



# Next Generation Support Services

- How co-creation secured us a front seat in the digital journey

# NNIT Service Support Center

- We take care of our customers' challenges as if they were our own



# Next Generation Support Services

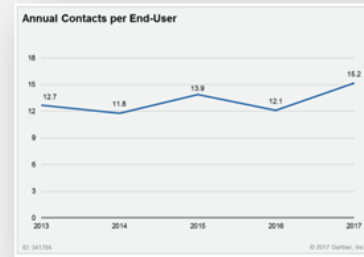
## - 2 key market trends

### Demand for omnichannel support

- New technologies as well as new generation of users demand additional support channels for swift service from no matter where they are
  - Chat
  - Self Help portals
  - Password reset
  - Phone apps
- This can easily become very expensive to create and operate

### Increasing ticket load

- Expectations have been new technologies like Windows 7/10, cloud applications etc. Would reduce the load on Service Desk but the opposite has happened:
  - Agile development
  - Higher complexity in IT



# Next Generation Support Services

- Our situation 1½ year ago

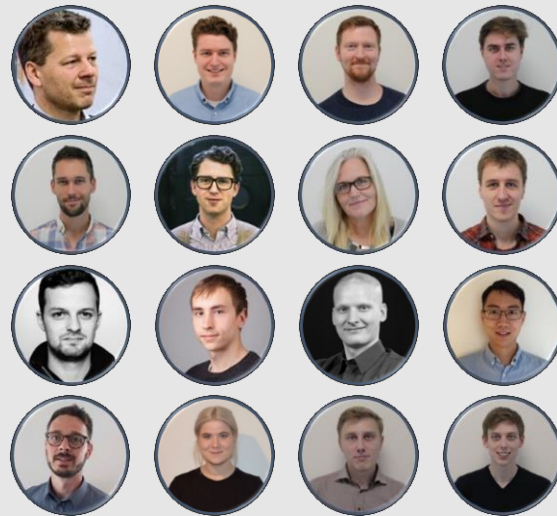
## NNIT situation 2017

- Initial internal experimentation with machine learning based on ITSM data
- Huge amount of data including alarms we were not able to connect together for trending
- Several legacy systems among others old ITSM installation
- Uncertainty about potential in AI/machine learning and difficult to create business case for top management
- Huge amount of AI/machine learning software to choose between...each more costly than others promising even more

# Next Generation Support Services

## - The SupWiz team

- **Successful software-entrepreneurs**
- **World-leading experts** in algorithms, AI, and statistics
- Multiple-time **Danish champions in programming**
- **Olympic medalists** in mathematics and computer science
- **Top 5** Google Distributed Code Jam 2018
- Researchers from **Cambridge University, University of Copenhagen, etc.**
- Multiple research papers at **NIPS/STOC/FOCS/SODA**
- Previously built software used by **100+ million users**



# Next Generation Support Services

- AI / Machine learning



## Ticket routing

### Functionality

- Improve ticket accuracy through predicting next assignment group
- Predict correct categorization of tickets
- Automate use of ticket routing functionality
- "Self solving" incidents/SRs

### Benefits

- Reduce Time to Resolve
- Reduce cost of operation
- Improved employee satisfaction



## Omni channel / Chat bot

### Functionality

- Knowledge base integrated chatbot based on customer specific wordings / abbreviations linked to our KCS driven knowledge base
- Flow creation including integration to systems

### Benefits

- Secure a consistent high quality
- Increase scalability
- Reduce cost for support



## Predictive maintenance & CSI

### Functionality

- Clustering/trending of tickets to do faster problem identification and removal of pains
- Forecasting potential downtime on systems and infrastructure components

### Benefits

- Reduced downtime for customer end users
- Reduce Major Incidents
- Reduce cost of operation

# Next Generation Support Services

- Ticket Routing (How does it works)

The screenshot displays a ticket routing interface. On the left, a detailed view of a ticket is shown, including fields for Incident Key ID, Company, Customer, Contact, Notes, Service, Target Date, Impact, Urgency, Priority, Incident Type, Reported Source, Assigned Group, Assignee, Vendor Group, Vendor Ticket Number, #PostIT, Status, Status Reason, and Resolution. The ticket is assigned to the 'NNIT-OCO-Windows' group, with the assignee 'A.P. Møller - Mærsk'. The status is 'Assigned' and the resolution is 'Pending'. On the right, a list of services is shown, with 'NNIT-OCO-Windows' highlighted. A red arrow points from the 'Assigned Group' field in the ticket details to the 'NNIT-OCO-Windows' service in the list.

**Service\***

CI+

Target Date: 20/08/2018 16:00:00

Impact\*: 4-Minor/Localized

Urgency\*: 4-Low

Priority\*: Low

Incident Type\*: User Service Restoration

Reported Source: User Service Request

**Assigned Group\***

Assignee\*: Infrastructure Restoration

Vendor Group\*: Infrastructure Event

Vendor Ticket Number: (clear)

#PostIT: (clear)

Status\*: Pending

Status Reason: Client Action Required

Resolution: (clear)

**Assigned Group\***

Assignee\*: NNIT-ServiceDesk

Vendor Group\*: kfs - Kenneth Finnerup

Vendor Ticket Number: (clear)

#PostIT: (clear)

Status\*: In Progress

Status Reason: (clear)

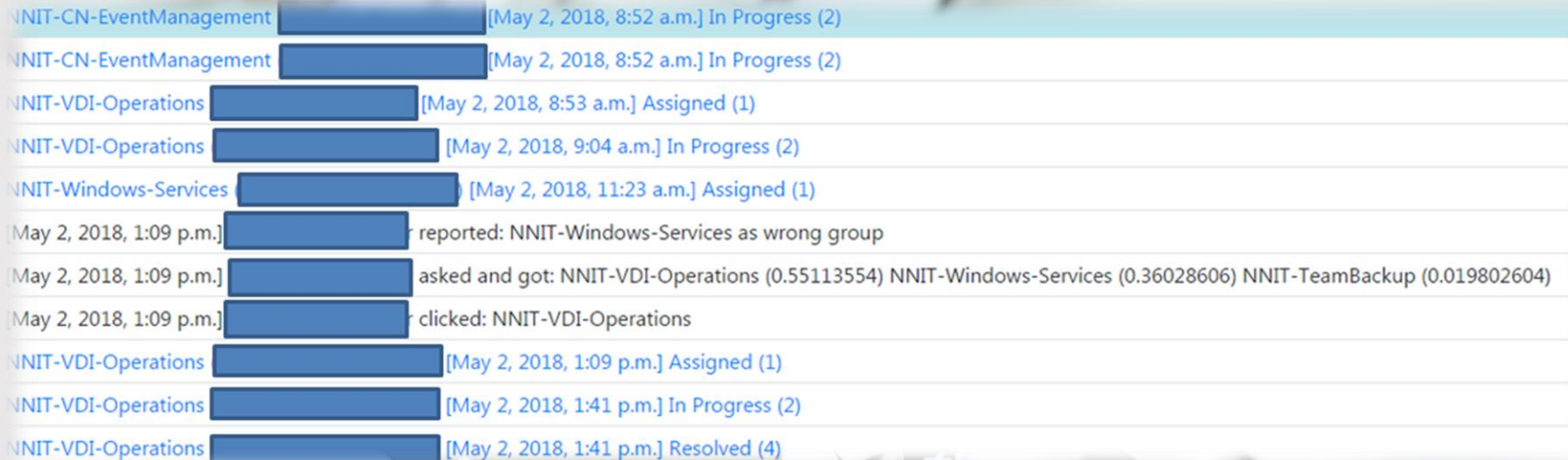
Resolution: (clear)

**Services List:**

- NNIT-Windows-Services
- NNIT-OCO-Windows
- NNIT-CN-Windows-Services
- A.P. Møller - Mærsk
- Abbott
- Alka
- Ambu
- Arla
- Atea
- coop
- Digitaliseringsstyrelsen
- DSB
- Getronics
- HK
- NN China
- NN Europe
- NN International Operations
- NN Japan & Korea
- NN North America
- NN Product Supply
- NNIT
- Novo Nordisk
- Novozymes
- Pandora
- PenSam
- PFA Pension

# Next Generation Support Services

- Ticket Routing (How does it works)



NNIT-CN-EventManagement	[Redacted]	[May 2, 2018, 8:52 a.m.] In Progress (2)
NNIT-CN-EventManagement	[Redacted]	[May 2, 2018, 8:52 a.m.] In Progress (2)
NNIT-VDI-Operations	[Redacted]	[May 2, 2018, 8:53 a.m.] Assigned (1)
NNIT-VDI-Operations	[Redacted]	[May 2, 2018, 9:04 a.m.] In Progress (2)
NNIT-Windows-Services	[Redacted]	[May 2, 2018, 11:23 a.m.] Assigned (1)
[May 2, 2018, 1:09 p.m.]	[Redacted]	reported: NNIT-Windows-Services as wrong group
[May 2, 2018, 1:09 p.m.]	[Redacted]	asked and got: NNIT-VDI-Operations (0.55113554) NNIT-Windows-Services (0.36028606) NNIT-TeamBackup (0.019802604)
[May 2, 2018, 1:09 p.m.]	[Redacted]	clicked: NNIT-VDI-Operations
NNIT-VDI-Operations	[Redacted]	[May 2, 2018, 1:09 p.m.] Assigned (1)
NNIT-VDI-Operations	[Redacted]	[May 2, 2018, 1:41 p.m.] In Progress (2)
NNIT-VDI-Operations	[Redacted]	[May 2, 2018, 1:41 p.m.] Resolved (4)

The 'not for me' button



# Next Generation Support Services

## - Ticket Routing (Results of first phase)



### Results\*

#### Time to Resolve

- Median TTR reduced by 24% compared to same period last year
- 90% quartile TTR improved by 17% compared to same period last year

#### Cost of operation

- With more than 1 million tickets yearly in NNIT we have saved 66.000 jumps which corresponds to around 5.500 hours saved

#### Employee satisfaction

- Survey about our ability to remove pains improved from 3.44 to 3.60

#### Next steps:

- Increase usage of functionality
- Implement additional functionality

\* Savings is a sum of initiatives but with the Ticket Routing as key driver

# Next Generation Support Services

- Chatbot



## Key drivers to success

**Understanding customer specific language and abbreviations**

**Flows generated for most frequent issues/request**

**Process automation activated from chat bot**

**Continuously updated Knowledge base through KCS**

**Organizational support to secure sufficient usage of chat bot**

The screenshot shows a chatbot interface for NNIT Service Desk. It features a blue header with the NNIT logo and the text 'NNIT Service Desk'. Below the header, a welcome message is displayed: 'Welcome to NNIT Service Desk'. A paragraph of text follows, stating: 'We would like to inform you that we collect and store the information that you provide in the chat to give optimal support and document the interaction. We manage the information provided according to our privacy policies, however we still recommend that you only share necessary information.' Below this text, there are two input fields: the first is labeled 'Initials' and the second is labeled 'Please describe the problem you encountered'. A blue button labeled 'Start chat' is located at the bottom right of the interface.

# Next Generation Support Services

- Predictive maintenance, CSI & Automation

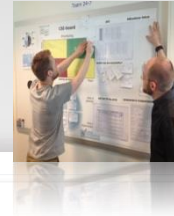


## Focus areas

**Clustering/trending of tickets to do faster problem identification**

**CSI integrated part of daily work, driven by service managers**

**Allocate time for technical SD people to be trained and do scripting of manual tasks**



### Tickets in Orbit

#### Tickets with many jumps

(Showing only the 1000 tickets with most jumps)

ID	# of jumps	Summary	Last modified date
ITNC000714368	46	Spies - application support sales, allocation and delivery creation	Nov. 5, 2016, 7:08 a.m.
ITNC000729929	37	New Ticket Andro Printer co/ing	Oct. 26, 2016, 9:07 a.m.
ITNC000697751	36	Unlocking of Microsofts hotdesk.com booking.com etc.	Sept. 16, 2016, 12:53 p.m.
ITNC000746436	26	iDoc failure	Nov. 5, 2016, 7:08 a.m.
ITNC000737914	26	Can't open Chris App AFM 14011616020932	Nov. 5, 2016, 11:54 a.m.
ITNC000693729	24	Bangladesh computers very slow after Windows 10 update	Nov. 1, 2016, 3:21 a.m.
ITNC0007403975	24	Bouncing mail	Nov. 9, 2016, 19:09 a.m.
ITNC000737568	23	Reactivation of Visa - Cannot remote to user	Oct. 9, 2016, 2:42 p.m.
ITNC0007189102	22	Outsured - Slow Internet	Oct. 31, 2016, 10:17 a.m.
ITNC0007421050	22	Dispute Managements in SAP (PS1) layout	Oct. 29, 2016, 8:52 a.m.
NNNC000717687	21	Change of test	Sept. 26, 2016, 12:33 p.m.

Ticket id

Ticket text

blue screen

Submit

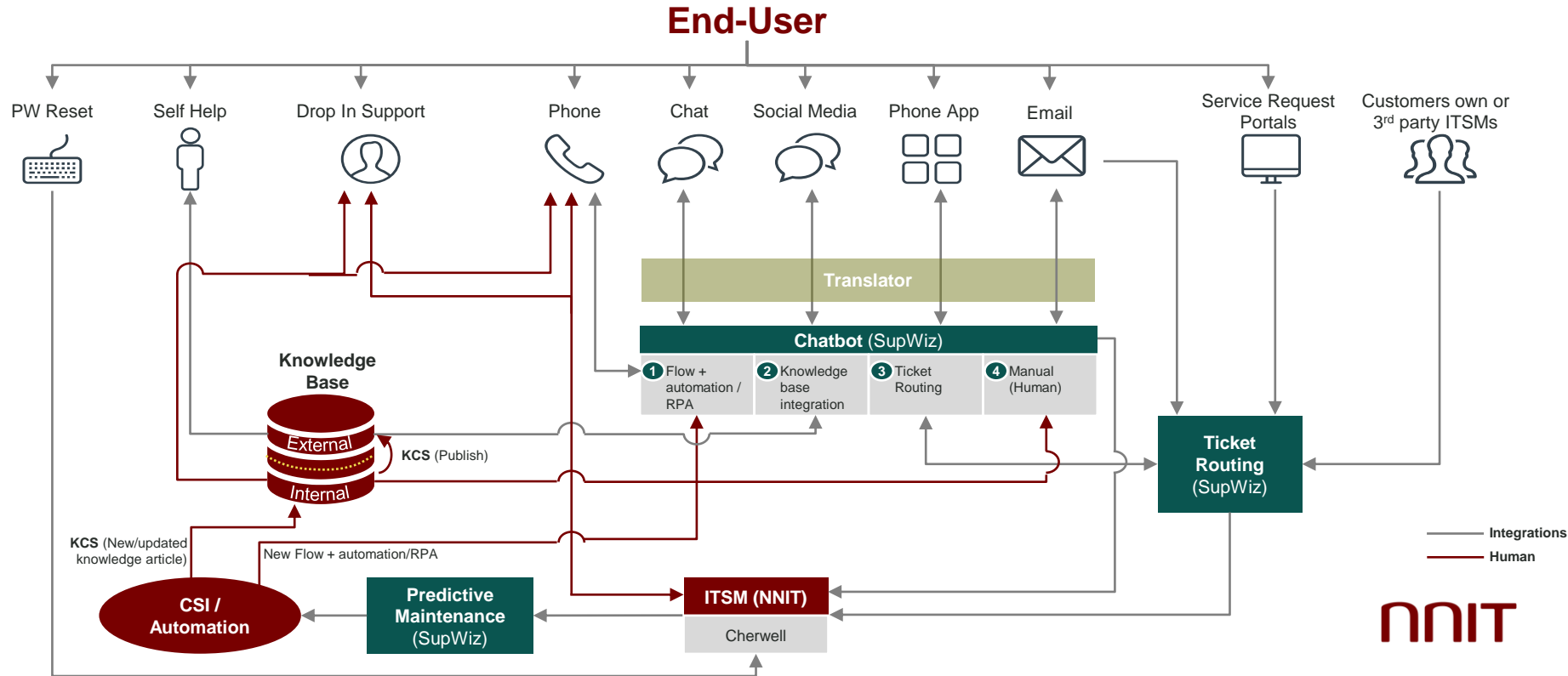
ID	Summary	Notes	Last modified date
	blue screen		

#### Results

ID	Summary	Notes	Last modified date
ITNC0006199909	Blue Screen Error	None	Feb. 2, 2016, 5:16 a.m.
ITNC0006335572	*TH Black screen	Black screen	March 4, 2016, 10 a.m.
ITNC0006573088	OK- Random blue screen	LCDDHQ164788	April 2, 2016, 8:22 a.m.
ITNC0006551142	Computer blank blue screen	None	May 14, 2016, 4:48 a.m.
ITNC0006786295	laptop, blue screen	None	June 15, 2016, 6:24 a.m.
ITNC0007163076	Blue Screen	None	Aug. 31, 2016, 6:07 a.m.
ITNC0007205044	laptop, blue screen	None	Sept. 11, 2016, 5:49 a.m.
ITNC0007307844	Blue screen error	None	Oct. 1, 2016, 5:47 a.m.
ITNC0007310007	Blue screen	None	Oct. 9, 2016, 10:42 a.m.
NNNC0002893717	Blue screen	None	Oct. 20, 2016, 3:25 a.m.

# Next Generation Support Services

- Omnichannel support vision



# Next Generation Support Services

## - Key learnings

### Learning #1

Don't promise you top management something you can't deliver

### Learning #2

Focus on business challenges and investigate if/how AI/machine learning might help you, not the other way around

### Learning #3

If you think you have enough data you are probably wrong

### Learning #4

Make sure you have internal resources available to support the technical implementation

### Learning #5

The demand for classic IT support does not change over night, but the skills in Service will gradually change towards more technical skilled people

### Learning #6

Yes it is a robot, not a human...don't tell people otherwise yet



# Questions & Answers



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