Report Title: Building Lebanon's AI Future: Strategic Priorities

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1. Executive Summary

This report outlines Lebanon's strategic vision to position itself as a regional hub for AI innovation while leveraging advanced technology to address local challenges. It is not merely an AI strategy or a set of policy recommendations; it emphasizes the importance of raising awareness about AI's transformative potential, especially given the appointment of the first-ever Minister for AI.

By capitalizing on its highly educated workforce, multilingual capabilities, and entrepreneurial spirit, Lebanon can establish a competitive AI ecosystem that drives economic growth, improves public services, and creates high-value job opportunities.

The report details Lebanon's unique value proposition in the region, practical steps for implementation, and the importance of shifting mindsets to embrace the AI revolution.

2. Why Now?

The rapid advancement of artificial intelligence (AI) is reshaping economies, industries, and societies worldwide. For Lebanon, investing in AI presents an opportunity to address long-standing challenges such as economic instability, talent migration, and infrastructure limitations while positioning the country as a competitive player in the digital economy.

Global Trends

- Recent breakthroughs in generative AI models have democratized access to powerful AI capabilities, creating unprecedented opportunities for countries with limited resources like Lebanon.
- The global AI market is projected to reach $1.8 trillion by 2030, with specialized applications in multilingual NLP (a Lebanese strength) growing at 38% annually.
- Cloud-based AI services have reduced infrastructure barriers, allowing Lebanon to
- leverage advanced AI capabilities without massive initial investments.

Regional Context

- UAE's AI strategy has attracted billions of dollars in AI investments since 2019, while Saudi Arabia's AI market is project to reach around $2.6bn in 2025.
- Jordan has launched AI-focused educational initiatives, creating a talent pipeline that Lebanon must compete with.
- Egypt's AI strategy is predicting that the number of AI professionals will reach 30,000 by 2030.

Economic Recovery

- AI adoption could contribute to Lebanon's GDP through productivity gains and new digital service exports.
- Strategic AI implementation in public services could reduce administrative costs , helping address fiscal challenges without compromising service quality.
- AI-enhanced remote work capabilities could help Lebanon capitalize on the global talent shortage, with potential to create 1high-value jobs accessible to Lebanese workers regardless of local economic conditions.

The Urgent Need for Ethical Governance

Lebanon still lacks comprehensive regulations and guidelines around artificial intelligence (AI), which poses significant risks to both individuals and society as a whole. With AI technology advancing at an unprecedented pace, the need for regulatory frameworks has never been more urgent. The rapid integration of AI into sectors such as healthcare, finance, education, and public services offers immense opportunities to enhance efficiency, improve decision-making, and drive economic growth. However, without clear rules and ethical frameworks, the unchecked deployment of AI can lead to unintended consequences, including privacy violations, biased decision-making, job displacement, and misuse of sensitive data.

For a country as diverse as Lebanon, the absence of AI governance is particularly concerning because it increases the risk of discrimination based on factors such as gender, religion, ethnicity, and socioeconomic status. Moreover, the lack of transparency and accountability in AI systems could undermine public trust, especially when these technologies are used in critical areas like law enforcement, healthcare diagnostics, and financial services. Without proper oversight, AI-driven surveillance could also infringe upon citizens' rights to privacy and freedom of expression.

The urgency to regulate AI is further amplified by the accelerating global adoption of these technologies. As countries worldwide establish robust AI governance frameworks, Lebanon risks falling behind, both in terms of technological advancement and in protecting its citizens from potential harms. With AI becoming a key driver of economic growth and innovation, Lebanon must act now to create an environment that fosters responsible AI development while ensuring the ethical use of these technologies. By establishing clear guidelines that promote fairness, transparency, and accountability, Lebanon can attract investments in AI-driven industries, boost its digital economy, and create new job opportunities.

Now is the time for Lebanon to take proactive steps toward AI governance. The government must collaborate with the private sector, academia, and civil society to develop regulations that address both the opportunities and challenges of AI. This includes ensuring that AI systems are designed and deployed in ways that respect human rights.

3. What Has Lebanon Done So Far with AI?

Lebanon has made initial steps toward AI development, though progress has been limited due to political and economic challenges.

Key Initiatives

Policy Development:
In collaboration with the United Nations Economic and Social Commission for Western Asia (ESCWA), Lebanon proposed a national AI strategy focused on infrastructure development, digital competencies, and data regulations. However, political instability and economic difficulties have hindered implementation.

Academic Contributions:
Many Lebanese universities have integrated AI courses and research into their curricula, fostering local expertise. Yet, limited research funding restricts large-scale innovation.

Private Sector Initiatives:
Startups and companies use AI for healthcare diagnostics, education, and business analytics, but growth is constrained by funding limitations and infrastructure challenges.

Diaspora Engagement:
Lebanese professionals abroad have contributed knowledge and investment in AI-driven businesses. Structured programs are needed to maximize this potential.

While progress has been slow, limited funding, outdated infrastructure, and conservative mindsets regarding AI adoption have been key barriers. A shift in governance "mentality"—emphasizing innovation, collaboration, and data-driven decision-making—is essential to accelerate AI adoption.

4. Lebanon's Unique Value Proposition in the Region

Despite challenges, Lebanon possesses several unique strengths that can serve as its competitive advantage in AI development:

Multilingual Talent Pool

Lebanon's workforce is proficient in Arabic, English, and French, enabling the development of multilingual AI solutions tailored to the Middle East and beyond. This trilingual advantage positions Lebanon uniquely for developing natural language processing systems that can serve the entire MENA region and francophone markets simultaneously.

Cultural Understanding

Deep knowledge of regional needs allows Lebanon to create contextually relevant AI applications, particularly in healthcare, education, and public services. Lebanese developers inherently understand nuances in Arabic dialects, cultural sensitivities, and regional business practices that foreign AI solutions often miss.

Lebanon's strategic positioning at the crossroads of Eastern and Western cultures enables the development of:

- AI-powered content moderation systems that understand Arabic cultural contexts, dialects, and expressions, addressing a critical gap in current global platforms
- Healthcare diagnostic tools trained on regional genetic and environmental factors specific to Middle Eastern populations
- Educational AI customized for Arab region curricula and pedagogical approaches
- Fintech solutions that accommodate regional financial practices, including Islamic banking requirements.

Cost Advantage

Compared to other regional players, Lebanon offers more affordable labor and operational expenses, making it an attractive destination for AI research and development. Developer salaries in Lebanon average 40-60% lower than in Dubai and 70% lower than in Europe or North America for comparable skill levels, while office space costs less than in regional technology hubs.

Diaspora Networks

Strong connections with Lebanese professionals worldwide facilitate knowledge transfer, funding, and international collaboration. The Lebanese diaspora, estimated at 12-14 million people worldwide, includes prominent AI researchers and entrepreneurs at leading global technology companies and academic institutions.

Agility and Entrepreneurial Spirit

Lebanon's entrepreneurial culture enables rapid innovation, especially in niche AI applications where agility is essential. Lebanese startups have demonstrated exceptional resilience, continuing to innovate despite economic challenges, with many new tech ventures launched during the height of the economic crisis in 2020-2021.

5. Strategic Priorities

5.1 Human Capital Development

- **Education:** Modernize university curricula, introduce AI tracks in secondary schools, and establish AI research centers.

- **Training:** Provide AI certification programs, practical workshops, and boot camps focused on data analysis, coding, and AI ethics.

- **Public Awareness:** Launch national campaigns to raise awareness of AI's benefits and address misconceptions.

- **FutureSkills Lebanon:** A national initiative designed to equip Lebanon's workforce with the skills needed to thrive in an AI-driven world. By leveraging online learning platforms, academic institutions, and community-based hubs, FutureSkills Lebanon offers accessible and affordable training in digital literacy, data analytics, AI applications, and industry-specific competencies. As AI continues to transform industries globally, this initiative empowers individuals to adapt to automation, boost productivity, and foster innovation, ensuring Lebanon remains competitive in the global economy. Additionally, FutureSkills Lebanon supports entrepreneurship by enabling individuals to harness AI for business growth, positioning the nation as a hub for tech-savvy talent in the MENA region (See Table 1). Built on a collaborative model, the framework leverages partnerships with Lebanese universities, private sector companies, and global online platforms to provide accessible and affordable learning opportunities. Each university is required to offer at least four free courses annually as part of their Corporate Social Responsibility (CSR), covering key areas like AI, data analytics, digital marketing, and coding. A National Skills Passport stores blockchain-verified micro-credentials, ensuring transparency and credibility. AI-powered platforms match certified individuals with job opportunities, while universities act as regional Learning Hubs, providing free internet, mentorship, and digital resources. This cost-effective approach empowers individuals to upskill, enhances employer confidence in certified talent, and drives national economic growth without the need for large government subsidies.

Component	Description	Role of Lebanese Universities & CSR Contribution
National Skills Roadmap	Identifies key skills for Lebanon's economy, focusing on AI, data analytics, digital marketing, and more.	Universities design industry-relevant curricula.
Skills Framework and Career Pathways	Defines essential skills and career progression for each sector (entry-level to advanced).	Universities offer free courses in AI, data science, coding, and business analytics.
Accessible Learning Options	Leverages online platforms like Coursera, Google Career Certificates, and low-cost local courses.	Each university provides at least four courses annually for free, supporting workforce upskilling.
National Skills Passport	A digital platform that stores blockchain-verified credentials, accessible via mobile and web apps.	Universities issue blockchain-verified certificates for completed courses.
Public-Private Partnerships	Private companies sponsor training programs, internships, and mentorships, reducing government costs.	Universities establish partnerships with companies for hands-on training, projects, and internships.
Recognition of Micro-Credentials	Micro-credentials are stackable and recognized by employers nationwide, with industry validation.	Universities align their courses with international standards to ensure global recognition.
Low-Cost Sustainability	No direct financial subsidies; individuals use free or affordable courses, reducing government expenses.	Universities fulfill CSR commitments by offering free enrollment in four courses per year.

Table 1: FutureSkills Lebanon: A Practical and Budget-Friendly Skills Development Framework

5.2 Building AI Infrastructure in a Resource-Constrained Environment

Lebanon's financial constraints pose significant challenges to building the infrastructure needed for AI development. However, with strategic planning, creative solutions, and international collaboration, it is possible to lay the foundation for a robust AI ecosystem. This section outlines practical steps to overcome financial limitations and build the necessary infrastructure.

- **Leveraging Existing Resources**
  - Repurposing Existing Infrastructure: Utilize existing facilities, such as universities, research centers, and government buildings, to host AI innovation hubs and data centers.
  - Cloud Computing: Shift to cloud-based infrastructure to reduce the need for expensive physical hardware. Partner with global cloud providers (e.g., AWS, Google Cloud, Microsoft Azure) to secure discounted or subsidized services for startups and researchers.
  - Open-Source Tools: Promote the use of open-source AI frameworks and tools to minimize software costs.

- **Public-Private Partnerships (PPPs)**
  - Collaborative Investments: Encourage private sector companies to co-invest in AI infrastructure in exchange for tax incentives, branding opportunities, or access to research outcomes.
  - Shared Resources: Establish shared AI labs and computing facilities where startups, researchers, and businesses can access high-performance computing resources at reduced costs.

- **Phased Approach to Infrastructure Development**
  - Start Small, Scale Gradually: Begin with pilot projects that require minimal infrastructure, such as AI training programs or small-scale data collection initiatives. Gradually scale up as funding becomes available.
  - Modular Infrastructure: Invest in modular and scalable infrastructure that can be expanded over time, such as small data centers or edge computing devices.

- **Low-Cost Data Collection and Management**
  - Crowdsourcing Data: Use crowdsourcing platforms to collect and annotate data at low cost, leveraging Lebanon's multilingual population.
  - Open Data Initiatives: Encourage government agencies and businesses to share anonymized datasets for research and development, reducing the need for expensive data collection efforts.
  - Data Donations: Partner with international organizations or companies to access open datasets for training AI models.

- **Energy-Efficient Solutions**
  - Renewable Energy: Invest in renewable energy sources (e.g., solar power) to reduce the cost of powering data centers and computing facilities.
  - Energy-Efficient Hardware: Use energy-efficient servers and hardware to minimize operational costs.

- **Prioritizing High-Impact Projects**
  - Focus on Critical Areas: Prioritize infrastructure projects that have the highest potential impact, such as healthcare diagnostics, education, or public services.
  - Quick Wins: Identify and implement "quick win" projects that demonstrate the value of AI and build momentum for larger investments.

- **Building Resilience**
  - Redundancy and Backup Systems: Ensure that critical infrastructure has redundancy and backup systems to withstand Lebanon's frequent power outages and infrastructure challenges.
  - Cybersecurity Measures: Invest in affordable cybersecurity solutions to protect AI infrastructure from cyber threats.

5.3 Building an AI Ecosystem

Triple Helix Model:

Foster collaboration among government, academia, and the private sector to accelerate innovation.

Innovation Hubs:

Establish hubs with infrastructure, mentorship programs, and funding for startups and researchers.

5.4 Data Infrastructure and Policy

National Data Strategy:

Develop a strategy that promotes secure, transparent, and ethical data sharing across sectors.

Open Data Platforms:

Provide anonymized datasets for research, with incentives for businesses to share non-sensitive data.

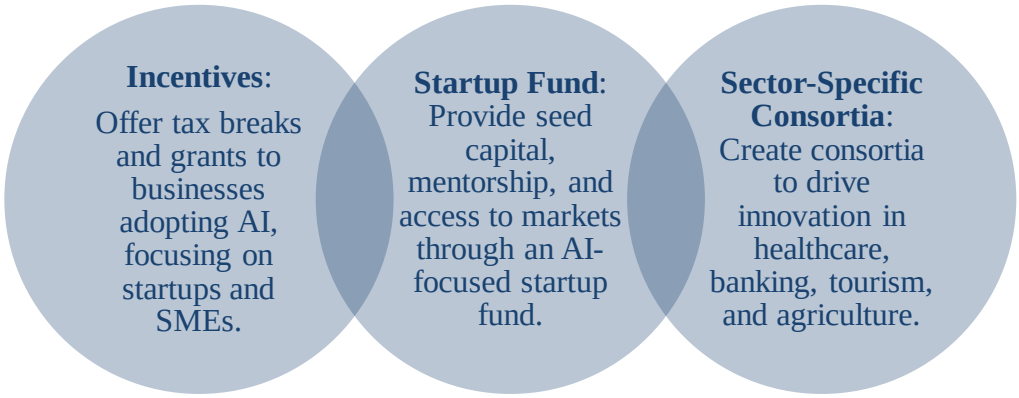
Data Privacy Regulations:

Implement data protection laws aligned with global standards, ensuring user privacy and cybersecurity.

Interoperability:

Ensure data interoperability between public and private entities to support AI development.

5.5 Industry Adoption and Economic Development



5.6 Governance and Ethics Framework

National AI Ethics Committee:

Oversee ethical AI development and ensure compliance with regulations.

Ethics Guidelines:

Develop clear guidelines for algorithm transparency, accountability, and fairness.

Regulatory Sandboxes:

Allow businesses to test AI solutions in controlled environments.

Public Trust Initiatives:

Establish transparency guidelines on AI deployments in public services (see Table 2).

Bias Mitigation Strategies:

Implement mandatory diversity in training data requirements and develop Lebanon-specific fairness metrics that account for the country's multi-sectarian, multicultural society. Require regular audits of AI systems deployed in sensitive areas such as hiring, lending, and public service delivery.

Guideline	Description	Reason
AI Ethics and Bias Mitigation Framework	Mandate that all AI systems developed or deployed in Lebanon adhere to ethical guidelines, including fairness, transparency, and accountability. Developers must conduct bias audits to ensure AI systems do not discriminate based on gender, religion, ethnicity, or socioeconomic status.	Lebanon's diverse society requires safeguards against AI-driven discrimination.
Data Privacy and Protection Law for AI	Enact a comprehensive data protection law specifically addressing AI systems, ensuring user consent, data anonymization, and strict limits on data collection and usage.	Lebanon currently lacks robust data privacy laws, leaving citizens vulnerable to misuse of personal data by AI systems.
Transparency and Explainability Requirements	Require AI systems to provide clear explanations for their decisions, especially in high-stakes areas like healthcare, finance, and criminal justice.	Transparency builds public trust and ensures accountability in AI-driven decisions.
AI in Public Sector Governance	Establish guidelines for the use of AI in government services, ensuring it is used to enhance efficiency without compromising citizen rights or privacy.	AI can improve public services, but without regulation, it could lead to misuse or exclusion of vulnerable populations.
AI Licensing and Certification	Introduce a licensing system for AI developers and companies, ensuring they meet technical and ethical standards before deploying AI systems in Lebanon.	Prevents the deployment of untested or harmful AI technologies.
AI in Employment and Labor Rights	Regulate the use of AI in hiring, performance evaluation, and workplace monitoring to protect employees from unfair practices and ensure human oversight.	Prevents AI from being used to exploit workers or make biased employment decisions.

Guideline	Description	Reason
AI for National Security and Surveillance	Limit the use of AI in surveillance by government agencies, requiring judicial oversight and clear justification for its use.	Protects citizens from unwarranted surveillance and potential abuse of power.
AI in Healthcare Standards	Set strict standards for AI tools used in healthcare, ensuring they are accurate, reliable, and complement (not replace) human medical expertise.	Ensures patient safety and prevents misuse of AI in critical healthcare decisions.
AI Education and Public Awareness	Mandate the inclusion of AI literacy in school curricula and launch public awareness campaigns to educate citizens about AI benefits and risks.	Empowers citizens to understand and engage with AI technologies responsibly.
AI Innovation and Research Incentives	Create a regulatory sandbox to encourage AI innovation, allowing startups and researchers to test AI solutions in a controlled environment with temporary exemptions from certain regulations.	Promotes local AI development while ensuring safety and compliance.

Table 2: List of Proposed Guidelines

6. Implementation Framework

National AI Council:
Establish a National AI Council under the Prime Minister's Office to oversee strategy implementation, coordinate stakeholders, and ensure alignment with national priorities.

Public Dashboards:
Develop online dashboards providing real-time updates on key AI projects, ensuring transparency and public accountability.

KPIs:
Define clear key performance indicators (KPIs) to measure AI adoption, job creation, research output, economic impact, and public satisfaction.

Pilot Programs:
Initiate AI pilot programs in healthcare, transportation, and public services to demonstrate the benefits of AI and build public trust.

7. Funding Framework

- **Public-Private Partnerships**: Leverage private sector investments to co-fund AI initiatives, offering tax incentives and co-branding opportunities.
- **International Development Funding**: Secure grants and technical assistance from organizations like the World Bank, EU, and UNDP. Build strategic partnerships with Gulf Cooperation Council countries.
- **Diaspora Bonds**: Launch Lebanon Tech Bonds targeting the global Lebanese community, offering competitive returns while supporting national AI initiatives.
- **Startup Investment Network**: Establish an AI angel investor network, connecting Lebanese startups with venture capitalists and industry experts.

8. Ministerial Responsibilities

Ministry of AI:
Overall strategy coordination, international partnerships, and public awareness

Ministry of Education:
Curriculum development, university research frameworks, and education technology adoption

Ministry of Telecommunications:
Data infrastructure, connectivity enhancement, and digital inclusion initiatives

Ministry of Economy:
Investment incentives, economic impact assessment, and export promotion

Ministry of Health:
AI applications in healthcare, medical data governance, and telemedicine frameworks

9. AI for Public Service Transformation

AI-powered transformation of government services represents one of the most promising application areas in the Lebanese context, with potential for immediate impact even with limited resources.

Digital Government Transformation

- Implement AI-powered document processing to reduce administrative backlogs in key public services
- Develop multilingual virtual assistants to guide citizens through government procedures in Arabic, English, and French

Specific Applications

- **Taxation**: AI-assisted tax filing systems that simplify compliance, detect anomalies, and reduce processing time from weeks to days

- **Public Health**: Predictive analytics for disease outbreak monitoring, resource allocation optimization, and personalized health guidance
- **Municipal Services**: Smart waste management, urban planning optimization, and automated permit processing

Anti-Corruption Applications

- Implement AI-powered procurement analysis to identify suspicious patterns in government contracting
- Develop anomaly detection systems for public financial transactions to flag potential misappropriation
- Create transparency platforms with machine learning algorithms that evaluate and rank governmental departments on objective efficiency metrics

10. Success Stories from Other Nations

Singapore:
Government-led initiatives like "AI Singapore" have transformed healthcare, smart cities, and education, attracting global investment.

United Arab Emirates:
The UAE's AI-first strategy and Minister of State for AI have accelerated AI adoption in transportation, healthcare, and public services.

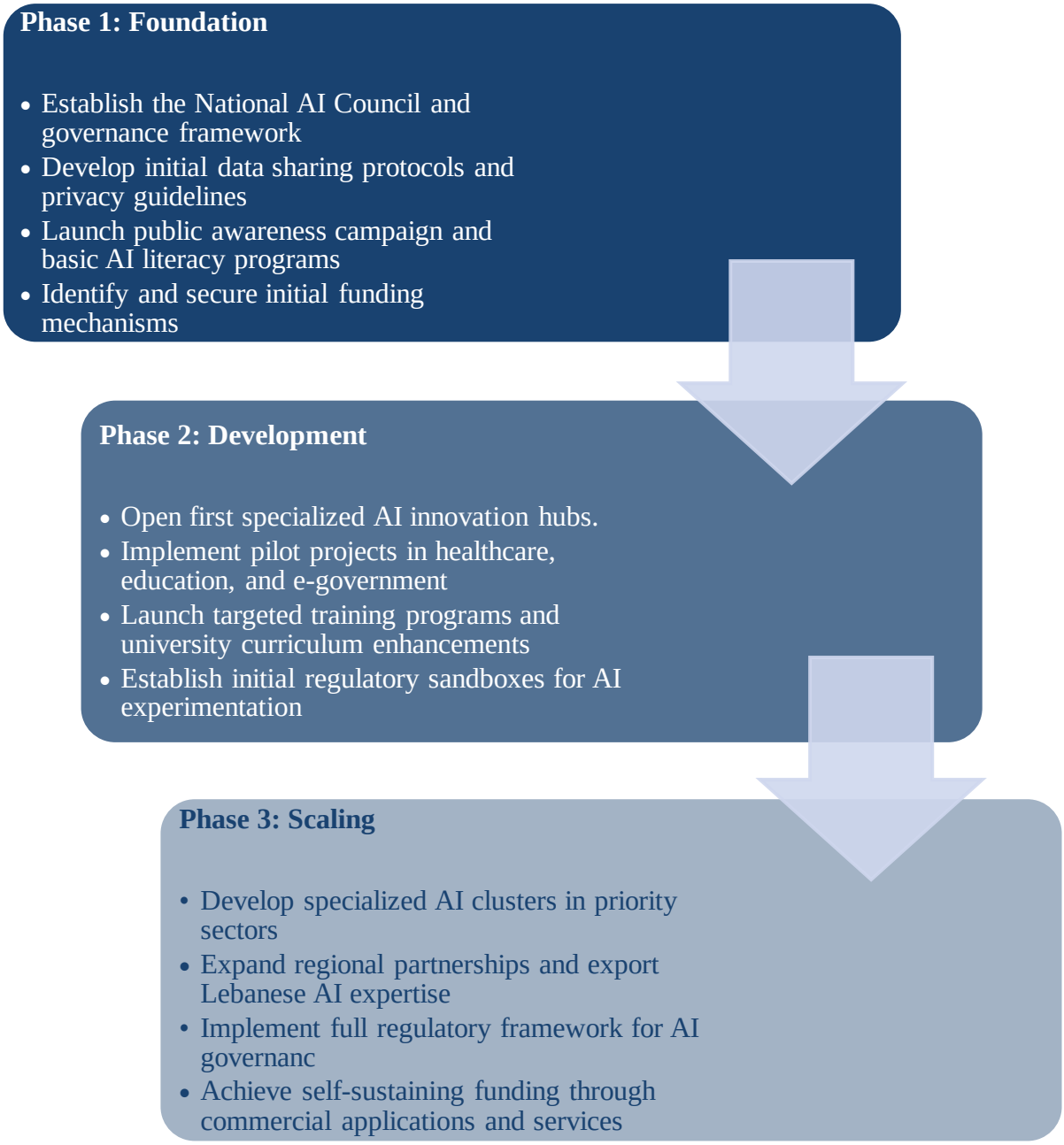
Estonia:
AI integration in governance has improved service delivery, reduced costs, and enhanced citizen engagement.

Key Takeaways for Lebanon:

- Focus on niche areas where Lebanon has a competitive advantage.
- Build strong public-private partnerships to drive innovation.
- Ensure AI development is aligned with ethical and regulatory standards.
- Engage the diaspora to attract investment and global talent.

11. Implementation Timeline

A phased approach ensures realistic progress with measurable outcomes:



12. Conclusion

Lebanon stands at a pivotal moment where embracing AI can turn its challenges into opportunities. By focusing on specialized applications that leverage its multilingual talent, regional connections, and entrepreneurial culture, Lebanon can build a competitive AI ecosystem that drives economic growth and improves quality of life. Success requires not only technological advancements but also a fundamental shift in mindset—from viewing AI as a threat to recognizing it as a tool for empowerment.

Building a resilient AI ecosystem will demand collaboration across government, academia, and the private sector, with strong governance ensuring ethical and responsible AI deployment. The Lebanese diaspora must play a critical role, bringing global expertise and investment back home. With clear objectives, strategic partnerships, and sustained commitment, Lebanon can emerge as a regional AI leader, fostering innovation that benefits both its citizens and the broader MENA region. The time to act is now—delaying AI adoption risks falling behind, while proactive investment and forward-thinking policies will pave the way for long-term prosperity.

In conclusion, we acknowledge the significance of previous works, including the 2020 ESCWA publication[1], the Policy Brief on Data Science for Lebanon Public Policy by Olayan School of Business at the American University of Beirut[2], and the National Artificial Intelligence Strategy in Lebanese Industry[3]. However, we believe this report builds on these foundations by offering a structured, actionable roadmap tailored to Lebanon's unique economic and technological landscape. It provides practical, phased recommendations, emphasizing short-term initiatives for immediate impact while establishing a solid framework for long-term AI development.

[1] https://www.unescwa.org/events/artificial-intelligence-strategy-lebanon
[2] https://www.aub.edu.lb/osb/Documents/Policybrief.pdf
[3] https://dig.watch/resource/national-artificial-intelligence-strategy-in-lebanese-industry-2020-2050