

# NGAP Sri Lanka

**Analysis and Forecast into the Need of Aviation Professionals in  
Sri Lanka by 2030**

# Background

- For the purpose of this analysis, aviation professionals are considered as persons holding and exercising the privileges of following licences/certifications:
  - Aircraft Maintenance Licence (AML) holders
  - Cabin Crew
  - Flight Crew
  - Flight Dispatchers
  - Air Traffic Controllers
  - Aeronautical Station Operators

# Collection of Data

- Information for previous years and the current year is required to form a data trend
- Certain extrapolations will allow a viable forecast into the future requirements of licence holders
- CAASL has been requested to write to CAASL certified aviation organisations (airlines & training schools) to obtain employment information for the following years:
  - 2005
  - 2010
  - 2015
  - 2017

# Collection of Data

- Employment information includes;
  - The number of licence holders employed at the organisations for the requested years (2005, 2010, 2015 & 2017)
  - Number of licence holders that resigned and retired
  - The shortage of licence holders
  - The designations that the licence holders were employed under, i.e. Managers, Senior Managers, Engineers, etc.
  - Vacancies forecasted as per the requirements of the respective organisations
- Table 1 shows the layout that will be used to obtain employment information from the relevant organisations

# Employment Information

Table 1 – Employment Information – Database Layout

		Employed in 2005	Employed in 2010	Employed in 2015	Employed in 2017
<b>Srilankan Airlines</b>	<b>Flight Crew</b>				
	<b>Cabin Crew</b>				
	<b>Aircraft Maintenance Engineers</b>				
	<b>Flight Dispatchers</b>				

<b>AASL</b>	<b>Aeronautical Station Operators</b>				
	<b>ATC</b>				

# Sample Organisations

- Sample organisations have been selected in order to obtain and analyse the employment information
- These organisations will act as a reference until further information is obtained from other organisations
- SriLankan Airlines and Airport and Aviation Services (Sri Lanka) Ltd. (AASL) were chosen since employment information for previous and current years were easily accessible.

# Employment Information

Table 2 – Employment Information

		Employed in 2005	Employed in 2010	Employed in 2015	Employed in 2017
<b>SriLankan Airlines</b>	<b>Flight Crew</b>	206	226	322	325
	<b>Cabin Crew</b>	795	790	1133	1210
	<b>Aircraft Maintenance Licence Holders</b>	114	115	174	181
	<b>Flight Dispatchers</b>	16	15	20	28

<b>AASL</b>	<b>Aeronautical Station Operators</b>	24	16	22	23
	<b>ATC</b>	60	60	80	82

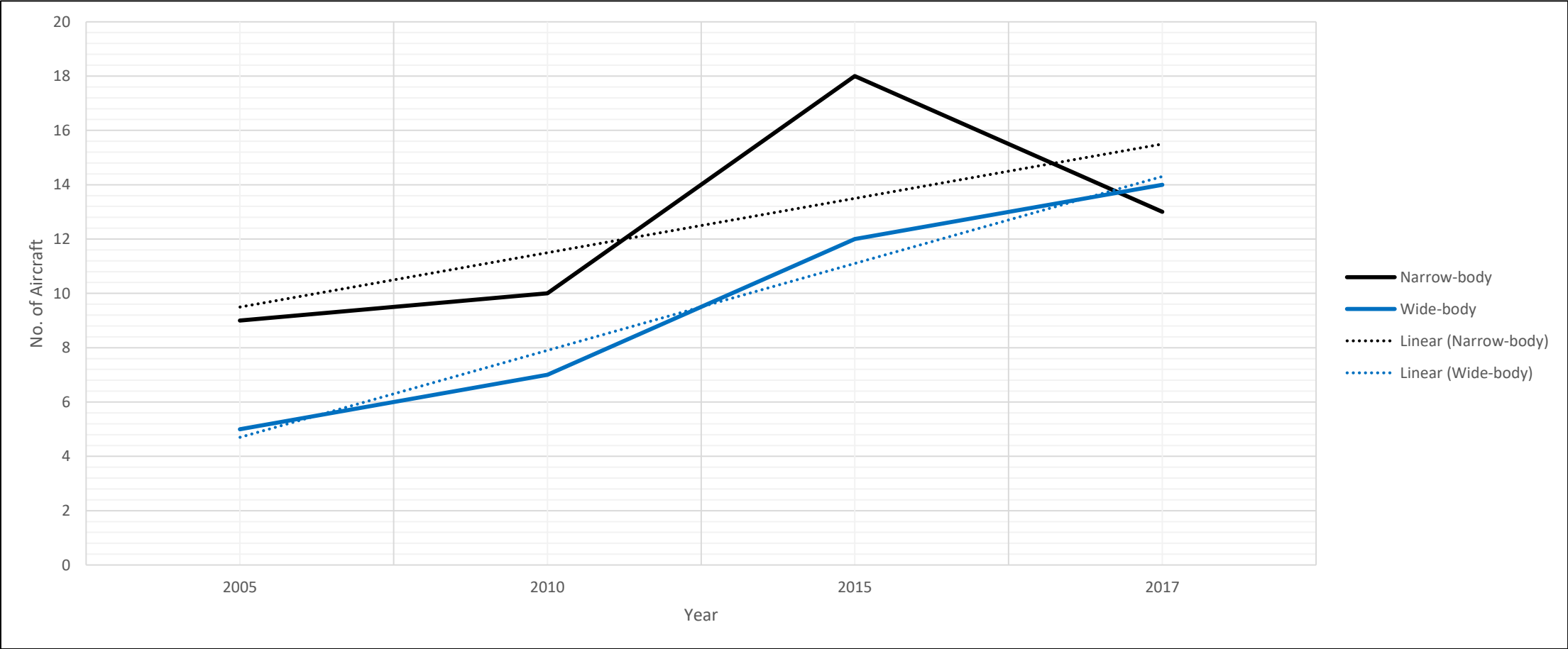
# Analysis

- One way of prediction into the number of future aviation professionals was the analysis of trend based on previous employment data. Both linear and logarithmic trend lines were generated for all employment graphs, however, the values from the logarithmic trend lines were used for the calculations where appropriate
- The following slides provide another type of analysis and visual representation of;
  - The increase in number of aircraft operated by SriLankan Airlines during the years of 2005, 2010, 2015, and 2017
  - A forecast into the required number of aircraft in the years 2020, 2025 and 2030, based on known fleet growth and aircraft lease returns until 2025
  - A forecast of required number of Aviation Professionals based on the assumption that this number is proportional to the number of aircraft operated by the airline



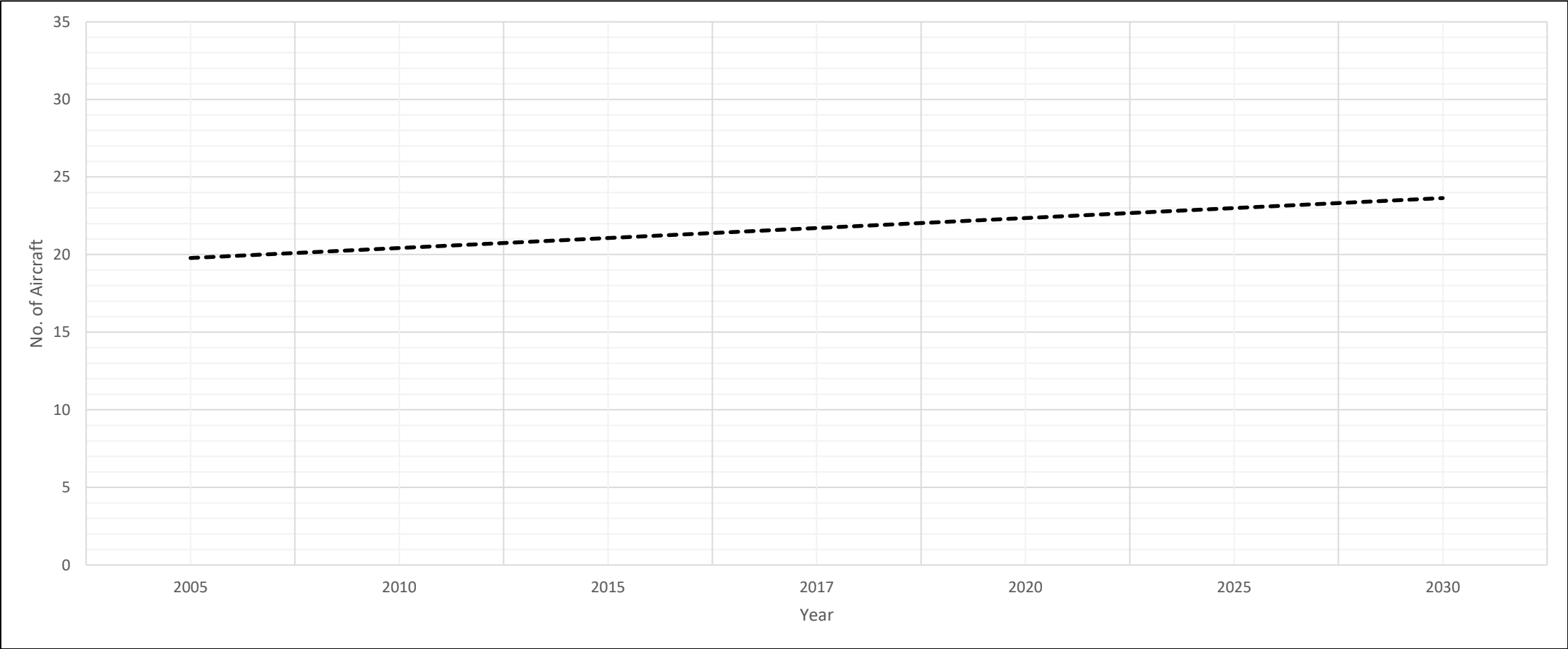
# Aircraft Analysis – Current Data

Graph 1 – Current Trend – SriLankan Airlines



# Aircraft Analysis – Forecasted up to 2030

Graph 2 – Forecasted Trend – SriLankan Airlines



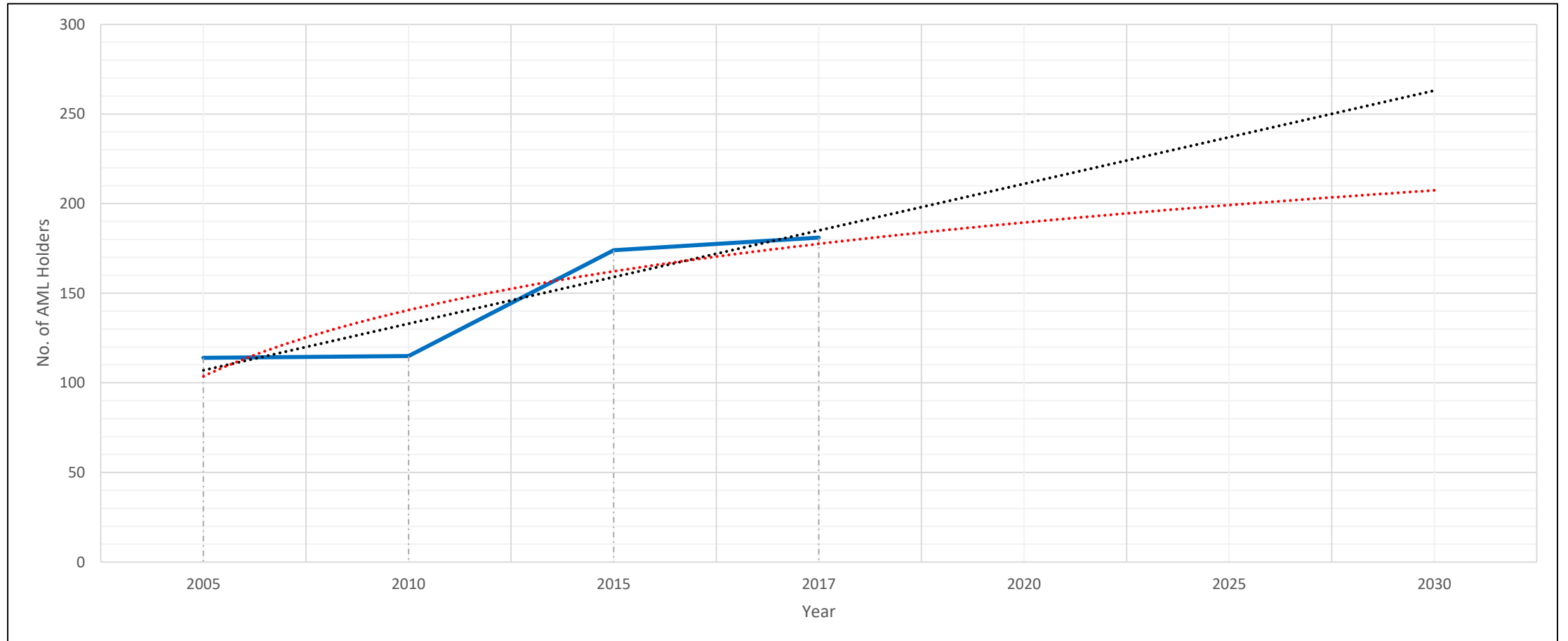
# AML Holders

- Two methods were used in order to obtain an accurate forecast of the number of AML holders that will be required by 2030
  - Graph based on extrapolating the employment figures for the years ranging from 2005 to 2017
  - Graph based on the number of AML holders with respect to the number of aircraft
- Data obtained from the two methods were used to calculate a mean value

# Method 1:

Based on employment figures for years 2005 to 2017

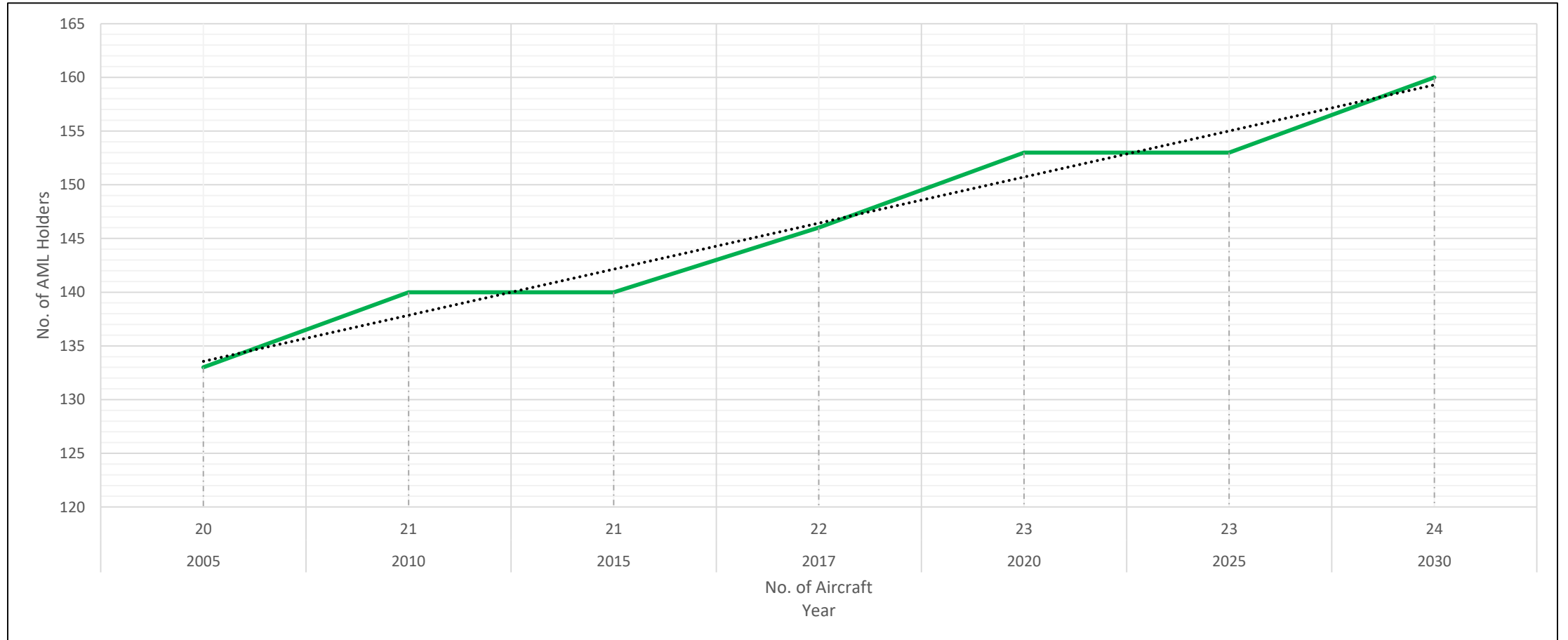
Graph 3 – No. of AML Holders vs Year – SriLankan Airlines



# Method 2:

Based on the number of aircraft

Graph 4 – No. of AML Holders vs No. of Aircraft – SriLankan Airlines



# Mean Value

- The following values for the required number of AML holders by 2030 were obtained using the two methods;
  - Method 1: 210
  - Method 2: 160
- The mean value can be calculated to be;

$$\frac{210 + 160}{2} = 185$$

# Corrections

- The mean figure that was obtained using the two forecasting methods does not include resignations, retirements and shortage
- Taking these corrections into account, the total number of AML holders can be calculated to be;
  - Taking total number by 2030 as X;

$$\begin{aligned}X &= \text{Mean Value} + \text{Shortage} \\X &= 185 + 28 \\&= 213\end{aligned}$$

- Hence the required number of AML holders that need to be trained and qualified by 2030 (Y) is;

$$\begin{aligned}Y &= X - \text{Current number} + \text{Retirements} + \text{Resignations} \\&= 213 - 146 + (13 \times 8) \\&= 171\end{aligned}$$

# Method 3:

Based on the ICAO forecast for passenger movement

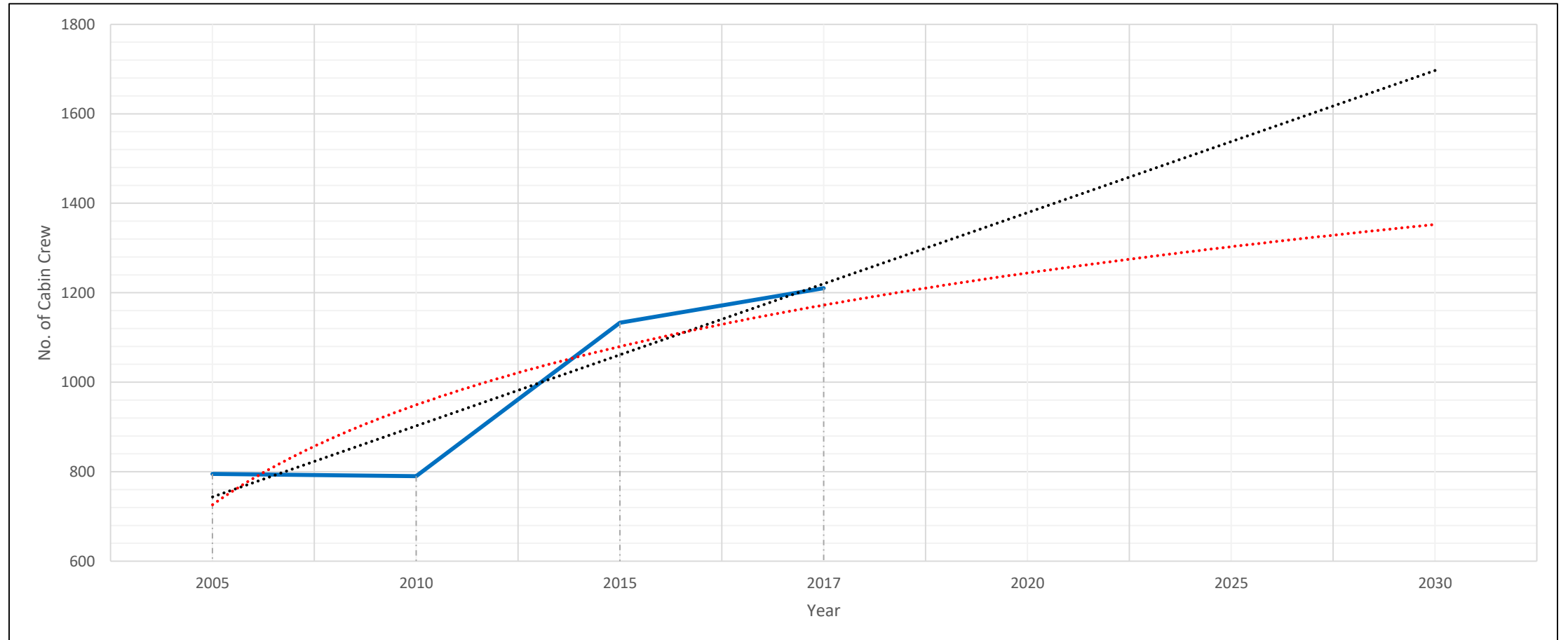
- ICAO has published passenger and cargo forecast figures for certain regions
- CAASL has been requested to liaise with the NGAP committee of ICAO to help determine a localised methodology
- This will allow for a calculation to be performed in order to obtain a passenger forecast specific to Sri Lanka
- The passenger data can then be used to forecast the required number of aviation professionals in Sri Lanka by 2030



# Cabin Crew – Method 1:

Based on employment figures for years 2005 to 2017

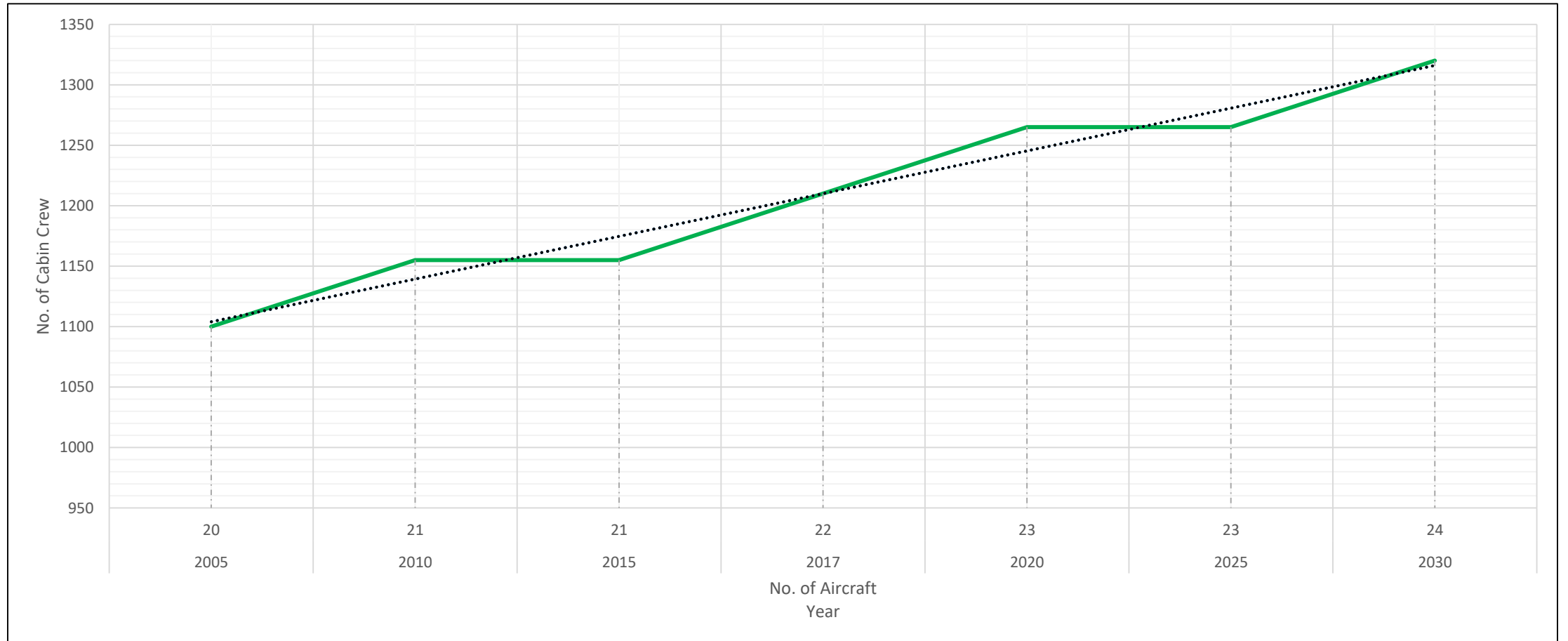
Graph 5 – No. of Cabin Crew – SriLankan Airlines



# Cabin Crew – Method 2:

Based on the number of aircraft

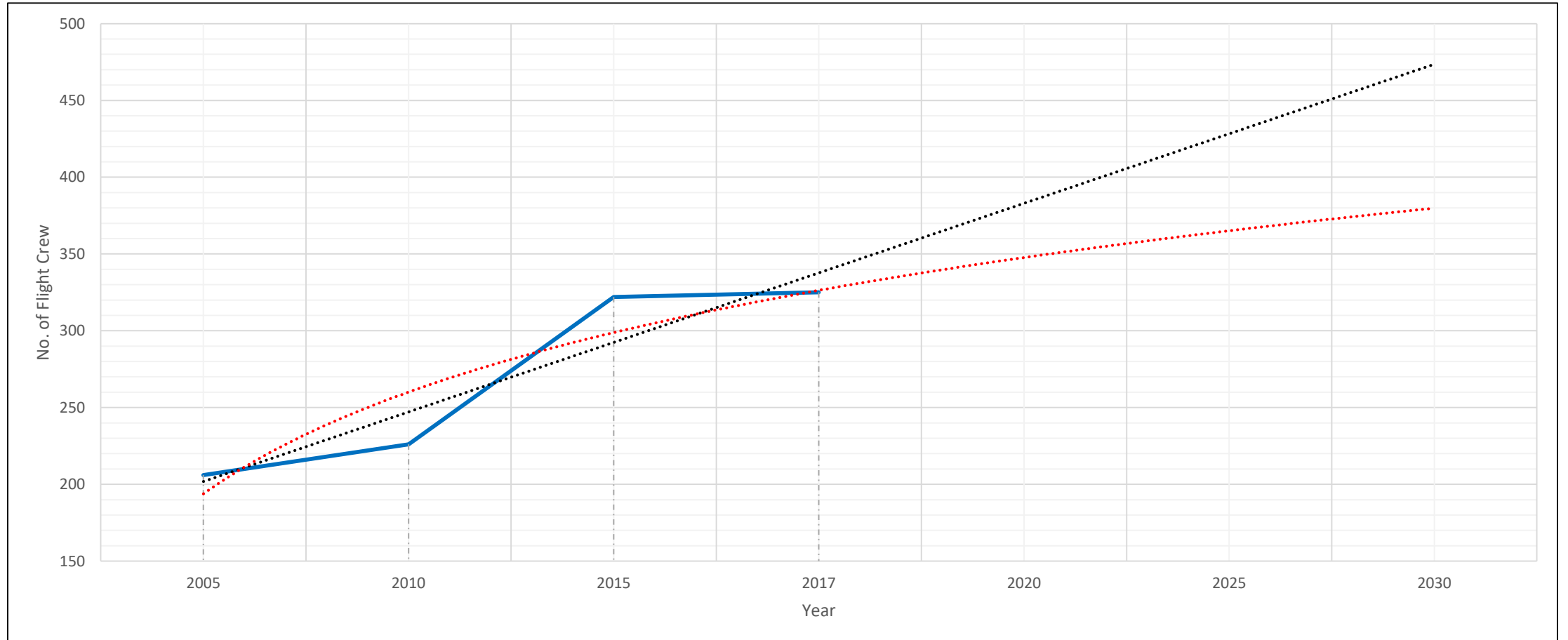
Graph 6 – No. of Cabin Crew – SriLankan Airlines



# Flight Crew – Method 1:

Based on employment figures for years 2005 to 2017

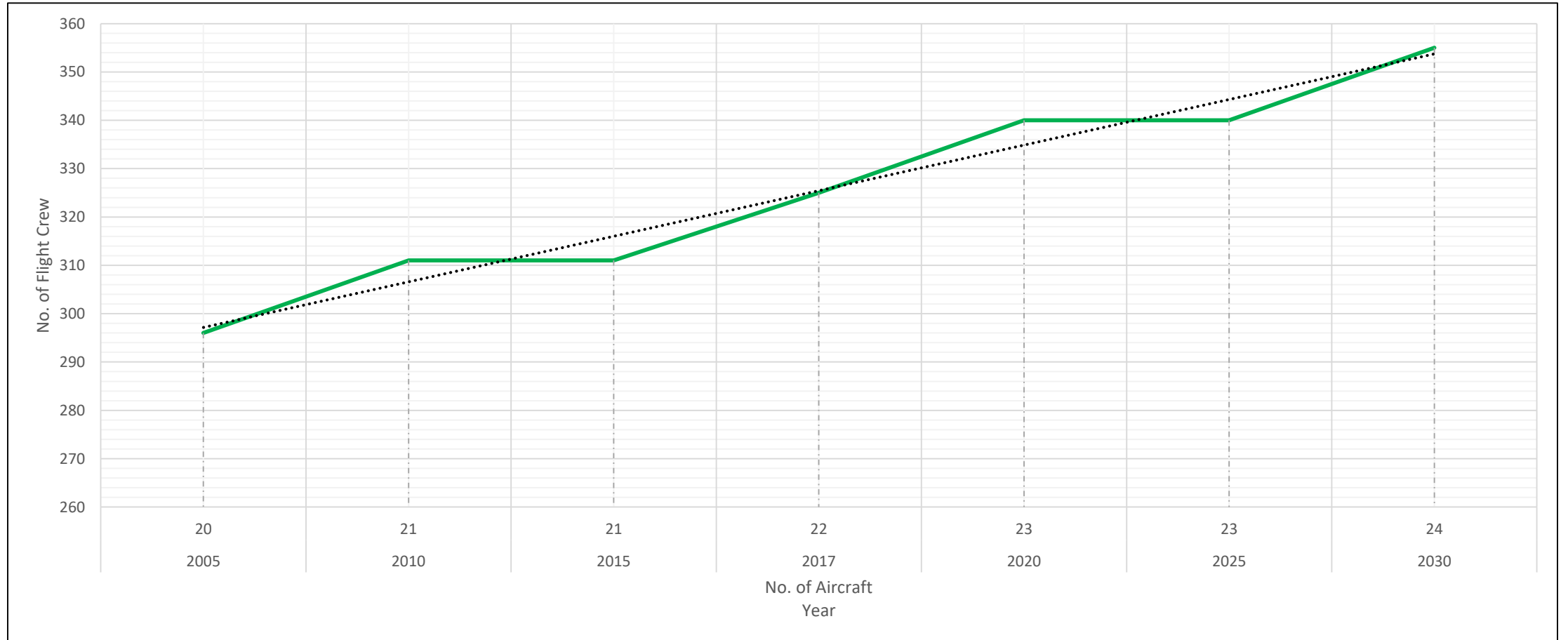
Graph 7 – No. of Flight Crew – SriLankan Airlines



# Flight Crew – Method 2:

Based on the number of aircraft

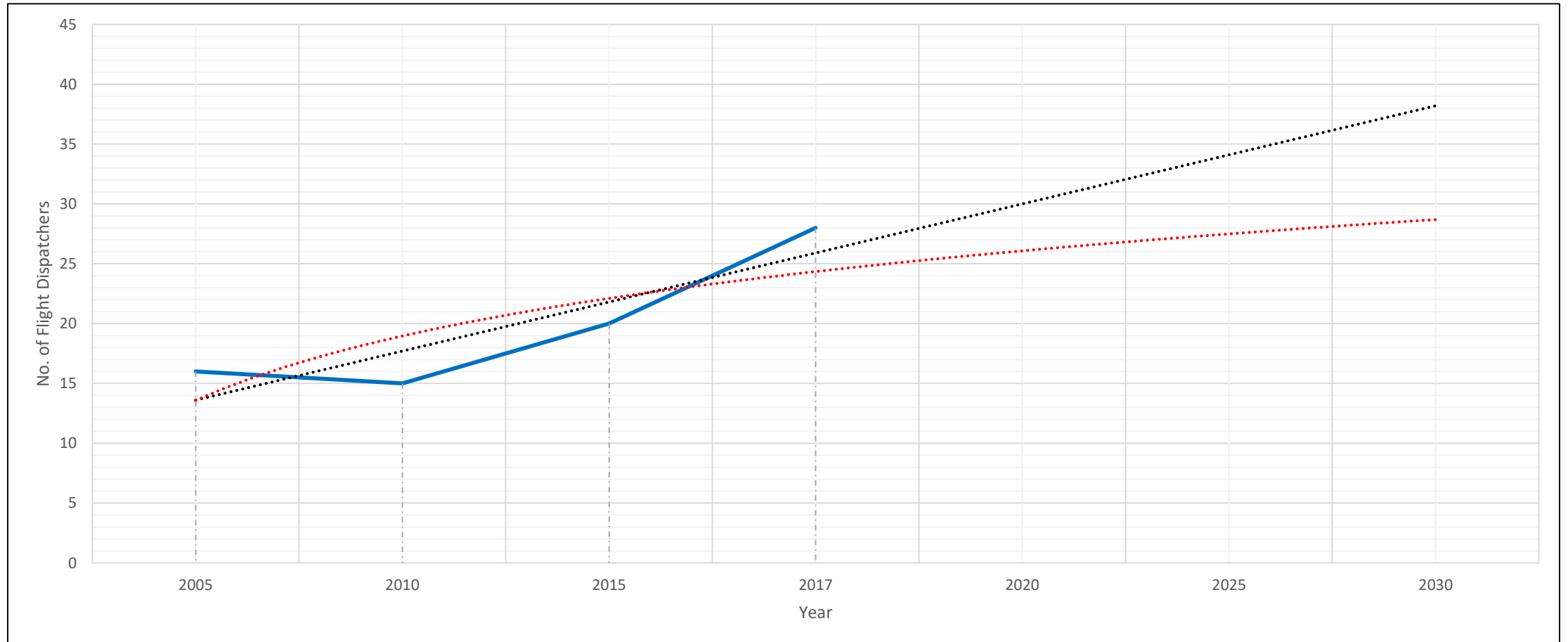
Graph 8 – No. of Flight Crew – SriLankan Airlines



# Flight Dispatchers – Method 1:

Based on employment figures for years 2005 to 2017

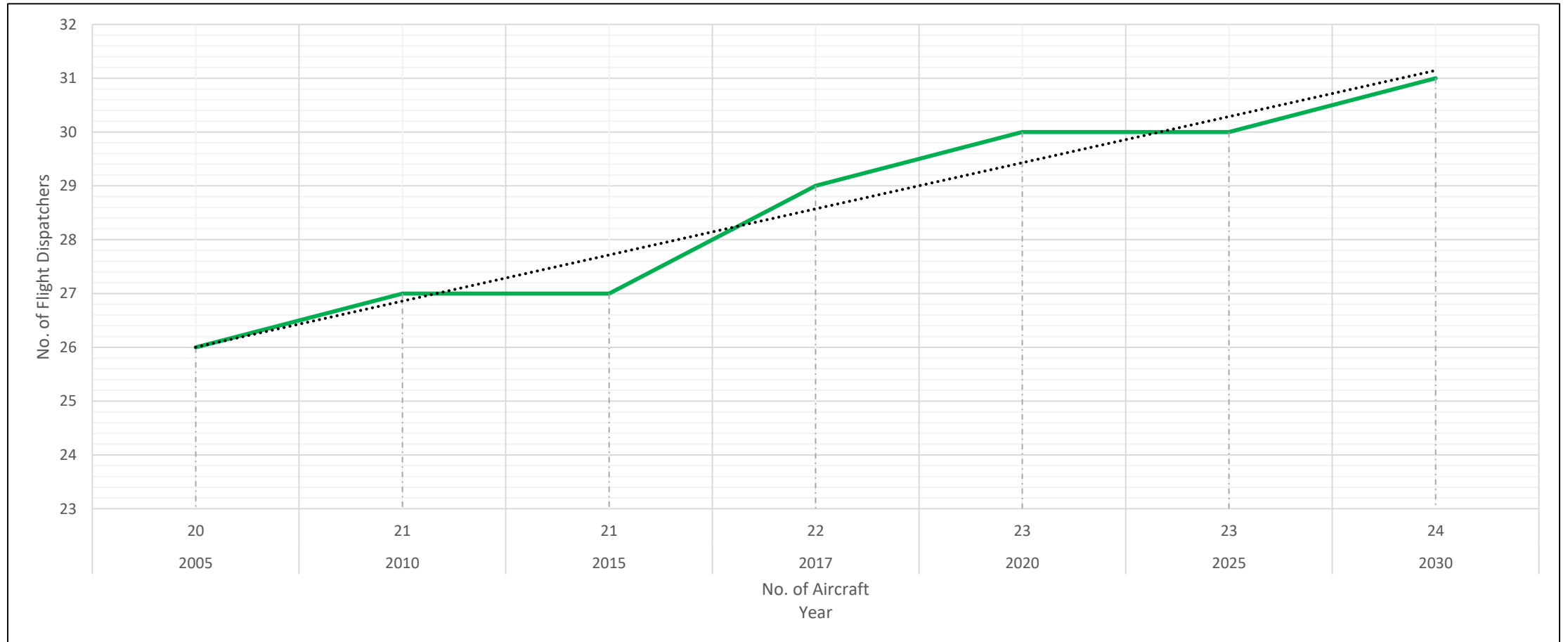
Graph 9 – No. of Flight Dispatchers – SriLankan Airlines



# Flight Dispatchers – Method 2:

Based on the number of aircraft

Graph 10 – No. of Flight Dispatchers – SriLankan Airlines



# AASL

- In addition to SriLankan Airlines, the following personnel from AASL have been analysed using one method; extrapolating employment data obtained for previous years (2005 to 2017)
  - Air Traffic Controllers
  - Aeronautical Station Operators
- The following slides contain individual graphs for each category

# Air Traffic Controllers

- It is estimated that approximately 8 to 9 ATC personnel will resign or retire for every three years at the company
- A 40% shortage is currently present
- Due to this, the required number of Air Traffic Controllers for 2018 is estimated to be 144
- This is a 69.4% increase from the 2017 figure of 82 ATC licence holders



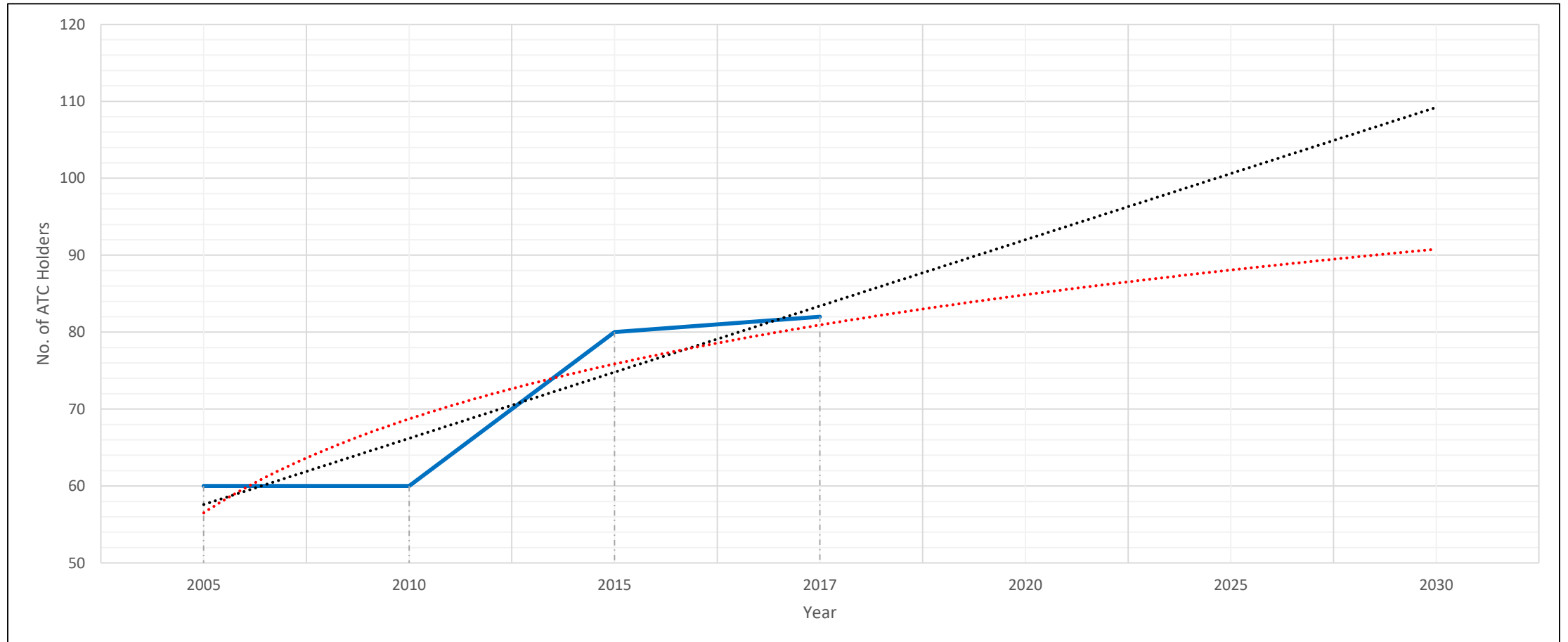
# Air Traffic Controllers

- Similar to the previous categories, two methods were used to forecast the required number of ATC personnel by 2030
  - Graph based on employment figures for the years 2005, 2010, 2015 & 2017
  - Graph based on the required figure of 144 for the year 2020
- Extrapolation of these graphs help visualise a viable forecast into the required number of ATC personnel by 2030

# Method 1:

Based on employment figures for years 2005 to 2017

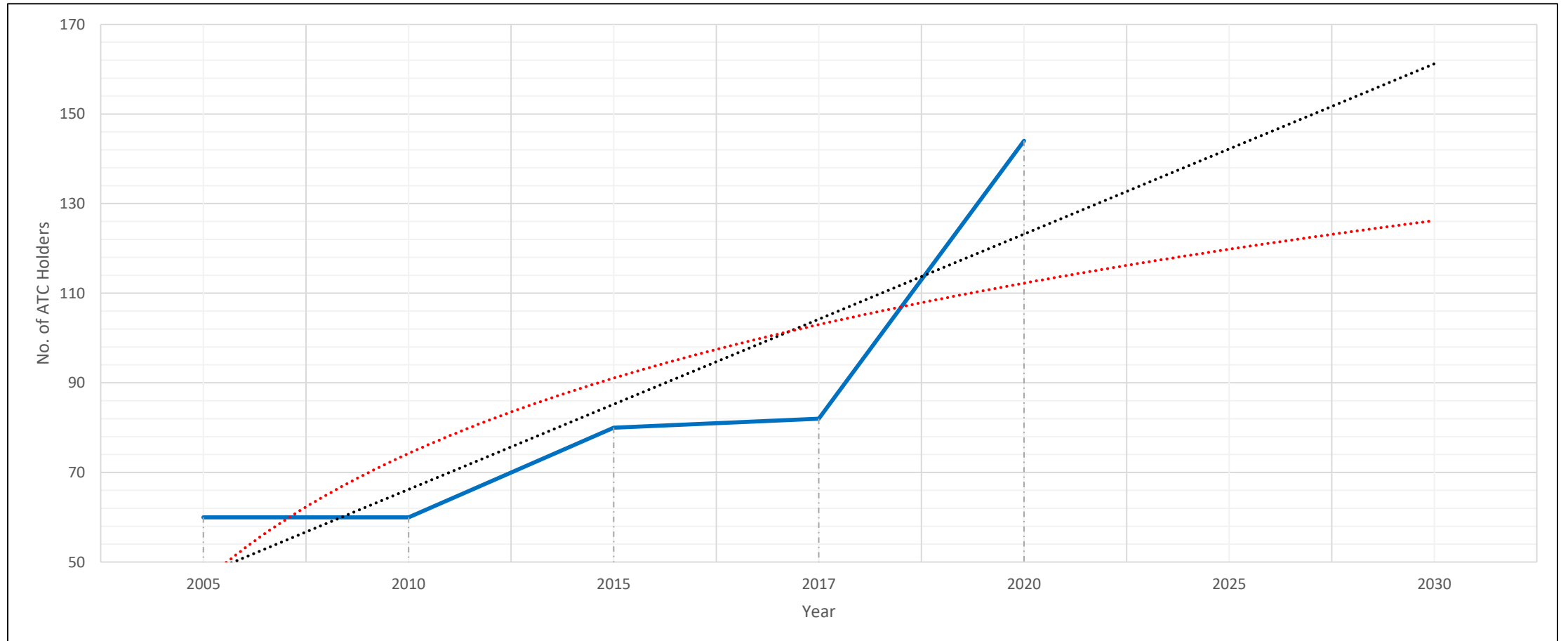
Graph 11 – No. of Air Traffic Controllers vs Year - AASL



# Method 2:

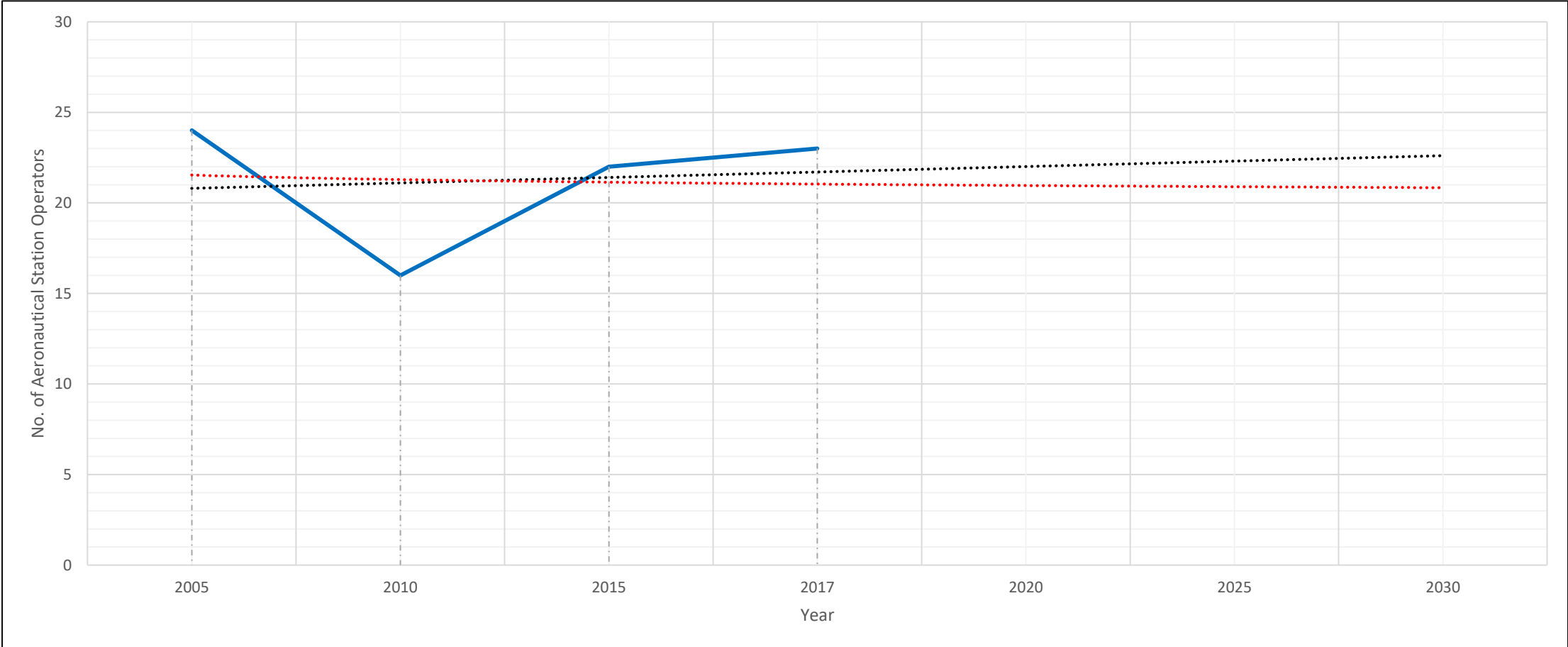
Based on the required figure of 144 for the year 2020

Graph 12 – No. of Air Traffic Controllers vs Year - AASL



# Aeronautical Station Operators

Graph 13 – No. of Aeronautical Station Operators – AASL



# Summary

Table 3 – Summary of Calculated Figures

	2030 Figures using Different Methods (without corrections)	Mean Value	2030 Forecasted Numbers*	Resignations & Retirements until 2030	Current Figure	Required Number to be Trained & Qualified
AML	210	185	213	104	146	171
	160					
Cabin Crew	1360	1340	1374	949	1210	1113
	1320					
Flight Crew	380	368	395	221	325	291
	355					
Flight Dispatchers	29	30	31	52	28	55
	31					
ATC	91	109	142	39	82	99
	126					
ASO	21	21	26	39	23	42

\*Mean value corrected for current shortage.

# Conclusion

- From the information obtained from SriLankan Airlines and AASL, it is evident that there has been a significant growth in the number of employed licence holders
- However, the current shortages show that the requirement for more personnel is much higher than anticipated
- Data entailing the number of licences issued in the previous years until now can be obtained from CAASL
- Using this, a comparison can be made in order to determine the number of licence holders who are employed, unemployed and are retired

# Proposed Research

- Information for the relevant licences/certifications will be obtained from other aviation organisations in liaison with CAASL
- Upon receipt of the required data, an in-depth analysis will be conducted to determine the previous employment trend of specific licence holders, and the current shortage in Sri Lanka
- This will allow a viable comparison and forecast to be made into the required number of aviation professionals in Sri Lanka by 2030
- In addition, CAASL has been requested to liaise with the NGAP committee of ICAO to help determine a localized methodology in order to obtain a passenger forecast specific to Sri Lanka. Based on the passenger forecast, forecasting the required number of aviation professionals in Sri Lanka by 2030 is another method (Method 3) proposed in this presentation.

**Thank you.**