



# Communicating Data for Impact & Action





Seoul



Seoul

● 1869



Seoul

1869

1976



Rabat

Seoul

1969

1976



Rabat  
1971

Seoul  
1969

1976



London

1971

Rabat

Seoul

1869

1976



London

1971

Rabat

1974

Seoul

1976

1976



London

1971

Rabat

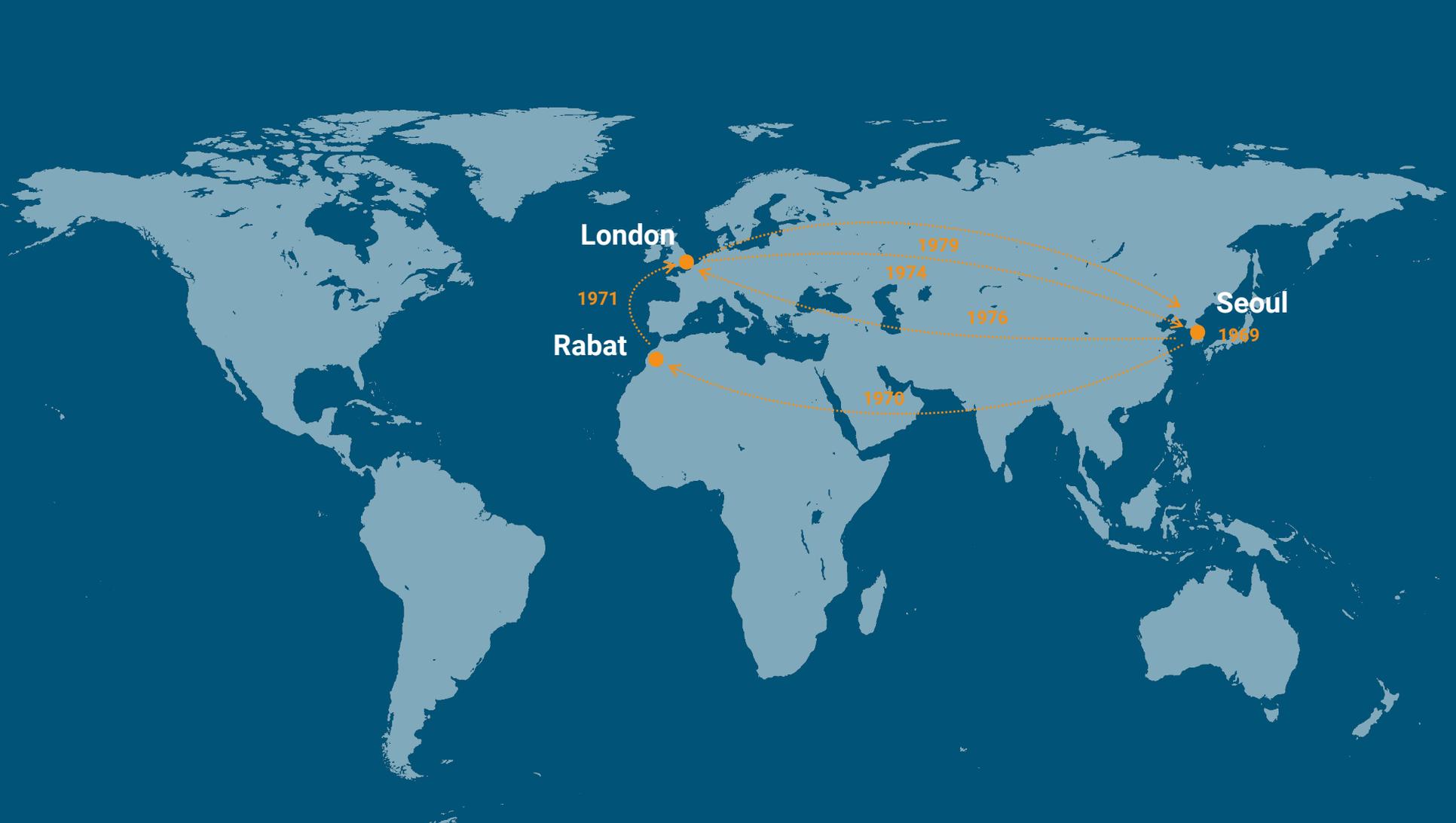
1974

1976

Seoul

1969

1976



London

Rabat

Seoul

1971

1974

1974

1976

1976

1969



London

Rabat

Seoul

1971

1979

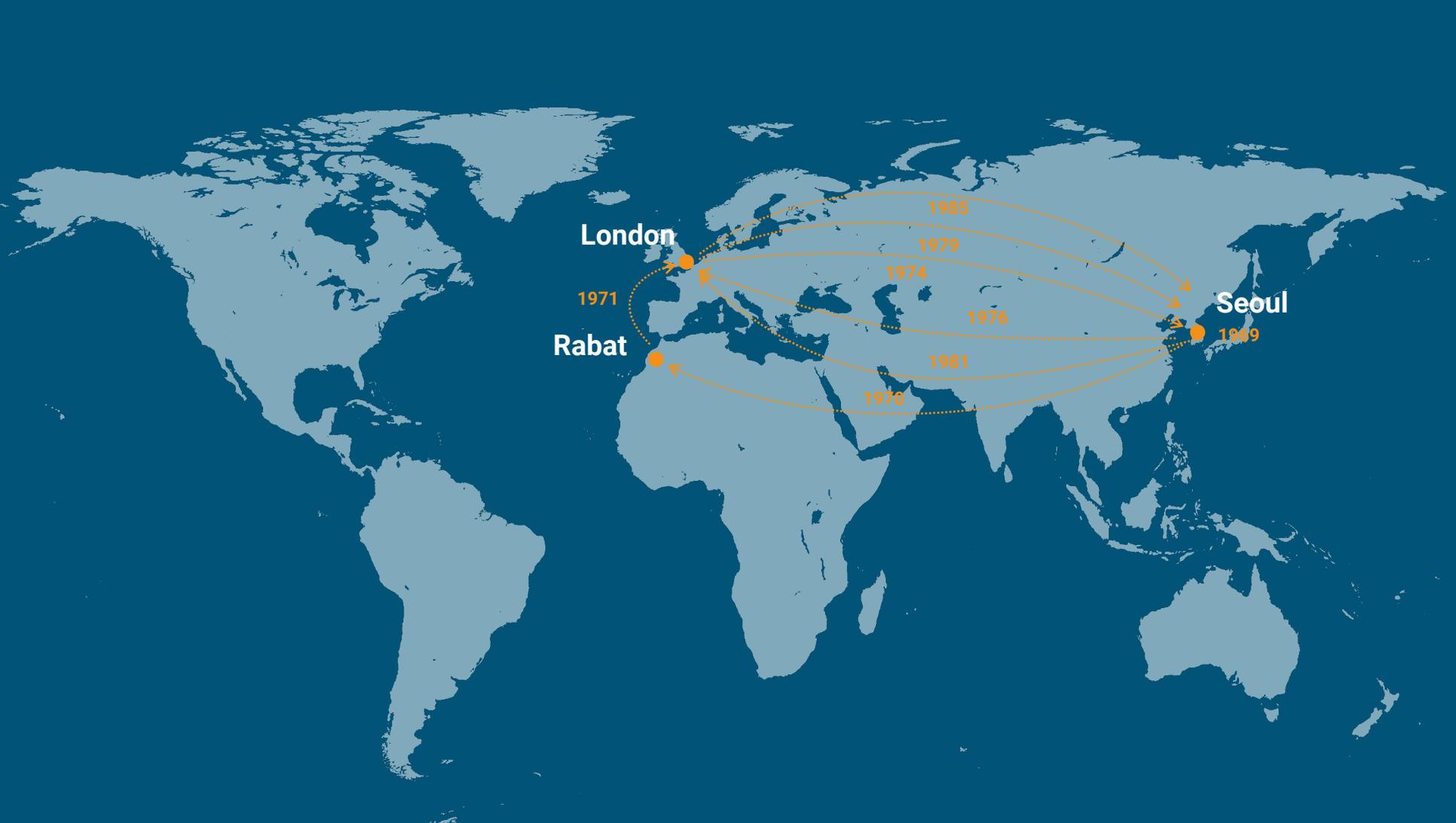
1974

1976

1981

1976

1869



London

Rabat

Seoul

1971

1985

1979

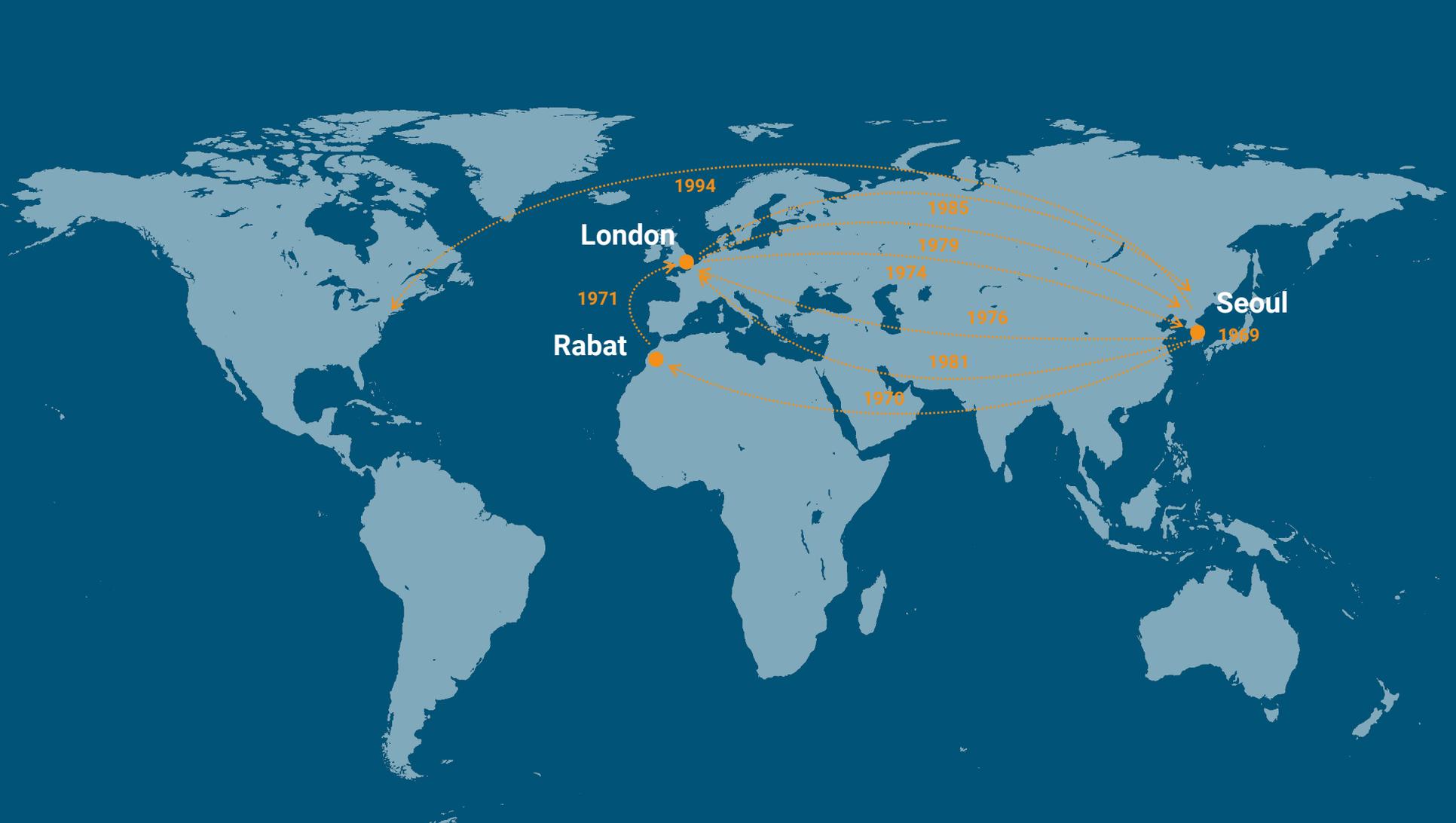
1974

1976

1981

1976

1989



London

Rabat

Seoul

1994

1985

1979

1974

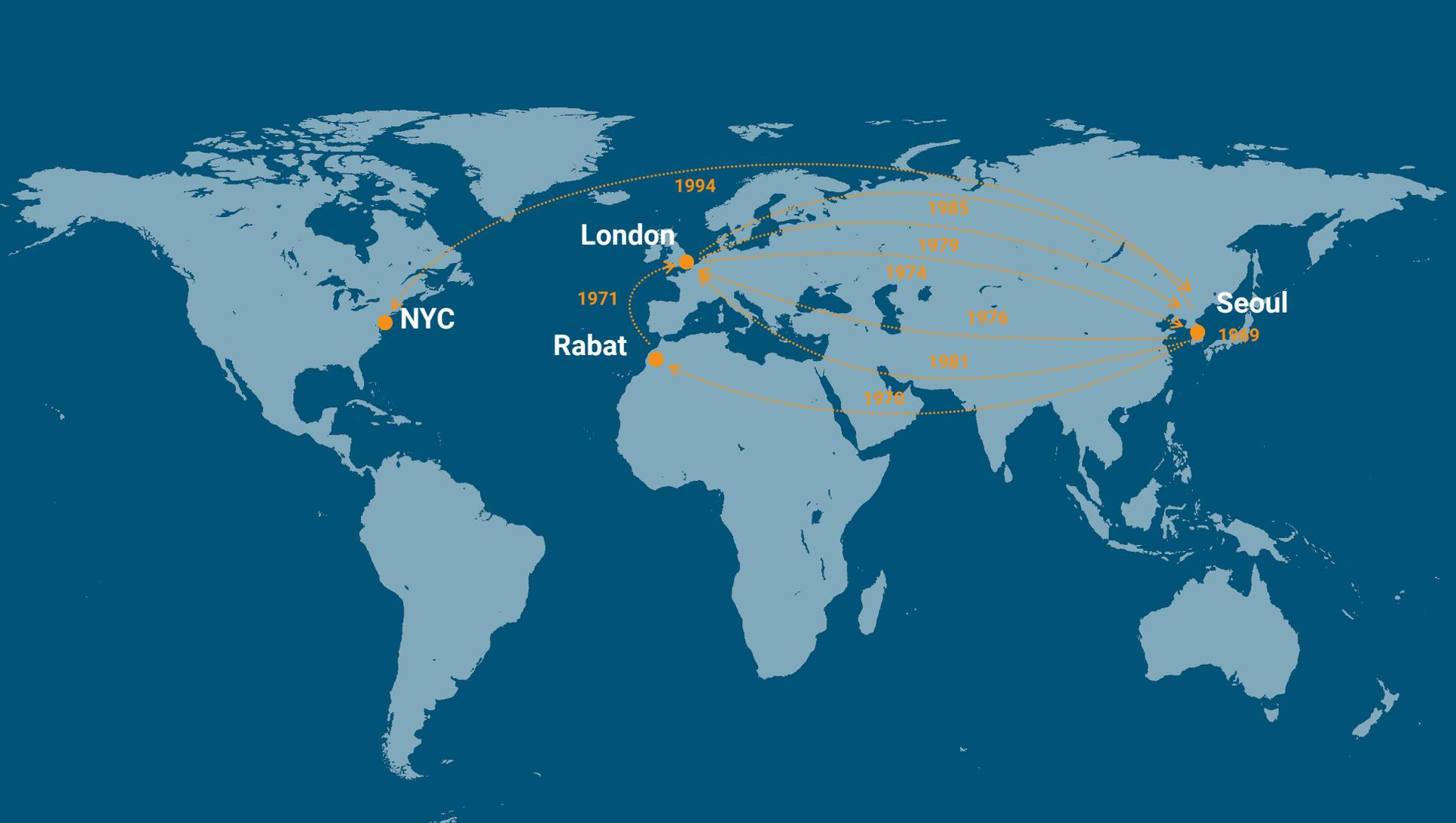
1976

1969

1971

1981

1976



NYC

London

Rabat

Seoul

1994

1985

1979

1974

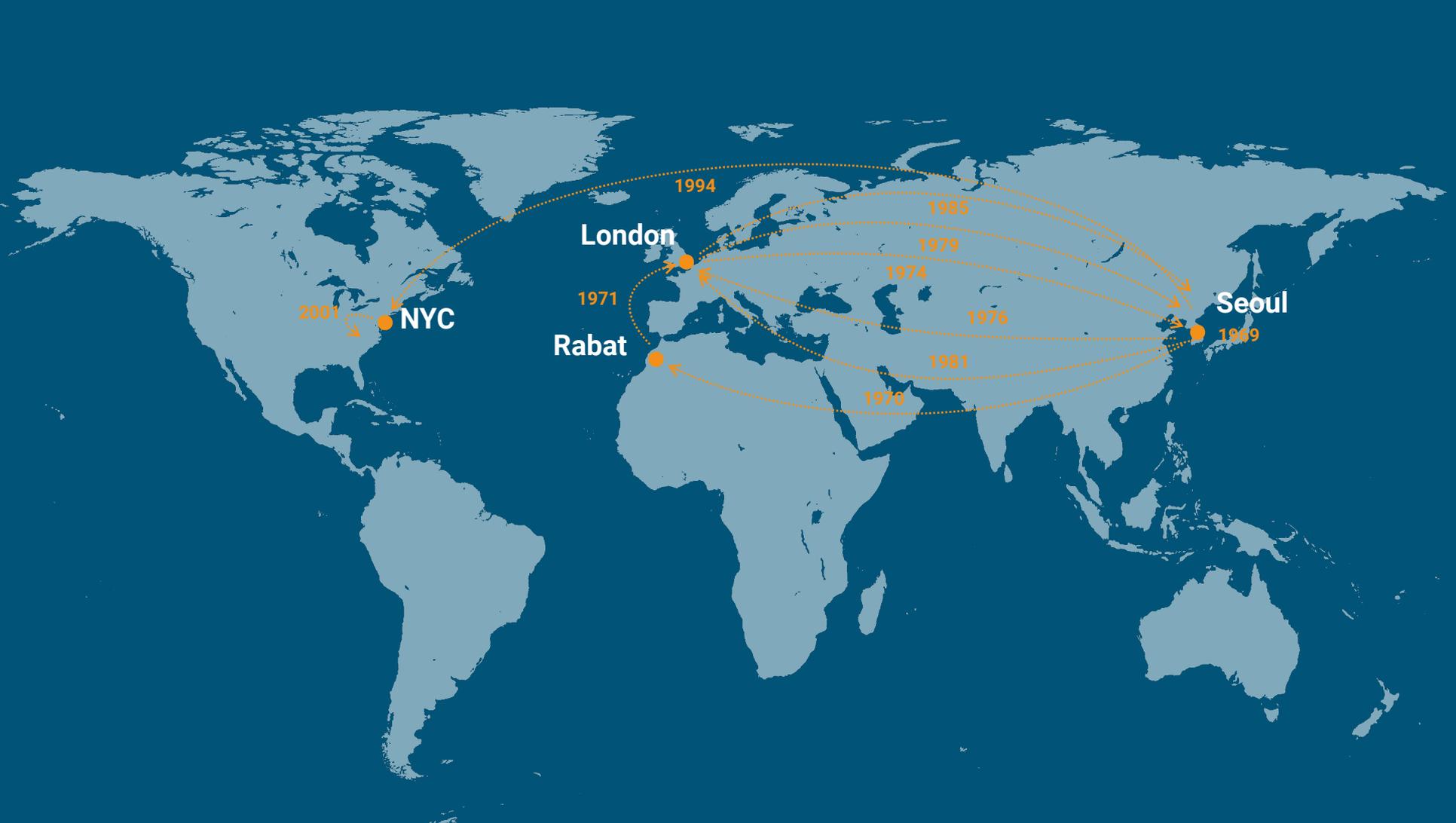
1976

1971

1969

1981

1976



2001  
NYC

1994  
London

1971  
Rabat

1969  
Seoul

1994

1985

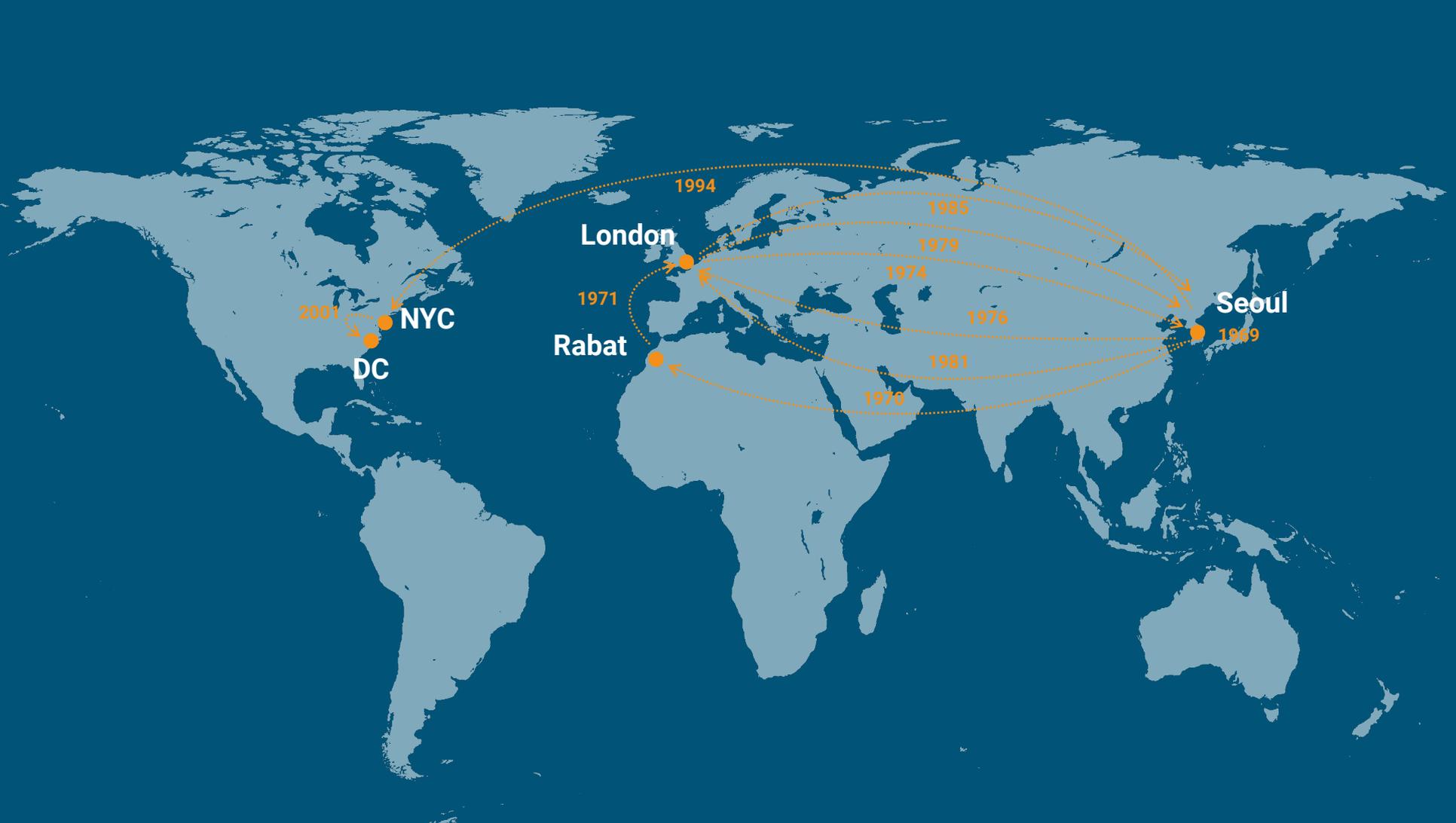
1979

1974

1976

1981

1976



2001

NYC

DC

London

1971

Rabat

1994

1985

1979

1974

1976

1981

1976

Seoul

1869



2001

NYC

DC

London

1971

Rabat

2007

1994

1985

1979

1974

1976

1981

1976

Seoul

1969



2001

NYC

DC

London

1971

Rabat

2007

1994

1985

1979

1974

1976

1981

1976

Seoul

1969

2008





2001

NYC

DC

London

1971

Rabat

2007

Hanoi

Seoul

1869

1994

1985

1979

1974

1976

1981

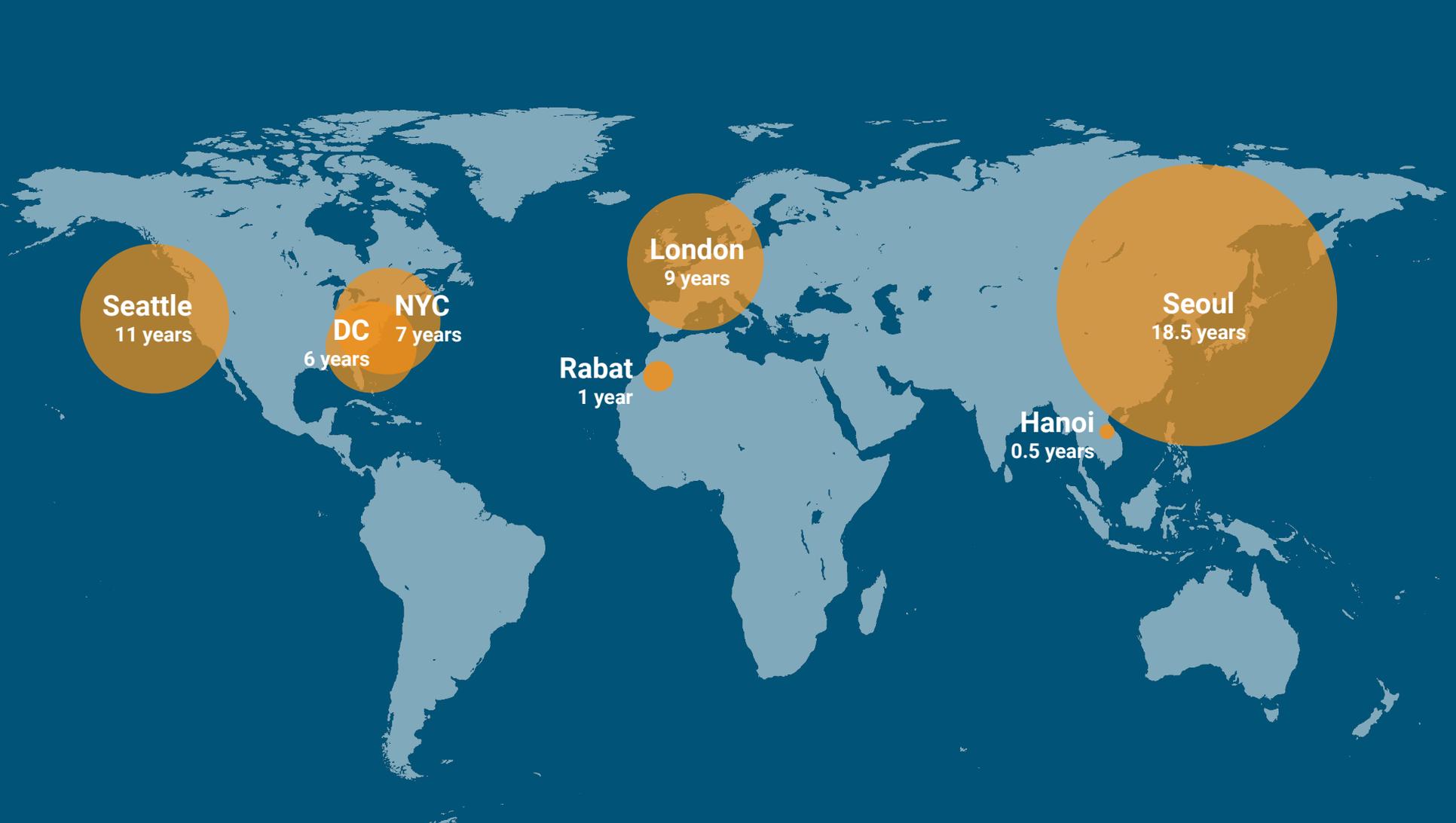
1976

2008

2009







**Seattle**  
11 years

**DC**  
6 years

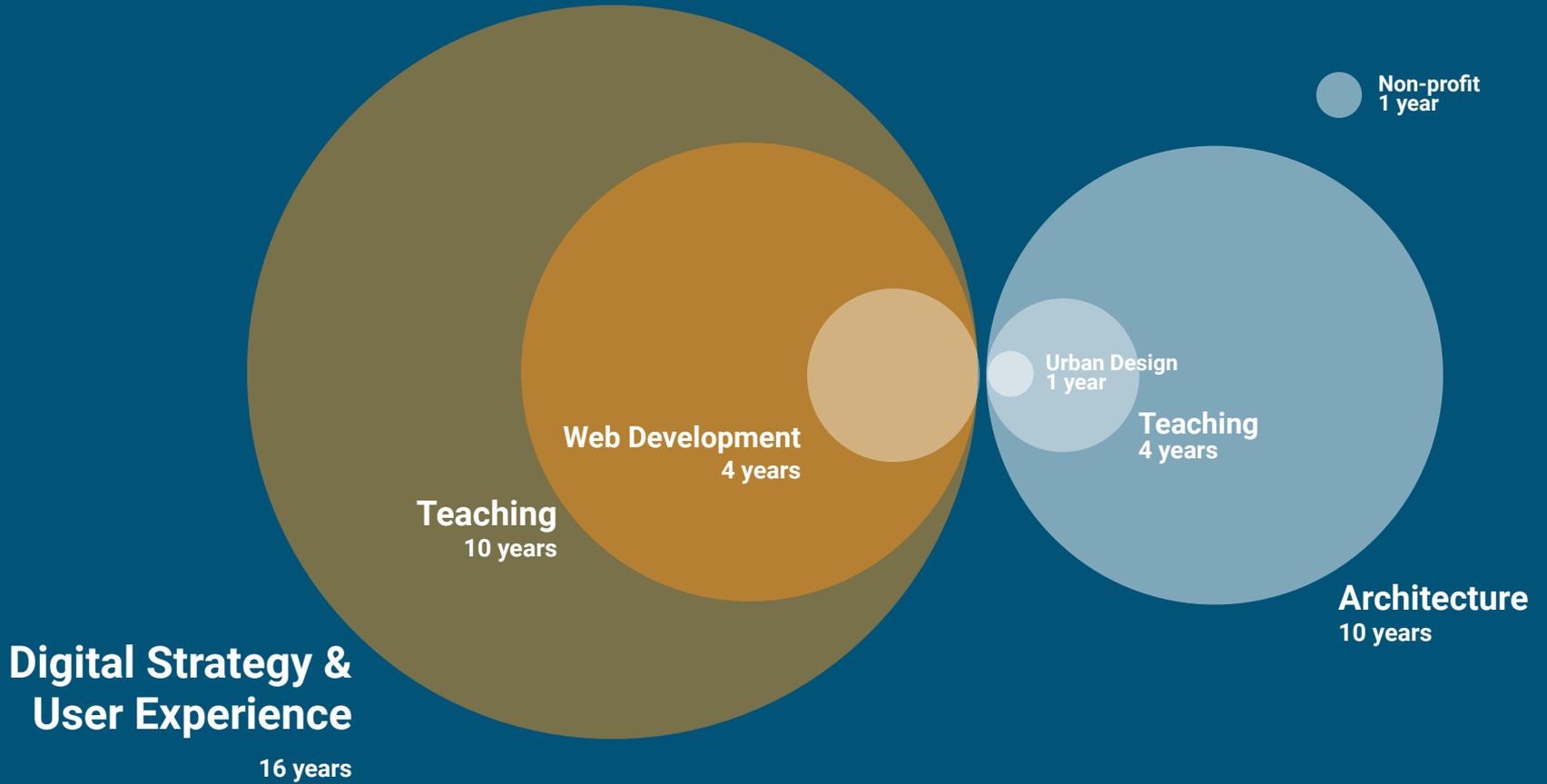
**NYC**  
7 years

**Rabat**  
1 year

**London**  
9 years

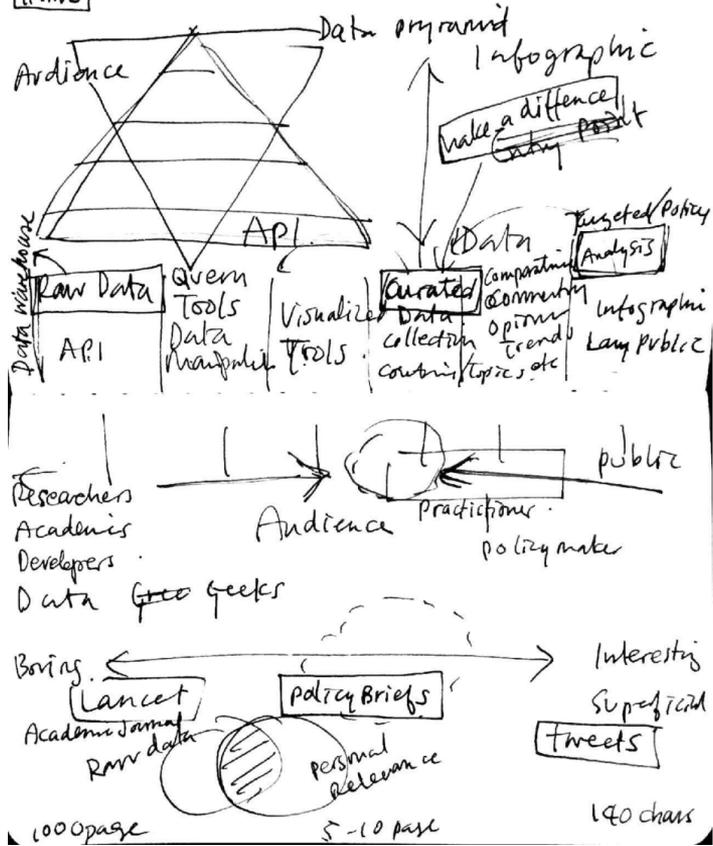
**Hanoi**  
0.5 years

**Seoul**  
18.5 years



2013-11-26

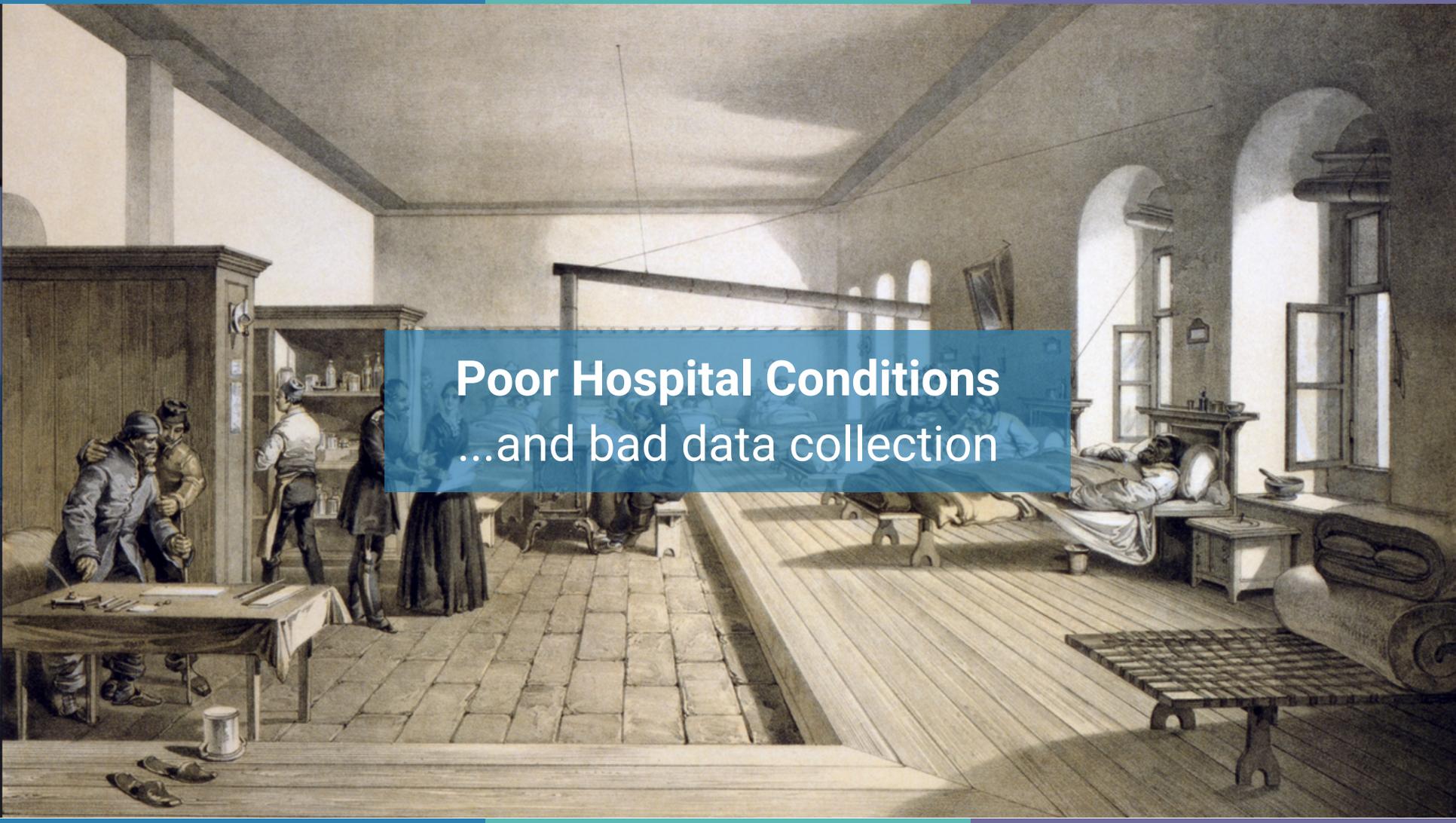
IHME



*Communicating data and  
maximizing impact is about  
supplying the **right audience**  
with the **right amount of data**  
in the **right format***



**The Crimean War**  
1853-1856



**Poor Hospital Conditions  
...and bad data collection**

*To understand God's thoughts, we must study statistics, for these are the measures of His purpose.*

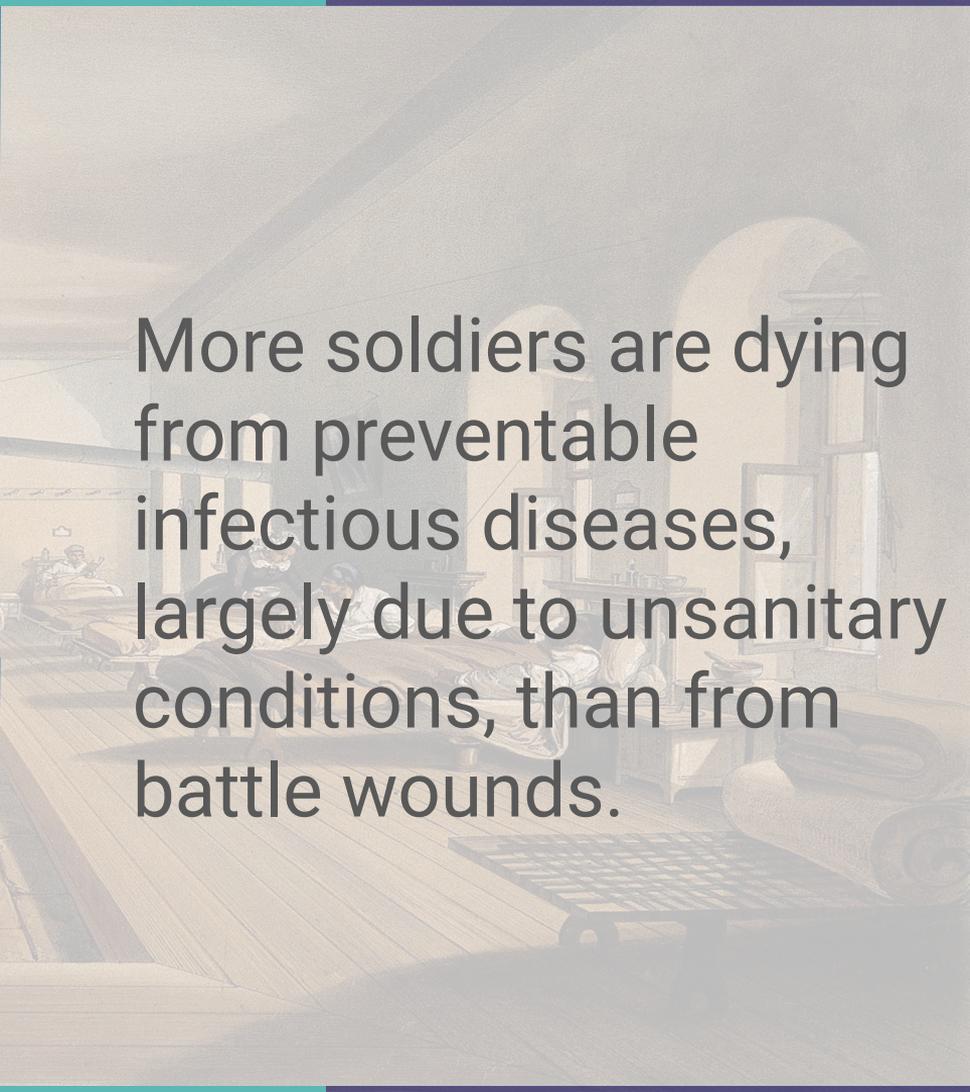
*To understand  
God's thoughts,  
we must study  
statistics,  
for these are the  
measures of His  
purpose.*

– Florence Nightingale

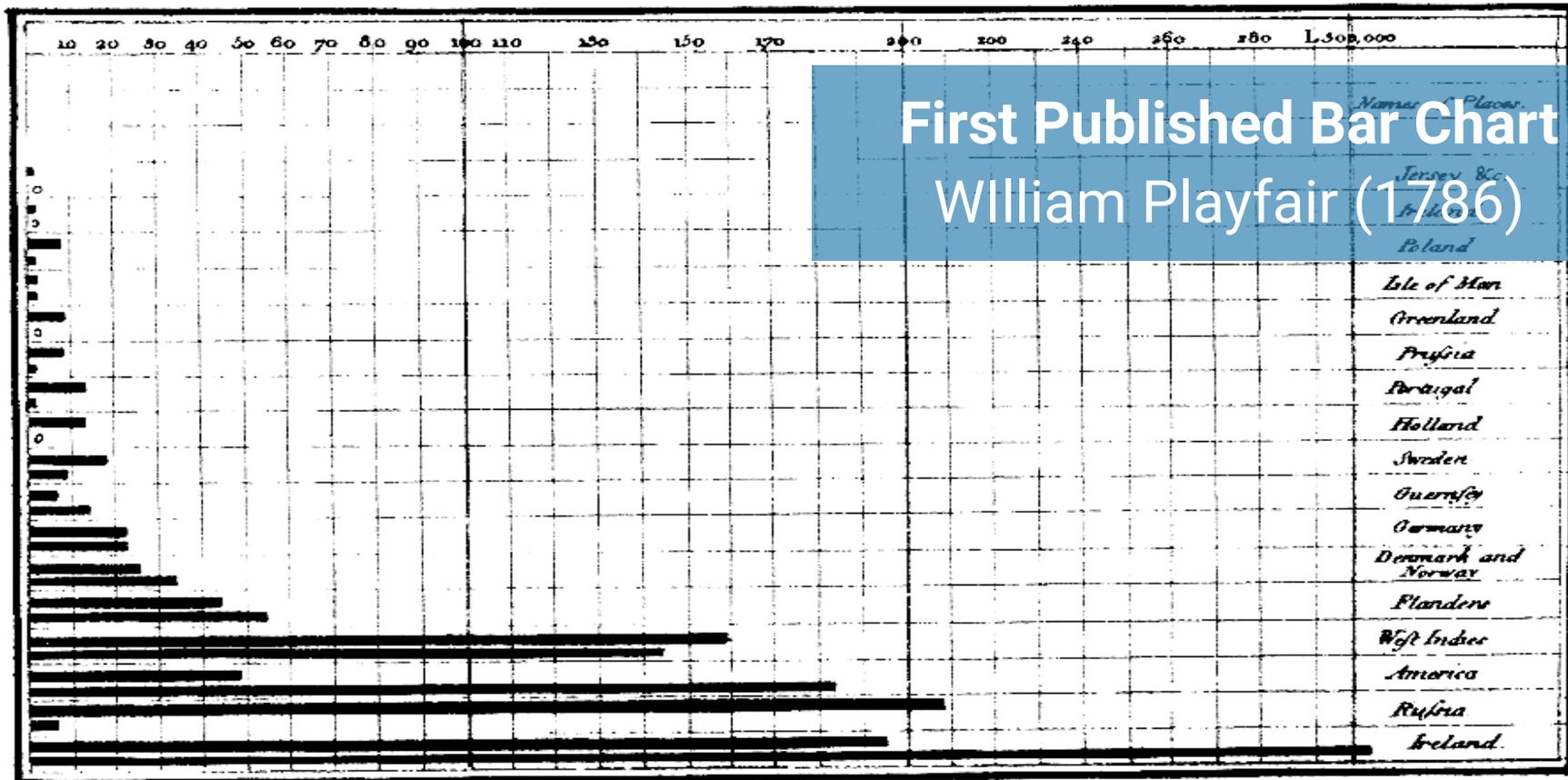


# Nightingale's Analysis

More soldiers are dying from preventable infectious diseases, largely due to unsanitary conditions, than from battle wounds.



Exports and Imports of SCOTLAND to and from different parts for one Year from Christmas 1780 to Christmas 1781.



The Upright divisions are Ten Thousand Pounds each. The Black Lines are Exports the Ribbed Lines Imports.

Published in the Advertiser June 7<sup>th</sup> 1786 by W<sup>m</sup> Playfair

Next Imp<sup>t</sup> 352 Strand. London.

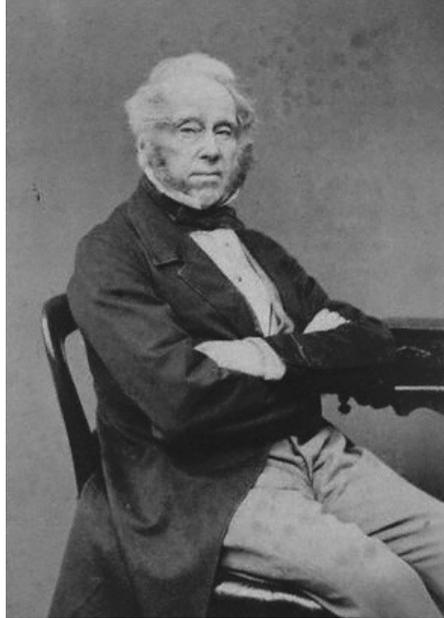




*You complain that  
your report would  
be dry. The dryer  
the better.  
Statistics should  
be the dryest of  
all reading.*

– William Farr

# Nightingale's Audience



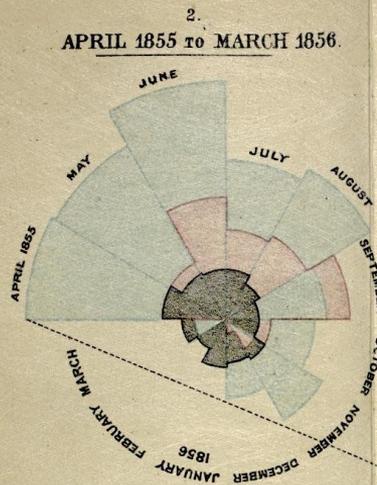
# Nightingale's Goals

**Near-term:** Improve sanitary conditions in military hospitals and hygiene of soldiers.

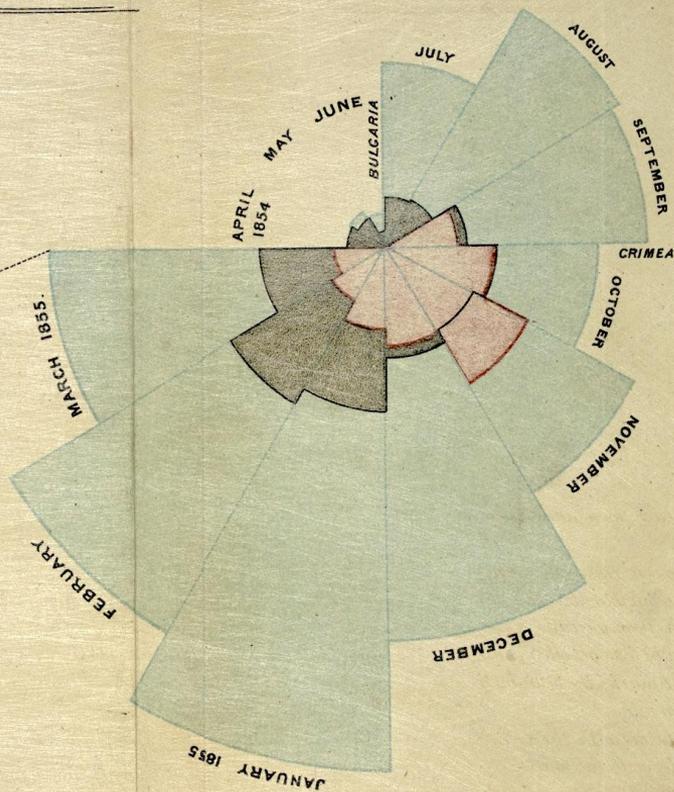
**Long-term:** Reduce deaths by establishing new agencies and policies to address sanitation.



## DIAGRAM OF THE CAUSES OF MORTALITY IN THE ARMY IN THE EAST.



1.  
APRIL 1854 TO MARCH 1855.



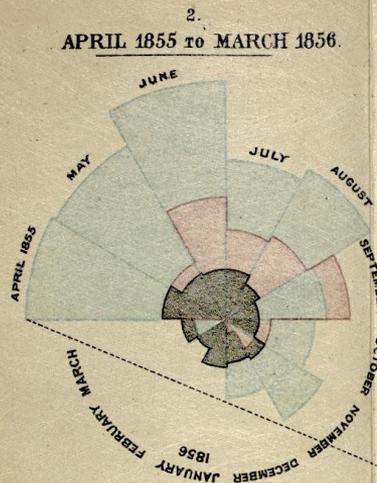
The Areas of the blue, red, & black wedges are each measured from the centre, as the common vertex.

The blue wedges measured from the centre of the circle represent area for area the deaths from Preventible or Mitigable Zymotic diseases, the red wedges measured from the centre the deaths from wounds, & the black wedges measured from the centre the deaths from all other causes. The black line across the red triangle in Nov<sup>r</sup> 1854 marks the boundary of the deaths from all other causes during the month.

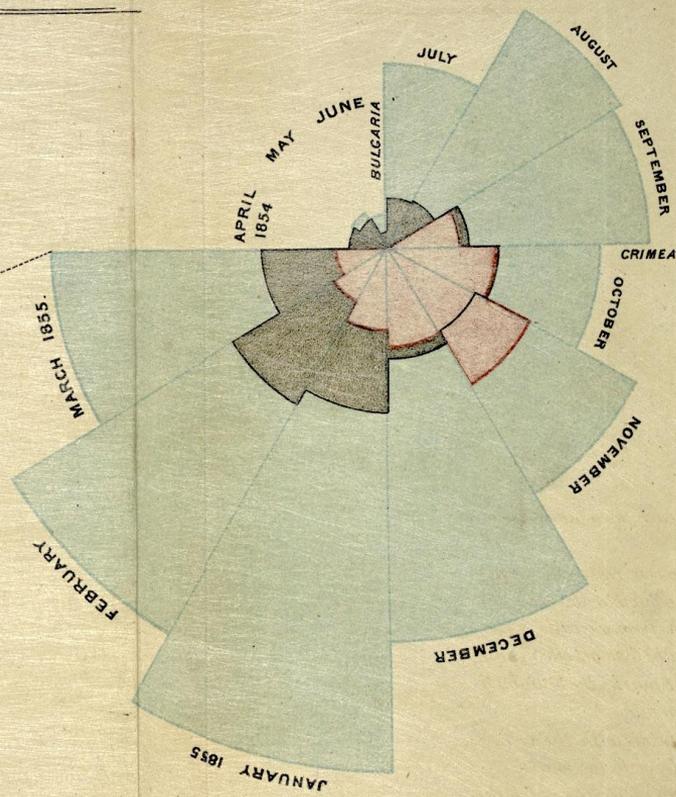
In October 1854, & April 1855, the black area coincides with the red, in January & February 1855, the blue coincides with the black.

The entire areas may be compared by following the blue, the red & the black lines enclosing them.

# DIAGRAM OF THE CAUSES OF MORTALITY IN THE ARMY IN THE EAST.



1.  
APRIL 1854 TO MARCH 1855.

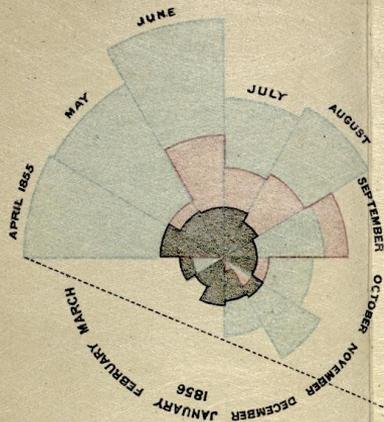


The Areas of the blue, red, & black wedges are each measured from the centre of the diagram. The blue wedges measured from the centre represent area for area the deaths from Preventible or Mitigable Zymotic diseases, the red wedges measured from the centre the deaths from wounds, & the black wedges measured from the centre the deaths from all other causes. The black line across the red triangle in Nov<sup>r</sup> 1854 marks the boundary between the red & black areas. In October 1854, & April 1855, the black area coincides with the red, & in February 1855 the blue coincides with the black. The red & black lines enclosing them may be drawn by the hand, the red & the black lines enclosing them.

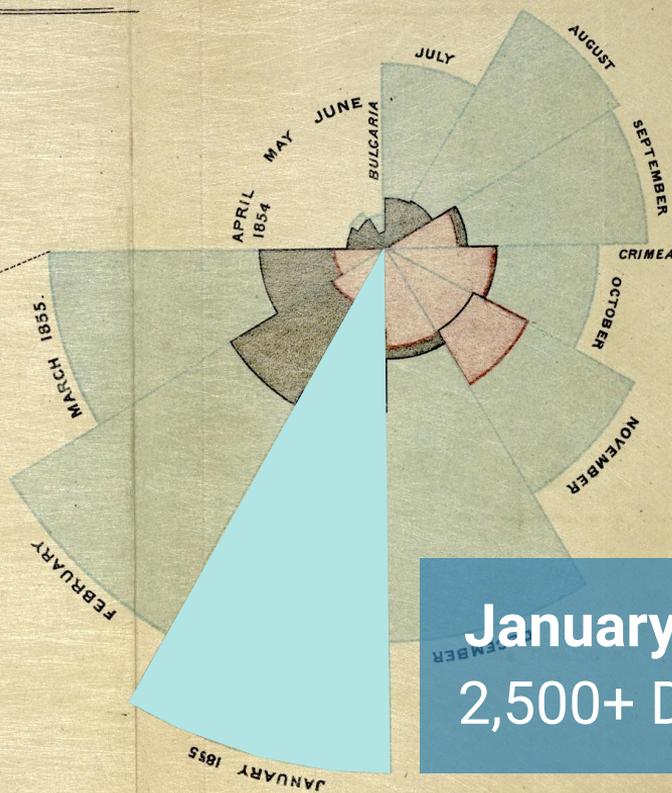
**Causes of Mortality**  
**Red** - wounds  
**Blue** - disease  
**Black** - other causes

DIAGRAM OF THE CAUSES OF MORTALITY  
IN THE ARMY IN THE EAST.

2.  
APRIL 1855 to MARCH 1856.



1.  
APRIL 1854 to MARCH 1855.



January 1855  
2,500+ Deaths

The Areas of the blue, red, & black wedges are each measured from the centre, as the common vertex.

The blue wedges measured from the centre of the circle represent area for area the deaths from Preventible or Mitigable Zymotic diseases, the red wedges measured from the centre the deaths from wounds, & the black wedges measured from the centre the deaths from all other causes.

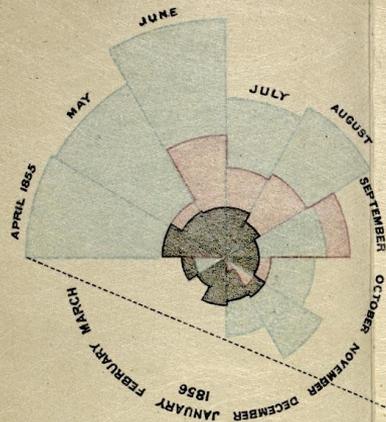
The black line across the red triangle in Nov<sup>r</sup> 1854 marks the boundary of the deaths from all other causes during the month.

In October 1854, & April 1855, the black area coincides with the red, in January & February 1855, the blue coincides with the black.

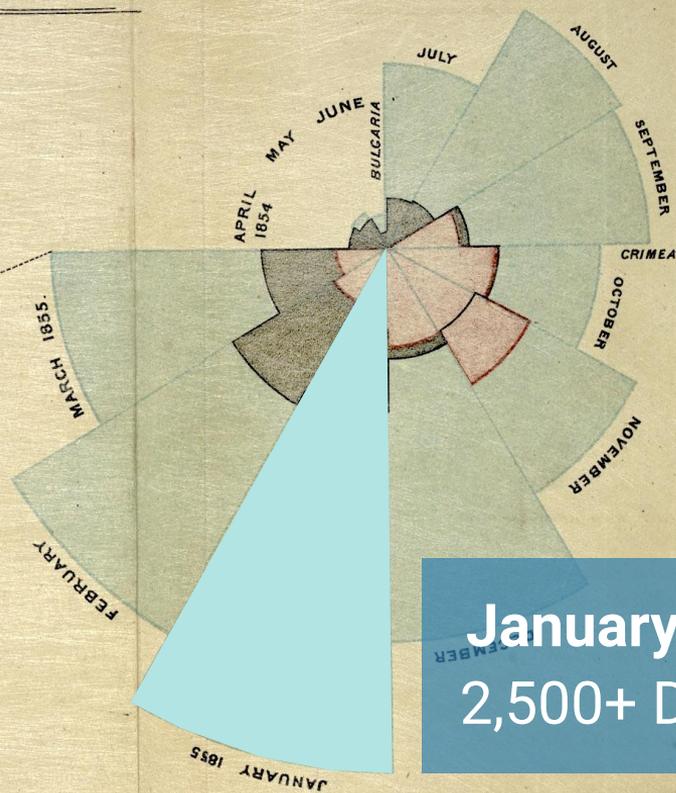
The entire areas may be compared by following the blue, the red & the black lines enclosing them.

DIAGRAM OF THE CAUSES OF MORTALITY  
IN THE ARMY IN THE EAST.

2.  
APRIL 1855 TO MARCH 1856.



1.  
APRIL 1854 TO MARCH 1855.



January 1856  
46 Deaths

January 1855  
2,500+ Deaths

The areas measured from the red, & black wedges are each measured from the centre as the common vertex.  
The areas measured from the centre of the circle represent area of deaths from Preventible or Mitigable Zymotic diseases, the red wedges measured from the centre the deaths from wounds, & the black wedges measured from the centre the deaths from all other causes.  
The black line across the red triangle in Nov<sup>r</sup> 1854 marks the boundary of the deaths from all other causes during the month.  
In October 1854, & April 1855, the black area coincides with the red, in January & February 1855, the blue coincides with the black.  
The entire areas may be compared by following the blue, the red & the black lines enclosing them.



# Nightingale's Impact

Death rate reduced from 42% to 2% following immediate improvements in sanitary conditions

Establishment of the Royal Commission on the Health of Army

Establishment of first Army Medical College in Great Britain

Establishment of Sanitary Department within the Indian government

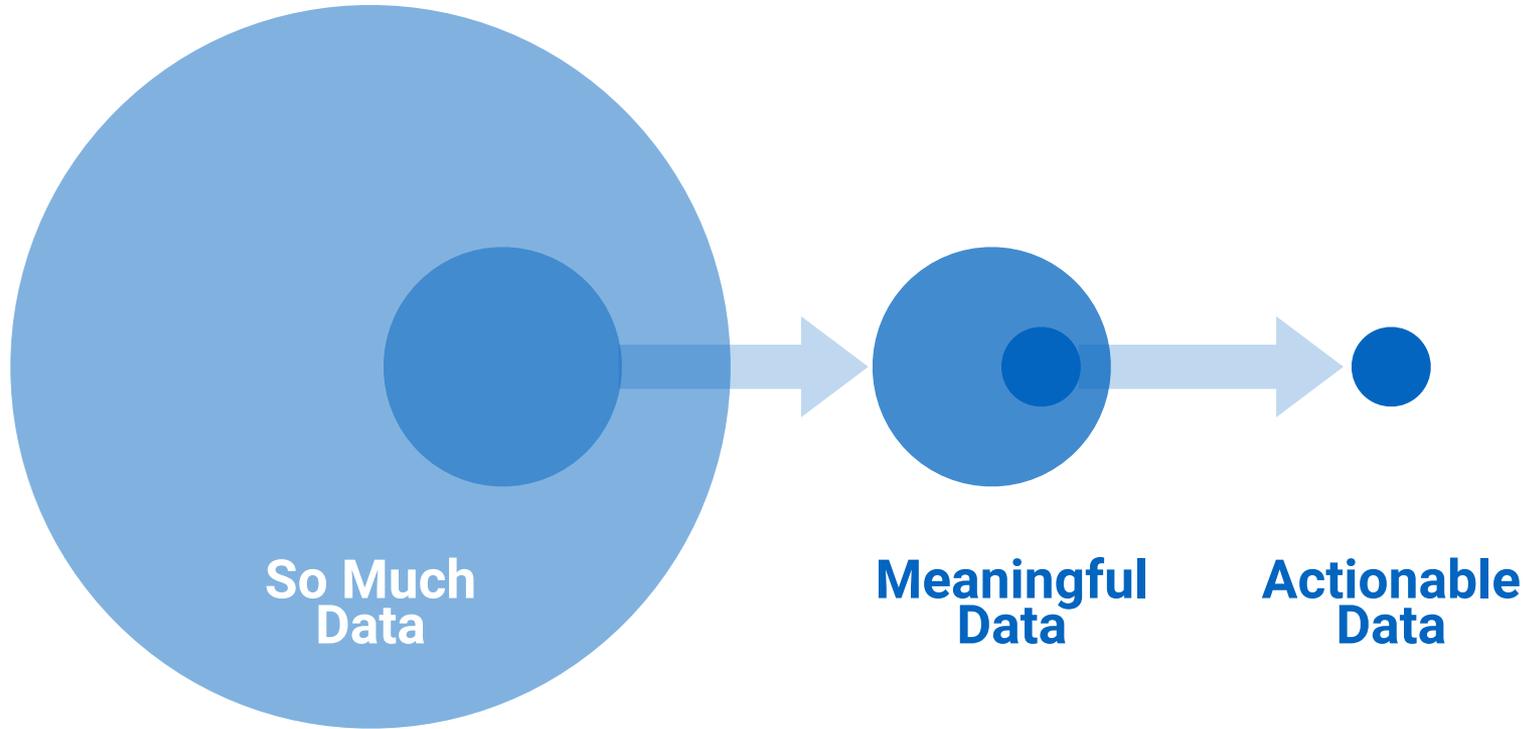
**Millions of lives saved**

# Data Communication Approach

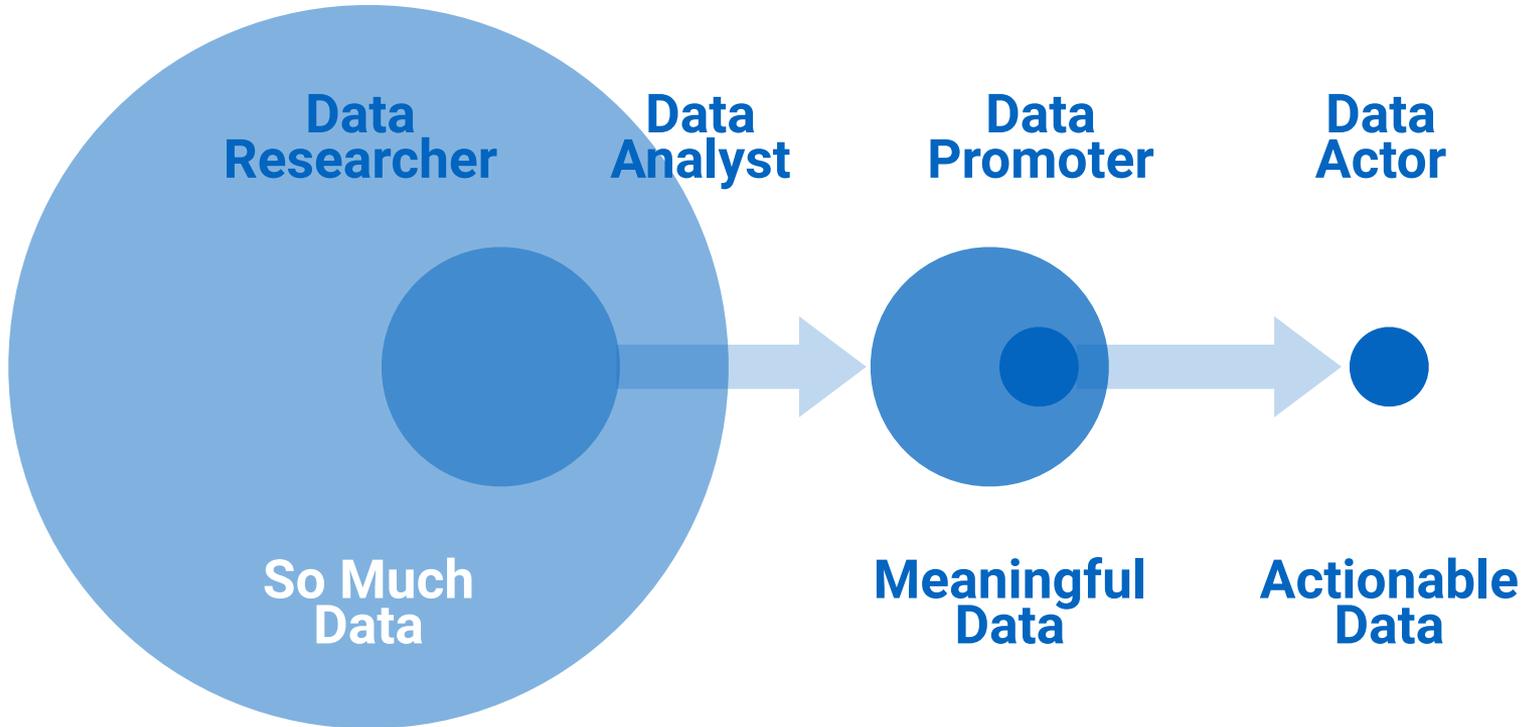
**Many options depends on:**

- Goals
- Audience needs
- Data nature, size, complexity
- Design and/or technical capacity
- Tools and software
- Delivery mechanism

# Challenges of Communicating Data



# Challenges of Communicating Data



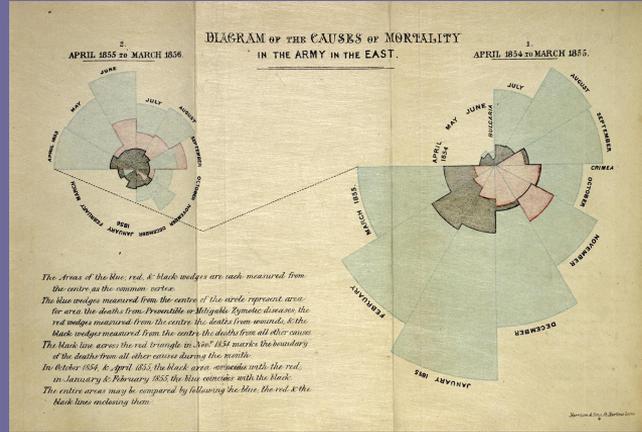
	<b>Audience size</b>	<b>Ability to drive change</b>	<b>Attention</b>	<b>Data manipulation skills</b>	<b>Topic expertise</b>
<b>Data Consumer</b>	Large	Low	Low	Low	Low
<b>Data Actor</b>	Small	High	Low	Medium	Medium
<b>Data Promoter</b>	Medium	Medium /High	Medium /High	Varies*	Varies*
<b>Data Analyst</b>	Medium	Medium	High	High	High
<b>Data Researcher</b>	Small	Medium	High	High	High

	<b>Audience size</b>	<b>Ability to drive change</b>	<b>Attention</b>	<b>Data manipulation skills</b>	<b>Topic expertise</b>
<b>Data Consumer</b>	Large	Low	Low	Low	Low
<b>Data Actor</b>	Small	High	Low	Medium	Medium
<b>Data Promoter</b>	Medium	Medium /High	Medium /High	Varies*	Varies*
<b>Data Analyst</b>	Medium	Medium	High	High	High
<b>Data Researcher</b>	Small	Medium	High	High	High

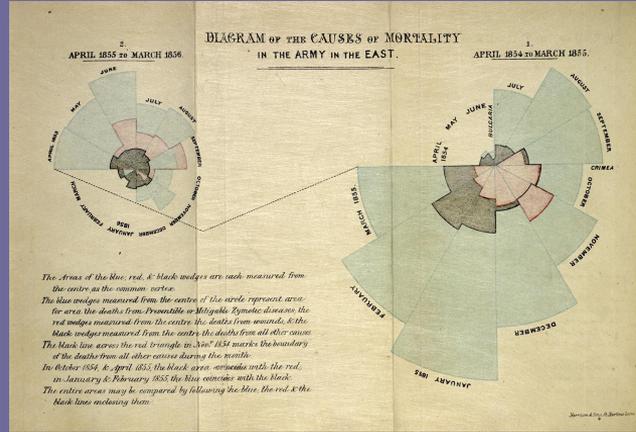
	<b>Audience size</b>	<b>Ability to drive change</b>	<b>Attention</b>	<b>Data manipulation skills</b>	<b>Topic expertise</b>	<b>Example visual</b>
<b>Data Consumer</b>	Large	Low	Low	Low	Low	Infographic
<b>Data Actor</b>	Small	High	Low	Medium	Medium	Narrative visualization / briefing
<b>Data Promoter</b>	Medium	Medium /High	Medium /High	Varies*	Varies*	Query tools, exploratory visualizations, API
<b>Data Analyst</b>	Medium	Medium	High	High	High	Detailed topical visualization
<b>Data Researcher</b>	Small	Medium	High	High	High	Exploratory visualization with all data available

\* Varies: data promoters can have very different data skills (senior newspaper editor vs. data blogger) and topic expertise (industry specific writer vs. disrupting entrepreneur / developer)

Type	Audience examples	Data	Products & tools
Data Consumer	News consumers, Interested public	Specific data points, trends, developments	Infographics, declarative/ narrative visualizations, illustrative diagrams
Data Actor	Policy and decision makers in government, NGO/nonprofits, and corporations	Curated datasets, e.g., by topic, country, region, etc	Press releases, reports/briefs, limited interactive visualizations, search data tools
Data Promoter	Journalists, bloggers, advocates, web/software developers, entrepreneurs, data geeks	Comprehensive datasets showing global trends, data by topic, country, etc	Query tools, exploratory visualizations, Application Programming Interface (APIs)
Data Analyst	Domain experts at int'l, national, local levels; often staffers for decision makers	Comprehensive datasets showing global trends, data by topic, country, etc	Query tools, exploratory visualizations
Data Researcher	Researchers, academics, analysts, modelers	Full database; source data & methods (input for dataset)	Query tools, exploratory visualizations, data catalogue, data repository, visuals to explain the methods



Who is the audience for your data?



Communicating data and maximizing impact is about supplying the **right audience** with the **right amount of data** in the **right format**

# Communicating Data for Impact



Create  
**MEANINGFUL IMPACT**  
With Your Data

FORUM ONE



## Challenges in Communicating Data

### Communicating data about supplying data in the

She ignored Farr's advice and instead, in  
diagrams — often referred to as Nightingale  
used colored wedges to represent cases  
month of the war. Nightingale said her  
what we fail to convey to the public. The



### Just like Florence who want to make their intended au communication strategies

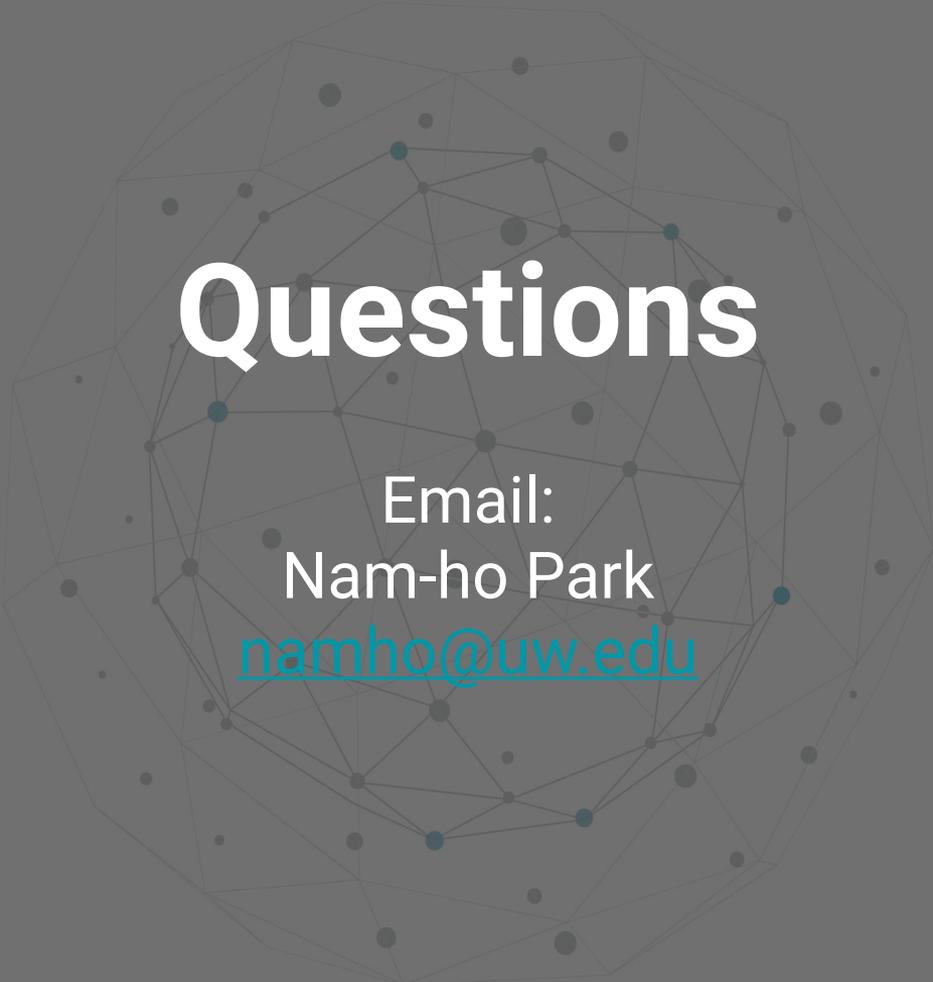


### GSD results for data analysts

Experts and analysts understand global health specific diseases, injuries,  
and risk factors. They also understand the metrics used to measure them.  
Their real interest lies in reviewing the data to find patterns and trends, and to answer  
questions. Then, they can use the data to plan interventions and programs. Just like  
researchers, they want lots of detail but also more intuitive ways to interact with the data.  
They want to see the level of detail but also more intuitive ways to interact with the data.  
They want to see the level of detail but also more intuitive ways to interact with the data.  
They want to see the level of detail but also more intuitive ways to interact with the data.

For example, a data analyst might want to compare both mortality and disease burden by country  
from gun violence and from road traffic injuries between an emerging economy like Brazil and a  
more established economy like France. They may be interested in the overall numbers of both and  
also the rates. In order to accurately compare populations of disparate sizes, they may want to  
show these trends at three points in time: 1995, 2002 and 2015. After selecting all the relevant data  
categories, they can also download a CSV file from the results tool and then perform any additional  
analysis necessary to explore the questions. Because the data come with ID numbers that can be  
used to link datasets, they can go back and download more data for Brazil and France and even  
add additional countries to make a larger dataset.

By more data are being collected, scrubbed, analyzed, and shared than ever before. But the  
amount of data creates its share of problems for those who wish to improve conditions in  
available to highlight or help solve societal issues? Which data and sources should  
we've identified the right data, how do we effectively communicate them to  
to influence public policy?



# Questions

Email:

Nam-ho Park

[namho@uw.edu](mailto:namho@uw.edu)