

Kazakhstan Develops Smart Cities: Institutional Repositories as Backbones of Digital Kazakhstan

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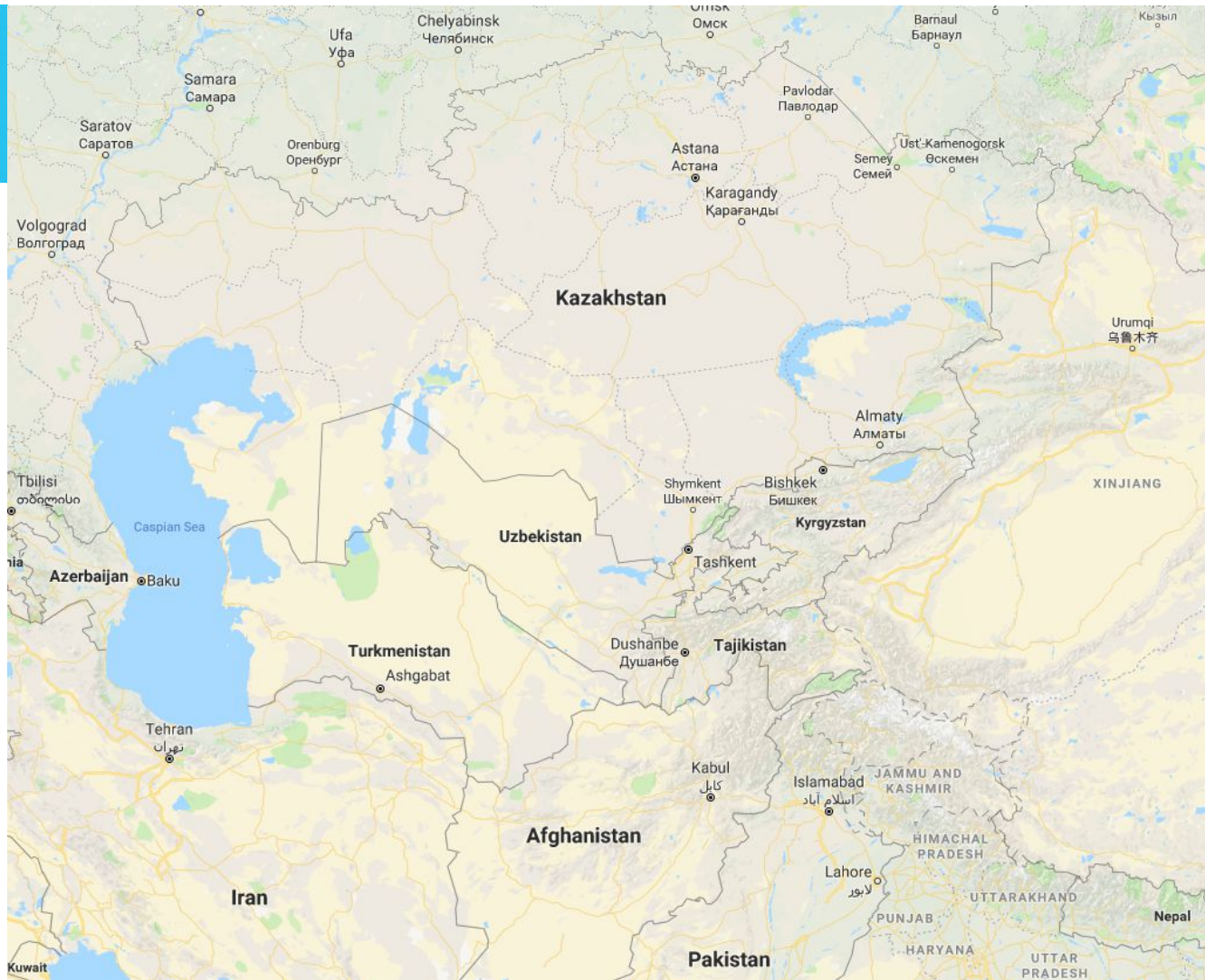




Image courtesy of Kazakh TV

Digital Kazakhstan is a state program which aims to augment the quality of life of the mankind by introducing and integrating digital technologies to the citizens' daily life.

According to statistics, 76.8% of Kazakhs use the internet. Most people carry a mobile device with them. Literacy rate is very high with 99.8% (Statista, 2017). With this soaring literacy rate, is Kazakhstan ready to embark in introducing smart cities?₃

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Astana entered IDC's smart cities list

BY AIDANA YERGALIYEVA in ASTANA on 5 FEBRUARY 2019

ASTANA – Market intelligence and advisory firm International Data Corporation (IDC) placed the Kazakh capital among mature smart cities in its recent research analysis.



Photo credit: Leyla Kabdi.

IDC's analysts evaluate the use of information and communication technology (ICT) in areas such as economic development and civic engagement, urban planning and administration, public safety, transportation and energy and infrastructure.

"Astana has become one of the first cities in Central Asia to be surveyed based on this model and assessed in terms of Smart City Maturity," said Astana Department for Investment and Entrepreneurship Development head Alisher Abdykadyrov.



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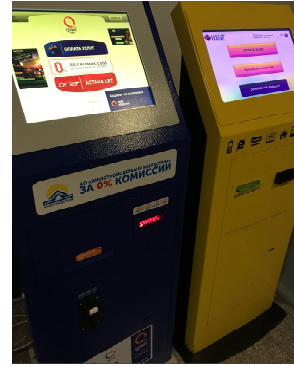
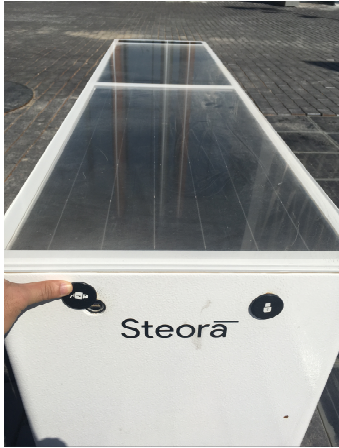
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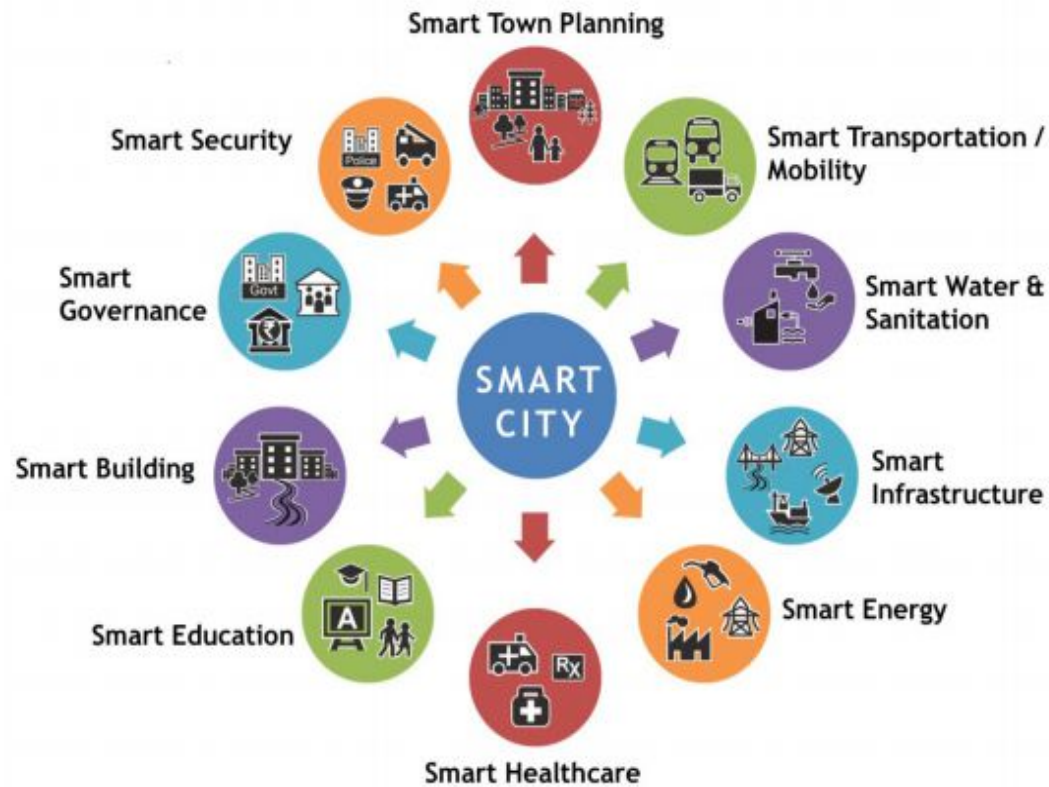
Smart Cities

An ambitious and urbanized city is innovative and smart (Gasco-Hernandez, 2018). As mentioned by Gasco-Hernandez (2018), technology is an essential tool to make a city “inclusive, productive, self-sufficient, innovative, and community-oriented.”

INGREDIENTS OF A SMART CITY:

- ICT and other technologies
- public services
- city administration and management
- policies and other institutional arrangements
- governance, engagement and collaboration
- human capital and creativity
- knowledge economy and pro-business environment
- built environment and city infrastructure
- natural environment and ecological sustainability, and
- data and information

Smart City – Key Components



A smart city is inclusive and it requires effective services that a cultural center just like a library could provide.

Smart cities should have smart libraries which serve as a central hub for continuous learning and knowledge sharing.

Smart libraries are governed by smart people that offer smart place and smart services (Schöpfel, 2018).

Suggestion: "Toronto Public Library be tasked with managing the proposed civic data trust that would handle information culled from Sidewalk Toronto smart-city project planned for the city's waterfront."

"Public libraries are defenders of digital privacy and have expertise in data policy and information management."

Ana-Maria Critchley, Toronto Public Library

Make public libraries custodians of smart city data: board of trade

Ontario's Information and Privacy Commissioner suggested for oversight of Sidewalk Labs' policy enforcement



"Public libraries ... have long played a role in city building and we welcome the opportunity to discuss how we can continue to evolve this role in the civic data realm," said Toronto Public Library spokesperson Ana-Maria Critchley. *Christopher Furlong / Getty Images*

Smart universities: “guarantee the creation of the intellectual nation, a basis of the smart cities of our to create smart – Kazakhstan”

Al-Farabi university - smart city

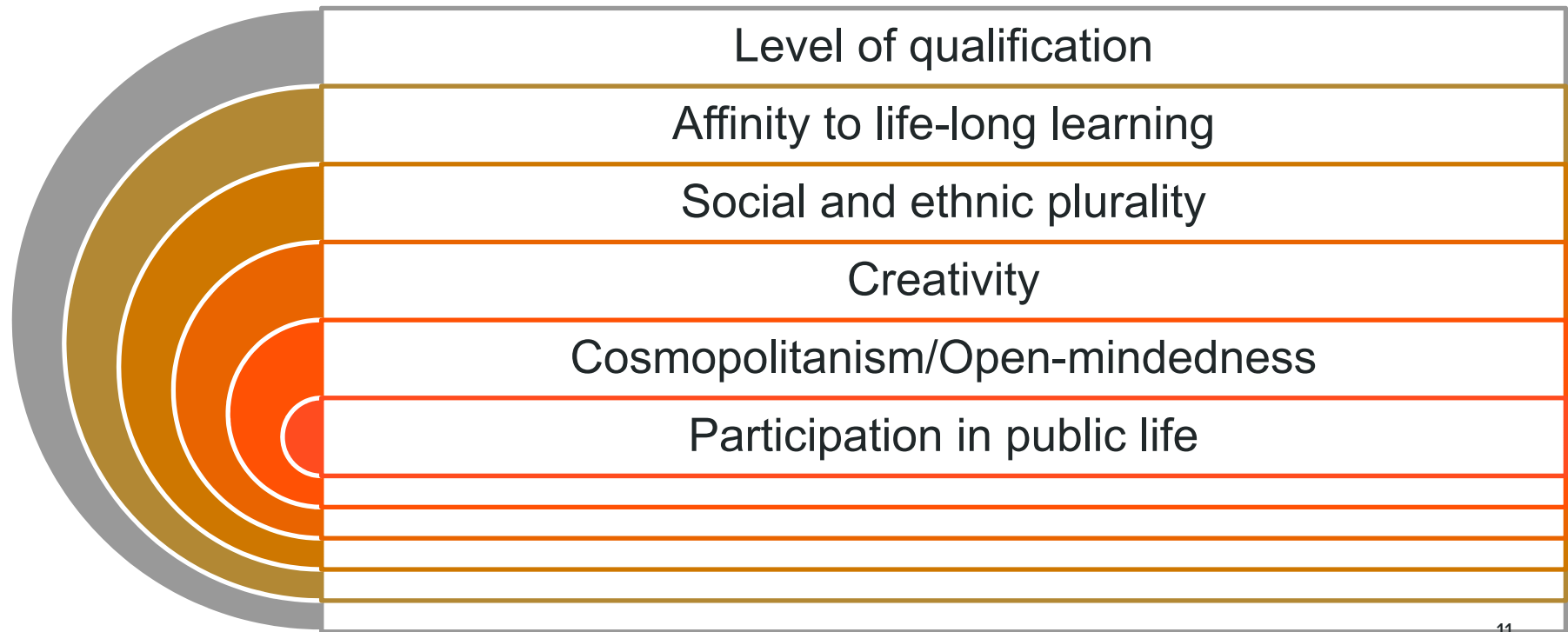


For the purpose of creation university's new formation in KazNU the start is given to the Al-Farabi university-smart city project unique scientific innovatively which cornerstone the doctrine of the great thinker Al-Farabi about the ideal city .

Implementation of new model of university will allow to show innovative approaches to development of modern society on the basis of synergism of technological and spiritual and moral concepts.

Smart universities - guarantee of creation of the intellectual nation, a basis of the Smart-cities of our country which as a result will create Smart - Kazakhstan.

SMART PEOPLE = SMART LIBRARIANS





Objectives of the Study

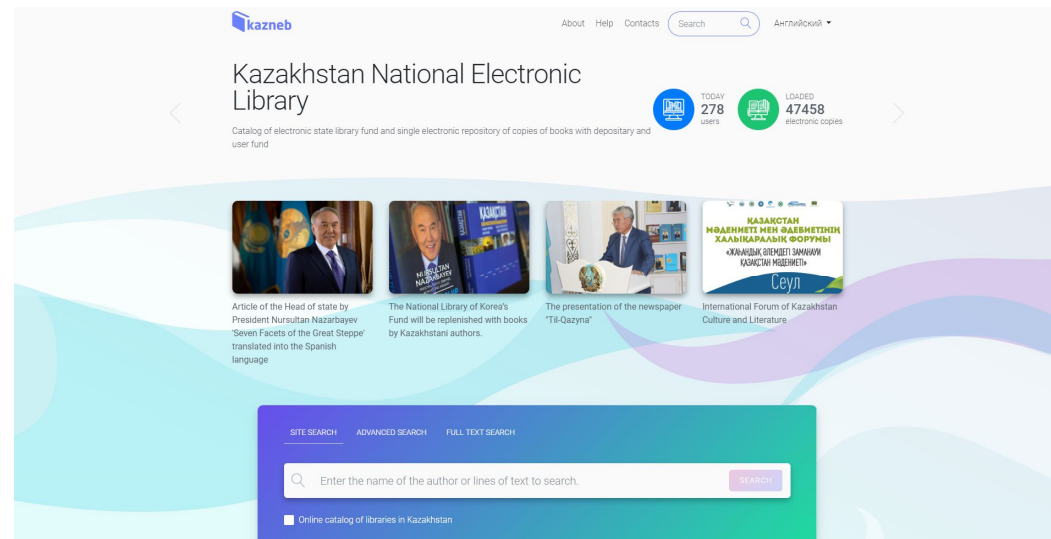
The aim of this paper is to introduce the development of Institutional Repositories as possible technological component of a smart city.

With projects being developed, how sufficient in terms of open access information does the five largest cities of Kazakhstan have?

The paper will highlight challenges that each library is currently facing in building an institutional repository with a goal of improving the open access environment in Kazakhstan.

Open Access Initiative in Kazakhstan

The movement of Open Access is fairly developed in Kazakhstan. Some libraries have the experience in creating open access digital libraries. The National Academic Library of Kazakhstan based in Astana has created the Kazakhstani National Electronic Library (kazneb.kz).



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This situation means that Kazakhstan needs to improve the system of providing open access to their scholarly works.

Institutional Repositories in Kazakhstan

Of about 125 universities (Center of the Bologna Process and Academic Mobility, 2018) in Kazakhstan, we were able to send 74 (59.2%) survey questionnaire invitations but only 10 (8%) university libraries responded and 9 (7.2%) of them have Institutional Repositories.

With this number, four academic libraries are from Astana. Since the smart city pilots in five major cities of Kazakhstan namely: Astana, Karaganda, Ontystuk (Shymkent), Almaty and Aktobe, this paper will look into their development (Abaev, 2017).



Institutional Repository	Governmental Repository	Disciplinary Repository
1. Digital Repository of KAZGUU University	1. Digital Library	1. Kazakhstan Human Rights Commission
2. Karaganda State Medical University Repository		
3. Nazarbayev University Repository		
4. Repository of Almaty Management University		
5. Repository of L.N. Gumilyov Eurasian National University		
6. Repository of E.A. Buketov Karaganda State University		



University	City	Year Established	Number of Items in the Collection	Types of Materials in the Collection
1	Almaty	2017	1993	journal articles
2	Karaganda	2018	194	journal articles, theses
3	Almaty	2017	174	journal articles, book chapters
4	Uralsk	2015	1,090	journal articles
5	Astana	2012	12,500	journal articles, conference proceedings, unpublished documents
6	Astana	2018	445	journal articles
7	Astana	2017	274	journal articles
8	Astana	2014	2,951	theses, journal articles, capstone projects, conference proceedings, poster presentations, university-sponsored

The Autonomous Organization of Nazarbayev University

In 2014, the Open Access Archives (repository) of the Autonomous Organization of Education Nazarbayev University was signed by the Managing Council.



Challenges

Collecting academic articles from the researchers and faculty members is a huge challenge.

Problems in collecting theses from the NU Schools

Table 3. The number of users of NU IR (by country), period is February, 2015 – September, 2018

№	Country	Users
1	Kazakhstan	8,278
2	United States	2,461
3	Russia	1,064
4	United Kingdom	624
5	China	613
6	France	352
7	Germany	271
8	South Korea	262
9	India	223
10	Turkey	186

Discussion

Kazakhstan's goal to have smart cities are good indicators to reach the unreachable through interconnection. A developing nation like Kazakhstan will be the next center of attention in the coming years.

The top five cities that access the repository are Astana (80.37%), Almaty (10.50%), Shymkent (2.28%), Karaganda (2.28%), and Aktobe (0.91%).

The NU IR receives an average of **9.84** views per day. The School of Science and Technology has the most number of shared documents although their theses output is very little. This is followed by the School of Engineering and School of Humanities and Social Sciences.

Conclusions

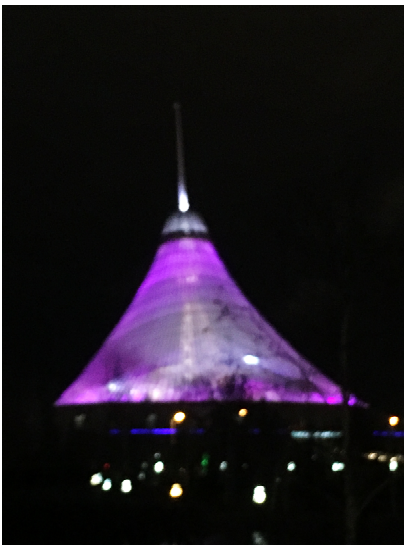
Cities like Shymkent and Aktobe need to catch up and build their own state university repositories.

The experiences of the academic libraries particularly of the Nazarbayev University Library is a good example on how it advocates for open access.

The establishment of its Institutional Repository is a testament to its commitment to make its research open, thus helping its city to grow and become smart.

But, there needs a lot of things to do considering that only 9 universities have IR.

Is Kazakhstan achieving the status of a smart city?



It's still developing and infrastructure is important.

Universities, particularly it's libraries play an important role in ensuring that equal access to information can be gained by all the people.

A smart city is inclusive and it requires effective services that a cultural/information center just like a library could provide eventually becoming an MIL City (in support of UNESCO's initiative).

It develops not only the tangible assets but also the intangible assets that may come from human intellect as provided by open access information.

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Questions?

Thank you for your attention.



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