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An analysis of export of software services in India since 2010: a systematic literature review with future agenda

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Abstract: Software services in India have emerged as major contributors to service exports. Despite the need for a better understanding of the export of software and related services, there is a scarcity of scholarly studies on this topic. This study attempts to fill this gap. This study reviewed literature related to export of software services and analysed 65 papers that are classified under different heads. Research shows that software services export strength has been frequently studied (38%), followed by opportunities (26%) and challenges (15%). Weaknesses (9%), threats (5%), and SWOT analysis (6%) have also been covered in this study. The paper contributes to services export research by providing theoretical, contextual and methodological insights into the field of software export. The study provides strategic insights for software exporting as well as outsourcing firms. Additionally, we identify research issues related to policymaking, governance, as well as broader societal impacts that need to be addressed in the future.

Keywords: export; software services; ITES; information technology enabled services; systematic literature review; India.

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1 Introduction

It is an indisputable fact that any nation's economic progress depends heavily on the export of services. The majority of nations across the world give special consideration to export promotion in order to accomplish economic growth, export diversification, revenue growth, employment, and other significant objectives (Adam and AlHassan, 2021; Amir et al., 2012). Because of this, the proportion of services exports in the global economy is constantly increasing. The expansion of services has been greatly accelerated by technological advancement (Zhong et al., 2023; Al-Mamary and Alraja, 2022). The export of services has thus opened up new potential for the diversification of economies in many developing nations as a result of the growth in opportunities for trade in services (Roy, 2019; Al-Mamary et al., 2014). Thus, it is crucial to provide recommendations for the development of this industry by examining existing theories, and the experiences of nations that have been successful at exporting services.

The countries now have a new or alternative option to pursue in order to foster economic growth and development due to the global economy's swiftly expanding services sector (Hoekman and Shepherd, 2017; Roy, 2019; WTO, 2019; Mazhar et al., 2016). This is true not only because the production of services helps the manufacturing sector, including manufactured exports (Hoekman and Shepherd, 2017; Liu et al., 2020; Nayyar et al., 2021), but also because the trade of services involves more than just the exchange of goods, and helps make nations more resilient to shocks (Zhou et al., 2022; Ariu, 2016; Borchert and Mattoo, 2010). The trade of services promotes the resilience of developing economies, and even more so in advanced economies (Zhong et al., 2021, Borchert and Mattoo, 2010; Rehman, 2021). Compared to depending on conventional services exports, modern services exports, especially business services, offer a higher level of economic resilience (López-Rubio et al., 2022; Ariu, 2016). In addition, increasing the variety and sophistication of service exports, particularly in the direction of high-value added modern services, provides another way of achieving economic development (Anand et al., 2012; Gnanon, 2021; Stojkoski et al., 2016; Rehman, 2020).

The data shows that the world's total exports of goods and services in 2019 totalled 25,033 billion US dollars, of which 6144 billion US dollars constituted exports of services and 19,468 billion US dollars constituted exports of goods. Services made for 24.5% of all exports (WTO, 2019). The percentage of exports of services has steadily increased during the past 10 years. Other statistics show that while services account for 20.9% of all exports of commodities and services from developed nations, they account for a higher 29.3% in developing nations (WTO, 2019). It is evident that emerging countries percentage in all service exports is increasing steadily (Lan and Hou, 2021; Kumar and Nanda, 2023).

Outsourced software and commercial services from India have seen a boom in exports in the last 10 years. Over the past 10 years, the country's export revenue from IT/BPO services increased nearly thrice, rising from US\$62 billion in 2012 to US\$156 billion in 2022. In fiscal 2021–2022, Indian IT service companies exported 88.8% of their software services via the offshore mode, up from 82.8% five years ago ("Exports of Indian software services", 2022). This suggests an increase in the proportion of services provided, and projects done for clients of global Information Technology enabled Services (ITES) from India. The value of India's software service exports (excluding exports through commercial presence) during the fiscal year is predicted to have risen by

17.2% to US\$ 156.7 billion. According to RBI (2012–2013 to 2021–2022), India's computer service exports grew 136% between 2012 and 2022, and BPO exports jumped 184% in the same period. In 2021–2022, India's computer services stood at USD 106.24 billions whereas BPO exports stood at USD 50 billion.

The total value of software service exports, including those made by foreign affiliates of Indian firms, climbed by 15.9% between 2021 and 2022 to reach US\$ 171.9 billion; the US accounted for the majority of the US\$ 15.2 billion in local software business produced by foreign affiliates. The US constituted 42.5% of the overall Indian software business from overseas affiliates, followed by the UK at 23.5%. With a cumulative 55.5% share, US and Canada were the primary destinations for Indian software exports, followed by Europe of which UK accounted for over half of the share ("Exports of Indian software services", 2022).

India is well-positioned to benefit from the post-COVID era's increased demand for digital services thanks to its large tech workforce (Rehman and Abbasi, 2020). One of India's lobbying groups, NASSCOM, estimates that by 2026, revenue from ITES might total US\$350 billion.

The contribution of the IT sector to India's GDP, IT exports, IT revenue patterns, and IT employment opportunities are all examined in this study to show how the IT industry dominates the Indian economy. It is clear that India's software industry has grown to become a significant employer and source of foreign exchange earnings. Other industries that depend on software applications will also continue to grow along with the software industry (Mazhar et al., 2015; Amir and Rehman, 2013; Rehman, 2014). This study provides information on the trajectory and composition of the software and IT industry's exports. One of the most significant new areas of research is international trade in services, which is also one of the emerging key fields of economic activity in any country's total national economic activities (Rehman and Alam, 2019).

In this paper, papers published in prominent journals on the stated field are reviewed. This study has applied multiple filters so that quality paper will be taken into account. Finally, 65 papers with the theme of software services and its export were gathered from this selection. The selected papers are then divided into five categories, including the Strengths, Weaknesses, Opportunities, Problems and Threats related to the Export of Software Services.

2 Methodology

2.1 Selection and evaluation

The systematic literature review was used as the methodology for this study. Studies examining India's export of software services were among the paper screening criteria. As indicated by Keupp and Gassmann (2009), journal impact factor was used as the basis for the paper selection criterion for systematic literature review (SLR), which led to the identification of high-quality papers. The journals with a high impact factor were picked for two reasons. First, papers that are published in these journals are more likely to contain concepts that are further explored, assessed, and developed. Second, these

journals provide scholarly evidence and have a big impact on their field (Shabbir et al., 2020). In accordance with Paul and Criado (2020), we disqualified 29 studies for SLR that were published in periodicals with a poor or non-existent impact factor.

We decided to choose the 2010–2021 period because the export of software services in India grew almost three-fold between 2010–2021 (Ammachchi, 2022). Additionally, since 2010, scholars have paid much more attention to issues linked to India’s software exports than they previously considered.

2.2 *The search process*

We used databases including Web of Science, Google Scholar, Science Direct, Scopus, Shodhganga, and Emerald to initiate our search. We utilised keywords like “export of software services in India” and “export of IT services in India” for screening purpose. This screening produced a huge number of results that were a combination of scholarly and non-scholarly publications. Newspaper stories, blog postings, and unique journalistic perspectives made up a large portion of these publications. We chose more specialised databases to search for peer-reviewed journal publications, conference proceedings, PhD theses, book chapters, and working papers in order to ensure a more focused search for significant scholarly works.

2.3 *Inclusion criteria*

The particular criteria for qualifying research have an impact on the validity of the resulting pool of papers (Kahiya, 2018; Krippendorff, 1989). To further narrow the search procedure, we created and used the following inclusion criteria:

- 1 Only scholarly research studies were included in the final pool.
- 2 Studies that examined export of software and IT services in India.
- 3 Relevant research between 2010–2021.
- 4 Studies with enough details about methodological and research design aspects, were considered.

After assessing the papers against these criteria, the final dataset comprised 65 relevant research papers. The resultant pool of studies examined the export of software and IT services in India.

3 **Review structure**

The present study has reviewed 65 papers on export of software services, which have been published in reputable journals and other databases between 2010–2021. Based on Table 1, most of the researches on export of software services have been conducted in 2016 and 2017. This study also reviews papers based on countries and found that India is the leading country with the greatest number of research studies totalling 53 papers. This is followed by the USA and China (Table 2).

Table 1 Classification of publications (2010–2021)

<i>Year of publication</i>	<i>Total</i>	<i>Percentage (%)</i>
2010	07	10.7
2011	07	10.7
2012	05	7.6
2013	03	4.6
2014	04	6.1
2015	03	4.6
2016	09	13.8
2017	10	15.3
2018	03	4.6
2019	05	7.6
2020	07	10.7
2021	02	3.0
Total	65	100.0

Table 2 Classification on the basis of countries

<i>Country</i>	<i>Frequency</i>
India	53
China	02
USA	03
Israel & Ireland	01
Other	06

The leading database that discusses this topic is Shodhganga with 32 research papers followed by Web of Science with 11 papers. The other publications are taken from Google Scholar with 7 papers. Science Direct, Emerald and Scopus contributed with 6, 5 and 4 papers respectively (Table 3).

Table 3 Classification on the basis of database

<i>Database</i>	<i>Publications (Numbers)</i>
Scopus	04
Web of Science	11
Google scholar	7
Science Direct	6
Shodhganga	32
Emerald	5
Total	65

The 65 studies are classified into four major categories on the basis of number of authors. It has criteria of a single author, two authors followed by three and four (or more) authors. Over the past years, the category of single author holds the top place with 55% of the total papers (Table 4). The reviewed papers are classified under five heads as per the themes and topics (Table 5). The basis and types of methodology used by the authors is shown in Table 6.

Table 4 Classification on the basis of authors (number)

<i>Number of Author</i>	<i>Frequency</i>	<i>Percentage (%)</i>
Single Author	36	55
2 Authors	17	26
3 Authors	10	15
4 or more Authors	2	3
Total	65	100

Table 5 Classification on the basis of topics

<i>Topics</i>	<i>Frequency</i>	<i>Percentage (%)</i>
Strengths of Export of Software Services	25	38.46
Weaknesses of Export of Software Services	06	9.23
Opportunities of Export of Software Services	17	26.15
Problems of Export of Software Services	10	15.38
Threats of Export of Software Services	03	4.61
SWOT Analysis	04	6.15
Total	65	100

Table 6 Classification based on the methodology

<i>Methodology</i>	<i>Number of papers</i>
Literature Review	04
Cross Sectional Studies	04
Observational Studies	04
Interview	05
Questionnaire	14
Secondary Sources	22
Empirical Studies	06
Survey	03
Analytical Studies	03
Total	65

4 Discussion

4.1 Strength of export of software services

The strength of software services export in the economy is the most widely chosen topic by global researchers with 25 papers from 65 existing papers. The studies on strengths of export of software services are summarised in Table 7.

Table 7 Studies on strength of export of software services

<i>Name of author(s)</i>	<i>Title of the paper</i>	<i>Findings</i>	<i>Future directions</i>
Alok Kumar (2020)	Export Financing in India with Special Reference to Export Import Bank of India	The study found that Export Credit Guarantee Corporation of India (ECGC) strengthens the base of export and assist these enterprises in minimising the risk associated with export credit	The role of other financing institutions such as EXIM bank, NSIC etc. in supporting Export of Software services needs to be studied
Kalyanasundaram (2017)	Software exports policy and performance of India	The study aimed to explore measures to prepare India for integration with the world economy	The economical reforms need further evaluation
Raychaudhuri and De (2016)	Determinants of exports of information technology in India: an empirical analysis	The study found that the IT Sector has great contribution towards economy	Role of foreign capital can be explored by researchers
Sahoo et al. (2013)	Determinants of India's services exports	The study revealed that service exports are determined by global demand and other inherent factors	N/A
Hector and Arunachalam (2012)	Export competitiveness of Software Industry in India	The study highlighted the significance of high-end services	The tertiary sector needs evaluation with respect to other countries in terms of its growth
Goswami et al. (2012)	Exporting services: A developing country perspective	The study analysed the effect of other sectors that may bring favourable impact	N/A
Banga and Kumar (2011)	India's exports of software services: Role of external demand and productivity	The study examined the role of other sectors on productivity	N/A
Watanabe (2010)	Competitive advantage in an industry cluster	The study explored ways to gain competitive advantage so that it will promote industrial development	Future research on the link between software park and innovations can bring fruitful results

Table 7 Studies on strength of export of software services (continued)

<i>Name of author(s)</i>	<i>Title of the paper</i>	<i>Findings</i>	<i>Future directions</i>
Arora and Bagde (2010)	Human capital and the Indian software industry	The study demonstrated the concept of human capital and compared it with the growth if exports	Regional growth of the software exports industry has to be tapped in
Akhilesh et al. (2021)	Integrated solution for optimal generation operation efficiency through dynamic economic dispatch on Software Technological Park of India	The study identified the STPI units contribution in export promotion	To study that in relation with STPI units, how EHTP (Electronic Hardware Technology Park) can provide an opportunity to export agencies of software services
Malik and Velan (2020)	An analysis of IT software and service exports from India	The study confirmed that software and GDP are co-integrated	Other variables in the short run also need further evaluation
Swapna and Sujatha (2012)	Analysis of IT Industry in India during Pre and Post Reforms Era: Performance, Problems and Prospects	IT industry has made an immense contribution and supported growth so that upward trend can be attained	N/A
Vijayakumar (2017)	Efficacy of Export Import Bank of India EXIM Bank	The study demonstrated the impact of financial intermediaries assistance on export promotion	Operational efficacy in respect of other financing banks may bring fruitful result
Hamsalakshmi (2016)	Financial analysis of selected Indian software companies: an empirical study	The study observed the performance of big software companies	N/A
Sahoo AND Nauriyal (2014)	Determinants of software exports from India	The study found the major factors and determinants which directly or indirectly support/threatens the work environment	N/A
Sindhu (2020)	Recent trends in export of computer software and information technology enabled services from India	The study found that role of technology (IT) can bring competitive edge and strength to the business	N/A
Singh Taranjit (2020)	Export performance of IT and ITES industry in India	The study found that IT and ITES industry plays an important role and can bring fruitful result in future	Various measures can be studied to enhance the export performance

Table 7 Studies on strength of export of software services (continued)

<i>Name of author(s)</i>	<i>Title of the paper</i>	<i>Findings</i>	<i>Future directions</i>
Raju and Rao (2020)	Financial Analysis of Selected It Companies in India	The study checked out articulation of Balance Sheet and other financial statements such as Profit and Loss Account	Monetary evaluation for success can be tapped by researchers
George (2018)	Performance of evaluation of export Oriented units in Kerala : with special reference to micro, small and medium Enterprises	The study revealed that exporters are highly satisfied with the EOU Scheme and it helps them to increase their export	N/A
Nimgaonkar (2017)	Export LED economic growth and India	The study focuses on the changing environment and the role of exports in Indian economy	N/A
Ansari and Ojemakinde (2013)	Explaining Asymmetry in the US Merchandise and Service Account Balance: Does the Service Sector Hold the Key to the US Current Account Woes?	The study explored the factors which support merchandise trade and estimated demand functions trades	Sectoral analysis with respect to other countries will reveal more about future trends
Bhattacharjee (2017)	Software and services industry: a case study of SIP Kolkata	The study found ways to bring all firms under one umbrella by providing them proper incentives	The future directions include cluster approach and how it will help export of software services to grow
Narayanan and Bhat (2009)	Technological efforts and internationalisation of IT firms in India	The paper examined the role of technological efforts both internal and external, and found that both these factors have a great impact on the firm's growth	N/A
Zhao et al. (2009)	Competitive advantage in an industry cluster: The case of Dalian Software Park in China	The study explored various models in order to promote healthy competition	N/A

4.2 Weaknesses of export of software services

The studies on weaknesses of export of software services are summarised in Table 8.

Table 8 Studies on weaknesses of export of software services

<i>Name of author(s)</i>	<i>Title of the paper</i>	<i>Findings</i>	<i>Future directions</i>
Jossan (2016)	Economic Analysis of the Trends and Patterns of Indian IT Exports in the Context of global Economic Slowdown	The study focused on the weaknesses due to which business are cutting down IT budgets to constrain operational expenses	The deliberate technological innovation in terms of new service offerings by the Indian IT service providers can lead to expansion of new destinations
Haneefa (2015)	Structural changes in India's exports since 1991	The study showed the changes that happened in Indian economy since 1991 with respect to export of services	N/A
Abdul et al. (2016)	Information and communication technology and economic growth in India	The study found the limiting factors that halt the productivity gain from information and communications technology (ICT) use	Increasing role of Internet of Things can be evaluated
Rama (2014)	Entrepreneurship development and software industry	The study disclosed that political instability is the most significant factor which constrains growth	N/A
Sundharan (2013)	Structure, growth and performance of Indian IT-BPO Industry	The study found outsourced jobs are dominated by policies of the prevailing government	N/A
Eichengreen and Gupta (2013)	Export of Services: Indian Experience in Perspective	The study discussed the country's poor policy initiatives and its implications on service exports	N/A

4.3 Opportunities of export of software services

The studies on opportunities of export of software services are summarised in Table 9.

Table 9 Studies on opportunities of export of software services

<i>Name of author (s)</i>	<i>Title of the paper</i>	<i>Findings</i>	<i>Future directions</i>
Chitgupi (2019)	Macroeconomic determinants of software services exports and impact on external stabilisation for India: an empirical analysis	The findings suggested that upliftment of trade barriers in the exporting country will improve the results	N/A

Table 9 Studies on opportunities of export of software services (continued)

<i>Name of author (s)</i>	<i>Title of the paper</i>	<i>Findings</i>	<i>Future directions</i>
Francis (2019)	Export marketing strategy for Indian software in the global market: a study of present trends involving market strategy for future demand	The study concluded that branding of software product and IT-enabled and other software services can bring opportunities	N/A
Nigam (2017)	Marketing strategy for software exports: a study of software technology parks in India	The study discussed the software export models and the concerning issues	The new export models needs evaluation from time to time
Bhide (2017)	Study of change in composition and direction of exports by information technology companies in and around Pune	The study discussed on the factors which governed changes in composition and direction of exports	Apart from composition and direction of exports, volume also plays a considerable role
Kumar (2017)	Export credit and guarantee system in India	The findings suggested that due to lack of marketing infrastructure, firms fail to reach the international market	Various strategies need to be designed which can act as an opportunity in future
Chavan (2017)	Marketing of computer software in Maharashtra state	The study focused on the advantages for the Indian IT companies in Maharashtra	N/A
Banamali (2016)	Export marketing of engineering goods: a study of problems prospects, and strategies	The study discussed the extent to which different database packages can be made user friendly	N/A
Patil (2016)	Study of customisation of software product design and management by IT industries in Pune	The study provided some important suggestions to marketers as well as users of software. It was suggested to include the intermediaries in order to market the services	N/A
Jalaja et al. (2016)	Retention strategies of IT and ITes companies in south Indian metropolis	The study concluded that inducements will encourage the employees' to stay in the organisation	Policies and strategies in view of the IT companies and current business environment have to be formulated
Ramanaiah (2015)	Major exports of India with special reference to gems and jewellery readymade garments and engineering goods	The study summarised that foreign trade augmentation is imperative for economic growth	This sector has a bright future and needs to be evaluated from time to time

Table 9 Studies on opportunities of export of software services (continued)

<i>Name of author (s)</i>	<i>Title of the paper</i>	<i>Findings</i>	<i>Future directions</i>
Swadesin and Kalindi (2015)	BPO world: an analysis of the emergence of BPO industry in India	The study assessed the performance of industries in the light of globalisation	Environment Scanning becomes quite essential. Researches in this regard will bring dynamic changes and great opportunities
Montalbano (2011)	Trade openness and developing countries vulnerability: concepts, misconceptions, and directions for research	The study focused on the “destabilising effects” and highlighted the importance of trade openness in different context	N/A
Gupta et al. (2015)	Bank ownership and the effects of financial liberalisation: evidence from India	The study found that after liberalisation, private banks have started maintaining their cash reserve more as compared to other joint stock banks	For future researches, the authors can use the bank level data and can compare it with the other economies to draw conclusions
Abiad et al. (2016)	A new database of financial reforms	The study throws light on novel database and describes the content with information sources and made comparison between measures of financial liberalisation	N/A
Das and Saha (2011)	Trade in goods and services and economic growth	The study revealed that world-wide economy has a positive shift towards software services	Forecast of trade in goods and services may allow economy to identify opportunities that will bring noticeable results
Illiyan (2008)	Performance, challenges and opportunities of Indian software export	The study revealed that service sector is at the second position and contributes to great extent in country's industrial strength	The study draws conclusion which focuses on software services and its association with growth

4.4 *Problems associated with the export of software services*

The studies on problems of export of software services are summarised in Table 10.

Table 10 Studies on problems of export of software services

<i>Name of author(s)</i>	<i>Title of the paper</i>	<i>Findings</i>	<i>Future directions</i>
Enamala (2021)	An analysis of attritional factors of IT and ITES organisations	The study analysed the role FDI in IT-related services	N/A
Kottai (2020)	Trade in services in India: a case on export of software services from Tamil Nadu	The study found that Government has launched Export promotion Councils for the Non-Exporters by taking annual charges and provide them membership	N/A
Goyal (2020)	Export opportunities and challenges: a study of Indian firms of national capital region	The study found that the exporters chose markets according to the orders received from the buyers, government policies, taxes and tariffs, and easy accessibility	If challenges are addressed through proper channels, then it can easily be turned into opportunities
Swapna (2017)	Analysis of IT Industry in India during pre and post reforms era: performance, problems and prospects	The study described the profile and the development strategies of industry in India during the pre and post liberalisation	Strategies to resolve these challenges need to be encountered by the researchers to know the future trends and potential issues
Upadhyay and Roy (2016)	Impact of exchange rate movement and macro-economic factors on Software and Services from India	The study leads to the rigid findings about the exchange rate and its impact on the world economy	Exchange rates should be replaced with other variables to know their relation
Bhattacharya et al. (2012)	Export vs. FDI in services in the World Economy	The study extends the HMY model by considering uncertainty in product quality	N/A
Geng and Hu (2011)	SWOT analysis of China software service outsourcing	The study focused on the importance of SWOT analysis and concluded that to predict the future such analysis is crucial so that prior actions can be taken	N/A
Dehejia and Panagariya (2010)	Services growth in India: a look inside the black box	The study addressed the growth and upward trend of services in Indian economy	The capital intensive service sector needs further evaluation for deeper insight

Table 10 Studies on problems of export of software services (continued)

<i>Name of author(s)</i>	<i>Title of the paper</i>	<i>Findings</i>	<i>Future directions</i>
Montalbano (2011)	Trade openness and developing countries vulnerability: concepts, misconceptions, and directions for research	The study focused on liberalisation and trade openness	0. N/A
Mehta (2018)	Intellectual property protection of computer software issues and challenges	The study found software development process is carried out by intellectual level of a human being	N/A

4.5 *Threats associated with export of software services*

The studies on threats of export of software services are summarised in Table 11.

Table 11 Studies on threats of export of software services

<i>Name of author(s)</i>	<i>Title of the paper</i>	<i>Findings</i>	<i>Future directions</i>
Malik and Nirmala (2019)	Software and services export, IT investments and GDP nexus in India: evidences from VECM analysis	The study concluded that the export revenue from IT or BPM sector is moving upward with positive trend	The paper implies that national markets need to be extended for better result and performance. It will enable these markets to stand against global competition
Radhakrishnan (2014)	Growth and structural transformation of the Indian computer software industry	The study summarised that increased private sector participation in STP management make them more responsive	N/A
Arnold et al. (2016)	Services reform and manufacturing performance: evidence from India	The study found the positive impact of banking, insurance and other similar reforms on the high yielding productivity of manufacturing firms	The service reforms in other sectors apart from manufacturing can bring positive results

4.6 *SWOT analysis on export of software services*

The studies on SWOT analysis of export of software services are summarised in Table 12.

Table 12 Studies on SWOT analysis of export of software services

<i>Name of author(s)</i>	<i>Title of the paper</i>	<i>Findings</i>	<i>Future directions</i>
Satsangi and Kaushik (2019)	Exports of Gems and Jewellery from India: SWOPT Analysis	The study analysed the performance of Gems and Jewellery export on the basis of volume, destination, and composition	N/A
Srivastava (2019)	Evaluation of Institutional Financing for Exports in India	The study revealed that persistent efforts are required in order to raise India's share in world exports	N/A
Nair and Prasad (2004)	Offshore outsourcing: a SWOT analysis of a state in India	The study explored the SWOT analysis which showed immense support given to IT sector	Internal SWOT analysis must be done through field surveys
Helms and Nixon (2010)	Exploring SWOT analysis—where are we now?	The study used SWOT analysis to scan the environment so that strategies can be designed beforehand	The future path should be laid down by adjusting the current strengths and Weaknesses

5 Implications

5.1 Theoretical implications

This study highlights the need for a more thorough sectoral examination of the influence of information and communications technology (ICT) on economic growth, evaluating computer-related and software services separately, and it also suggests other ways to improve the data on ICT investment. A SWOT analysis of the export of software services from India is also conducted in this study. This SWOT analysis makes significant contribution to the scholarly literature on export of software services. SWOT research has been found to concentrate on examining firms for suggested strategic initiatives over the past 10 years.

5.2 Practical implications

This study has many practical implications, exclusively for the software and ITES sector companies, policymakers in government, and practitioners to overcome the industry-specific challenges highlighted in this study, to strengthen and sustain competitive advantages of software industry clusters in order to promote innovation, industrial development, and regionaleconomic prosperity.

This study has implications for software companies as well because the findings point to the necessity for niche markets to gain a sustainable competitive edge in the global market. Following a SWOT analysis, development recommendations and policy are put forward. These suggestions can serve as a guide for firms that outsource software services. Export managers must also give careful consideration to the export-oriented strategy and price adaptation, as these factors also impact export performance. Moreover,

export managers ought to consider both the internal attributes of the organisation and the external environment, as these factors interact to shape export performance. With regard to internal attributes, it has been observed that a competent managerial team consistently has a favourable impact on export performance. As a result, export managers are motivated to acquire export expertise and strengthen their commitment to exporting. It is advisable for export managers of smaller organisations to focus on a smaller number of markets in order to enhance export performance (Wajih and Rehman, 2014). Conversely, export managers of larger organisations are encouraged to broaden the range of export markets included in their portfolio.

Several external environment-related factors moderate the associations between export performance and firm-level resources. It is especially advisable for export managers operating in technology-intensive sectors to prioritise the development of innovation capability. This will strengthen their competitive edge in the global marketplace. Additionally, they should consider the dynamic nature of the export market, cultural diversity, the institutional environment, and psychic distance.

The analysis of this study is quite relevant to the global economy as it focuses on cluster-building for software services. The paper has implications for achieving sustainability in IT software and service exports growth. By taking into account the long-term behaviour, the government can guide its policies for enhancing the performance of IT software and service exports. The study has implications for the growth of the domestic market, product and trade diversification, and innovations for boosting sustainability and competitiveness in the global market in the midst of fierce competition from new competitors. Government policy-makers can use this study to establish a conceptual framework for formulating macroeconomic policy, planning, and decision-making. Both practitioners and policy makers can benefit from a fresh perspective on new directions and SWOT analysis implementations, as well as other strategic planning tools that can be integrated with SWOT. This study more or less has consequences for the sustainability of export expansion of IT services and software, which can be a valuable opportunity for many enterprises.

6 Limitations and future study direction

Despite the transparency and thoroughness with which this study was done, some potential limitations must be acknowledged. First, it's possible that not all relevant journal papers from all academic disciplines were identified and chosen for inclusion in the final analyses. The lack of studies on export of software services made it necessary to broaden the search to include studies that framed and/or explored associated variables in relation to relevant context. This more thorough technique is more difficult to put to a bright-line test. Second, the papers under consideration could only be dated between 2010 and 2021 (inclusive). The broad scope of the search makes it more likely that an error could arise from key word bias, the scope of available studies in a particular database, or human oversight or error. Third, there might be important unidentified grey literature that could add to our knowledge of this crucial subject. These materials may be a more comprehensive source of information than scientific studies and help to close the gap between academics and practitioners in the field of export of software services. Last but not least, more inclusion and exclusion criteria might be used to expand the review's

boundaries, more keyword search phrases could be included, and other publication languages could be included. The current examination, however, is the first to look into the export of software services and lays a strong framework for further investigation.

7 Conclusion

This study found that strong economic growth, rapid advancement in technology infrastructure, increasingly competitive business firms, enhanced focus by the government and emergence of business models are key drivers for increased technology adoption in India. The study aims to determine the field developments with respect to Export of Software Services across the globe. The results show the strengths, weaknesses, opportunities, problems and threats of export of software services research since 2010. Many studies related to export of software services have been carried out in different economies with India leading in terms of number of researches.

Classification on strength of export of software services has 25 papers (38%). Next are the papers covering weaknesses of export of software services with 06 papers (09%). This follows with 17 papers (26%) on the opportunities related to export of software services, and 10 papers (15%) on the major problems of export of software services (15%). Followed by it, there are 03 papers (05%) focusing the threats and finally, on complete SWOT analysis done on the export of software services there are 4 papers (06%). From the strength section, there are significant lessons that can be learned. First, export of software services has a very prominent and bright future. It contributes to every sector of the economy and helps to strengthen the entrepreneurial base, leads to employment generation, and can be survived with favourable government policies and financial aid.

There are some important lessons that can be learned from the Weaknesses of export of software services. First, the potential of this sector is often underutilised. Secondly, the pandemic also brought to light some of the challenges that export of software services face, which have only gotten worse in a post-Covid-19 world. Thirdly, export of software services will soon recover if the government intervenes and lastly, through digital marketing, attractive packaging, and product differentiation such constraints can be prevented and avoided.

The theme of opportunities of exports of software several had some important lessons for practitioners. First, opportunities such as liberalisation, cultural diversity, financial reforms etc. related to the export of software services are quite important for the growth. Secondly, it was concluded that service sector is at the second position and contributes to great extent in budding country's industrial strength. There are some important suggestions related to opportunities of exports of software. The upcoming opportunities can be traced by scanning the environment at the very initial stage by the researchers. The changing and dynamic environment needs to be tapped for fruitful result.

A collection of papers with the theme of problems of export of software services provide several lessons for practitioners. Firstly, uncertainty in product quality is the major concern which needs to be looked after beforehand. This can be done by scanning the environment.

The paper with the theme of threats of exports of software several had some important lessons for practitioners are as follows- Firstly, the impact of pandemic act as a constraints faced by exporters which needs to be evaluated. Secondly, to what extent

these threats are hindering the growth of the sector can keep pace with the designed strategies requires a comprehensive view of the researchers so that attention can be driven on the other back up and alternative plans. Companies should prepare itself for the dynamic change in the coming years; threats are analysed so that the base of export of software services sector could be strengthened. It can be seen that various strategies are suggested and policies for strengthening the export of software services sector are formulated.

This study contributes to services export research by providing theoretical, contextual and methodological insights into the field of software export. The study provides strategic insights for software exporting as well as outsourcing firms. Additionally, we identify research issues related to policymaking, governance, as well as broader societal impacts that need to be addressed in the future.

Declaration of interests

The authors declare that they have no known competing interests.

References

- Abdul, A., Erumban, D. and Das, K. (2016) 'Information and communication technology and economic growth in India', *Telecommunications Policy*, Vol. 40, No. 5, pp.412–431, ISSN 0308-5961, <https://doi.org/10.1016/j.telpol.2015.08.006>
- Abiad, A., Detragiache, E. and Tressel, T. (2016) 'A new database of financial reforms', *IMF Working Paper*, Vol. 12, No. 31, pp.1–28, <https://www.imf.org/en/Publications/WP/Issues/2016/12/31/A-New-Database-of-Financial-Reforms-22485>
- Adam, I.O. and Alhassan, M.D. (2021) 'The linkages between ICT access, e-government and government effectiveness and its effect on corruption', *International Journal of Technology, Policy and Management*, Vol. 21, No. 4, pp.344–362.
- Akhilesh, K.M., Jain, H., Biswas, P.S.T.R. and Manikandan (2021) 'Integrated solution for optimal generation operation efficiency through dynamic economic dispatch on software technological park of India', *Materials Today: Proceedings*, Vol. 47, No. 17, pp.6078–6081, <https://doi.org/10.1016/j.matpr.2021.05.019>
- Al-Mamary, Y.H., Shamsuddin, A. and Aziati, N. (2014) 'The role of different types of information systems in business organizations: a review', *International Journal of Research*, Vol. 1, No. 7, pp.333–339.
- Al-Mamary, Y.H.S. and Alraja, M.M. (2022) 'Understanding entrepreneurship intention and behavior in the light of TPB model from the digital entrepreneurship perspective', *International Journal of Information Management Data Insights*, Vol. 2, No. 2, p.100106.
- Amir, P. and Rehman, A. (2013) 'An analytical study of the need to involve private partners in infrastructure projects and identification of priority sectors among public private partnership (PPP) projects of Uttar Pradesh', *ZENITH International Journal of Business Economics and Management Research*, Vol. 3, No. 5, pp.173–189.
- Amir, Z., Rehman, A. and Khan, W.A. (2012) 'Strategizing Indian carpet industry to overcome the impact of economic crisis with special reference to U.P.', in Singh, S.K. (Ed.): *Global Economic Crisis – The Strategic Way Out*, Excel India Publishers, New Delhi.
- Ammachchi, N. (2022) *Infographic: The 10-year Explosion in India's Software Services Export, Nearshore Americas*, 27 October, Retrieved from <https://nearshoreamericas.com/infographic-the-10-year-explosion-in-indias-software-services-exports/>

- Anand, R., Mishra, S. and Spatafora, N. (2012) *Structural Transformation and the Sophistication of Production*, IMF Working Paper, WP/12/59. International Monetary Fund, Washington DC.
- Ansari, M.I. and Ojemakinde, A. (2003) 'Explaining asymmetry in the U.S. merchandise and service account balance: does the service sector hold the key to the U.S. current account woes?', *International Trade Journal*, Vol. 17, No. 1, pp.51–80, <https://doi.org/10.1080/08853900309535>
- Ariu, A. (2016) 'Crisis-proof services why trade in services did not suffer during the 2008-2009 collapse', *Journal of International Economics*, Vol. 98, pp.138–149.
- Arnold, J.M., Javorcik, B., Lipscomb, M. and Mattoo, A. (2016) 'Services reform and manufacturing performance: evidence from India', *Economic Journal*, Vol. 126, No. 590, pp.1–39, <https://doi.org/10.1111/eoj.12206>
- Arora, A. and Bagde, S.K. (2010) *Human Capital and the Indian Software Industry*, National Bureau of Economic Research (Volume No. 16167), doi: [org/10.3386/w16167](https://doi.org/10.3386/w16167).
- Banamali (2016) *Export Marketing of Engineering Goods a Study of Problems Prospects and Strategies* [Doctoral Dissertation, Utkal University], <https://shodhganga.inflibnet.ac.in/jspui/handle/10603/129183>
- Banga, R. and Kumar, D. (2011) 'India's exports of software services: role of external demand and productivity', *Science, Technology and Society*, Vol. 16, No. 3, pp.285–307, <https://doi.org/10.1177/097172181101600303>
- Bhattacharjee, S. (2017) *Software and Services Industry a Case Study of Sip Kolkata* [Doctoral Dissertation, University of Calcutta], <http://hdl.handle.net/10603/157147>
- Bhattacharya, R., Patnaik, I. and Shah, A. (2012) 'Export versus FDI in services. the world economy', *World Economy*, Vol. 35, No. 1, pp.61–78, [https://doi.org/10.1111/j.1467-\(9701\)2011.01385.x](https://doi.org/10.1111/j.1467-(9701)2011.01385.x)
- Bhide, S.M. (2017) *Study of Change in Composition and Direction of Exports by Information Technology Companies in and Around Pune* [Doctoral Dissertation, Savitribai Phule Pune University], <http://hdl.handle.net/10603/185937>
- Borchert, I. and Mattoo, A. (2010) 'The crisis-resilience of services trade', *The Service Industries Journal*, Vol. 30, No. 13, pp.2115–2136.
- Chavan, V. (2017) *Marketing of Computer Software in Maharashtra State* [Doctoral Dissertation, Shivaji University], <https://shodhganga.inflibnet.ac.in/jspui/handle/10603/142693>
- Chitgupi, A. (2019) *Macroeconomic Determinants of Software Services Exports and Impact on External Stabilisation for India: An Empirical Analysis*, Institute for Social and Economic Change Working Papers, Vol. 432, Institute for Social and Economic Change, Bangalore, pp.1–35.
- Das, S.P. and Saha, A. (2011) *Trade in Goods and Services and Economic Growth*, Indian Statistical Institute-Delhi Centre, <http://www.isid.ac.in/-pu/conference/dec12conf/Papers/AnuradhaSaha.pdf>, 2014-01-27
- Dehejia, R. and Panagariya, A. (2010) *Services Growth in India: A Look Inside the Black Box*, Columbia University School of International and Public Affairs, Working Paper Number 4444 [Google Scholar].
- Eichengreen, B. and Gupta, P. (2013) 'Exports of services: Indian experience in perspective', *Indian Growth and Development Review*, Vol. 6, No. 1, pp.35–60, <https://doi.org/10.1108/17538251311329540>
- Enamala, J. (2021) 'An analysis on attritional factors of IT and ITES organizations', *International Journal of Advanced Research in Science, Communication and Technology*, <https://doi.org/10.48175/IJARSCT-695>
- Exports of Indian Software Services increased to 88.8% in FY22: RBI (2022) *The Economic Times*, 9 September, <https://economictimes.indiatimes.com/tech/information-tech/exports-of-indian-software-services-increased-to-88-8-in-fy22-rbi/articleshow/94093251.cms?from=mdr>

- Francis, G.K. (2019) *Export Marketing Strategy for Indian Software in the Global Market A Study of Present Trends Involving Market Strategy for Future Demand* [Doctoral Dissertation, University of Madras], <http://hdl.handle.net/10603/254612>
- Geng, W. and Hu, Y. (2011) 'SWOT analysis of China software service outsourcing', *IEEE 2nd International Conference on Software Engineering and Service Science*, Beijing, pp.691–694, doi: 10.1109/ICSESS.2011.5982423.
- George, J. (2018) *Performance of Evaluation of Export Oriented Units in Kerala with Special Reference to Micro Small and Medium Enterprises* [Doctoral Dissertation, Mahatma Gandhi University], <http://hdl.handle.net/10603/218779>
- Gnangnon, S.K. (2021) 'Services export diversification and economic growth', *European Journal of Comparative Economics*, Vol. 18, No. 1, pp.49–86.
- Goswami, A.G., Mattoo, A. and Sáez, S. (Eds.) (2012) *Exporting Services: A Developing Country Perspective*, World Bank Publications, Washington DC.
- Goyal, S. (2020) *Export Opportunities and Challenges: A Study of Indian Firms of National Capital Region* [Doctoral Dissertation, Guru Jambheshwar University of Science and Technology], <http://hdl.handle.net/10603/278458>
- Gupta, P., Kochhar, K. and Panth, S. (2015) 'Bank ownership and the effects of financial liberalization: evidence from India', *Indian Growth and Development Review*, Vol. 8, No. 1, pp.109–138, <https://doi.org/10.1108/IGDR-08-2014-0028>
- Gupta, S.D., Raychaudhuri, A. and Haldar, S.K. (2015) 'Determinants of exports of information technology in India: an empirical analysis', *South Asia Economic Journal*, Vol. 16, No. 1, pp.64–81, <https://doi.org/10.1177/1391561415575128>
- Hamsalakshmi, R. (2016) *Financial Analysis of Selected Indian Software Companies an Empirical Study* [Doctoral Dissertation, Bharathiar University], <http://hdl.handle.net/10603/102168>
- Haneefa, A. (2015) *Structural Changes in India's Exports Since 1991* [Doctoral Dissertation, Aligarh Muslim University], <http://hdl.handle.net/10603/55128>
- Hector, J.T.K. and Arunachalam, P. (2012) *Export Competitiveness of Software Industry in India*, Doctoral dissertation, Department of Applied Economics, Cochin University of Science and Technology.
- Helms, M.M. and Nixon, J. (2010) 'Exploring SWOT analysis—where are we now? A review of academic research from the last decade', *Journal of Strategy and Management*, Vol. 3, No. 3, pp.215–251, <https://doi.org/10.1108/17554251011064837>
- Hoekman, B. and Shepherd, B. (2017) 'Services productivity, trade policy, and manufacturing exports', *World Economy*, Vol. 40, No. 3, pp.499–516.
- Illiyan, A. (2008) 'Performance, challenges and opportunities of Indian software export', *Journal of Theoretical and Applied Information Technology*, Vol. 4, No. 11, pp.1088–1106.
- Jalaja, E., Kumar, B. and Anitha (2016) *Retention Strategies of IT and ITES Companies in South Indian Metropolis* [Doctoral Dissertation], Sri Krishnadevaraya University, <http://hdl.handle.net/10603/67511>
- Jossan, A.A (2016) *Economic Analysis of the Trends and Patterns of Indian It Exports in the Context of Global Economic Slowdown* [Doctoral Dissertation], <https://shodhganga.inflibnet.ac.in/jspui/handle/10603/98241>
- Kahiya, E.T. (2018) 'Five decades of research on export barriers: review and future directions', *International Business Review*, Vol. 27, No. 6, pp.1172–1188.
- Kalyanasundaram, P. (2017) *Software Exports Policy and Performance of India* [Doctoral Dissertation, Bharathiar University], <https://shodhganga.inflibnet.ac.in/jspui/handle/10603/140693>
- Keupp, M.M. and Gassmann, O. (2009) 'The past and the future of international entrepreneurship: a review and suggestions for developing the field', *Journal of Management*, Vol. 35, No. 3, pp.600–633.

- Kottai, V. (2020) *Trade in Services in India A Case on Export of Software Services from Tamil Nadu* [Doctoral Dissertation, University of Madras], <http://hdl.handle.net/10603/278119>
- Krippendorff, K. (1989) 'Content analysis', in Barnouw, E., Gerbner, G., Schramm, W., Worth, T.L. and Gross, L. (Eds.): *International Encyclopedia of Communication*, Vol. 1, pp.403–407, Oxford University Press, New York, NY, Retrieved from http://repository.upenn.edu/asc_papers/226
- Kumar, A. (2020) *Export Financing in India with Special Reference to Export Import Bank of India* [Doctoral Dissertation, Banaras Hindu University], <http://hdl.handle.net/10603/267867>
- Kumar, N. (2017) *Export Credit and Guarantee System in India* [Doctoral Dissertation, Banaras Hindu University], <http://hdl.handle.net/10603/88422>
- Kumar, V. and Nanda, P. (2023) 'Determinants of the success of MSMEs in India: a policy vs. technology perspective', *International Journal of Technology, Policy and Management*, Vol. 23, No. 1, pp.102–122.
- Lan, F. and Hou, L. (2021) 'Dynamic capability reconstruction of digital transformation for emerging market enterprises: learning from Chinese experience', *International Journal of Technology, Policy and Management*, Vol. 21, No. 3, pp.231–252.
- Liu, X., Mattoo, A., Wang, Z. and Wei, S.-J. (2020) 'Services development and comparative advantage in manufacturing', *Journal of Development Economics*, Vol. 144, p.102438.
- López-Rubio, P., Roig-Tierno, N. and Mas-Verdú, F. (2022) 'Context matters: a global bibliometric review of regional innovation systems', *International Journal of Technology, Policy and Management*, Vol. 22, No. 3, pp.247–270.
- Malik, H.M. and Nirmala, V. (2019) 'Trends and determinants of IT-BPM exports in India', *Journal of Science and Technology Policy Management*, Vol. 7, No. 2, pp.212–232, <https://doi.org/10.1108/Jstpm-08-2015-0028>
- Malik, M.H. and Velan, N. (2020) 'An analysis of IT software and service exports from India', *Journal of International Trade, Politics and Development*, Vol. 4, No. 1, pp.3–25, <https://doi.org/10.1108/Itpd-12-2019-0012>
- Mazhar, S.S., Rehman, A. and Din, S.U. (2015) 'Impact of demographic variables on purchase of E-insurance in urban areas in India', *International Journal of Management, Innovation and Entrepreneurial Research*, Vol. 1, No. 1, pp.7–10.
- Mazhar, S.S., Rehman, A. and Khan, F.S. (2016) 'A detailed study of changing foreign trade pattern of India before pre-liberalisation era and impact of foreign exchange reserve on India's foreign trade', in Bhowmik, D. (Ed.): *International Monetary System: Past, Present and Future*, Regal Publications, New Delhi.
- Mehta, K.P. (2018) *Intellectual Property Protection of Computer Software Issues and Challenges* [Doctoral Dissertation, University of Kerala], <http://hdl.handle.net/10603/197175>
- Montalbano, P. (2011) 'Trade openness and developing countries' vulnerability: concepts, misconceptions, and directions for research', *World Development*, Vol. 39, No. 9, pp.1489–1502.
- Nair, K.G.K. and Prasad, P.N. (2004) 'Offshore outsourcing: a swot analysis of a state in India', *Information Systems Management*, Vol. 21, No. 3, pp.34–40, <https://doi.org/10.1201/1078/44432.21.3.20040601/82475.6>
- Narayanan, K. and Bhat, S. (2009) 'Technological efforts and internationalization of IT firms in India', *Indian Journal of Industrial Relations*, Vol. 45, No. 1, pp.62–83, <http://www.jstor.org/stable/27768255>
- Nayyar, G., Hallward-Driemeier, M. and Davies, E. (2021) *At Your Service?: The Promise of Services-Led Development*, World Bank, Washington, DC.
- Nigam, A. (2017) *Marketing Strategy for Software Exports: A Study of Software Technology Parks in India* [Doctoral Dissertation, Maharshi Dayanand University], <http://hdl.handle.net/10603/132506>
- Nimgaonkar, G.A. (2017) *Export LED Economic Growth and India, 1489–1502* [Doctoral Dissertation, Savitribai Phule Pune University], <http://hdl.handle.net/10603/t74914>

- Patil, R. (2016) *Study of Customization of Software Product Design and Management by IT Industries in Pune* [Doctoral Dissertation, Savitribai Phule Pune University], <https://shodhganga.inflibnet.ac.in/jspui/handle/10603/95869>
- Paul, J. and Criado, A.R. (2020) 'The art of writing literature review: what do we know and what do we need to know?', *International Business Review*, Vol. 29, No. 4, p.101717.
- Radhakrishnan, K.G. (2014) *Growth and Structural Transformation of the Indian Computer Software Industry* [Doctoral Dissertation, Jawaharlal Nehru University], <https://shodhganga.inflibnet.ac.in/jspui/handle/10603/15582>
- Raju, M. and Rao, D.P.V. (2020) 'Financial analysis of selected IT companies in India', *Test Engineering & Management*, Vol. 83, pp.13356–13364.
- Rama, M. (2014) *Entrepreneurship Development and Software Industry* [Doctoral Dissertation, University of Madras], <http://hdl.handle.net/10603/18590>
- Ramanaiah, K.V. (2015) *Major Exports of India with Special Reference to Gems and Jewellery Readymade Garments and Engineering Goods* [Doctoral Dissertation], <http://hdl.handle.net/10603/55128>
- Raychaudhuri, A. and De, P. (2016) *Trade, Infrastructure and Income Inequality in Selected Asian Countries: An Empirical Analysis*, Springer, India, pp.257–278.
- Rehman, A. (2014) 'A study of perception of insurance authorities regarding the role of insurance regulator in India after the global financial crisis', *International Journal of Trade and Global Business Perspectives*, Vol. 3, No. 1, p.793.
- Rehman, A. (2020) 'Innovation and management by regional rural banks in achieving the dream of financial inclusion in India: challenges and prospects', *Marketing and Management of Innovations*, Vol. 1, pp.222–234, <http://doi.org/10.21272/mmi.2020.1-18>
- Rehman, A. (2021) 'Consumers' perceived value of luxury goods through the lens of Hofstede cultural dimensions: a cross-cultural study', *Journal of Public Affairs (Wiley)*, Vol. 22, No. 4, pp.1–12, <https://doi.org/10.1002/pa.2660> (WoS-Esci, Scopus).
- Rehman, A. and Abbasi, F.A. (2020) 'Impacts of foreign direct investment on Indian retail bazaar: an empirical study', *International Transaction Journal of Engineering, Management, Applied Sciences and Technologies*, Vol. 11, No. 6, pp.1–11, <http://doi.org/10.14456/ITJEMAST.2020.113>
- Rehman, A. and Alam, A. (2019) 'Political and policy challenges faced by public private partnership projects: stakeholders perception in India', *International Journal of Organizational Behavior and Management Perspectives*, Vol. 8, No. 1, pp.3910–3915.
- Roy, M. (2019) 'Elevating services: services trade policy, WTO commitments, and their role in economic development and trade integration', *Journal of World Trade*, Vol. 53, No. 6, pp.923–950.
- Sahoo, B.K. and Nauriyal, D.K. (2014) 'Determinants of software exports from India', *International Economics and Economic Policy*, Vol. 11, No. 4, pp.455–479, <https://doi.org/10.1007/s10368-013-0254-7>
- Sahoo, P., Dash, R.K. and Mishra, P.P. (2013) 'Determinants of India's services exports', *IEG Working Paper*, Vol. 333, pp.1–42.
- Satsangi and Kaushik, P. (2019) *Exports of Gems and Jewellery From India Swopt Analysis* [Doctoral Dissertation, Dayalbagh Educational Institute], <http://hdl.handle.net/10603/229900>
- Shabbir, M.S., Bait Ali Sulaiman, M.A., Hasan Al-Kumaim, N., Mahmood, A. and Abbas, M. (2020) 'Green marketing approaches and their impact on consumer behavior towards the environment—a study from the UAE', *Sustainability*, Vol. 12, No. 21, p.8977.
- Sindhu, D.M. (2020) 'Recent trends in exports of computer software and information technology enabled services from India', *International Journal of Scientific Research and Management*, Vol. 8, No. 2, pp.1584–1589, <https://doi.org/10.18535/ijsrcm/v8i02.em04>
- Singh Taranjit, V. (2020) *Export Performance of IT and ITES Industry in India* [Doctoral Dissertation, Punjabi University], <http://hdl.handle.net/10603/286117>

- Srivastava, A. (2019) *Evaluation of Institutional Financing for Exports in India* [Doctoral Dissertation, Chhatrapati Sahuji Maharaj University], <http://hdl.handle.net/10603/260457>
- Stojkoski, V., Utkovski, Z. and Kocarev, L. (2016) 'The impact of services on economic complexity: service sophistication as route for economic growth', *PLoS ONE*, Vol. 11, No. 8, p.e0161633.
- Sundharan (2013) 'Structure, growth and performance of Indian IT-BPO industry', *International Journal of Economics, Commerce and Management*, Vol. 1, No. 2, pp.1–17, <http://ijecm.co.uk/>
- Swadesin, M. and Kalindi, J. (2012) 'BPO world: an analysis of the emergence of BPO industry in India', *Research Journal of Management Sciences*, Vol. 1, No. 3, pp.25–29.
- Swapna, N. and Sujatha, N. (2012) 'Trends of IT industry in Indian economy – an analysis', *International Journal of Computer Science and Informatics*, Vol. 1, No. 2, pp.148–150, <https://doi.org/10.47893/IJCSI.2012.1082>
- Swapna, N.S. (2017) *Analysis of IT Industry in India during Pre and Post Reforms Era Performance Problems and Prospects* [Doctoral Dissertation, Osmania University], <http://hdl.handle.net/10603/176087>
- Upadhyay, P. and Roy, G.S. (2016) 'Impact of exchange rate movement and macroeconomic factors on software and services from India', *Benchmarking*, Vol. 23, No. 5, pp.1193–1206.
- Vijayakumar, V. (2017) *Efficacy of Export Import Bank of India Exim Bank* [Doctoral Dissertation, Pondicherry University], <https://shodhganga.inflibnet.ac.in/jspui/handle/10603/171965>
- Wajih, S.A. and Rehman, A. (2014) 'The impact of socio-cultural values and its diffusion on entrepreneurial performance of Indian middle class women entrepreneur', *International Journal of Entrepreneurship and Business Environment Perspectives*, Vol. 3, No. 2, pp.881–887.
- WTO (World Trade Organization) (2019) *World Trade Report 2019: The Future of Services Trade*, WTO Secretariat, Geneva, see online at: https://www.wto.org/english/news_e/news19_e/wtr_09oct19_e.htm
- Zhao, W., Watanabe, C. and Griffy-Brown, C. (2009) 'Competitive advantage in an industry cluster: the case of Dalian software park in China', *Technology in Society*, Vol. 31, No. 2, pp.139–149, <https://doi.org/10.1016/j.techsoc.2009.03.008>
- Zhong, H., Zhang, J. and Zhang, S. (2023) 'A combined prediction model of cross-border e-commerce export volume based on BP neural network and SVM', *International Journal of Technology, Policy and Management*, Vol. 23, No. 3, pp.310–328.
- Zhong, H., Zhang, S., Song, W. and Zhang, Z. (2021) 'Impact of international trade on cross-border e-commerce development: an empirical study based on the evidence from Ningbo city in China', *International Journal of Technology, Policy and Management*, Vol. 21, No. 2, pp.140–156.
- Zhou, Y., Agyemang, A.O., Adam, I.O. and Twum, A.K. (2022) 'Assessing the impact of technological innovation on environmental and financial performance of Chinese textile manufacturing companies', *International Journal of Technology, Policy and Management*, Vol. 22, No. 4, pp.369–393.

Bibliography

- Dnyandeo, P.R. (2016) *Study of Customization of Software Product Design and Management by IT Industries in Pune* [Doctoral Dissertation, Savitribai Phule Pune University], <http://hdl.handle.net/10603/95869>
- Jisha, G. (2018) *Performance of Evaluation of Export Oriented Units in Kerala with Special Reference to Micro Small and Medium Enterprises* [Doctoral Dissertation, Mahatma Gandhi University], <http://hdl.handle.net/10603/218779>

- Kochukunnel, J.T. (2012) *Export Competitiveness of Software Industry in India* [Doctoral Dissertation, Cochin University of Science and Technology], <https://shodhganga.inflibnet.ac.in/jspui/handle/10603/5809>
- Kuanova, L.A., Sagiyeve, R. and Shirazi, N.S. (2021) 'Islamic social finance: a literature review and future research directions', *Journal of Islamic Accounting and Business Research*, Vol. 12, No. 5, pp.707–728, <https://doi.org/10.1108/JIABR-11-2020-0356>
- Neubert, M. and Van Der Krogt, A. (2018) 'Impact of business intelligence solutions on export performance of software firms in emerging economies', *Technology Innovation Management Review*, Vol. 8, No. 9, pp.39–49, <https://doi.org/10.22215/timreview/1185>
- Pierluigi, M. (2016) 'Trade openness and developing countries' vulnerability: Concepts, misconceptions, and directions for research. *World Development*, Vol. 39, No. 9, p.2011.