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Informatization as a Driver of Social Acceleration: A Conceptual Analysis with Reference to Uzbekistan

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Abstract. *This article examines informatization as a mechanism of social acceleration and evaluates its implications for contemporary social development, with particular reference to Uzbekistan. The study asks how digital infrastructures alter the speed of communication, knowledge production, institutional decision making, and everyday activity, and why time-saving technologies may simultaneously intensify time pressure. A qualitative conceptual design combines comparative analysis of theories of the network society, social acceleration, the infosphere, and digital inequality with document analysis of Uzbekistan's Digital Uzbekistan 2030 Strategy and recent international policy reports. The analysis identifies four linked mechanisms: compression of communication time, reconfiguration of social space, shortening of knowledge and innovation cycles, and acceleration of institutional services. These mechanisms expand access to information and reduce transaction time, but their benefits remain conditional on digital skills, reliable infrastructure, critical media literacy, and equal opportunities to use digital services. The Uzbek case shows that faster public services and wider digital access should be evaluated through social outcomes rather than technical speed alone. The article concludes that sustainable digital transformation requires a balance between efficiency and human capacity. Policy should therefore combine infrastructure investment with inclusive access, lifelong learning, information integrity, and transparent evaluation of whether digital systems reduce burdens for citizens.*

Keywords: *social acceleration, informatization, information society, digital transformation, temporal change, digital inequality, Uzbekistan*

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Sosial sürətlənmənin hərəkətverici qüvvəsi kimi informasiyalaşdırma: Özbəkistan timsalında konseptual təhlil

Azizkhon Rasulov

Xülasə. *Məqalədə informasiyalaşdırma sosial sürətlənmənin mexanizmi kimi araşdırılır və bu prosesin müasir cəmiyyətin inkişafına təsiri Özbəkistan nümunəsinə istinadla qiymətləndirilir. Tədqiqat rəqəmsal infrastrukturların kommunikasiya, bilik istehsalı, institusional qərarvermə və gündəlik fəaliyyətin sürətini necə dəyişdirdiyini, həmçinin vaxta qənaət edən texnologiyaların niyə eyni zamanda zaman təzyiqini artıra bildiyini izah edir. Keyfiyyət yönümlü konseptual yanaşma şəbəkə cəmiyyəti, sosial*

sürətlənmə, infosfer və rəqəmsal bərabərsizlik nəzəriyyələrinin müqayisəli təhlilini "Rəqəmsal Özbəkistan 2030" Strategiyası və beynəlxalq siyasət sənədlərinin təhlili ilə birləşdirir. Təhlil qarşılıqlı əlaqəli dörd mexanizmi müəyyən edir: kommunikasiya vaxtının sıxılması, sosial məkanın yenidən qurulması, bilik və innovasiya dövrlərinin qısalması, institusional xidmətlərin sürətlənməsi. Bu mexanizmlər məlumat əldə etmək imkanlarını genişləndirir və əməliyyat vaxtını azaldır. Lakin nəticələr rəqəmsal bacarıqlardan, etibarlı infrastrukturdan, media və informasiya savadlılığından, eləcə də xidmətlərdən bərabər istifadə imkanlarından asılıdır. Özbəkistan nümunəsi sürətli xidmətlərin bütün sosial qruplar üçün əlçatan və etibarlı olmasının zəruriliyini göstərir. Məqalə texniki sürətin sosial nəticələrlə birlikdə qiymətləndirilməsini və rəqəmsal transformasiyanın inklüziv giriş, ömürboyu təhsil, informasiya etibarlılığı və şəffaf monitorinqlə dəstəklənməsini təklif edir.

Açar sözlər: *sosial sürətlənmə, informasiyalaşdırma, informasiya cəmiyyəti, rəqəmsal transformasiya, zaman dəyişməsi, rəqəmsal bərabərsizlik, Özbəkistan*

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1. Introduction

Digital technologies have reduced the time needed to produce, transmit, and process information. Messages that once depended on physical movement can now circulate almost instantly; administrative transactions can be completed through online portals; and scientific collaboration increasingly takes place through connected databases and platforms. These changes affect more than communication technology. They alter the temporal organization of work, education, public administration, and daily life. Informatization can therefore be studied as a social process that changes how institutions and individuals allocate time, coordinate action, and respond to new information.

Social acceleration provides a useful framework for examining these changes. Rosa (2013) distinguishes technical acceleration, the acceleration of social change, and the acceleration of the pace of life. Technical systems increase the speed of transport, communication, and production. Faster innovation then shortens the expected life of knowledge, routines, and institutions. Individuals respond by trying to perform more actions within the same period. This sequence helps explain why devices designed to save time do not necessarily create more free time. Wajcman (2015) argues that time pressure emerges through the social organization of technology, work, and expectations rather than from devices alone.

The network society perspective adds an institutional dimension. Castells (2010) describes networks and information flows as central structures of contemporary economies and societies. In this setting, actors with the ability to access, interpret, and circulate information can coordinate across distance, while those without reliable access or adequate skills face new forms of exclusion. Floridi (2014) similarly treats digital transformation as the expansion of an infosphere in which online and offline activities increasingly overlap. These approaches show that acceleration is uneven: a service can become faster at the system level while remaining difficult to use for people with limited connectivity, literacy, disability support, or trust.

Uzbekistan offers a relevant national context for this analysis. The Digital Uzbekistan 2030 Strategy defines digital infrastructure, electronic government, digital skills, and sectoral transformation as long-term priorities (President of the Republic of Uzbekistan, 2020). The policy direction connects digitalization with public-service delivery, economic modernization, education, and regional development. The Organisation for Economic Co-operation and Development (OECD, 2024) notes that Uzbekistan has created institutional arrangements for coordinating digital transformation, including monitoring mechanisms and designated digital leadership within public bodies, while also identifying continuing needs in skills, coordination, and implementation capacity.

The research problem is that faster information processing is often treated as evidence of social progress without examining who benefits, what burdens are transferred to users, or how speed affects decision quality. Technical performance indicators such as transaction time, portal availability, or data-processing capacity are necessary but incomplete. Social evaluation must also consider accessibility, reliability, cognitive demands, information integrity, and the capacity of people and institutions to adapt.

This article asks two questions. First, through which mechanisms does informatization contribute to social acceleration? Second, what conditions allow faster digital systems to support inclusive development rather than reproduce inequality and time pressure? The article develops a conceptual model and applies it to the policy setting of Uzbekistan. Its contribution is a distinction between operational speed and socially beneficial acceleration. The former describes faster processes; the latter requires demonstrable improvements in access, capability, service quality, and human well-being.

2. Materials and methods

The study uses a qualitative conceptual and document-analysis design. It does not present survey data or claim causal measurement. The analytical corpus combines established theoretical works on information society and temporality with policy documents that describe digital transformation in Uzbekistan and with international reports on connectivity, governance, and digital inclusion. The theoretical group includes Castells (2010), Floridi (2014), Prigogine and Stengers (1984), Rosa (2013), van Dijk (2020), and Wajcman (2015). The policy and comparative group includes the Digital Uzbekistan 2030 Strategy, the OECD public governance review of Uzbekistan, reports by the International Telecommunication Union, the United Nations, UNESCO, and the World Bank.

Documents were selected through four criteria: direct relevance to informatization or social acceleration; identifiable authorship or institutional responsibility; sufficient bibliographic information for verification; and usefulness for interpreting the Uzbek policy context. The analysis proceeded in three stages. First, the sources were coded for claims about time, speed, spatial reach, knowledge production, institutional coordination, access, skills, and risk. Second, related claims were grouped into recurring mechanisms of acceleration. Third, each mechanism was assessed through a benefits-and-conditions matrix that separates technical possibilities from social outcomes.

The approach treats social acceleration as a relational process. A reduction in processing time becomes socially meaningful only when users can access the system, understand the information, complete the required action, and obtain a reliable result. This rule prevents the analysis from equating digitalization with automatic improvement. It also supports comparison across domains such as public services, education, work, and communication without assuming that the same technology produces identical effects in each setting.

The Uzbek component is an interpretive policy case. The Digital Uzbekistan 2030 Strategy is examined as a statement of institutional priorities, not as proof that every objective has been achieved. OECD findings are used to identify governance capacity and implementation constraints. Global reports provide comparative concepts rather than country-specific causal estimates. This limited claim is important because documentary evidence can establish policy design and conceptual relationships but cannot, by itself, measure citizens' lived experience.

Statement on the Use of Artificial Intelligence. An AI tool was used to support English-language editing, structural organization, and consistency checking. The author is responsible for the argument, source selection, interpretation, factual verification, and final approval of the manuscript. No images or empirical data were generated with AI.

3. Results

Communication Time and the Compression of Distance

The first mechanism is the compression of communication time. Digital networks allow messages, documents, payments, and audiovisual interaction to move without the delays associated with physical transport. This does not eliminate geography, but it changes the practical significance of distance. People in different locations can participate in the same meeting, course, market, or administrative procedure. Castells (2010) describes this organization through flows that connect dispersed actors, while Floridi (2014) explains how digital environments become part of ordinary social reality.

The social effect depends on more than transmission speed. Stable electricity, affordable connectivity, usable interfaces, language support, identity systems, and public trust determine whether a formally available service reduces time for users. The International Telecommunication Union (ITU, 2025) continues to document gaps in meaningful connectivity across income groups and locations. van Dijk (2020) shows that digital inequality includes motivation, material access, skills, types of use, and outcomes. A fast platform can therefore widen differences when experienced users save time while others must seek assistance, repeat failed transactions, or travel to complete the same procedure offline.

For Uzbekistan, the relevant policy issue is whether the expansion of electronic services reduces the total time and cost of interaction with public institutions across regions and social groups. The Digital Uzbekistan 2030 Strategy links infrastructure development with electronic government and sectoral digitalization (President of the Republic of Uzbekistan, 2020). Evaluation should measure the complete user journey, including registration, authentication, error correction, support, and final resolution. Processing speed inside an institution is valuable only when citizens experience a more accessible and dependable service.

Knowledge Production and Shorter Innovation Cycles

The second mechanism is the shortening of knowledge and innovation cycles. Databases, digital modelling, automated analysis, and global research communication allow scholars and professionals to compare larger bodies of information and circulate results more quickly. The cycle from knowledge production to application and further revision can therefore contract. This process increases the value of analytical competence and the ability to update knowledge throughout a career.

Acceleration also changes the durability of competence. When software, professional standards, and information environments change rapidly, a qualification obtained at one point cannot guarantee long-

term readiness. Lifelong learning becomes a practical response to shorter knowledge cycles. Grizzle et al. (2021) treat media and information literacy as a set of capacities for accessing, evaluating, creating, and communicating information. These capacities matter because an abundance of information does not produce knowledge unless users can judge sources, context, and evidence.

In education, speed should not displace reflection. Rapid access can support discovery and collaboration, but it can also encourage superficial reading, unverified reproduction, and dependence on automated output. The appropriate educational response is to combine digital competence with disciplinary reasoning. Students and professionals need time to formulate questions, test claims, compare sources, and revise conclusions. The goal is not maximum speed in every task. It is the ability to choose when speed is useful and when slower analysis protects quality.

Institutional Acceleration and Public Services

The third mechanism is institutional acceleration. Integrated databases and online workflows can reduce duplicated documentation, shorten communication between agencies, and make service status more visible. The United Nations (2024) treats digital government as a combination of infrastructure, online services, human capital, and institutional capacity. This broad approach matters because digitizing an inefficient procedure may preserve unnecessary steps in electronic form rather than simplify the service.

Uzbekistan's strategy creates a policy basis for expanding digital public services and modernizing administrative processes. The OECD (2024) identifies both a coherent national direction and operational challenges, including the need to strengthen digital skills and strategic coordination. These findings support a distinction between automation and institutional reform. Automation moves existing tasks into software. Reform questions whether each task, approval, or data request remains necessary and whether agencies can reuse verified information lawfully and securely.

Institutional acceleration can also affect decision quality. Faster data flows may improve situational awareness, but rapid response expectations can reduce deliberation or produce decisions based on incomplete indicators. Prigogine and Stengers (1984) emphasize that complex systems develop through non-linear processes and cannot always be understood through simple equilibrium models. Applied cautiously to social institutions, this insight suggests that more data and faster feedback do not remove uncertainty. Governance systems still require professional judgment, correction mechanisms, and time for public explanation.

The Acceleration Paradox

The fourth result is a recurring acceleration paradox. A technology may reduce the time needed for one task while increasing the number of tasks expected within a day. Instant messaging shortens communication delay but creates expectations of immediate availability. Automated systems reduce manual processing but require continuous monitoring, updates, and new compliance routines. Online learning expands access but shifts more responsibility for scheduling, verification, and self-management to learners.

Wajcman (2015) explains that time pressure is socially produced through work arrangements, household responsibilities, and cultural expectations. Rosa (2013) likewise argues that technical acceleration interacts with faster social change and a higher pace of life. The combined result is not a simple gain or loss of time. It is a redistribution of time between institutions, workers, users, and households. A portal

may save travel time for a citizen while creating additional verification work for staff; automated reporting may speed supervision while increasing the frequency of required reports.

This paradox requires outcome-based evaluation. Digital projects should identify whose time is saved, whose work increases, and whether the redistribution is fair. Measures can include completion rates, repeated attempts, support requests, waiting time, error correction, staff workload, and user satisfaction. These indicators reveal effects hidden by a narrow focus on the speed of a server or the number of services placed online.

Table 1
Mechanisms and conditions of socially beneficial acceleration

Mechanism	Potential gain	Principal risk	Required condition
Communication time	Faster exchange and remote access	Exclusion through cost, access, or poor usability	Affordable connectivity, accessible design, and support
Knowledge cycles	Rapid discovery, collaboration, and updating	Superficial processing and unreliable information	Critical literacy, disciplinary reasoning, and lifelong learning
Institutional services	Shorter transactions and better coordination	Digitized bureaucracy and transferred workload	Process redesign, interoperable systems, and user-centred evaluation
Everyday activity	Flexible scheduling and reduced travel	Permanent availability and intensified time pressure	Boundaries, realistic expectations, and workload monitoring

4. Discussion

The results show that informatization accelerates society through linked changes in communication, knowledge, institutions, and everyday expectations. These mechanisms reinforce one another. Faster communication supports shorter innovation cycles; shorter cycles increase pressure on education and organizations; institutional digitalization raises expectations for immediate service; and these expectations shape individual time use. Social acceleration is therefore neither a single technological effect nor a uniform national trajectory.

The distinction between operational speed and socially beneficial acceleration clarifies the policy problem. Operational speed is measurable through technical indicators such as response time or automated processing. Social benefit requires additional evidence that people can complete tasks, understand decisions, protect their data, and obtain equitable outcomes. A digital service that works quickly for experienced users but excludes others may improve average speed while reducing institutional fairness.

Digital inequality is central to this distinction. van Dijk (2020) demonstrates that access is a sequence rather than a single threshold: motivation and physical access affect skill development; skills shape use; and forms of use influence outcomes. The ITU (2025) similarly shows that global connectivity has expanded while substantial location and income gaps remain. In the Uzbek context, regional coverage,

device affordability, language, disability access, and confidence in online procedures can influence whether digitalization reduces or increases the time required to obtain a service.

The World Bank (2022) identifies human capital, inclusion, private-sector development, and effective institutions as major elements of Uzbekistan's development path. These priorities support an integrated view of digital policy. Infrastructure investment is necessary, but it should be accompanied by digital-skills programmes, accessible service channels, and support for groups that face barriers. Maintaining a non-digital or assisted route during transitions can protect access while institutions improve online systems.

Information integrity is another condition. As circulation becomes faster, inaccurate or manipulative content can reach large audiences before verification occurs. The framework by Grizzle et al. (2021) is relevant because it links technical use with critical evaluation, ethical creation, and participation. Media and information literacy should therefore be treated as a public capability, not only an educational subject. Public bodies can support it through transparent data, clear corrections, accessible explanations, and consistent communication of uncertainty.

The temporal dimension also changes how institutions should manage reform. Digital programmes often use deadlines and numerical targets to maintain momentum. These tools can improve accountability, but excessive emphasis on rapid rollout may produce systems that are technically complete and socially difficult to use. Pilot testing, user research, independent accessibility review, and staged implementation can slow one phase of delivery while reducing later errors and repeated work. Deliberate pacing is therefore compatible with long-term acceleration when it improves reliability.

For Uzbekistan, the Digital Uzbekistan 2030 Strategy provides a broad framework for infrastructure, services, and skills. The next analytical step is to connect national indicators with citizen-level outcomes. Ministries and service providers could report median end-to-end completion time, unsuccessful attempts, use of assisted channels, regional differences, accessibility compliance, and the time staff spend correcting digital errors. Publishing these measures would allow researchers and citizens to judge whether digital transformation is reducing burdens across the population.

The article's conceptual model also has implications for education and work. Institutions should not define digital competence as rapid device use alone. Competence includes source evaluation, privacy awareness, problem solving, and the ability to choose an appropriate pace for complex tasks. Employers and public agencies should review whether constant connectivity creates avoidable interruptions or unrealistic response expectations. Time saved by automation should support higher-quality work and learning rather than automatically generate additional reporting and communication.

Limitations

This study is conceptual and document based. It does not measure changes in service time, employee workload, digital skills, or citizen satisfaction in Uzbekistan. Policy documents describe objectives and institutional arrangements, but they cannot establish implementation outcomes. International reports use different units and purposes, so they provide context rather than a common dataset for causal comparison.

The analysis also groups diverse technologies under the broad term informatization. Artificial intelligence, electronic government, online education, digital payments, and social media operate through different institutions and risks. The four-mechanism model is intended to organize inquiry, not to replace

sector-specific analysis. Claims about benefits and risks should therefore be tested within particular services and population groups.

Future research

Future research should test the model through mixed methods. Administrative data can measure processing and completion time, while surveys and interviews can identify hidden costs such as repeated attempts, travel for identity verification, dependence on intermediaries, and pressure to remain constantly available. Studies should disaggregate results by region, age, gender, income, disability, education, and language to determine whether average improvements conceal unequal outcomes.

Longitudinal studies could compare services before and after digital redesign and distinguish temporary adjustment costs from persistent barriers. Comparative research across Central Asian countries could examine how institutional structure, connectivity, and public trust shape the relationship between technical speed and social benefit. Research on schools, universities, and workplaces should also investigate which forms of digital acceleration support learning and which reduce attention, reflection, or well-being.

5. Conclusion

Informatization contributes to social acceleration by compressing communication time, reshaping the practical meaning of distance, shortening knowledge cycles, and increasing the speed of institutional services. These changes can broaden access to information and reduce transaction costs. They can also intensify time pressure, transfer administrative work to users, accelerate unreliable information, and deepen inequality when access and skills are uneven.

The Uzbek policy context illustrates why digital transformation should be evaluated through outcomes as well as infrastructure and service counts. Faster systems become socially beneficial when people can use them reliably, institutions redesign unnecessary procedures, and saved time is not replaced by new burdens. Digital policy should therefore combine infrastructure with inclusive design, lifelong learning, media and information literacy, information security, and transparent performance evaluation.

Social acceleration is not a goal that should be maximized without qualification. The appropriate goal is a digital environment in which speed serves human judgment, institutional accountability, and equitable access. This approach preserves the efficiency gains of informatization while recognizing that sustainable development also requires time for learning, verification, deliberation, and adaptation.

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Declarations

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Ethics Statement. The study used publicly available documents and did not involve human participants, personal data, or experimental procedures.
Author Contribution. The author developed the concept, reviewed the sources, interpreted the materials, and approved the final manuscript.