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Department of Statistics

Developing an IT strategy for DoS

Niels Jespersen, Esben Holdt, Amman, January 2023





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Day 1 - Introduction



IT strategy: the end product

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



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

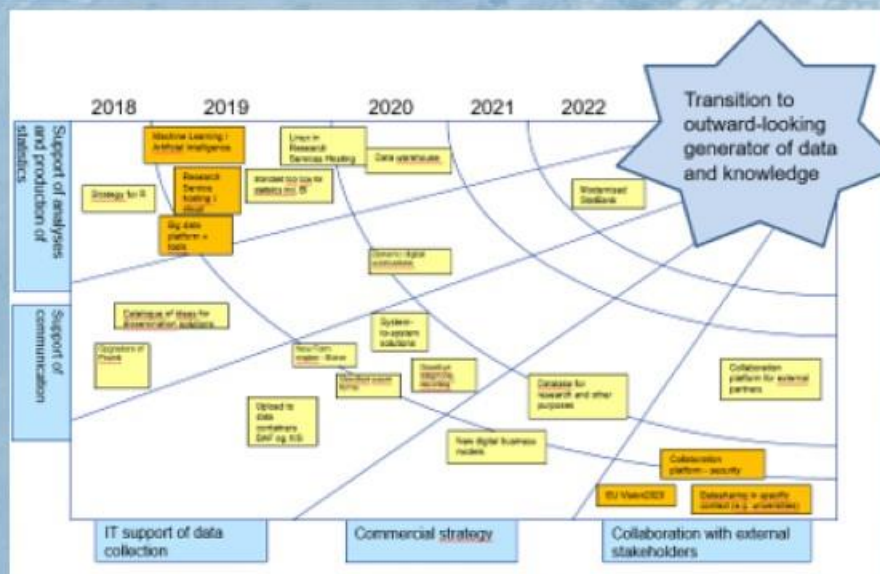
Strategies – Overall Strategy, Big Data, IT/digitalization and Communication/Dissemination



IT Strategy in Statistics Denmark

Consists of:

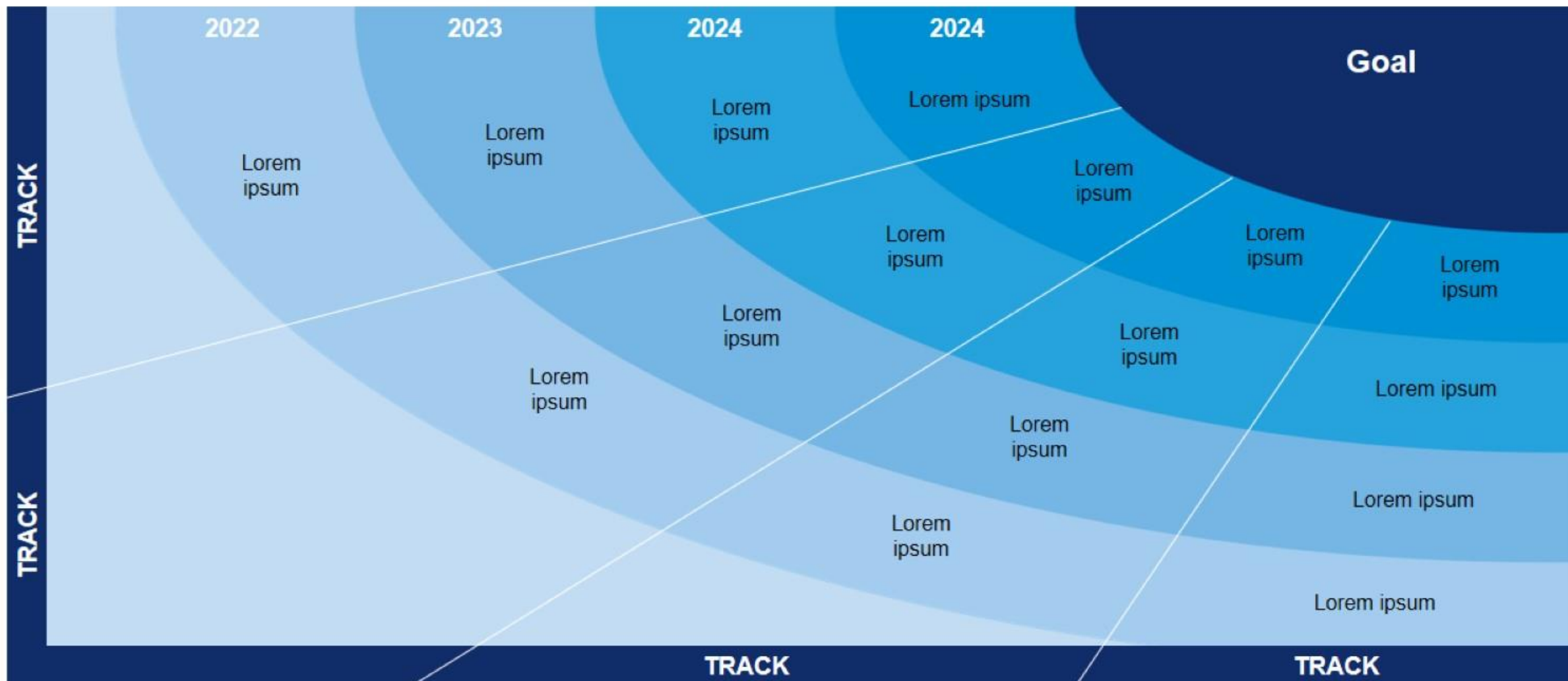
- Transformation Maps
- A document with more thorough descriptions



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 påbegyndes (årstal)	For-slag fra el. ansvarlig	Beskrivelse
Udadvendt data- og vidensgenera- tor	Understøttelse af analyser og statistikproduktion	Bigdata miljø	2018-2019	BGC	Etablering af bigdata miljø i Microsoft Azure Cloud. Måske som en hybrid løsning med R frontend i lokalt miljø.
		Linux i FSE hosting	2019-2020	BGC	Forskerne skal have mulighed 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 relevante parter i DST hvordan

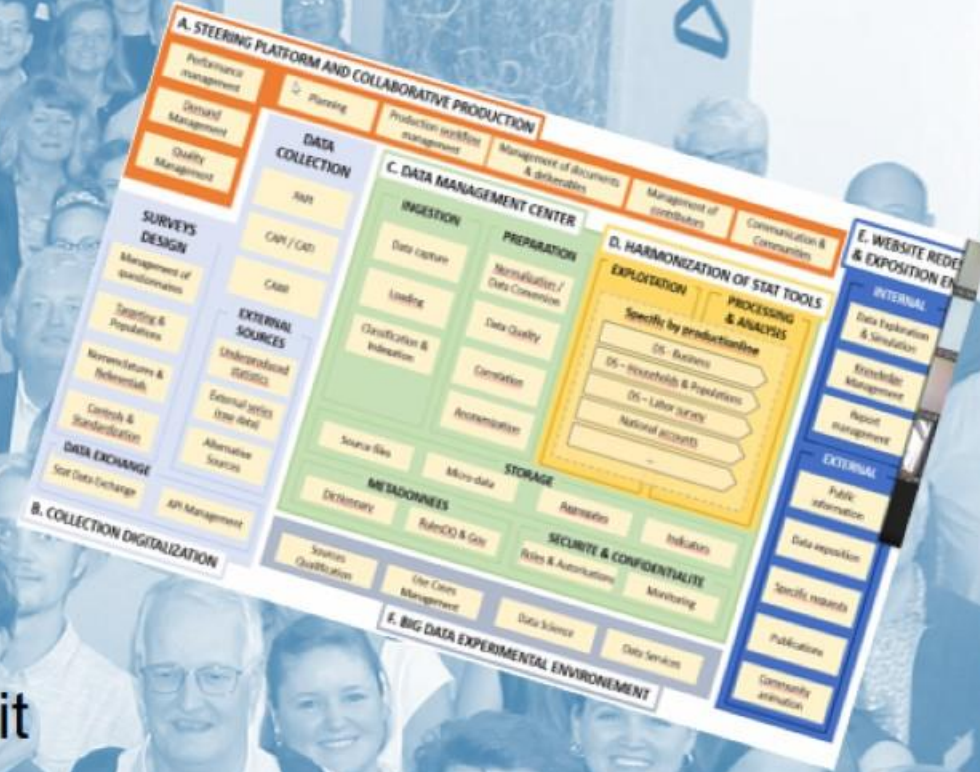
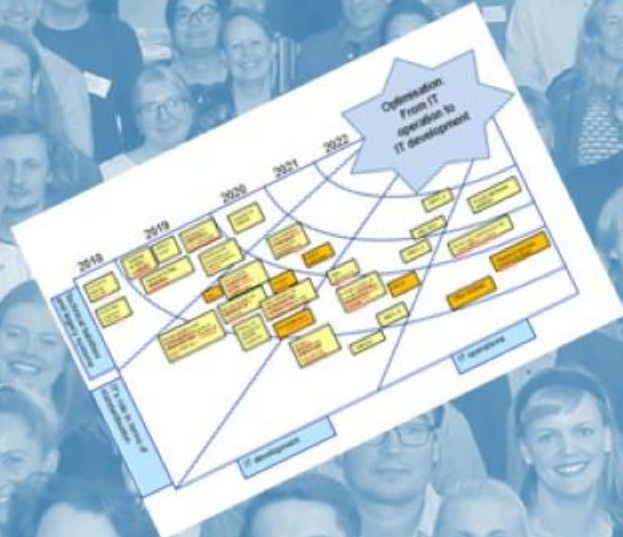
Transformation map / strategic goals



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-resources, finances & funding, security*** etc.

Don't forget



- There is no single best way to do it
- Some form of a written strategy is better than 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”**



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Day 2





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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Day 3





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Recap day 2

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



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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



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Day 4



Recap Day 3



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



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Agenda Day 4

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



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IT Strategy Draft Mission Output 1.4.1

DoS IT, Twinning Project STE's Niels Jespersen & Esben Holdt



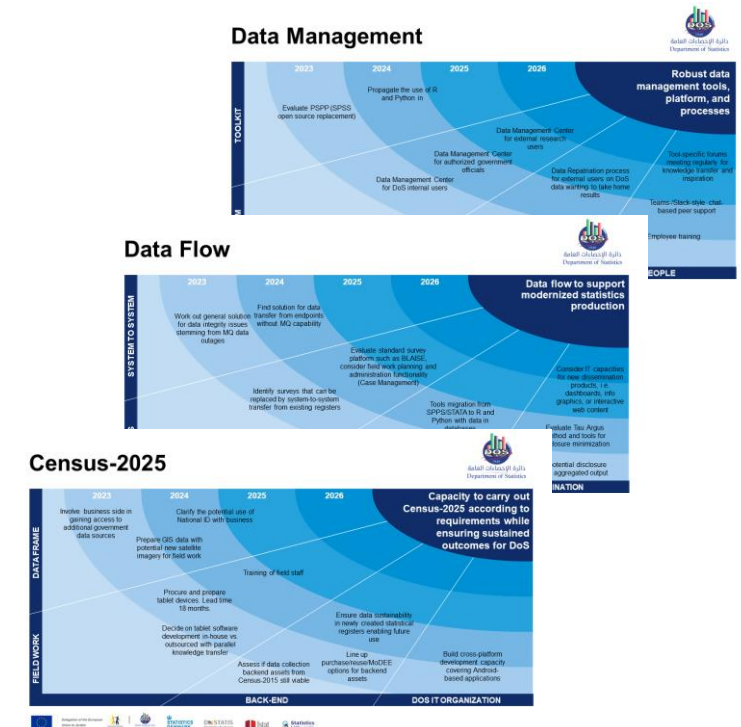
Mission Output

Recommendations

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

Transformation Maps

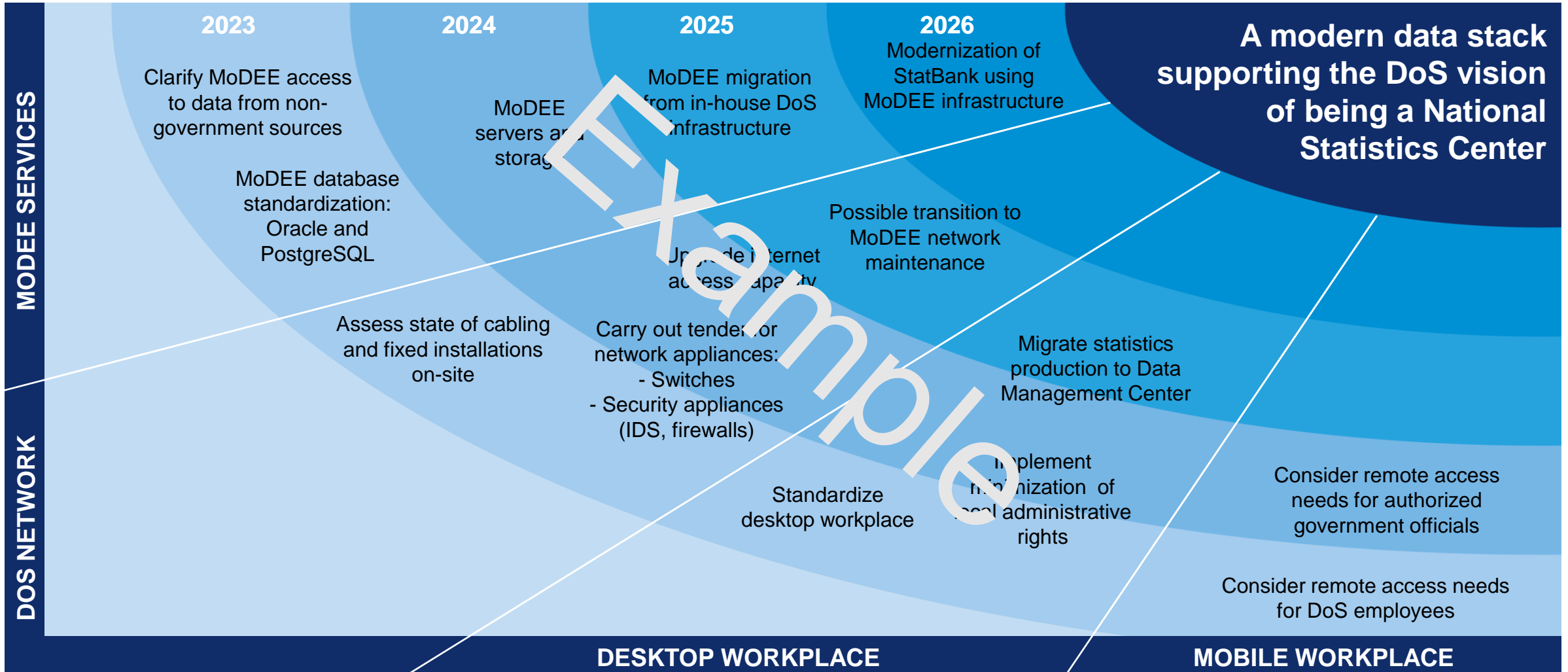
- Timeline 2023-2026
- Six areas identified, four transformation maps populated during this mission
- Dissemination and Information Security assigned to subsequent missions



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.



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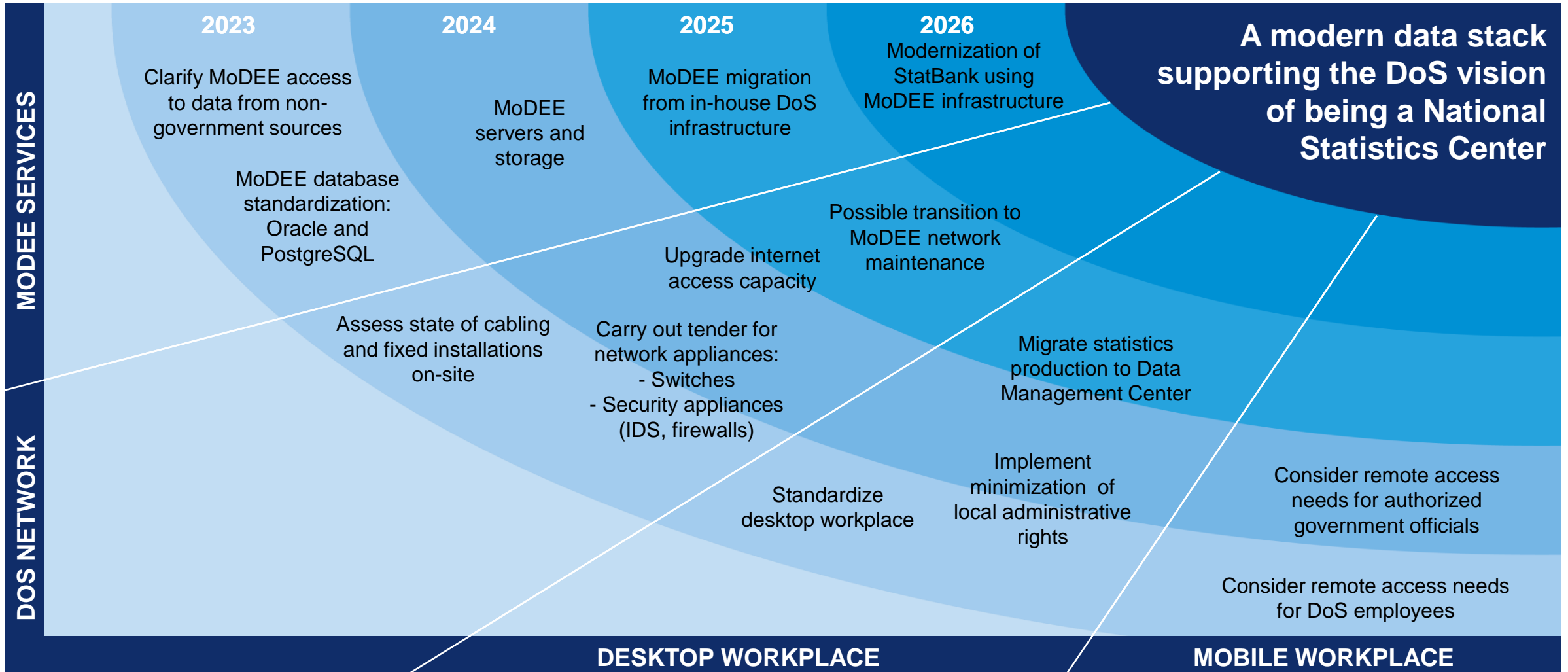
Draft Transformation Maps



Infrastructure



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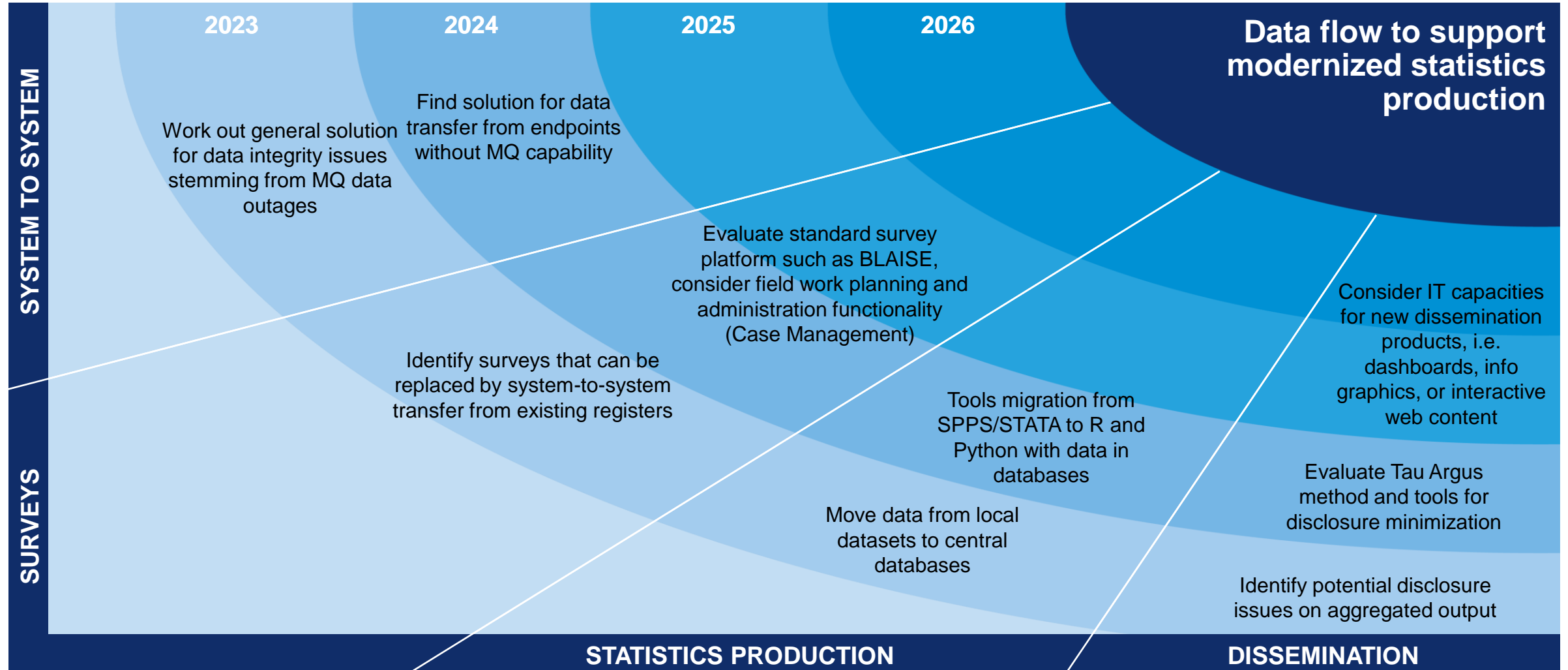
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Data Flow



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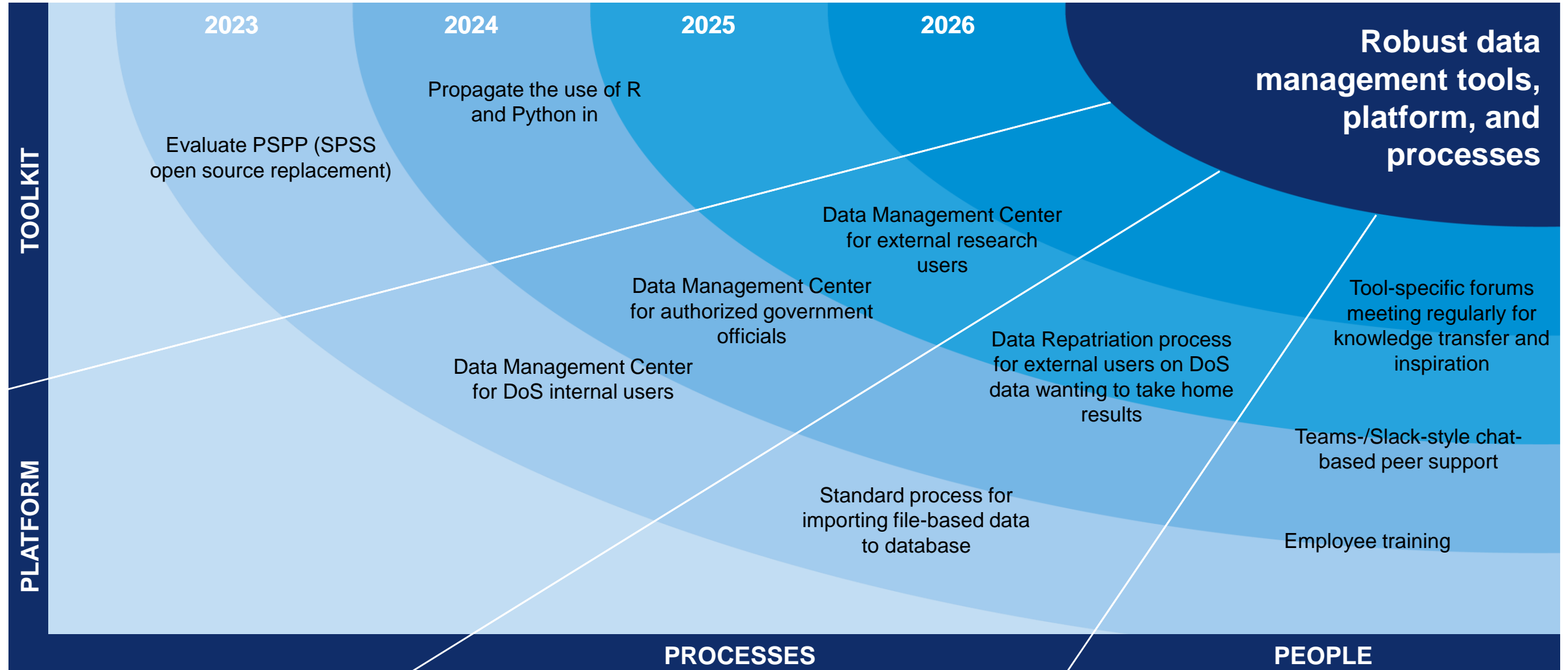
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Data Management



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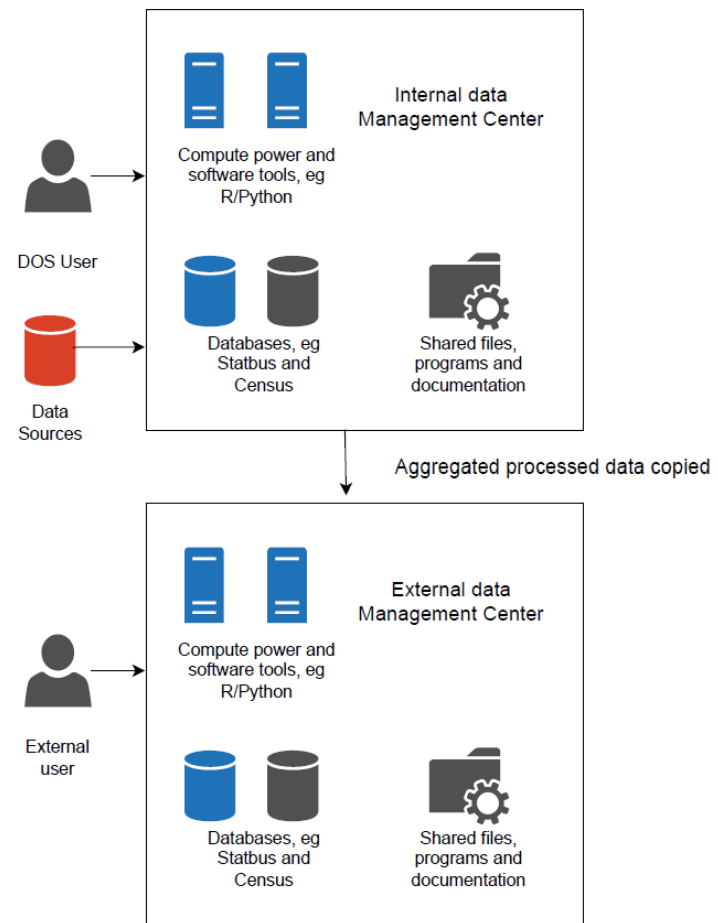


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Data Management Center (DMC)



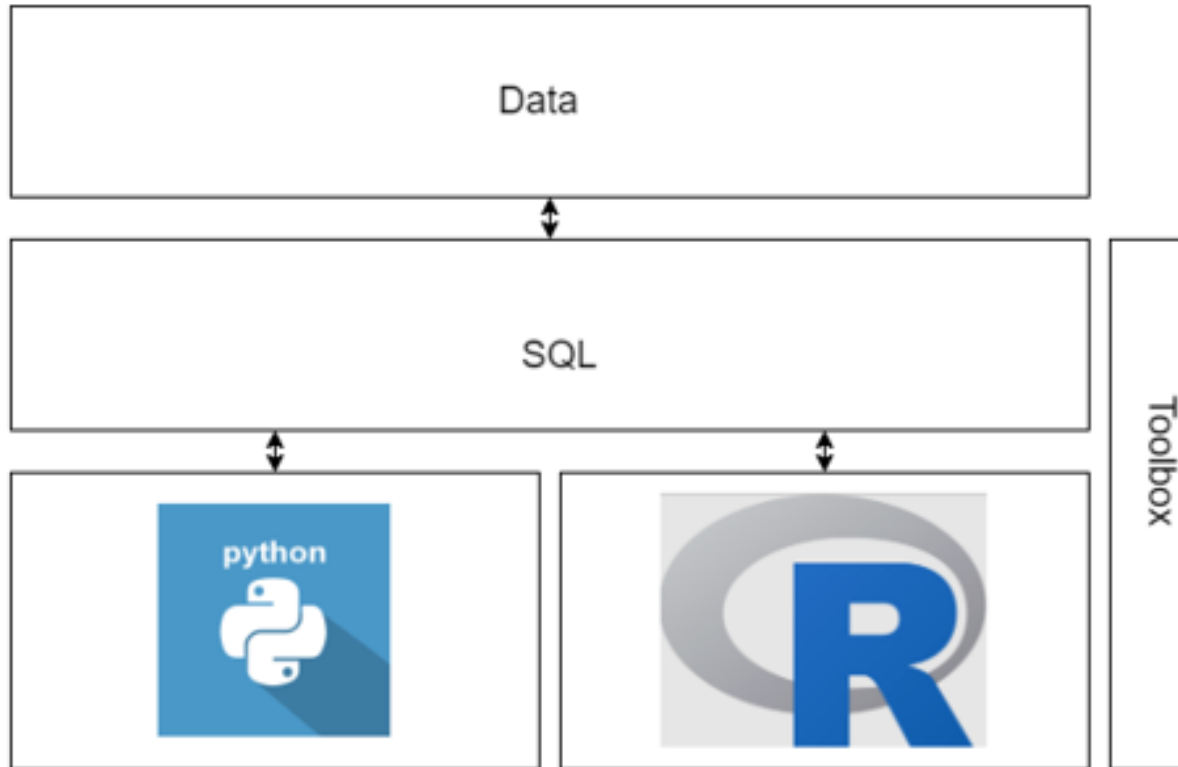
- The DMC centralizes data, statistical tools and computing power
- Data cannot be copied from the DMC to desktop pc's, ensuring that statistical production is not dependent on a single desktop
- Statisticians connect to a workplace inside the DMC using remote desktop
- Data Science work can take place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



Modern toolbox



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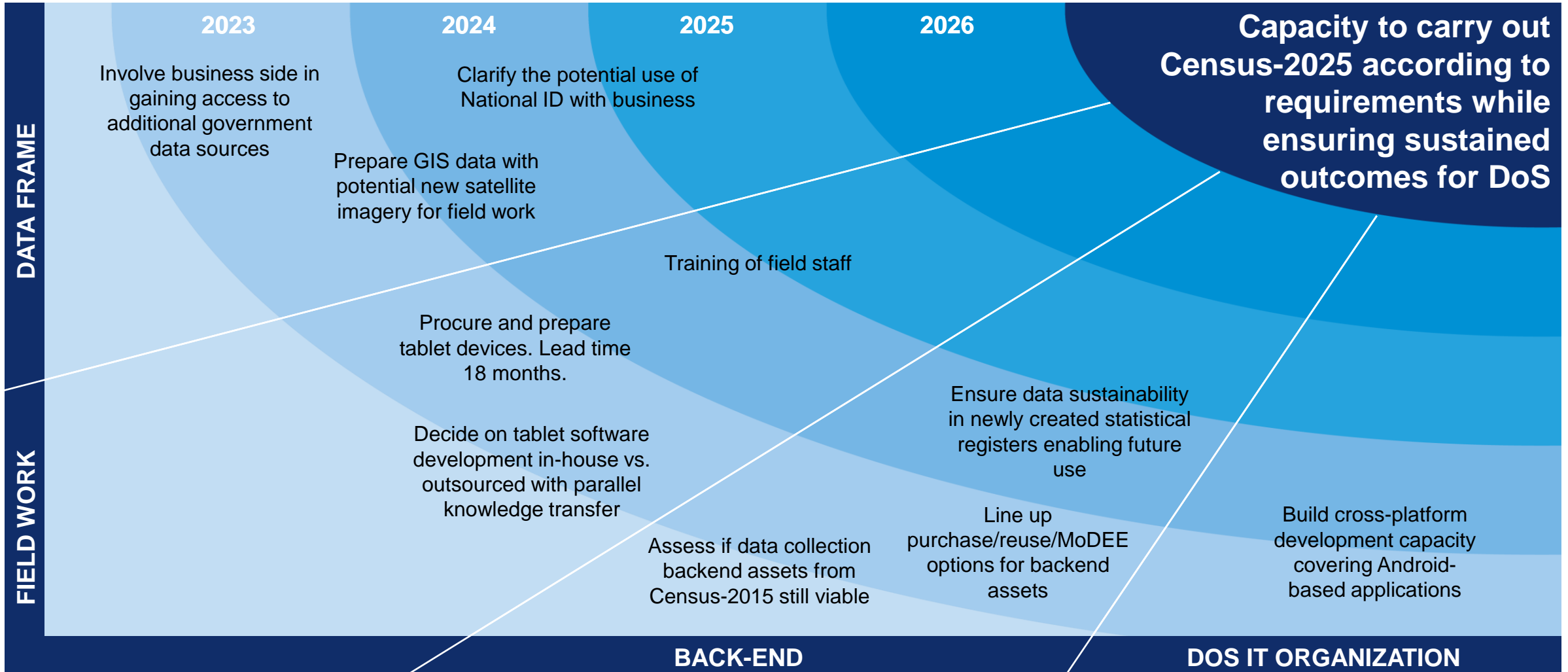


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Census-2025



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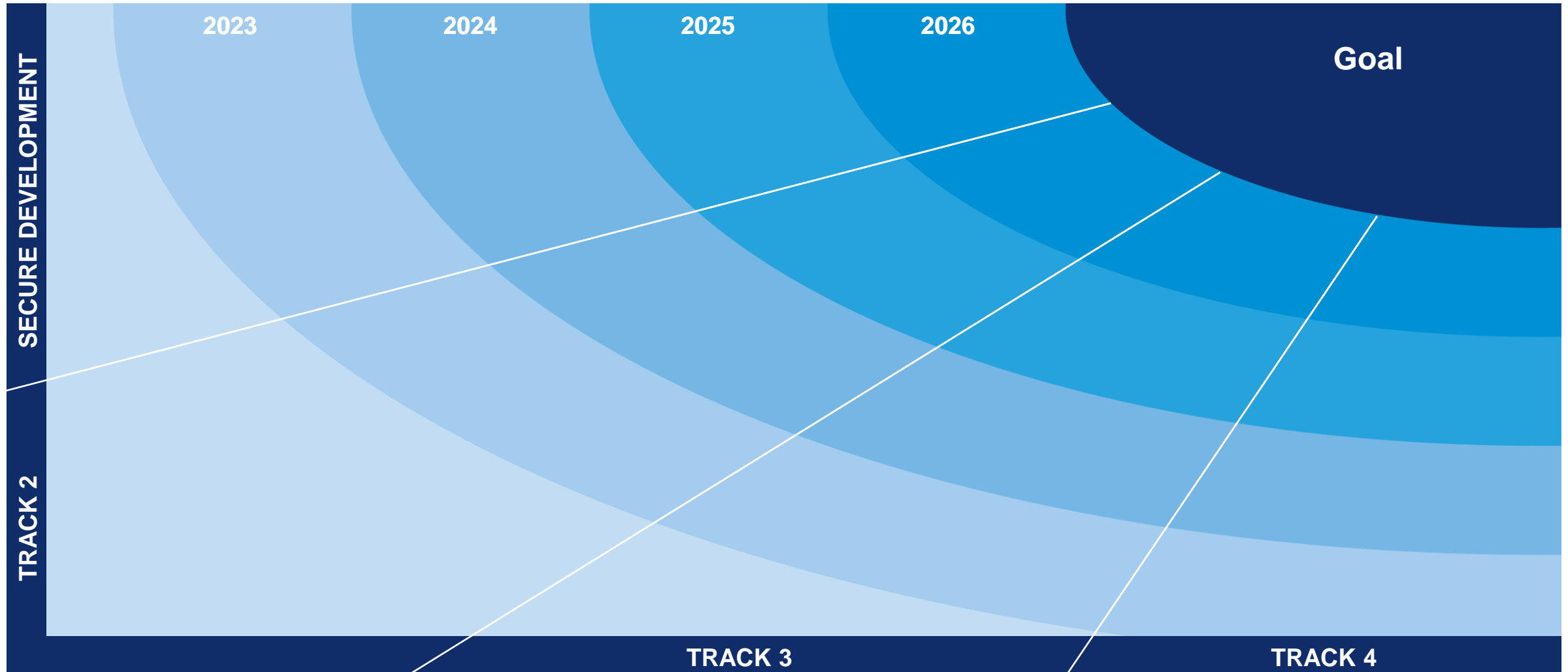
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Information Security



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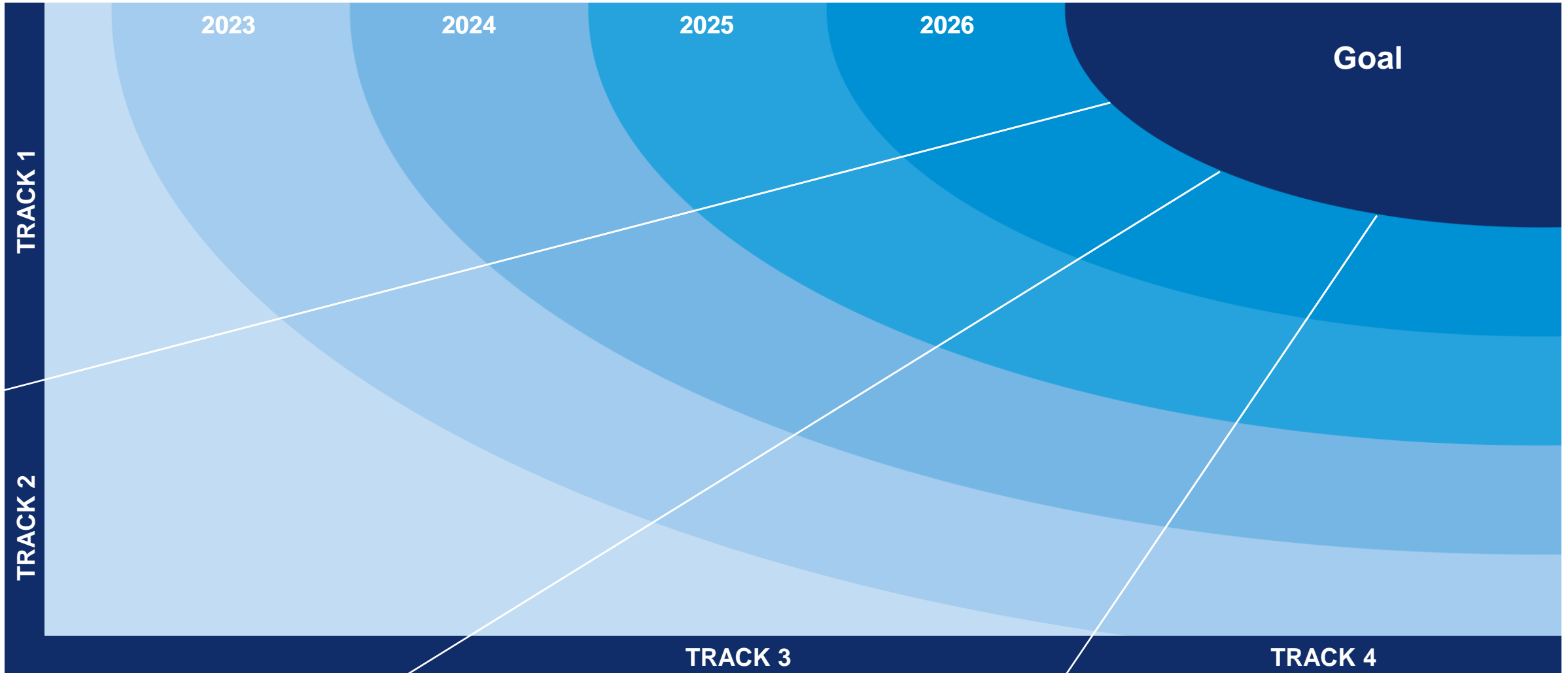
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Dissemination



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