



## TWINNING CONTRACT

JO 21 ENI ST 01 22

# Strengthening the capacity of Jordan's Department of Statistics in terms of compilation, analysis and reporting of statistical data in line with International and European best practices

## MISSION REPORT

on

### Component 1

### Roadmap for the development of an integrated administrative data system in Jordan with pilots on Statistical Business registers (SBR) and population statistics

### Activity 1.4.1

### IT strategy with activity track

Mission carried out by

**Mr. Niels Jespersen**, Chief Adviser, Statistics Denmark

E-mail: njn@dst.dk

**Mr. Esben Holdt**, Head of Division, IT Management, Statistics Denmark

E-mail: eho@dst.dk

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**Authors' names, addresses, e-mails**

*Esben Holdt  
Head of Division  
IT Department  
Statistics Denmark  
Sejrøgade 11  
2100 Copenhagen  
Denmark  
Tel: + 45 404443 38  
Email: eho@dst.dk*

*Niels Jespersen  
Chief Advisor  
IT Department  
Statistics Denmark  
Sejrøgade 11  
2100 Copenhagen  
Denmark  
Tel: + 45 42429373  
Email: njn@dst.dk*

## Strengthening the capacity of Jordan's Department of Statistics

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## Strengthening the capacity of Jordan's Department of Statistics

### **List of Abbreviations**

- BC – Beneficiary Country
- CoP – General Population and Housing Census 2015
- DoS – Department of Statistics
- MS – Member State
- PL – Project Leader
- RTA – Resident Twinning Advisor
- SBR – Statistical Business Register
- STE – Short-Term Expert

## 1. General comments

This mission report was prepared within the Twinning Project "Strengthening the capacity of Jordan's Department of Statistics in terms of compilation, analysis and reporting of statistical data in line with International and European best practices".

This was the activity on formulating an IT Strategy, and the actions planned were carried out as planned. The IT Strategy was formulated in draft form during a series of workshops carried out by DoS IT staff and Twinning Project STE's. The Strategy will need further refinement in order to become the basis of planning for the years to come.

The draft IT Strategy consists of six transformation maps each with a timeline of the year 2023-2026. Only four transformation maps were populated during this mission. Dissemination and Information Security were assigned to subsequent missions allocated to those subjects.

The draft IT Strategy is presented in Annex 1

The Twinning Project STE's would like to express their sincere thanks to all officials and individuals met for the kind support and valuable information which they received during the stay in Jordan and which highly facilitated their work. The views and observations stated in this report are those of the STE's and do not necessarily correspond to the views of EU or Statistics Denmark.

## 2. Assessment and results

A standard model and method for building an IT strategy was presented (included in Annex 2) and discussed. With the presentation and a discussion of the current status of the IT environment inside DoS, work progressed through a series of workshops with the following content:

- Defining vision and track mapping within the framework of transformation maps
- Peer-to-peer activity on selected activity tracks in the IT strategy including Business case and assessment.:
  - Infrastructure – hardware and software
  - Dataflow standardization - and the corresponding IT platforms supporting the production process
  - Data management
  - IT Security (to be detailed in the mission on IT Security)
  - Dissemination and web platform (to be detailed in the mission about dissemination and web platform)

In addition to the draft IT Strategy, a set of major recommendations (presented in section 3) were developed and discussed.

On the final day of the mission, the draft results consisting of the It Strategy and the set of recommendations were presented to top management and discussed.

### 3. Conclusions and recommendations

- A major recommendation in the strategy is to modernize statistical production by standardizing and centralizing both data processing and data storage. This should be done by establishing a Data Management Center (DMC) that separates end user desktops from data storage and processing. The DMC is described and illustrated in Annex 2.
- Establishing the necessary IT environment for carrying out the Census-2025 will be a major effort in coming years. It is vital that IT finds the right balance between establishing IT for the Census and carrying out the other important tasks in the daily operation and implementing strategic changes,
- Another important recommendation is that a platform needs to be implemented supporting collaboration and knowledge sharing. This platform should be part of the Data Management Center.
- A common concern across all main areas, including Census-2025, is the transition to use services in MoDEE instead of establishing infrastructure and services inside DoS. In general, DoS should prepare the organization to manage the IT-environment using services inside MoDEE. This includes
  - Getting a good working relationship with the MoDEE organization as a service provider,
  - Testing the different relevant services that MoDEE provide thoroughly before fully migrating to these services,
  - Getting formal agreements with MoDEE for the use of services and service levels delivered.
- DoS should standardize on producing statistics using Python and R as the main tools, also on the business side. The tools should be made available in the DMC. Data should be stored and processed inside databases, not in files.
- Consult DESTATIS or other consortium member states with recent experience in doing a combined census for further advice on the Census-2025 issues.
- Ensure that the data collection platform developed for the Census-2025 will be cross-platform and supplemented by resources for DoS in-house IT development capacity building to warrant sustained outcomes also in other areas of work.
- As the Census-2025 schedule is rigorously packed and further action depends on approval, care should be taken to ensure imminent senior management assent to the IT Strategy process to enable further DoS elaboration and refinement, followed by implementation and detailed action plans along with sufficient resource allocation.

*Actions needed for moving forward as well as for preparing the next mission –add rows as needed.*

| Action   | Deadline | Responsible person     |
|--|----------|------------------------|
| Prioritize further work on the IT Strategy                                       |          | DoS                    |
| Decide on the way forward in establishing a census-2025 data collection platform |          | DoS, Senior Management |
| Begin detailed design work on a Data Management Center                           |          | DoS                    |
|  |          |                        |

## Annex 1. Terms of Reference

### Terms of Reference

#### EU Twinning Project JO 21 ENI ST 01 22

#### Component 1:

Roadmap for the development of an integrated administrative data system in Jordan with pilots on Statistical Business registers (SBR) and population statistics

#### Activity 1.4.1:

IT strategy with activity track

*Dates: 23-26 January 2023*

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Annex A. Program for the activity

Annex B: Mission report from the IT assessment mission

**List of abbreviations**

|     |                             |
|-----|-----------------------------|
| BC  | Beneficiary Country         |
| DoS | Department of Statistics    |
| ESS | European Statistical System |
| MS  | Member State                |
| RTA | Resident Twinning Advisor   |
| STE | Short Term Expert           |
| ToR | Term of References          |



## **0. Objective and Mandatory Results for the component**

### **Objective**

*To prepare a roadmap for the development of an integrated administrative data system for Jordan, and conduct pilot projects on creating an SBR and strengthening population statistics.*

As the development of a fully integrated administrative data system is a long-term project. The main focus of the Twinning project will be on specific pilot projects where the use of administrative records can address key challenges currently faced by the DoS. These pilot projects will constitute the first steps in rolling out a roadmap for the Jordanian statistical system by providing a template for expanding the use of administrative data across the wider statistical system over time. Specifically, the pilots for the Twinning project will focus on the development of a statistical business register (SBR) and improving the quality of population statistics.

In addition to improving population estimates, administrative data can also contribute to refining the scope of the 2025 General Population and Housing Census (COP) questionnaire, thereby freeing up resources in the DoS.

However, in order to integrate new administrative data sources the necessary technical infrastructure and security needs to be enhanced in order to better facilitate data transfers on an ongoing basis as well as ensure trust from data providers from partner institutions. Additionally, the internal data flow within the DoS will be reviewed, and recommendations will be made, as appropriate.

Recently the [Jordan Economic Modernization Vision 2030](#) was launched and “[Smart Jordan](#)” was identified as one of the eight Growth Drivers to implement the Economic Modernization Vision. The ‘Smart Jordan Driver’ includes seven sectors where data is one of them. This indicates the national interest to ensure constant and reliable data sources, and robust statistical systems that contribute to timely and informed policy making. It is expected that one of the measures that will be taken is to transform Jordan's Department of Statistics (DoS) into an interactive National Statistical Center (NSC).

Component 1 is sub-divided in five sub-components each with a Mandatory Results (MR) with indicators of achievements associated with the sub-component. This current mission is related MR 1.4.

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## **Mandatory results and indicators for achievement for each sub-component**

**Table 1: Mandatory results and indicators for achievement (IA) for each sub-components within Component 1: an integrated administrative data system for Jordan**

| <b>MR from the Twinning Fiche</b>  | <b>Indicator</b>   |
|--|--|
| <b>MR 1.1:</b> Compile an inventory of administrative data on business and households and an indicative roadmap for inclusion in an integrated system  | <p><b>Indicator 1.1.A:</b> Inventory of administrative data variables and detailed supporting metadata prepared</p> <p><b>Indicator 1.1.B:</b> Tentative roadmap prepared for inclusion of data in integrated system</p>   |
| <b>MR 1.2:</b> Pilot project to develop strategy for integrating administrative data sources for the purposes of creating an SBR   | <p><b>Indicator 1.2.A:</b> Administrative data sources identified and assessed and plan developed for integrating these with Census of Establishments (CoE) information in an SBR</p> <p><b>Indicator 1.2.B:</b> Documentation prepared on database structures and compliance with statistical standards, classifications (e.g. ISIC, Rev 4) etc. and use of common identifiers etc.</p> <p><b>Indicator 1.2.C:</b> Explore how SBS can benefit other statistical domains in the DoS</p> |
| <b>MR 1.3:</b> Undertake pilot project on how administrative records can be used to strengthen population statistics and inform framing of the 2025 CoP questionnaire  | <p><b>Indicator 1.3.A:</b> Inventory of data sources prepared and assessed and action plan for incorporation in DoS statistics developed</p> <p><b>Indicator 1.3.B:</b> Methodology developed for incorporating administrative data</p> <p><b>Indicator 1.3.C:</b> Documentation prepared on statistical standards, classifications, identifiers, mapping etc.</p> <p><b>Indicator 1.3.D:</b> Review of how administrative data can assist in developing the COP 2025 questionnaires</p> |
| <b>MR 1.4:</b> Develop strategy for ensuring flows of data between the DoS and counterpart institutions are established on an ongoing basis for pilot projects above   | <p><b>Indicator 1.4.A:</b> Review of technical infrastructure for data transfers and action plan prepared based on 1.1 and 1.2 above</p> <p><b>Indicator 1.4.B:</b> MoUs agreed between DoS and partner institutions</p> <p><b>Indicator 1.4.C:</b> Agreement on statistical standards, classifications, identifiers etc. between DoS and partner institutions</p> <p><b>Indicator 1.4.D:</b> Review of data flows within the DoS</p>  |
| <b>MR 1.5:</b> Implement training programmes and develop training materials both within DoS and with partner institutions on the use of administrative records for statistical purposes, based on pilot projects above | <p><b>Indicator 1.5.A:</b> Detailed documentation on statistical standards, classifications, identifiers etc. developed.</p> <p><b>Indicator 1.5.B:</b> Comprehensive training programs and workshops provided for DoS staff and partner institutions</p> <p><b>Indicator 1.5.C:</b> DoS leadership role in ensuring proper statistical standards applied across the Jordanian statistical system reinforced.</p>  |

## 1. Lesson learned from the assessment of current situation

In October 2022, MS experts from Denmark carried out an IT assessment mission of the current for data flow both internally and with stakeholders. The full mission report is provided in Annex B.

### **Observations:**

- The network at DoS is separated into two networks, the DoS network and the Census Network.
- Funding for updating the IT infrastructure is highly needed. This includes passive infrastructure, such as cabling and active infrastructure, such as firewall, switches and servers.
- Technical IT-security needs improvement. Only a firewall and antivirus protection are the technical security measures currently implemented.
- Logical information security such as access management needs to be standardized and formalized. There is no formal organization regarding the information security and no security officer. In addition, awareness training of staff is not implemented.
- Data collection from other government bodies in Jordan must go through a government secure network operated by the Ministry of Digital Economy and Entrepreneurship (MoDEE). Two types of communications can be allowed: MQ messaging and database-to-database connections.
- As of today, receiving data from administrative sources is either Excel sheets transmitted by MQ and via csv files, which are stored in a staging database in a Postgres database or a database connection is used to receive data into an ETL tool. Apache Airflow is used for designing data.
- MoDEE operates a countrywide Microsoft Active Directory, where government resources including users are managed. In addition, MoDEE also provides a private cloud with a number of services (including Microsoft SQL Server and Oracle Database) and storage facilities. Some of the services are free to use for government bodies such as DoS whereas others need payment.
- DoS will need to decide if they want to base the future resource procurement on services from the MoDEE private cloud or from in-house hosted equipment or a combination of the two. This is a dilemma for DoS which is also addressed later in this report.
- DoS has a goal of conducting a hybrid census in 2025 i.e. a census combining data from field surveys with register data from administrative sources.
- Currently, almost all data collected today are through surveys. A section of employees in IT in DoS work with implementing surveys using Microsoft .NET Technology.

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- DoS is considering the use of more Open Source tools, such as the Postgres database and Python. In this consideration, it has been identified important to assess advantages/drawbacks.
- The Oracle database is being used and is running on an Oracle Solaris Platform. The virtualization/partitioning features of Oracle Solaris is being used to limit Oracle hardware usage to the licensed amount of CPU's.

### **Recommendations:**

#### **Infrastructure:**

Perform a thorough assessment of the current infrastructure set up, the network, security devices, servers and other hardware. Based on the as-is description, develop the design of the future and sustainable infrastructure. Follow up with a list of needed purchases, upgrades and updates and the estimated costs for this. It is imperative that one or more funding partners for the future infrastructure be identified.

#### **Communication between subject matter units and IT:**

As shown by Gartner, cross-business unit initiatives have a high success rate only when a deliberately designed dialogue framework for communication between the business side and IT exists. The experts recommends that a model is devised for frequent and reliable meetings on relevant issues between the business side, i.e. the subject matter units at DoS, and IT.

#### **Information security:**

Construct a formal organization for managing information security. The experts wish to emphasize that this area is very broad as it also covers privacy and GDPR topics. At least, there should be a formal role for an information security officer. This officer should preferably refer not to the head of IT / IT director, but to a top or senior manager in the organization.

#### **Dataflow standardization:**

A standardized way to collect data and to move data in stages from raw input form to publication-ready data should be designed. It should focus on standardization and on providing a secure way to handle data. Standard privilege sets and standard procedures for assigning privileges to end users should be part of this effort.

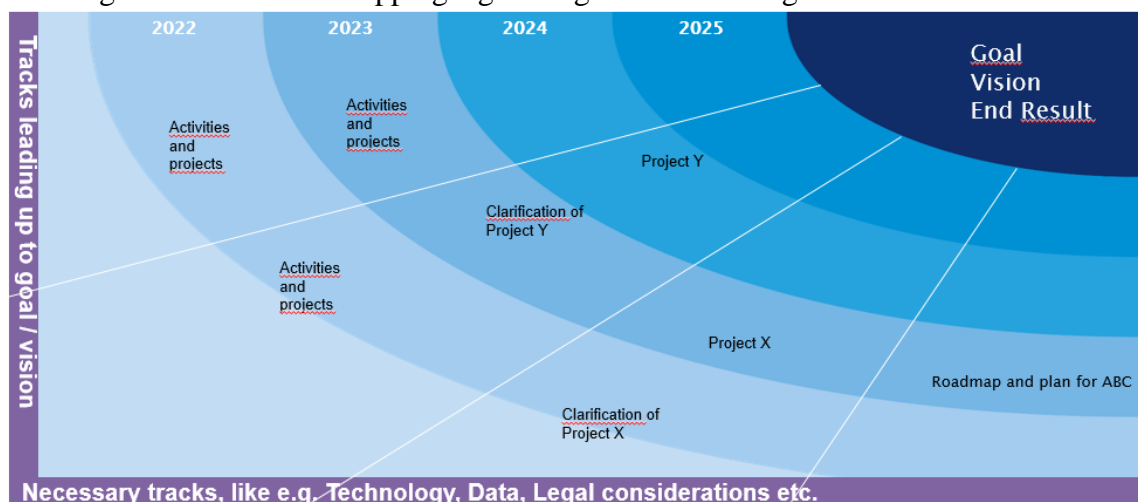
#### **Technology/capability/skills map:**

Technologies used for operating the IT-platform in DoS should be enumerated and competencies/skills in each technology should be assessed for the employees. See an example of a talent matrix elsewhere in this report. The list of technologies should also be assessed with a focus on identifying technologies/products that may be phased out.

## 2. Purpose of the activity

The purpose of this activity is:

- Presentation of a standard model and method for building an IT strategy;
- Defining vision and track mapping e.g. taking outset in the figure below



- Peer-to-peer activity on selected activity tracks in the IT strategy including Business case and assessment e.g.:
  - Infrastructure – hardware and software
  - Dataflow standardization - and the corresponding IT platforms supporting the production process
  - Role and responsibilities of Directorate of Electronic Transformation and Information Technology
  - Services provided by the Directorate of Electronic Transformation and Information Technology
  - Communication between subject matter units and IT as well as with counterpart institutions
  - Technology/capability/skills

## 3. Expected output of the activity

- Activity report;
- A draft IT strategy supporting the goals of MR 1.4 with regard to data flows within DoS as well as between the DoS and counterpart institutions;

## 4. Participants

### ***MS Short Term Experts (STE's)***

- ***Mr. Niels Jespersen (DK)***  
Chief Adviser in the IT Department, Section for Strategy, Architecture, Governance and IT Security.

Mr. Jespersen has more than 20 years experiences in IT and has since 2008 at Statistics Denmark. Mr. Jespersen main responsibility are database technologies and architecture for IT systems delivering statistical registers. Furthermore, Mr. Jespersen has extensive knowledge on open source software, integrating high performance computing into statistical production; delivering and maintaining platforms for advanced analytical use. Finally, Mr. Jespersen are on an ongoing basis contribute to Statistics Denmark's IT Strategy, such as development, planning, monitoring, adjustment etc.

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- ***Mr. Esben Holdt (DK)***  
Head of Division, IT Management.

Mr. Esben Holdt has more than 20 years experiences in IT and has since 2020 been member of IT Management team and is heading and is currently heading a large development working mainly with data sourcing systems. Furthermore, Mr. Holdt has extensive knowledge on IT Management, IT Strategy, Software Development Information Security, IT Operations, and IT recruitment.

E-Mail: [eho@dst.dk](mailto:eho@dst.dk)

### ***DoS experts – Tentative list***

- **Mr. Jaffaar Ababneh**, Director of data management Directory, DoS (Component Leader)
- **Ms. Ahlam Al-Rosan**, Director of Electronic Transformation and Information Technology
- **Mr. Hussam Abu Shukur**, Head of Electronic Dissemination
- **Mr. Abdalwahed ALHaraizeh**, Statistical Business Register Division SBR
- **Mr. Mohammad Omari**, Administrative Data Division
- **Mr. Mohammad Sakhrieh**, Network Engineer
- **Mr. Mohammad Shatnawi**, Programmer
- **Mr. Mostafa Hiyari**, Programmer
- **Ms. Rania AbuDhaim**, Head of Programming and Analysis Division
- **Mr. Safwat Radaideh**, Head of Administrative Data Department - Poverty
- **Mr. Yasir Nasrallah**, Head of Technical Support Division

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### ***Twining team***

- **Eng. Mohammad Khalaf**, Director of Sustainable Development Unit, Department of Statistics (DoS), Jordan (RTA Counterpart)
- **Dr. Charlotte Nielsen** (RTA)
- **Ms. Hala Abdallat** (RTA Assistant)
- **Ms. Zaina Amireh** (Language Assistant)

## **5. Resources**

Translation and interpretation will be provide throughout the activity. Translation will be provided as sequential translation. Therefore, please keep frequent pauses when presenting and talking allowing our project translator to provide as accurate a translation as possible.

All material will provided in both English and Arabic before, under and after the Mission. However, this means that any background material and presentation should be mailed to RTA ([cln@ds.dk](mailto:cln@ds.dk)) no later than a week before the week before the mission take place

The venue will the Meeting room at DoS.

## **6. Overall agenda**

- **Day 1:** Presentation of a standard model and method for building an IT strategy and defining tracks in the IT Strategy;
- **Day 2:** Peer-to-peer activity on selected activity tracks in the IT strategy including business case and assessment – part 1
- **Day 3:** Peer-to-peer activity on selected activity tracks in the IT strategy including business case and assessment – part 2
- **Day 4:** Summing up and conclusion

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## **Annex 2. Presentation produced during mission, including transformation maps**

The IT Strategy and other presentations are attached as a PowerPoint Presentation "DoS Strategy Process TM.pptx"



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**Annex 3: Programme for the mission**

| <b>Date</b>                  | <b>Time</b>                             | <b>Venue</b>  | <b>Topic</b>  |
|------------------------------|---|---------------|---|
| Monday<br>23 January 2023    | Meeting room<br>– 1 <sup>st</sup> floor | 09:00 – 09:15 | Welcoming, acquaintance, program of the week (Ms. Ahlam Al-Rosan and Charlotte Nielsen)   |
|                              |   | 09:15 – 10:15 | <b>MS and BC:</b> Following up and clarification from last mission (Moderator Mr. Niels Jespersen)                              |
|                              |   | 10:15 – 11:00 | <b>MS:</b> Introduction to model and method for building an IT strategy (Mr. Esben Holdt)                                       |
|                              |   | 11:15 – 11:30 | Coffee break  |
|                              |   | 11:30 – 12:30 | <b>MS and BC:</b> Defining tracks to be included in DOS's IT Strategy – part 1  |
|                              |   | 12:30 – 13:30 | Lunch break   |
|                              |   | 13:30 – 15:00 | <b>MS and BC:</b> Defining tracks to be included in DOS's IT Strategy – part 2  |
| Tuesday<br>24 January 2023   | Meeting room<br>– 1 <sup>st</sup> floor | 09:00 – 09:30 | <b>MS:</b> Summary and conclusion from day 1  |
|                              |   | 09:30 - 12:00 | <b>MS:</b> Introduction to business case and risk assessment  |
|                              |   | 12:00 – 13:00 | Lunch break   |
|                              |   | 13:00 – 15:00 | <b>MS and BC:</b> For selected IT tracks: Business case and risk assessment – part 1  |
| Wednesday<br>25 January 2023 | Meeting room<br>– 1 <sup>st</sup> floor | 09:00 – 09:30 | <b>MS:</b> Summary and conclusion from day 2  |
|                              |   | 09:30 – 12:00 | <b>MS and BC:</b> For selected IT tracks: Business case and risk assessment – part 2  |
|                              |   | 12:00 – 13:00 | Lunch break   |
|                              |   | 13:00 – 15:00 | <b>MS and BC:</b> For selected IT tracks: Business case and risk assessment – part 3  |
| Thursday<br>26 January 2023  | Meeting room<br>– 1 <sup>st</sup> floor | 09:00 – 09:30 | <b>MS:</b> Summary and conclusion from day 3  |
|                              |   | 09:30 - 12:00 | <b>MS and BC:</b> Summarizing the results and next steps  |
|                              |   | 12:00 – 13:00 | Lunch break   |
|                              |   | 13:00 – 13:30 | <b>MS and BC:</b> Presentation of results for the management  |
|                              |   | 13:30 – 15:00 | <b>MS and BC:</b> Adjusting results based on management input, adjusting work plan, evaluation of the mission and final remarks |

## Annex 3. Persons met

### MS Short Term Experts (STE's)

- **Mr. Niels Jespersen (DK)**  
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Mr. Jespersen has more than 20 years experiences in IT and has since 2008 at Statistics Denmark. Mr. Jespersen main responsibility are database technologies and architecture for IT systems delivering statistical registers. Furthermore, Mr. Jespersen has extensive knowledge on open source software, integrating high performance computing into statistical production; delivering and maintaining platforms for advanced analytical use. Finally, Mr. Jespersen are on an ongoing basis contribute to Statistics Denmark's IT Strategy, such as development, planning, monitoring, adjustment etc.

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- **Mr. Yasir Nasrallah**, Head of Technical Support Division
- **Ms. Alaa Abu-Jamal**, GIS
- **Ms. Suhad Haddad**, GIS

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