

# Apply health Strategy Planning in (LNHS) to get Best Results and calculate data (NCDC)

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## Abstract

This study presents a comprehensive health strategy tailored to the unique context of the (LCDC). This resulted in improvement in morbidity and mortality, in particularly those related to infectious disease. However, measures such as the national performance gap indicator reveal an underperforming health system. In this article, we discuss aspects related to the Libyan health system and its current status including areas of weakness. Overcoming current failures and further improvement are unlikely to occur spontaneously without proper planning. Defining community health problems, identifying unmet needs, surveying resources to meet them, establishing SMART, objectives, and projecting administrative action to accomplish the proposed programs, are a must. The health system should rely on newer approaches such as management-by-objectives and risk management rather than the prevailing crisis-management attitude. Also, the Coronavirus crisis that affected the entire world was one of the crises that contributed to diagnosing the current reality of the health system in Libya, and since the National Center for Disease Control (NCDC) was responsible, since the spread of the epidemic until now 2019-2023, to count the actual number of patients and injured. These objectives have been prioritized based on their potential impact and the LCDC's capacity to effectively address them. To ensure the strategy's success, regular monitoring and evaluation will be conducted to assess the effectiveness and impact of implemented interventions. Adjustments and refinements will be made based on the findings. By implementing this comprehensive health strategy, the LCDC endeavors to address the pressing health challenges in Libya and achieve sustainable improvements in public health outcomes.

**Keywords:** Libya, Health Services , Libyan National health service (LNHS) , National center for Disease Control (NCDC) , Health crisis, Health reform, Management-Quality

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## Introduction:

Health systems across different countries exhibit a wide range of performance levels and their ability to achieve essential health objectives (Reference 1). Despite the advancements in medical knowledge and the utilization of increasingly sophisticated technology and training, the return on investment in terms of the quality of care often reveals underperforming health systems in many countries. This situation has led to a crisis in healthcare delivery (References 2, 3). To attain higher standards of healthcare, both affluent and economically challenged health systems should continuously strive to enhance the efficiency, equity, and effectiveness of their programs (References 3, 4). It is worth noting that there is no single standardized formula for the organization of health services, and appropriate policies may vary significantly across different contexts. In fact, no country has discovered an ideal model that universally applies (Reference 5). As a result, there is still much to be learned about what constitutes a good health system, how to ensure fairness within it, and how to evaluate the performance of existing systems across diverse settings.

The primary objective of this study is to comprehensively examine and discuss various crucial aspects pertaining to the Libyan National Health Services (LNHS). This includes an in-depth assessment of the

### Background:

Libya is categorized as an intermediate-level income country with a per capita income exceeding \$7000 US annually [7]. Its primary sources of revenue are derived from the oil industry, petrochemical sector, and agricultural activities. The majority, around 85%, of its approximately five million residents reside in urban areas. Despite this, the population is spread out over a vast land area, making Libya one of

current status of LNHS, identification of areas of weakness, and proposing effective strategies to overcome the prevailing failures, all within the context of contemporary perspectives on optimal health service organization. To achieve this objective, a qualitative approach will be adopted, involving interviews with key decision-makers and actively engaged personnel possessing academic expertise. In addition, extensive analysis of data from diverse sources, including archived documents published by health and/or general authorities, will be conducted. The utilization of a qualitative approach in health research is widely acknowledged and accepted, as it enables gaining valuable insights from subjective experiences, even though it is important to acknowledge potential limitations such as biases in perception, interpretation, or judgment.

By undertaking this study, we aim to contribute to the understanding and improvement of LNHS by thoroughly examining its challenges and proposing effective solutions. The findings of this study will provide valuable insights into enhancing the performance, efficiency, and fairness of the health system, all while considering the unique context of Libya. Especially after the Corona crisis, which has exhausted the living system in Libya, despite all the capabilities

the most sparsely populated nations globally. In recent years, the annual population growth rate has decreased to below 2.9%. The portion of public health expenditure relative to the total gross domestic product (GDP) expenditure is approximately 3% [8]. The country provides free healthcare and education services to all its citizens. Compulsory education was introduced in the early 1970s. Libya is renowned for its high

literacy rates and educational enrollment, surpassing many other developing countries. The net enrollment rate for basic education stands at 96%, with an absence rate of only 1%. Female youth illiteracy is

### Information:

In 2006, the MoH Health Information Centre (HIC) was established in Libya under Law No. 4 of 1990. Over the years, the center has received an annual budget and has been responsible for gathering routine data from health facilities, conducting health surveys, and providing training for statistical units. The HIC comprises five offices dedicated to statistics and research, data analysis, information technology, documentation, as well as administration and financial matters.

Traditionally, health information has been directly obtained from the statistical offices of all hospitals. Corresponding reports have been generated, and the annual reports from 2004 to 2014 can be accessed on the HIC website. However, due to ongoing political challenges, the flow of information from hospitals has been

less than 7% [9]. Furthermore, 95% of the population has access to safe drinking water, while 86% benefit from proper sewage disposal [8].

disrupted, leading to a significant decrease in available data. The National Centre for Disease Control (NCDC) takes the primary responsibility for disease surveillance and response in Libya. Disease-specific programs have their own notification systems, and they report annually to the HIC.

Information regarding vital registration for births is available in nearly 100% of cases, while data on deaths is available for around 60% of cases. To enhance vital registration services, the Vital Registration Authority (VRA) has expanded its birth and death registry services to include seven branches and 380 service offices, covering the entire country. Additionally, civil registry offices have been established in major hospitals and medical centers.

### Methods:

The assessment methodology employed in this study was based on the approach developed by the WHO Regional Office for the Eastern Mediterranean for conducting a comprehensive evaluation of Health Information Systems (HIS). The assessment process involved using the WHO Assessment and Planning tool to guide discussions, aiming to identify strengths and weaknesses of the country's systems and prioritize actions based on the findings.

In collaboration with the Health Information Systems Programme, the review team also evaluated the MoH's interest and potential to pilot the District Health Information System. As part of their tasks, the review team identified specific institutions and departments to be visited by an advisor after the assessment

workshop, in order to assess the current status of the systems used for collecting health and health-related data. The information gathered from these site visits was expected to complement the findings from the assessment workshop.

Before the mission, the team conducted document reviews, which included examining documents provided by the MoH, publicly available documents, and previous reports from WHO missions related to HIS in Libya. During meetings, relevant documents were also presented and discussed.

The discussions and working group sessions with MoH officials and stakeholders focused on various aspects, such as the types of systems being used, challenges related to data collection and flow, limited capacity of staff to utilize

information for decision-making, difficulties in integrating information from different sources at all levels, and the need to incorporate emergency information requirements into the Libyan HIS.

To synthesize the findings and develop recommendations, the team relied on the reviewed documents, information obtained from discussions and working groups, and applied technical expertise. The findings were organized according to the thematic areas of the Assessment and Planning tool, forming the basis for

## Results

In 2016, a Help Availability and Preparation Evaluation was conducted to assess the state of healthcare delivery in Libya. The evaluation revealed a significant lack of service readiness and availability in both primary healthcare facilities and hospitals. This deficiency can be attributed to severe shortages of medications, clinical interventions, and healthcare professionals, particularly specialists, nurses, midwives, and specialized practitioners. These inadequacies were particularly prominent at the primary care level, leading to overcrowding of referral and tertiary hospitals with cases of common illnesses. Providing primary healthcare to migrants in detention centers, especially for contagious conditions, posed a significant obstacle due to the absence of health Assessment and planning tool

The assessment and planning tool were utilized to gain an understanding of the current status of various components within Libya's healthcare sector and identify priority actions for further improvement. The tool comprises a checklist that focuses on four key elements of a well-functioning health information system: sound policy and institutional environment, effective data sources, strong analytical capacities, and mechanisms for review and action.

The assessment revealed that more than half of the attributes (63%) require varying

formulating actionable recommendations and a roadmap for improving the HIS in Libya.

Each team member contributed to different sections of the report, which were then collected and shared with the facilitators of the working group sessions for review and feedback. After incorporating the feedback from the facilitators, the final report was shared with the MoH and all stakeholders involved.

screening tools at entry points and borders. This increased the risk of importing diseases like polio, Ebola, and the Zika virus from other countries, further weakening the Libyan health system.

Despite the complex political situation in Libya, the World Health Organization (WHO) and other public and international health partners have collaborated to provide the necessary assistance to reduce preventable diseases and deaths and prevent major outbreaks. They have been working together despite the challenges posed by the political framework, which has negatively impacted the health structure in Libya. Especially after the Corona crisis, which has exhausted the living system in Libya,

degrees of strengthening, indicating significant room for improvement despite the presence of key elements in the health information system. This includes critical areas such as enhancing collaboration mechanisms, strengthening data sources (including certification in causes of death, infrastructure, staffing, coordination, and implementation of surveys), and improving health systems monitoring. Additionally, there is a need to develop analytical institutional capacities for data dissemination and utilization. Some

attributes were already present and did not require further action.

The assessment also involved mapping existing information systems and establishing links to equity stratifiers. Libya has multiple information subsystems catering to different Ministry of Health requirements. The routine health information system collects aggregated data at the facility level using paper-based methods. The laboratory information system also relies on paper-based processes, while certain subsystems like disease-specific systems for TB and HIV, as well as the disease surveillance system, utilize a combination of paper-based data collection and electronic databases.

Regarding equity dimensions, the relevant information subsystems provide disaggregated data by sex, and the Human Resources registry includes information on education and occupational status. However, routine information systems do not capture data on wealth/income status, race, ethnicity, or migration status. Disease-specific information systems do provide disaggregated data on nationality (Libyans vs. non-Libyans).

The assessment listed various data collection tools, including medical records, nurses' records, admission and discharge forms, ICU records, death certificate records, investigation records, drugstore records, outpatient department records, and discharge forms. Some forms, such as death certificates, would require revision to accommodate writing in both English and Arabic. Tools for data collection, reporting, and surveillance management were described, including the EWARN tool for immediate and weekly reporting (still not fully functional) and a paper-based notification tool used at peripheral health facilities, with data later entered into an electronic database at the central level.

The composition and capacities of rapid response teams were described, with Libya

having central teams deployable within 24 hours and 36 governorate-level teams that require time to investigate and respond to outbreaks. The most recent formal training for rapid response teams was conducted in 2021.

A list of surveys conducted in Libya over the past five years was generated, although further analysis of indicators, comparability, and evolution over time is needed. The development of a survey plan to identify key information needs and coordinate upcoming surveys was also recommended.

Lastly, the assessment identified the main information products of the Libyan health information system and discussed approaches to improve them. Key actions for enhancing reporting quality and regularity included providing statistical officers with training in statistical software, assessing information needs to develop guidelines, increasing awareness of information products, and ensuring sufficient human resources for data analysis and dissemination.

**In collaboration with Johns Hopkins University, the World Health Organization (WHO)** has developed 35 priority actions to improve hospital accident and emergency care. The WHO recently appointed an expert to assist Libya's Ministry of Health in establishing an Emergency Management Department (EMD). The WHO will also provide support in developing a strategic framework, policy, operational plan, protocols, and building capacity within the Emergency Management Section. Some local universities have also begun to prepare a master's program in health administration, which qualifies administrators who are able to manage health institutions.



## Discussion

based to electronic data transmission and reporting.

Regarding surveillance, recommendations include enhancing public health laboratory capacity for diagnosing and confirming diseases, expanding the number of surveillance teams and sites, and capturing data on vulnerable populations such as migrants. Developing unified guidelines for notifiable conditions, ensuring accreditation of data quality related to death announcements and certification, and providing training on issuing medical death certificates are important steps. Strengthening capacities for conducting household surveys and censuses and promoting inter-sectoral collaboration are also essential.

To improve data management and analysis, efforts should be made to enhance health information systems and promote inter-sectoral collaboration for data access. Mechanisms for data use, review, and action should be developed, including a web-based HIS system to address fragmentation challenges and regular progress and performance reviews. Inter-ministerial mechanisms for sharing health information related to migrant populations and conducting budget management analysis of health data are recommended. Additionally, ensuring adequate infrastructure for hosting and managing servers and internet access in health facilities is crucial.

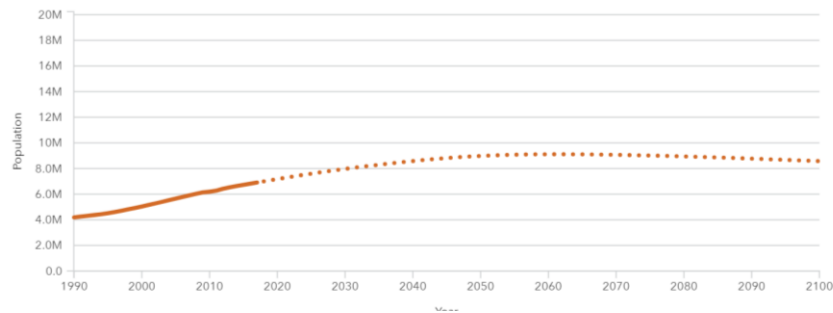
Statistical analysis:

2019 Population	2019 Fertility Rate	2019 Educational Attainment (Years)
6.7M	1.6	9.9

The recommendations outlined here aim to enhance and streamline Libya's health information system (HIS) through coordinated efforts by the Ministry of Health (MoH), the Health Information Centre (HIC), and other key stakeholders. The implementation of these recommendations will lead to improved access, data quality, and efficiency within the HIS. To effectively address these recommendations, a detailed roadmap consisting of priority actions should be developed as an implementation plan. A coordination committee should oversee the progress of implementation, while a technical sub-committee should provide support for operationalizing the priority actions.

The recommendations for establishing a sound policy and institutional environment include strengthening the leadership of the HIC (MoH) through advocacy, coordination of the HIS, and regular stakeholder meetings. Additionally, the establishment of an emergency HIS and standardization of data sources and flow between humanitarian health providers and local health authorities are crucial. Improving infrastructure, staffing, and analytical capacities of the routine HIS, as well as completing the human resources registry, are also important steps. It is necessary to interface data collection tools used by humanitarian actors with local or district-level information systems, and efforts should be made to transition from paper-

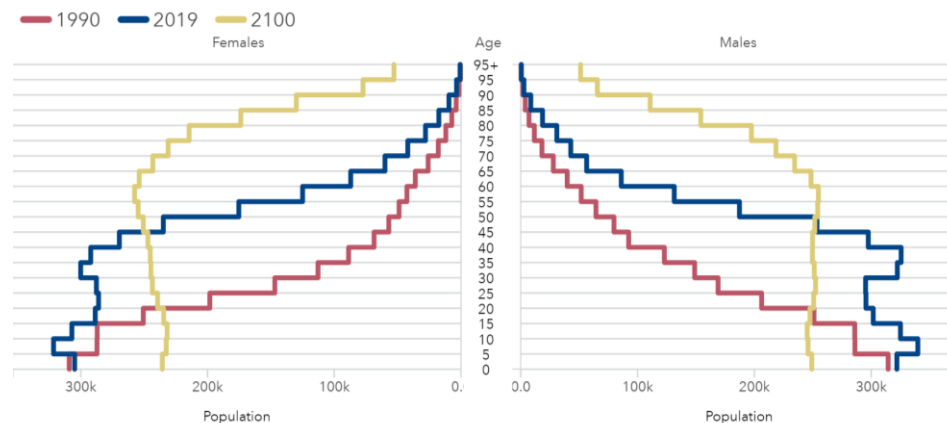
How is the population forecasted to change?



	Past	Past	Forecasted
	1990	2017	2100
Population	4.2M	6.9M	8.6M

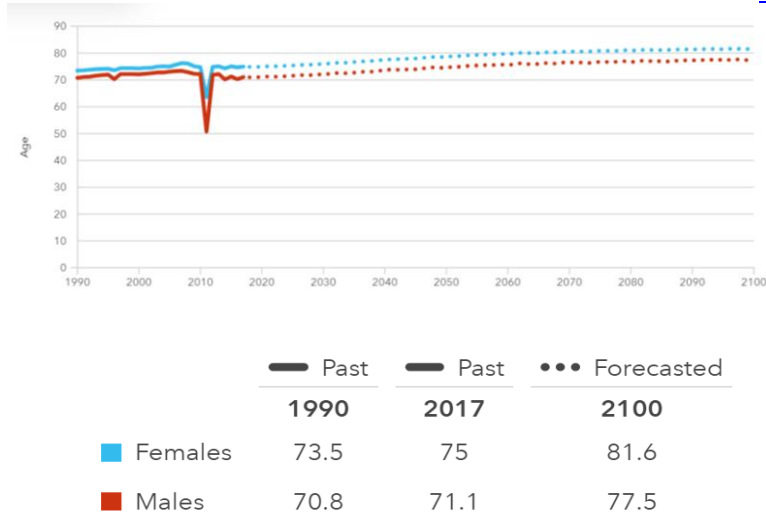
Population, 1990–2100. Forecasted data based on Global Burden of Disease 2017 results.

How many older versus younger people are in the population, and how will these patterns change?



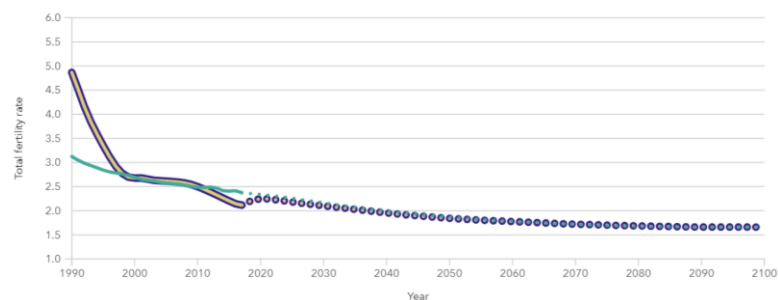
Population age structure for males and females in 1990, 2019 (reference scenario), and 2100 (reference scenario). Forecasted data based on Global Burden of Disease 2017 results.

How long do people live, and how will that change?



Life expectancy at birth, 1990–2100. Forecasted data based on Global Burden of Disease 2017 results.

What is the fertility trend now and in the future?

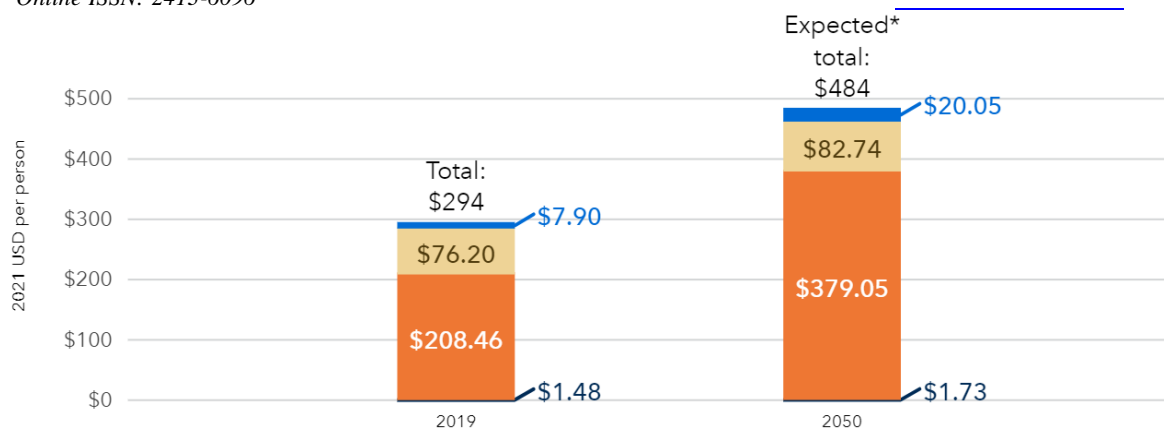


Total fertility rate, 1990–2100. Total fertility rate represents the average number of children a woman delivers over her lifetime. Regional and global trends are included for comparison.

How much is spent on health – now, and in the future – and from which sources?

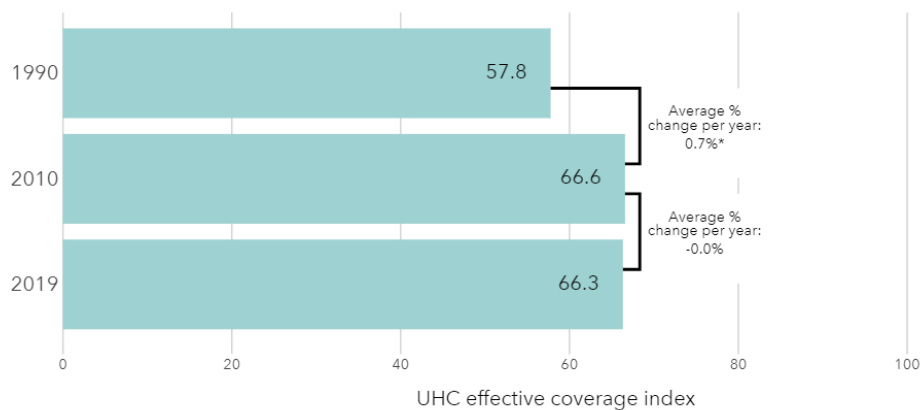
- Prepaid private spending
- Out-of-pocket spending
- Government health spending
- Development assistance for health





"Expected" is the future growth trajectory based on past growth.

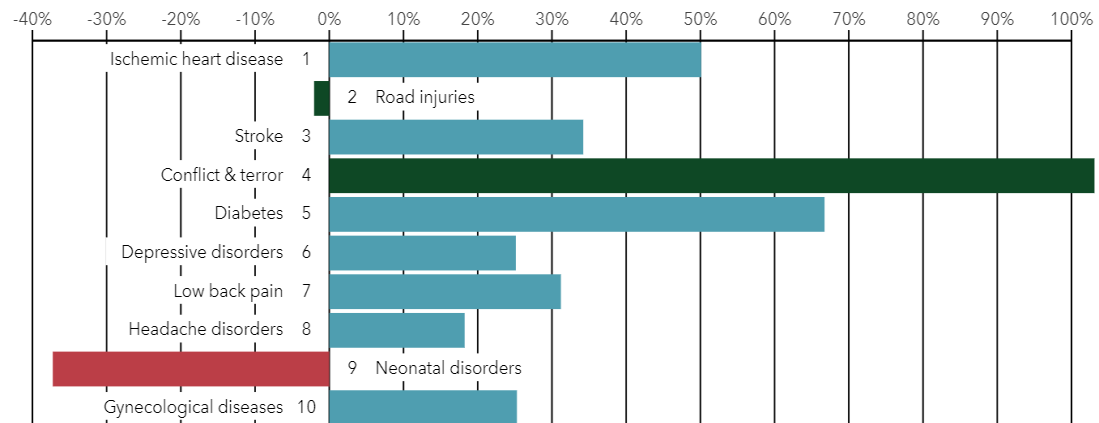
How well is this country or territory providing effective, essential health services?



The average rate of change was statistically significant for that time period, Dataset: The Universal Health Coverage (UHC) effective coverage index aims to represent service coverage across population health needs and how much these services could contribute to improved health.

What causes the most death and disability combined?

- Communicable, maternal, neonatal, and nutritional diseases
- Non-communicable diseases
- Injuries



### Top 10 causes of death and disability (DALYs) in 2019 and percent change 2009–2019, all ages combined

How do causes of death and disability compare to those in other locations? This table shows the top 10 causes of death and disability (DALYs). It can be used to compare DALYs across locations relative to the group average. Comparison locations were chosen based on socio-demographic indicators.

	Ischemic heart disease	Road injuries	Stroke	Diabetes	Conflict & terror	Neonatal disorders	Low back pain	Depressive disorders	Congenital defects	Chronic kidney disease
Libya	1	2	3	4	5	6	7	8	9	10
Comparison group mean (High-middle SDI)	1	10	4	5	144	11	2	9	18	25
Bahrain	2	6	3	1	132	7	5	4	11	8
Barbados	3	15	4	1	143	2	6	11	9	5
Jordan	1	9	3	4	129	2	7	8	5	6
Lebanon	1	15	5	2	22	3	6	4	7	13
Malaysia	1	4	2	5	152	9	6	10	18	7
Oman	1	2	3	4	169	5	6	7	10	11
Portugal	5	15	2	6	124	16	1	3	29	30
Türkiye	1	13	3	6	72	2	5	9	4	11

## Conclusions:

LNHS (Low- and Middle-Income Health Systems) exhibit subpar performance despite their apparent focus on public health welfare. The advancements witnessed in recent decades can largely be attributed to public initiatives, extending beyond the confines of the healthcare sector,

encompassing measures such as education enhancement and enhanced purchasing capabilities. Future progress is likely to encounter significant challenges in the absence of meticulous strategic planning founded on performance management and the adoption of objectives-based management principles, shifting away from the prevalent crisis management approach.

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