arbitrage), participants take decisions in a round based game to enter the European market, compete against each other and increase the value of their respective enterprise in the industry of wearable smart devices. As part of a blended learning class, each round is be played before the sit-in lecture followed by the debrief and theoretical concepts addressed in the classroom.

INTRODUCTION
Blended learning is a widely accepted and pushed teaching method at universities (Oh and Park 2009) combining face-to-face (offline) lectures with additional online activities (Reay 2001). This hybrid teaching approach accounts for the impact of digitalization on education and students’ changing learning behavior as digital natives (Barnett 2008). Serious games are one prominent element in blended learning classes which complement the traditional sit-in lectures. Several studies highlight the effectiveness of the game-based approach in business education (Feinstein and Cannon 2001), especially if it is tailored to the students’ skill level (Mislevy 2011) and if it is holistically integrated into the curriculum (Hanlon, 2008). Despite its effectiveness, a recent study by Lopes et al. (2013) recognizes that the game-based approach, on business education, lacks advanced computer techniques, holistic integration of business theory and practical, long-lasting learning outcomes.

The Global Strategy Game picks up on those shortcomings and presents an approach that focuses on a close link between international business and its playful experience. Many large corporates fail in implementing a global strategy and entering new markets (Yoder et al. 2016). Experiencing the trade-offs of strategical and tactical decisions in a risk-free environment supports the understanding of the theoretical concept of competing in a global marketplace.

In a round-based game, participants, without prior expertise in international business, make corporate decisions to enter the European market in the industry of wearable smart devices. Equipped with an annual budget, they plan and execute their expansion strategy to enter Europe in competition with their colleagues. After the game has been played, the participants are ranked based on the accumulated profits and profit growth. In an alternate process, the participants play one single round (online) followed by the face-to-face lecture (offline) comprising of the debrief of the round and the academic content explained in class. The educational content is consecutively revealed in the game to support the participants on mastering the next round. The game is played in three rounds, successively covering the theoretical concepts of:

1. Analyzing the strategic environment of possible entries in a heterogeneous market environment using appropriate frameworks (PEST, Porter’s Five Forces, etc.).


3. Assessing and executing market entry strategies (Contract, Joint Venture, Merger & Acquisition, Greenfield) on agglomeration and deglomeration effects of the primary and supporting elements of Porter’s value chain (Sourcing, Production, Sales and Research and Development).

The corporate decision areas split into strategical and tactical ones. Strategical decisions are long-term oriented, difficult to repeal and typically involve sunk costs, while tactical decisions are short-term focused and aim to support the strategic moves. The strategic decisions comprise of where and how to enter European markets. The tactical moves of the 4 P’s of marketing (price, promotion, product, and placement) are used to exploit the economic opportunities once entered a market and to support the overall global expansion strategy.

The remainder of the article highlights the learning outcomes and theoretical background addressed by the Global Strategy...
Game, followed by an explanation of the game mechanics and it interlinks to international business theory. Finally, recommendations on the debriefing and challenges are presented and summarized.

THEORETICAL BACKGROUND

The Global Strategy Game, henceforth referred to as GSG, is a serious game to prepare students in a playful way for using frameworks of international business. The online game is played in three rounds. Each round serves as a preparation for the subsequent sit-in lecture. One round consists of a set of decisions carried out over a period of 60 to 90 minutes. The game hosts up to ten competing firms entering the European market, and each company can be represented by either an individual student or a group of students. In the face-to-face lecture, the instructor debriefs on the previous game round and addresses the particular topics of international business to prepare the students for the next round. The learning outcomes are two layered:

International Strategy

- Use the PEST framework and Porter’s five forces framework to assess the opportunities of entering specific countries in Europe.
- Formulate an expansion strategy based on pressure for cost reductions and pressure for local responsiveness or the AAA framework on adaptation, aggregation, and arbitrage.
- Align the structure of the company (vertical and horizontal integration) with the respective expansion strategy.

Competitive Strategy

- Experience the advantages and disadvantages of market entry modes (Contract, Joint-Venture, Merger and Acquisition, Greenfield) and the impact of path dependency on strategy execution.
- Evaluate agglomeration and deagglomeration effects of staying ahead of the competition
- Align the tactical decisions of a firm with the strategic ones and anticipate the company’s relative strategic position to its competitors using value/price and price/cost.

To increase the value of an enterprise one has two options: (1) increase profitability and (2) increase profit growth. The first option is stimulated by cost reduction and price increase due to added product/service value. Profit growth can be achieved by selling more in existing market and entering new markets. The GSG offers a playground to test profit growth strategies by opening new markets first and increasing the firm’s profitability by strengthening its later.

Regarding markets, the European landscape is scattered on the social (culture, consumer behavior), economic (labor cost, GDP growth rates, disposable income, subsidies), political (stability and regulations) and technological level (white-collar and blue-collar worker, advances in digitalization and infrastructure). An appropriate framework for evaluating the advantages and disadvantages of a country is the PEST (Political, Economic, Social and Technological) framework by Fahey and Narayanan (1986). Once potential markets, which fit the company’s resources and capabilities, are identified, a strategy has to be defined. Such a strategy is driven by pressure for cost reduction on one dimension and pressure for local responsiveness on the other dimension (cf. Table 1).

Table 1: A Global Strategy is driven by pressure for local responsiveness and cost reduction (Hill, 2011).

<table>
<thead>
<tr>
<th>Pressure for Local Responsiveness</th>
<th>Low</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost Reduction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>International Strategy</td>
<td>Localization Strategy</td>
</tr>
<tr>
<td>High</td>
<td>Global Standardization Strategy</td>
<td>Transnational Strategy</td>
</tr>
</tbody>
</table>

The global standardization strategy focuses on profit growth by repeating economies of scale and economies of learning across locations. The transnational strategy tries to achieve two targets, focusing on the profit growth by replicating cost advantages across locations and increasing the profitability by differentiating and adjusting to the local market needs. The localization strategy aims to increase the profitability by targeting and adjusting local consumer preferences. The international strategy is best suited if pressure for cost reduction and local responsiveness is low and the firm can sell its domestic product/service abroad with minimal local customization.

Similar to the framework presented by Hill (2011), the AAA framework by Ghemawat (2007) can be used to assess a global strategy. The AAA framework provides three different strategies: (1) The adaptation strategy focuses on local customization to increase market share, (2) the aggregation strategy aims to standardize across markets to achieve economies or scale, scope and learning and (3) arbitrage exploits location specific advantages by decentralizing specific parts of the value chain to different locations. Participants experience the trade-off between those strategies and the impact of stretching a firm too far by pursuing everything.

The next step for entering a market is evaluating on vertical or horizontal integration based on Porter’s five forces industry assessment: Buyer power, Supplier power, Industry Rivalry, Potential Entry, Substitutes (Porter 2004). Depending on the degree of power among other market players one has to decide if the firm should pursue vertical integration (upstream and downstream market) to secure resources and capabilities or horizontally to achieve economies of scope. Subsequently, a
global expansion strategy involves the decision on the mode of entry: Exporting, Contracting, Licensing, Franchising, Joint venture and Greenfield (wholly owned subsidiary). Following Hill (2001), each mode of entry has particular advantages and disadvantages that are summarized in Table 2.

Table 2: Advantages and Disadvantages of entry modes. For simplicity reasons in the game, entry modes of exporting, licensing and franchising are omitted.

<table>
<thead>
<tr>
<th>Entry Mode</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contracting</td>
<td>Earn returns from process technology skills</td>
<td>Creating competitors No long-term market presence</td>
</tr>
<tr>
<td>Joint Venture</td>
<td>Partner’s knowledge Sharing costs and risks Political acceptable</td>
<td>Lack technology control No global strategic coordination No location and experience economies</td>
</tr>
<tr>
<td>M&amp;A and Greenfield</td>
<td>Protection of technology Global strategic coordination Location and experience economies</td>
<td>High costs and risk</td>
</tr>
</tbody>
</table>

The decision of the mode of entry is accompanied by agglomeration and deglomeration effect. Depending on the type of department (Sales, R&D, Production, Sourcing) that is setup in the new market, network effects arise. For instance, the degree of labor pooling and knowledge spillover depends on the spatial and technical distance between the product and the local industry (Marschall 1920). Different perspectives exist on this topic: Glaeser et al. (1992) emphasize that these effects are due to specialized industry clusters, while Jacob (2009) argues that innovation and cost reduction stem from diversified industry clusters.

Once a firm has decided on the strategic elements, tactical decisions regarding the four P’s of marketing: price, product, place, promotion (Kotler and Keller 2006) must be aligned with the global strategy. To assess the relative strategic position in a competitive environment, the value/price and price/cost framework by Porter (2004) can be used. It helps to anticipate the competitors’ generic strategies of price/cost focus versus differentiation.

Within the GSG game, a firm has the possibilities to enter three different regions, and each region has three different market segments: (1) hardware of the wearable smart device, (2) the wearable smart device itself and (3) software for the wearable smart device. In total, one can enter up to nine different markets with various political, social, economic and technological advantages and disadvantages, which mimic the real-world positioning.

GAME MECHANICS

Game Setup

The focus of expansion is the European Union: Northern Europe, Eastern Europe, and Central Europe. Each region consists of three market segments: Upstream, Main, and Downstream. The Upstream segment focuses on the resources and input materials for producing smart electronic devices. Primary sales for smart devices concentrate in the Main segment. Complementary products and services are offered in the Downstream segment. Within each segment, firms compete on more or less differentiated substitutes in materials, products, or services (cf. Figure 1). Accumulated expenditures in primary and secondary firm activities define the relative importance of each segment within a region and subsequently influence the competitive price level expected by customers.

![Figure 1: The Market Environment – Multiple regions with three segments per region and n competitors.](https://example.com/figure1.png)

Game Flow

Equipped with a budget, a firm can enter any of the Upstream, Main, or Downstream markets in Northern, Eastern, and Central Europe by setting up special facilities through market entry with a Contractor, Joint Venture, M&A, or Greenfield in the respective markets. Further tactical revenue-related and cost-related activities improve the firm’s sales and cost position. The effects of these activities are measured in dimensionless indices:

1. Revenue indices show the impact on sales either by increasing market volume, market share, or product value or by stealing market share from competitors. All revenue-related indices are measured relative to the competitors’ indices.

2. Cost indices reflect the firm’s cost side. A lower cost index represents a lower cost position.

3. The price index: A higher price index reflects an elevated price, and a lower price index corresponds to a lower
price. The difference between the combined cost indices and the price index is the firm’s contribution margin.

Increasing or decreasing a revenue-related or cost-related index incurs specific investment costs per index point. These market-specific investment costs are subjected to diminishing marginal returns. However, these costs can be decreased by setting up Sales, Production, R&D or Sourcing facilities through Contracting, Joint Venture, M&A, or Greenfield, in the respective market. A stronger market commitment through higher sunk-cost investments implies a larger decrease in the cost per index point. Economies of learning foster the accumulation of cost reductions over time. However, a stronger commitment through sunk-cost investments increases the firm’s risk due to reduced flexibility and location lock-in, because once a facility has been set up in M&A or Greenfield mode, it cannot be shut down immediately when unprofitable or sold in a second-hand market.

In addition to the cost per index point decrease, specific facilities and their respective entry modes exhibit network effects (externalities) based on agglomeration and deglomeration that are closely linked to the competitors’ moves (cf. Figure 2):

1. Firm network effects are based on the ratio of specific facilities (e.g., Production / Sales).
2. Market-related network effects stem from the concentration (including all competitors) of particular facilities in a market.

**Figure 2:** The impact of network effects on advancing revenue- and cost-related indices (R&C indices).

Firm performance depends on the company’s skill to craft and execute its strategy by aligning decisions and appropriately responding to its rivals’ moves. The company with the highest cumulative profits after the last round in conjunction with a steady and sound profit growth wins the game.

**Revenue-related and Cost-related Activities**

For the ease of use, the effects of activities are denoted as positive $\oplus$ and negative $\ominus$ correlations. For each market (region/segment) a price has to be determined. The price level in each market is defined by a price index. The price index is measured as an average price in Equation (1) and relative to competitors in Equation (2) per market segment.

\[
\text{Average Price} \ominus \text{Market Size} \quad (1)
\]

\[
\text{Relative Price} \ominus \text{Residual Demand} \quad (2)
\]

How customers perceive and appreciate your product is reflected by the Value Index, measuring the value created for customers. The Value Index is a composite index derived as the average of the Localization Index and Innovation Index. The Localization Index is region-specific and describes how your product is tailored to the needs and preferences of the local customers. The Innovation Index represents all qualitative and innovative features of your product. The combined value-price ratio of a company relative to its competitors’ ratio defines the market share.

\[
\text{Relative Value-price} \ominus \text{Residual Demand} \quad (3)
\]

The impact of promotion efforts is measured by three indices: Branding Index, Advertisement Index, and Local-Connect Index. All three indices are market-specific (region/segment). The cumulative expenditures of all competitors, active in specific market, define the market’s importance relative to the other markets in a region. Investing in the Branding Index in Equation (4) increases a firm’s residual demand which reflects customer loyalty. Spending on the Advertisement Index in Equation (5) increases or decreases the market volume. The Local Connect Index in Equation (6) represents a firm’s strategic investments into building market barriers that reduce rivals’ market shares.

\[
\text{Relative Branding} \ominus \text{Residual Demand} \quad (4)
\]

\[
\text{Average Advertisement} \ominus \text{Market Size} \quad (5)
\]

\[
\text{Relative Local Connect} \ominus \text{Rivals’ market shares} \quad (6)
\]

Variable costs are represented by the Variable Cost Index which is based on the average of the Modularization Index and the Production Cost Index. The firm-specific Modularization Index measures how much a firm uses a platform strategy in production. Modularization decreases the cost per unit for all products. The Production Cost Index is set per market. Some markets offer cost advantages resulting in an incremental decrease in the Variable Cost Index. The contribution margin per unit is determined by the difference between the Price Index and the Variable Cost Index.

**Market Entry**

A firm has four different types of facilities: Sales, Production, Sourcing, and R&D. Setting up a facility in a new market leads to demand and cost benefits. Firms can enter any of the nine markets using different entry modes: Contracting, Joint Venture, M&A, and Greenfield. Different market entry modes are associated with different investment costs and annual running costs. Higher commitment to a sunk cost mode of

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entry implies increased cost, but also larger benefits in cost/index-point reduction as depicted in Table 3.

Table 3: The effect of investing in facilities on cost per index point reduction.

<table>
<thead>
<tr>
<th>Facility</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>Cost reduction for Price Index Changes</td>
</tr>
<tr>
<td>Sourcing</td>
<td>Cost reduction for Modularization Index changes &amp; Localization Index Changes</td>
</tr>
<tr>
<td>R&amp;D</td>
<td>Cost reduction for Innovation Index Changes</td>
</tr>
<tr>
<td>Production</td>
<td>Cost reduction for Production Cost Index Changes</td>
</tr>
</tbody>
</table>

Agglomeration Effects

Setting up a facility in a new market leads to demand and cost benefits. Different market entry modes are associated with different investment costs and annual running costs to be announced in each round’s economic forecast. Higher commitment to a sunk cost entry mode implies higher cost, but also larger benefits in cost/index-point reduction.

Firm-related network effects as stated in Equation (7) and (8) are considered across all markets for facilities owned by a firm.

\[
\begin{align*}
\text{Production/Sales} & \oplus \text{Modularization} & (7) \\
\text{R&D/Sales} & \oplus \text{Innovation} & (8)
\end{align*}
\]

Market-related network effects depicted in Equation (9) - (12) are based on facility concentration levels of all players active in a market.

\[
\begin{align*}
\text{R&D Concentration} & \oplus \text{Localization} & (9) \\
\text{Sales Concentration} & \oplus \text{Branding} & (10) \\
\text{Production Concentration} & \oplus \text{Local Connect} & (11) \\
\text{Sourcing Concentration} & \oplus \text{Production Cost} & (12)
\end{align*}
\]

The intuitions are: Monopolies are less likely to innovate. Therefore, high agglomeration (low concentration) fosters innovation and knowledge spillovers and labor pooling. They are more likely to create loyal customers. In a market, with many competitors (high agglomeration/low concentration) product branding is more difficult. Monopolies are less likely to cater to local needs. Hence low concentration fosters labor pooling. However, they are best able and hence most likely to exploit their market position in sourcing in their own best interest. Therefore, in a market with high agglomeration, the sourcing advantage vanishes.

Market importance

While different regions do not interfere with each other, market segments (Upstream, Main, or Downstream) are related. The relative amount of investments from all firms in R &C indices and facilities in a specific market segment determines its relative importance. A higher relative importance of a segment increases market size, and vice versa.

BRIEFING AND DEBRIEFING

At the beginning of each round, the participants access an economic forecast that provides macro- and microeconomic information on the different regions and market segments in Europe. The challenges for the first round are: (1) Assess the given information and identify potential entry points, (2) Define the firm’s identity and strategic goal(s), (3) Formulate the firm’s strategy without knowledge about the competition and take decisions as depicted in Figure 3 and (4) Take risks versus playing save (Type of Entry Mode, Focus versus Diversification).

Figure 3: Decision summary for a market segment.

In the debriefing part, the instructor can focus on the frameworks to structure information such as PEST, Porter’s Five Forces and the AAA framework. The challenge of the second round is to push a global strategy on standardization, integration, and coordination. How much should a firm standardize across locations? How much should a company integrate its competitive moves across areas? How much should a firm concentrate activities in a few locations and coordinated across them?

Presenting the respective frameworks to navigate in an international environment and assess the trade-offs between strategic moves can be the content of the subsequent lecture. Typically, participants lose focus on their initial entry strategy if they realize what the competition did. In the final round, the participants experience the impact of path dependency on decision-making. The territory becomes limited, and competition can follow a race to the bottom or top on the 4P’s of marketing indices. Using Porter’s value/price and price/cost dimensions (cf. Figure 4) helps to identify the strategic position of the competitors and to anticipate their next moves.

Figure 4: Strategic positioning on value/price of eight competing firms (D=Differentiator, O=Outpacer, L=Laggard, P=Price Leader, M=Stuck in the Middle).
SUMMARY

The article presents a blended learning approach comprising an online game before class followed by sit-in lectures covering the content of international business. Playfully, participants experience the complexity of expanding internationally, the trade-offs of strategic alternatives and the difficulty to align strategic and tactical decisions. The game addresses concepts and frameworks such as PEST analysis, Porter’s five forces, AAA framework, value/price and price cost concepts and externalities. Applying these concepts in a competitive environment and obtaining direct feedback on the performance complements the face-to-face lecture with a hands-on experience addressing the students’ needs in an increasing digitalized society.

REFERENCES


BIOGRAPHY

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