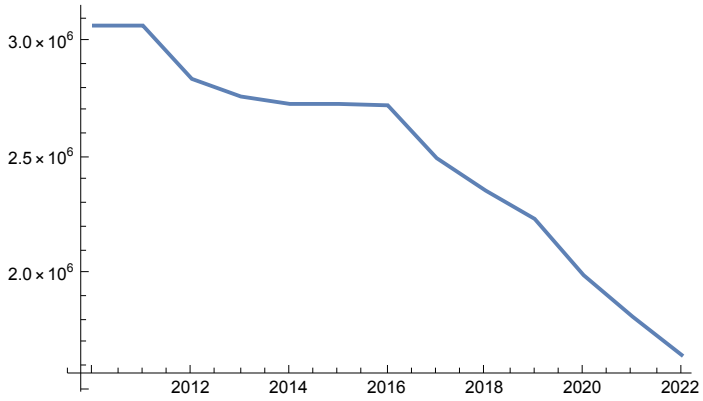
In[10]:=
```
a = {{2010, 3 070 000}, {2011, 3 070 000}, {2012, 2 840 000},
   {2013, 2 764 000}, {2014, 2 732 000}, {2015, 2 732 000},
   {2016, 2 726 000}, {2017, 2 498 000}, {2018, 2 358 000},
   {2019, 2 236 000}, {2020, 1 993 000}, {2021, 1 814 000}, {2022, 1 649 000}}
```

Out[10]=
```
{{2010, 3 070 000}, {2011, 3 070 000}, {2012, 2 840 000},
 {2013, 2 764 000}, {2014, 2 732 000}, {2015, 2 732 000},
 {2016, 2 726 000}, {2017, 2 498 000}, {2018, 2 358 000},
 {2019, 2 236 000}, {2020, 1 993 000}, {2021, 1 814 000}, {2022, 1 649 000}}
```

```
(* year 2011 has no circulation data,
previous year circulation employed for 2011 *)
```

In[11]:=
```
ListPlot[a, Joined → True]
```

Out[11]=

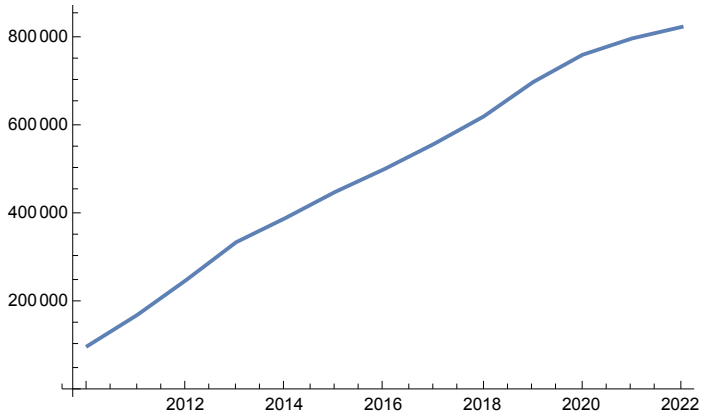


In[13]:=
```
b = {{2010, 100 000}, {2011, 170 000}, {2012, 250 000}, {2013, 335 000},
   {2014, 390 000}, {2015, 449 000}, {2016, 501 000}, {2017, 558 000}, {2018, 620 000},
   {2019, 698 000}, {2020, 760 000}, {2021, 797 000}, {2022, 823 000}}
```

Out[13]=
```
{{2010, 100 000}, {2011, 170 000}, {2012, 250 000}, {2013, 335 000}, {2014, 390 000},
 {2015, 449 000}, {2016, 501 000}, {2017, 558 000}, {2018, 620 000},
 {2019, 698 000}, {2020, 760 000}, {2021, 797 000}, {2022, 823 000}}
```

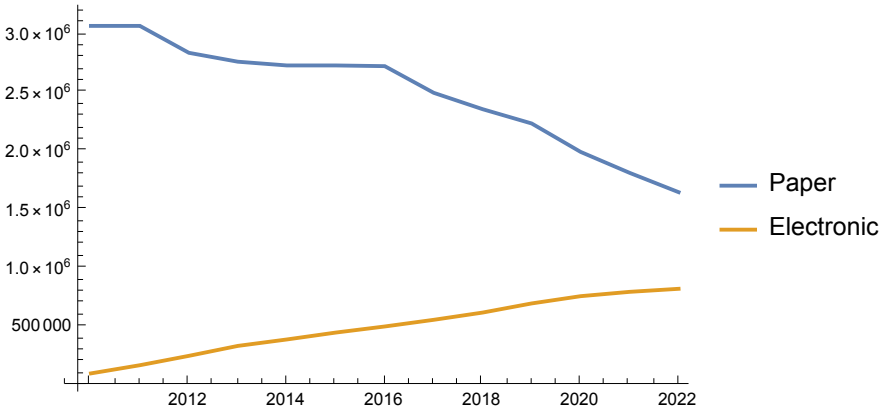
In[14]:=
```
ListPlot[b, Joined → True]
```

Out[14]=



In[53]:=
```
ListPlot[{a, b}, Joined → True, PlotLegends → LineLegend[{"Paper", "Electronic"}]]
```

Out[53]=



In[16]:=
```
pc = 5500
```

Out[16]=
```
5500
```

In[17]:=
```
ec = 4277
```

Out[17]=
```
4277
```

In[19]:=
```
a2 = Transpose[a]
```

Out[19]=
```
{{2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022},
 {3 070 000, 3 070 000, 2 840 000, 2 764 000, 2 732 000, 2 732 000,
  2 726 000, 2 498 000, 2 358 000, 2 236 000, 1 993 000, 1 814 000, 1 649 000}}
```

In[20]:=
```
a3 = {a2[[1]], pc * a2[[2]]}
```

Out[20]=
```
{{2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022},
 {16 885 000 000, 16 885 000 000, 15 620 000 000, 15 202 000 000,
  15 026 000 000, 15 026 000 000, 14 993 000 000, 13 739 000 000,
  12 969 000 000, 12 298 000 000, 10 961 500 000, 9 977 000 000, 9 069 500 000}}
```

In[21]:=
```
a4 = Transpose[a3]
```

Out[21]=
```
{{2010, 16 885 000 000}, {2011, 16 885 000 000},
 {2012, 15 620 000 000}, {2013, 15 202 000 000},
 {2014, 15 026 000 000}, {2015, 15 026 000 000}, {2016, 14 993 000 000},
 {2017, 13 739 000 000}, {2018, 12 969 000 000}, {2019, 12 298 000 000},
 {2020, 10 961 500 000}, {2021, 9 977 000 000}, {2022, 9 069 500 000}}
```

In[22]:=
```
b2 = Transpose[b]
```

Out[22]=
```
{{2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022},
 {100 000, 170 000, 250 000, 335 000, 390 000, 449 000,
  501 000, 558 000, 620 000, 698 000, 760 000, 797 000, 823 000}}
```

In[23]:=
```
b3 = {b2[[1]], ec * b2[[2]]}
```

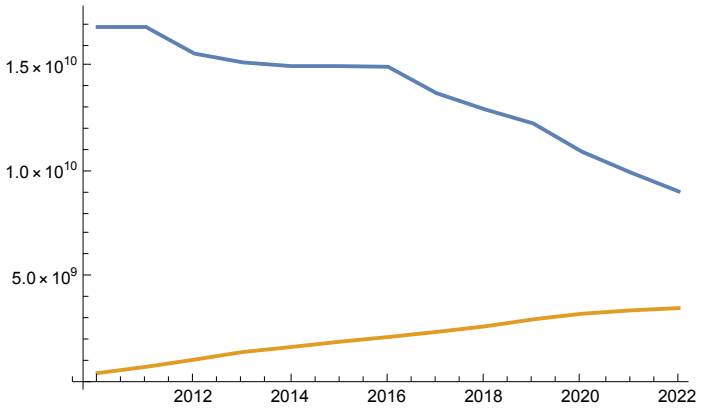
Out[23]=
```
{{2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022},
 {427 700 000, 727 090 000, 1 069 250 000, 1 432 795 000,
  1 668 030 000, 1 920 373 000, 2 142 777 000, 2 386 566 000, 2 651 740 000,
  2 985 346 000, 3 250 520 000, 3 408 769 000, 3 519 971 000}}
```

In[24]:=
```
b4 = Transpose[b3]
```

Out[24]=
```
{{2010, 427 700 000}, {2011, 727 090 000}, {2012, 1 069 250 000}, {2013, 1 432 795 000},
 {2014, 1 668 030 000}, {2015, 1 920 373 000}, {2016, 2 142 777 000},
 {2017, 2 386 566 000}, {2018, 2 651 740 000}, {2019, 2 985 346 000},
 {2020, 3 250 520 000}, {2021, 3 408 769 000}, {2022, 3 519 971 000}}
```

In[26]:=
```
ListPlot[{a4, b4}, Joined → True]
```

Out[26]=



In[27]:=
```
c = {a2[[1]], a3[[2]] + b3[[2]]}
```

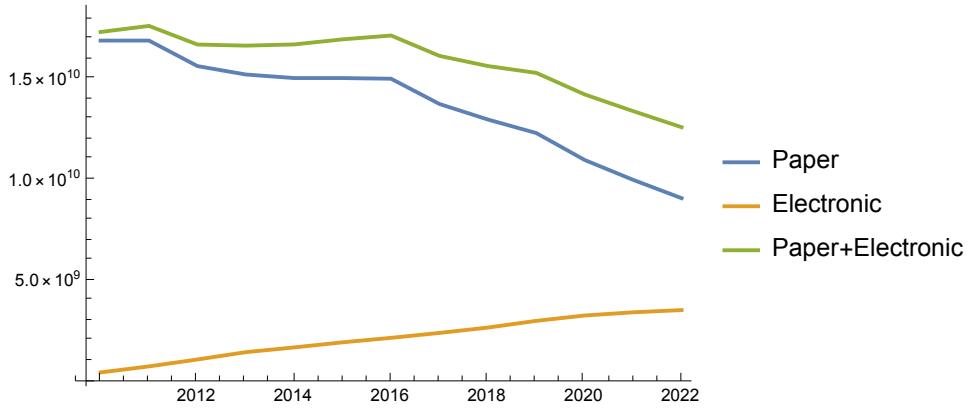
Out[27]=
```
{{2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022},
 {17 312 700 000, 17 612 090 000, 16 689 250 000, 16 634 795 000,
  16 694 030 000, 16 946 373 000, 17 135 777 000, 16 125 566 000, 15 620 740 000,
  15 283 346 000, 14 212 020 000, 13 385 769 000, 12 589 471 000}}
```

In[29]:=
```
c4 = Transpose[c]
```

Out[29]=
```
{{2010, 17 312 700 000}, {2011, 17 612 090 000},
 {2012, 16 689 250 000}, {2013, 16 634 795 000},
 {2014, 16 694 030 000}, {2015, 16 946 373 000}, {2016, 17 135 777 000},
 {2017, 16 125 566 000}, {2018, 15 620 740 000}, {2019, 15 283 346 000},
 {2020, 14 212 020 000}, {2021, 13 385 769 000}, {2022, 12 589 471 000}}
```

In[54]:=
```
ListPlot[{a4, b4, c4}, Joined → True,
 PlotLegends → LineLegend[{"Paper", "Electronic", "Paper+Electronic"}]]
```

Out[54]=



In[35]:=
```
MatrixForm[a]
```

Out[35]//MatrixForm=

2010	3 070 000
2011	3 070 000
2012	2 840 000
2013	2 764 000
2014	2 732 000
2015	2 732 000
2016	2 726 000
2017	2 498 000
2018	2 358 000
2019	2 236 000
2020	1 993 000
2021	1 814 000
2022	1 649 000

In[32]:=
```
MatrixForm[b]
```

Out[32]//MatrixForm=

2010	100 000
2011	170 000
2012	250 000
2013	335 000
2014	390 000
2015	449 000
2016	501 000
2017	558 000
2018	620 000
2019	698 000
2020	760 000
2021	797 000
2022	823 000

In[37]:=
```
? Export
```

Out[37]=

Symbol

Export["*dest.ext*", *expr*] exports data to a file,
converting it to the format corresponding to the file extension *ext*.
Export[*dest*, *expr*, "*fmt*"] exports data in the specified format "*fmt*".
Export[*dest*, *exprs*, *elements*] exports data by treating *exprs* as *elements*.
Export[*dest*, *exprs*, *elements*, *options*] uses the specified options.

In[38]:=
```
Export["~/nikkei-pc.csv", a, "CSV"]
```

Out[38]=

~/nikkei-pc.csv

In[39]:=
```
Export["~/nikkei-ec.csv", b, "CSV"]
```

Out[39]=

~/nikkei-ec.csv

In[42]:=
```
Export["~/nikkei-ps.csv", a4, "CSV"]
```

Out[42]=

~/nikkei-ps.csv

In[43]:=
```
Export["~/nikkei-es.csv", b4, "CSV"]
```

Out[43]=

~/nikkei-es.csv

In[45]:=
```
Export["~/nikkei-pes.csv", c4, "CSV"]
```

Out[45]=

~/nikkei-pes.csv

In[55]:=
```
? LeastSquares
```

Out[55]=

Symbol

LeastSquares[*m*, *b*] finds an *x* that solves
the linear least–squares problem for the matrix equation *m*.*x* == *b*.

Documentation Web »
Options {Method → Automatic, Tolerance → Automatic}
Attributes {Protected}
Full Name System`LeastSquares

In[56]:=
```
a[[1]]
```

Out[56]=

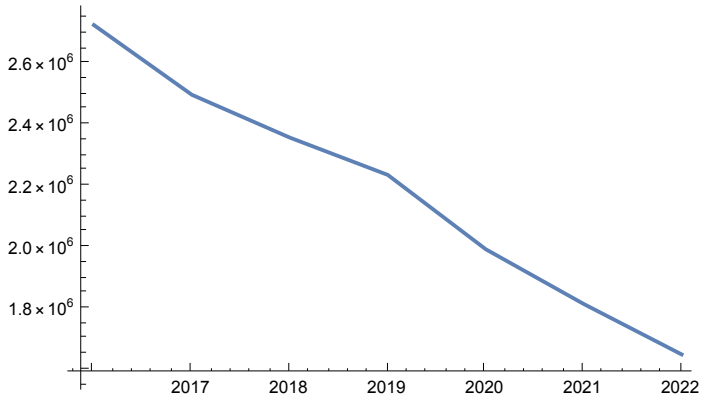
{2010, 3 070 000}

In[57]:=
```
as = Table[a[[i]], {i, 7, Length[a]}]
```

Out[57]=
```
{{2016, 2 726 000}, {2017, 2 498 000}, {2018, 2 358 000},
 {2019, 2 236 000}, {2020, 1 993 000}, {2021, 1 814 000}, {2022, 1 649 000}}
```

In[60]:=
```
g1 = ListPlot[as, Joined → True]
```

Out[60]=

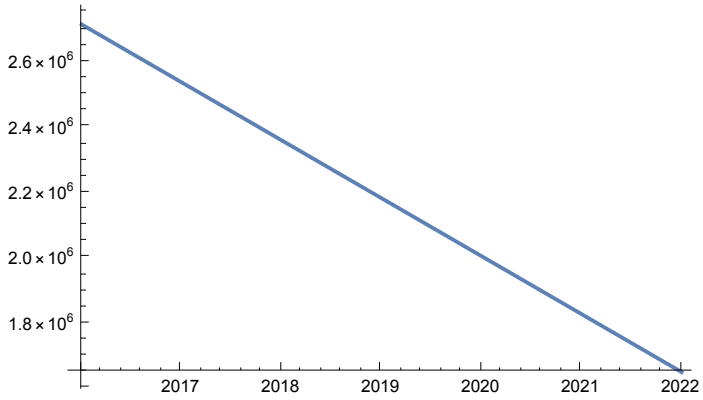


In[65]:=
```
f[t_] = Fit[as, {1, t}, t]
```

Out[65]=
$$3.60122 \times 10^8 - 177\,286.\, t$$

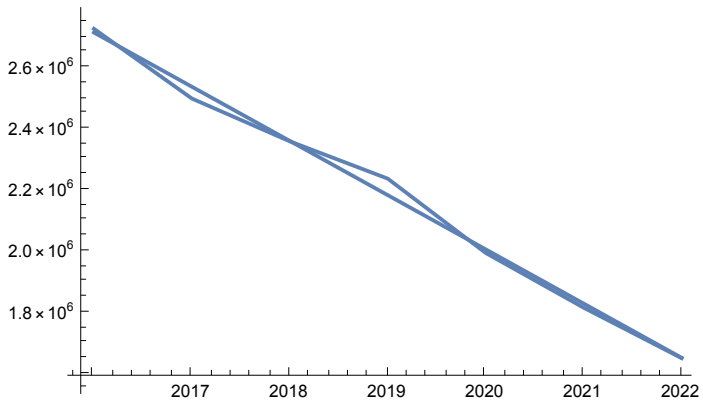
In[68]:=
```
g2 = Plot[f[t], {t, 2016, 2022}]
```

Out[68]=



In[69]:=
```
Show[g1, g2]
```

Out[69]=



In[70]:=
```
Solve[f[t] == 1 000 000, t]
```
Out[70]=
```
{{t → 2025.67}}
```

In[71]:=
```
Solve[f[t] == 800 000, t]
```
Out[71]=
```
{{t → 2026.8}}
```

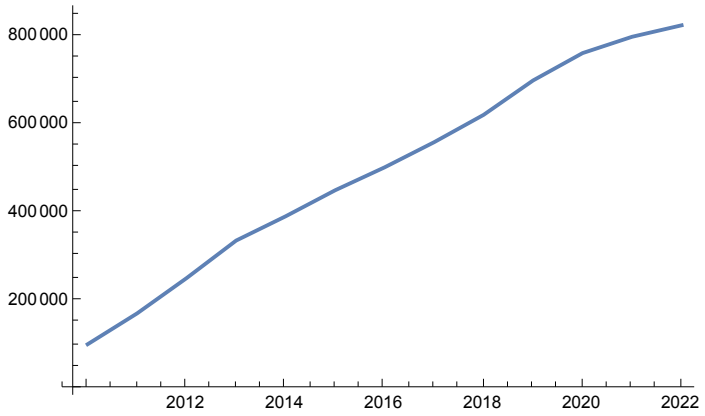
In[72]:=
```
Solve[f[t] == 500 000, t]
```
Out[72]=
```
{{t → 2028.49}}
```

In[73]:=
```
Solve[f[t] == 0, t]
```
Out[73]=
```
{{t → 2031.31}}
```

In[74]:=
```
b
```
Out[74]=
```
{{2010, 100 000}, {2011, 170 000}, {2012, 250 000}, {2013, 335 000}, {2014, 390 000},
 {2015, 449 000}, {2016, 501 000}, {2017, 558 000}, {2018, 620 000},
 {2019, 698 000}, {2020, 760 000}, {2021, 797 000}, {2022, 823 000}}
```

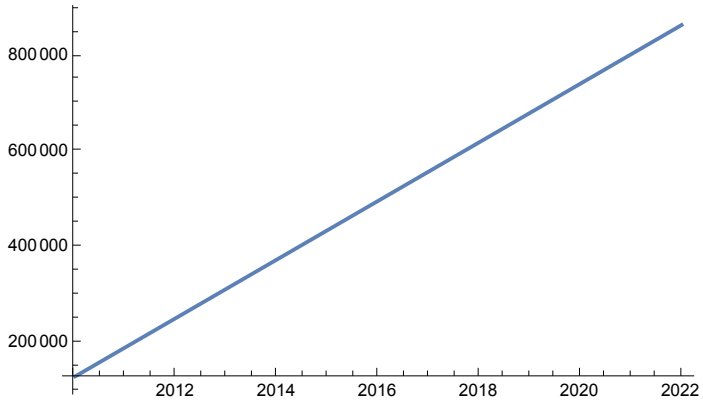
In[75]:=
```
g[t_] = Fit[b, {1, t}, t]
```
Out[75]=
$$-1.23244 \times 10^{8} + 61\,379.1\ t$$

In[82]:=
```
g3 = ListPlot[b, Joined → True]
```
Out[82]=



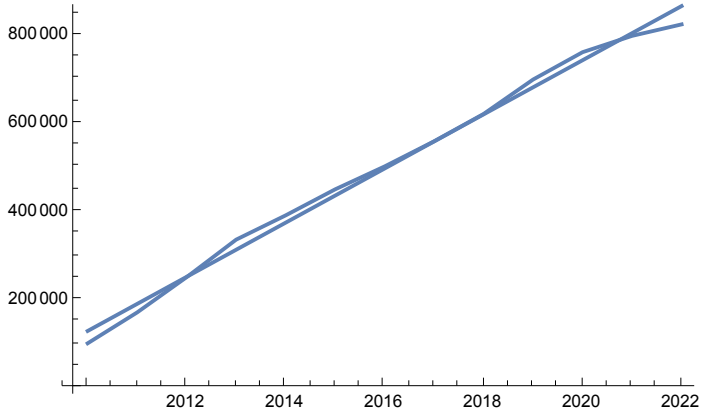
In[83]:=
```
g4 = Plot[g[t], {t, 2010, 2022}]
```

Out[83]=



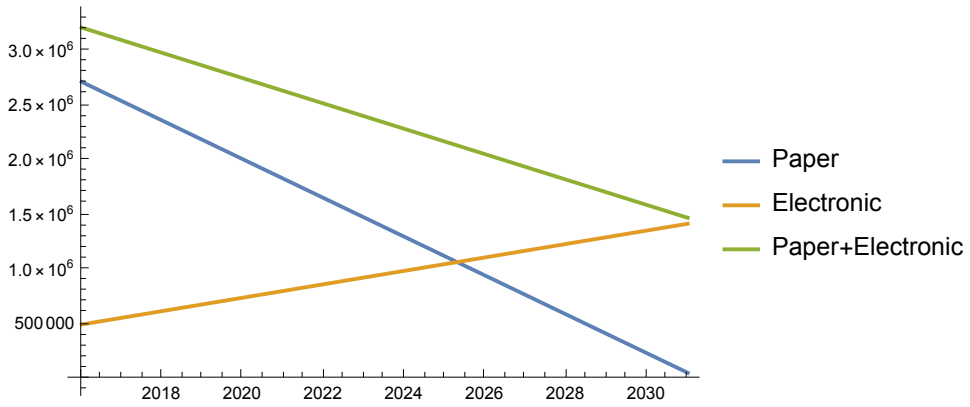
In[84]:=
```
Show[g3, g4]
```

Out[84]=



In[85]:=
```
Plot[{f[t], g[t], f[t] + g[t]}, {t, 2016, 2031},
 PlotLegends → LineLegend[{"Paper", "Electronic", "Paper+Electronic"}]]
```

Out[85]=



In[79]:=
```
Solve[f[t] + g[t] == 0, t]
```

Out[79]=

```
{{t → 2043.7}}
```