



工业互联网产业联盟





工业互联网产业联盟





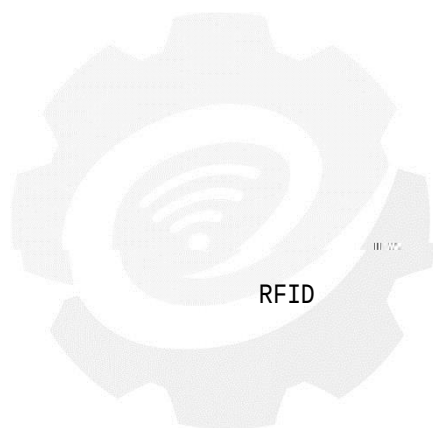
工业互联网产业联盟





工业互联网产业联盟





RFID

工业互联网产业联盟





工业互联网产业联盟





工业互联网产业联盟



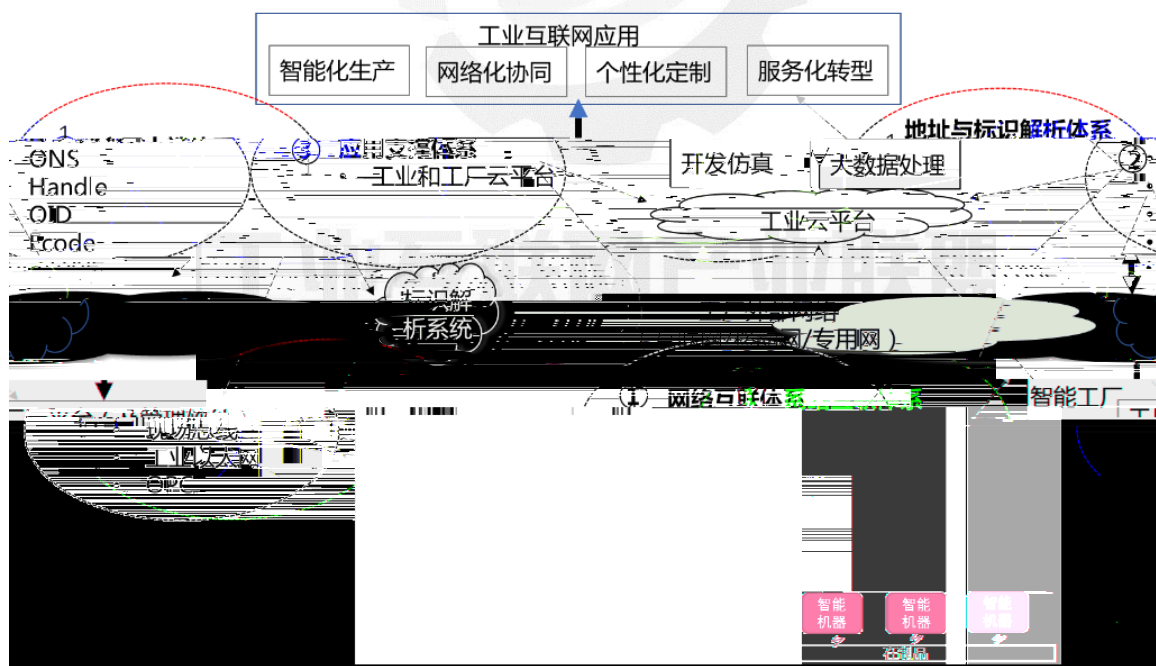


工业互联网产业联盟



1

工业互联网整体网络体系目标框架



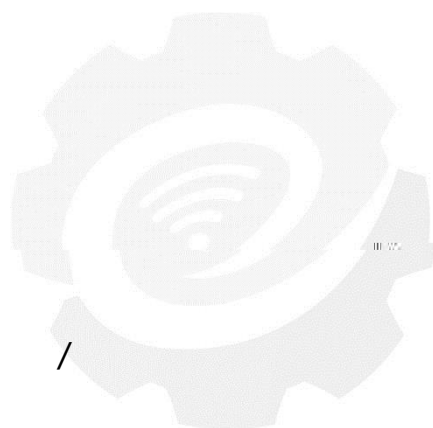
IT

OT

TI

OT

/



工业互联网产业联盟



PatentStrategies

2016

1

PROFINET Ethernet/IP

2015

2016

OPC/OPCUA

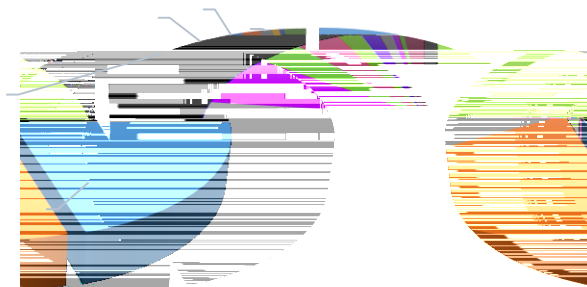
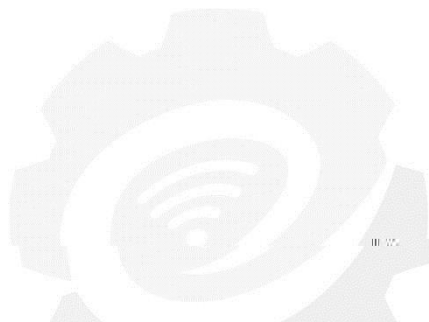
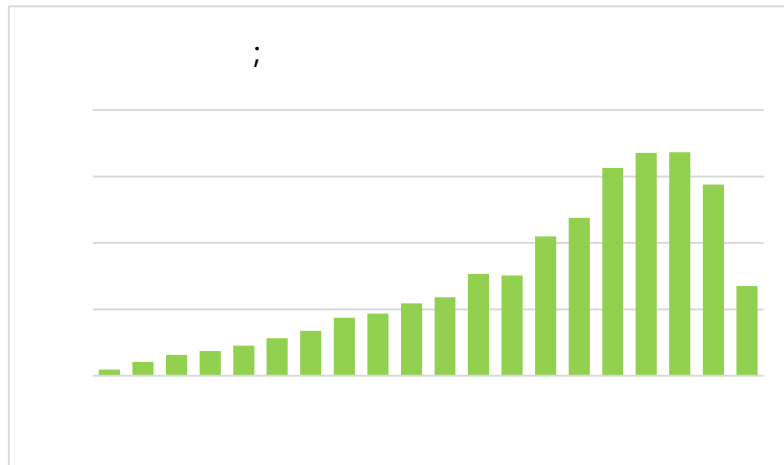
Handle	ONS	ONS Handle
OID	Ecode	



1.

	5671
1997	
	2010

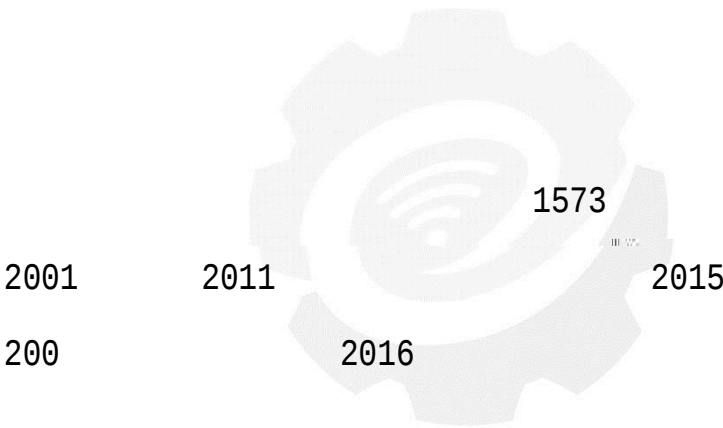
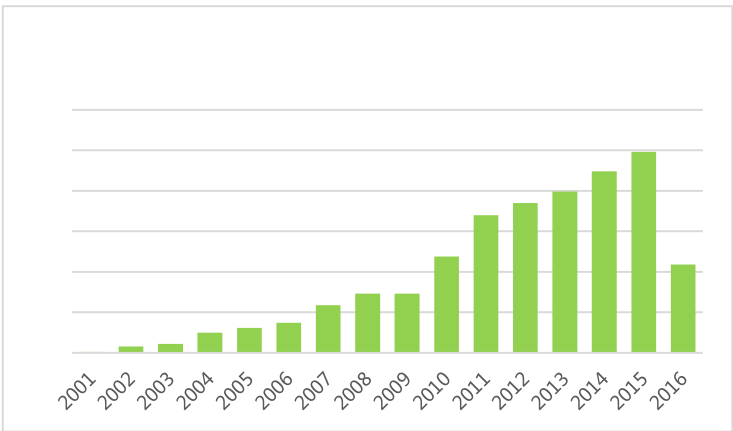
600



45%

21%

PROFINET

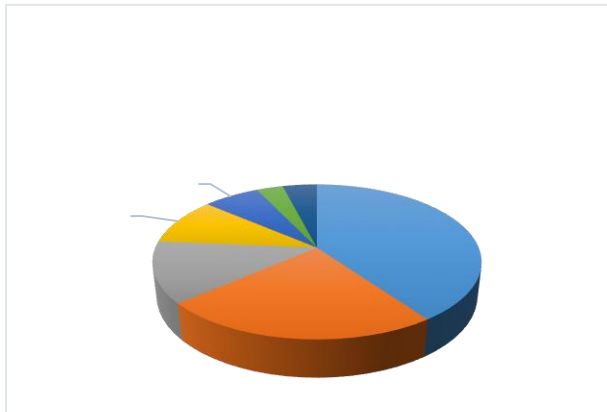


工业互联网产业联盟

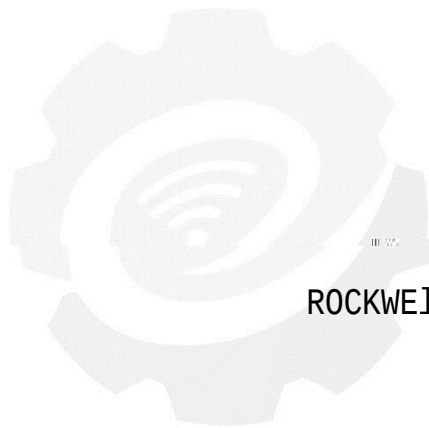


40%

23%



Siemens



ROCKWELL ABB BOSCH PHOENIX



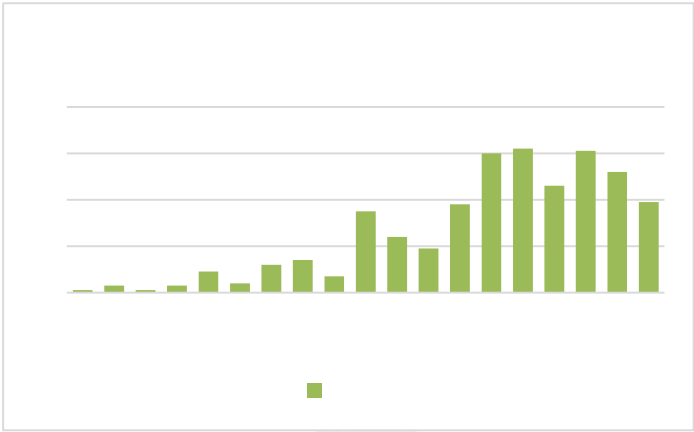
FIELDNET Modbus-RTPS FF HSE

Ethernet powerlink TCnet sercos3

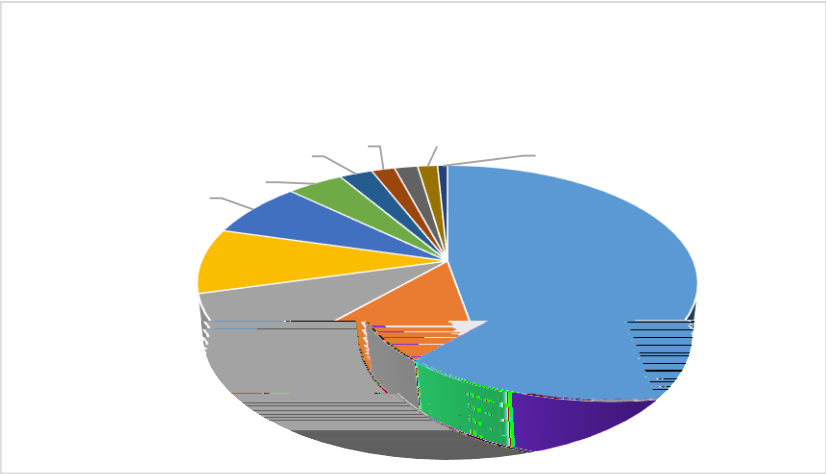
3.OPC/OPC UA

OPC 1998 OPC
Windows 1998-2007
OPA UA 2007

40



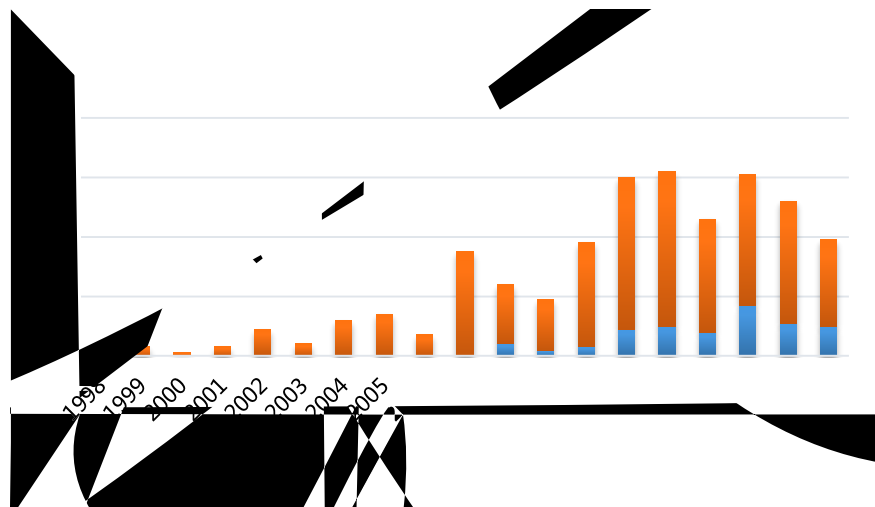
47% OPC
14% WIPO
OPC
OPC OPC UA OPC
2008



Siemens ABB GE EMERSON FISHER-ROSEMOUNT
BOSCH ROCKWELL OPC ABB
Siemens OPC

工业互联网产业联盟

Siemens ABB



OPC UA

2008

ABB

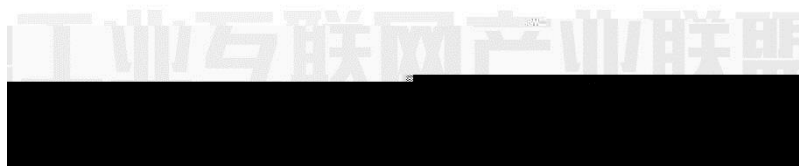
OPC UA

OPC

OPC UA

Siemens

ABB



OPC UA

OPC UA

OPC UA

OPC UA

1.ONS

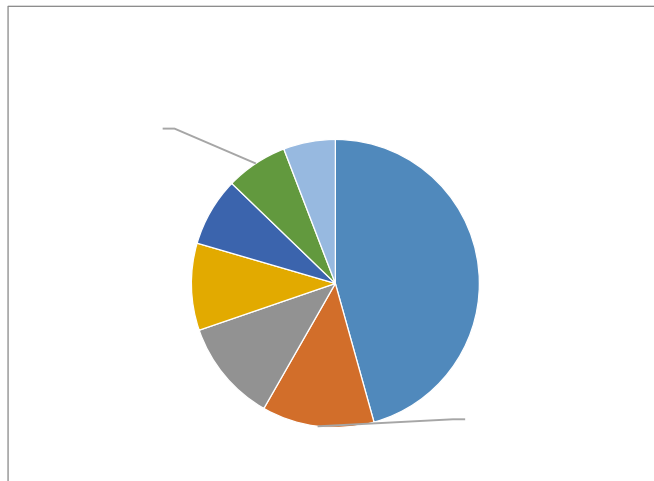


ONS

2012

2013

ONS



GE
(IIC)

Cisco

ONS

80

IBM

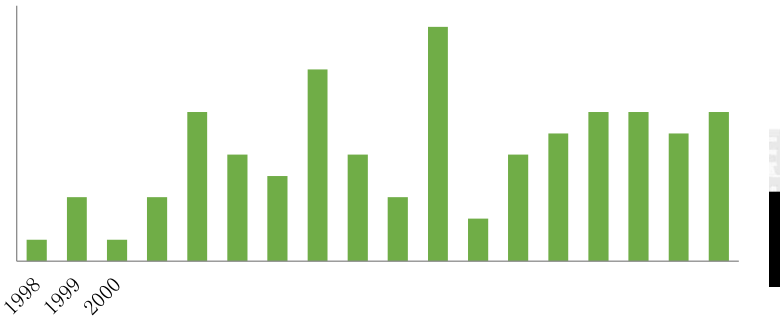
ONS

70

ONS

ONS

2.Handle



Handle

170

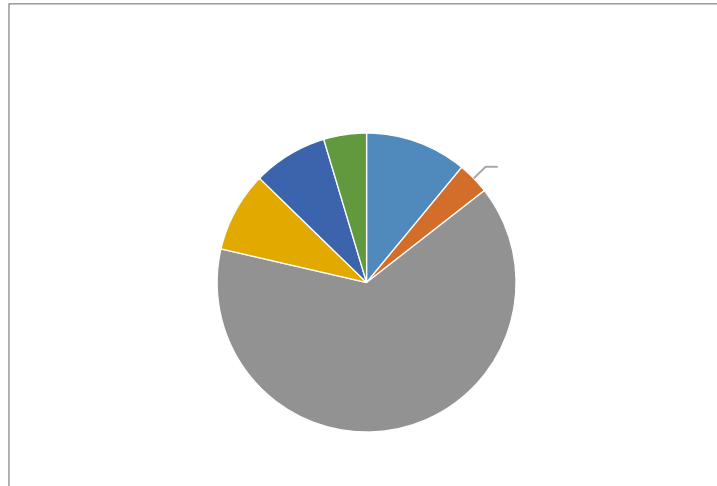
90

1998

2008

Handle

Handle



CNBT

NATIONAL

RESEARCH INITIATIVES

Handle

ROBERT C

Kahn

Handle

17

Handle

Handle

IT

IBM

Microsoft

AMERICAN EXPRESS

TRAVEL RELATE

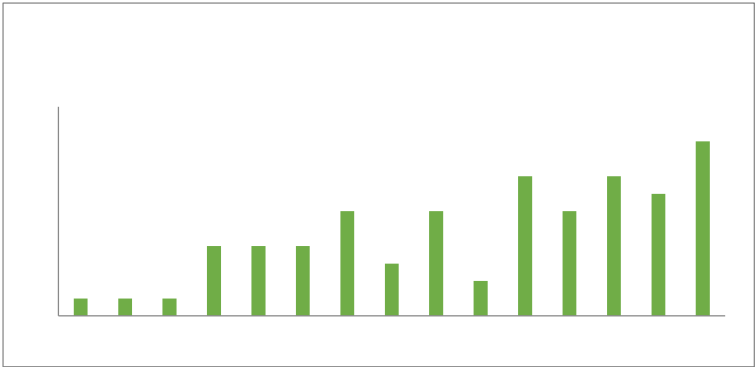
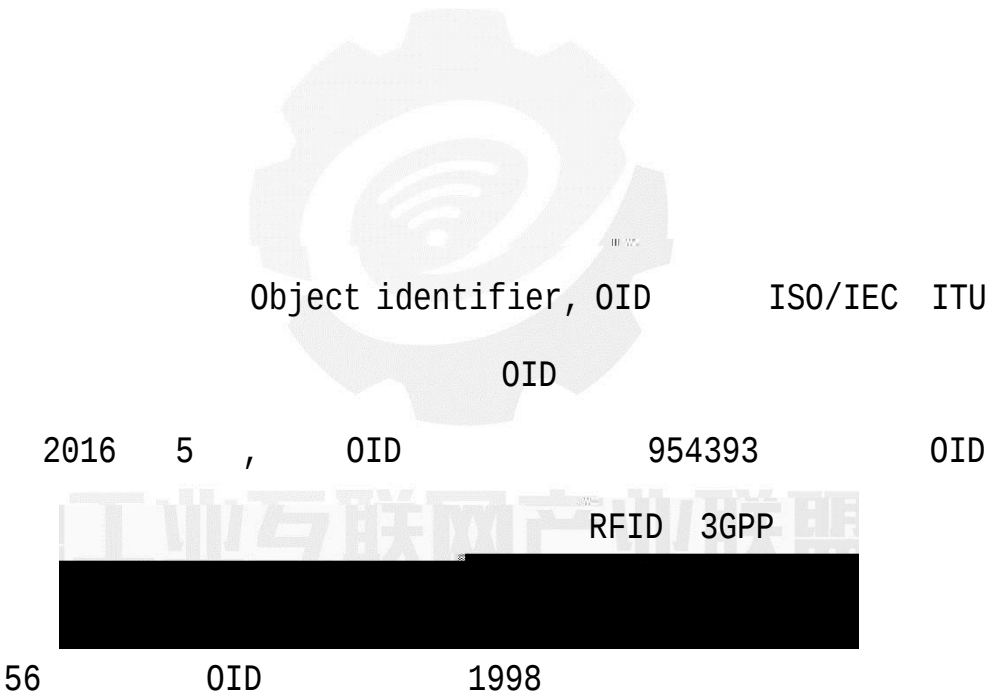
IBM

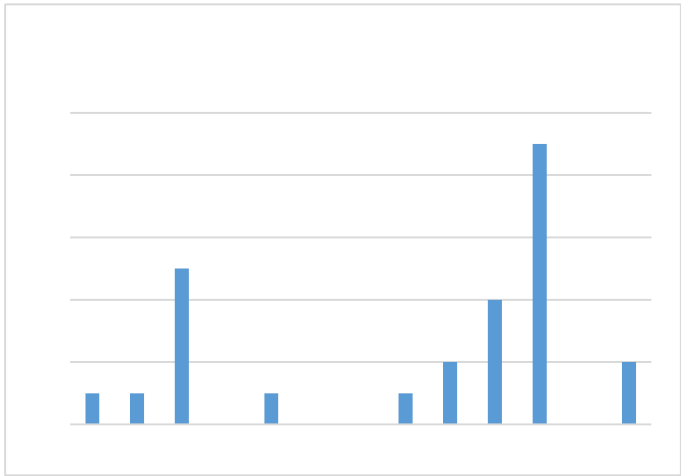
CONTENT DIRECTIONS

AMERICAN EXPRESS TRAVEL RELATE

Handle

3.OID





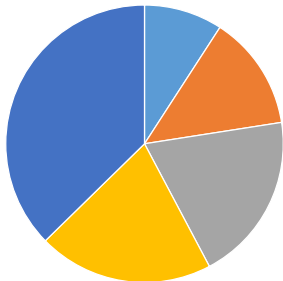
2015
ITU-T
OID
OID 26
24

OID 2004 OID
OID
[Redacted]

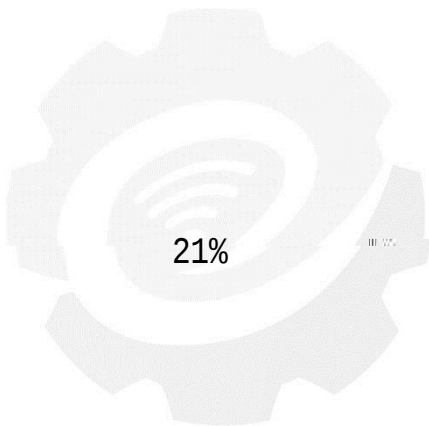
OID

(JOINT-ISO-ITU-T) ITU-T ISO ISO-ITU
ISO ISO-ITU

OID



OID



37%

OID

OID



ETRI

14

ULTRATA

12

IBM

10

OID

RFID

OID

RFID

OID

4.Ecode

Ecode

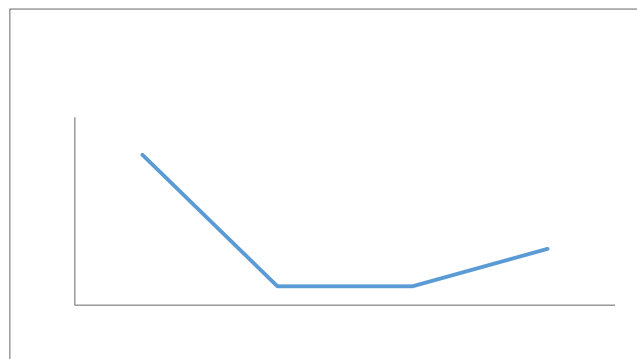
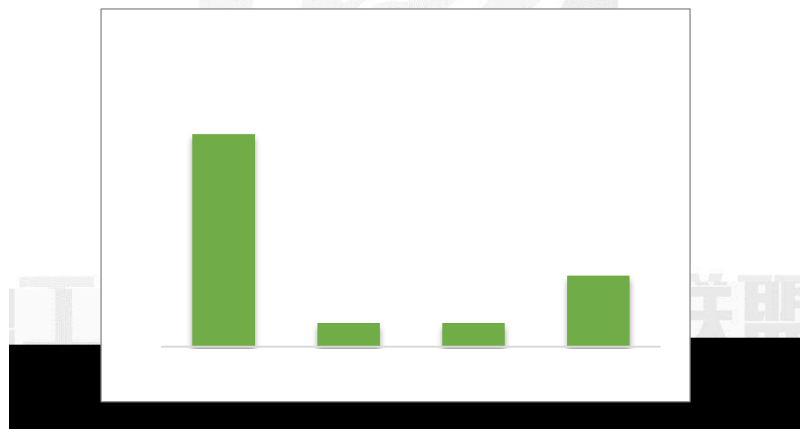
Ecode

22

14

Ecode

2013



Ecode

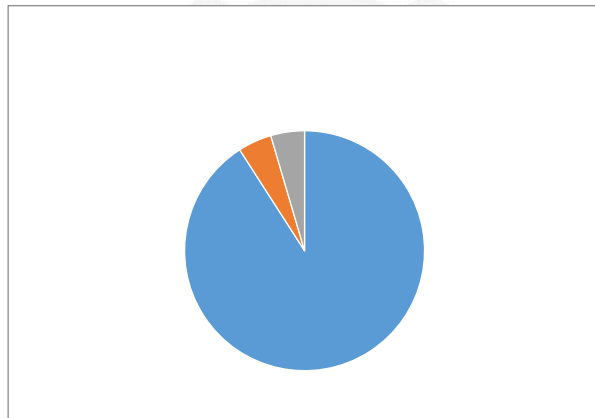
20

13

Ecode

Ecode

Ecode



Ecode

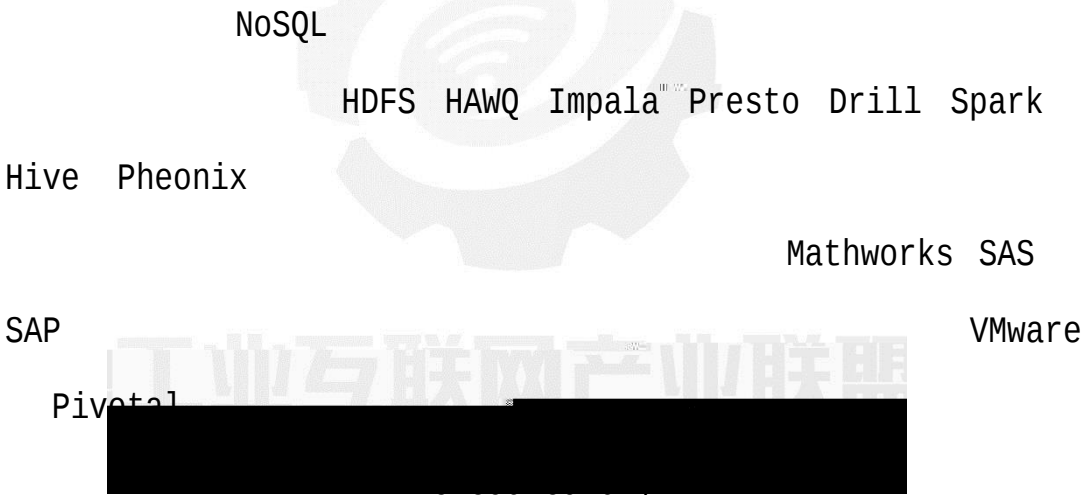
10

Ecode

7 Ecode

Ecode

2 Ecode



1.

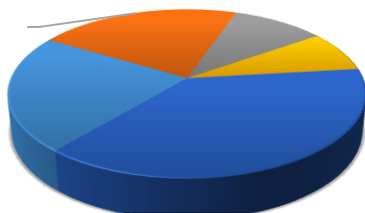


工业互联网产业联盟

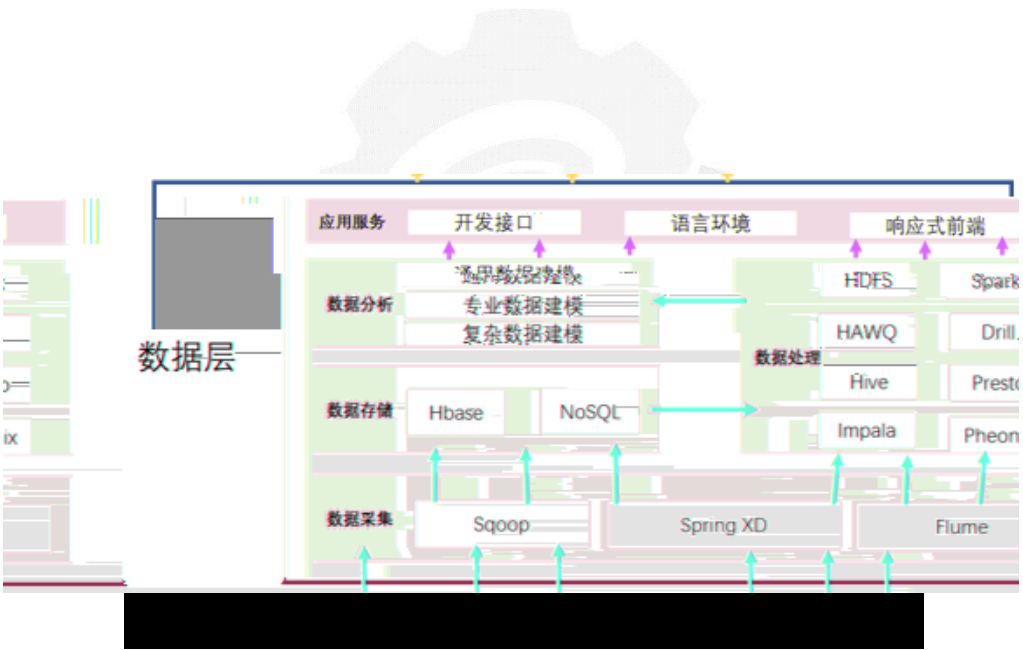




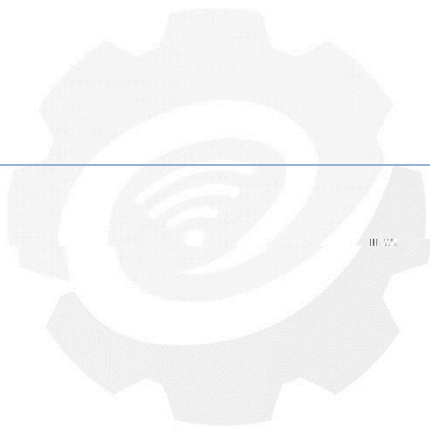
工业互联网产业联盟



2.







工业互联网产业联盟





工业互联网产业联盟

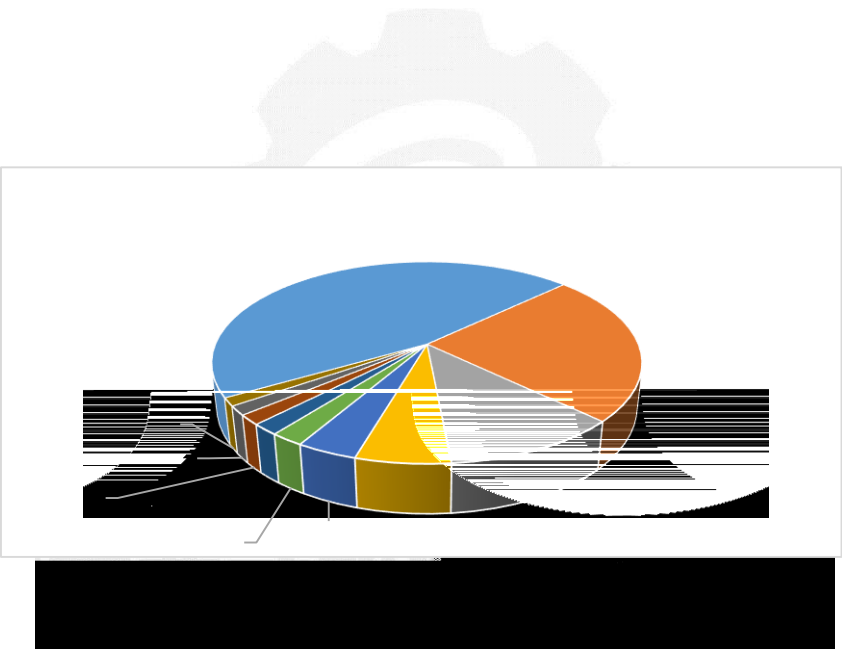




工业互联网产业联盟



—





工业互联网产业联盟





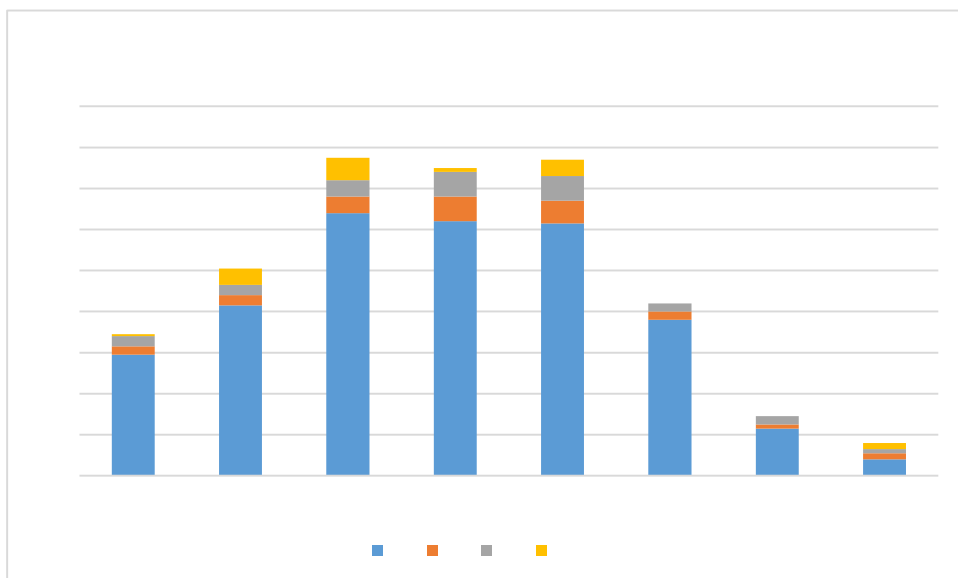
工业互联网产业联盟

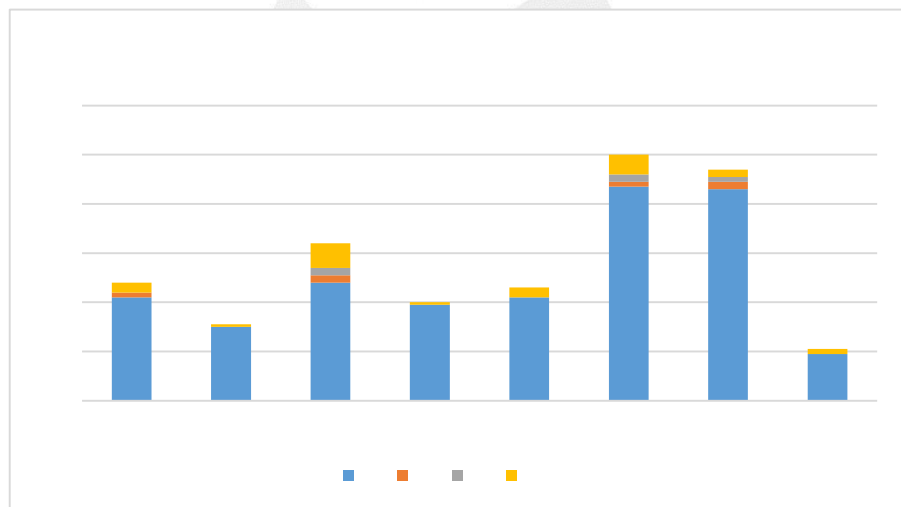
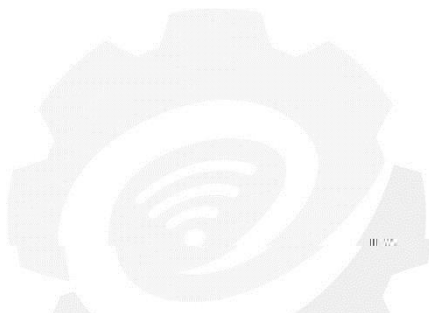


●

3.

—





ř

ř

ř



工业互联网产业联盟

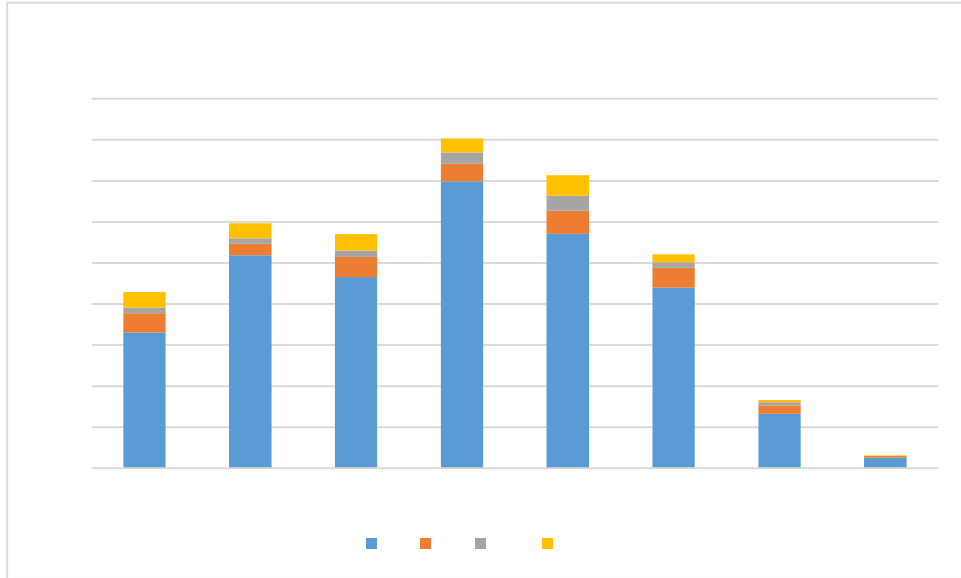


ř

ř

ř

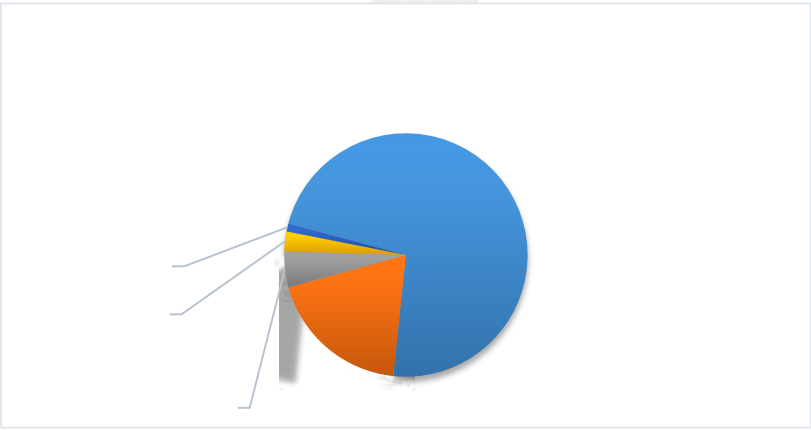
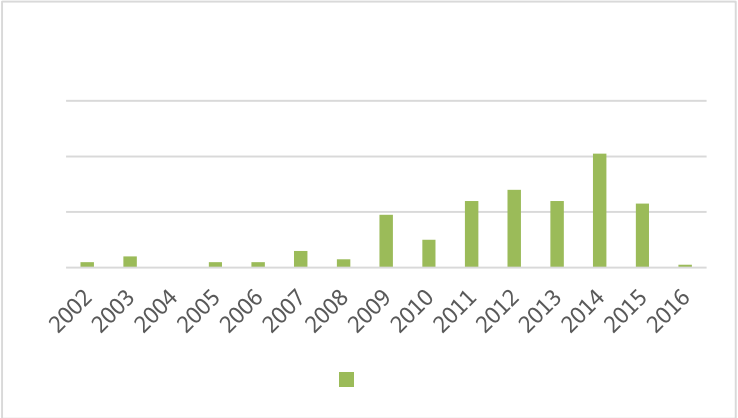
ř



工业互联网产业联盟

4.





189

2013

EMC VMware

2013

Pivotal

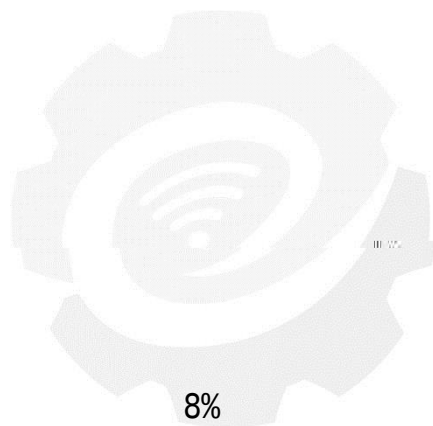
2014

40

85%

1%

Pivotal



Pivotal

35%

8%

8%

7%

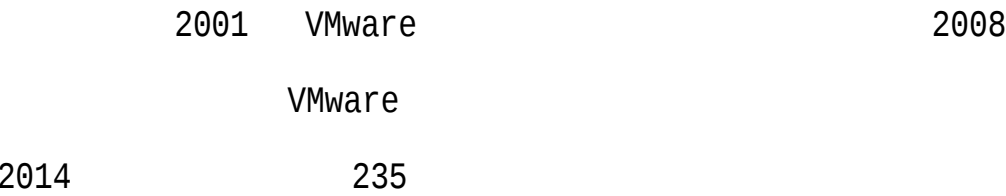
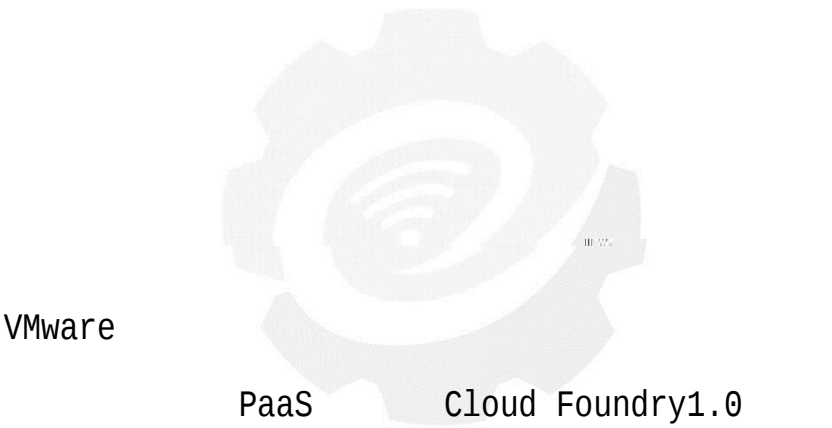
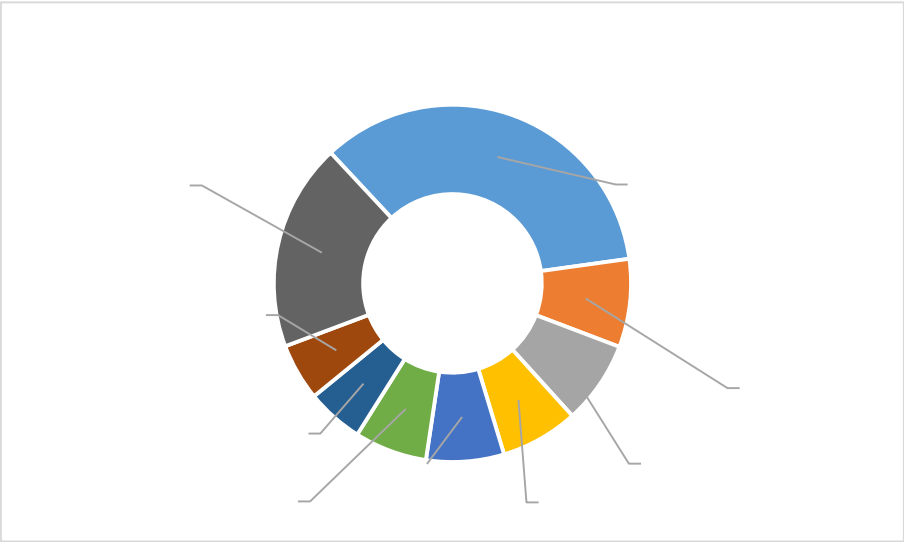
工业互联网产业联盟



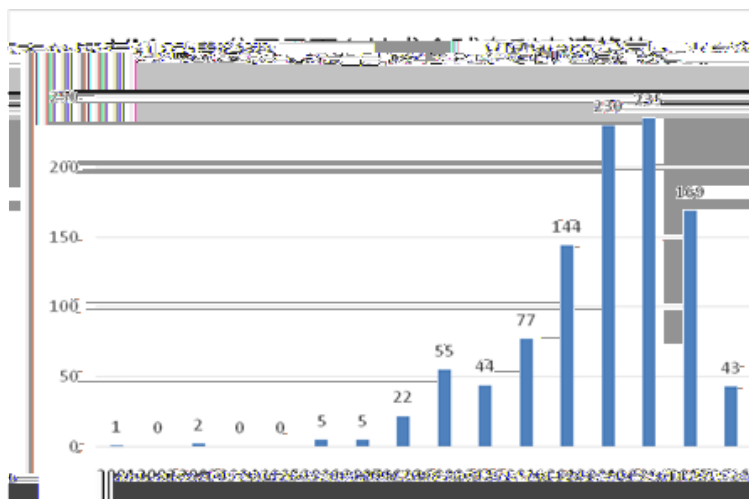
GreenPlum

Hadoop

GemFire



VMware



VMware

89%

VMware



VMware



工业互联网产业联盟





工业互联网产业联盟





工业互联网产业联盟

