

Revitalizing E-Governance In Haryana: Embracing Digital Transformation Post-Pandemic

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Abstract:

The COVID-19 pandemic has significantly stretched the boundaries of Haryana's e-governance infrastructure, mobile networks, and smart device utilization. This period witnessed an unprecedented surge in technology adoption not only at the central level but also among State and Local Governments. Even citizens who were previously not active technology users embraced digital tools. The post-pandemic scenario has brought about a transformative shift, underscoring the crucial role of e-governance initiatives in citizens' lives. This transition represents a deliberate move towards a contactless society. In light of this, there is a compelling need for the Government of Haryana to proactively strategize for the emerging reality, aiming to emerge stronger from the crises by further accelerating the digital transformation of government service delivery and citizen engagement through e-governance. The momentum gained during the pandemic presents a unique opportunity for Haryana to not only adapt to the new normal but also to propel itself to greater heights in terms of e-governance adoption and utilization. This underscores the importance of leveraging technology effectively to ensure good governance, promote contactless interactions, and advance the broader goals of the Digital India initiative.

Keywords: *e-governance, good governance, contactless, information technology, Digital India, e-courts.*

Introduction:

The advent of the Covid-19 pandemic has inflicted widespread devastation across the globe. From the loss of loved ones to the closure of small businesses, individuals have grappled with crises, each uniquely challenging yet requiring acceptance and adaptation for forward progression. The journey towards recovery and the restoration of a semblance of normalcy varies in difficulty for different entities. Undoubtedly, the coronavirus has left an indelible mark on the year 2020, both for better and for worse. It has exerted a varied impact on different industries, with some facing significant challenges while others experience flourishing prospects.

Amid the ongoing battle against the Covid-19 pandemic, it becomes increasingly evident that the post-coronavirus world will undergo substantial changes economically, socially, and in terms of public health. The toll of this crisis is widespread, and no individual or nation will emerge unscathed. While previous threats to individual and societal freedoms have failed to alter our way of life, this fundamental asset of our civilization is now under severe threat. In the aftermath of Covid-19, powerful nations are poised to redraw the international order, incorporating lessons learned from grappling with the ongoing pandemic.

Information Technology is anticipated to play a pivotal role across various aspects of life, including education, e-governance, commerce, health, and artificial intelligence. The potential use of tracking devices for citizen monitoring raises concerns about conflicting with human rights in the interest of security and safety. The profound lesson from the Covid-19 crisis is the acute vulnerability of a most cherished modern civilization asset—human liberty. Throughout history, nations have fiercely defended individual and social freedoms, often at great cost, but now these essential elements of our civilization face a substantial threat from a coronavirus and its repercussions.

The sudden onset of the 2020 pandemic served as an abrupt disruption, challenging our civilization's complacency. Such rare disruptions, characterized by a unique combination of impact, speed, and scale, compel reflection on our position and velocity as an intelligent species, prompting scrutiny of certain flawed societal designs. While the primary focus during such challenging times remains on containing the menace, there is also an opportunity for long-term sectoral reforms. Undoubtedly, the pandemic has propelled us towards a contactless world, prompting a significant leap in e-governance to ensure the delivery of public services to citizens confined to their homes.

The adoption of e-governance technologies by governments results in heightened efficiency, reduced costs, diminished manpower requirements, and a decreased physical presence of individuals in various tasks. The latter advantage is particularly pertinent in the context of lockdowns and social distancing measures implemented during the present

pandemic. It is noteworthy that integrating hardware automation and artificial intelligence into e-governance has the potential to further curtail manpower requirements and physical presence in various job and economic activities.

While contemplating the hypothetical scenario of this pandemic occurring a century later, one might envision a world better equipped to absorb such shocks. Nevertheless, the timing of a catastrophe remains unpredictable; all one can forecast is its impact and prepare accordingly. The COVID-19 pandemic, an unparalleled global crisis, acted as a catalyst for transformative change across various sectors, particularly within the domain of governance. In Haryana, the pandemic not only tested the resilience of existing e-governance infrastructure but also propelled the state towards a paradigm shift in technology adoption. The limits of e-governance, mobile networks, and smart device utilization were pushed beyond conventional boundaries, marking an unprecedented surge in technological assimilation at both central and local levels. What emerged from the crucible of the pandemic was a Haryana that had embraced digital tools, drawing in citizens who were not previously active technology users.

This paper explores the aftermath of the pandemic and its profound impact on the e-governance landscape of Haryana. It looks into the transformative shift that has accentuated the pivotal role of e-governance initiatives in the lives of citizens, steering the state towards a deliberate move into a contactless society. As the dust of the crisis settles, there arises a compelling need for the Government of Haryana to proactively navigate the emerging reality. This involves formulating strategic approaches to not only recover but to emerge stronger from the challenges posed by the pandemic. Central to this strategy is the acceleration of digital transformation in government service delivery and citizen engagement through e-governance initiatives.

The momentum gained during the pandemic presents a unique opportunity for Haryana, not merely to adapt to the new normal but to propel itself to greater heights in terms of e-governance adoption and utilization. This paper underscores the significance of leveraging technology effectively as a means to ensure good governance, promote contactless interactions, and contribute to the broader aspirations of the Digital India initiative. Through an exploration of this dynamic landscape, we aim to unravel the potential avenues for revitalizing e-governance in Haryana and steering the state towards a future that harmonizes technology with governance for the benefit of its citizens.

Objectives of the Study:

1. Assess the Impact of COVID-19 on Haryana's E-Governance Infrastructure and Technology Adoption.
2. Formulate Strategies for Accelerating Digital Transformation in Haryana's Government Services Post-Pandemic.

Research Methodology:

This research, classified as a descriptive and analytical study, employs a comprehensive approach to explore the dynamic landscape of e-governance in Haryana. The methodology primarily relies on secondary data analysis, amalgamating insights from the author's doctoral research work with information garnered from diverse Internet sources. The research encompasses several key steps to ensure a thorough investigation.

The primary source of data for this study is secondary in nature, drawn from a spectrum of existing literature, government reports, academic publications, and reputable online sources. This approach facilitates the extraction of data spanning the historical evolution of e-governance in Haryana, contemporary trends, and the transformative impact of the COVID-19 pandemic on technology adoption.

The author's doctoral research work serves as a fundamental pillar of this study, providing nuanced insights and findings that contribute to the overall depth and context of the analysis. Additionally, relevant information from Internet sources, including government reports, official websites, and scholarly articles, is scrutinized to integrate up-to-date and contextually relevant data. Following data collection, a rigorous process of summarization and analysis is undertaken. The objective is to distill key insights, identify patterns, and draw connections between different facets of e-governance in Haryana. Comparative analyses are conducted to discern the dynamics pre- and post-COVID-19.

The research methodology places a particular emphasis on assessing the current state of e-governance in Haryana. This involves a detailed examination of strengths, weaknesses, opportunities, and threats within the evolving technological landscape. Theoretical frameworks related to e-governance, such as Exogenous Growth Theory, Endogenous Growth Theory, Human Capital Theory, Technology–Organization–Environment (TOE) Framework, and Resource-Based View, are applied to contextualize and analyze the data. Acknowledging the limitations inherent in relying on secondary data,

this methodology aims to provide a robust foundation for the ensuing analysis. It seeks to offer a nuanced understanding of the e-governance landscape in Haryana and its response to the challenges posed by the COVID-19 pandemic.

Evolution of E-Governance in India:

The evolution of E-Governance signifies the application of Information and Communication Technology (ICT) to streamline governmental functions, aspiring towards Simple, Moral, Accountable, Responsive, and Transparent (SMART) Governance. The "e" in E-Governance denotes electronic, underscoring the reliance on electronic means to carry out governance functions and achieve desired outcomes through the utilization of ICT. The global adoption of E-Governance, including in countries like India, stems from the increasing complexity of governance and rising aspirations of the populace.

In this contemporary era, citizens expect the best delivery channels for public services, aligning with global standards. ICT has played a pivotal role in facilitating efficient storage and retrieval of data, enabling instantaneous transmission and processing of information compared to the earlier manual systems. This transformation has not only expedited government processes but also fostered informed decision-making, significantly enhancing transparency and accountability. The E-Governance system has evolved to become more robust, expanding the geographical and demographic reach of government services.

The foundation of E-Governance in India is supported by five key pillars, often referred to as the 5Cs:

1. **Computers:** The technological backbone that facilitates the processing and storage of vast amounts of data.
2. **Connectivity:** Ensuring seamless network connectivity to enable swift information transmission.
3. **Content:** The substance and information made available through digital platforms.
4. **Consumer:** The citizen, who is at the center of the E-Governance initiative.
5. **Confidence Building:** Fostering trust and confidence in the E-Governance system among citizens.

E-Governance aims to enhance the interaction between the government and various stakeholders, making it more user-friendly, convenient, and cost-effective. This includes Government to Citizen (G2C), Government to Business enterprises (G2B), Government to Government (G2G), and Government to Employee (G2E) interactions. As aspirations continue to rise, E-Governance in India is a dynamic force shaping governance practices to align with the evolving needs and expectations of the populace.

E-Governance in India: Evolution and Earlier Trends:

Recognizing the pivotal role of Information and Communication Technology (ICT), the Government of India took a significant step in 1977 by establishing the National Information Centre, marking a crucial milestone in the journey towards adopting E-Governance. By the late 1980s, a substantial number of government offices in India had computers, primarily employed for word processing tasks. The adoption of ICT gained momentum as various ministries and departments started integrating it for both internal functions such as payroll processing and external business requirements like monitoring development work, report generation, and Management Information Systems (MIS).

In 2006, India's e-Governance initiative was formally named the National e-Governance Plan (NeGP). The NeGP commenced with 27 Mission Mode Projects (MMPs), and an additional four MMPs were incorporated in 2011. Over time, the trajectory of e-Governance in India evolved from its initial phase of merely informing citizens about the existence and utility of government websites to focusing on transactional and participatory services. Notable success stories include pioneering efforts in areas such as Railway Ticket reservation, air ticket bookings, e-commerce, net banking, income tax, e-procurement, and passport services.

Government ministries at the national level demonstrated proactive measures in implementing e-governance initiatives. Following this lead, several state governments, including Andhra Pradesh, Karnataka, and Gujarat, embraced e-Governance measures by computerizing and digitizing critical sectors like land records, treasuries, commercial taxes, education, police, transport, and healthcare. The comprehensive implementation of e-Governance spans from urban to rural areas, covering a spectrum from politics to education, solidifying its roots across diverse domains.

E-Governance has become a pervasive force, implemented by the government in almost every field. Its influence extends from urban centers to rural landscapes, touching upon aspects as diverse as politics and education. The journey of E-Governance in India reflects a continuous evolution, progressing from basic information dissemination to the widespread adoption of transactional and participatory services, marking a transformative era in the nation's governance landscape.

In the context of E-Governance, Haryana emerges as a trailblazer, demonstrating a significant evolution in governance practices. Recognizing the transformative potential of Information and Communication Technology (ICT), Haryana took noteworthy strides, establishing the National Information Centre in 1977, marking an early commitment to digital governance. By the late 1980s, government offices in Haryana embraced computers, initially employed for word processing, setting the groundwork for more comprehensive ICT integration. As ministries and departments within the state harnessed ICT for both internal functions like payroll processing and external business requirements, the foundation for a robust E-Governance infrastructure was laid.

E-Governance Transforming India: A Snapshot Across Sectors:

In the intricate tapestry of India's governance landscape, E-Governance has emerged as a transformative force, influencing both the public and private sectors. This digital wave has not only impacted the common man but has also redefined the operational dynamics for businesses. Let's delve into specific sectors where E-Governance has played a pivotal role:

I. Transportation:

Citizen Friendly Services of Transport (CFST): Andhra Pradesh has pioneered CFST, offering services like the issuance of learner licenses, driving licenses, and license renewals, making transportation-related processes more accessible.

Vahan and Sarathi: Tamil Nadu's government leverages backend applications Vahan & Sarathi to streamline the workflow in the transport department, facilitating quicker and more efficient processes.

II. Online Payment of Bills and Taxes:

FRIENDS Project: Initiated by the Kerala Government, FRIENDS enables citizens to make online payments for electricity and water bills, revenue taxes, license fees, motor vehicle taxes, university fees, etc.

E-SEVA: Andhra Pradesh's E-SEVA initiative allows citizens to pay utility bills, obtain trade licenses, and conduct government transactions seamlessly.

III. Municipal Services:

Municipal services span a wide array, from house tax assessment and billing to maintaining records of land and property, issuing death certificates, and overseeing property registrations and attorneys.

IV. Agriculture:

Gyandoot: Madhya Pradesh's Intranet-based G2C service delivery initiative focuses on providing agricultural information and services to citizens.

BELE: A web-based application with a 3-tier architecture, BELE captures and monitors major agricultural activities and services.

AGMARKNET: A national project approved by the Department of Marketing & Inspection, AGMARKNET aims to modernize agricultural marketing information.

V. Public Service Delivery and Grievance Redressal:

E-JanSampark: Chandigarh's initiative provides accessible services and information to meet the basic needs of citizens.

Prajavani: Andhra Pradesh's web-based online monitoring of public grievances enhances government accountability.

Police Services: Hyderabad's police services platform offers safety tips, passport verification status, information on stolen vehicles, and more.

VI. Land Record Management:

Bhoomi: Karnataka's pioneering e-Governance land records management system successfully benefits citizens.

Comprehensive Modernization of Land Records (CMLR): Andhra Pradesh integrates property registration, mutations, and field survey map updates.

E-Panjeeyan: Assam's initiative focuses on computerizing document registration work at Sub Registrar Offices.

VII. Health:

Online Vaccination Appointment for International Travellers: A citizen-centric application facilitating vaccination for individuals traveling abroad and the issuance of International Health Certificates. These initiatives collectively showcase how E-Governance has become deeply ingrained in various facets of Indian society, making services more accessible, transparent, and efficient for citizens and businesses alike.

In 2006, Haryana embraced a proactive approach by aligning with the National e-Governance Plan (NeGP), initiating 27 Mission Mode Projects (MMPs). The state continued to build on this foundation, incorporating four more MMPs in 2011. Haryana's journey in E-Governance transcended the introductory phase of informing citizens about government websites,

progressing toward a focus on transactional and participatory services. E-Governance success stories in Haryana are noteworthy, with pioneering initiatives in areas such as Railway Ticket reservation, air ticket bookings, e-commerce, net banking, income tax, e-procurement, and passport services. The state's ministries demonstrated a keen understanding of the transformative potential of E-Governance, leading to the effective implementation of digital initiatives.

In the state's e-Governance measures, Haryana has witnessed significant strides in computerizing and digitizing vital sectors such as land records, treasuries, commercial taxes, education, police, transport, and healthcare. The impact of E-Governance has permeated from urban centers to rural landscapes, shaping the political and educational landscape and solidifying its roots across diverse domains. Haryana stands as a beacon of success in E-Governance implementation, showcasing how a focused approach to digital transformation can revolutionize governance dynamics. The state's commitment to harnessing technology for efficient service delivery has not only improved transparency and accountability but has also set a precedent for other regions to follow. In essence, Haryana's journey in E-Governance represents a resounding success, positioning the state as a model for effective and inclusive governance in the digital age.

Revolutionizing e-Governance in Haryana: A Holistic Examination of Theoretical Frameworks and Post-COVID Dynamics:

In the wake of the COVID-19 pandemic, the significance of e-Governance initiatives has undergone a transformative shift, in Haryana. The imperative for social distancing mandated by both Central and Local governments has propelled e-Governance to the forefront of delivering essential services to the citizens. This study is designed to discern the factors contributing to the increased adoption of e-Governance services in Haryana.

The World Bank defines e-Government as the utilization of information technologies by government agencies to revolutionize relationships with citizens, businesses, and other government entities. It encompasses a spectrum of objectives, including improved service delivery, enhanced interactions with businesses, citizen empowerment through access to information, and more efficient government management. In the realm of e-Governance, the use of Information and Communication Technologies (ICTs) by the public sector aims to instill accountability, transparency, efficient information and service delivery, and citizen participation in the decision-making process.

The ongoing COVID-19 pandemic, declared a global health crisis by the World Health Organization on March 11, 2020, has spurred an unprecedented interest in e-Governance initiatives worldwide. Haryana, being a populous state with unique demographic challenges, has faced the necessity of embracing digital governance methods during the nationwide lockdown enforced by the Government of India. As the country gradually unlocks its economy, Haryana, like other regions, is traversing through phases of recovery. The initial instance of the COVID-19 outbreak in the Indian state of Haryana was documented on March 4, 2020. According to the Ministry of Health and Family Welfare, the cumulative count of confirmed cases reached 264,955 as of January 10, 2021, with 2,510 cases currently active and a total of 2,950 reported fatalities.

The efficacy of e-Governance, already established, has been further accentuated by its ability to respond effectively to challenges posed by COVID-19. These initiatives, supported by ICTs, not only create value but also foster collaborative channels between various stakeholders. Public-Private Partnerships (PPP) have gained momentum, encouraging non-profit organizations to participate in e-Governance ventures. Citizen engagement in these initiatives goes beyond being mere recipients; they become co-producers of policies and services, enhancing the efficiency of public organizations and fostering democratic governance.

In line with the Social Exchange Theory, citizen participation is viewed as an exchange where citizens contribute not only as beneficiaries but also as resource providers, offering opinions and actions that contribute to the creation of public value. This study aims to investigate the interconnected drivers of e-Governance, including ICT infrastructure, citizens, and government, to comprehend the successes and challenges faced by different e-Governance projects across Haryana.

The National Informatics Centre (NIC), established in 1977 by the Government of India, marked a significant milestone in the adoption of e-Government in the country. Over the years, the e-Governance landscape evolved, and in 2006, the National E-Governance Plan (NeGP) was introduced, encompassing 27 Mission Mode Projects (MMPs). Despite substantial investments in ICT for public sector projects, there have been reports of a high failure rate. The onset of the COVID-19 pandemic, however, has necessitated a proactive approach to digital transformation in government service delivery in Haryana. With increased technology adoption not only by government bodies but also by citizens, including those who were previously not active technology users, there is an opportunity to propel Haryana to new heights in e-Governance adoption and utilization.

In conclusion, the post-COVID era presents both challenges and opportunities for Haryana. The calibrated resumption of economic activities and the delivery of government services now heavily depend on IT-enabled solutions. By embracing the lessons learned during the pandemic, Haryana has the potential to emerge stronger and more digitally advanced, fostering a new normal that prioritizes e-Governance in all aspects of public service delivery.

Governance, Good Governance, and E-Governance in Haryana:

Haryana, transitioning from the pre-Independence era to the post-Independence period, has witnessed a significant evolution in its governance framework. Shifting away from a colonial model, the contemporary governance system in Haryana places a strong emphasis on citizen-centric approaches. The formulation of public policies now revolves around addressing the needs of the citizens, with a commitment to providing standardized services. The government's current objective is to systematically cater to its citizens, ensuring efficient information dissemination, consultation, non-discrimination, responsiveness, courtesy, and the optimal utilization of citizens' time and resources.

In the governance landscape of Haryana, the stakeholders extend beyond the traditional role of the State to include Civil Society and the Market. The State aims to create a conducive political, legal, and economic environment, while the Market is expected to generate opportunities for individuals. Civil Society plays a pivotal role in mobilizing participation, emphasizing that governance is a collective responsibility transcending the government's sole domain. The need for enhancing the delivery of government services is particularly crucial in Haryana, where addressing inefficiencies holds the potential to alleviate the burden on the economically disadvantaged.

Haryana has been a hub for various pilot projects in electronic service delivery across different sectors, resulting in substantial benefits for the public. However, scaling up successful practices to a statewide level remains a challenge. Recognizing the significance of e-governance, the state government has embarked on ambitious initiatives under the umbrella of Digital Haryana, impacting service delivery in diverse departments. The adoption of new technology within an existing system presents both advantages and challenges, necessitating robust project management, business process re-engineering techniques, and adept change management.

The primary challenge in Haryana's adoption of ICT applications lies in overcoming resistance from government employees directly affected by e-governance implementation. ICT applications, while holding the potential to enhance transparency in decision-making processes, also introduce challenges related to a shift in power dynamics and resistance to capacity building. Despite these challenges, Haryana has witnessed significant strides in Information and Communication Technology, driven by the commitment of the state government.

The paradigm shift from a mere government-centric approach to Good Governance in Haryana aims to create an environment wherein all citizens can develop to their full potential, irrespective of class, caste, or gender. Good Governance, with its pillars of Ethos (service to citizens), Ethics (honesty, integrity, and transparency), Equality (treating all citizens with empathy), and Efficiency (speedy and effective service delivery), is integral to the state's administrative fabric. Information Technology, viewed as an enabler and an effective tool for reform, has played a pivotal role in realizing the principles of Good Governance in Haryana.

As an enabler, Information Technology in Haryana enhances the storage, processing, and transfer of information within organizations, both public and private. The increasing awareness of Information & Communication Technology has led to the rapid proliferation of information systems in the state. Web-based delivery systems have further amplified the relevance of these tools, facilitating the collection, collation, and sharing of information at low costs. This technological advancement has empowered citizens in Haryana by liberating them from the constraints of people, place, and time, extending the reach of essential services to distant consumers in sectors such as health, education, rural development, and beyond.

The gradual integration of Information and Communication Technology (ICT) into every aspect of human life is ushering in multifaceted changes. This transformation extends to the way individuals engage with one another and with society at large. The governance of a nation is not immune to this evolving and dynamic landscape, and India stands out as one of the countries where this trend has gained significant traction. Information Technology enables the government to explore innovative methods of generating knowledge and involving citizens in the decision-making process.

In recent years, there has been a notable shift towards a more responsive, transparent, and inclusive form of governance, reaching even the most remote parts of the country, courtesy of the expanding reach of IT-enabled services. The Prime Minister encapsulated India's transformative journey with a succinct equation: IT (India's Transformation) = IT

(Information Technology) + IT (India's Talent). The advent of Information and Communication Technologies has played a substantial role in advancing the cause of Good Governance.

Digital Governance Transformations in Haryana: A Sectoral Overview:

In the dynamic landscape of Haryana's governance, digital innovations have reshaped essential sectors, delivering impactful solutions for citizens. Health management in the state is bolstered by the SMS-based Integrated Disease Surveillance System, enabling rapid reporting of disease occurrences to relevant authorities for swift responses. Further, the implementation of the Hospital OPD Appointment System by the Chandigarh Administration exemplifies a commitment to simplify citizens' lives, ensuring seamless access to healthcare services.

Education, a cornerstone of societal progress, has witnessed significant digital interventions in Haryana. The Online Scholarship Management System ensures efficient distribution of scholarships and fees reimbursement, providing crucial financial support to deserving students. Initiatives like the All India School Education Survey (AISES), implemented by the Assam government, contribute to comprehensive education planning by surveying the number of schools in district Census, addressing critical information needs specific to Haryana.

Navigating the digital transformation journey in Haryana is not without its challenges. Front-end challenges, such as high illiteracy levels and non-availability of user-friendly interfaces, need targeted solutions. Back-end challenges, including technical and process issues, require concerted efforts for seamless integration within departments and enhancing computer literacy among bureaucratic staff.

In 2014, the Haryana Government launched its own digital transformation initiative, aligning with the broader national Digital India program. This initiative aims to connect rural areas in Haryana with high-speed internet networks, emphasizing technology as a catalyst for transformative change. The Aadhaar biometric identification scheme has played a crucial role in this endeavor, enabling online verification for banks, telecom companies, and government agencies within the state.

The Pradhan Mantri Jan Dhan Yojana (PMJDY) leverages Aadhaar support in Haryana, extending financial inclusion to low-income households. Serving as a vehicle for social inclusion, PMJDY utilizes Aadhaar-linked bank accounts for the distribution of direct benefit transfers, wages under employment schemes, and other poverty alleviation initiatives, tailored to the specific needs of Haryana's population.

As Haryana continues its pursuit of technological innovation, the ongoing Covid-19 pandemic serves as a test of the state's emergent e-governance infrastructure. This crisis underscores the critical role of robust digital systems in responding to monumental challenges, ensuring efficient governance, and effectively distributing relief and benefits to the people of Haryana.

E-Governance Resilience in the Post-Covid Era:

During the COVID-19 pandemic, e-Governance emerged as a pivotal tool worldwide, playing a crucial role in various countries, including India, to combat the challenges posed by the virus. This technology not only facilitated diverse services but also played a vital role in saving lives. Contact Tracing Apps were developed globally, aiding in breaking the chain of the virus and promoting adherence to COVID-19 protocols. In India, e-Governance, particularly through the Aarogya Setu App, proved instrumental in contact tracing, hotspot identification, and offering various helpline services. E-governance applications were extensively utilized for e-pass generation, ensuring the delivery of essential services, and monitoring health check-ups.

Video conferencing became a widely adopted e-Governance tool, enabling seamless communication at various administrative levels, from the Prime Minister to Deputy Commissioners. NIC played a crucial role in developing diverse applications, web portals, and mobile-based solutions. Platforms like e-Office facilitated remote work during lockdowns, ensuring continuity while averting potential health risks associated with physical file handling. The adoption of e-Governance extended to monitoring dashboards, such as the PM Dashboard for COVID, aiding in policy formulation and decision-making.

In Haryana, a state recognized for its achievements in e-Governance, the government utilized various applications and portals in response to COVID-19. Video conferences, COVID Sangharsh Senani Portal, and e-Governance tools like Jan Sahayak – Help Me App and Healthy Haryana Portal played vital roles in managing the pandemic. Initiatives like Kishan Rath Portal facilitated online selling of agricultural produce, showcasing the adaptability and resilience of e-Governance

in diverse sectors. The Co-WIN App emerged as a crucial instrument for the nationwide vaccination program, streamlining the vaccination process.

The Haryana government actively employed e-Governance for surveying, data collection, relief distribution, and communication with citizens. Initiatives like COVID Sample Report Portal, Sahayak Haryana App, and Haraadesh Portal demonstrated multifaceted applications in disseminating information, providing financial aid, and addressing the needs of various sections, including senior citizens. E-Governance played a pivotal role in ensuring the well-being of citizens, aiding in crisis management, and fostering community cooperation during these challenging times.

The advent of the Covid-19 pandemic brought unprecedented challenges and disruptions, shrouding the world in fear and uncertainty. As the virus spread, the global community faced economic setbacks, loss of jobs, and a surge in anxiety. The stringent measures of lockdowns and curfews confined individuals to their homes, disrupting normalcy in every aspect of life. The virus demanded heightened hygiene standards, influencing the adoption of protective measures like masks, handwashing, sanitizers, and social distancing. The aftermath witnessed closures of public spaces, impacting mental well-being, and instilling a pervasive sense of apprehension regarding survival.

In this challenging scenario, the role of E-Governance emerged as a beacon of hope. The limitations posed by the virus necessitated innovative solutions for service delivery and citizen engagement. The post-Covid era marked a paradigm shift in the significance of E-Governance initiatives, with governments recognizing their pivotal role in ensuring the continuity of essential services while adhering to social distancing norms.

The words of tech visionary Bill Gates, predicting the potential catastrophic impact of infectious viruses in 2015, resonated as the world grappled with the reality of the Covid-19 pandemic. The virus prompted unprecedented actions, including a nationwide stay-at-home order in India in March 2020. The subsequent lockdowns and mobility restrictions underscored the need for robust E-Governance solutions to bridge the gaps created by the pandemic's disruptions.

In the face of adversity, the post-Covid era presented a unique opportunity for technological innovation. The challenges brought forth by the pandemic compelled governments to explore and implement E-Governance initiatives on an unparalleled scale. The imperative for social distancing propelled the enhanced role of digital platforms in delivering essential services to citizens. This shift not only ensured the continuity of governance but also opened new avenues for leveraging technology to address emerging challenges.

In response to the COVID-19 pandemic, Haryana implemented a series of state-level initiatives to ensure public safety and welfare. Drawing inspiration from social movements advocating accountable governance, the state engaged in preventive measures communicated directly by Deputy Chief Minister Mr. Dushyant Chautala to Gram Panchayat emergency rooms. Steps included the identification and quarantine of individuals with recent travel history, extensive community awareness campaigns, and ensuring the availability of necessities at the village level. The state leveraged technology with a WhatsApp helpline for addressing food crises and launched an 'e-Gram Sabha' to substitute for physical gatherings. Noteworthy contributions came from various quarters, including Sarpanches donating to the state relief fund and communities providing land and funds for the setup of isolation centers and hospitals. Traditional community policing, 'Thikhri-Pehra,' was reinstated to monitor and control the virus spread, with volunteers patrolling based on Gram Panchayat schedules. Moreover, Panchayat representatives actively engaged in door-to-door awareness campaigns, Focus Group Discussions (FGDs), and advocated for the use of the AarogyaSetu app. These state-level initiatives demonstrate a multifaceted approach to combat the pandemic and highlight the role of local governance in crisis management.

As the world grapples with the aftermath of the pandemic, E-Governance stands at the forefront of reshaping governance models, offering resilience in the face of uncertainties. The experiences of the post-Covid era reaffirm that challenges, while formidable, can indeed be opportunities for transformative change.

1. Transforming Health Services in Haryana Amidst the Pandemic

Harnessing E-Governance for Health Innovation in Haryana : The Covid-19 pandemic has brought unprecedented challenges to Haryana, impacting various sectors of the economy. However, amidst the crisis, certain sectors are leveraging this adversity as an opportunity to innovate and adapt their business models. In the healthcare sector, Haryana has embraced E-Governance solutions to disseminate crucial information, trace and monitor Covid-19 cases effectively.

Arogya Setu App: A Pioneering Initiative: One notable initiative is the Arogya Setu app, a digital service for contact tracing, syndrome mapping, and self-assessment. Rolled out by the Government of India, this mobile app utilizes Bluetooth, GPS, AI, and data analytics for comprehensive contact tracking and tracing. At the state level, healthcare

professionals and municipal officials utilize similar applications with features such as real-time patient data upload, monitoring hospital facilities and equipment availability, and predictive analytics for disease spread.

CoWIN Web Portal for Vaccination Registration: The launch of the CoWIN web portal has played a crucial role in the vaccination drive. This platform facilitates real-time monitoring of Covid-19 vaccine availability and allows users to book vaccination slots in nearby areas. As Haryana adapts to new norms of personal hygiene, the demand for nutrition and wellness products is expected to rise. The current surge in sales of disinfectants and sanitizers is likely to continue, accompanied by a growing interest in fitness products and online healthcare services.

Shifting Towards Online Health Solutions: The shift towards online platforms has led to a significant rise in the demand for fitness tracking gadgets, apps, and online medicine delivery services. This changing mindset towards healthier living not only transforms individual habits but also creates opportunities for collaborations between fitness product manufacturers and healthcare providers. As Haryana embraces E-Governance in health services, it not only tackles the immediate challenges of the pandemic but also sets the stage for a healthier and more resilient future.

2. Education: Navigating the Digital Learning Landscape:

Resilience and Adaptability in Education: Education has faced significant challenges during the pandemic. The lockdown prompted educational institutions in Haryana to explore new avenues for reaching students. Online learning witnessed a substantial boost, catering to diverse needs, from entrance exam preparations to upskilling. Despite the challenges of virtual learning, schools adapted by creating virtual classrooms, ensuring continuity in academic activities. As the economy normalizes, the innovations in education during this period are poised to drive industry growth in the future.

Challenges and Solutions in Education: Online learning, while providing continuity, has posed challenges. The lack of personal interaction affects the quality of teaching and increases students' screen time, leading to physical ailments and impacting mental health. Affordability issues related to internet access have raised concerns about exclusion, potentially deepening the gap between privileged and underprivileged students. Special attention is needed for differently-abled children who face difficulties in adapting to virtual classes.

2. E-Retail: Transforming Consumer Habits:

Shifting Consumer Habits: The lockdown has prompted a shift in consumer behavior towards online retail platforms, particularly in the grocery sector. E-Retail players are experiencing a surge in demand despite challenges such as order delays and cancellations. The gradual acceptance of online grocery shopping during the lockdown indicates a potential long-term trend. Local governments have also innovatively leveraged these solutions to provide livelihoods, supporting hand-cart vendors and rickshaw pullers in making doorstep deliveries through online platforms.

Benefits Beyond the Pandemic: While these apps and technology solutions initially responded to the challenges of the pandemic, they have brought additional benefits. Increased technology adoption has formalized sections of the informal economy, and new users, such as local retailers, street vendors, and handcart pullers, have embraced online payment mechanisms. These initiatives lay the foundation for future government schemes and initiatives.

4. BFSI: Adapting to a Digitally-Driven Future

Transforming the Banking Sector: The banking industry in India, traditionally cash-driven, is now presented with an opportunity to embrace digital transformation. The COVID-19 crisis has made Indians more cautious about using physical cash, opening avenues for digital payment systems. Banks can leverage advanced technologies to digitize existing offerings, optimize workflows, and reduce dependence on physical branches. Biometric and voice identification are already being employed, indicating a potential shift away from traditional credit cards.

5. E-Courts: Navigating Legal Proceedings in a Digital Realm:

Advancements in Legal Tech: The E-courts initiative, launched as part of the National e-Governance Plan, gained momentum during the COVID-19 crisis. The Supreme Court App and E-Court Services App have enhanced accessibility and transparency in legal proceedings. The crisis expedited the transition from E-courts to E-judiciary, involving online interactions between judges and advocates, virtual proceedings, and online judgments. This shift aims to bring efficiency and transparency to the justice administration system.

Digital Justice Post-COVID Era: The move towards E-judiciary, a step beyond E-courts, gained urgency during the pandemic. Virtual court hearings have become commonplace, addressing not only criminal cases but also normal cases through video-conferencing. The government is swiftly providing video-conferencing rooms in courts to facilitate E-

judiciary during the COVID-19 crisis. These advancements in the legal tech landscape signify a transformative shift in the administration of justice.

6. Telemedicine: Bridging Healthcare Gaps:

Telemedicine for Inclusive Healthcare: Telemedicine emerged as a critical tool for providing medical services during lockdowns. Despite challenges, telemedicine has the potential to bridge infrastructural gaps, especially in resource-constrained settings. The COVID-19 pandemic underscored the importance of robust data systems, with countries with strong health data infrastructure leveraging real-time data for strategic responses. Telemedicine in India aligns with the broader vision of the National Digital Health Blueprint, driving the digital transformation of healthcare.

Technological Innovations Beyond Healthcare: Technology, in various forms, has played a crucial role in India's response to the COVID-19 crisis. The use of Collaborative Robots (Co-Bots) in Jharkhand and drones in Bengaluru showcases innovative technological solutions. Online bill payments and e-government portals have adapted to citizens' needs during the pandemic. The rise of Over-The-Top (OTT) streaming platforms in Bollywood and the acceptance of Work From Home (WFH) culture indicate a broader shift in societal norms.

7. The New Normal: A Contactless Future

Changing Work Dynamics: Work From Home (WFH) has become a significant part of our lives, with companies adapting to remote work cultures. The culture of WFH has permeated into living rooms, with individuals juggling between work, parenting, and household responsibilities. This shift has implications for urban demographics as people consider moving away from large cities to suburbs and small cities.

E-Governance Initiatives Shaping the New Normal: Public Distribution System (PDS) has played a crucial role in providing relief, with the JAM delivery system facilitating financial assistance and relief. The introduction of e-pass services and the increased use of E-Governance initiatives, including public-private partnerships, highlight the adaptability of governance structures to the changing needs of the population.

The Road Ahead: Navigating the Future: The COVID-19 pandemic has propelled unprecedented changes across sectors in Haryana. While challenges persist, the crisis has fostered innovation and adaptation. As Haryana navigates the post-COVID landscape, the transformations in healthcare, education, e-retail, BFSI, legal tech, telemedicine, and work culture lay the groundwork for a more resilient and technologically advanced future. Embracing these changes ensures that Haryana is not merely recovering from the pandemic but building a foundation for sustained growth and development.

Shaping the Future: Adapting to a Changed World Post-COVID-19:

The post-COVID-19 world, as envisioned by thought leaders and analysts, is expected to undergo profound changes across various dimensions. James Manyika, Chairman and Director of the McKinsey Global Institute, emphasizes that the world is unlikely to revert entirely to its pre-pandemic state. Key trends that were already shaping the global economy are now being accelerated, particularly in the digital domain. Remote working, telemedicine, online learning, and delivery services have become more prominent, altering the landscape of work and lifestyle.

The digital economy is at the forefront of this transformation, driven not only by technological advances but also by the imperative for health and safety. The acceleration of these trends has implications for the future of work, presenting challenges such as income polarization, increased vulnerability of workers, a rise in gig work, and the necessity for individuals to adapt to occupational transitions. Structural changes, including regionalization of supply chains and heightened cross-border data flows, are also expected to gain momentum.

Arundhati Roy, in her essay "The Pandemic Is a Portal," highlights the historical significance of pandemics as catalysts for breaking with the past and imagining a new world. The ongoing global crisis, according to Roy, serves as a gateway between the old and the new. Jean Saldanha, Director of the European Network on Debt and Development, underscores the need for a transformation in how multilateralism operates to reflect the altered global landscape. The pandemic has tested global cooperation, revealing inadequacies in supporting developing economies and the urgent need for change.

Sharan Burrow, General Secretary of the International Trade Union Confederation, advocates for a post-COVID world that is more inclusive, resilient, and sustainable. The pandemic has exacerbated existing inequalities, emphasizing the importance of universal social protection, robust public health systems, and a sustainable real economy with quality jobs. The call for reaching net-zero carbon emissions by 2050 reflects a broader recognition of the interconnectedness of global challenges.

In essence, the post-COVID-19 era is anticipated to be characterized by a reimagining of societal structures, economic systems, and global cooperation. The lessons learned from the pandemic underscore the need for resilience, inclusivity, and sustainability in shaping a world that addresses the complexities of the 21st century. The choices made in response to the current crisis are seen as having far-reaching consequences, providing an opportunity to build a future that prioritizes the well-being of individuals and the planet.

Conclusion:

The post-COVID era has witnessed a transformative shift in the landscape of e-Governance initiatives in Haryana. The study commenced by acknowledging the profound change in the applicability and acceptance of these initiatives, particularly amidst the enforcement of social distancing measures by the state and local governments. The conceptual framework, as defined by the World Bank, differentiates between e-Government and e-Governance, underscoring the transformative potential of information technologies in reshaping government-citizen interactions specifically in the context of Haryana. As the ongoing global pandemic prompted an unparalleled interest in e-Governance initiatives, the study assessed the state's response to COVID-19 and the crucial role played by e-Governance in crisis management.

The investigation unveiled the augmented role of e-Governance in not only creating value but also fostering collaboration through Public-Private Partnerships, positioning citizens in Haryana as contributors to both private and public value within the e-Governance system. The nexus among various drivers of e-Governance, encompassing ICT infrastructure, citizen involvement, and state government initiatives, was explored to comprehend the successes and challenges faced by different e-Governance projects across the diverse landscape of Haryana. The historical evolution of e-Governance in the state, from the establishment of the National Informatics Centre (NIC) to the initiation of the National E-Governance Plan (NeGP), highlighted the progression from basic information sharing to more advanced transactional and participatory services.

Despite extensive investments, challenges persisted, leading to a call for proactive planning in the new reality post-COVID for Haryana. The study emphasized the pivotal role of IT-enabled solutions in delivering state services to citizens in Haryana, underscoring the potential for the state to attain new heights in e-Governance adoption and utilization. As the calibrated resumption of economic activities and the delivery of state services resumed in Haryana, the new normal heavily relies on IT-enabled solutions, marking a paradigm shift in the way businesses function and citizens interact with government services in the context of Haryana. In essence, the study signifies a crucial moment for Haryana to leverage technology adoption, fostering a stronger and more digitally inclined future in the realm of e-Governance.

References:

1. Aarogya Setu App (2021, August 1), <https://www.aarogyasetu.gov.in/>
2. About COVID-19 (2021 August 2), <https://pmjay.gov.in/cowin/COVID-19>
3. About Kishan Rath, Kishan Rath- Facilitating Transportation of Agri Produce, <https://kisanrath.nic.in/about-us>
4. Activities done by NIC Haryana for managing COVID-19 Crisis, Haryana Fights COVID-19, <https://haraadesh.nic.in/ictapplications.html>
5. Agarwal, S. (2021, April 29), CoWIN glitches trigger social media ire, govt. terms it unfair, The Economic Times-Tech, <https://economictimes.indiatimes.com/tech/technology/cowin-glitches-trigger-social-media-ire-govt-terms-it-unfair/articleshow/82297869.cms>
6. An End to End Vaccination Platform, CoWIN, Ministry of Health and Family Welfare, <https://sandbox.cowin.gov.in/>
7. Anandan, A.(2021, July 29), Aarogya Setu Becomes the Most downloaded Healthcare Apps in the World informs IT Minister, REPUBLICwrold .COM, <https://www.republicworld.com/technology-news/apps/aarogya-setu-becomes-the-most-downloaded-healthcare-apps-in-the-world-informs-it-minister.html>
8. Annual Progress Reports (2021), Department of Information Technology Electronics & Communication, Haryana (DITECH), <https://haryanait.gov.in/annual-progress-reports/#1600422785074-ef35462d-98a0>
9. Are You Protected against COVID-19 ?, CoWIN, Ministry of Health and Family Welfare, <https://www.cowin.gov.in/>
10. Banerjea, A. (2020, April 15), India's Aarogya Setu becomes world's highest downloaded app in just 13 days, mint, <https://www.livemint.com/technology/tech-news/india-s-aarogya-setu-becomes-world-s-highest-downloaded-app-in-just-13-days-11586954392024.html>
11. Basu,A., M., Basu,K. & Tapia, J.M.U.(2020 November 17), The complexity of managing COVID-19: How important is good governance ? BROOKINGS, <https://www.brookings.edu/research/the-complexity-of-managing-covid-19-how-important-is-good-governance/>

12. Bosma, I. (2021). COVID-19 and E-Governance: Lessons from South Africa, Policy Insights 100, Februar2021-17, <https://www.jstor.org/stable/resrep29596>
13. Butta, R, (2020, May 19), E-governance possibilities in India for the post- COVID-19, Observer Research Foundation, <https://www.orfonline.org/expert-speak/egovernance-possibilities-india-post-covid19-era-66316/>
14. Coronavirus outbreak: Registration of volunteers with NDMA gains pace,(2020 March 26), The Hindu, <https://www.thehindu.com/news/national/coronavirus-outbreak-registration-of-volunteers-with-ndma-gains-pace/article31175481.ece>
15. COVID diplomacy: India offers open-source code for CoWIN as nation express interest (2021, July 6) The Economic Times, E-Paper <https://economictimes.indiatimes.com/news/india/covid-diplomacy-india-offers-open-source-code-for-cowin-as-nations-express-interest/what-are-its-key-features/slideshow/84166486.cms>
16. COVID-19 Impacts and Responses: The Indian Experience, (2020, March- May), NDMA, <https://ndma.gov.in/sites/default/files/PDF/covid/COVID-19-Indian-Experience.pdf>
17. COVID-19 pandemic in India, Wikipedia the free encyclopedia (2021, July 25). https://en.wikipedia.org/wiki/COVID-19_pandemic_in_India
18. Covid-19: Use of new –age technologies for e-governance,(2020, May 26), ET-Government.com , <https://government.economictimes.indiatimes.com/news/digital-india/covid-19-use-of-new-age-technologies-for-e-governance/75993744>
19. COWIN APP (2021, August 15), The Times of India, <https://timesofindia.indiatimes.com/topic/cowin-app>
20. CoWIN app: How to register, documents needed to get Covid-19 vaccine in India (2021, March 1), The Indian Express, <https://indianexpress.com/article/technology/techook/co-win-app-how-to-register-documents-covid-19-vaccine-india-7131841/>
21. CoWIN, Ministry of Health and Family Welfare,(2021, August 18) <https://dashboard.cowin.gov.in/>
22. CoWIN, Wikipedia the free encyclopedia (2021, July 25), <https://en.wikipedia.org/wiki/CoWIN>
23. Department of Social Justice and Empowerment, Government of Haryana, India website (2018), Retrieved from <http://www.socialjusticehry.gov.in/en-US>.
24. E-Governance in Haryana, Department of Information Technology Electronics & Communication, Haryana(2018), Retrieved from <http://haryanait.gov.in/en/e-governance-in-haryana>.
25. Excise and taxation department of Haryana website (2018), Retrieved from <http://www.haryanatax.gov.in>. Food Civil Supplies & Consumer Affairs Department Haryana website (2018), Retrieved from <http://haryanafood.gov.in/en-us>.
26. Haryana CM window-register complaints here (2018), Retrieved from <http://www.dnaindia.com/locality/faridabad/now-know-your-your-complaint-status-online-cm-window-49928> .
27. Haryana e-District Services | National Government Services (2018), Retrieved from <https://services.india.gov.in/service/detail/haryana-e-district-services-1> .
28. Haryana launches 4 major digital initiatives (2018), Retrieved from <https://www.dailypioneer.com/2015/state-editions/haryana-launches-4-major-digital-initiatives.html>. Haryana rajyakaiti hashaurjankari (2018), Retrieved from <https://www.gyanipandit.com/haryanahistoryinformation> .
29. Haryana Tourism (2018), Retrieved from <http://haryanaturism.gov.in>. Haryana: Promising Initiatives in Finance, e-Governance (2018), Retrieved from <http://inclusion.skoch.in/story/802/haryana-promising-initiatives-in-finance-egovernance1102.html> .
30. eMarket, District Kurukshetra, <https://kurukshetra.gov.in/emarket/>
31. e-Office, A Digital Workplace Solution (2020, January 17) NIC, <https://eoffice.gov.in/downloads/eOfficeBook2020.pdf>
32. Ghosh, A. (2021, January 5), What is CoWIN and what you need to register on the app for Covid vaccine shot, The Print, <https://theprint.in/health/what-is-cowin-and-what-you-need-to-register-on-the-app-for-covid-vaccine-shot/579307/>
33. Guha, A (2020 May 26), Covid-19: Use of new-age technologies for e-governance, ETGovernment.com, <https://government.economictimes.indiatimes.com/news/digital-india/covid-19-use-of-new-age-technologies-for-e-governance/75993744>
34. Haryana launches ‘Covid –Sangharsh Senani, (2020, Marh 24), United News of India, <http://www.uniindia.com/haryana-launches-covid-sangharsh-senani/north/news/1928163.html>
35. Johnson, B., (2020, December 16), The Covid Tracing Tracker: What’s happening in coronavirus apps around the world, Pandemic Technology Project, <https://www.technologyreview.com/2020/12/16/1014878/covid-tracing-tracker#international-data>
36. Kolas,,A, & Upadhyaya, A.S. (2020, September 28), COVID-19 puts India’s e-governance infrastructure and innovation to the test, <https://blogs.prio.org/2020/09/covid-19-puts-indias-e-governance-infrastructure-and-innovation-to-the-test/>

37. Kumar, M. (2020, April 24), Deputy Commissioner launched mobile app, <https://www.jagran.com/haryana/hisar-hisar-dc-launched-connect-plus-mobile-app-will-get-everything-needed-at-home-know-download-process-20218975.html>
38. Movement Pass for COVID-19 Curfew/ Lockdown, Government of Haryana, <https://edisha.gov.in/eforms/hrmovepass>
39. National Migrant Information System (NMIS), by PIB Delhi, (2020, May 16), Ministry of Home Affairs, <https://www.pib.gov.in/PressReleasePage.aspx?PRID=1624540>
40. NDMA launches online dashboard for tracking migrant's movements, (2020, May 16), Business Line, <https://www.thehindubusinessline.com/news/national/ndma-launches-online-dashboard-for-tracking-migrants-movements/article31602994.ece>
41. NIC Digital Initiatives for COVID-19 Containment (2020,July),29 (1), 1-48, https://informatics.nic.in/uploads/pdfs/2cbe3d71_covid_issue_22_12_digital_single_compressed.pdf
42. Organization Wise COVID Warriors Data, COVID Warriors, <https://covidwarriors.gov.in/>
43. Over 1.50 lakh farmers, traders download Kishan Rath app,(2020 April 27), ET-Government.com, <https://government.economictimes.indiatimes.com/news/digital-india/over-1-50-lakh-farmers-traders-download-kisan-rath-app/75397381>
44. PM interacts with key stakeholders from Electronic Media (2020, March 23), Narender Modi, <https://www.narendramodi.in/prime-minister-narendra-modi-interacts-with-key-stakeholders-from-electronic-media-548919>
45. PM interacts with Print Media journalist and stakeholders (2020, March 24), Narender Modi, <https://www.narendramodi.in/prime-minister-narendra-modi-interacts-with-print-media-journalists-and-stakeholders-548937>
46. PM's address to the nation on combating COVID-19 (2020, March 19), https://www.pmindia.gov.in/en/news_updates/pms-address-to-the-nation-on-comabting-covid-19/
47. Poundrik,S.,(2020, March 31), NDMA GIS Portal for analysis and decision making support for COVID-19 pandemic, National Disaster Management Authority, https://covid19.jharkhand.gov.in/covid19_admin/fileupld/1586065354-Sandeep%20Poundrik,%20dt.%2031.03.2020.pdf
48. Sawant, D., (2019, December 27), Haryana: Celebration of Good Governance Day n Haryana 25th December 2019, Informatics, <https://informatics.nic.in/news/1195>
49. Sawant, D., (2020, May 21), NIC Haryana developed Haraadesh Portal for all COVID-19 related advisories, instructions, notifications, Government orders and awareness material, Informatics, <https://informatics.nic.in/news/1265>
50. Sawant, D., (2021, February 11), Healthcare leader-Award of excellence conferred to NIC, Haryana for the innovative applications developed by Sh M P Kurukshetra, DIO, Hisar (Haryana), Informatics, <https://informatics.nic.in/news/1324>
51. Sawant, D., (2021, September15), Launching of District Level COVID-19- Dashboard and web portal of District COVID Management & Control Centre (District Hisar, Haryana) on 08/9/2020, Informatics, <https://informatics.nic.in/news/1300>
52. Share your stories, ideas & suggestion for the fight against COVID- 19 (Corona Virus), <https://haryana.mygov.in/group-issue/share-your-stories-ideas-suggestions-fight-against-covid-19-coronavirus/>
53. Some of the Highlights from National Informatics Centre (2021, August), <https://www.nic.in/newsletters/product-update-2/>
54. Sura, A. (2020, March 31), COVID-19: Haryana sets 467 relief campus with capacity of 70 K people, The Times of India, <https://timesofindia.indiatimes.com/city/chandigarh/covid-19-haryana-sets-up-467-relief-camps-with-capacity-of-70k-people/articleshow/74915848.cms>
55. Transforming Service Delivery in Haryana , Aantoday Saral, <https://saralharyana.gov.in/>
56. Ullah, A., Pinglu,C, Ullah,S, Abbas, H.S.M., & Khan S., (2021). The Role of E-Governance in Combating COVID-19 and Promoting Sustainable Development: A Comparative Study of China and Pakistan, Chinese Political Science Review, 6:86–118, doi.org/10.1007/s41111-020-00167-w
57. Verma, S, (2020, July 16), Aarogya Setu now world's most downloaded covid-19 tracking app, India Today, <https://www.indiatoday.in/technology/news/story/aarogya-setu-now-world-s-most-downloaded-covid-19-tracking-app-1701273-2020-07-16>
58. Work from home '' to be new normal for govt. offices post lockdown, draft guidelines issued, (2020, May 14), Outlook, <https://www.outlookindia.com/newscroll/work-from-home-to-be-new-normal-for-govt-offices-post-lockdown-draft-guidelines-issued/1833947>
59. World Health Organization (2021, July15). Indian situation. <https://covid19.who.int/region/searo/country/in>
60. World Health Organization (2021, July15).WHO Coronavirus (COVID-19) Dashboard, <https://covid19.who.int/>