- How big is the

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## About this presentation



## Moore's law (1965)

The number of transistors in a dense integrated circuit doubles approximately every two years


## Micro-processor evolution has followed Moore's law



## Moore's law has enabled IoT (r)evolution



[^0]
## Metcalfe's law (1993)



Facebook growth has been following Metcalfe's law

loT value will come through Metcalfe's law


Source: BI Intelligence, 2015

## Everett Rogers' diffusion of innovation (1962)



Geoffrey Moore's chasm theory (1991)
'visionaries’
'pragmatists'


Early market
Mature market

The greatest peril in developing high-tech markets is closing the gap between the early adopters of any technology and the mass market.

## Many loT devices and apps are still stuck in the chasm

Worldwide wearable device shipments (million units)


[^1]11 © Nokia 2016
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## Clayton Christensen's innovator's dilemma (1997)

It is in disruptive innovations, where we know least about the market, that there are such strong firstmover advantages. This is the innovator's dilemma.

Disruptive technology should be framed as a marketing challenge, not a technological one.


## Crossing the chasm



## Jeremy Rifkin's zero marginal cost society (2014)

The loT is emerging with the potential of pushing large segments of economic life to near zero marginal cost in the years ahead.
Prosumers can connect to the network and use big data, analytics, and algorithms to accelerate efficiency, dramatically increase productivity, and lower the marginal cost of producing and sharing a wide range of products and services to near zero, just like they now do with information goods.

The IoT is enabling a zero marginal cost value model

$$
\lim _{m c \rightarrow 0}\left(\frac{a V}{m c}\right)=O
$$

av is the added value, mc is the marginal cost of an loT service

# So, how big is the loT's (potential) value? 

## Moore's Law applied to the loT



## Metcalfe's Law applied to the IoT



A standards-based, horizontal loT platform can boost the value of the network


Network value ~ $N *(M+1)^{2}$

Network value ~ $\left(N^{*}(M+1)\right)^{2}$

## Summary

 law


IoT technology


## IoT value

## NDKIA



Articles, Business
How big is the Internet of
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How big is the Internet of
Things? (Part 2)
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http://insight.nokia.com/how-big-internet-things-part-1
http://insight.nokia.com/how-big-internet-things-part-2

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[^0]:    Source: Goldman Sachs \& BI Intelligence, 2015

[^1]:    Source: IDC Worldwide Quarterly Wearables Tracker

