

Developing an IT strategy for DoS Niels Jespersen, Esben Holdt, Amman, January 2023



Day 1 - Introduction



IT strategy: the end product

What kind of product are you aiming for?
A publication / a web page / a document ?



GANMARKS Statistik It-strategi 2018-2022

- IT strategy of Statistics Denmark
- Similar to Business Strategy in format
- Contains transformation maps and text

120

- Publication in physical form
- Posted on dst.dk
- Can be downloaded as a PDF document

Strategies in Statistics Denmark

https://www.dst.dk/en/OmDS/strategi-og-kvalitet

Strategies – Overall Strategy, Big Data, IT/digitalization and Communication/Dissemination

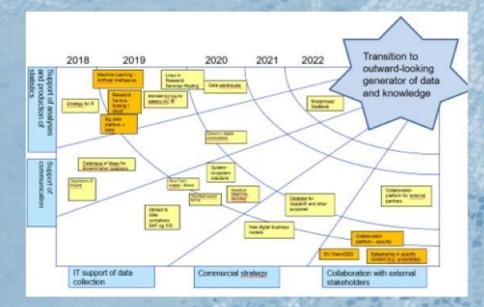




IT Strategy in Statistics Denmark

Consists of:

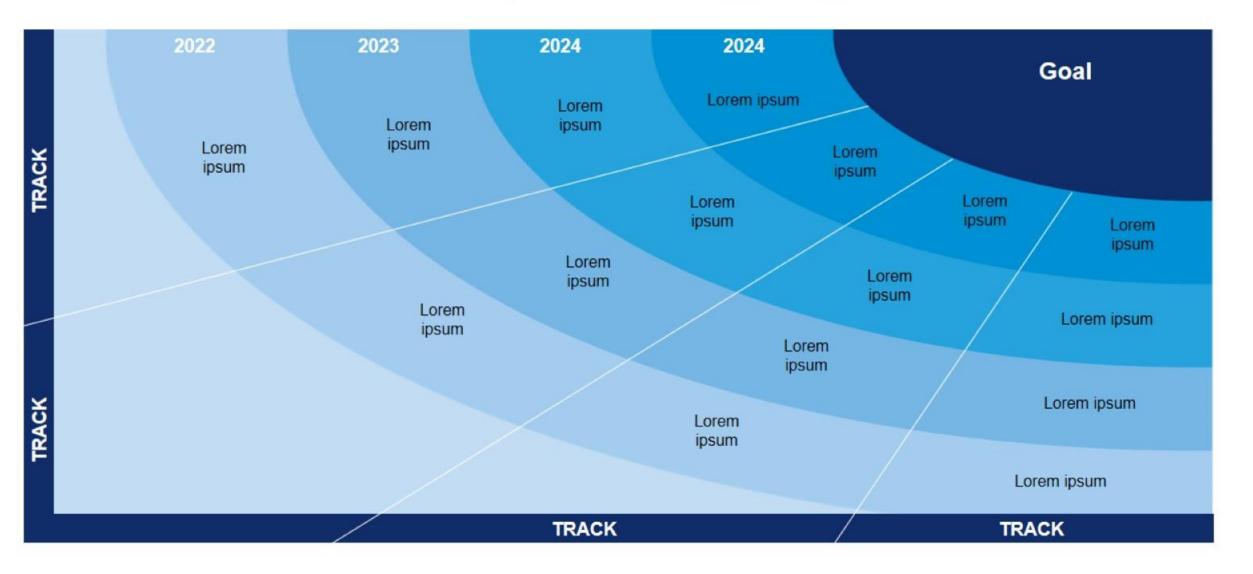
- Transformation Maps
- A document with more thorough descriptions



Nedenstående tabel er en oversigt over de indsatser, som indgår i It-strategi 2018-2022 og egner sig til læsning sammen med de mere visuelt indrettede transformation maps.

Hovedtema	Område	Indsats	Hvornår påbegyn- des (årstal)	For- slag fra el. an- svar- lig	Beskrivelse
Udadvendt data- og vidensgenera- tor	analyser og stati- stikproduktion	Bigdata miljø	2018-2019	BGC	Etablering af bigdata milje Microsoft Azure Cloud Måske som en hybrid løs ning med R frontend i lo kalt miljø.
		Linux i FSE hosting	2019-2020	BGC	Forskerne skal have mulig hed for at få etableret Linux miljøer under FSE hosting.
		FSE hosting i cloud	2019	BGC	Som en særlig strategisk indsats undersøges det med inddragelse af alle relevan te nærter i DST, hvordar

Transformation map / strategic goals



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The Vision / Goal is in focus



- Your starting point should be the Vision / The goal / The end result that you desire
- Along with this you have an overview of the major goals and milestones
- You can also describe the different tracks needed to achieve the goals. They can be related to technology, HR-ressources, finances & funding, security etc.

Don't forget



There is no single best way to do it

Some form of a written strategy is better that no strategy

A methodology or framework provides a shared language for describing the strategy and the vision

You must get people on board - "Culture eats strategy for breakfast"







Recap Day 1



- Introduction to IT strategy process with transformation maps
- Identification and prioritization of 6 potential transformation areas:
- Infrastructure
- Data Flow
- Data Management
- Census-25 (top priority, but depending on previous)
- Information Security
- Data Dissemination
- Discussion of MoDEE Services and potential challenges













Agenda Day 2



- Continue working on transformation maps
 - Go more into detail with components of Data Management Center
- Discuss business case template
- Assess infrastructure readiness for StatBus setup next week











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Recap day 2

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- Input for two further transformation maps
- Discussion of details of Data Management Center setup
- Assessment of infrastructure readiness for StatBus setup next week













Agenda Day 3



- Join output from prerequisite transformation maps to transformation map for Census-25
- Discuss business case template
- Possibly work on information security transformation map

















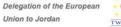


Recap Day 3



- Join output from prerequisite transformation maps to transformation map for Census-25
- Discuss business case template
- Discuss general Census-25 issues











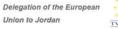


Agenda Day 4



- Discuss Mission Output: Draft recommendations and transformation maps
- Present Mission Output: Draft recommendations and transformation maps
- Wrap-up















IT Strategy Draft Mission Output 1.4.1 DoS IT, Twinning Project STE's Niels Jespersen & Esben Holdt

Mission Output

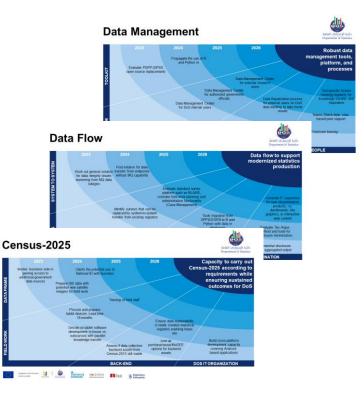
Recommendations

- Joint work by DoS IT staff and Twinning Project STE's
- Current situation as starting point
- Further refinement needed

Transformation Maps

- Timeline 2023-2026
- Six areas identified, four transformation maps populated during this mission
- Dissemination and Information Security assigned to subsequent missions









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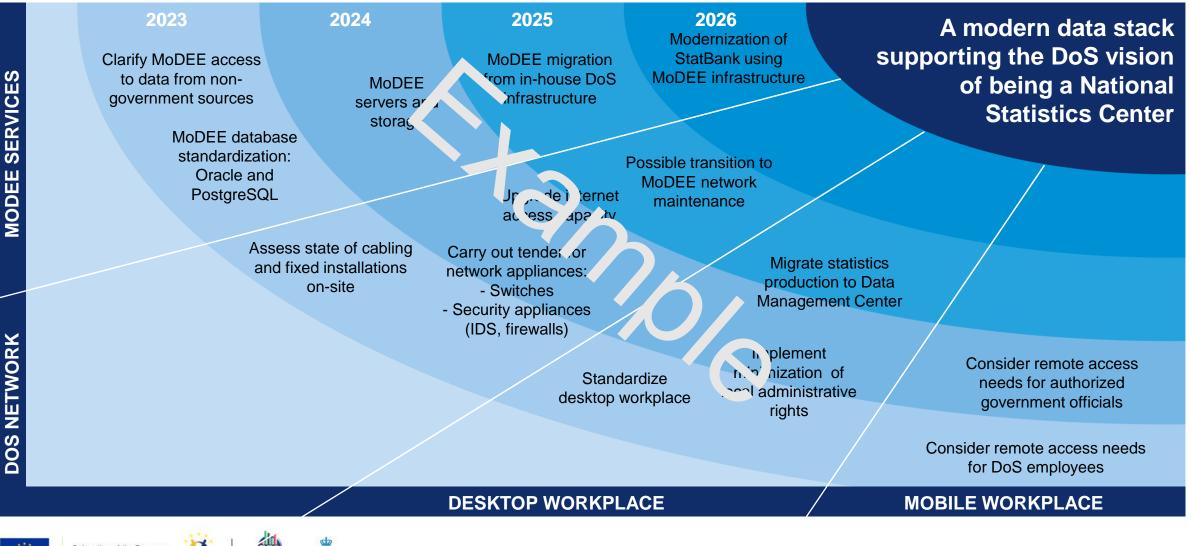


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Infrastructure





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Draft Recommendations



Introduction



- The mission has in collaboration created a draft IT Strategy for DoS. The work has been done with the vision of DoS as the final goal and taken the current situation as its starting point. The IT Strategy describes the steps needed to fulfil the final goal,
- It must be emphasized that the strategy is not a detailed work plan and that the activities in the strategy need further refinement to be detailed enough for actual implementation.



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 in more detail later,
- 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.



Recommendations



- 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.



Recommendations



- 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 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.





Draft Transformation Maps



Infrastructure



	2023 Clarify MoDEE access to data from non- government sources MoDEE data	MoDEE servers and storage	2025 MoDEE migration from in-house DoS infrastructure	2026 Modernization of StatBank using MoDEE infrastructure		A modern data stack porting the DoS vision of being a National Statistics Center
		nd QL ssess state of cabling nd fixed installations on-site	Upgrade internet access capacity Carry out tender for network appliances: - Switches - Security appliances (IDS, firewalls)	produ	ate statistics action to Data gement Center	
			Stand	Implem ardize minimizati vorkplace local admini rights	ion of	Consider remote access needs for authorized government officials Consider remote access needs for DoS employees
			DESKTOP WORKPL	ACE	M	OBILE WORKPLACE
De	elegation of the European		TATIS	atistics		

MODEE SERVICES

DOS NETWORK





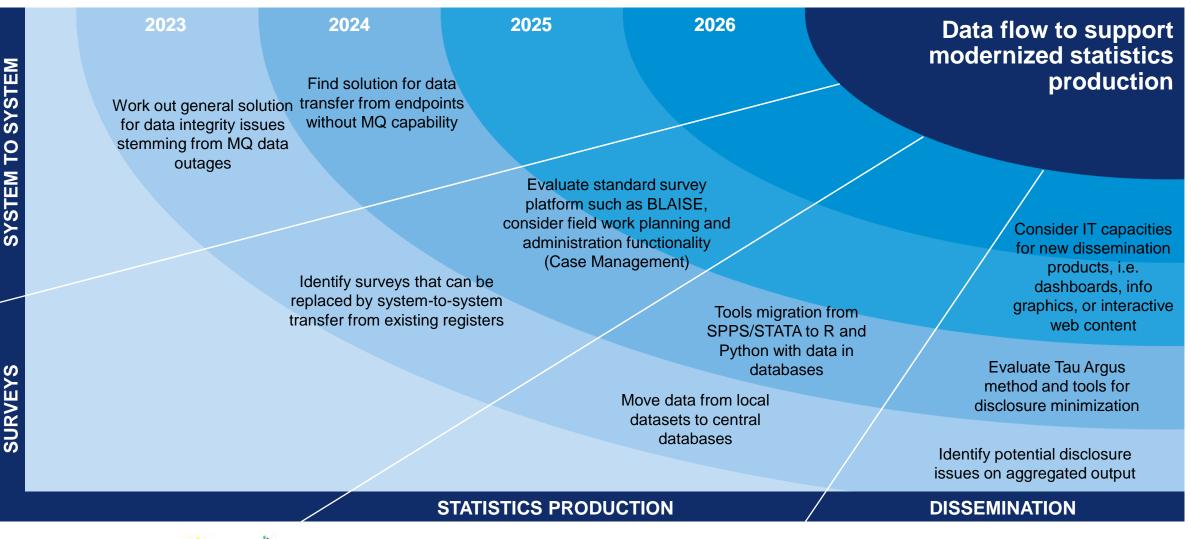
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Data Flow















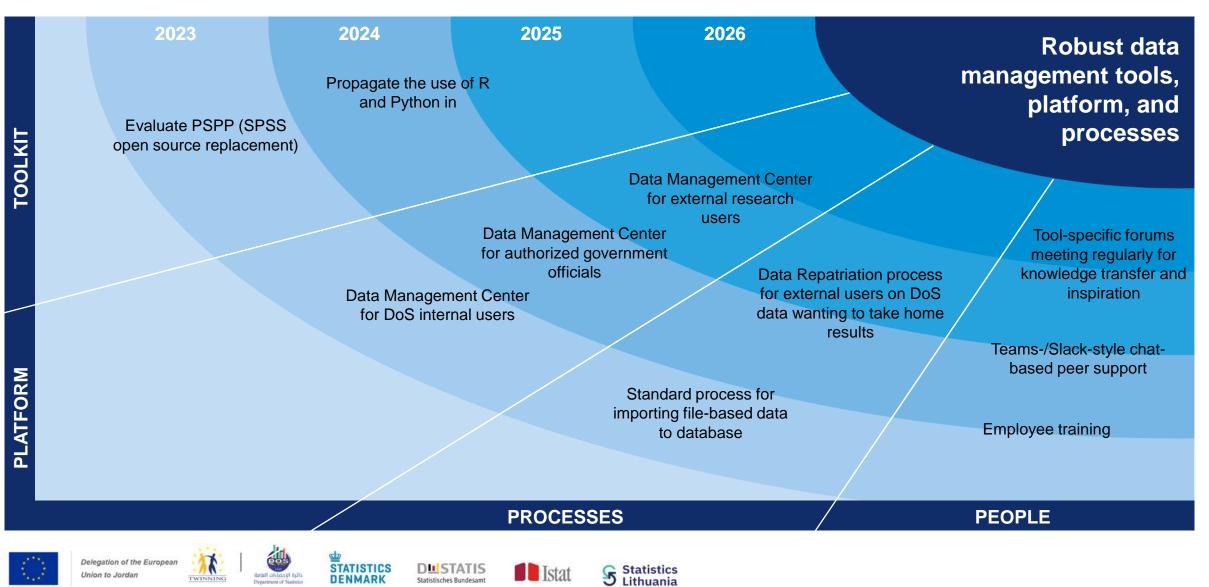
Data Management

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Data Management Center (DMC)



- The DMC centralizes data, statistical tools and computing power
 - Data cannot be copied from the DMC to desktop pc's, ensuring that statistical production is not dependent on a single desktop
- Statisticians connect to a workplace inside the DMC using remote desktop
- Data Science work can take place alongside statistical production
- Tools standardized on SQL, R, Python
- Enough computing power (CPU, RAM) for all production processes.



Externa user

DOS User

Data Sources





Internal data Management Center

programs and

documentatio

External data

Management Center

programs and

documentation

Aggregated processed data copied

Compute power and software tools, eq R/Pvthon

> Databases, eo Statbus and

> > Census

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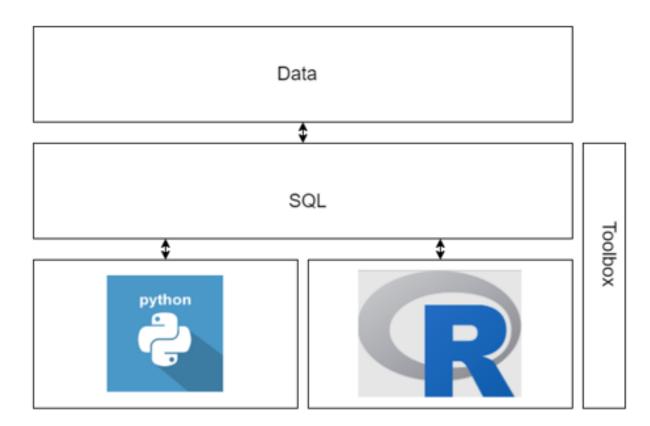
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Modern toolbox







Census-2025

Department of Statistics

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RAME	2023 Involve business side in gaining access to additional government data sources	2024 Clarify the potential National ID with bu Prepare GIS data with potential new satellite		2026	Capacity to carry out Census-2025 according to requirements while ensuring sustained outcomes for DoS
DATA FRAME		imagery for field work	Training of field staff		
		Procure and prepare tablet devices. Lead time 18 months.		Ensure data sustainat	
VORK		Decide on tablet softwar development in-house ve outsourced with paralle knowledge transfer	s.	in newly created statis registers enabling fut use Line up	
FIELD WORK			Assess if data collection backend assets from Census-2015 still viable	purchase/reuse/MoDEE options for backend assets	development capacity covering Android- based applications
			BACK-END		DOS IT ORGANIZATION
E.	Delegation of the European Union to Jordan	Ander Ottos y (aprils	Istat Statistic		

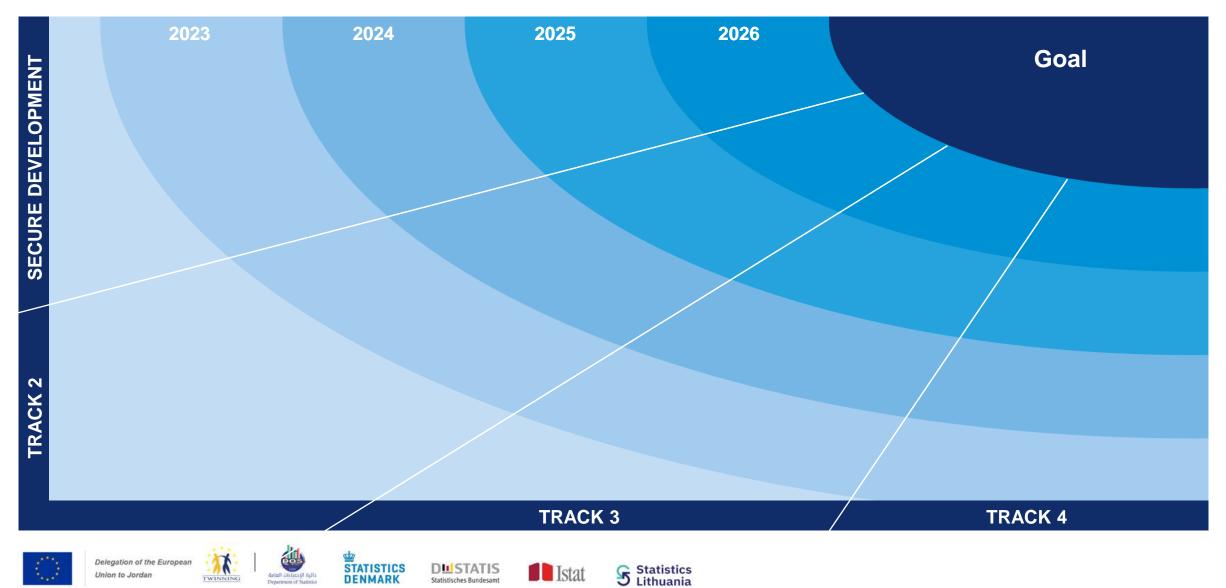
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Dissemination



