

3.2.2 Number of books and chapters in edited volumes/books published and papers published in national/ international conference proceedings per teacher during the year

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E-commerce Impact On Business	Pof Ganesh S. Kiroche	14-21
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**Title : RECENT TRENDS IN COMMERCE
MANAGEMENT AND ECONOMICS**

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आपूर्ति शृंखला प्रबंधन

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वाणिज्य में , आपूर्ति शृंखला प्रबंधन (SCM) खरीद की एक प्रणाली (कच्चे माल / घटकों की खरीद), संचालन प्रबंधन (अच्छेलेलचीलेपन और कम उत्पादन लागत के साथ उच्च गुणवत्ता वाले उत्पादों का उत्पादन सुनिश्चित करना), रसद और विपणन चैनलों से संबंधित है। ताकि कच्चे माल को एक तैयार उत्पाद में परिवर्तित किया जा सके और अंतिम ग्राहक तक पहुंचाया जा सके। आपूर्ति शृंखला प्रबंधन की एक अधिक संकीर्ण परिभाषा 'शुद्ध मूल्य बनाने, एक प्रतिस्पर्धी बुनियादी ढांचे का निर्माण, दुनिया भर में रसद का लाभ उठाने, मांग के साथ आपूर्ति को सिंक्रनाइज़ करने और प्रदर्शन को मापने के उद्देश्य से आपूर्ति शृंखला गतिविधियों की डिजाइन, योजना, निष्पादन, नियंत्रण और निगरानी' है। विश्व स्तर पर'। इसमें कच्चे माल का संचलन और भंडारण , कार्य-में-प्रक्रिया सूची , तैयार माल, और उत्पत्ति के बिंदु से उपभोग के बिंदु तक ऑर्डर की पूर्ति शामिल हो सकती है। आपस में जुड़े हुए, परस्पर संबंधित या आपस में जुड़े नेटवर्क, चैनल और नोड व्यवसाय उत्पादों और सेवाओं के प्रावधान में गठबंधन करते हैं आपूर्ति शृंखला में अंतिम ग्राहकों द्वारा आवश्यक।

आपूर्ति शृंखला प्रबंधन एक एकीकृत, बहु-विषयक, बहुविधि दृष्टिकोण के लिए प्रयास करता है। विपणन चैनल आपूर्ति-शृंखला प्रबंधन में एक महत्वपूर्ण भूमिका निभाते हैं। वर्तमान आपूर्ति-शृंखला प्रबंधन में अनुसंधान स्थिरता , अस्थिरता, और जोखिम प्रबंधन, से संबंधित विषयों से संबंधित है। डउच में चर्चा की गई एक महत्वपूर्ण अवधारणा आपूर्ति शृंखला लचीलापन है। कुछ सुझाव देते हैं कि डउच के 'जन आयात', नैतिक मुद्दे, आंतरिक एकीकरण, पारदर्शिता/दृश्यता, और मानव पूंजी/प्रतिभा प्रबंधन ऐसे विषय हैं, जिन्हें अब तक अनुसंधान एजेंडे में कम प्रतिनिधित्व दिया गया है। एससीएम सामग्री से उत्पादन से लेकर वितरण तक किसी उत्पाद के प्रवाह की योजना, नियंत्रण और निष्पादन के लिए आवश्यक गतिविधियों की एक विस्तृत शृंखला है। डउच उन कार्यों में सामग्री, सूचना और पूंजी के प्रवाह को अनुकूलित करने के लिए आवश्यक प्रक्रियाओं की एकीकृत योजना और निष्पादन को शामिल करता है जिसमें मोटे तौर पर मांग योजना, सोर्सिंग, उत्पादन, इन्वेंट्री प्रबंधन और रसद-या भंडारण और परिवहन शामिल हैं।

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मिशन

आपूर्ति शृंखला प्रबंधन, एससी के सभी भागों के समन्वय के उद्देश्य से तकनीक, कच्चे माल की आपूर्ति से लेकर उत्पादों की डिलीवरी और/या फिर से शुरू करने तक, शृंखला भागीदारों के बीच मौजूदा संघर्षों के संबंध में कुल लागत को कम करने की कोशिश करता है। इन संघर्षों का एक उदाहरण मांग को पूरा करने के लिए उच्च इन्वट्री स्तर रखने की इच्छा रखने वाले बिक्री विभाग और होल्डिंग लागत को कम करने के लिए कम इन्वट्री वाले गोदाम के बीच का संबंध है।

शब्द और परिभाषाओं की उत्पत्ति

१९८२ में, बूज़ एलन हैमिल्टन के एक सलाहकार कीथ ओलिवर ने फ़्राइनेशियल टाइम्स के लिए एक साक्षात्कार में 'आपूर्ति शृंखला प्रबंधन' शब्द को सार्वजनिक डोमेन में पेश किया। १९८३ में जर्मनी में Wirtschafts Woche ने पहली बार वोल्फ़फ़गैंग पार्टिश के नेतृत्व में एक कार्यान्वित और तथाकथित 'आपूर्ति शृंखला प्रबंधन परियोजना' के परिणाम प्रकाशित किए।

१९९० के दशक के मध्य में, 'आपूर्ति शृंखला प्रबंधन' शब्द ने तब लोकप्रियता हासिल की जब इस विषय पर लेखों और पुस्तकों की झड़ी लग गई। आपूर्ति शृंखलाओं को मूल रूप से कच्चे माल से अंतिम उपयोगकर्ता तक माल के प्रवाह और परिवर्तन से जुड़ी सभी गतिविधियों के साथ-साथ संबद्ध सूचना प्रवाह के रूप में परिभाषित किया गया था। आपूर्ति-शृंखला प्रबंधन को तब प्रतिस्पर्धात्मक लाभ प्राप्त करने के लिए बेहतर आपूर्ति-शृंखला संबंधों के माध्यम से आपूर्ति शृंखला गतिविधियों के एकीकरण के रूप में परिभाषित किया गया था।

१९९० के दशक के उत्तरार्ध में, 'आपूर्ति-शृंखला प्रबंधन' (SCM) प्रमुखता से बढ़ा, और संचालन प्रबंधकों ने बढ़ती नियमितता के साथ अपने शीर्षकों में इसका उपयोग करना शुरू कर दिया।

आपूर्ति-शृंखला प्रबंधन की अन्य सामान्यतः स्वीकृत परिभाषाओं में शामिल हैं:

- आपूर्तिकर्ताओं, कंपनी, पुनर्विक्रेताओं और अंतिम उपभोक्ताओं के बीच सामग्री, अंतिम माल और संबंधित जानकारी के अपस्ट्रीम और डाउनस्ट्रीम मूल्य वर्धित प्रवाह का प्रबंधन।
- व्यक्तिगत कंपनियों के दीर्घकालिक प्रदर्शन और समग्र रूप से आपूर्ति शृंखला में सुधार के उद्देश्यों के लिए, किसी विशेष कंपनी के भीतर और आपूर्ति शृंखला के भीतर सभी व्यावसायिक कार्यों में पारंपरिक व्यावसायिक कार्यों और रणनीति का व्यवस्थित, रणनीतिक समन्वय।

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- हाइन्स (2004:p76) द्वारा एक ग्राहक-केंद्रित परिभाषा दी गई है: 'आपूर्ति श्रृंखला रणनीतियों को श्रृंखला में लिंक के कुल सिस्टम दृश्य की आवश्यकता होती है जो उपभोक्ता को वितरण के अंतिम बिंदु पर ग्राहकों की संतुष्टि बनाने के लिए कुशलतापूर्वक एक साथ काम करते हैं। एक के रूप में। परिणाम, अनावश्यक खर्चों, आंदोलनों और हैंडलिंग को हटाकर लागत को पूरी श्रृंखला में कम किया जाना चाहिए। मुख्य ध्यान दक्षता और अतिरिक्त मूल्य, या अंतिम उपयोगकर्ता की मूल्य की धारणा में बदल जाता है। दक्षता को बढ़ाया जाना चाहिए, और बाधाओं को हटा दिया जाना चाहिए। माप प्रदर्शन का कुल सिस्टम दक्षता और आपूर्ति श्रृंखला के भीतर उन लोगों के लिए समान मौद्रिक इनाम वितरण पर ध्यान केंद्रित करता है। आपूर्ति-श्रृंखला प्रणाली को ग्राहकों की आवश्यकताओं के प्रति उत्तरदायी होना चाहिए।'
- ग्राहकों और हितधारकों के लिए मूल्य बनाने के उद्देश्य से आपूर्ति श्रृंखला में प्रमुख व्यावसायिक प्रक्रियाओं का एकीकरण।
- आपूर्ति श्रृंखला प्रबंधन पेशेवर परिषद (CSCMP) के अनुसार, आपूर्ति-श्रृंखला प्रबंधन में सोर्सिंग , खरीद, रूपांतरण और रसद प्रबंधन में शामिल सभी गतिविधियों की योजना और प्रबंधन शामिल है । इसमें चैनल भागीदारों के साथ समन्वय और सहयोग भी शामिल है , जो आपूर्तिकर्ता , मध्यस्थ , तृतीय-पक्ष सेवा प्रदाता या ग्राहक हो सकते हैं । आपूर्ति-श्रृंखला प्रबंधन कंपनियों के भीतर और बाहर आपूर्ति और मांग प्रबंधन को एकीकृत करता है। हाल ही में, उत्पादों और सेवाओं की पेशकश प्रदान करने के लिए सहयोग करने वाले व्यवसायों के शिथिल युग्मित, स्व-संगठित नेटवर्क को क्या कहा जाता है ?

आपूर्ति-श्रृंखला प्रबंधन के विपरीत एक आपूर्ति श्रृंखला, एक या एक से अधिक उत्पादों, सेवाओं, वित्त, या किसी स्रोत से ग्राहक तक की जानकारी के अपस्ट्रीम और डाउनस्ट्रीम प्रवाह से सीधे जुड़े संगठनों का एक समूह है। आपूर्ति-श्रृंखला प्रबंधन ऐसी श्रृंखला का प्रबंधन है।

आपूर्ति श्रृंखला दृश्यता, इसके मूल में, स्थान/उत्पादन चरण और आने वाले उत्पादों और सामग्रियों की अपेक्षित वितरण तिथि के ज्ञान से संबंधित थी, ताकि उत्पादन की योजना बनाई जा सके, लेकिन शब्द के विकास ने इसे उपयोग करने में सक्षम बनाया है । संभावित आपूर्ति के ज्ञान का उपयोग करके ऑर्डर की योजना बनाना, और ग्राहकों को डिलीवरी के बाद की प्रक्रियाओं को ट्रैक करना।

आपूर्ति-श्रृंखला-प्रबंधन सॉफ्टवेयर में आपूर्ति श्रृंखला लेनदेन निष्पादित करने, आपूर्तिकर्ता संबंधों को प्रबंधित करने और संबद्ध व्यावसायिक प्रक्रियाओं को नियंत्रित करने के लिए उपयोग किए जाने वाले उपकरण या मॉड्यूल शामिल हैं। सॉफ्टवेयर का समग्र

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लक्ष्य कंपनी के आपूर्ति श्रृंखला नेटवर्क की शुरुआत से अंत तक (आपूर्तिकर्ताओं, ट्रांसपोर्टर्स, रिटर्न, गोदामों, खुदरा विक्रेताओं, निर्माताओं और ग्राहकों) की निगरानी करके आपूर्ति श्रृंखला के प्रदर्शन में सुधार करना है।

कुछ मामलों में, एक आपूर्ति श्रृंखला में पुनर्चक्रण के लिए उपभोक्ता के उपयोग के बाद माल का संग्रह या दोषपूर्ण या अवांछित उत्पादों को मूल्य श्रृंखला तक उत्पादकों को वापस करने के लिए रिवर्स रसद प्रक्रिया शामिल है।

कार्य

आपूर्ति-श्रृंखला प्रबंधन एक क्रॉस-फ़ंक्शनल दृष्टिकोण है जिसमें एक संगठन में कच्चे माल की आवाजाही का प्रबंधन, तैयार माल में सामग्री के आंतरिक प्रसंस्करण के कुछ पहलू और संगठन से बाहर और अंतिम उपभोक्ता की ओर तैयार माल की आवाजाही शामिल है। चूंकि संगठन मुख्य दक्षताओं पर ध्यान केंद्रित करने और अधिक लचीला बनने का प्रयास करते हैं, वे कच्चे माल के स्रोतों और वितरण चैनलों के स्वामित्व को कम करते हैं। इन कार्यों को अन्य फर्मों के लिए तेजी से आउटसोर्स किया जा रहा है जो गतिविधियों को बेहतर या अधिक लागत प्रभावी ढंग से निष्पादित कर सकते हैं। प्रभाव ग्राहकों की मांग को पूरा करने में शामिल संगठनों की संख्या में वृद्धि करना है, जबकि दैनिक रसद संचालन के प्रबंधकीय नियंत्रण को कम करना है। कम नियंत्रण और अधिक आपूर्ति-श्रृंखला भागीदार आपूर्ति-श्रृंखला प्रबंधन की अवधारणा के निर्माण की ओर ले जाते हैं। आपूर्ति-श्रृंखला प्रबंधन का उद्देश्य आपूर्ति-श्रृंखला भागीदारों के बीच विश्वास और सहयोग में सुधार करना है, इस प्रकार इन्वेंट्री दृश्यता और इन्वेंट्री आंदोलन की गति में सुधार करना है। इस खंड में, हमें सभी विक्रेताओं और आपूर्तिकर्ताओं के साथ संवाद करना है, कुछ तुलना करनी है, और उसके बाद, हमें ऑर्डर देना है।

महत्व

संगठन तेजी से पाते हैं कि उन्हें वैश्विक बाजार और नेटवर्क वाली अर्थव्यवस्था में प्रतिस्पर्धा करने के लिए प्रभावी आपूर्ति श्रृंखला या नेटवर्क पर भरोसा करना चाहिए। पीटर ड्रकर (१९९८) के नए प्रबंधन प्रतिमानों में, व्यावसायिक संबंधों की यह अवधारणा पारंपरिक उद्यम सीमाओं से परे फैली हुई है और कई कंपनियों की मूल्य श्रृंखला में संपूर्ण व्यावसायिक प्रक्रियाओं को व्यवस्थित करने का प्रयास करती है।

हाल के दशकों में, वैश्वीकरण, आउटसोर्सिंग और सूचना प्रौद्योगिकी ने डेल और हेवलेट-पैकर्ड जैसे कई संगठनों को सहयोगी आपूर्ति नेटवर्क को सफलतापूर्वक संचालित करने में सक्षम बनाया है जिसमें प्रत्येक विशेष व्यापार भागीदार केवल कुछ प्रमुख रणनीतिक गतिविधियों पर ध्यान केंद्रित करता है। [33] इस अंतर-संगठनात्मक आपूर्ति नेटवर्क को संगठन के एक नए रूप के रूप में स्वीकार किया जा सकता है। हालांकि, खिलाड़ियों के

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बीच जटिल बातचीत के साथ, नेटवर्क संरचना न तो 'बाजार' और न ही 'पदानुक्रम' श्रेणियों में फिट बैठती है। यह स्पष्ट नहीं है कि विभिन्न आपूर्ति-नेटवर्क संरचनाओं का फर्मों पर किस प्रकार का प्रभाव पड़ सकता है, और खिलाड़ियों के बीच मौजूद समन्वय स्थितियों और व्यापार-नापसंद के बारे में बहुत कम जानकारी है। सिस्टम के नजरिए से, एक जटिल नेटवर्क संरचना को अलग-अलग घटक फर्मों में विघटित किया जा सकता है। परंपरागत रूप से, आपूर्ति नेटवर्क में कंपनियां प्रक्रियाओं के इनपुट और आउटपुट पर ध्यान केंद्रित करती हैं, अन्य व्यक्तिगत खिलाड़ियों के आंतरिक प्रबंधन कार्य के लिए थोड़ी चिंता के साथ। इसलिए, आंतरिक प्रबंधन नियंत्रण संरचना का चुनाव स्थानीय फर्म के प्रदर्शन को प्रभावित करने के लिए जाना जाता है।

२१वीं सदी में, कारोबारी माहौल में बदलाव ने आपूर्ति-शृंखला नेटवर्क के विकास में योगदान दिया है। सबसे पहले, वैश्वीकरण और बहुराष्ट्रीय कंपनियों के प्रसार, संयुक्त उद्यमों, रणनीतिक गठजोड़ और व्यापार साझेदारी के परिणाम के रूप में, महत्वपूर्ण सफलता कारकों की पहचान की गई, जो पहले के 'जस्ट-इन-टाइम', लीन मैनुफैक्चरिंग और फुर्तीली निर्माण प्रथाओं के पूरक थे। दूसरा, तकनीकी परिवर्तन, विशेष रूप से संचार लागत में नाटकीय गिरावट (लेन-देन की लागत का एक महत्वपूर्ण घटक), आपूर्ति शृंखला नेटवर्क के सदस्यों के बीच समन्वय में परिवर्तन का कारण बना है।

कई शोधकर्ताओं ने करिंत्सु, विस्तारित उद्यम, वर्चुअल कॉर्पोरेशन, ग्लोबल प्रोडक्शन नेटवर्क, और नेक्स्ट जनरेशन मैनुफैक्चरिंग सिस्टम जैसे शब्दों का उपयोग करते हुए आपूर्ति नेटवर्क संरचनाओं को एक नए संगठनात्मक रूप के रूप में मान्यता दी है। सामान्य तौर पर, इस तरह की संरचना को 'अर्द्ध-स्वतंत्र संगठनों के एक समूह के रूप में परिभाषित किया जा सकता है, जिनमें से प्रत्येक अपनी क्षमताओं के साथ, जो प्राप्त करने के लिए एक या अधिक बाजारों की सेवा करने के लिए कभी-कभी बदलते नक्षत्रों में सहयोग करते हैं। उस सहयोग के लिए विशिष्ट कुछ व्यावसायिक लक्ष्य'।

आपूर्ति शृंखला प्रबंधन का महत्व २०१९-२०२० में दुनिया भर में फैले कोरोनावायरस (COVID-19) महामारी के खिलाफ लड़ाई में महत्वपूर्ण साबित हुआ। महामारी की अवधि के दौरान, प्रभावी घरेलू आपूर्ति शृंखला प्रबंधन वाले देशों की सरकारों के पास उनकी जरूरतों को पूरा करने के लिए पर्याप्त चिकित्सा आपूर्ति थी और अन्य न्यायालयों में फ्रंट-लाइन स्वास्थ्य कार्यकर्ताओं को अपना अधिशेष दान करने के लिए पर्याप्त थी। अमेरिका में विनाशकारी कोविड-१९ संकट ने स्थानीय अर्थव्यवस्था के कई क्षेत्रों को उल्टा कर दिया है, जिसमें देश का रसद उद्योग भी शामिल है। कुछ संगठन अत्यधिक आवश्यक चिकित्सा आपूर्ति आयात करने के लिए विदेशी आपूर्ति शृंखलाओं को शीघ्रता से विकसित करने में सक्षम थे।

आपूर्ति-शृंखला प्रबंधन संगठनात्मक सीखने के लिए भी महत्वपूर्ण है।

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भौगोलिक रूप से अधिक व्यापक आपूर्ति श्रृंखलाओं वाली फर्मों विविध व्यापारिक गुटों को जोड़ती हैं और अधिक नवीन और उत्पादक बन जाती हैं।

आपूर्ति श्रृंखलाओं के लिए सुरक्षा-प्रबंधन प्रणाली खडज/खएउ २८००० और ISO/IEC २८००१ और ISO और IEC द्वारा संयुक्त रूप से प्रकाशित संबंधित मानकों में वर्णित है। आपूर्ति-श्रृंखला प्रबंधन संचालन प्रबंधन, रसद, खरीद और सूचना प्रौद्योगिकी के क्षेत्रों से बहुत अधिक आकर्षित करता है, और एक एकीकृत दृष्टिकोण के लिए प्रयास करता है।

आपूर्ति श्रृंखला लचीलापन

एससीएम का एक महत्वपूर्ण तत्व आपूर्ति श्रृंखला लचीलापन है, जिसे 'परिवर्तन की सूरत में बने रहने, अनुकूलन करने या बदलने के लिए आपूर्ति श्रृंखला की क्षमता' के रूप में परिभाषित किया गया है। लंबे समय तक, आपूर्ति श्रृंखला प्रबंधन में इंजीनियरिंग लचीलापन के अर्थ में लचीलापन की व्याख्या, दृढ़ता की धारणा के लिए अग्रणी रही। इस विचार का एक लोकप्रिय कार्यान्वयन समय-से-जीवित रहने और आपूर्ति श्रृंखला के समय-से-पुनर्प्राप्ति को मापने के द्वारा दिया जाता है, जिससे सिस्टम में कमजोर बिंदुओं की पहचान करने की अनुमति मिलती है।

हाल ही में, पारिस्थितिक लचीलापन और सामाजिक-पारिस्थितिक लचीलापन के अर्थ में लचीलापन की व्याख्या ने क्रमशः अनुकूलन और परिवर्तन की धारणाओं को जन्म दिया है। एक आपूर्ति श्रृंखला को एक सामाजिक-पारिस्थितिक प्रणाली के रूप में व्याख्या की जाती है जो - एक पारिस्थितिकी तंत्र (जैसे वन) के समान - बाहरी पर्यावरणीय परिस्थितियों के लिए लगातार अनुकूल होने में सक्षम है और - सामाजिक अभिनेताओं की उपस्थिति और उनकी दूरदर्शिता की क्षमता के माध्यम से - भी खुद को मौलिक रूप से नई प्रणाली में बदलने के लिए। यह एक आपूर्ति श्रृंखला की एक अराजकीय व्याख्या की ओर जाता है, इसे सिस्टम की एक प्रणाली में एम्बेड करता है, अन्य स्तरों (जैसे समाज, राजनीतिक अर्थव्यवस्था, ग्रह पृथ्वी) पर काम करने वाली प्रणालियों के साथ आपूर्ति श्रृंखला की बातचीत का विश्लेषण करने की अनुमति देता है।

उदाहरण के लिए, लचीलापन के इन तीन घटकों पर २०२१ स्वेज नहर अवरोध के लिए चर्चा की जा सकती है, जब एक जहाज ने कई दिनों तक नहर को अवरुद्ध कर दिया था। दृढ़ता का अर्थ है वापस उछाल; हमारे उदाहरण में यह सामान्य संचालन की अनुमति देने के लिए जितनी जल्दी हो सके जहाज को हटाने के बारे में है। अनुकूलन का अर्थ यह स्वीकार करना है कि सिस्टम नए सामान्य स्थिति में पहुंच गया है और तदनुसार कार्य करना; यहां, इसे अफ्रीकी केप के चारों ओर जहाजों को पुनर्निर्देशित करके या परिवहन के वैकल्पिक साधनों का उपयोग करके कार्यान्वित किया जा सकता है। अंत में, परिवर्तन का अर्थ वैश्वीकरण, आउटसोर्सिंग और रैखिक आपूर्ति श्रृंखलाओं की धारणाओं पर सवाल

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उठाना और विकल्पों की कल्पना करना है; इस उदाहरण में यह स्थानीय और वृत्ताकार आपूर्ति श्रृंखलाओं की ओर ले जा सकता है जिन्हें अब वैश्विक परिवहन मार्गों की आवश्यकता नहीं है।

ऐतिहासिक विकास

आपूर्ति-श्रृंखला प्रबंधन अध्ययन के विकास में छह प्रमुख आंदोलनों को देखा जा सकता है: निर्माण, एकीकरण, वैश्वीकरण, विशेषज्ञता चरण एक और दो, और एससीएम २.०।

निर्माण काल

आपूर्ति श्रृंखला प्रबंधन शब्द पहली बार १९८२ में कीथ ओलिवर द्वारा गढ़ा गया था। हालांकि, २० वीं शताब्दी की शुरुआत में, विशेष रूप से असेंबली लाइन के निर्माण के साथ, प्रबंधन में आपूर्ति श्रृंखला की अवधारणा का बहुत महत्व था। आपूर्ति-श्रृंखला प्रबंधन के इस युग की विशेषताओं में बड़े पैमाने पर परिवर्तन, पुनः इंजीनियरिंग, लागत में कमी कार्यक्रमों द्वारा संचालित डाउनसाइजिंग और जापानी प्रबंधन प्रथाओं पर व्यापक ध्यान देने की आवश्यकता शामिल है। हालांकि, १९९९ में रॉबर्ट बी. हैडफ़ील्ड और अर्नेस्ट एल. निकोल्स, जूनियर, द्वारा मौलिक पुस्तक इंटीग्रेशन टू सप्लाय चैन मैनेजमेंट के प्रकाशन के बाद इस शब्द को व्यापक रूप से अपनाया गया। जिसकी २५,००० से अधिक प्रतियां प्रकाशित हुईं और इसका जापानी, कोरियाई, चीनी और रूसी में अनुवाद किया गया।

एकीकरण युग

आपूर्ति-श्रृंखला-प्रबंधन अध्ययन के इस युग को १९६० के दशक में इलेक्ट्रॉनिक डेटा इंटरचेंज (EDI) सिस्टम के विकास के साथ हाइलाइट किया गया था और १९९० के दशक में एंटरप्राइज रिसोर्स प्लानिंग (ERP) सिस्टम की शुरुआत के माध्यम से विकसित किया गया था। यह युग इंटरनेट आधारित सहयोगी प्रणालियों के विस्तार के साथ २१वीं सदी में विकसित होना जारी है। आपूर्ति-श्रृंखला के विकास के इस युग को एकीकरण के माध्यम से बढ़ते मूल्य-वर्धित और लागत को कम करने दोनों की विशेषता है।

एक आपूर्ति श्रृंखला को चरण १, २ या ३ नेटवर्क के रूप में वर्गीकृत किया जा सकता है। चरण १-प्रकार की आपूर्ति श्रृंखला में, उत्पादन, भंडारण, वितरण और सामग्री नियंत्रण जैसी प्रणालियाँ जुड़ी नहीं हैं और एक दूसरे से स्वतंत्र हैं। चरण २ की आपूर्ति श्रृंखला में, इन्हें एक योजना के तहत एकीकृत किया जाता है, और उद्यम संसाधन योजना (ईआरपी) को सक्षम किया जाता है। एक चरण ३ आपूर्ति श्रृंखला वह है जो अपस्ट्रीम आपूर्तिकर्ताओं और डाउनस्ट्रीम ग्राहकों के साथ लंबवत एकीकरण प्राप्त करती है। इस प्रकार की आपूर्ति श्रृंखला का एक उदाहरण टेस्को है।

वैश्वीकरण का युग

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यह आपूर्ति-शृंखला-प्रबंधन विकास का तीसरा आंदोलन है, वैश्वीकरण युग, जिसे आपूर्तिकर्ता संबंधों की वैश्विक प्रणालियों पर ध्यान देने और राष्ट्रीय सीमाओं से परे और अन्य महाद्वीपों में आपूर्ति शृंखलाओं के विस्तार की विशेषता हो सकती है। हालांकि संगठनों की आपूर्ति शृंखलाओं में वैश्विक स्रोतों के उपयोग को कई दशक पीछे देखा जा सकता है (उदाहरण के लिए, तेल उद्योग में), यह १९८० के दशक के अंत तक नहीं था कि काफ़ी संख्या में संगठनों ने वैश्विक स्रोतों को अपने मुख्य व्यवसाय में एकीकृत करना शुरू किया। यह युग संगठनों में आपूर्ति-शृंखला प्रबंधन के वैश्वीकरण की विशेषता है, जिसका लक्ष्य उनके प्रतिस्पर्धात्मक लाभ को बढ़ाना, मूल्य जोड़ना और वैश्विक सोर्सिंग के माध्यम से लागत कम करना है।

विशेषज्ञता युग (MaU I): आउटसोर्स निर्माण और वितरण

१९९० के दशक में, कंपनियों ने मुख्य दक्षताओं और विशेषज्ञता पर ध्यान देना शुरू किया। उन्होंने वर्टिकल इंटीग्रेशन को छोड़ दिया, नॉन-कोर ऑपरेशंस को बेच दिया और उन कार्यों को अन्य कंपनियों को आउटसोर्स कर दिया। इसने प्रबंधन आवश्यकताओं को बदल दिया, क्योंकि आपूर्ति शृंखला कंपनी की दीवारों से परे फैली हुई थी और प्रबंधन विशेष आपूर्ति-शृंखला साझेदारी में वितरित किया गया था।

इस संक्रमण ने प्रत्येक संगठन के मूलभूत दृष्टिकोणों पर भी ध्यान केंद्रित किया। मूल उपकरण निर्माता (ओईएम) ब्रांड के मालिक बन गए, जिन्हें अपने आपूर्ति आधार में गहरी दृश्यता की आवश्यकता थी। उन्हें पूरी आपूर्ति शृंखला को अंदर से नहीं, ऊपर से नियंत्रित करना था। अनुबंध निर्माताओं को कई ओईएम से अलग-अलग पार्ट-नंबरिंग योजनाओं के साथ सामग्री के बिलों का प्रबंधन करना था और वर्क-इन-प्रोसेस दृश्यता और विक्रेता-प्रबंधित इन्वेंट्री (वीएमआई) के लिए ग्राहक अनुरोधों का समर्थन करना था।

विशेषज्ञता मॉडल निर्माताओं, आपूर्तिकर्ताओं और ग्राहकों के लिए विशिष्ट कई अलग-अलग आपूर्ति शृंखलाओं से बना विनिर्माण और वितरण नेटवर्क बनाता है जो एक उत्पाद के डिजाइन, निर्माण, वितरण, बाजार, बिक्री और सेवा के लिए मिलकर काम करते हैं। साझेदारों का यह सेट किसी दिए गए बाजार, क्षेत्र या चैनल के अनुसार बदल सकता है, जिसके परिणामस्वरूप व्यापारिक भागीदार वातावरण का प्रसार होता है, प्रत्येक की अपनी अनूठी विशेषताओं और मांगों के साथ।

विशेषज्ञता युग (द्वितीय चरण): एक सेवा के रूप में आपूर्ति-शृंखला प्रबंधन

आपूर्ति शृंखला के भीतर विशेषज्ञता १९८० के दशक में परिवहन ब्रोकरेज, गोदाम प्रबंधन (भंडारण और सूची), और गैर-परिसंपत्ति-आधारित वाहकों की शुरुआत के साथ शुरू हुई, और आपूर्ति योजना, सहयोग, निष्पादन और के पहलुओं में परिवहन और रसद से परे परिपक्व हो गई है। निष्पादन प्रबंधन।

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आपूर्ति-शृंखला नेटवर्क के घटकों के रूप में बाजार की ताकतें कभी-कभी आपूर्तिकर्ताओं, रसद प्रदाताओं, स्थानों या ग्राहकों से उनकी भूमिका में तेजी से बदलाव की मांग करती हैं। इस परिवर्तनशीलता का आपूर्ति-शृंखला के बुनियादी ढाँचे पर महत्वपूर्ण प्रभाव पड़ता है, व्यापारिक भागीदारों के बीच इलेक्ट्रॉनिक संचार की स्थापना और प्रबंधन की नींव परतों से लेकर अधिक जटिल आवश्यकताओं जैसे कि प्रक्रियाओं और कार्यप्रवाहों का विन्यास जो स्वयं नेटवर्क के प्रबंधन के लिए आवश्यक हैं।

आपूर्ति-शृंखला विशेषज्ञता कंपनियों को अपनी समग्र दक्षताओं में उसी तरह सुधार करने में सक्षम बनाती है जैसे कि आउटसोर्सिंग विनिर्माण और वितरण ने किया है; यह उन्हें अपनी मुख्य दक्षताओं पर ध्यान केंद्रित करने और समग्र मूल्य शृंखला में योगदान करने के लिए विशिष्ट, सर्वश्रेष्ठ-इन-क्लास भागीदारों के नेटवर्क को इकट्ठा करने की अनुमति देता है, जिससे समग्र प्रदर्शन और दक्षता में वृद्धि होती है। इस डोमेन-विशिष्ट आपूर्ति-शृंखला विशेषज्ञता को विकसित करने और घर में पूरी तरह से अद्वितीय और जटिल योग्यता को बनाए रखने की क्षमता एक प्रमुख कारण है कि आपूर्ति-शृंखला विशेषज्ञता लोकप्रियता प्राप्त कर रही है।

आपूर्ति-शृंखला समाधानों के लिए आउटसोर्स प्रौद्योगिकी होस्टिंग १९९० के दशक के अंत में शुरू हुई और मुख्य रूप से परिवहन और सहयोग श्रेणियों में जड़ें जमा चुकी हैं। यह अनुप्रयोग सेवा प्रदाता (ASP) मॉडल से मोटे तौर पर १९९८ से २००३ तक, लगभग २००३ से २००६ तक ऑन-डिमांड मॉडल से, वर्तमान में फोकस में एक सेवा (डररड) मॉडल के रूप में सॉफ्टवेयर के रूप में विकसित हुआ है।

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E-commerce Impact On Business

Prof. Ganesh S. Kiroche,
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Introduction

E-commerce (electronic commerce) is the buying and selling of goods and services, or the transmitting of funds or data, over an electronic network, primarily the internet. E-commerce can be defined as the use of the Internet to conduct business transactions nationally or internationally. E-commerce has come to take on two important roles; first as a more effective and efficient conduit and aggregator of information, and second, as a potential mechanism for the replacement of many economic activities once performed within a business enterprise by those that can be done by outside suppliers that compete with each other to execute these activities. Electronic commerce is expected to directly and indirectly create jobs. New jobs will be generated in the information and communication technologies sector. Electronic commerce offers unprecedented opportunities to both developing and developed countries.

E-commerce : An overview

E-commerce has a significant impact on business costs and productivity. E-Commerce has a chance to be widely adopted due to its simple applications. Thus it has a large economic impact. Electronic Commerce provides the capability of buying and selling products and information on the internet and other on-line service. Electronic commerce or e-commerce refers to a wide range of online business activities for products and services. Electronic commerce is transforming the marketplace by changing firms' business models, by shaping relations among market actors, and by contributing to changes in market structure. It is difficult to single out the impact of electronic

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commerce. Some businesses addresses three themes associated with electronic commerce and the organizational changes it entails: changes in business models, changes in market structure and opportunities for economic growth created by organizational change .Electronic commerce creates the possibility of new models for organizing production and transacting business, by offering inters modality and complementarily – not only substitution – in business models.

E-Commerce plays an important role in the economic growth and development of nation. It is a purposeful activity includes in planning, controlling, promotion and also distribution of various goods and services. In this research paper will describe how the Business spirit play an important role in nation's growth. It also pertains to any form of business transaction in which the parties interact electronically rather than by physical exchanges or direct physical contact. E-commerce is usually associated with buying and selling over the Internet or conducting any transaction involving the transfer of ownership or rights to use goods or services through a computer-mediated network. Though popular, this definition is not comprehensive enough to capture recent developments in this new and revolutionary business phenomenon. A more complete definition is: E-commerce is the use of electronic communications and digital information processing technology in business transactions to create, transform, and redefine relationships for value creation between or among organizations, and between organizations and individuals. While some use ecommerce and e-business interchangeably, they are distinct concepts. In e-commerce, information and communications technology (ICT) is used in inter-business or inter organizational transactions (transactions between among business organizations) and in business-to-consumer transactions (transactions between business organizations and also individuals).

E-commerce is a way of conducting business over the Internet. Though it is a relatively new concept, it has the potential to alter the traditional form of economic activities. Already it

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affects such large sectors as communications, service, finance, retail trade and holds promises in areas such as education, health, transport and government. The largest effects may be associated not with many of the impacts that command the most attention but with less visible, but potentially more effects on routine business activities. E-commerce presents opportunities to accelerate business processes, reduce costs, reach new customers and develop new business models and markets in the business organization. The general agreement is that electronic markets and digitalization of products will impact material flows. A clear identification of the extent and direction of effects, however, has not yet been achieved, and the issue remains controversial. Increased resource productivity is discussed as one of the major potential ecological advantages of e-commerce. Potential exists, above all, in the fields of demand and supply chain management and mass customization. Potentials to increase resource productivity appear in outline particularly in the business-to-business , field, where there may be, for instance, reduction in quantities procured or stored, surplus production, and error rates between supplier and manufacturer.

Benefits of e-commerce -

The benefits of e-commerce of Business economy, are classified into three groups. . Many of the transactions can be done externally with help internet , and electronic markets. The Internet and its applications have thus served to enhance the process to increase efficiencies in supply chain management, .and also to reduce the cost of product.

1. Benefits of E-Commerce to Business

- a) **International Marketplace** - What used to be a single physical marketplace located in a geographical area has now become a borderless marketplace including national and international markets? By becoming e-commerce enabled, businesses now have access to people all around the world. In effect all e-commerce businesses have become virtual multinational corporations.

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- b) **Operational Cost Savings** - The cost of creating, processing, distributing, storing and retrieving paper-based information has decreased.
- c) **Mass Customization** - E-commerce has revolutionized the way consumers buy goods and services. The processing allows for products and services to be customized to the customer's requirements. In the past when Ford first started making motor cars, customers could have any color so long as it was black. Now customers can configure a car according to their specifications within minutes on-line via the www.ford.com website.
- d) **Lower Telecommunications Cost** - The Internet is much cheaper than value added networks (VANs) which were based on leasing telephone lines for the sole use of the organization and its authorized partners. It is also cheaper to send a fax or e-mail via the Internet than direct dialing.
- e) **Digitization of Products and Processes** - Particularly in the case of software and music/video products, this can be downloaded or e-mailed directly to customers via the Internet in digital or electronic format. f) **No more 24-hour-time Constraints** - Businesses can be contacted by or contact customers or suppliers at any time.

2. Benefits of E-Commerce to Consumers

- a) **24/7 Access** - Enables customers to shop or conduct other transactions 24hours a day, all year round from almost any location. For example - checking balances, making payments, obtaining travel and other information.
- b) **More Choices** - Customers not only have a whole range of products that they can choose from and customize, but also an international selection of suppliers.
- c) **Price Comparisons** - Customers can 'shop' around the world and conduct comparisons either directly by visiting different sites, or by visiting a single site where prices are aggregated from a number of providers and compared.

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- d) **Improved Delivery Processes** - This can range from the immediate delivery of digitized or electronic goods such as software or audio-visual files by downloading via the Internet, to the on-line tracking of the progress of packages being delivered by mail or courier.
- e) **An Environment of Competition** - Where substantial discounts can be founder value added, as different retailers vie for customers. It also allows many individual customers to aggregate their orders together into a single order presented to wholesalers or manufacturers and obtain a more competitive price.

3. Benefits of E-Commerce to Society

- a) **Enables more Flexible Working Practices** -This enhances the quality of life for a whole host of people in society, enabling them to work from home. Not only is this more convenient and provides happier and less stressful working environments, it also potentially reduces environmental pollution as fewer people have to travel to work regularly.
- b) **Connects People** - Enables people in developing countries and rural areas to enjoy and access products, services, information and other people which otherwise would not be so easily available to them.
- c) **Facilitates Delivery of Public Services** - For example, health services available over the Internet (on-line consultation with doctors or nurses) filing taxes over the Internet through the Inland Revenue website.

The Barriers of E-Commerce:

The drivers of e-commerce were identified and summarized there are barriers to the growth and development of e-commerce. Numerous reports and surveys identify the different kinds of barriers, and many of them focus on security as being one of the largest inhibitors to and problems for e-commerce. Different nations are at different stages of

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development of ecommerce and as such the issues that are relevant to one nation may not be relevant to another. Similarly, the issues that are relevant to the type of organization also differ. Overall, all kinds of organizations have similar barriers but with different emphases for discuss as follows:

- 1. Commercial Infrastructure** - Relates to issues such as international trade agreements, taxation laws and other legal agreements that facilitate all kinds of on-line trading and so is a barrier relevant to all types of businesses.
- 2. Technology Infrastructure** - Deals with issues of standardization of systems and applications, which is a particular concern for larger organizations who want to implement solutions such as value chain integration and e-supply chain management.
- 3. Internet Infrastructure** - Deals with issues such as availability and quality of the Internet in terms of speed and reliability. This barrier is of particular concern to Business to Consumer organizations, since their business relies more on general consumers, and so the ease with which the general public can connect to the Internet has a direct impact on their Web-based business
- 4. Security** - In its broadest term is one of the most significant barriers to e-commerce both within the organization and external to it. Identified as Security and Encryption; Trust and Risk; User Authentication and Lack of Public Key Infrastructure; Fraud and Risk of Loss it relates to the development of a broader security infrastructure and it also relates to the kinds of measures barriers to e-commerce businesses can take to improve security.
- 5. Interoperability of systems**– This is identified as one of the major barriers for large USbased Business to Business corporations. This refers specifically to implementation and compatibility problems of integrating new e-commerce applications with existing legacy systems and resources within organizations. This problem also extends to interacting with systems of business partners and stakeholders.

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6. Lack of Qualified Personnel- This is a particularly strong concern because internally they do not have sufficient resources to attract and maintain their own support staff to develop a sophisticated technology infrastructure. With regards to third parties, the qualified personnel tended to work for larger organizations.

Conclusion-

This research paper involves a study of the inability to find the product or services of interest quickly is the biggest barrier to effective marketing this problem may be overcome through E- commerce, where number of companies offer several products thought the net. In Short, Indian e-commerce has to face many difficulties in web marketing because of infrastructural difficulties and computer illiteracy. Majority of the customers live in rural areas do not sufficient knowledge about computer and internet. Some of customers in urban areas do not have credit facilities and therefore online buying and selling of goods is limited to urban class having knowledge of computer internet if Indian marketers take into account essentials of good website they can definitely make success marketing in international markets. Currently, the use of e- commerce is very large , all over the world and due to the large use ,the consumers are also getting benefits of e-commerce.

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Digital India

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III

01

Digital India: Transforming a Nation into a Global Digital Leader

Dr. Suresh Namdeo Gawai

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Abstract :

Digital India is a revolutionary initiative launched by the Government of India to empower its citizens through technology, bridge the digital divide, and establish the nation as a global digital leader. This essay delves into the genesis, objectives, and impact of the Digital India initiative, exploring its various facets, including digital infrastructure, digital governance, and digital literacy. The essay also critically analyzes the challenges and limitations faced by the initiative, while highlighting its potential to reshape India's socio-economic landscape. Through this exploration, the essay aims to provide a comprehensive understanding of how Digital India is driving the nation towards a more inclusive, efficient, and innovative future.

Introduction :

India, with its vast population and diverse socio-economic landscape, has long grappled with challenges in governance, infrastructure, and inclusivity. The advent of the digital era presented a unique opportunity to address these challenges through technology. Recognizing this potential, the Government of India launched the Digital India initiative on July 1, 2015. This ambitious program aims to transform India into a digitally

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empowered society and knowledge economy.

The Digital India initiative is not just a policy or a program but a vision that seeks to leverage technology to enhance the quality of life for all citizens. It focuses on three core areas: providing digital infrastructure as a utility to every citizen, delivering governance and services on demand, and enabling digital empowerment of citizens. By achieving these objectives, the initiative aims to bridge the digital divide, enhance transparency in governance, and foster innovation and entrepreneurship.

In this essay, we will explore the various dimensions of Digital India, examining its types, impact, and the challenges it faces. We will also contextualize the initiative within India's broader socio-economic and political landscape, assessing its potential to propel the nation towards becoming a global digital leader.

Types of Digital India The Digital India initiative can be understood through its various components, which are designed to address different aspects of the digital ecosystem in India. These components can be broadly categorized into three types: Digital Infrastructure, Digital Governance, and Digital Empowerment.

1. Digital Infrastructure

Digital infrastructure forms the backbone of the Digital India initiative. It encompasses the creation and expansion of physical and digital assets that enable seamless connectivity and access to digital services. Key elements of digital infrastructure under the Digital India initiative include:

a. BharatNet : Bharat Net is a crucial project aimed at providing high-speed broadband connectivity to over 250,000 Gram Panchayats (village councils) across India. By extending the reach of optical fiber networks to rural and remote areas,

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BharatNet aims to bridge the digital divide between urban and rural India.

b. National Knowledge Network (NKN) : The National Knowledge Network is a multi-gigabit network that connects educational institutions, research organizations, libraries, and laboratories across India. NKN facilitates collaborative research, innovation, and knowledge-sharing among academic and research institutions.

c. Common Service Centers (CSCs) : CSCs are digital access points established in rural and semi-urban areas to provide citizens with access to various government services, digital literacy programs, and e-commerce opportunities. These centers play a crucial role in promoting digital inclusion and empowering rural communities.

d. Digital Locker : The Digital Locker system provides citizens with a secure cloud-based platform to store and share important documents, such as educational certificates, identity proofs, and government-issued documents. This initiative reduces the need for physical document verification and enhances the efficiency of service delivery.

e. eSign : eSign is an electronic signature service that allows citizens to digitally sign documents using their Aadhaar number, thereby enabling secure and paperless transactions. This service is particularly useful for businesses and government agencies in streamlining processes and reducing paperwork.

2. Digital Governance

Digital Governance, or e-Governance, is a critical aspect of the Digital India initiative. It involves the use of technology to enhance the delivery of government services, improve transparency, and promote citizen engagement. The following are key components of digital governance under Digital India :

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a. e-Governance Platforms : Various e-governance platforms have been developed under Digital India to provide citizens with easy access to government services. These platforms include MyGov, an online portal for citizen engagement; UMANG (Unified Mobile Application for New-age Governance), a mobile app that integrates various government services; and DigiLocker, a platform for secure digital document storage.

b. Aadhaar : Aadhaar, the world's largest biometric identification system, is a cornerstone of Digital India's governance framework. It provides each citizen with a unique 12-digit identity number linked to their biometric and demographic data. Aadhaar facilitates efficient service delivery, eliminates duplicate and fake identities, and promotes financial inclusion.

c. Direct Benefit Transfer (DBT) : DBT is a mechanism that enables the direct transfer of subsidies and welfare benefits to beneficiaries' bank accounts, thereby reducing leakage and corruption. By leveraging Aadhaar and digital payment systems, DBT ensures that government benefits reach the intended recipients without intermediaries.

d. Public Financial Management System (PFMS) : PFMS is an integrated platform that monitors the flow of funds from the central government to state governments, implementing agencies, and beneficiaries. It enhances transparency and accountability in the management of public finances.

e. GeM (Government e-Marketplace) : GeM is an online platform that enables government departments and agencies to procure goods and services in a transparent and efficient manner. GeM reduces procurement costs, promotes competition, and ensures the timely delivery of goods and services.

3. Digital Empowerment

Digital empowerment focuses on enabling citizens to

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harness the benefits of digital technology for personal and professional growth. Key initiatives under this category include:

a. Digital Literacy Programs : The Digital India initiative has launched various programs to enhance digital literacy among citizens, especially in rural and underserved areas. The Pradhan Mantri Gramin Digital Saksharta Abhiyan (PMGDISHA) aims to make six crore rural households digitally literate by providing basic computer training.

b. Skill Development and Innovation : Digital India promotes skill development and innovation through initiatives like the National Digital Literacy Mission (NDLM) and the Atal Innovation Mission (AIM). NDLM provides digital literacy training to individuals, while AIM fosters innovation and entrepreneurship by establishing Atal Tinkering Labs in schools and Atal Incubation Centers in institutions.

c. e-Education and e-Health : Digital India emphasizes the use of technology to improve access to education and healthcare. e-Education initiatives include online courses, virtual classrooms, and Massive Open Online Courses (MOOCs). e-Health initiatives, such as the National Health Portal and the e-Hospital platform, provide citizens with access to health-related information, telemedicine services, and digital health records.

d. Digital Payment Systems : To promote a cashless economy, Digital India has encouraged the adoption of digital payment systems, including Unified Payments Interface (UPI), Bharat Interface for Money (BHIM), and Aadhaar-enabled Payment Systems (AePS). These systems facilitate secure and convenient transactions, reducing the reliance on cash and enhancing financial inclusion.

Context of Digital India

The Digital India initiative must be understood within the

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broader context of India's socio-economic and political landscape. The initiative is not an isolated effort but rather a response to the evolving needs and aspirations of the Indian population in the 21st century. Several factors contribute to the relevance and importance of Digital India:

1. Demographic Dividend

India's population is characterized by a large and growing youth demographic, with over 65% of the population under the age of 35. This demographic dividend presents both an opportunity and a challenge. On one hand, the youth population can drive economic growth through innovation, entrepreneurship, and a skilled workforce. On the other hand, the lack of adequate employment opportunities and access to education and skills training could lead to socio-economic disparities. Digital India seeks to harness this demographic dividend by providing young Indians with the tools and opportunities to succeed in a digital economy. Through digital literacy programs, skill development initiatives, and entrepreneurship support, the initiative aims to empower the youth to become active participants in the nation's economic growth.

2. Economic Growth and Development

India's economic growth has been accompanied by increasing demand for efficient and transparent governance, improved infrastructure, and enhanced service delivery. However, traditional models of governance and service delivery have often been marred by inefficiencies, corruption, and a lack of inclusivity. Digital India addresses these challenges by leveraging technology to streamline processes, reduce corruption, and ensure that government services reach all citizens, regardless of their socio-economic status or geographic location. The initiative also promotes economic growth by fostering a conducive environment for innovation, startups, and digital entrepreneurship.

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3. Global Competitiveness

In an increasingly interconnected world, nations are competing to establish themselves as global leaders in the digital economy. The rise of digital technologies, such as artificial intelligence, blockchain, and the Internet of Things (IoT), has created new opportunities for economic growth and global influence. Digital India is a strategic initiative that aims to position India as a global digital leader. By building a robust digital infrastructure, promoting digital literacy, and fostering innovation, the initiative seeks to enhance India's global competitiveness and establish the country as a hub for digital innovation and entrepreneurship.

4. Inclusivity and Social Equity

India's socio-economic landscape is marked by significant disparities in income, education, and access to resources. The digital divide—the gap between those who have access to digital technologies and those who do not—has the potential to exacerbate these disparities.

Digital India is designed to promote inclusivity and social equity by ensuring that all citizens, regardless of their socio-economic background or geographic location, have access to digital technologies and services. Initiatives such as BharatNet, Common Service Centers, and digital literacy programs are specifically targeted at bridging the digital divide and empowering marginalized communities.

Challenges and Limitations of Digital India

While the Digital India initiative has made significant strides in transforming the nation's digital landscape, it also faces several challenges and limitations that need to be addressed to realize its full potential.

1. Digital Divide

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Despite the progress made in expanding digital infrastructure, the digital divide remains a significant challenge in India. Rural and remote areas continue to face limited access to high-speed internet, affordable digital devices, and digital literacy training. Bridging this divide is essential to ensuring that all citizens can participate in and benefit from the digital economy.

2. Cybersecurity and Privacy Concerns

The rapid digitization of services and the increasing reliance on digital platforms have raised concerns about cybersecurity and data privacy. The growing number of cyberattacks, data breaches, and identity theft incidents highlight the need for robust cybersecurity measures and data protection frameworks. Ensuring the security and privacy of citizens' data is crucial for building trust in digital services.

3. Infrastructure Challenges

Building and maintaining digital infrastructure, particularly in rural and remote areas, is a complex and resource-intensive task. Issues such as inadequate power supply, limited availability of skilled technicians, and high costs of infrastructure development pose challenges to the successful implementation of digital initiatives.

4. Digital Literacy and Skills Gap

While digital literacy programs have been launched under Digital India, there remains a significant gap in digital skills among the population. Many citizens, especially in rural and underserved areas, lack the basic digital skills needed to effectively use digital technologies and services. Addressing this skills gap is essential to ensuring that all citizens can fully participate in the digital economy.

5. Implementation and Coordination

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The successful implementation of the Digital India initiative requires effective coordination among various government departments, agencies, and stakeholders. However, issues such as bureaucratic delays, lack of coordination, and overlapping responsibilities have hindered the timely and efficient execution of some digital projects.

6. Financial Constraints

The ambitious nature of the Digital India initiative requires substantial financial resources for the development and maintenance of digital infrastructure, implementation of digital literacy programs, and promotion of innovation and entrepreneurship. However, budgetary constraints and competing priorities can limit the availability of funds for digital initiatives.

Impact of Digital India

Despite the challenges and limitations, the Digital India initiative has had a profound impact on various aspects of Indian society and the economy. Some of the key impacts include:

1. Improved Governance and Service Delivery

Digital India has significantly improved governance and service delivery by streamlining processes, reducing corruption, and enhancing transparency. The use of e-governance platforms, such as MyGov, UMANG, and DigiLocker, has made it easier for citizens to access government services and participate in decision-making processes.

2. Financial Inclusion

The promotion of digital payment systems and the expansion of banking services through initiatives like Aadhaar-enabled Payment Systems (AePS) and the Pradhan Mantri Jan Dhan Yojana (PMJDY) have contributed to increased financial inclusion. Millions of previously unbanked individuals now have

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access to banking services, digital payment platforms, and government welfare benefits.

3. Economic Growth and Innovation

The Digital India initiative has fostered economic growth by promoting digital entrepreneurship, innovation, and the development of the digital economy. The rise of startups in sectors such as fintech, e-commerce, and healthtech is a testament to the impact of Digital India in creating a conducive environment for innovation and entrepreneurship.

4. Empowerment of Citizens

Digital India has empowered citizens by providing them with access to information, education, and skills training. Digital literacy programs, e-education platforms, and skill development initiatives have enabled individuals to enhance their knowledge, improve their employability, and participate in the digital economy.

5. Bridging the Digital Divide

While the digital divide remains a challenge, the Digital India initiative has made significant progress in bridging the gap between urban and rural areas. Projects like BharatNet and Common Service Centers have expanded digital connectivity and access to digital services in rural and underserved areas.

Conclusion

Digital India represents a transformative vision for the future of India, one that seeks to harness the power of technology to drive socio-economic development, improve governance, and empower citizens. The initiative has already had a profound impact on various aspects of Indian society, from improving governance and service delivery to promoting financial inclusion and fostering innovation. However, the success of Digital India

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depends on the continued efforts to address the challenges and limitations that it faces. Bridging the digital divide, ensuring cybersecurity and data privacy, building and maintaining digital infrastructure, and enhancing digital literacy and skills are critical to realizing the full potential of the initiative. As India continues on its path towards becoming a global digital leader, the Digital India initiative will play a pivotal role in shaping the nation's future. By creating a digitally empowered society and knowledge economy, Digital India has the potential to transform India into a more inclusive, efficient, and innovative nation, ready to compete on the global stage.

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The Price Mechanism System in India: Analysis, Challenges, and Future Directions

Mr. Ganesh Shivaji Kiroche
Jijamata Mahavidyalaya Buldhana

Abstract:

This paper explores the price mechanism system in India, including how prices are determined, regulated, and impacted by various factors. It examines the roles of market forces, government interventions, and economic policies in shaping the price dynamics within the Indian economy.

1. Introduction

- Overview of the price mechanism and its significance in economics
- The importance of understanding price mechanisms in the context of the Indian economy
- Objectives and scope of the paper

2. Theoretical Framework of Price Mechanism

- Definition and components of the price mechanism
- Supply and demand theory
- Price equilibrium, surplus, and shortage
- Role of market forces in price determination

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3. Historical Evolution of Price Mechanism in India

- Early economic policies and price controls (e.g., post-independence period)
- Economic reforms and liberalization (1991 onwards)
- Major changes in pricing policies, including deregulation and market-based pricing

4. Pricing Mechanism in Key Sectors

- Agricultural Products: Minimum Support Prices (MSPs), procurement policies, and market prices
- Industrial Products: Pricing in public sector enterprises versus private sector
- Energy Sector: Pricing of oil, gas, and electricity; subsidies and deregulation
- Services Sector: Price determination in healthcare, education, and other services

5. Government Interventions and Regulatory Framework

- Overview of government agencies involved in price regulation (e.g., Department of Consumer Affairs, Petroleum Planning & Analysis Cell)
- Price controls and subsidies: Rationale and impact
- Anti-profiteering measures and price stabilization policies

6. Impact of External Factors

- Global commodity prices and their impact on domestic pricing
- Exchange rates and international trade
- Inflation and monetary policy effects

7. Case Studies

- Analysis of specific instances of price regulation and deregulation

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(e.g., LPG subsidies, deregulation of petrol prices)

- Impact of these case studies on different segments of the economy and population

8. Challenges in the Indian Price Mechanism System

- Issues with price transparency and market distortions
- Challenges faced by farmers and consumers due to pricing policies
- Impact of bureaucratic inefficiencies and corruption

9. Future Directions and Recommendations

- Potential reforms in pricing mechanisms
- Technological innovations and data analytics for better price management
- Policy recommendations for improving market efficiency and fairness

10. Conclusion

In summary, monetary policy is a crucial tool used by central banks, like the Reserve Bank of India (RBI), to manage a country's economic health. By adjusting interest rates, controlling money supply, and using other financial tools, the RBI aims to keep inflation in check, support economic growth, and ensure financial stability.

Over the years, India's monetary policy has evolved significantly. From earlier practices of strict controls, the focus has shifted towards more flexible and market-oriented approaches. This shift has helped stabilize the economy during various challenges and contributed to sustainable growth.

However, monetary policy faces ongoing challenges, such as balancing inflation and growth, managing external shocks, and addressing structural issues in the economy. Looking ahead, continuous improvements and adaptations in monetary policy will be vital to navigating future economic uncertainties and achieving long-

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term prosperity.

Overall, while monetary policy is not a cure-all, it remains a fundamental component of economic management, influencing many aspects of our daily lives and the broader economic environment.

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New Delhi-110053****Mob : 09761628581****e-mail : shriyanshiprakashan@yahoo.com****Published by Alok Shrivastava****© : Publishers****First Edition : 2023****ISBN : 978-93-81247-39-6****- Children in India: Harassment, Status and Rights**

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NATIONAL CHILD PROTECTION POLICY

Dr. Suresh Namdeo Gawai

1. Preamble:

All children deserve a happy childhood and the opportunity to lead a dignified life safe from violence, exploitation, neglect, deprivation and discrimination. India is a young nation, with a child population of more than 472 million. Protection of this 40% of the young population is not only a matter of their human rights but also an investment towards building a robust nation. The Constitution of India recognizes children as equal right holder and grants highest priority for their protection and well-being. India is also signatory to the United Nations Convention on the Rights of the Child (UNCRC) and accordingly has a strong legal framework to protect children which include the Juvenile Justice (Care and Protection of Children) Act 2015; the Protection of

Children from Sexual Offences Act 2012; Pre-Conception and Pre-Natal Diagnostic Techniques (PCPNDT) Act 1994; the Commission for Protection of Child Rights Act 2005; the Right of Children to Free and Compulsory Education Act, 2009; Prohibition of Child Marriage Act, 2006; and Child Labour (Prohibition and Regulation) Amendment Act, 2016. The current policy draws upon the safeguards provided under the Constitutions of India, various child-

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centric legislation, international treaties as well as other existing policies for the protection and wellbeing of children. It aims at providing a safe and conducive environment for all children through the

prevention and response to child abuse, exploitation and neglect. It provides a framework for all institution, and organization (including corporate and media houses), government or private sector to understand their responsibilities in relation to safeguarding/ protecting children and promoting the welfare of children; individually and collectively.

2. Vision:

All children in India stay safe and feel secure in all settings and circumstances.

3. Guidelines for Organization, Institutions and Establishments (including Media)

- ▶ The child Protection Policy is applicable to Institutions/ Organizations.
- ▶ All institutions and organizations should develop a child protection policy and code of conduct for employees in line with the national guidelines and various legislations for protection and welfare of children and display it appropriately.
- ▶ All employees/ contractual workers must sign the declaration for child protection and agree to abide by it.
- ▶ It should be based on the premise of Zero tolerance of child abuse and exploitation.
- ▶ The code of conduct for employees/contractual workers must lay down that they should always treat children with empathy and respect, regardless of race, color, gender, sexuality, language,

religion, political or other opinion, national, ethnic or social origin, property, disability, birth or other status.

National Child Protection Policy 11

- ▶ Always listen to children and respect their views.
- ▶ The code of conduct must lay down that staff members must never:
 - ▶ Use language or behavior towards children that is inappropriate, harassing, abusive, sexually provocative, demeaning or culturally inappropriate.
 - ▶ Develop or induce or support in any way physical/sexual relationships with children.
 - ▶ Develop any form of relationship or arrangement with children which could in any way be deemed to be exploitative or abusive.
 - ▶ Place a child at risk of abuse or exploitation, or be aware of these and not report it or not do anything about it.
 - ▶ All organization and institution should designate responsibility to a specific member/members of staff for ensuring that procedures and arrangements are in place within the organisation to protect children and report any abuse, exploitation or neglect; in line with the guidelines and existing laws.
 - ▶ The CHILDLINE 1098 and contact details of designated officer for child protection must be displayed appropriately.
 - ▶ Organize orientation programmes on child protection and various legislations related to it and make it mandatory for all employees at all levels (including contractual workers).
 - ▶ Ensure any individual in the organization/institution who abuses or exploits children or violates any section of this policy should be appropriately punished as per law.
 - ▶ Any individual who suspects physical, sexual or emotional abuse including online abuse of children, circulation of child sexual abuse materials, child marriage, child labour, child trafficking, maltreatment of children, discrimination against child

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Recommendations:

Achieve the 'Leave No One Behind' Pledge Development policies and programmes formulated for children must ensure that no child is left behind. This includes special focus on and inclusion of children like the children of sex workers; children of convicts or those born in prison; orphans; trafficked children; children in street situations; children with disabilities, children in conflicts and disasters; and children belonging to the third gender. In

addition, there is a need to ensure recognition of adverse socio-economic and cultural norms to ensure the rights of all children.

The government and civil society organizations should:

- ▶ Integrate the principles of child rights programming in their policies and programmes.
- ▶ Use convergence to track and report the status of social economic development in different groups.
- ▶ Ensure that resources are aligned with need by embedding equity-based allocation criteria in budget processes to reduce disparities in child survival outcomes.

Disaggregated and Issue-based Data on Children

For many aspects of child rights (such as sexual violence, sexual and reproductive health of adolescents, access to play and recreation, engagement of children in decision-making at family and community level, children in street situations, etc.), limited credible data sources are available so as to assess the true picture on the ground and plan accordingly.

The government and civil society organizations should:

- ▶ Make more investments to create a credible data sources that can inform policy and programme.
- ▶ Collect data on every child, to track their progress against relevant SDGs targets.

National Child Protection Policy 19

- ▶ Develop standardized measures/tools for multi-site research and evaluations to document diverse contexts and solutions.
- ▶ Invest in creating data to be used for planning for children who do not identify with their society's traditional gender and sexual orientation norms.

Child Participation and Accountability Mechanism:

The voice of children in decision-making in all situations, whether formal or informal, should be ensured. This will help in getting the perspective of the child and informed decisions can be made keeping in mind the best interests of the child. Participation of the community along with the children should also be ensured to promote active citizenship for children and enhance the accountability of the systems. Institutions for local self-governance should:

- ▶ Initiate community-monitoring mechanisms with support from parents and service providers, to ensure child rights in their wards/ panchayats. For instance, proper functioning of anganwadis; attendance and enrolment of children in schools; prevention of child labour, early marriage, trafficking of children, etc.

The government should,

- ▶ Include a child delegate within national delegations attending and participating at the HLPF and provide space for that child delegate to express their views and recommendations.
- ▶ Ensure meaningful participation of children in existing platforms including SMCs, ALMSC, CPCs and Gram Sabhas.
- ▶ Ensure participation of the community in school development so that they monitor, supervise and support pilot initiatives like complaint boxes in schools.
- ▶ Create exclusive platforms for children's participation within schools and communities such as Children Parliaments and Children and Adolescent Groups.

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- ▶ Identify agents of change, including children (like Child Champions identified by Save the Children), who voice their concerns, or young adults who can support children in raising their voice and ensure structural support through the service providers (e.g. AWWs).

Civil society organizations should:

- ▶ Proactively engage with children and communities in sensitizing them about child rights and empowering them to raise their voice and demand entitlements

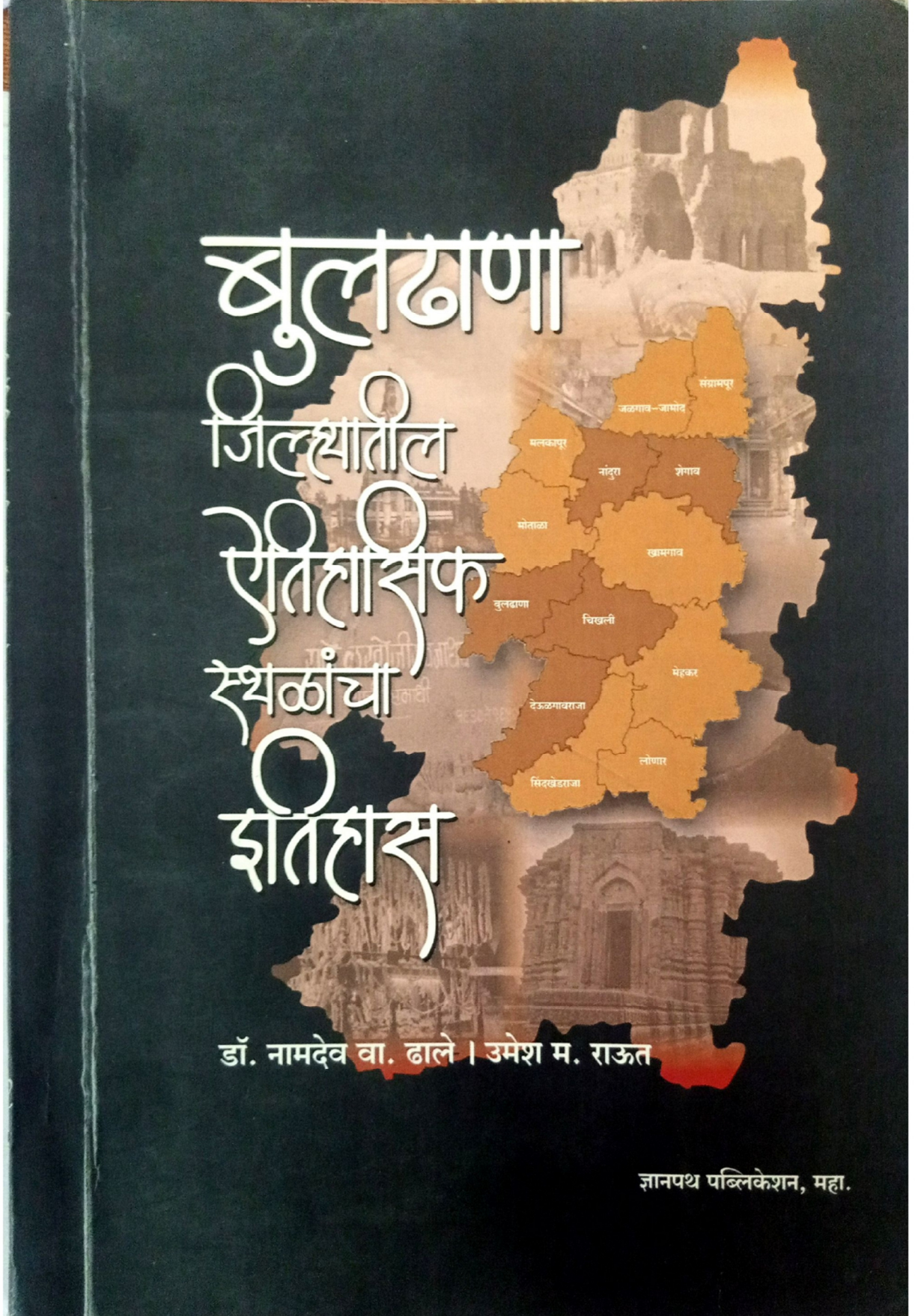
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Dr. Quazi Syed Azharuddin (Ed.)

I am Dr. Shaikh Farah T. and it is my pleasure to serve as Principal of Bapumiya Sirajoddin Patel Arts, Commerce and Science College from last year. This is my ninth year to serve the society prior to become principal. My educational Qualification include Ph.D in Botany with Mycology as specialization.

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Volume 2



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Fiber Optic Biosensors: A Brief Review

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Abstract

In recent years, optical fiber sensors have emerged as dependable and adaptable tools for biosensing applications. Fiber Optic Biosensors (FOBS) represents analytical device derived from optical fibers utilized as transducers, offering advantages such as ease of coating and biofunctionalization. These biosensors present benefits including low cost, high sensitivity, chemical inertness, immune to electromagnetic interference, accuracy, rapidity, cost-effectiveness, compact size, geometric flexibility, facilitating device miniaturization and portability. The interaction of evanescent waves with various transduction mechanisms such as absorbance, fluorescence, refractive index changes and surface plasmon resonance (SPR) is explored to enhance selectivity and sensitivity. This article delves into different fiber configurations, including U-bent, tapered, and SPR, which utilize specific optical fiber geometries to expose the evanescent field to interact with the analyte. The increasing applications of FOBS across medical field are specially highlighted. This review discusses the basic principles of FOBS, its types with applications, essential parameters and advantages.

Keywords: Biosensor; Optical Fiber; U-Bent; Tapering; SPR.

1. Introduction

Biosensors have emerged as powerful tools for detecting a wide range of analytes [1]. In 1969, Clark pioneered the first biosensor at the Children's Hospital in Cincinnati, Ohio, marking a significant breakthrough in biomolecule sensing. Since then, biosensors have found applications in medicine, agriculture, biotechnology, military, environmental, food analysis, healthcare, and biochemical industries. Among biosensors, optical fiber biosensors (FOBS) have gained prominence over electrochemical biosensors, owing to the advanced properties of optical fibers [2-4]. FOBS offer numerous advantages such as lightweight, compact size, suitability for hazardous environments, affordability, high sensitivity, chemical inertness, and immune to electromagnetic interference [1].

An optical fiber-based sensor typically comprises a light source, optical detector, and sensing element (probe) for detecting various analytes. These sensors rely on changes in polarization, phase, amplitude, frequency, intensity, or a combination thereof to detect analytes. The specific sensing element crucial for FOBS is termed the biosensing element, which determines the sensor's type. When a light signal interacts with the optical fiber in the sensor mechanism, it travels down the fiber core, interacts with the sensing element, and is then filtered before being processed by a detector and other instrumentation [5]. To measure a specific analyte, corresponding biomolecules, such as enzymes, molecular imprints, lectins, receptors, antibodies, or nucleic acids, is immobilized on the sensing element. In FOBS, the biosensing process typically relies on the interaction of the evanescent wave with the fiber's surroundings. To make the fiber sensitive for changes in environmental refractive index (RI), fibers can be altered in various geometries [6]. Various approaches to design optical fiber sensors are based on modulating optical power/intensity through interaction of light in the evanescent region, absorbance, reflectance, luminescence, refractive index, and light scattering for signal processing [5].

This review aims to explore recent advancements in FOBS from both technological and application perspectives. It begins by discussing the basic principle and significance of the evanescent field in constructing optical fiber-based sensors. Different fiber geometries and structures, including U-bent fibers, tapered fibers, and SPR will be addressed with their current applications. Subsequently, essential parameters for a good FOBS design along with their advantages will be elucidated.

2. Fiber Optic Evanescent Sensors

A standard optical fiber comprises a core enveloped by a cladding. To ensure total internal reflection (TIR), the core's refractive index must marginally exceed that of the cladding. Light traversing the core comprises two components: a guided field within the core and an exponentially decaying evanescent field within the cladding as shown in Fig. 1. To harness an optical fiber for sensing purposes, the evanescent field must interact with the surroundings, a feat unattainable with a uniformly sized optical fiber. This interaction can be facilitated through various means, such as etching out the cladding, bending the core, tapering the core, exposing the fiber's end, or inducing surface plasmon resonance. Factors influencing the sensing response include length, angle of incidence, bending, and surface area.

During light transmission through the optical fiber, the evanescent field interacts with the target analyte in the specified regions, leading to a reduction in transmission as the analyte absorbs the transmitted wavelength. Consequently, for absorbance measurements, the light source employed must emit wavelengths absorbable by the analyte. Similarly, evanescent wave fluorescence measurements are feasible between a modified sensing element and the analyte to be assessed. Additionally, as previously noted, sensing is feasible by measuring changes in output power due to variations in refractive index and the magnitude of the evanescent field. The extent of evanescent field propagation through the fiber hinges on the disparity in refractive indices between the core and the sample [7, 8].

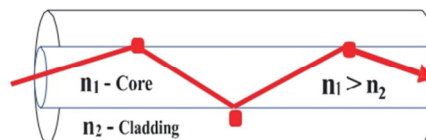


Fig. 1 structure of optical fiber and propagation of evanescent wave field.

3. Types of Fiber optic biosensors

3.1 U-Bent Fiber Optic Biosensors

Bending an optical fiber results in light loss and an increase in the evanescent field, typically performed on a uniformly de-cladded fiber [8]. In this sensor configuration, the fiber is curved with a specific bend radius, as illustrated in the Fig. 2(a). As the bend radius decreases, the refractive index profile undergoes

more significant changes due to increased stress [6]. Fiber bending induces higher-order modes and increases the penetration depth of the evanescent field [8]. Lower-order modes remain well confined within the fiber and propagate with minimal losses, while higher-order modes, due to the increased angle of incidence at the interface between the core and cladding, fail to satisfy the total internal reflection condition and are strongly attenuated [6, 7]. An optimal bending angle has been reported. Sensitivity increases as the bending radius decreases, but only upto a certain value, beyond which sensitivity decreases. This decline in sensitivity at small bending radii is attributed to the evanescent field overlap, resulting in power transfer between the two arms without propagating through the bent sensing region [6, 8]

Bandaru et al. introduced a U-bent fiber optic plasmonic biosensor platform capable of detecting ultra-low concentrations of human immunoglobulin G (HlgG), down to 0.17 zeptomoles [9]. *Shamlee et al.* developed an array of U-bent fiber optic absorbance biosensors (ArFAB) for the simultaneous detection of multiple proteins and bacteria [10]. *George et al.* presented a novel compact U-bent plastic fiber optic sandwich immunobiosensor specifically designed for detecting Chikungunya (CHIKV-nsP3) [11]. *Jiang et al.* introduced a novel U-bent plastic optical fiber sensor utilizing localized SPR with a graphene and silver nanoparticle hybrid structure, demonstrating excellent sensitivity and linearity for detecting glucose solutions [12].

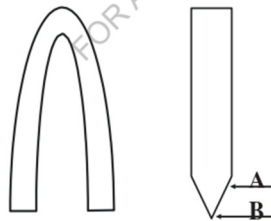


Fig. 2 (a) U-bent and (b) Tapered FOBS sensing element

3.2 Tapered Fiber Optic Biosensors

When an optical fiber is tapered, the evanescent field is significantly exposed, leading to an increased magnitude of the penetration depth [7]. Tapering can be achieved either by removing the cladding and then tapering the core or maintaining both the core and cladding in place and tapering the entire fiber [8]. In a tapered fiber, the fiber's diameter is progressively reduced until it reaches a minimum diameter in the waist region, corresponding to the minimum thickness

(region A), with an intermediate region featuring a variable diameter (region B) as shown in Fig. 2(b). Unlike the etching process, tapering preserves the proportion between the core and cladding diameter [6].

Ujah et al. presented an ultrasensitive tapered optical fiber sensor utilizing localized SPR for the detection of glucose, showcasing high sensitivity and stability [13]. *Yadav et al.* introduced a refractive index sensor based on a single-mode tapered fiber-optic interferometer, offering the highest sensitivity of 2.42141 nm per % Weight/volume for protein detection [14].

3.3 Surface Plasmon Resonance

The SPR sensor consists of a dielectric material with a metal coating through which light propagates. Instead of the evanescent field interacting directly with the analyte, optical energy is transferred to the surface of the metal layer in the form of electron packets known as plasmons, satisfying the resonance condition of the light beam. This condition depends on the angle of incidence, wavelength, and dielectric properties. The occurrence of resonance is influenced by the refractive index (RI) of the analyte, from which the RI can be derived. Gold or silver is commonly utilized as the coating for SPR sensors. Gold enhances the shift in resonance concerning changes in refractive index, while silver improves the signal-to-noise ratio by narrowing the resonance curve. Gold coatings can increase sensitivity by widening the separation between resonance curves, whereas silver coatings decrease sensitivity by narrowing the width of the resonance curve [7, 9-10, 15-16].

He et al. combined cellular sensors with plasmonic photothermal processing to achieve targeted detection and elimination of cancer cells, focusing on those present on the surface or surrounding the fiber-optic surface [17]. *Singh et al.* developed a miniature fiber-optic biosensor utilizing localized SPR for the detection of cancer cells [18]. *Lei et al.* fabricated optical fiber biosensors based on gold nanoparticle multimers with localized SPR for the detection of deoxynivalenol [19].

3.4 Essential Metrics for a Fiber Optic Biosensor

To guarantee the development of a biosensor with commercial viability, numerous crucial parameters need to be considered [15-16, 20-22]:

1. Achieving high sensitivity, selectivity, dynamic range, low detection limit, swift response time, and ensuring stability during use, long-term storage is essential.

2. The biosensor must embody traits of being lightweight, compact, portable, physically sturdy, capable of self-assessment, and user-friendly, particularly for semi-skilled operators.
3. Response reliability, precision, reproducibility, repeatability, and accuracy hold utmost importance. Ensuring linearity across the concentration range of interest without necessitating dilution or concentration is imperative.
4. The biocatalyst employed should demonstrate high specificity for the intended analysis, stability under typical storage conditions, and minimal Variance between assays.
5. Minimizing dependency on physical parameters such as stirring, pH, and temperature within the involved reaction is advantageous.
6. The biosensor should demonstrate insensitivity to electromagnetic, environmental, and temperature interferences, while remaining free from noise induced by other transducers.
7. For swift analyte measurements from human samples, real-time analysis capability, minimal sample volume requirement, low cost, and affordability are desirable characteristics.

3.5 Advantages of Fiber-Optic Biosensors

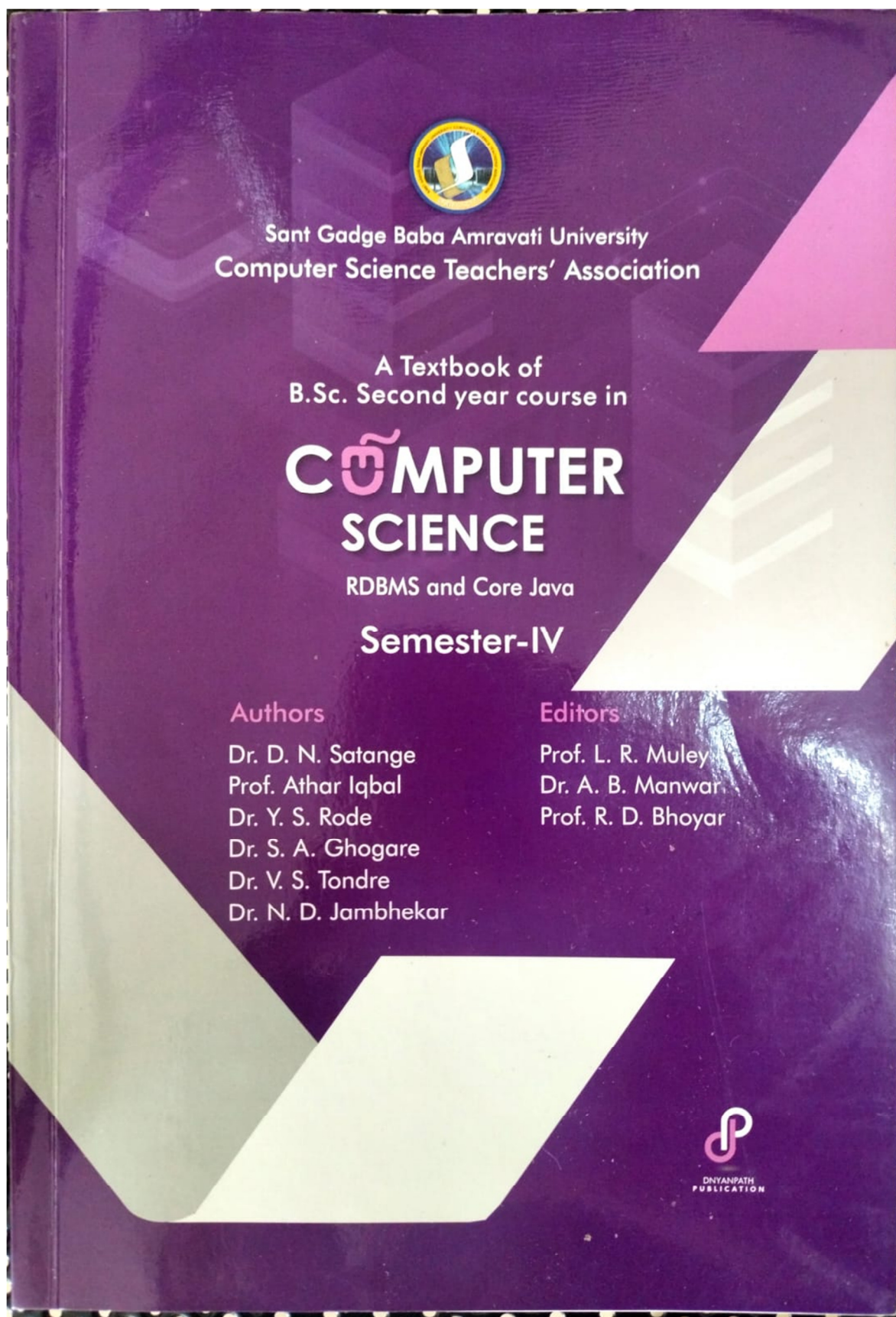
1. Optical fiber biosensors are immune to electrical interferences, rendering them safer than electrochemical biosensors due to the absence of electrical connectors.
2. While no reference electrode is required.
3. Immobilized reagents do not necessitate direct contact with optical fibers, facilitating easy replacement.
4. Miniaturization of FOBS enables their utilization for in vivo parameter monitoring.
5. They exhibit remarkable stability in calibration, particularly when measuring intensity ratios at dual wavelengths.
6. Multiple immobilized reagents enable simultaneous response to numerous analytes.
7. Utilizing low-loss optical fibers enables remote monitoring of hazardous environments.
8. They offer potential for greater information content compared to electrical transducers.

4. Conclusion

The FOBS have propelled them into the forefront of biosensing applications as compared to the other traditional sensors. FOBS have been observed various alluring properties. The evanescent wave generated in the sensing region interacts with analytes and produces various phenomenon including absorbance, fluorescence, refractive index change, SPR etc. and also useful in enhancing selectivity and sensitivity in FOBS. Mostly, U-bent, tapered and SPR are very much useful for an efficient FOBS and provides evanescent field with high penetration depth for analyte interaction. These biosensors extensively useful in various fields including industrial processes, environmental monitoring, food processing and medical diagnostics underscore their versatility and significance.

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RDBMS and Core Java

Semester - IV

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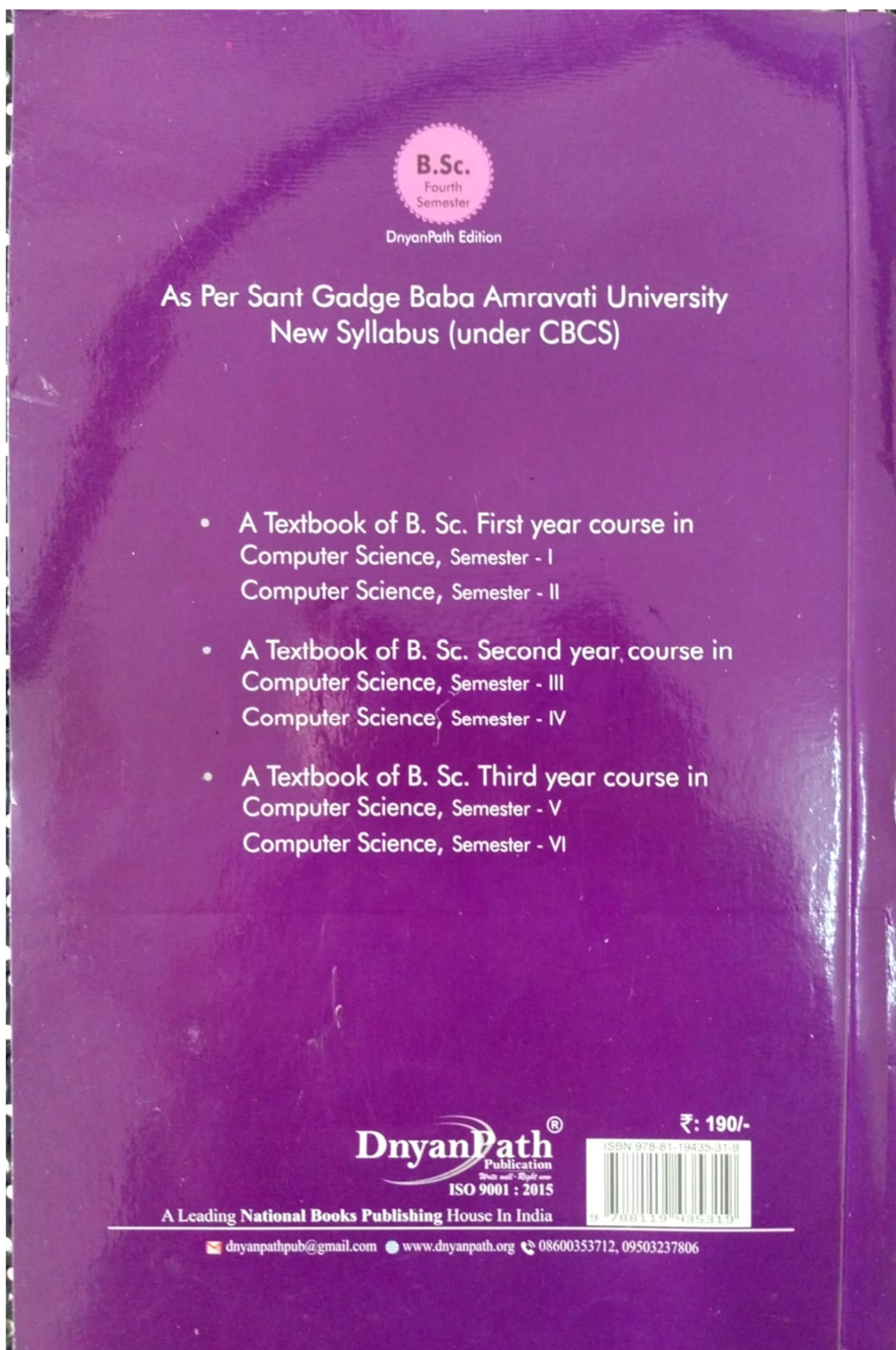
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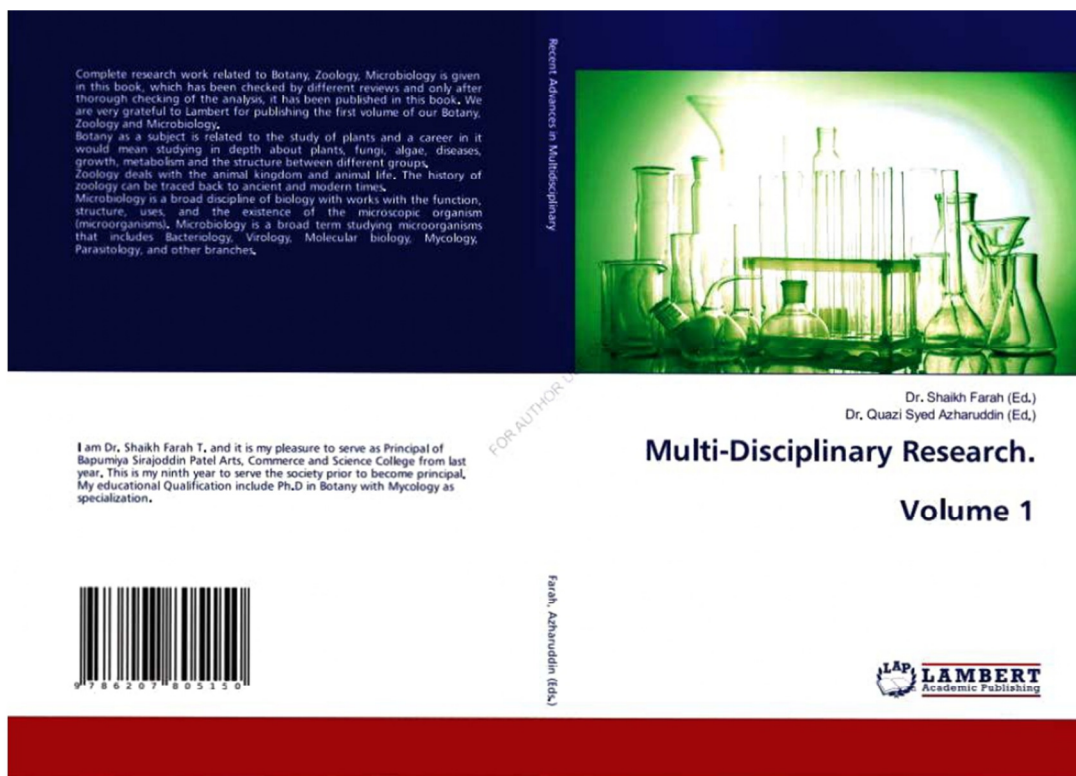
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Dr. Shaikh Farah, Dr. Quazi Syed Azharuddin (Eds.)

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**STUDY OF BIODIVERSITY OF DRAGONFLIES FROM
DNYANGANGA WILDLIFE SANCTUARY, BULDHANA M.S.
(INDIA)**

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Abstract-

Dragonflies are nature's nice creature responsible for indicators of ecosystems good health and conservation of nature. Dnyanganga wildlife sanctuary provides ecological good habitat for diversity of dragonflies. However no concrete study has been done. The sanctuary has a Dnyanganga river near to it, hence the name as has given it. The lake is visited for observing Dragonflies from January 2023 to December 2023. In this study, the survey has been carried out to ascertain dragon flies diversity and 9 species of dragonflies under 2 families were reported from the Dnyanganga Wildlife sanctuary. Currently, biodiversity of Dragonflies investigated in this area revealed that due to non-availability of water in summer (hottest climate) there is least number of Dragonflies in the sanctuary. Present study document the current status of occurrence of Dragonflies species in this study region, it will be more helpful for formulations of strategies relating conservation planning of Dragonflies from this region under study.

Keywords: Creature, Botha Lake, climate, Dragonflies.

Introduction:

Dnyanganga Wild life sanctuary comes under Akola range forest zone. This sanctuary infested with the dominant plants, herbs, shrubs, teak, Neem, palas, anjan, behda etc. It is near to a small village named Botha and commonly people called it as Botha. This Botha forest is located in Buldhana district of Maharashtra state of India. Botha village and some other small population bearing villages are there in and around the sanctuary namely Botha, kalegaon, warud fata. It is just 28 Km away from Buldhana and 20 Km away from Khamgaon town. Ithas Paldhag Dam near the sanctuary. Geographically this sanctuary is located on the border line of Buldhana and Khamgaon taluka. The topographic study of Botha forest reveals that the area is hilly with green vegetation gentle slope. This sanctuary is natural habitat for various animals and bird species of which many were seasonal that come from different parts of the country. Various diversity of flora and fauna found in this area. The main perennial source of water to the sanctuary is only Botha lake, some streams, water pools, nullah. According to Tsuda (1991) around 6000 species and subspecies to 630 genera in 28 families are known from all over the world. In 1995 Prasad and Varshney studied that out of this 6000 species and subspecies, 499 species and subspecies of Odonata under 139 genera in 17 families are represented in India. Subramanian 2005 studied about the life cycle of odonates. It is closely linked with water bodies. The insect order containing the dragonflies (Anisoptera) and damselflies (Zygoptera). The first task in identifying dragonflies is to separate a dragonfly from a damselfly. The two groups are easy to identify: dragonflies are robust in appearance and resting or feeding holds its four wings straight out from its body. The hind wings are broader at the base than the fore wings. Damselflies are slender in appearance and rest with wings held up vertically. Their wings may or may not be stalked at the bases. The aquatic nymph of dragonfly also different from damselflies (Norma Je, 2002).

Taxonomically dragonflies belong to the class Insecta and order Odonata. In Maharashtra, not much work has been done on dragonfly's diversity. But Indian Scenario has revealed that there are about 499 species of Odonata occurring in India. (Prasad and Varshney, 1995). In the state of Madhya Pradesh there is dense forest canopy and more work has been done by more entomologists, environmentologists. (Mishra, 2007). They studied the Odonata and reported 70 species of dragonflies and damselflies belonging to 40 Generas and 9 families throughout different localities. In such Dnyanganga Sanctuary, there was no more work on the documentation and biodiversity of the dragonflies earlier on

this work.

Materials and Methods

Dragonflies are best caught by swinging the net rapidly up and from behind the insect, but be prepared for many misses! The species of Dragonflies were collected at different localities throughout the sanctuary during day time with the help of insect trap. The collection of Dragonflies was done mainly on the bank of river nullah, water pools and streams. Dragonflies are large colorful insects usually found near fresh water such as riverbanks, canals, ditches, ponds and lakes. Their smaller relatives, the damselflies are also found in similar habitats. GPS (Gramin) was used for locating record. With the help of identification keys provided and by experts, the specimens were identified. Collected and identified specimens were preserved in the main animal museum of the Department of Zoology, Jijamata Mahavidyalaya, Buldhana Dist. Buldhana. The specimen's local names were identified from the native and local tribes of the related area.

Result & Discussion

This study reveals investigation of 09 species of order Odonata under 02 families 06 subfamilies recorded. Butterflies are pollinators that play a critical role in pollination. Now a day, Climate change is not only affecting humans, animals, but insects as well. Butterflies species are one this significant insect. Climate change, the use of pesticides and habitat destruction are key points that are causing the decline in the population of butterflies. There is great need to give more attention on the butterflies and damselflies conservation, reproduction and survival of all these dragonflies as per their population density was found to be least in the Dnyanganga Sanctaury. Butterfly conservation aims to maintain and enhance landscapes for butterflies, moths and damselflies. In dry season, there is non-availability of water.

Dragonflies Systematic Classification:

Phylum- Arthropoda

Class- Insecta

Order- Odonata

Sub order- Zygoptera






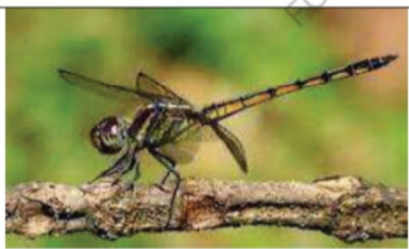


Superfamily- Coenagrionoidae

Family-Coenagrionidae

Subfamily-Pseudagrionidae

Table 1: Biodiversity of dragonflies collected, reported and systematically studied from Dnyangnaga Wildlife Sanctuary, Buldhana

Sr.No.	Name of the Species	Local Name
1	Pseudagrionmicrocephalum (Rambur)	Niloni
2	Tholymistillarga (Fab)	Dhagala
3	IndothemisCarnatica (Fabricius) Subfamily-Trameinae	Niljiva
4	Subfamily-Ischneurinae Ischnuraaurota (Bruar)	Sonkit
5	Crocothemisserviliaservilia (Drury)	Kunkuwa
6	Acisoma P. Panopoides (Rambur)	Pankhashendi
7	Potamarcha Congener (Rambur)	Haldya
8	Family-Libellulidae Subfamily- Libbelluhinae Orthetrum Sabina (Dray)	Gawatkida
9	Subfamily-Agriochemidinae AgriocnemisPugmaea (Rambur)	Shipai

	
<i>Pseudagrionmicrocephalum</i> (Niloni)	<i>Tholymistillarga</i> (Dhagala)
	
<i>Indothemis Carnatica</i> (Niljiva)	<i>Ischnuraaurota</i> (Sonkit)
	
<i>Crocothemisserviliasservilia</i> (Kunkuwa)	<i>Acisoma P. Panopoides</i> (Pankhashendi)
	
<i>Potamarcha Congener</i> (Haldya)	<i>Orthetrum Sabina</i> (Gawatkida)
	
<i>Agriocnemis Pugmaea</i> (Shipai)	

Conclusion

Dragonflies are a good key to the health of the environment. Presence or absence of certain dragonfly species indicates the state of health of wetland. These species will breed only if all conditions of vegetation and water quality are met. If there is pollution or reduction in aquatic vegetation, this species are no longer seen. Although Dnyanganga forest has a favourable habitat for Odonates, Forest Management is good at forest but the gradual increase of human pressure in and around water bodies has an adverse effect on the sustainability of these insects. Therefore, protection measures are necessary for these valuable creatures.

Acknowledgement

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RIGHT TO INFORMATION

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Right to Information Act-2005 : Issue & Concerns

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Abstract

The Constitution of India in its propositions via Part III of the Constitution i.e., Fundamental Rights guaranteed the citizens of the country for Right to Information. Following to series of judgments of various High Courts and the Supreme Court of India as well as haunted need for a special enactment providing provisions relating to the procedure and nature of information that required by the information seekers, the Right to Information Act was evolved in the year 2005 with certain guidelines applicable for both Public Information Officers and Information Seekers. When such intricacies and constraints are taking place in the implementation of the Act thereby the very objective of the Act is remaining with a question mark, the present study is carried out with the objectives to trace the evolution of the people's movement for the emergence of Right to Information Act, to analyze the nature and scope of the application of the Act, to review intricacies and issues in the implementation of the Act thereby to recommend measures to bridge the gap between the legal position of the law and existing scenario for strengthening and improving the effective implementation of the RTI Act. Since, the entire study is qualitative one and case study method, no empirical data study was adopted.

Introduction

The Right to Information is a fundamental right as enshrined under Art. 19 (1) (a) of the Constitution of India. Though the Constitution of India empowered citizens of this country with a power in seeking any relevant information from any institution

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or agency of the state, the movement for the right to information was started in early 90s by Mazdoor Kisan Shakti Sangathan, an organization for the empowerment of workers and peasants hailing from a remote village Devadungri (Rajsamand District, Rajasthan). It was a movement to expose corruption in the famine relief work by demanding information related to copies of bills, vouchers and muster rolls for workers recorded in government files. Following a period of struggle, this particular organization succeeded in acquiring photocopies of the relevant documents in which the siphoning of funds was clearly evident. When villagers experienced the exposure to corruption while seeking information finally led to the demand of enactment of RTI law in Rajasthan. Government of Rajasthan yielded to pressure of movement and enacted the law in 2000. The recent enactment of the Right to Information Act 2005 marks a significant shift for Indian democracy, for the greater the access of citizens to information, the greater will be the responsiveness of government to community needs.

Right To Information : Definition

According to Sec.2(j) of the RTI Act. Right to Information is defined as a right to information accessible under the Act which is held by or under the control of any public authority and includes a right to (i) inspection of work, documents, records, (ii) taking notes, extracts or certified copies of documents or records, (iii) taking separate samples of material, (iv) obtaining information in the form of diskettes, floppies, tapes, video cassettes or in any other electronic mode or through printouts where such information is stored in a computer or in any other device.

A. How To Access The Information

The Right to Information Act gives the right to all the Indian citizens to access information from public institutions. The application procedure for seeking information is very simple and citizen friendly. The application can be written in English or Hindi or the official language of the state. Application should be accompanied by necessary application fees as prescribed under state rules. The application must be submitted to the Public Information Officer (PIO) in the public institution from where the information is sought. Section 4 of the RTI Act mandates every public institution to voluntarily disclose all their activities

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in a manual, so that citizens can get information about important functions of public institutions without filing application.¹

B. Features And Scope of The Information Act

Right to Information Act, which came into force on 12th of October 2005, is one of the most significant legislations enacted by the Parliament of India. The Right to Information Act 2005 (RTI Act) recognizes that in a democracy like India, all information held by the Government ultimately belongs to people. Making information available to citizens is simply a part of normal government functioning because the public has a right to know what public officials do with their money. The Act seeks to establish that transparency is the norm and secrecy is an exception in the working of governance institutions. The Act applies both to Central and State Governments and all public authorities. A public authority as defined under Sec. 2(h) is bound to furnish information means any authority or body or institution of self-government established or constituted (a) by or under the Constitution, (b) by any other law made by Parliament, (c) by any other law made by State Legislature, (d) by a notification issued or order made by the appropriate Government and includes any (i) body owned, controlled or substantially financed, (ii) non-government organization substantially financed - which, in clauses (a) to (d) are all, directly or indirectly funded by the appropriate government. It is important to note that the Act specifies that intelligence and security organizations are exempted from the application of the Act. However, it is provided that in case the demand for information pertains to allegations of corruption and human rights violations, the Act shall apply even to such institutions. In order to have balance in the implementation of the Act from the possibilities of misuse of the provisions under the law, exemptions are made from seeking information under Sec. 8 which exempts from disclosure certain information and contents as stated in Sub-clauses (a) to (j) thereof. Sub-clause (b) exempts information, which is expressly forbidden by any court of law or tribunal or the dispute of which may constitute contempt of court. Sub-clause (g) exempts information the disclosure of which would endanger life, or physical safety of any person or identify the source of information or assistance given in confidence for law enforcement or security purpose. Sub-clause (h) exempts

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and pertinent information.

Lack of monitoring and review mechanism : There is no centralized database of RTI applicants. A centralized database of applicants with their information requests and responses from information providers will enable the PIOs to send an accurate and timely compilation under Sec. 25(1).

Issues faced at the Information Commissions : Under the Act, the Information Commissions at the Central/State level are required to take steps to secure the compliance with the provisions of the Act. However, there have been inadequate processes and records available with the Information Commissions to monitor and review the working of the various Public Authorities and initiate steps to make them comply with the spirit of the Act.

Conclusion

The birth of the Right to Information Act, India moved from an opaque and arbitrary system of government to the beginning of an era where there will be greater transparency and to a system where the citizen will be empowered and the true centre of power. The notions of this Law to achieve further more mile stones in the democratic country. Only by empowering the ordinary citizen can any nation progress towards greatness and by enacting the Right to Information Act 2005. India has taken a small but significant step towards that goal by bringing this Right to Information Act in to existence. The real and true governance can be achieved not by the acquisition of authority by a few but by the acquisition of capacity by all to resist authority when abused.

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