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Challenges in Game Development Outsourcing

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Abstract

This master's thesis explores the nuanced challenges within the realm of game development outsourcing. Grounded in the theoretical foundations of IT outsourcing, the research clusters challenges into three distinct categories: market dynamics cluster, resource challenges cluster, customer characteristics cluster. With a focus on the game development sector the study delves into the landscape of this industry. Drawing from an analysis of guided interviews with thirteen high-level professionals, the thesis evaluates the significance of these challenges and their impact on diverse aspects of the outsourcing process. The research aims to contribute valuable insights to the domain of game development IT outsourcing, shedding light on the intricacies and dynamics that shape this specialized field.

Key words: entrepreneurship, IT, game development, outsourcing, technology, challenges in outsourcing, market dynamics, client relationship management.

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Introduction

In today's fast-paced and constantly evolving business landscape, organizations strive for excellence, efficiency, and staying ahead of the competition. To achieve these objectives, many companies have turned to outsourcing — a strategic decision that has revolutionized the way businesses operate. In this context, this thesis explores the multifaceted landscape of IT outsourcing and outstaffing services, dealing with challenges and complexities that accompany these strategic decisions. It critically analyzes which challenges IT outsourcing vendors face and how they cope with them. Through an examination of the dynamics shaping the IT outsourcing industry, we aim to provide valuable insights into the best practices that can enable companies to thrive in an era of globalized business operations.

Besides that this work project aims to analyze how these challenges relate to specifically game development outsourcing as this area is not still well researched. Scholarly interest in the field of gaming has seen a significant surge since the early 2000s (Berg Marklund, Engström, Hellkvist, et al. 2019). The annual publication of academic works related to games, including books, journal articles, conference papers, and chapters, witnessed substantial growth, increasing from approximately 900 publications in 2006 to around 3200 in 2016 (Martin 2018). But despite the fact of rising academic output on games, there remains a relative lack of comprehensive understanding regarding the actual processes involved in game production (Martin 2018; Petrillo et al. 2008). And the primary focus of scholars is mostly linked to understanding their design (Martin 2018). Even less literature can be found on a specific phenomenon of game development outsourcing and vendors challenges regarding it. This thesis aims to bridge this gap by finding out the unique challenges posed by game development outsourcing and shedding light on this relatively uncharted territory.

Game development outsourcing

While the practice of outsourcing in the gaming industry has a history, its importance is growing exponentially (Ozimek 2019). Factors like globalization, the surging complexity, and costs associated with game production have raised industry interest in outsourcing (Chung 2016; Kerr 2017).Game development IT outsourcing emerges as a distinctive and dynamic field that demands dedicated attention. This thesis will explore the challenges that vendors have when dealing with game development IT outsourcing. This thesis will build upon existing theories and models within the broader field of IT outsourcing, adapting them to the distinct nuances of game development IT outsourcing. We will find out which of the challenges are more crucial for game development outsourcing and if there are more specific problems.

By narrowing the focus to game development IT outsourcing and aligning the theoretical framework with the specific challenges and dynamics of this industry, we can provide valuable insights and contribute to the knowledge base in this relatively underexplored area.

Game development IT outsourcing encompasses the subcontracting of creative, technical, and operational aspects of video game production to external vendors. Unlike conventional IT outsourcing projects, which predominantly involve software development, database management, or IT infrastructure services, game development outsourcing can face a particular set of challenges. Discussed challenges, grouped into clusters, will help us to find out how they influence game development outsourcing.

Theoretical Background

The landscape of IT outsourcing and outstaffing services is marked by a dynamic interplay of challenges that significantly impact the operations of service providers. The

challenges faced by IT companies in the field of outsourcing and outstaffing services encompass a wide range of edges, each with its own theoretical framework and implications.

1. Client role/Resource dependence

The IT outsourcing and outstaffing industry is highly competitive, with many companies fighting for clients. This competition can lead to pricing pressures and the need to continuously differentiate their services.

IT outsourcing vendors rely on a client order. However, there are numerous factors that can threaten the demand certainty of clients. Clients' practices to mitigate their risks, such as signing short-term contracts and dividing orders among multiple vendors, reflect resource dependence dynamics (Scott and Davis 2007). Such practices have a negative effect on long-term collaboration between a vendor and its client and also make it difficult for the vendor to forecast future demand and manage its resources (Su, Mao, Jarvenpaa 2014). These client practices not only impair vendors' bargaining power (Lacity et al. 2009) but also create uncertainty in demand. The unpredictability of client demand poses a significant challenge to IT outsourcing companies and underscores the need for strategies to manage resource dependencies effectively (Su, Mao, Jarvenpaa 2014). Outsourcing vendors' main expense is the cost of human resources, which stays the same despite any decline in orders and associated increase in employee idle time, demand shocks threaten the survival of vendors (Su, Mao, Jarvenpaa 2014).

Building and maintaining strong client relationships in IT outsourcing state the importance of trust, commitment, and effective communication in fostering long-term partnerships. Successful outsourcing is often correlated with the quality of relationships between clients and vendors, emphasizing the need for ongoing relationship management efforts (Wibisono, Govindaraju, Irianto, Sudirman 2018).

Relationships between vendors and clients depend on trust and commitment (Morgan, Hunt 1994). Trust is a critical factor in building a long-term relationship and maintaining the stability of the inter- organizational relationship (Wibisono, Govindaraju, Irianto, Sudirman 2018). Every IT outsourcing agreement incorporates elements of collaboration, virtual cooperation, and the requirements of ever-more complex systems. However, trust emerges as one of the pivotal factors influencing the outcome, whether it be a success or failure, of virtual collaboration. Strong relationships are strategic assets that require continuous managerial dedication and attention (Khan, Khan, Khan, Ilyas, 2022).

Meeting client expectations, delivering high-quality services on time and within budget, ensuring satisfaction is an essential aspect of IT outsourcing. As posited by Scott and Davis (2007), satisfaction is a key motivation for clients in outsourcing relationships. The theory suggests that clients form expectations regarding service quality and performance, and the confirmation or disconfirmation of these expectations significantly impacts their satisfaction. This theory provides a theoretical framework for understanding how clients' preconceived expectations shape their perceptions of IT outsourcing services. Failure to meet these expectations can lead to client dissatisfaction and loss of business.

Additionally, the role of realism in expectations is vital. The rejection of outsourcing contracts due to unrealistic expectations is rooted in the notion that misaligned expectations can lead to project failure. This aligns with the literature on expectation management, which emphasizes the importance of setting realistic and achievable expectations in outsourcing relationships (Wolverton, Hirschheim, Black, Burleson, 2020).

2. Talent Acquisition and Retention/Scalability/Developing New Capabilities

The challenges of finding and retaining skilled IT professionals resonate with the human capital theory. This theory posits that human capital, comprising skills, knowledge, and experience, is a critical asset for organizations. In the context of IT outsourcing, the

availability and retention of highly skilled IT professionals are essential for project success. High turnover rates and recruitment costs associated with staff attrition align with the human capital theory's emphasis on the value of talent within organizations (Wibisono, Govindaraju, Irianto, Sudirman 2018).

Moreover, the challenges related to professional skills and technological barriers underscore the importance of overcoming barriers to talent acquisition. Technical and technological barriers, as discussed in the context of software outsourcing partnership formation (Ali, Ullah, Abrar, Majeed, Umar, Huang 2019), encompass factors such as task complexity, outdated technology, and reluctance to embrace new technologies.

The rising wages in conventional outsourcing hubs are forcing outsourcing providers to seek alternative delivery locations and reconfigure their workforce composition to remain financially competitive. These adjustments, especially the substitution of experienced personnel with less seasoned resources, may result in a decline in service quality.

Balancing the need to scale up or down based on client demand can be challenging. Overcommitting or undercommitting resources can impact profitability. IT outsourcing vendors must effectively manage their resources, both existing and newly developed, to achieve sustained competitive advantage. Coping with these two activities is challenging because they compete for resources (Levina, Ross 2003) and rely on contradictory mechanisms that can cause conflicts (Garud et al. 2006). Researchers have also identified two overarching approaches to capability development: deliberate investment and experiential learning. Ethiraj et al. (2005) observed that capabilities can be cultivated through either deliberate, ongoing investments or learning-by-doing processes. Likewise, Jarvenpaa and Mao (2008) noted that certain vendors enhance their capabilities through extensive and purposeful training, while others acquire them through a process of trial-and-error learning. So IT outsourcing vendors have the need in strategic resource management, investment

decisions, and organizational ambidexterity to achieve a balance between current and future capabilities (Du, Pan, Wu 2020).

3. Data Security and Privacy

The handling of sensitive client data and compliance with data protection regulations, such as GDPR and HIPAA, underscores the critical importance of safeguarding information assets. Ensuring data protection and compliance is critical and means the need for robust security measures, risk assessments, and compliance frameworks. (Hamlen, Thuraisingham 2013.)

4. Communication and Cultural Differences

When providing outsourcing services to clients in different countries, overcoming language barriers and understanding cultural nuances is crucial for effective communication and collaboration. Cross-cultural communication emphasizes the significance of cultural understanding to prevent communication problems and align values, ethics, business practices, and communication styles. As highlighted by Mukherjee et al. (2013), language dissimilarities can result in misinterpretations, while cultural differences may lead to misunderstandings due to cultural bias (Wibisono, Govindaraju, Irianto, Sudirman 2018).

As Sikandar A. (2019) noted nowadays ir outsourcing relations normally involve clients from advanced countries and vendors from developing countries to engineer better and cheaper software at the vendor site to be delivered to the clients (Ali, Ullah, Abrar, Majeed, Umar, Huang 2019) which can influence cross-cultural understanding.

Agerfalk et al. (2005) named communication as an essential part in distributed software development; this helps the vendor and client to build mutual understanding (Swar et al. 2012).

As per the findings of KPMG's outsourcing survey, a significant 60% of participants believe that issues with their outsourcing provider are predominantly people related.

Essentially, the success of outsourcing is more strongly associated with the interpersonal relationships between clients and vendors than with rigid contracts and SLAs.(Wolverton, Hirschheim, Black, Burleson 2020).

5. Technology Changes/Innovation

The rapid advancements in technology and the imperative for IT outsourcing vendors to stay up-to-date resonate with innovation theory. The outsourcing landscape has evolved from a focus on cost reduction and operational efficiency to a heightened emphasis on innovation and value addition. As elucidated by Aubert et al. (2015), innovation through collaboration with external partners, including outsourcing vendors, has become a strategic imperative for companies. Nowadays the role of collaboration, access to external knowledge networks, and the pursuit of new ideas and methodologies to drive innovation become more and more important for clients. Clients' increasing reliance on outsourcing vendors as strategic partners for innovation reflects the evolution of outsourcing from a cost-centric to an innovation-centric model (Meiser, Beimborn 2020).

The adoption of emerging technologies, such as RPA, AI, and cloud computing, is central to IT outsourcing providers' ability to remain competitive. The surge in these technologies, as predicted by Gartner, posits that organizations must continuously adapt and integrate new technologies to thrive. IT outsourcing companies need to enhance their competencies in these transformative technologies to meet evolving enterprise needs and remain at the forefront of the industry (Krajewski, 2023).

6. Legal and Regulatory Compliance/Intellectual Property Protection

Navigating the complex legal and regulatory landscape in IT outsourcing, especially when dealing with international clients can be really challenging for IT outsourcing vendors as companies must adhere to various laws, contracts, and industry-specific regulations to ensure compliance. Compliance with international and industry-specific regulations, as noted

by Sikandar A., 2019, requires a thorough understanding of legal requirements and a strategic approach to managing legal and contractual aspects (Ali, Ullah, Abrar, Majeed, Umar, Huang, 2019).

The challenge of protecting intellectual property rights in IT outsourcing arrangements emphasizes the legal and contractual mechanisms required to safeguard intellectual property assets. Theoretical frameworks in this context underscore the importance of contractual clauses, confidentiality agreements, and legal safeguards to prevent intellectual property disputes. The literature highlights the significance of considering the legal systems and intellectual property protection regulations in offshore outsourcing destinations, as noted in the IEEE Xplore source (Ali, Ullah, Abrar, Majeed, Umar, Huang, 2019).

7. Geopolitical Risks

The challenges associated with geopolitical risks, such as political instability, trade disputes, and changes in government policies impact business continuity and international operations.

Fluctuations in currency exchange rates, economic conditions and financial crises(Grewal et al. 2007) impact business operations and financial performance. There is a need for risk management strategies, such as hedging against currency fluctuations, to mitigate the adverse effects of economic uncertainties. The dynamic nature of economic conditions and exchange rates require companies to adapt their financial strategies to maintain cost-effectiveness in outsourcing relationships (Su, Mao, Jarvenpaa, 2014).

3 Clusters

Academic literature provides us with an even bigger amount of challenges but we decided to focus on the most frequently mentioned. We clustered the challenges that pressure the success of IT outsourcing vendors for better understanding and analyzing them in the next

chapters. These clusters provide a structured framework for understanding the diverse challenges that IT outsourcing companies face in today's complex business environment.

Market Dynamics Cluster

These cluster will show how different market factors influence IT outsourcing and will include the following challenges:

1. Technology Changes/Innovation: Rapid advancements in technology drive changes in market dynamics. IT outsourcing companies must be up-to-date to stay competitive in a dynamic technological landscape.
2. Legal and Regulatory Compliance/Intellectual Property Protection: Navigating the complex legal and regulatory landscape, especially in international outsourcing, is a multifaceted challenge. It encompasses compliance with various laws, contracts, and industry-specific regulations. Safeguarding intellectual property rights is an essential challenge, ensuring that both clients and outsourcing companies' proprietary information is protected.
3. Geopolitical Risks/Currency Exchange and Economic Factors: These challenges are primarily influenced by the ever-changing political landscape, trade disputes, and shifting government policies in different regions. They impact the stability and continuity of outsourcing relationships. Fluctuations in currency exchange rates and economic conditions directly affect the cost-effectiveness and financial aspects of outsourcing arrangements. They create uncertainties related to financial planning and budgeting.

Resource Challenges Cluster

Resource management holds a central position in the IT outsourcing landscape, a recurring theme in the existing literature. We put these challenges to the cluster:

1. Talent acquisition and retention/Scalability/Developing New Capabilities: Acquiring and retaining talents remains a primary concern. Attracting skilled professionals, retaining them, and providing a conducive work environment are critical for sustaining a competitive edge. Balancing the need to scale up or down based on client demand while simultaneously developing new capabilities is a resource allocation challenge. It involves managing existing resources and investing in future capabilities effectively.
2. Data security and privacy: The safeguarding of data assets and the strict adherence to privacy protocols, including compliance with regulations like GDPR and HIPAA, are critical components. They are crucial for ensuring data integrity and reinforcing the edifice of security and privacy within the outsourcing domain.

Customer Characteristics Cluster:

This cluster, framed around customer characteristics, delves into the intricacies of cultural understanding, relationship management, and the dynamics of fulfilling client expectations, all of which are instrumental for thriving in the realm of IT outsourcing.

1. Client role: Competition in the IT outsourcing industry is huge and dynamic, driven by a multitude of factors that continue to shape the landscape of this global business practice. Competition in IT outsourcing is not limited to cost alone; it encompasses a wide range of factors that require providers to continuously adapt, innovate, and excel in service delivery to maintain a competitive edge in this rapidly evolving industry. Much like other service industries, the outsourcing domain relies substantially on client satisfaction as the cornerstone of its motivation. A satisfied client serves as a potent driving force, ushering in future business prospects and bolstering the vendor's standing within the industry. Recognizing the elements that shape client satisfaction in

outsourcing projects is thus a pressing imperative.(Wolverton, Hirschheim, Black, Burleson, 2020)

2. Communication and Cultural Differences: Effective communication and alignment of values and practices are essential for successful collaboration with clients from different cultural backgrounds. Building and maintaining strong client relationships involve understanding client needs, addressing concerns, and ensuring clear communication throughout the engagement.

Methodology

After exploring the challenges in game development outsourcing and organizing them into clusters based on literature review, the next crucial step in this research involves methodology. This phase of the study aims to assess the practical applicability and relevance of the identified clusters. Employing a methodological approach that combines qualitative insights with quantitative data enables a nuanced understanding of the challenges. This method seeks to bridge theoretical concepts with real-world experiences, offering valuable insights for industry practitioners and academic researchers.

The research methodology employed for this thesis involved interviews with 13 high-level professionals possessing extensive expertise and experience in the field of game development outsourcing. The aim was to gain in-depth insights into the challenges faced by game development outsourcing companies, focusing on the identified challenges specifically and identified clusters: Market Dynamics, Resource Challenges, and Customer Characteristics. The participants were selected based on their high-level positions and comprehensive knowledge of game development outsourcing. The criteria ensured that participants could provide nuanced perspectives on the challenges in the industry.

Several considerations led to the choice of interviews over surveys. On the one hand, there were expertise requirements. The sampling strategy employed in this study was

purposive sampling, specifically targeting high-level professionals with substantial expertise and experience in the field of game development outsourcing. Purposive sampling was chosen to ensure that participants possessed the required knowledge to provide in-depth insights into the challenges associated with game development IT outsourcing.(Campbell, Greenwood, Prior, et al. 2020) On the other hand, the purpose was to find nuances and specifics of game development outsourcing companies. Game development outsourcing involves its own details and unique challenges. Interviews allowed for a deeper exploration of nuances and specific features, capturing a more comprehensive understanding.

Participants were selected based on several criteria.

Professional Experience: Individuals with experience in the game development outsourcing industry were eligible for participation. This criterion ensured that participants had a comprehensive understanding of the historical evolution and dynamics of the industry.

Positional Hierarchy: Participants holding senior or executive-level positions within their organizations were included. This criterion aimed to capture insights from decision-makers responsible for creating strategies and overcoming challenges in game development outsourcing.

Diversity in Geographic Representation: To enhance the study's global perspective, participants from various countries were chosen. This criterion facilitated the exploration of region-specific challenges influenced by geopolitical factors, economic conditions, and cultural nuances. The participants presented the companies based in Portugal, Belarus, Poland, Israel, the USA.

Organization Type: Participants were required to represent a diverse range of organizations, including large multinational corporations, mid-sized enterprises, and smaller firms specializing in game development outsourcing. This criterion aimed to capture variations in challenges experienced by different types of organizations.

The combination of these inclusion criteria aimed to create a sample that not only possessed deep domain expertise but also offered diverse perspectives, enriching the study with a broad spectrum of insights. By employing purposive sampling and clearly defining inclusion criteria, this study sought to gather targeted, relevant, and insightful data from participants who could offer a nuanced understanding of the challenges in game development IT outsourcing.

The interviews were divided into 2 parts: general questions and ratings of challenges. Participants were initially asked two general questions about their background and experience in game development outsourcing. This laid the foundation for understanding the context of their responses. Changes in game development outsourcing over recent years were discussed to capture evolving trends. Then participants were presented with 12 questions addressing specific challenges and clusters identified in the theoretical framework. Each question was rated on a scale of 1 to 7, with 7 indicating the highest significance.

The interviews were conducted online via Teams in October and November 2023. The online format gave the possibility for participation from professionals located in different countries, overcoming time zone challenges. All interviews were transcribed for thorough analysis.

Transcriptions of the interviews were subjected to qualitative analysis. Thematic analysis was employed to identify patterns, recurring themes, and variations in responses. The goal was to derive meaningful insights into the challenges faced by game development outsourcing companies, considering the identified clusters.

Participants provided voluntary and informed consent. Anonymity and confidentiality were maintained throughout the process. The research adheres to ethical guidelines, ensuring the well-being and comfort of participants.

Results

This section unfolds the outcomes and insights from the in-depth interviews carried out with selected professionals. The examination delves into various dimensions, including the impact on diverse company sizes, the significance of specific clusters, the identification of the most significant challenge, and the statistical variability observed. To analyze the data average, mean and standard deviation characteristics were employed.

Analysis by Company Size:

Small Companies (e.g., 5 employees - Interviewee 1): emphasized challenges in talent acquisition, reflecting resource constraints. Highlighted the need to adapt to technological changes for competitiveness.

Medium Companies (e.g., 150 employees - Interviewees 5, 6, 11): addressed multidimensional challenges, including marketing, game design, technology, and geographical expansion. Highlighted the importance of meeting client expectations and building strong client relationships.

Large Companies (e.g., 27,000 employees - Interviewee 8): focused on efficiency and outcome-oriented approaches, indicating a concern for optimizing work tasks.

Cluster Significance Ratings: the Average and the Mean

Cluster 1: Market Dynamics Cluster

Technology Changes/Innovation: 4.846

Protection of Intellectual Property: 4.538

Legal and Regulatory Compliance: 5.385

Geopolitical Risks and Economic Factors: 5.308

Currency Exchange and Economic Factors: 4.000

Cluster 2: Resource Challenges Cluster

Talent Acquisition and Retention: 5.538

Scaling Challenges: 4.538

Data Security and Privacy Challenges: 5.077

Cluster 3: Customer Characteristics Cluster

Competition Challenges: 4.846

Meeting Client Expectations: 6.615

Communication and Cultural Differences: 4.462

Client Relationship Management: 6.000

Table 1. Mean of the Clusters

Name of the Cluster	Mean
Market Dynamics Cluster	4.8154
Resource Challenges Cluster	5.051
Customer Characteristics Cluster	5.48075

The most significant cluster

- Customer Characteristics Cluster (Cluster 3) stands out as the most significantly perceived cluster, with meeting client expectations and client relationship management receiving the highest ratings.
- Market Dynamics Cluster (Cluster 1) follows closely, with legal and regulatory compliance, along with geopolitical and economic factors, being recognized as significant challenges.

- Resource Challenges Cluster (Cluster 2) is also deemed important, particularly in talent acquisition and retention, and data security/privacy, though scaling challenges are perceived with a slightly lower significance compared to the other two clusters.

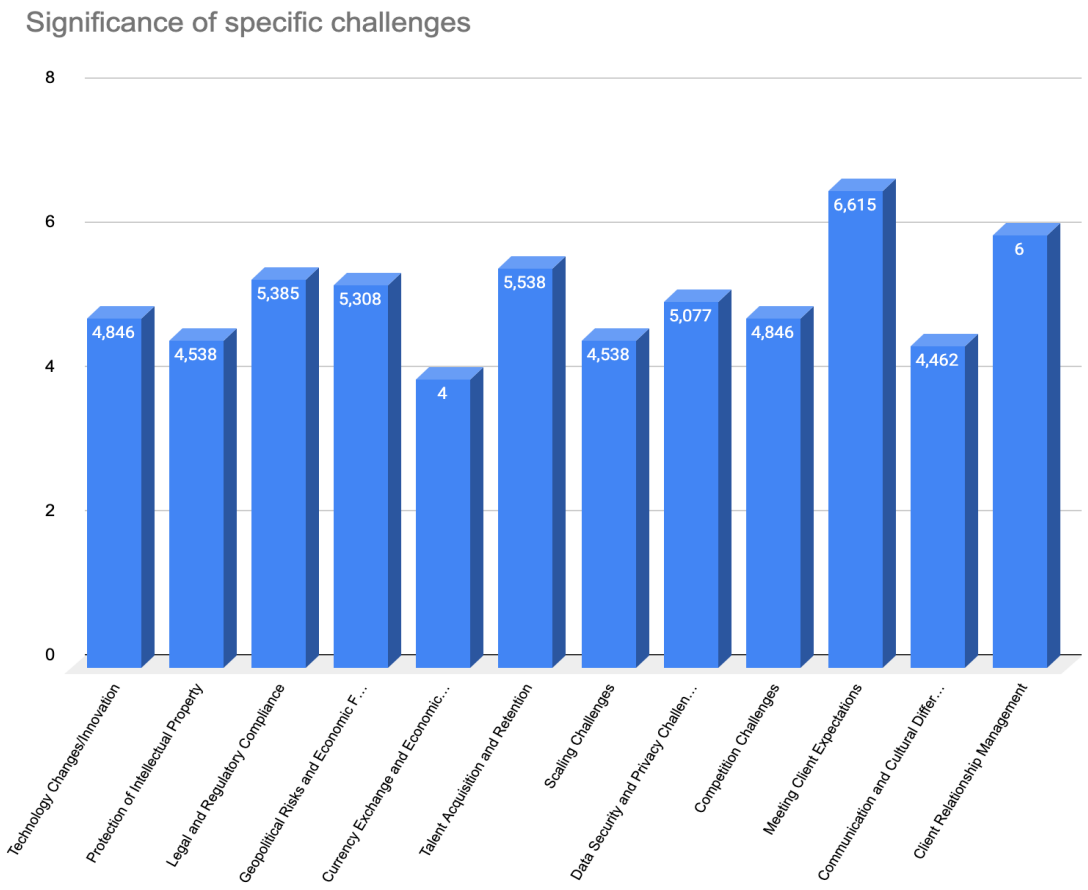
The most significant challenge

Highest Average Rating: Meeting client expectations and client relationship management received the highest ratings, emphasizing their critical importance in game development outsourcing.

Moderate Ratings: Challenges related to technology changes/innovation, protection of intellectual property, scaling, competition, and overcoming communication/cultural differences received moderate ratings, indicating a balanced perception of their significance.

Varied Ratings: Ratings for legal and regulatory compliance, geopolitical risks, economic factors, and data security/privacy varied, with some challenges perceived as more significant than others in the external forces and resource challenges clusters.

Table 2. Significance of specific challenges



Standard deviation

The standard deviation values offer insights into the degree of variability in participants' responses for each specific question. Here are some interpretations based on the standard deviation values:

Moderate Variability (around 1.5): Questions 2, 4, 5, 8, 9, and 11

Participants had moderately varied opinions or perceptions regarding these aspects of game development outsourcing. The responses were not uniform, indicating a degree of diversity in perspectives.

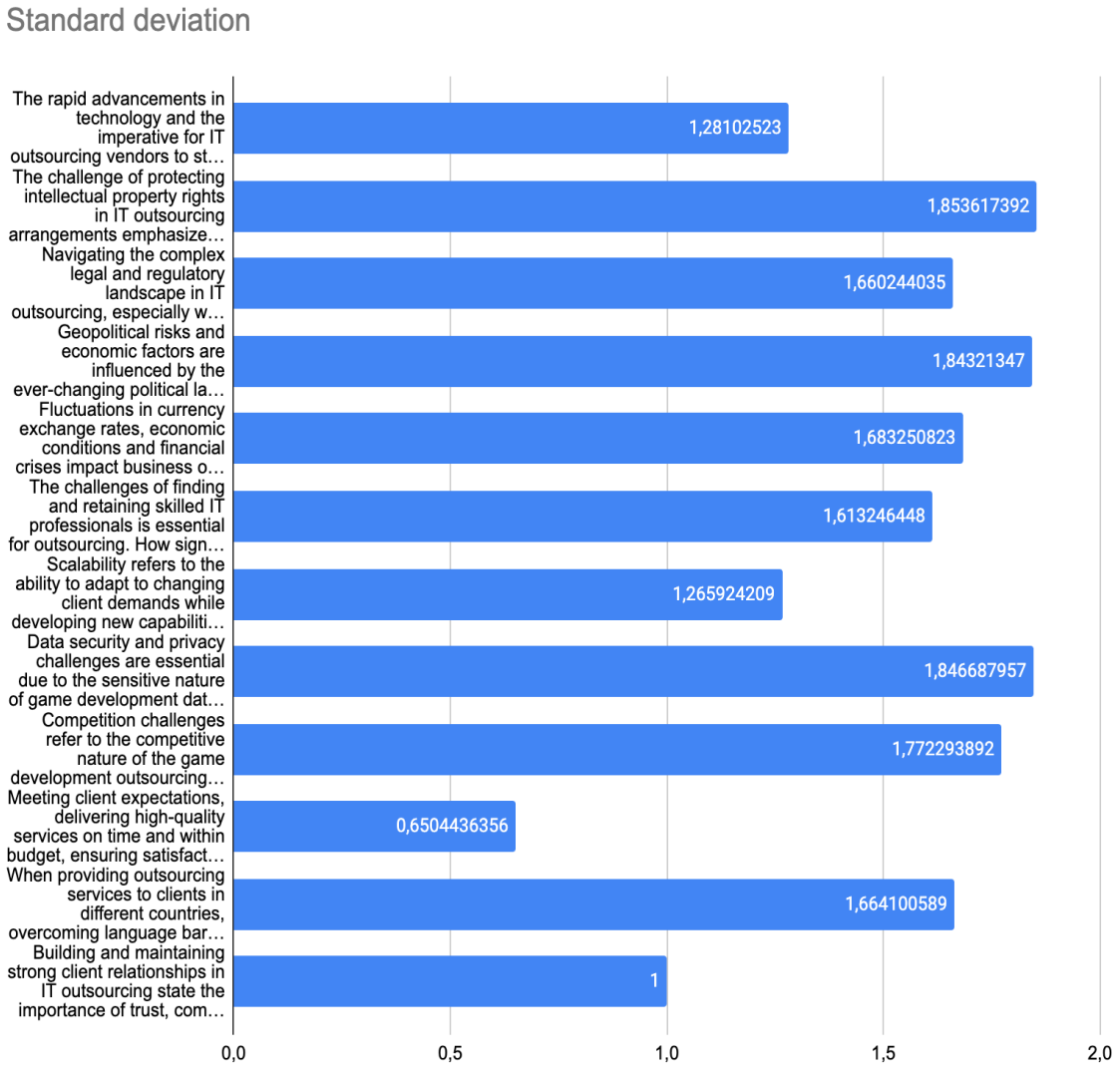
Higher Variability (around 1.8): Questions 2, 4, 8, and 9

These questions had relatively higher standard deviations, suggesting a greater range of opinions among participants. There might be diverse viewpoints or experiences related to these particular challenges in game development outsourcing.

Low Variability (around 0.65 and 1): Questions 10 and 12

These questions had lower standard deviations, indicating more consistent or similar responses among participants. There is less diversity in opinions regarding the significance of these challenges.

Table 3. Standard deviations of the ratings



Discussion

The responses from the interviewed professionals shed light on the dynamic shifts that have characterized the landscape of game development outsourcing over the years. The participants provided diverse perspectives, outlining key transformations that have influenced the industry. The following themes emerged from their responses:

Technological Evolution:

Interviewees 1, 5, 6, and 10 highlighted a significant technological switch as a prominent factor. This includes advancements in game design, technology, and the integration of microtransactions. Interviewee 12 emphasized the importance of unique content and technological advancements in this context.

Team-Based Models:

The adoption of team-based models was noted by Interviewees 1, 4, and 7. This suggests a collaborative approach to game development outsourcing, emphasizing the importance of effective teamwork. On the other hand, Interviewee 12 emphasized a shift to individual developers outsourcing that is contradictory to the experience of Interviewees 1, 4 and 7.

Diversification in Outsourcing Scope:

Interviewees 3 and 12 pointed out a diversification in the scope of outsourcing, including specific areas and the entire development cycle. This suggests a trend towards more comprehensive outsourcing partnerships.

Market Dynamics:

Interviewees 6, 9, and 13 underscored changes in the market dynamics. This includes factors such as the growth of the game industry, increased financial investments, and a surge in demand for game development, particularly in the context of the metaverse.

Strategic Hiring Practices:

Interviewees 4 and 8 highlighted a shift in hiring practices, with an inclination towards team structures and the recruitment of junior professionals for increased efficiency.

Political and Geographical Influences:

Interviewee 7 discussed the impact of politics on outsourcing dynamics, with more involvement and potential disruptions due to geopolitical considerations. Additionally, Interviewee 11 noted an expansion of geography driven by the rise of remote work.

Market Competition and Changing Player Preferences:

Interviewee 5 mentioned a more competitive landscape with a focus on marketing and game design. The observations also included changes in player preferences, with an increasing interest in more complex games.

These findings collectively illustrate the multifaceted nature of changes in the game development outsourcing landscape. The industry has experienced a confluence of technological, strategic, and market-driven shifts, reflecting its dynamic and ever-evolving nature.

Cluster Analysis: Navigating Dynamics

Breaking down the clusters, it's evident that Customer Characteristics Cluster significantly dominates, with an average rating of 5.681, suggesting its crucial role in game development outsourcing. This aligns with the literature, emphasizing the centrality of client relationships, communication, and satisfaction. The importance of this cluster underscores the industry's reliance on fostering strong partnerships and meeting client expectations to ensure outsourcing success. Meanwhile, Market Dynamics Cluster and Resource Challenges Cluster follow closely, suggesting the intricate interplay of external market forces and internal resource management in this dynamic landscape.

Identifying the Core Challenge: Meeting Client Expectations

The most significant challenge is clear – Meeting Client Expectations, showing an average rating of 6.615. This underscores the industry's commitment to delivering high-quality services aligned with client needs. It highlights the importance of understanding and fulfilling client expectations, as exceeding these expectations is vital for the success and growth of game development outsourcing vendors. This challenge further emphasizes the need for strategic planning, effective communication, and a customer-centric approach to ensure client satisfaction and maintain long-term partnerships.

The Influence of a Company Size

Challenges are not identically experienced across all company sizes in the game development outsourcing sector. Rather, the nature of challenges varies, with smaller companies focusing on resource-related constraints, medium-sized companies dealing with a spectrum of challenges, and larger companies prioritizing efficiency and outcome-driven practices. Understanding these specific needs and dynamics of companies based on their size within the industry can help in tailoring strategies.

Standard Deviation: Gauge of Variability

The standard deviation across questions provides a nuanced view. Notably, Question 10, related to Meeting Client Expectations, exhibits the lowest deviation at 0.650, indicating consensus among participants. On the contrary, Question 3, regarding Legal and Regulatory Compliance, shows higher variability (1.66), suggesting diverse perceptions in this domain that may be caused by the variety of roles of the participants as even high qualified developers usually don’t deal with company’s legal and regulatory issues. Overall high deviation in answers can be the result of a diverse range of professionals and companies’ history and size.

Analyzing responses based on company size, patterns emerge. Smaller companies, with fewer than 100 employees, consistently rate challenges higher. This could imply a

heightened sensitivity to external pressures. Larger corporations, on the other hand, display more varied responses, reflecting their diverse operational scales.

Our findings highlight the seek for balance between customer dynamics, market forces, and resource challenges in game development outsourcing. These insights not only contribute to academic discourse but also offer practical implications for industry practitioners navigating this complex field.

Limitations

While the study contributes valuable insights into the landscape changes and challenges of game development outsourcing, it is essential to acknowledge certain limitations that may impact the generalizability and interpretation of the findings:

Small Sample Size:

The study relied on interviews with a limited number of high-level professionals in the game development outsourcing industry. The small sample size may not fully represent the diversity of perspectives within the industry.

Potential for Bias:

Participants were selected based on their high-level positions and expertise in game development outsourcing. While this ensures relevant insights, it may introduce a bias toward perspectives of managerial or executive roles, potentially overlooking the viewpoints of lower-level employees.

Subjectivity of Ratings:

The significance ratings provided by participants are inherently subjective and based on individual experiences and perceptions. Interpretation of significance levels may vary among respondents, influencing the overall averages.

Single Methodology (Interviews):

While interviews provided in-depth insights, utilizing a single research methodology limits the breadth of data collection. Incorporating surveys, observations, or additional qualitative methods could offer a more holistic view.

Despite these limitations, the study serves as a foundational exploration into the challenges and changes within the game development outsourcing industry. Future research should address these limitations to enrich the understanding of this dynamic field.

Future Research

Building on the current study's findings and limitations, several promising avenues for future research in game development outsourcing emerge:

Client-Side Investigations:

Complementing vendor-centric perspectives with insights from clients engaged in outsourcing partnerships can offer a holistic view of the challenges faced by both parties. Understanding the expectations and experiences of clients contributes to a more balanced analysis.

Global Comparative Analysis:

Investigating game development outsourcing challenges in different regions and countries can uncover region-specific factors influencing the industry. Variances in cultural, legal, and economic landscapes contribute to a more nuanced understanding of the global outsourcing environment.

Risk Management Strategies:

Investigating effective risk management strategies employed by outsourcing firms can provide valuable insights. Understanding how companies navigate geopolitical risks, economic uncertainties, and legal challenges enhances the knowledge base for risk mitigation in the outsourcing domain.

Impact of External Factors:

Studying the impact of external factors, such as global events, economic recessions, or technological breakthroughs, on the game development outsourcing industry provides a contextualized understanding of the industry's resilience and vulnerability.

Integration of Quantitative Measures:

Integrating quantitative measures, such as industry performance metrics, economic indicators, or client satisfaction surveys, can complement qualitative insights. This mixed-methods approach will enrich research findings.

By addressing these future research directions, scholars can deepen the understanding of the complexities within the game development outsourcing domain and contribute valuable knowledge.

References

1. Agerfalk, P.J., Fitzgerald, B., Holmstrom, H., Lings, B., Lundell, B., Conchuir, E., 2005. “A Framework for Considering Opportunities and Threats in Distributed Software Development”. The International Workshops on Distributed Software Development (DiSD 2005).
2. Ali. S., Ullah, N., Abrar, M.F., Majeed, M.F., Umar, M.A., Huang, J. 2019. “Barriers to Software Outsourcing Partnership Formation: An Exploratory Analysis”. IEEE Access, 7: 164556-164594.
3. Aubert, B. A., Kishore, R., & Iriyama, A. (2015). Exploring and managing the “innovation through outsourcing” paradox. The Journal of Strategic Information Systems, 24(4), 255–269.
4. Berg Marklund, B., Engström, H., Hellkvist, M. et al. 2019. “What Empirically Based Research Tells Us About Game Development”. Comput Game, 8: 179–198.
5. Campbell, S., Greenwood, M., Prior, S., et al. 2020. “Purposive sampling: complex or simple? Research case examples”. Journal of Research in Nursing: 25(8):652-661.
6. Chung, P. 2016. “Revisiting Creative Industry Models for Game Industry Development in Southeast Asia.” In Global Game Industries and Cultural Policy, edited by Fung Anthony, 125–52. London: Palgrave Macmillan.
7. Du, W. (Derek), Pan, S. L., & Wu, J. 2020. “How do IT outsourcing vendors develop capabilities? An organizational ambidexterity perspective on a multi-case study”. Journal of Information Technology, 35(1): 49-65.
8. Ethiraj, S.K., Kale, P., Krishnan, M.S., Singh, J.V. 2005. “Where Do Capabilities Come From and How Do They Matter? A study in the software services industry”. Strategic Management Journal, 26(1): 25–45.

9. Garud, R., Kumaraswamy, A., Sambamurthy, V. 2006. “Emergent by design: Performance and transformation at Infosys technologies”. Organization Science 17(2): 277–286.
10. Grewal, R., Johnson, J.L., Sarker, S. 2007. “”Crises in Business Markets: Implications for interfirm linkages”. Journal of the Academy of Marketing Science 35(3): 398–416.
11. Hamlen, K.W., Thuraisingham, B. 2013. “Data security services, solutions and standards for outsourcing”. Computer Standards & Interfaces, 35(1):1-5.
12. Hamzah, A. 2013. “A Review of IT Outsourcing Relevant and Success Determinants and A Proposed Model”. Journal of Advanced Computer Science and Technology Research, 3.
13. Hovlin, K. 2006. “Offshoring IT services: a Swedish perspective”. Institutet för tillväxtpolitiska studier (ITPS).
14. Jarvenpaa, S.L., Mao, J.Y. 2008. “Operational Capabilities Development in Mediated Offshore Software Services Models”. Journal of Information Technology, 23(1): 3–17.
15. Krajewski, R. 2023. “The State of Central & East Europe IT Outsourcing and Offshoring Report. Unlock the Potential of Eastern European IT Outsourcing: A Comprehensive Report by Ideamotive”.
16. Kerr, A. 2017. “Global Games: Production, Circulation, and Policy in the Networked Era”. London: Routledge.
17. Khan, G.M., Khan, S.U., Khan. H.U., Ilyas, M. 2022. “Challenges and practices identification in complex outsourcing relationships: A systematic literature review”. PLoS ONE 17(1).

18. Lacity, M.C., Khan, S.A., Willcocks, L.P. 2009. “A Review of the IT Outsourcing Literature: Insights for practice”. The Journal of Strategic Information Systems, 18(3): 130–146.

19. Lacity, M.C., Khan, S., Yan, A., Willcocks, L.P., 2010. “A Review of the IT Outsourcing Empirical Literature and Future Research Directions”. Journal of Information Technology, 25(4): 395–433.

20. Levina, N., Ross, J.W. 2003. “From the Vendor's Perspective: Exploring the value proposition in information technology outsourcing”. MIS Quarterly, 27(3): 331–364.

21. Martin, P. 2018. “The intellectual structure of game research”. Game Studies, 18(1).

22. Morgan, R.M., Hunt, S.D., 1994. “The Commitment-Trust Theory of Relationship Marketing”. Journal of Marketing, 58(3): 20–38.

23. Mukherjee, D. , Gaur, A. S., Datta, A. 2013. "Creating value through offshore outsourcing: An integrative framework", J. Int. Manage., 19(4):377-389.

24. Ozimek, A. M. 2019. “Outsourcing Digital Game Production: The Case of Polish Testers”. Television & New Media, 20(8): 824-835.

25. Peslak, A.R. 2011. “Outsourcing and Offshore Outsourcing of Information Technology in Major Corporations’. Management Research Review, 35(1): 14–31.

26. Petrillo, F., Pimenta, M., Trindade, F., & Dietrich, C. 2008. “Houston, we have a problem…: A survey of actual problems in computer games development”. In Proceedings of the ACM symposium on applied computing: 707–711.

27. Radu, C., Ramona, L. 2010. “Strategic Perspective of Information Systems Outsourcing”. Fascicle of Management and Technological Engineering, 9 (19).

28. Scott, W.R., Davis, G.F. 2007. “Organizations and Organizing: Rational, natural, and open systems perspectives”. Upper Saddle River, NJ: Pearson Prentice Hall.

29. Swar, B., Moon, J., Oh, J., Rhee, C. 2012. “Determinants of Relationship Quality for IS/IT. Outsourcing Success in Public Sector”. Information Systems Frontiers, 14(2): 457–475.

30. Su, F., Mao, J.-Y., & Jarvenpaa, S. L. 2014. “How Do IT Outsourcing Vendors Respond to Shocks in Client Demand? A Resource Dependence Perspective”. Journal of Information Technology, 29(3): 253-267.

31. Wibisono, Y.Y., Govindaraju, R., Irianto, D., Sudirman, I. 2018. “Capabilities in Managing Offshore IT Outsourcing Challenges and the Influence on Outsourcing Success from the IT Vendor Perspective”. International Journal of Technology, 10(4): 841-853

32. Wolverton, C.C., Hirschheim, R., Black, W.C., Burleson, J. 2020. “Outsourcing success in the eye of the beholder: Examining the impact of expectation confirmation theory on IT outsourcing”. Information & Management, 57(6).

Appendix

1. Interview

Ethics

Thank you very much for your time and participation in this interview!

Before we proceed with this interview, it's essential to clarify our commitment to ethical conduct. The purpose of this interview is to gather valuable insights and information regarding the challenges in game development outsourcing. The information shared will be used for academic research purposes, particularly for the thesis project at Nova School of Business and Economics.

Your participation in this interview is entirely voluntary, and you have the right to decline any question or discontinue your participation at any point.

Your responses will be anonymized, and any personal information provided will be kept confidential if you wish so.

The insights gathered from this interview will be used solely for research purposes and academic reporting, and they will not be used for any commercial or non-academic activities.

If at any point you feel uncomfortable or have concerns during the interview, please feel free to express them. Your comfort and well-being are a priority.

Questions

1. Can you provide me with your name, gender, job title, name of organization you work for?
2. Can you provide an overview of your experience in the game development outsourcing industry and your role within it?

3. From your perspective, how has the landscape of game development outsourcing changed over the years?

My thesis highlights several clusters of challenges in game development outsourcing. For the following challenges identified in the context of game development outsourcing, please rate their significance on a scale of 1 to 7, with 7 being the most significant:

Cluster 1

1. The rapid advancements in technology and the imperative for IT outsourcing vendors to stay up-to-date could be challenging. How significant are Technology Changes/Innovation in gamedev outsourcing?

   1 (Not Significant) 2 3 4 5 6 7(Highly Significant)

2. The challenge of protecting intellectual property rights in IT outsourcing arrangements emphasizes the legal and contractual mechanisms required to safeguard intellectual property assets. How significant it is in gamedev outsourcing from a vendor perspective?

   1 (Not Significant) 2 3 4 5 6 7(Highly Significant)

3. Navigating the complex legal and regulatory landscape in IT outsourcing, especially when dealing with international clients can be really challenging for IT outsourcing vendors as companies must adhere to various laws, contracts, and industry-specific regulations to ensure compliance. How significant is Legal and Regulatory Compliance in outsourcing?

   1 (Not Significant) 2 3 4 5 6 7(Highly Significant)

4. Geopolitical risks and economic factors are influenced by the ever-changing political landscape, trade disputes, and shifting economic conditions. How significant are geopolitical risks and economic factors in game development outsourcing?

   1 (Not Significant) 2 3 4 5 6 7(Highly Significant)

5. Fluctuations in currency exchange rates, economic conditions and financial crises impact business operations and financial performance. How significant it is?

   1 (Not Significant) 2 3 4 5 6 7(Highly Significant)

Cluster 2

6. The challenges of finding and retaining skilled IT professionals is essential for outsourcing. How significant is Talent Acquisition and Retention in game development outsourcing?

   1 (Not Significant) 2 3 4 5 6 7(Highly Significant)

7. Scalability refers to the ability to adapt to changing client demands while developing new capabilities. How significant are scaling challenges in game development outsourcing?

   1 (Not Significant) 2 3 4 5 6 7(Highly Significant)

8. Data security and privacy challenges are essential due to the sensitive nature of game development data. How significant are data security and privacy challenges in game development outsourcing?

   1 (Not Significant) 2 3 4 5 6 7(Highly Significant)

Cluster 3

9. Competition challenges refer to the competitive nature of the game development outsourcing industry and its impact on scalability. How significant are competition challenges in game development outsourcing?

   1 (Not Significant) 2 3 4 5 6 7(Highly Significant)

10. Meeting client expectations, delivering high-quality services on time and within budget, ensuring satisfaction is an essential aspect of IT outsourcing. How significant is meeting client expectations?

1 (Not Significant) 2 3 4 5 6 7(Highly Significant)

11. When providing outsourcing services to clients in different countries, overcoming language barriers and understanding cultural nuances is crucial for effective communication and collaboration. How significant are Communication and Cultural Differences?

    1 (Not Significant) 2 3 4 5 6 7(Highly Significant)

12. Building and maintaining strong client relationships in IT outsourcing state the importance of trust, commitment, and effective communication in fostering long-term partnerships. How significant is client relationship management?

    1 (Not Significant) 2 3 4 5 6 7(Highly Significant)

Thank you for participating and providing insights into these significant challenges in game development outsourcing. Your contributions are really valuable to the academic research.

2. The experience and background of the participants

	Gender	Position	Amount of employees in the company	Experience
Interviewee 1	male	Founder of Marketing company	5	16 years of experience in software development, including 7 years in game development

Interviewee 2	female	Lawyer	100	2 years
Interviewee 3	male	Game designer, team lead, founder	20	9 years
Interviewee 4	male	Software architect	4000	7 years
Interviewee 5	male	Lead quality assurance engineer	150	10 years, 1.5 years in game development outsorcing
Interviewee 6	male	Co-founder and owner	250	more than 20 years
Interviewee 7	male	Finance director, co-founder and owner	120	more than 10 years in gamedev
Interviewee 8	female	Senior C++ developer	27000	8 years
Interviewee 9	male	CTO, co-founder and owner	80	12 years
Interviewee 10	male	senior developer	325	7 years
Interviewee 11	female	CEO	150	3 years
Interviewee 12	male	Business Development manager	76000	10 years
Interviewee 13	male	Business Development Director	100	7 years

3. Ratings of the questions by Interviewees

	Question 1	Question 2	Question 3	Question 4	Question 5	Question 6	Question 7	Question 8	Question 9	Question 10	Question 11	Question 12
Interviewee 1	3	4	3	5	4	6	6	5	6	7	4	5
Interviewee 2	7	7	7	6	5	7	5	6	5	6	4	7
Interviewee 3	5	6	6	1	3	7	5	1	2	7	1	7
Interviewee 4	5	7	7	4	5	4	4	7	3	7	4	7
Interviewee 5	6	4	3	6	5	7	4	6	3	7	2	5
Interviewee 6	5	2	4	6	2	6	4	5	4	7	4	6

Interviewee 7	4	2	7	7	4	4	3	2	6	5	7	7
Interviewee 8	5	7	7	7	4	4	2	7	3	6	6	6
Interviewee 9	5	4	3	4	4	2	5	5	6	7	5	4
Interviewee 10	2	4	5	3	2	7	4	6	7	6	6	6
Interviewee 11	5	3	6	7	6	6	5	4	4	7	4	6
Interviewee 12	5	3	7	7	7	7	7	7	7	7	5	5
Interviewee 13	6	6	5	6	1	5	5	5	7	7	6	7

4. **Comparative Analysis by Role, Company Size, and Challenge Significance:**

1. Founders/Owners/Top Management (8 participants):

Average Challenge Significance Rating: 5.25

2. Functional Experts (5 participants):

Average Challenge Significance Rating: 5.8

3. Small Companies (<50 employees):

Average Challenge Significance Rating: 5.46

4. Medium Companies (50-500 employees):

Average Challenge Significance Rating: 5.31

5. Large Companies (>500 employees):

Average Challenge Significance Rating: 5.69

5. Role-Specific Insights

Founders/Owners/Top Management:

Emphasized broader industry trends.

Rated challenges slightly lower on average.

Functional Experts:

Focused on specific operational challenges.

Rated challenges slightly higher on average.

6. Company Size-Specific Insights

Small Companies:

Focused on immediate operational challenges.

Medium Companies:

Demonstrated a balance between operational concerns and broader industry trends.

Large Companies:

Addressed broader industry trends.