Shifting Paradigms: for the new IT

Dr. Jimmy Schwarzkopf
STKI Summit 2013

IT at the crossroads:

Lead, follow or get out of the way

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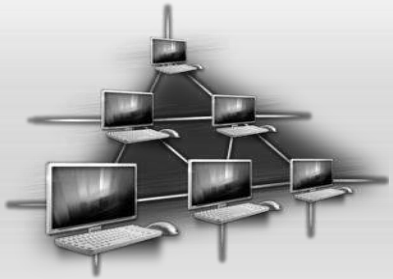
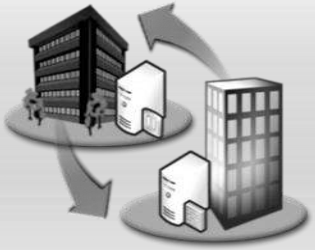
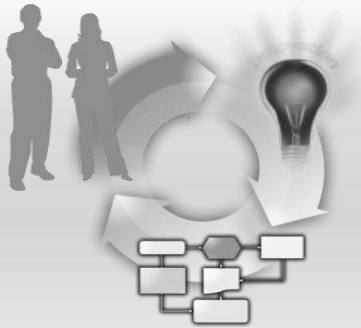
I could start here but this is really NOT the story….

1970s	1980s	1990s	2000s	2012+
Autocratic Centralized Computing	**Personal:** Computing Democratization	**Web:** Information Democratization	**SOA:** Data Democratization	**Consumerization:** Mobility Democratization







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1970s	1980s	1990s	2000s	2012+
IBM	Digital Equipment	Microsoft	Apple	
NCR	IBM	Cisco	Google	
Control Data	Data General	IBM	eBay	
Sperry	HP	HP	Facebook	
Honeywell	Wang	Intel	Amazon	
Burroughs	Prime	Oracle	Microsoft	
.....	Compaq	EMC	Intel	
	.....	Dell	Samsung	
		SAP	.....	
		.....		

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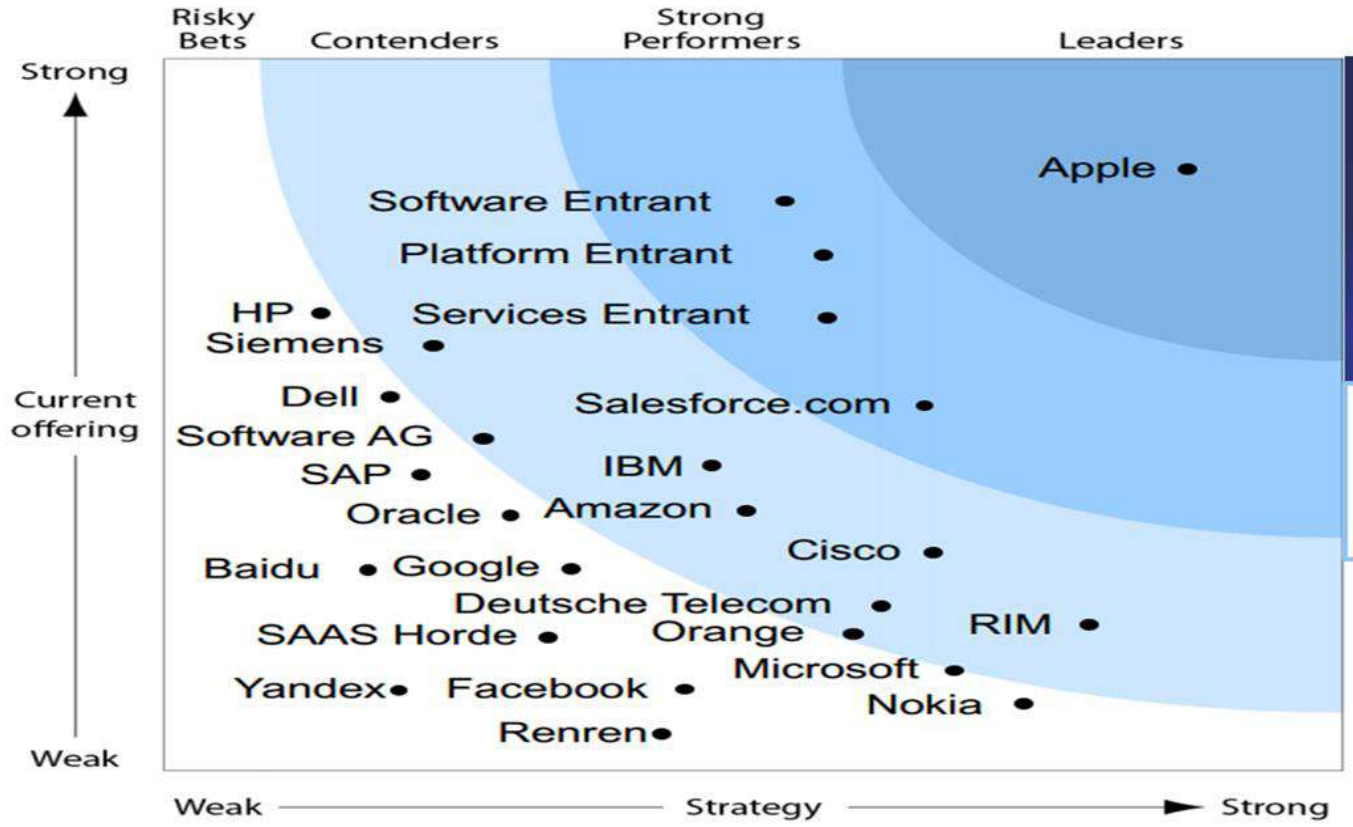
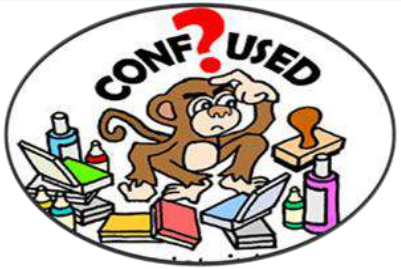


Forrester's CEO George Colony: Vendors of the future



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IT Services have new clients:

1970-2012:

verbal; sequential and logical structured thinking; analyzing and controlling processes;

logical beings

IT Clients:

- ***Finance***
- ***Logistics***
- ***HR***
- ***Transactional core***

2012- :

Unstructured approach to tasks; multitasking ; visual emotional responses;

social beings

IT Clients:

- ***Sales***
- ***Marketing***
- ***Consumer***

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IT Clients:

- *Finance*
- *Logistics*
- *HR*
- *[illegible]ctional core*

SCIENCE is concerned with factual knowledge (what-is)

IT Clients:

- *Sales*
- *[illegible]er*

DESIGN is concerned with instrumental knowledge (how what is relates to what-ought-to-be), how actions can meet goo[illegible]

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What is the closest profession to “new” IT ?

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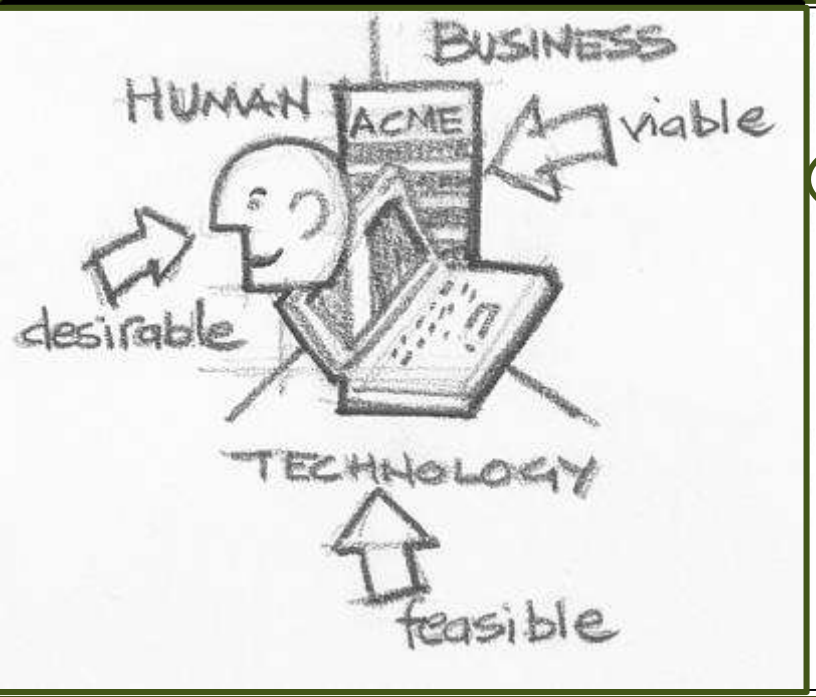
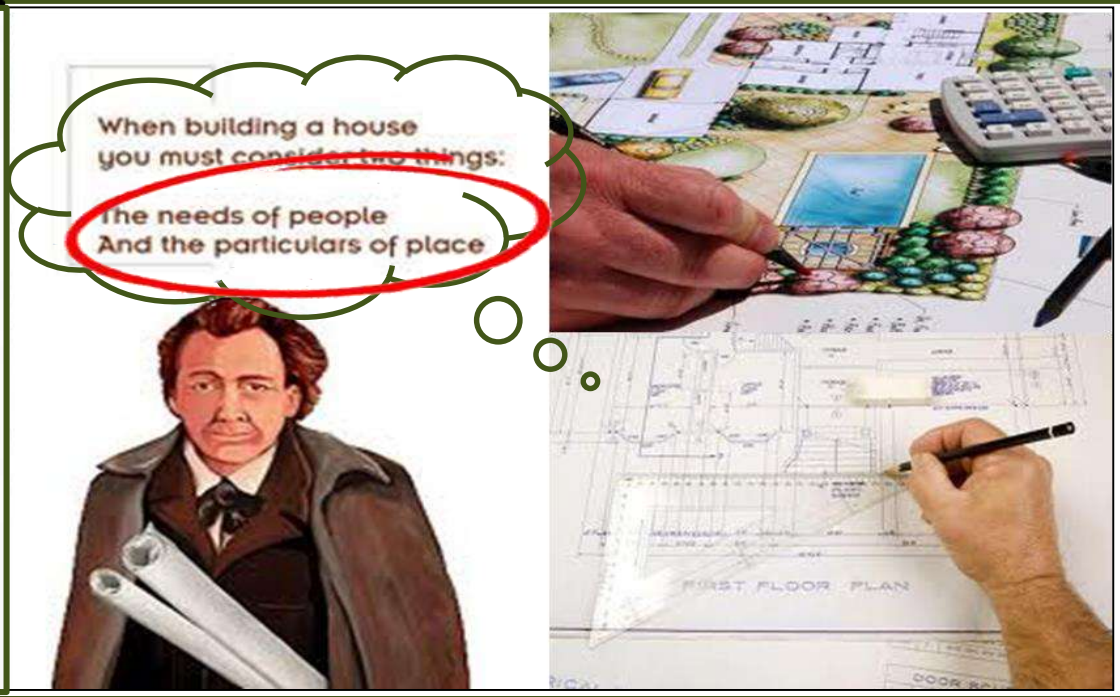
Design Thinking: designing experiences

ARCHITECTS look at ***actions and places*** and then ***design future experiences***





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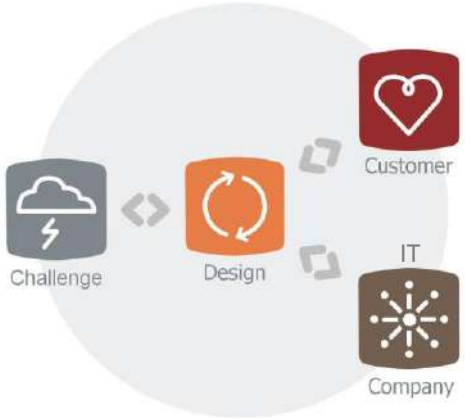
DESIGN THINKING : WICKED עָשָׂה problems



Defining a problem defines a solution

To tame a *wicked problem*, we have to agree on goals and actions

This requires *knowledge about actions*, not just facts

Only through understanding experiences can we design for people.

Prof. Horst Rittel

"We make our buildings and thereafter they make us."
Winston Churchill

Solving simple problems may lead to improvement—but not innovation.
For *innovation*, we need to re-frame wicked problems.

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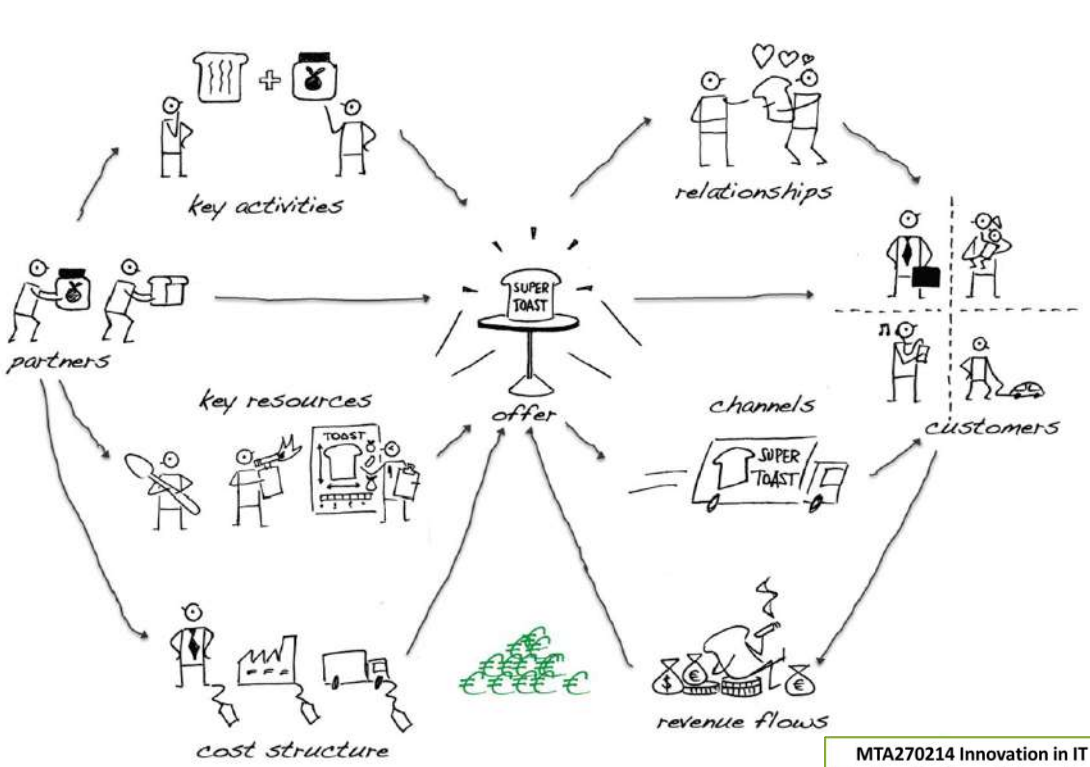
Business Architects create Business Models



MTA270214 Innovation in IT
Teacher: Dr. Jimmy Schwarzkopf

"A business without a design is one that is likely to be overly complex, expensive, inefficient and unaligned."

David Baker

partner and the chief architect
PwC's Diamond Advisory Services

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Business Architects create Business Models

- **BUSINESS MODEL** "designs" how an enterprise will create and deliver value:
  - Decide where it operates
  - Decide how it competes
  - Decide how it mobilizes the organization

- **IT MODEL** "designs" how IT will enable the organization to operate in order to:
  - Deliver the business model
  - Optimize its customer offering, business capabilities and corporate structure to create, deliver and capture value.

"A business without a design is one that is likely to be overly complex, expensive, inefficient and unaligned."

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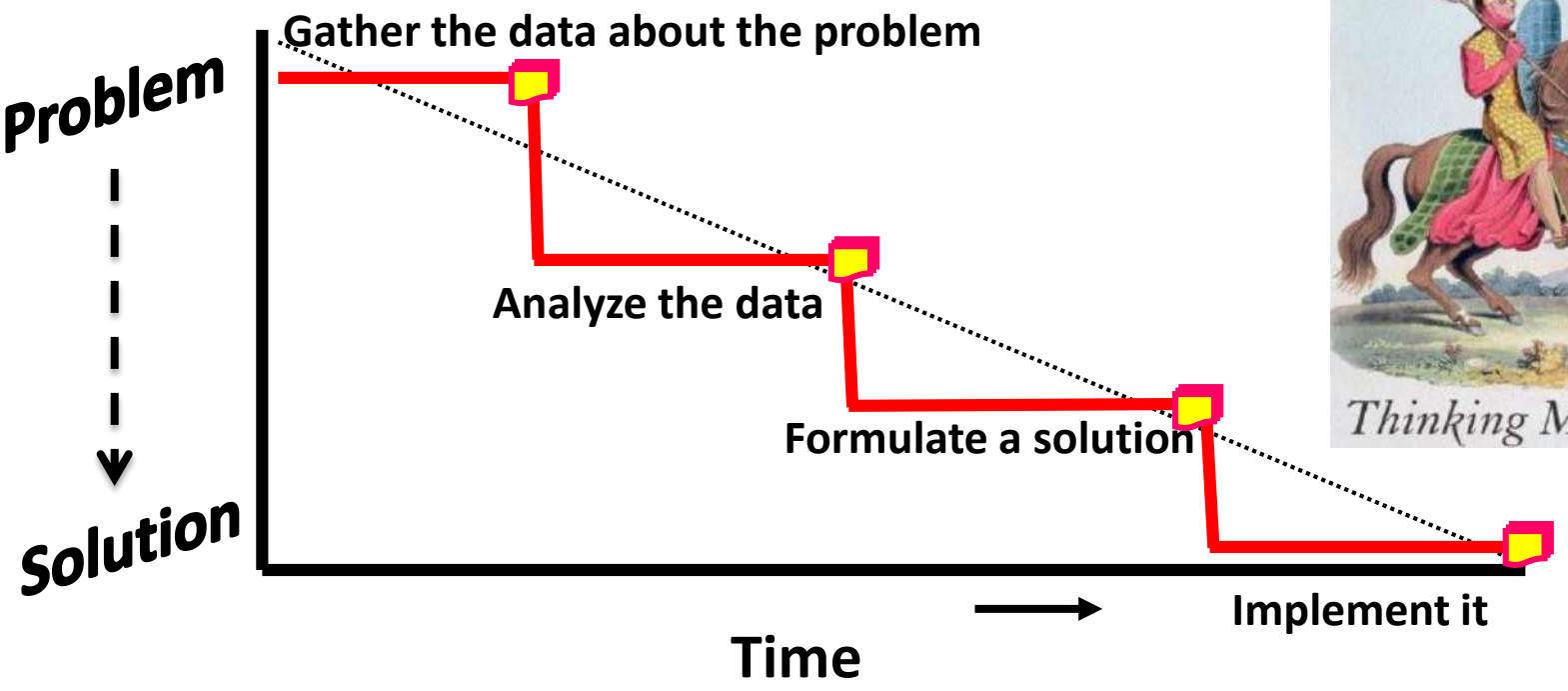
Work was planned as a linear process…



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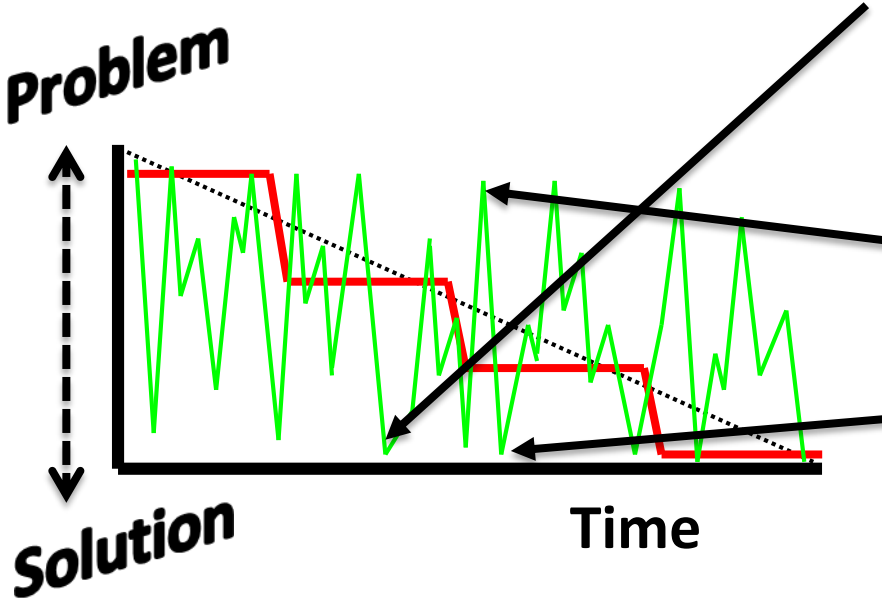
Today :“DESIGN THINKING” for Problem Solution

Every Proposed Solution …



Reveals Aspects Of The Problem …

That Cause Revision Of The Solution

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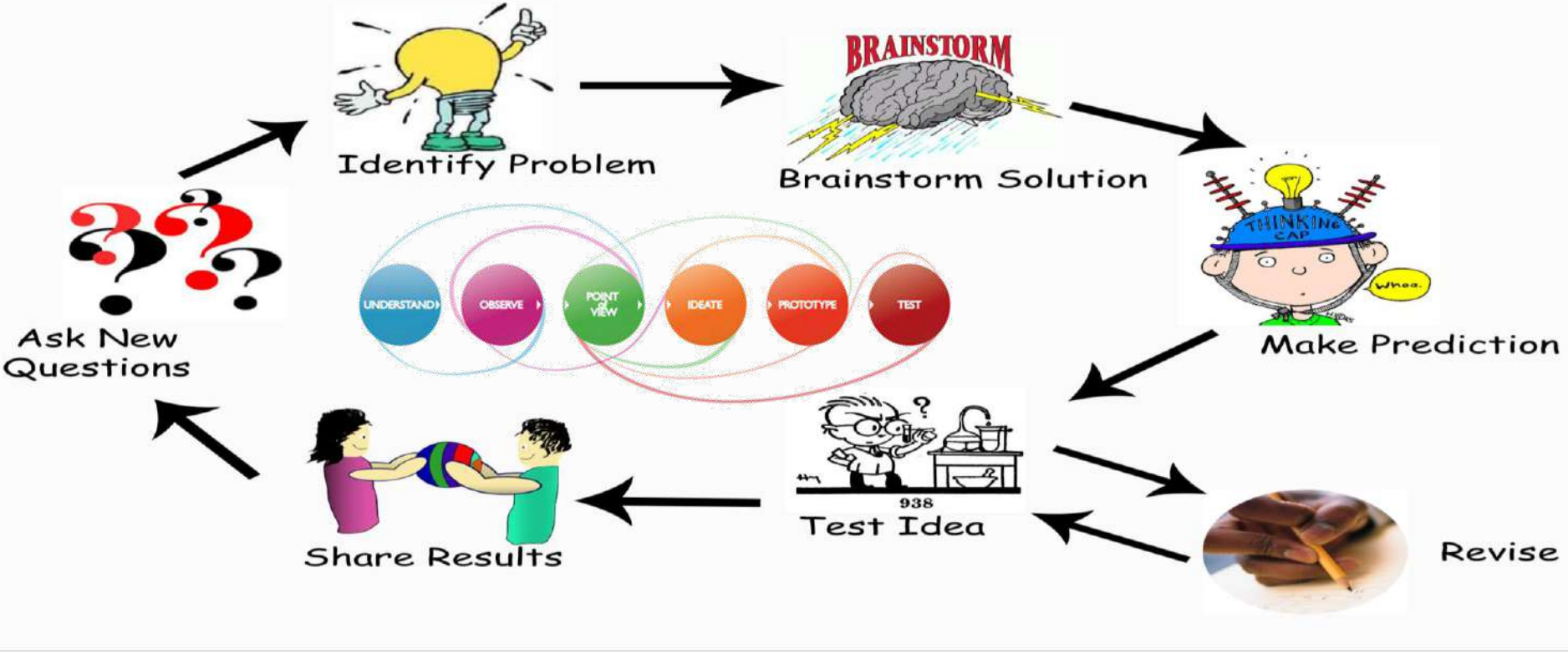
Today :“DESIGN THINKING” for Problem Solution



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”Some problems are so **complex** that you have to be *highly intelligent and well informed* **just to be undecided** about them”

Prof. Laurence J. Peter
Author of “PETER PRINCIPLE”

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History of Economic Development

Natural Economy

Land

Agricultural Economy

Labor

Land

Agricultural Age
(Farmers)

Industrial Economy

Capital

Labor

Land

Industrial Age
(Factory Workers)

Information Age
(Knowledge Workers)

Info Age Economy

Information

Capital

Labor

Land

Design Age
(Creators and Experimenters)

"World is Flat" Economy

Information

Capital

Labor

Land

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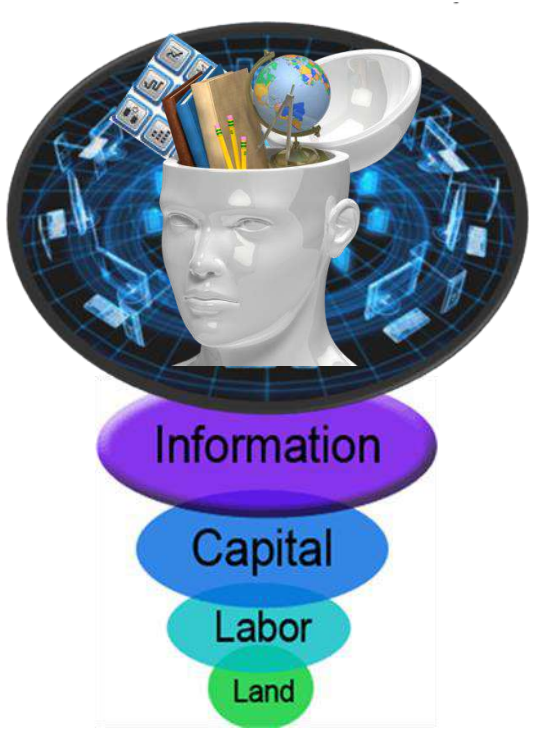
GLOBALIZATION: who **re-invents** himself now ?

- **Globalization 1.0**
  - In the 18th-19th century **countries** reinvented themselves
- **Globalization 2.0**
  - In the 20th century, **businesses** reinvented themselves
- **Globalization 3.0**
  - In the 21st century it is the **individuals** who will reinvent themselves



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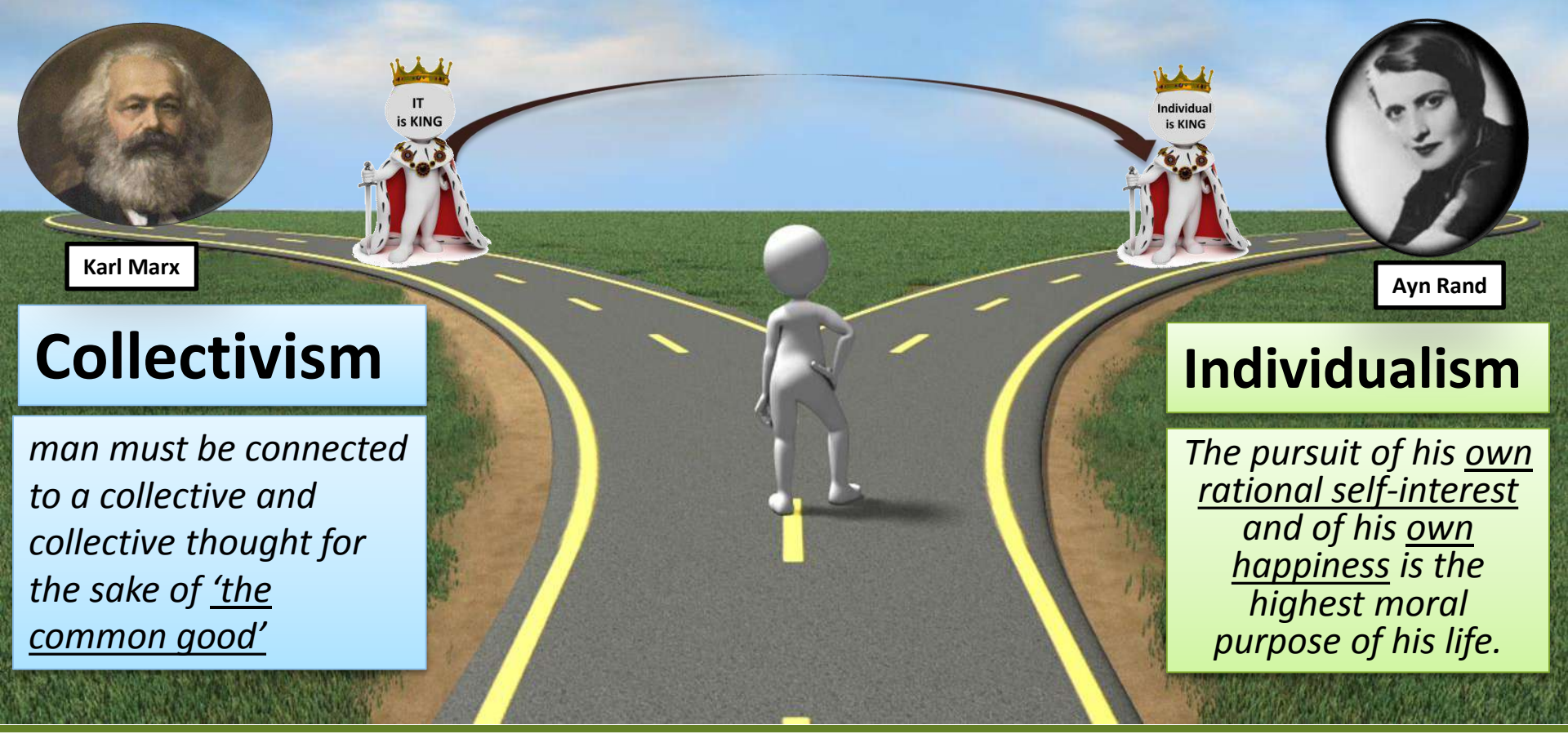

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CoIT "consumerization" of IT services

Leading the change: ME (ultimate consumer)

- This **shift** has profound **implications:**
  - how **customers** will interact with the **marketplace** at large?
  - how **customers** will interact with **specific organizations?**
  - how **employees** will ***deliver goods and services***?
  - how **IT** will **support both** of these groups?

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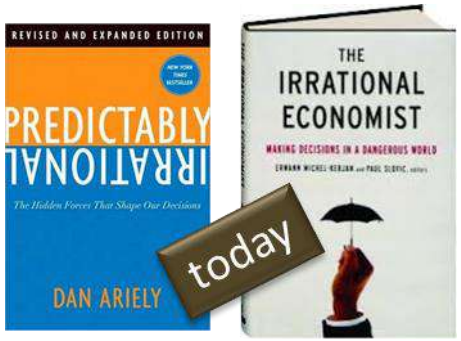
Progression of toward the “ME” Economy

- In 1971, Prof. Toffler criticized:
  - how **economists** had great **difficulty imagining alternatives** to ***communism and capitalism***
  - how they could **only envision the economy in the terms of scarcity of resources**.
- He talked about a **“experiential industry”**
  - people in the “future”, would be willing to **allocate high percentages of their salaries to live amazing experiences.**
- Today we know people **act irrationally**

Prof. Alvin Toffler

40 years ago



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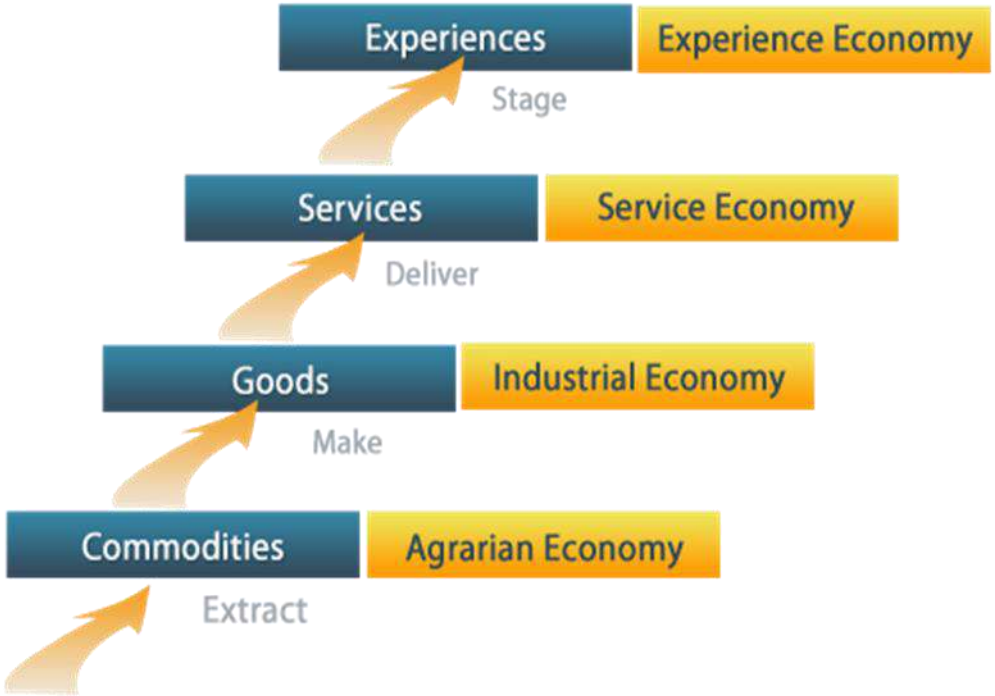
Experience (ME) Economy



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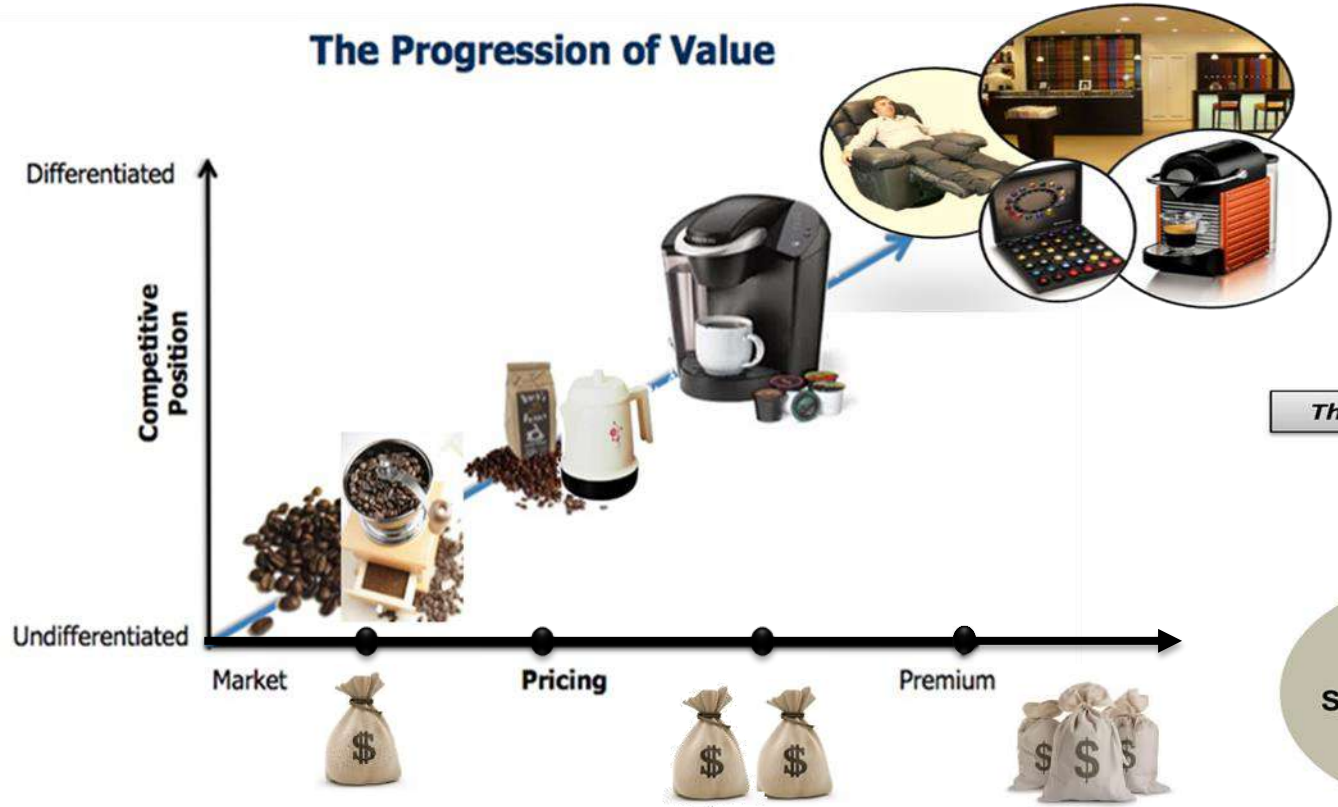
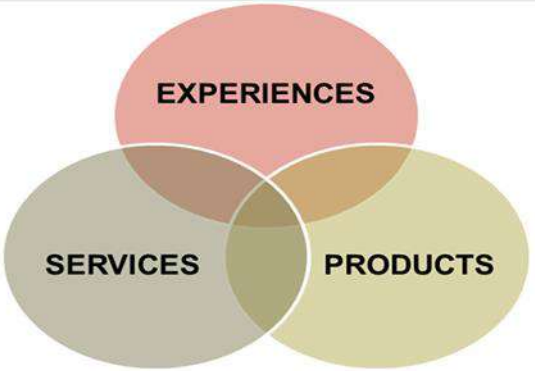
Coffee as an "*EXPERIENCE*" Marketplace



The offerings coexist in the marketplace



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Now we are transitioning to a Social-Experience "ME" Economy

Making a cake from COMMODITIES (inexpensive ingredients)

Buying a PRODUCT (pre-mixed ingredients in a box) in order to make a cake

Buying a Finished Cake (order a cake from a bakery or grocery store)

Outsourcing the birthday party experience

In the Social Economy:
People **carry their friends in their pockets** and are always **sharing their experiences** with them.

The experience is complete only after it is VIRAL

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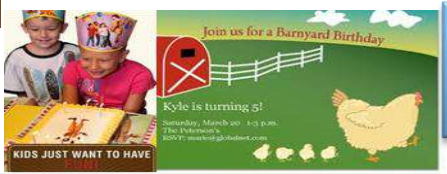

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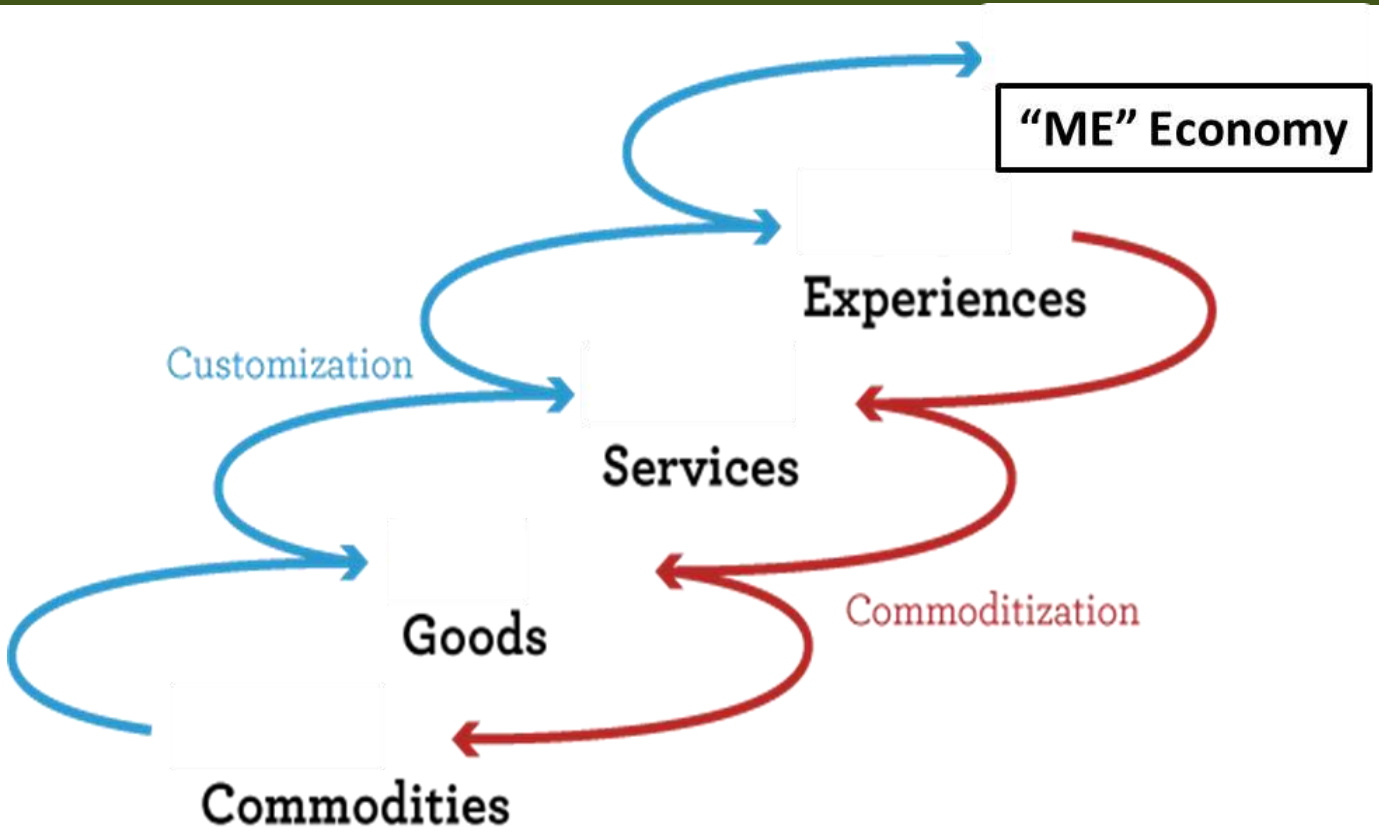
New “ME” Economy



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PC (ME): from personal computer to pervasive computing

- **Pervasive computing :**
  - means access to
    - everything, all the time, from any device, from anywhere
  - BYODevice **and** BYOApplication
    - One size doesn't fit all
    - One OS does not fit all
  - *Security nightmare*

- **Home PC died** while the **Enterprise PC** is fighting for survival
  - Consumerization of IT (CoIT) : **BYOEverything**
  - **WEBSITES vs Apps** : which, when, with what
    - **Websites** are the AM radio while **Apps** are stereo streamed music
  - The rise of the **inhouse UX** expertise as a must

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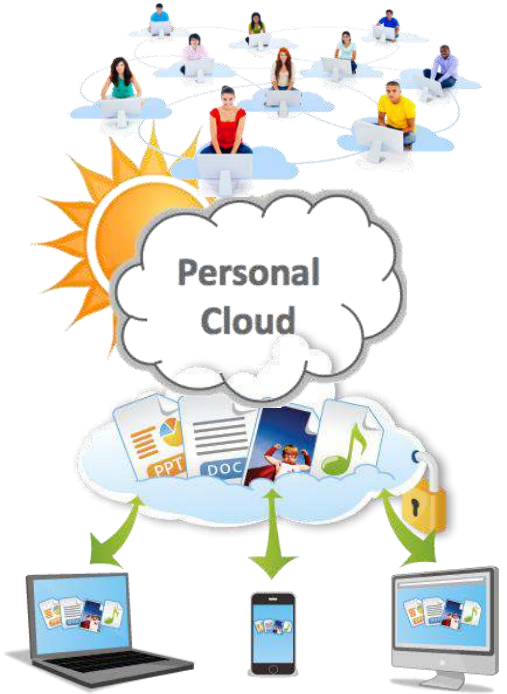
PC (ME): from *personal computer* to *personal cloud*

- Center of "ME" ***computing and communicating*** needs
  - same thing?
- **Sync** between all devices (usually ***more than one***)
- ***Self-service "Apps" store*** (allowing EVALUATION process)
  - *New pricing standards (cheap)*
  - *New updating and downloading methodologies*
- Apps can be ***personalized and consumed as services***
  - *New usability and appearance standards*
  - *Location and context* ***aware***
- ***Personal storage*** (high reliability)



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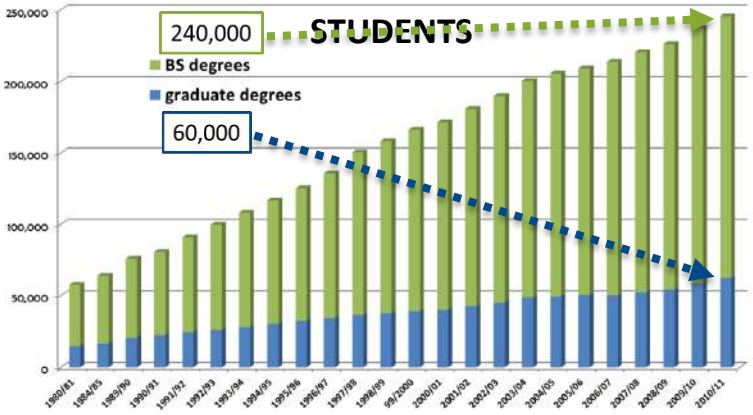
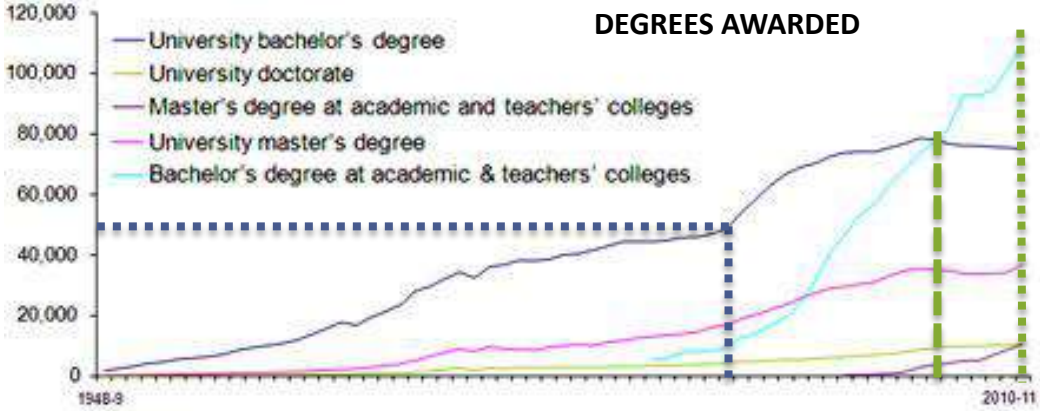
21st century Israel (ME) more educated, tech savvy

LOB employees/customers are **highly educated**

Most of them **understand technology**





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BYOEverything: new “generation” of ME tools

- “generation” of “ME” or ***workforce of nomads***
  - rely on themselves
  - come together as needed
  - use a wide range of resources
  - variety of locations
- ***Nomadism (ME)*** accentuates the ***importance of the tools***
  - each person's individual ***strengths vary, so do their tools***
  - This phenomenon is by no means unique :
    - ***tradespeople*** (i.e.: contractors and chefs) use their own tools because of the ***perceived better fit, quality, and/or feel***.
    - ***Software, computing devices, and the like are the 2013 worker's equivalent.***

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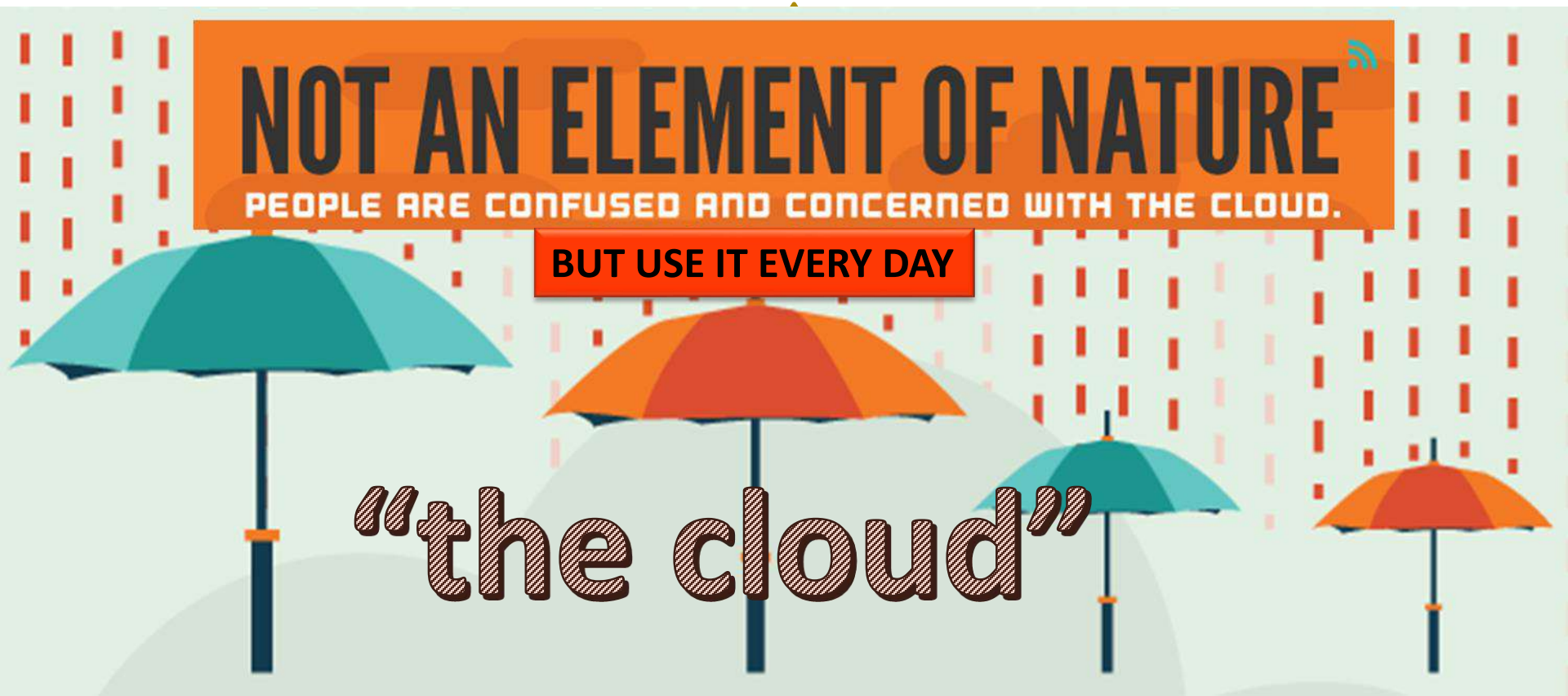
Four "ME" Platforms



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Four "ME" Platforms

Google

amazon.com

facebook

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The Share Economy: “ME” likes to share

People around the world are **sharing access** to cars, houses, skills, IP and ……

- **Sharing of Assets**
  - P2P car rentals
  - P2P apartments
- **Sharing Knowledge**
  - Wikipedia
- **Sharing content and data** (APIs)
  - RESTful standard
- **Open Source**
  - Software
  - Hardware

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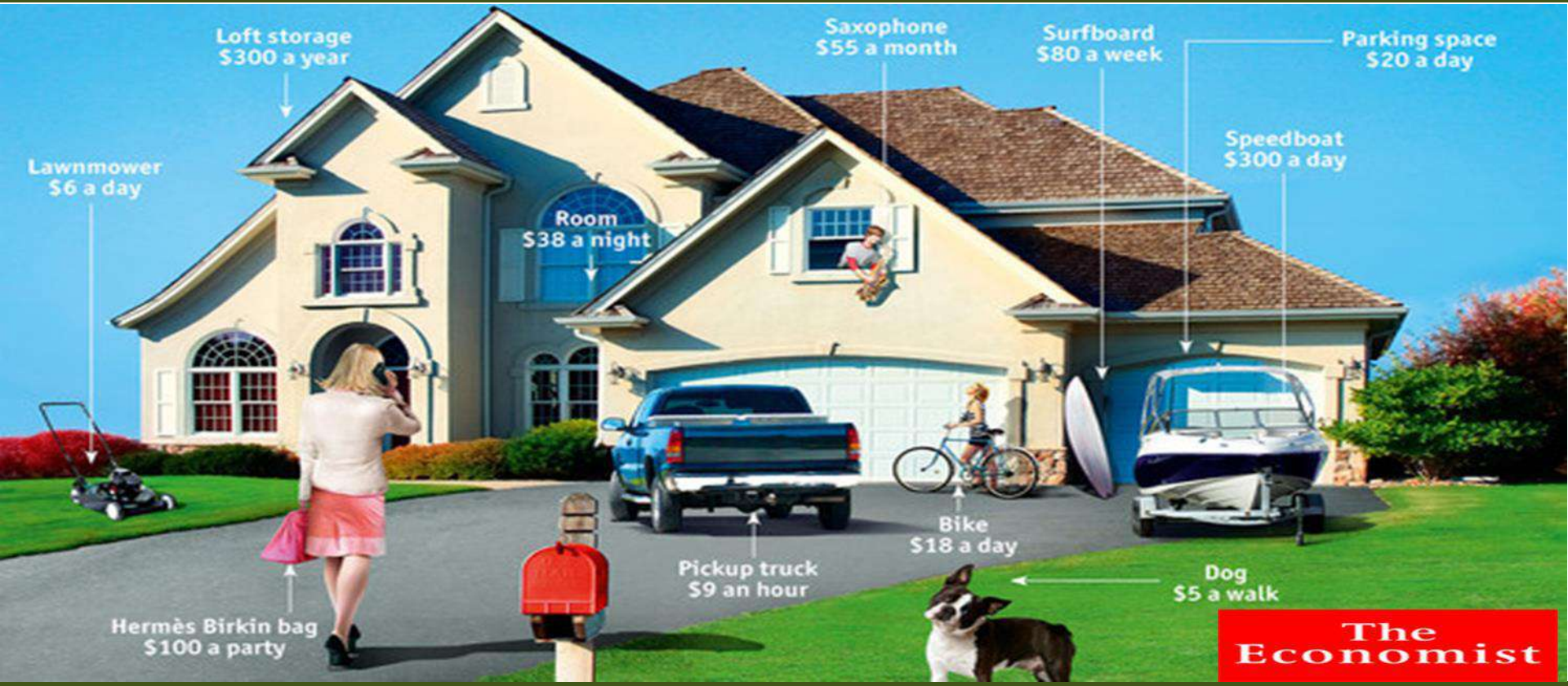
The Share Economy: “ME” likes to share



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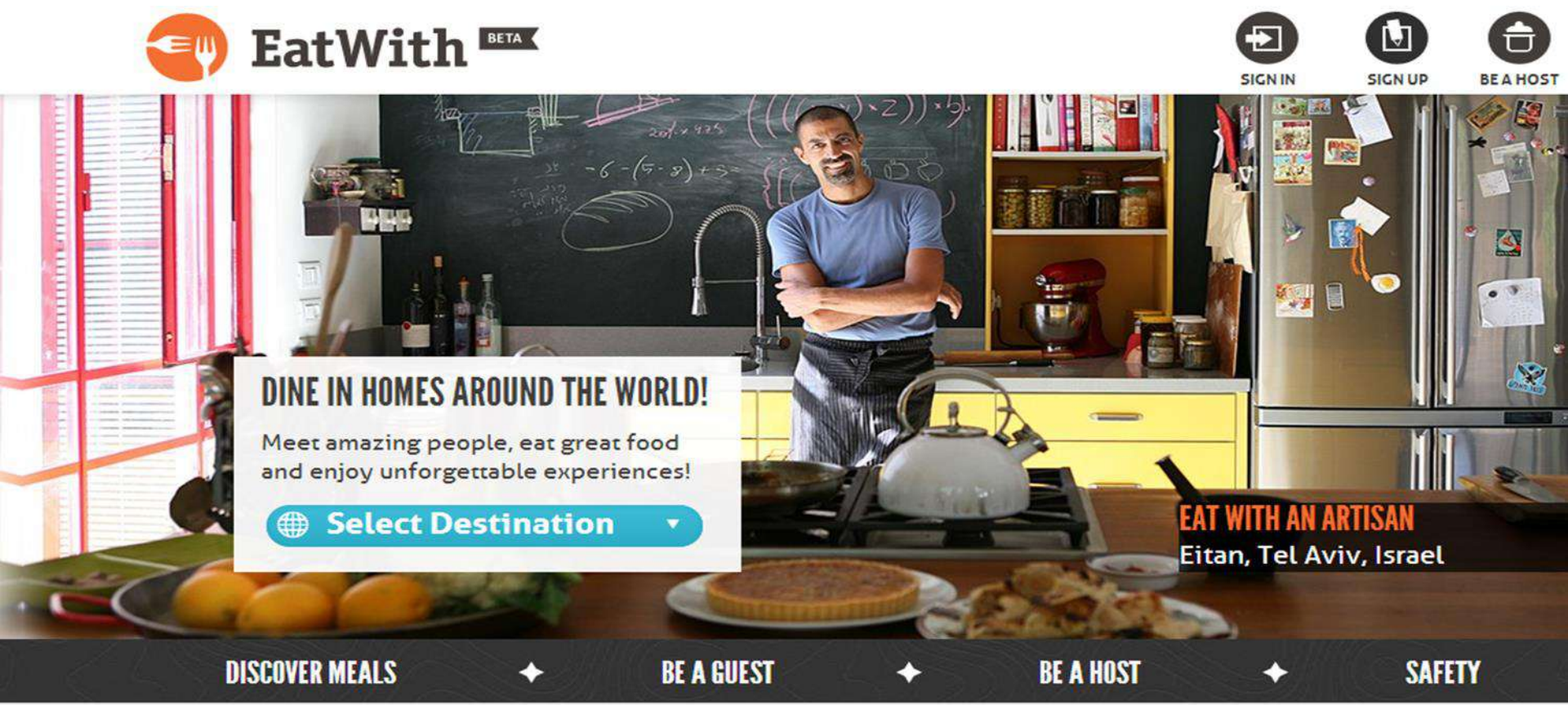
The Share (ME) Economy:



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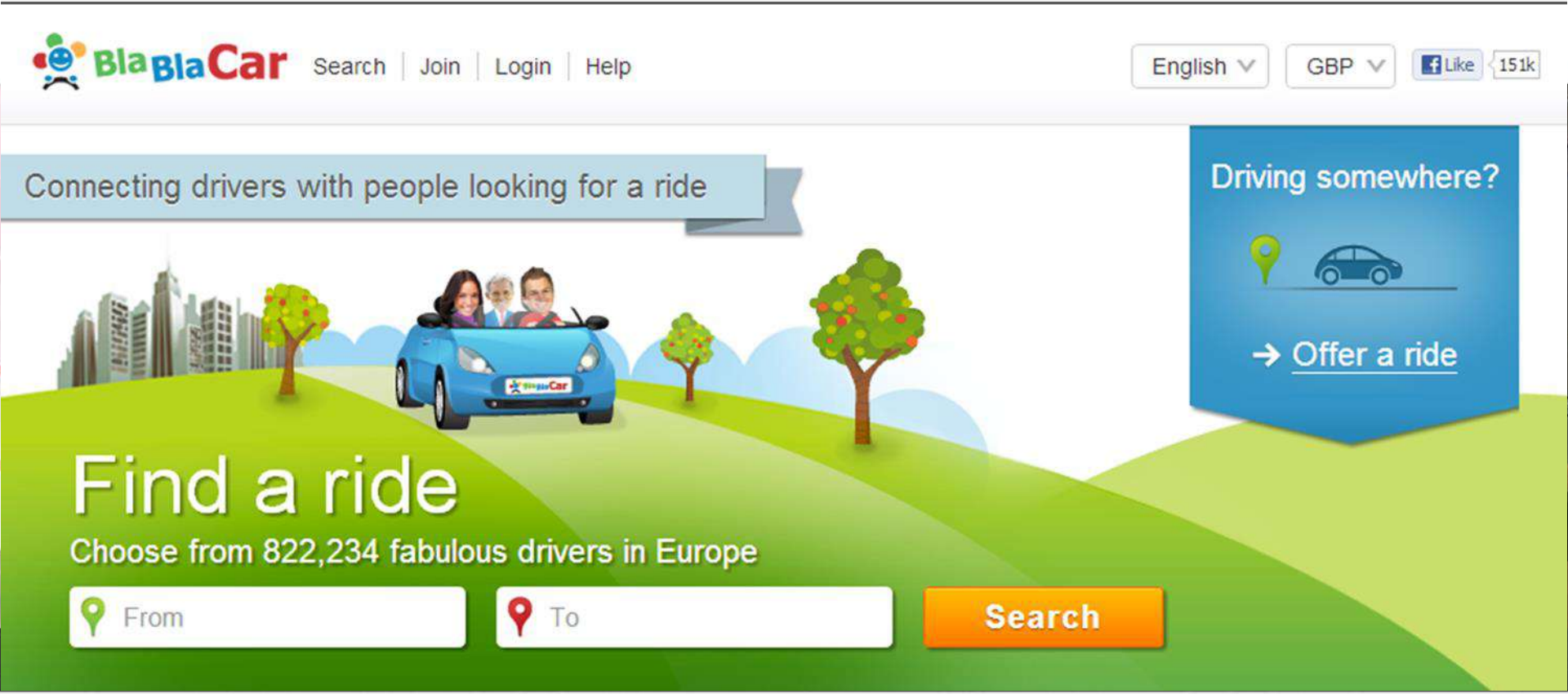

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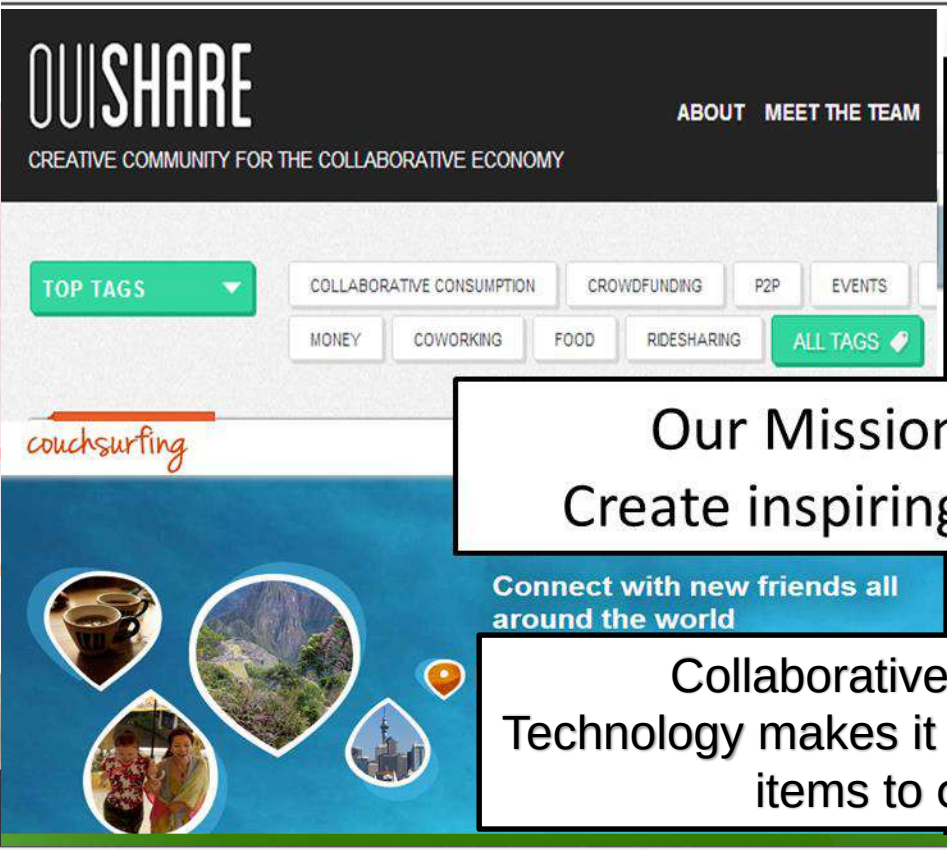

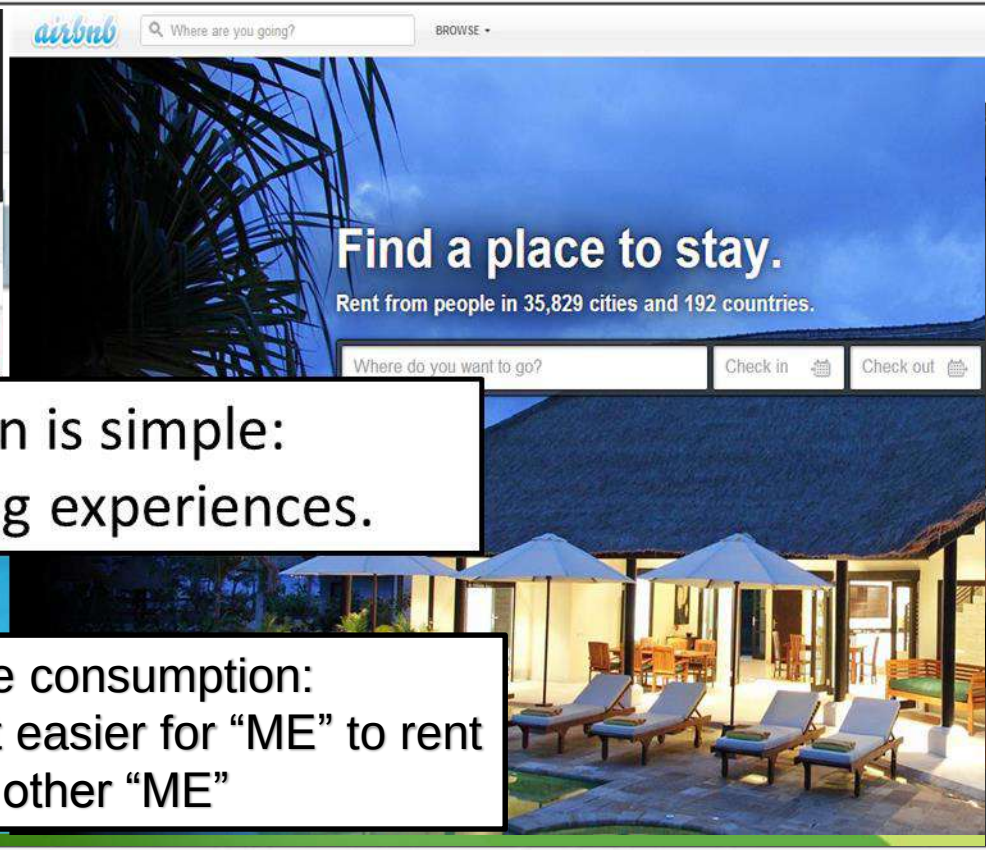

Our Mission is simple:
Create inspiring experiences.

Collaborative consumption:
Technology makes it easier for "ME" to rent items to other "ME"

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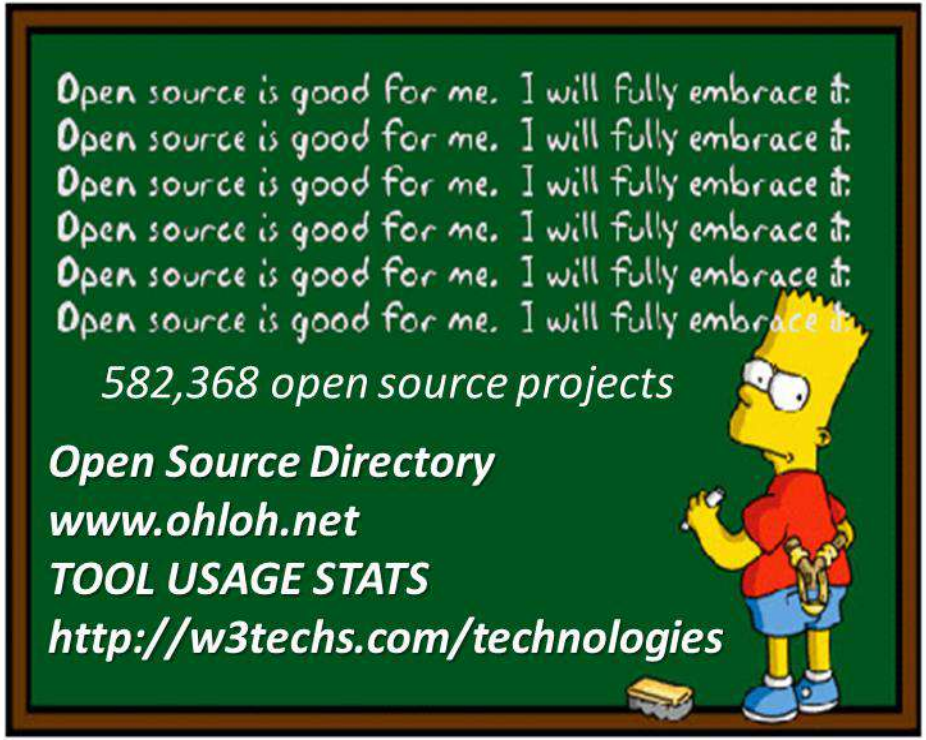
The Share (ME) Economy:



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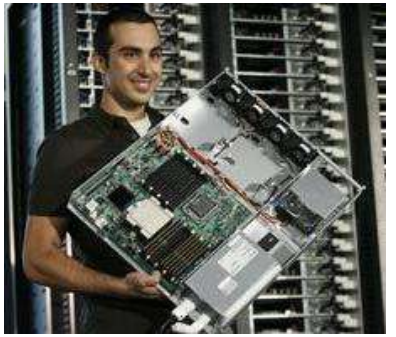
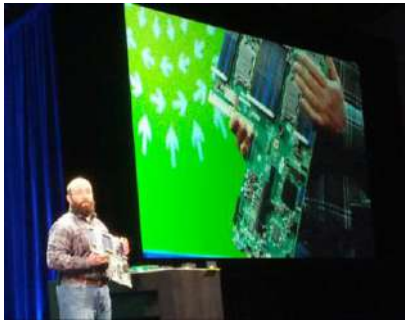
Facebook changed the DC industry : Open Compute Project

- **Open Compute Project**: internet/cloud companies working collaboratively to come up with a better motherboard design, a better power supply based on Intel or ARM chips.
- **Facebook** donated hardware designs to the ***Open Compute Project*** , showing how it had significantly cut costs with a new breed of slim-down gear purchased directly from manufacturers in Asia.
- **Rackspace** : (second only to Amazon in the cloud computing game) donateddesigns to the ***Open Compute Project***.
  - Rackspace's hardware accommodates a different power system than Facebook's gear.
  - The server includes an extra network connection and some extra management tools. And it's designed to handle a much larger number of connecting cables
- **Google and Amazon** have also bypassed big-name server makers going directly to more nimble manufacturers, but they've not donated their designs

……yet……



Amir Michael
Manager Hardware Design
at Facebook



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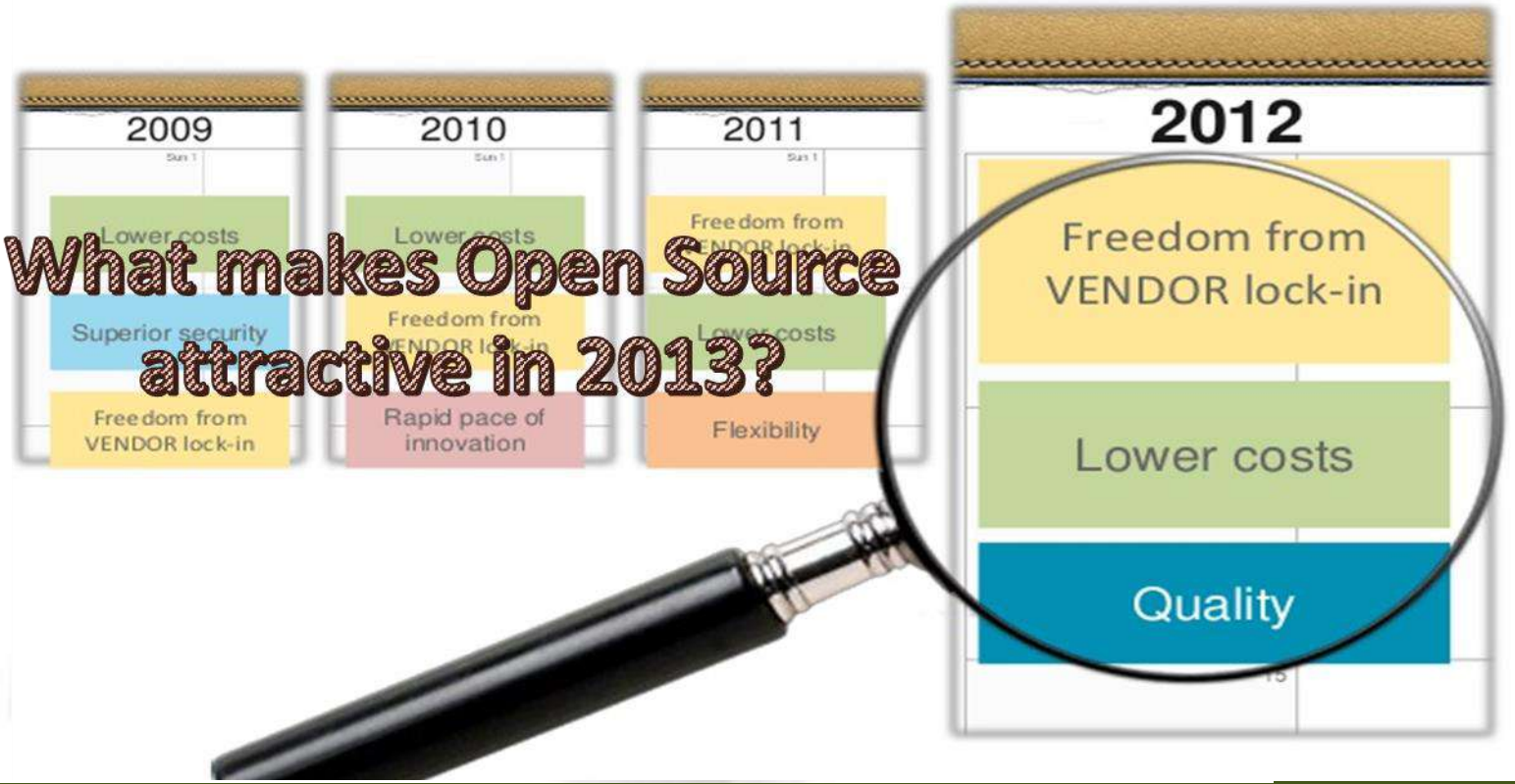
Top Barriers to Open Source Selection



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Top Barriers to Open Source Selection

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On-line trust is the key for the Share Economy

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On-line trust is the key for the Share Economy

Only where there is trust, there can be collaboration and value.

"You will never get one big chance to be trusted in your life, only millions of small ones."

- David Horsager

-"One at a time"-

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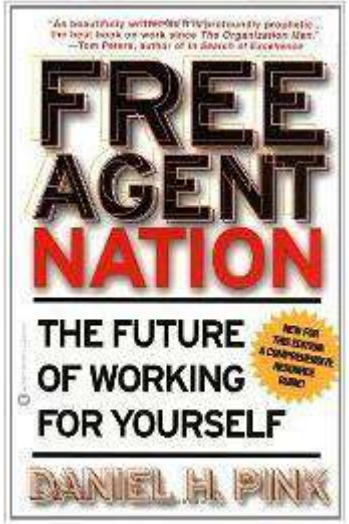
The Free-Agent (ME) Economy

- **Everyone can become** an agent or a service provider
- **"Software Products" are the <u>new economic drivers</u>** (startups)
- "Dial It Up And Dial It Down" economic model
  - **Rent the means of production** instead of owning them
  - **Contractor "farms"** in developing countries (software development and testing PaaS)
  - **Developers** that **have staff jobs** at bigger, established companies
  - **Cloud** based infrastructure (IaaS and PaaS)
  - **Web-based resources** (BPaaS and SaaS): support call center, travel , HR, accounting and administrative tasks
- Telecompanies:
  - **Video or instant message** based "meetings"



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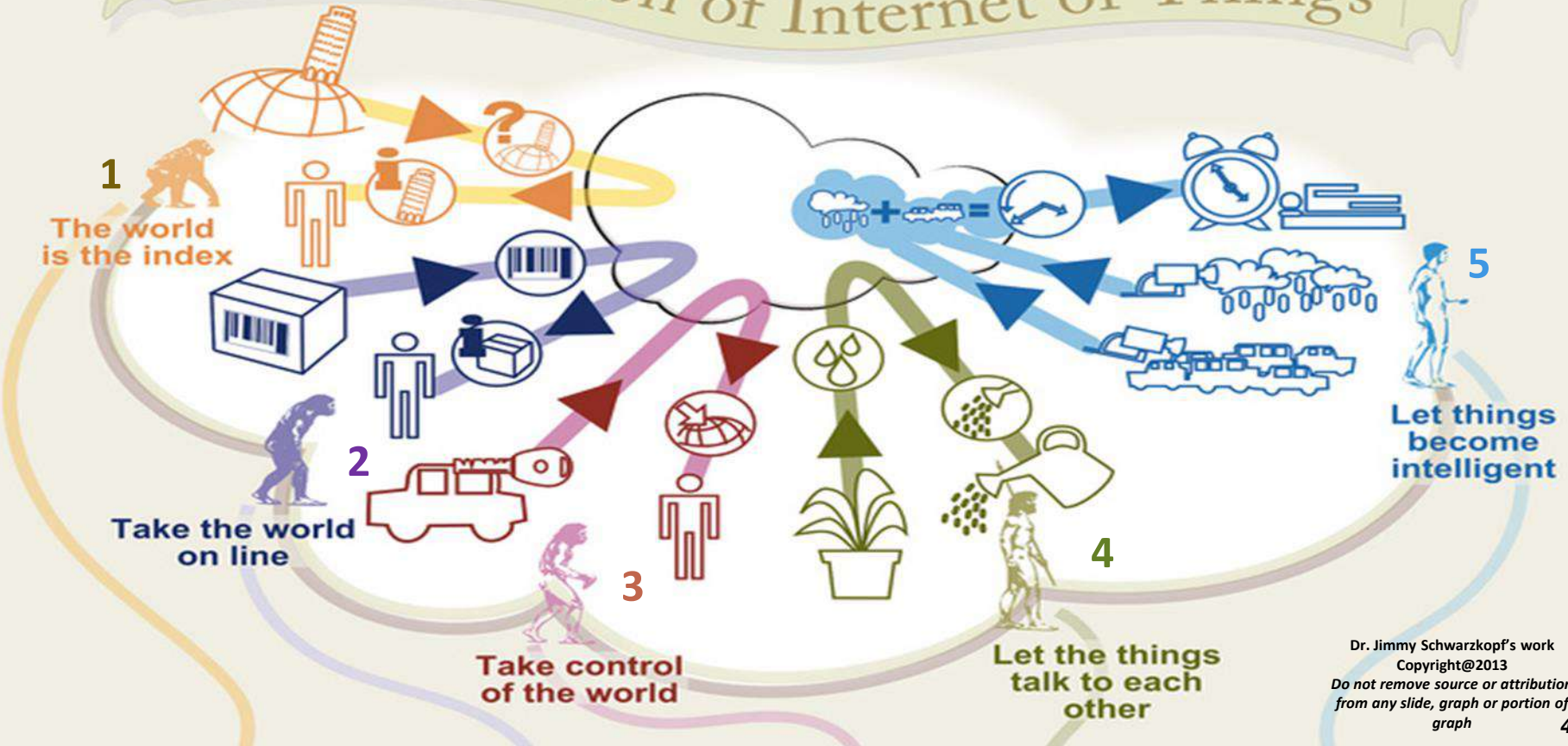
The Evolution of Internet of Things



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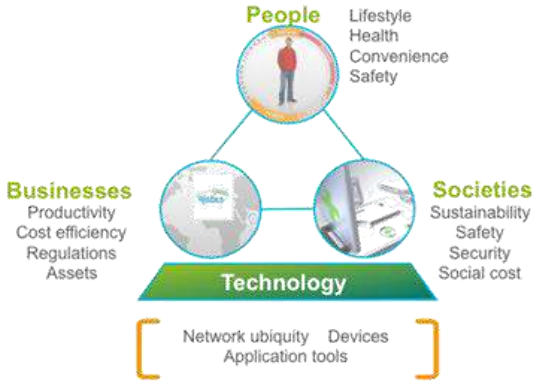
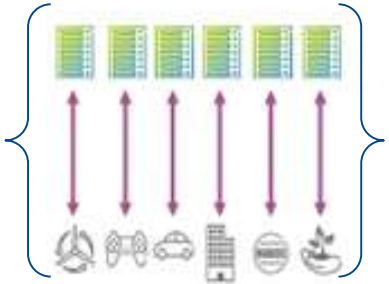
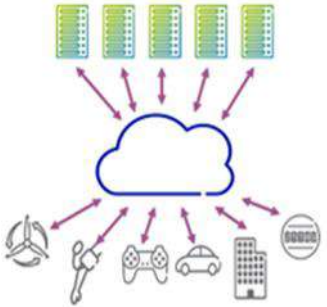
Internet of things (sensor/computer to computer)

- **"Always On"** world around us
  - Cheap, smart, small, image recognition, augmented reality
  - Near Field Communication and location aware sensors
- **Everything gets connected**
- Not only “personal” devices but “business” devices flourish
  - ***Real-time decision support for customers and employees***







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Birth of *CONNECTEDNESS* as an IT metric

- *Enterprises/institutions* and their *products/services* will be evaluated:
  - on ***how connected*** they are
  - on the ***value that accrues from those connections***
- IT is responsible for this **"DIGITAL STRATEGY"**
  - Some IT departments are "linking things," or at least "***thinking about linking things***."
  - But ***few have a strategy*** in place to ***fully exploit*** the emerging connectability associated with the Internet of Things.

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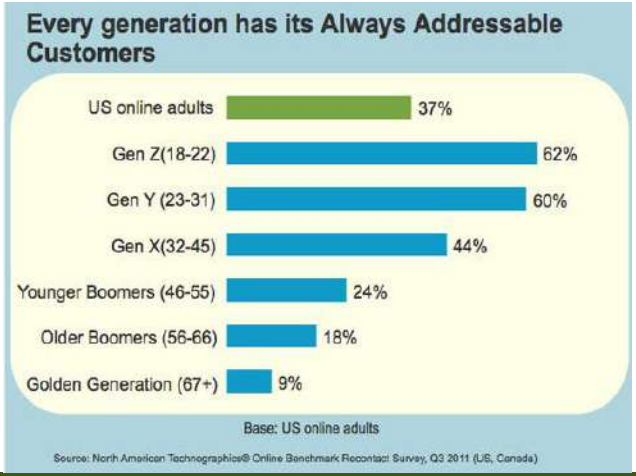
Birth of the “Always Addressable” Customer

- Owns and uses ***at least 3*** data connected devices
- Accesses the ***Internet multiple times per day***
- Goes ***online from multiple*** physical locations
  - **(home, work, in the car, and while shopping)**



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Where are we now? re-imagination of everything

Re-Imagination of Computing Devices…

THEN…
(Desktops / Notebooks)

NOW…
(Tablets / Smartphones)

Re-Imagination of User Interfaces…

THEN…
(Keyboard + Mice = Graphical User Interface)

NOW…
(Touch + Voice + Gesture = Natural User Interface)

Re-Imagination of Connectivity…

THEN…

NOW…

Re-Imagination of Knowledge…

THEN…
(Print Copies / Updated Annually)

NOW…
(Accessible Everywhere / Updated Real-Time / Everyone Can Contribute)

@KPCB_2012_Internet_Trends

Re-Imagination of Photography…

THEN…
Dedicated Camera / Manually Transfer Digital Files / Develop Films

NOW…
(Instagr.am / Camera+ / Hipstamatic…) Always With You Camera (Smartphone) / Instant Digital Effects / Share / Sync / Discover

Re-Imagination of Navigation + Live Traffic Info…

THEN…
Physical Copies of Map in Car / TV, Radio Reporting of Traffic Info

NOW…
(Waze)
User-Generated Digital Map / Live Crowd-Sourced Traffic Data

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Where are we now? re-imagination of everything 2

Re-Imagination of Note Taking…

THEN…

Pencil + Notepad

NOW…

(Evernote)

Always Synced / Multi-Device / Picture + Audio Enabled / Searchable

Re-Imagination of Signatures…

THEN…

Scan / Fax / Mail to Return Signature Page

NOW…

(DocuSign)

Electronic Documents / Secure Audit Trail / Instant E-Signature

Re-Imagination of Content Organization / Aspiration…

THEN…

Paper / Scissors / Glue

NOW…

(Pinterest)

One-Click to Pin / Share / Follow / Always Accessible

Re-Imagination of News + Information Flow…

THEN…

Delayed / Dedicated Reporters + Cameramen / Regional or National Reach

NOW…

(Twitter)

Real-Time / Citizen Reporting via Mobile Devices / Global Reach

Re-Imagination of Data – Help Me, Help You, Help Others…

Waze

- 30MM Users, +3x Y/Y
- 600MM+ Miles Driven per Month with Waze Open

Jawbone UP

- Initial Launch of ~70K Users (11/11) =
  - 7B+ Steps
  - 800 Years of Sleep
- Re-launched 11/12

Yelp

- 84MM Users, +37% Y/Y
- 33MM User-Generated Reviews, +49% Y/Y

Re-Imagination of Always On…

Bluetooth

~2B Bluetooth-Enabled Devices Shipped Globally in 2012E, Up 87x in 10 Years

Wi-Fi

~1.5B Wi-Fi Enabled Devices Shipped Globally in 2012E, Up 5x in 4 Years

Personal Server in Your Pocket + Sensors / Signals Uber Alles

How Many of You are Wearing a "Wearable" Now?

How Many of You will be Wearing a "Wearable" in 5 Years?

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Where are we now? re-imagination of everything 3

Re-Imagination of Files & Folders…

THEN…

Print Copies / Storage Cabinets / Color Tabs

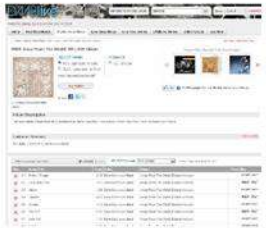
NOW…

(Dropbox / Box.net / Google Drive / Apple iCloud / Microsoft SkyDrive / Amazon Cloud Drive)
Always Synced / Always Accessible / Multi-Device
Searchable Digital Files

Re-Imagination of Selling Digital Goods…

THEN…

Dedicated Shopping Site / Fulfillment Infrastructure



NOW…

(Gumroad)
Democratization of Commerce / Leverage Distribution Platforms such as Twitter / Facebook

Re-Imagination of Cash Registers…

THEN…

Big + Odd Looking Machines / Receipt Printers Cash Drawers

NOW…

(Square)
Simple + Elegant Tablet + Square Reader / Email Receipts / Touch Signing

Re-Imagination of Magazines…

THEN…

Piles of Print Copies

NOW…

(Flipboard)
More Content / Always Up-To-Date / Personalized / Access Everywhere / Interactive (Video + Audio) / Share

Re-Imagination of Recruiting / Hiring…

THEN…

Job Fairs / Campus Recruiting Events / Paper Resumes

NOW…

(LinkedIn)
Online Resumes / Social Relevancy For Recruiters / Searchable Skill Sets / Endorsements / Recommendations

@KPCB_2012_Internet_Trends

Re-Imagination of Borrowing / Lending Money…

THEN…

Brick 'n Mortar Bank Branch / Paper Applications / Lengthy Approval Process

NOW…

(Lending Club…)
Online Interface / Apply & Get Funded in Days / Lower Interest Rates For Borrowers / Better Diversification / Returns For Investors

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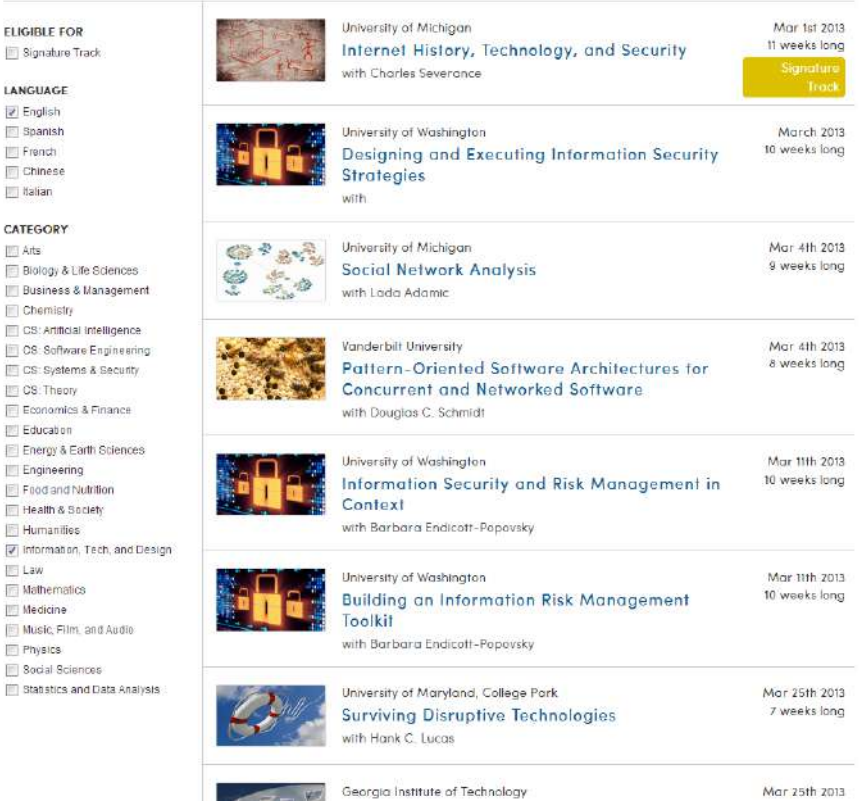
Coursera : Re-inventing Universities?



62 Universities Have Partnered With Coursera

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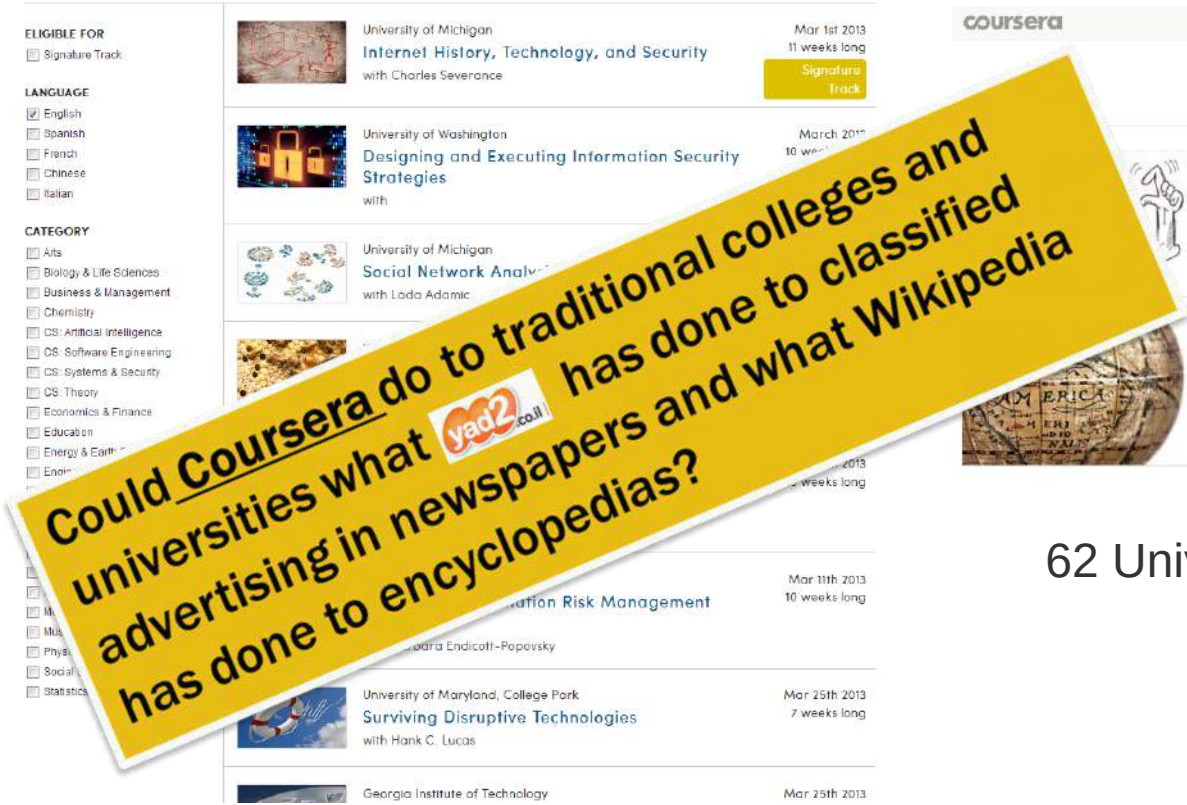
Coursera : Re-inventing Universities?



Could Coursera do to traditional colleges and universities what yad2.co.il has done to classified advertising in newspapers and what Wikipedia has done to encyclopedias?

62 Universities Have Partnered With Coursera

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Are we in a "ME" transforming economy ?

?

"It won't happen to us."
The next industry to fall

Stockbrokers

"It won't happen to us."
Telephone utilities

"It won't happen to us."
Newspaper publishers

?

"It won't happen to us."
The next industry to fall

Record companies

"It won't happen to us."
Bookstores

"It won't happen to us."
Travel agencies

?

"It won't happen to us."
The next industry to fall

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Are we in a "ME" transforming economy ?

CIOs need to understand the law of the business jungle: ***"disrupt or be disrupted"*** and ***help*** their companies ***survive*** industry disruption

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Not less than Steve Jobs

Index of Products

Jeff Bezos

Books, electronics, etc

amazon

Digital products: ebooks, music, movies

Infrastructure Computing Services

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Not less than Steve Jobs

Books

- Business is accelerating, customers are impatient and the market is unforgiving.
- It requires people that understand and are able to move at the speed of the market.
- It requires IT services that move at the speed of these people.

Infrastructure Computing Services

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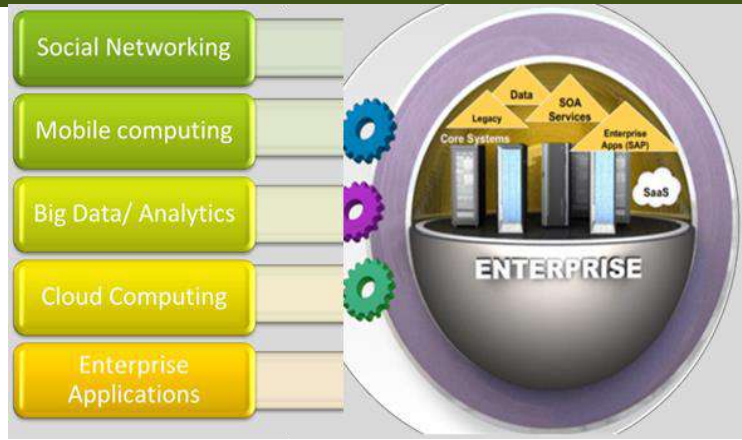
Three trends make up most of the IT disruption:

1. The "information sharing" between:
   - ❖social networking
   - ❖mobile computing
   - ❖big data/analytics
   - ❖cloud computing
   - ❖enterprise applications (from partners and IT)
2. The consumerization of IT (CoIT)
   - ❖***DEVICES*** are part of the story; ***Apps*** are the story
   - ❖**APP STORES** mark a shift in innovation
   - ❖enterprise requirements are **no longer** the market movers
   - ❖**contradicts** the traditional IT management methods of
     - ❖command and control, locked-down systems, systematic rollouts, and long cycle-time application development



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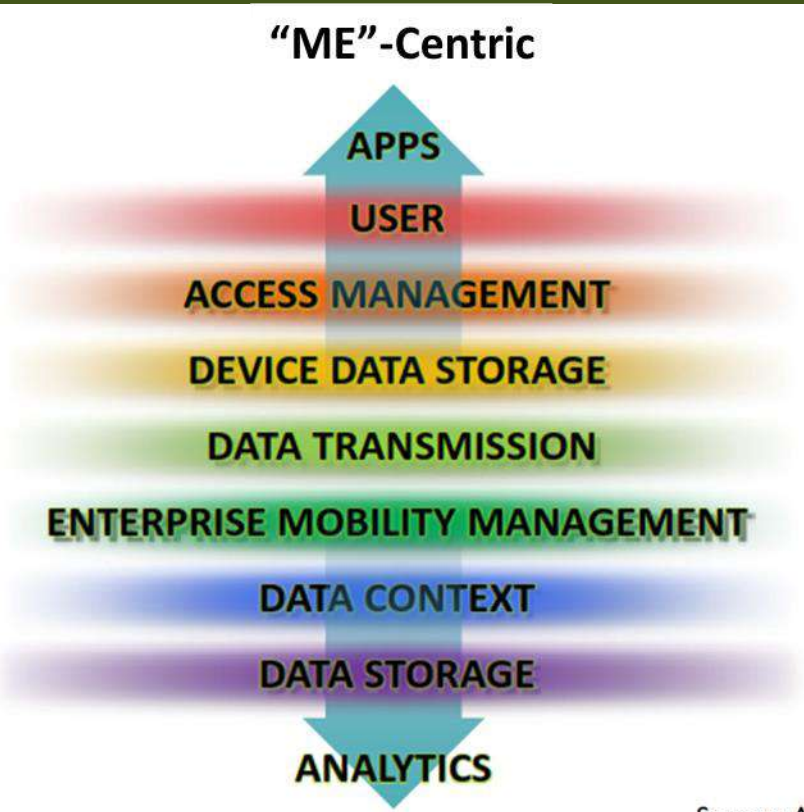
IT Centric vs. “ME” Centric



Source: Aberdeen Group,

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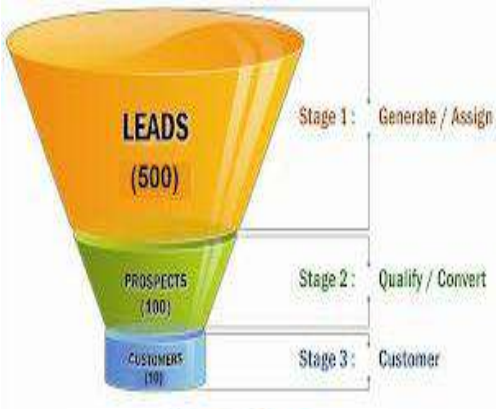
Third trend for IT disruption : Non-stop customer

3. Non-stop customer

- The traditional marketing **“funnel” has lost its relevance**
- Buyers **no longer enter** a channel. Instead, they are **continuously** in the channel.
- Customers (B2B or B2C) are able to **participate online** in any and all of the components of traditional channels at the **time and place of their choosing**.
- They can **move** seamlessly between various channels and components, **both online and in the physical** worlds.
- ***Evaluation***, not purchase, is the focal point.
- Even **after a purchase**, customers reevaluate their decisions, and the alternatives.
- easier than ever for **customers to change their minds**:
  - **What if I can find a better deal by checking just one more place?**
  - **I know that the product’s in the mail, but is there still time to cancel?**



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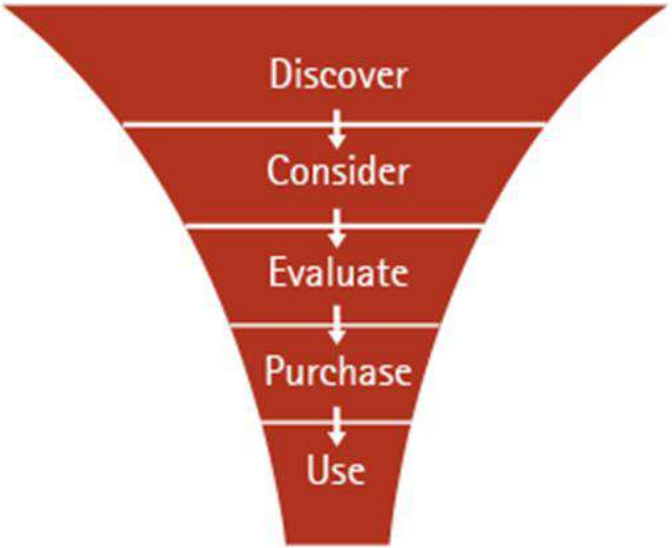
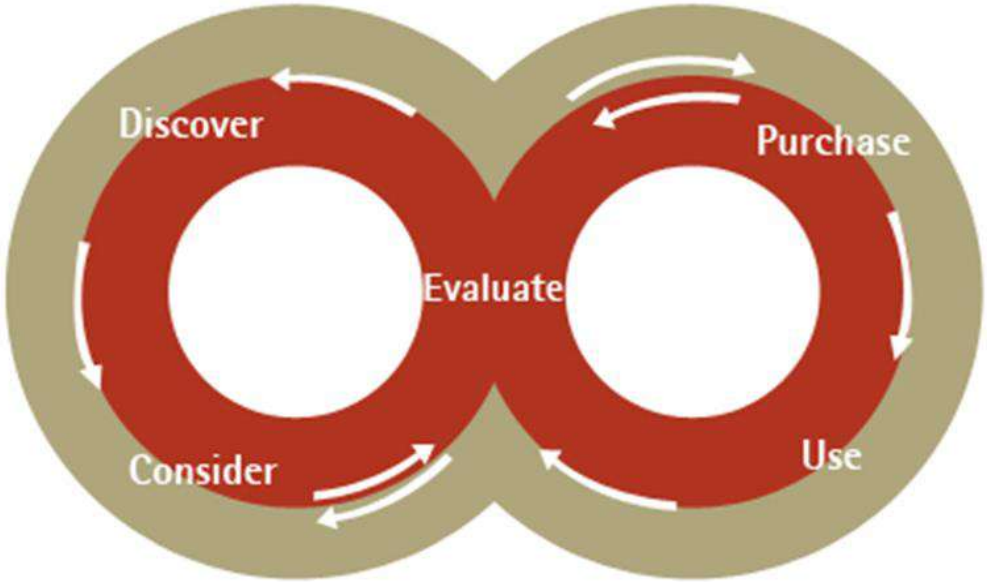
Non-stop Customer

traditional funnel



Nonstop-Customer Experience Model



Open content/channels
Brand-controlled content/channels

accenture

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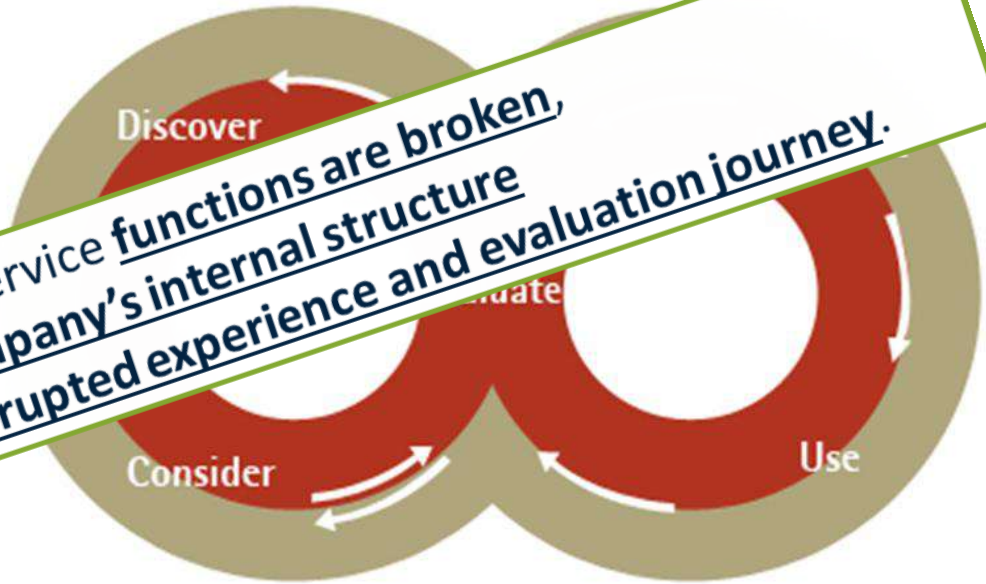
Non-stop Customer

traditional funnel

Nonstop-Customer Experience Mod



Open content/channels
Brand-controlled content/channels

Marketing, sales and service **functions are broken**,
representing a **company's internal structure**
rather than the **customer's uninterrupted experience and evaluation journey**.

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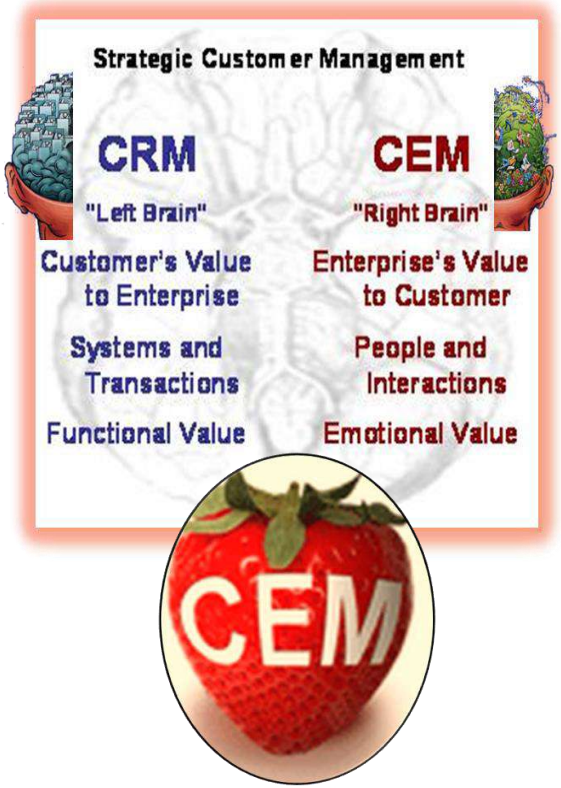
Role of technology in Customer Experience Management (CEM) ?

- You're a customer and you buy something:
  - want it to be **easy to get**
  - **function** flawlessly
  - **move forward** in your life or business.

- ***Customer Experience Management*** is about:
  - making it **easier and nicer** to buy the service/product we want
  - then saying good things about them and coming back



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2013: “non-stop” customers

“Customer Effort” is a “force” in the opposite direction to ”Customer Experience”

Positive “Customer Experience”

Customer Effort

Bad Service. Hate it. Spread it.

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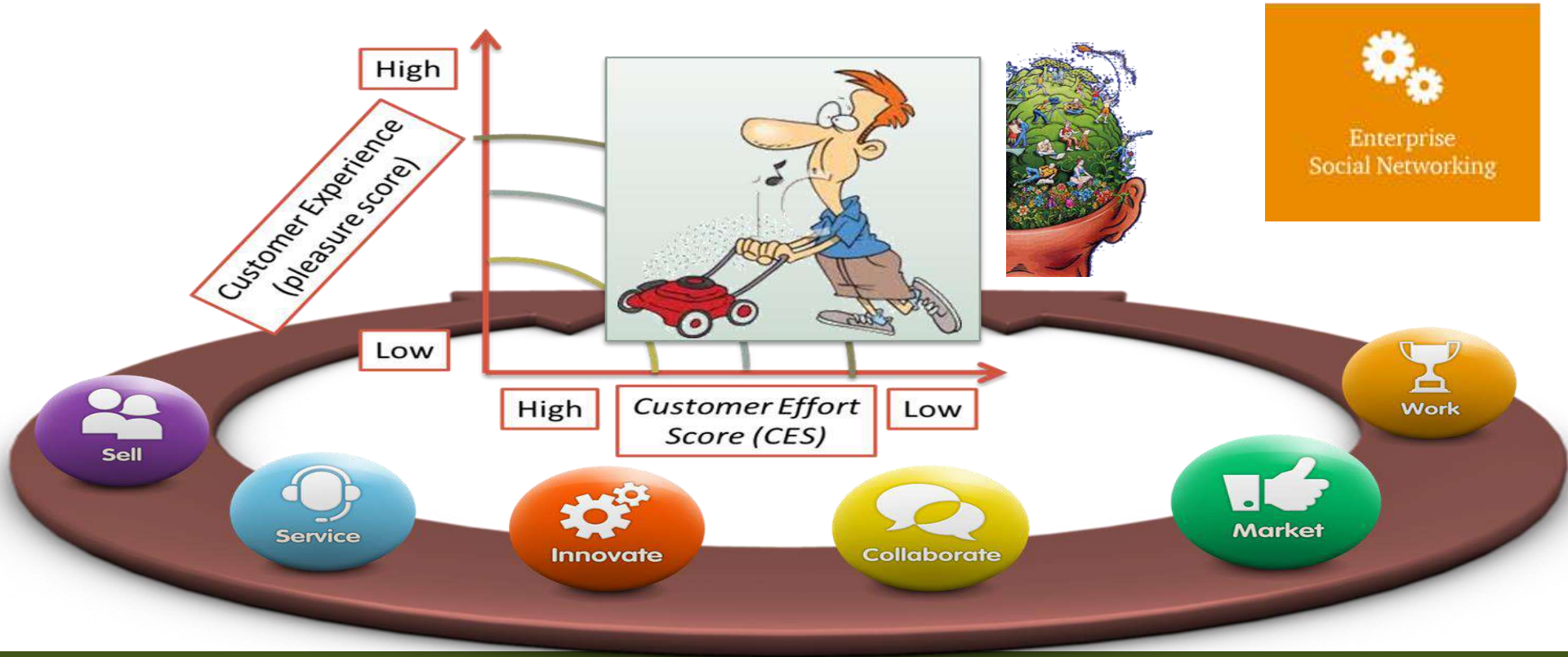
Social Enterprise defines/supports the new “non-stop” customer



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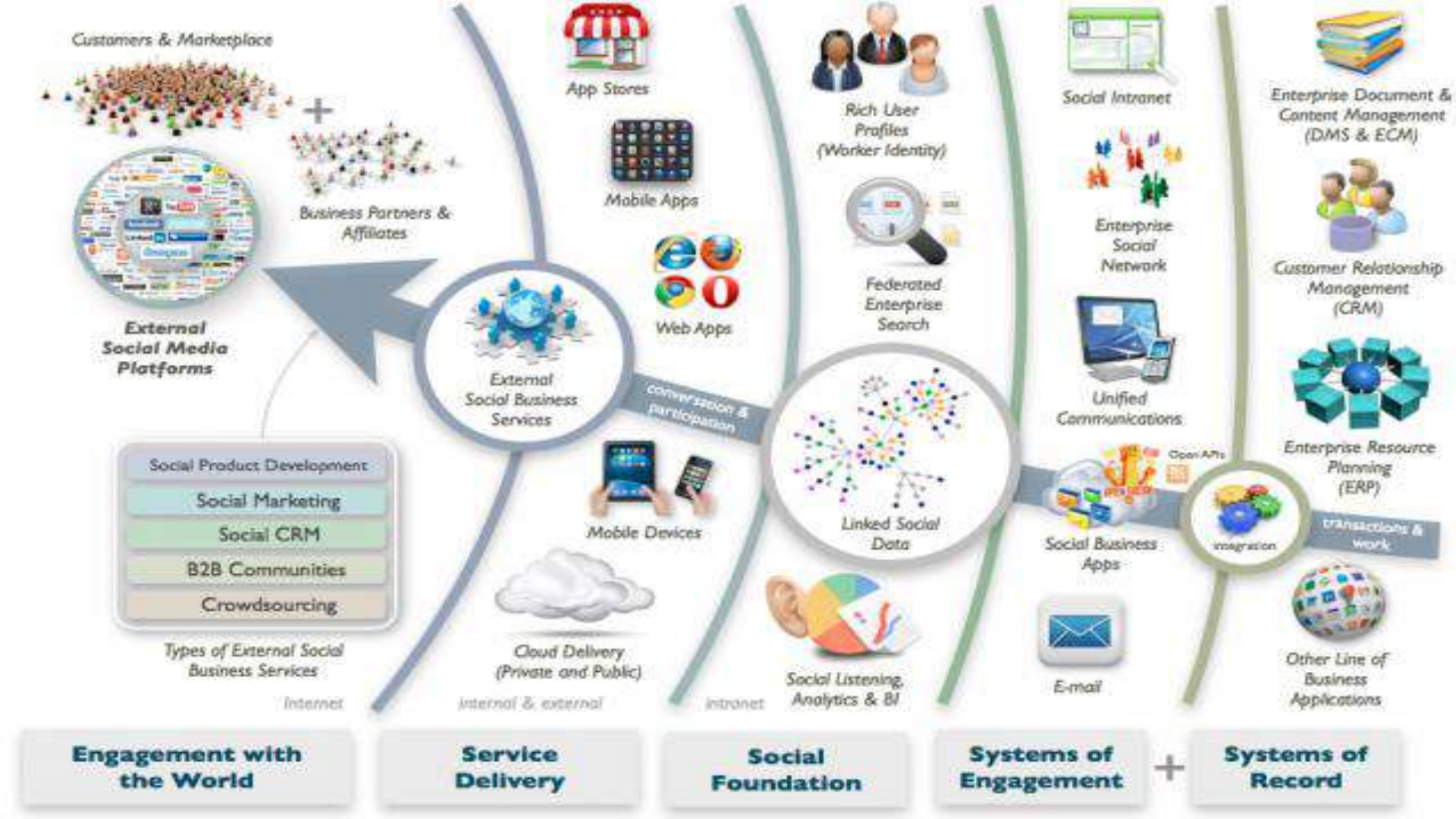
Customers & Marketplace
Business Partners & Affiliates
External Social Media Platforms
Social Product Development
Social Marketing
Social CRM
B2B Communities
Crowdsourcing
Types of External Social Business Services
Internet
App Stores
Mobile Apps
Web Apps
External Social Business Services
conversation & participation
Mobile Devices
Cloud Delivery (Private and Public)
internal & external
Rich User Profiles (Worker Identity)
Federated Enterprise Search
Linked Social Data
Social Listening, Analytics & BI
intranet
Social Intranet
Enterprise Social Network
Unified Communications
Open APIs
Social Business Apps
integration
E-mail
Enterprise Document & Content Management (DMS & ECM)
Customer Relationship Management (CRM)
Enterprise Resource Planning (ERP)
transactions & work
Other Line of Business Applications
Engagement with the World
Service Delivery
Social Foundation
Systems of Engagement
+
Systems of Record

Summary of the “ME” revolution

- **Customer (“ME”) is:**
  - connected, always on, highly opinionated and on the move
  - understands they have power and know how to use it
  - they have expectations and choices if those expectations aren't met
  - they have a voice, and it is loud and far reaching
- **“ME” revolution is a “TRUST” revolution:**
  - more than a loyalty program, it is about earning their trust
  - recognize them as more than just numbers or accounts
    - as unique human beings with a distinct set of needs.
  - “ME” expects more than a product or a service, they expect:
    - be at the center of your world in a SOCIAL EXPERIENCE
    - relationship that is on equal terms:
      - they give > you get > you give >they get

IT SOLUTIONS

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From Technology Game Changers to Behavioral Paradigms

- **Enterprises are re-defining the C[illegible]d the IT Department**
  - **The "new" C[illegible]**
  - **Th[illegible]**
- **[illegible]sumer-Driven Open IT Architectures for the delivery of IT Services**
  - **Software Development Department**
  - **Delivery (Infrastructure) Department**

"Seeing **afterwards** is worthless. **Foreseeing** is what really **counts** ... and **being ready**."

José Martí
1894

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From Technology Game Changers to Behavioral Paradigms

- **Enterprises are re-defining the CIO and the IT Department**
  - **The "new" CIO or VPtech**
  - **The "new" Open IT Department**
- **The new IT: Consumer*-Driven Open IT**
- **New Architectures for the delivery of IT Services**
  - **Software Development Department**
  - **Delivery (Infrastructure) Department**

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Prof. Snowden's "CYNEFIN MODEL"

1. **In <u>chaotic times</u>**, we **<u>cannot rely on good and best practices</u>**.
2. In times of **<u>high volatility</u>, the best we can do is <u>take action and observe the results</u>**.
3. **<u>Best practices</u> are not possible in <u>situations you've never encountered before</u>**.

Prof. Bauman's "Liquid Modernity"

1. Desire to **<u>know "what's next"</u>** is rooted in the belief that the **<u>longer the time available</u>** to develop a response to a new situation, **<u>the more manageable the situation will be</u>.**
2. Individuals have to splice together an **<u>un-ending series of short-term</u>** projects and episodes.

In chaotic times we need techniques in order to solve problems

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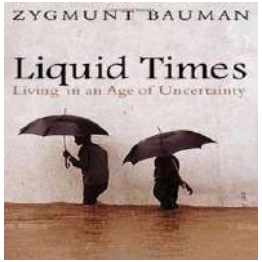
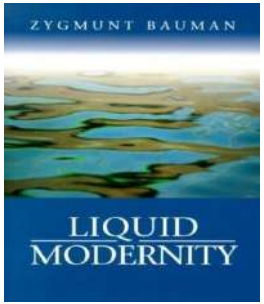
Prof. Bauman's "Liquid Modernity": series of projects

- Institutions **no longer have enough time** to **solidify** and **cannot serve as frames of reference**
- In **liquid modernity** the individual/IT management (under conditions of uncertainty):
  - be **flexible and adaptable**
  - be constantly ready and willing to **change tactics at short notice**
  - splice together an **un-ending series of short-term** projects and episodes
  - **abandon commitments and loyalties without regret** to pursue new opportunities





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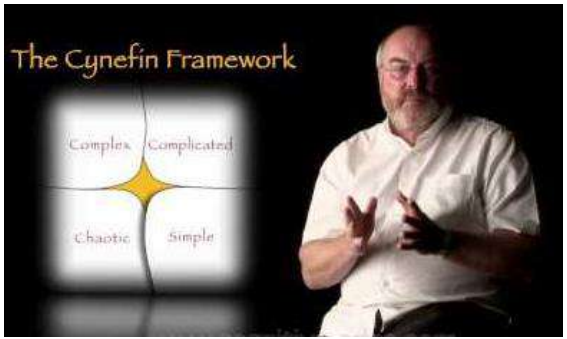
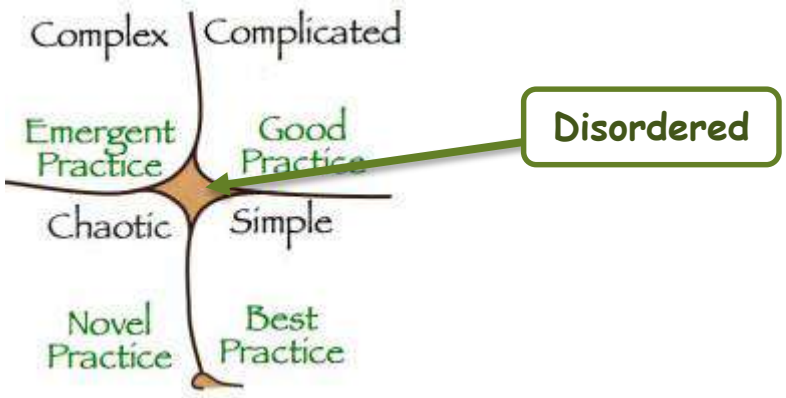
Prof. Snowden's Cynefin Framework: problem solving

Complexity (Cynefin)	Practices	Work Type	Skill Level	How to Achieve
Simple	Best	"Assembly Line"	Proficiency	Training
Complicated	Good	Information	Fluency	Training + Experience
Complex	Emergent	Knowledge	Literacy	Deliberate Practice
Chaos	Novel	Concept	Mastery	Deliberate Practice (10,000 hrs)





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STKI Cynefin IT Framework

Big Data and Analytics applications

Consumerization of APIs: PERMEABLE ENTERPRISES and RESTful APIs are born

Internet of Things (IoT) (sensor/computer to computer)

Always addressable employees & customers (non-stop customer model)

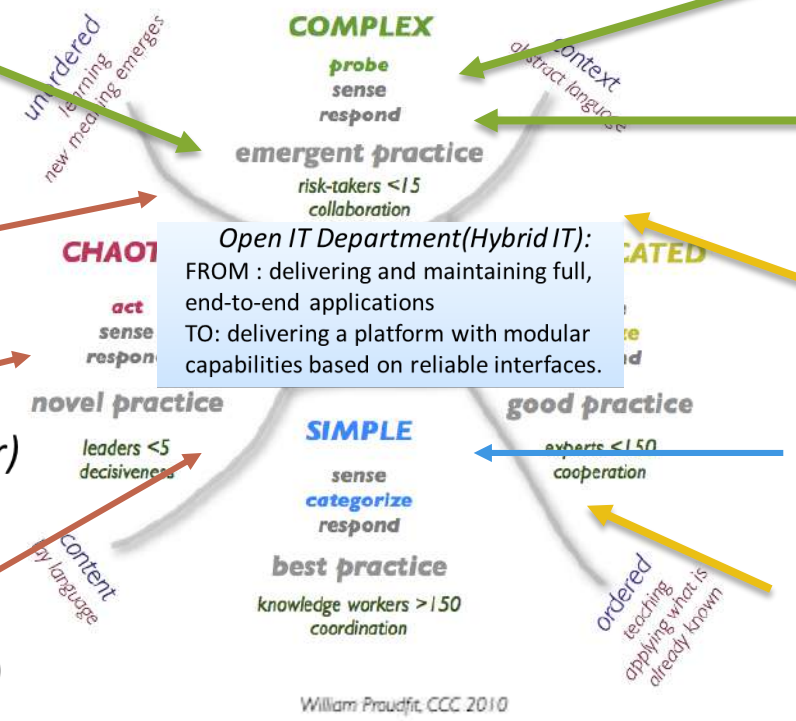
Social, collaboration and in-context applications

Pervasive Connectivity: Mobile/mobility

Cloud (enterprise and personal) Services

New Data Center Technologies

Availability of many core (industry specific) business packages (on premises and on the cloud)



Open IT Department(Hybrid IT):
FROM : delivering and maintaining full, end-to-end applications
TO: delivering a platform with modular capabilities based on reliable interfaces.

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New IT? Innovative CIO ?

" Only he who can see the invisible can do the impossible. "

❖*Frank L. Gaines*

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An ~~ARCHITECT~~ CIO should be:

An ~~architect~~ CIO should be:

- ingenious, and apt in the **acquisition of knowledge**
- a **good writer**, a skillful draftsman, versed in geometry and optics
- **expert at figures**, acquainted with history, informed on the principles of natural and **moral philosophy**,
- somewhat of a **musician**,
- **not ignorant of the sciences** both of law and physics

Deficient in either of these qualities, he cannot be a perfect master.

Marcus Vitruvius Pollio
de Architectura, ~15BC

2000 Years ago

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Changing Role of the CIO: minimum academic profile?

The Changing Role of the CIO

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What do Boards/CEOs want from VP technologies?

Factors	2012	2010	2008	2006	2004
Technology	1	2	3	3	6
People skills	2	4	2	2	2
Market Factors	3	1	1	1	1
Macro-economic Factors	4	3	6	6	3
Regulatory Concerns	5	5	5	4	5
Globalization	6	6	4	5	4

Countries:
64

CEOs:
1,709

Industries:
18

CEOs are searching for customer insight.

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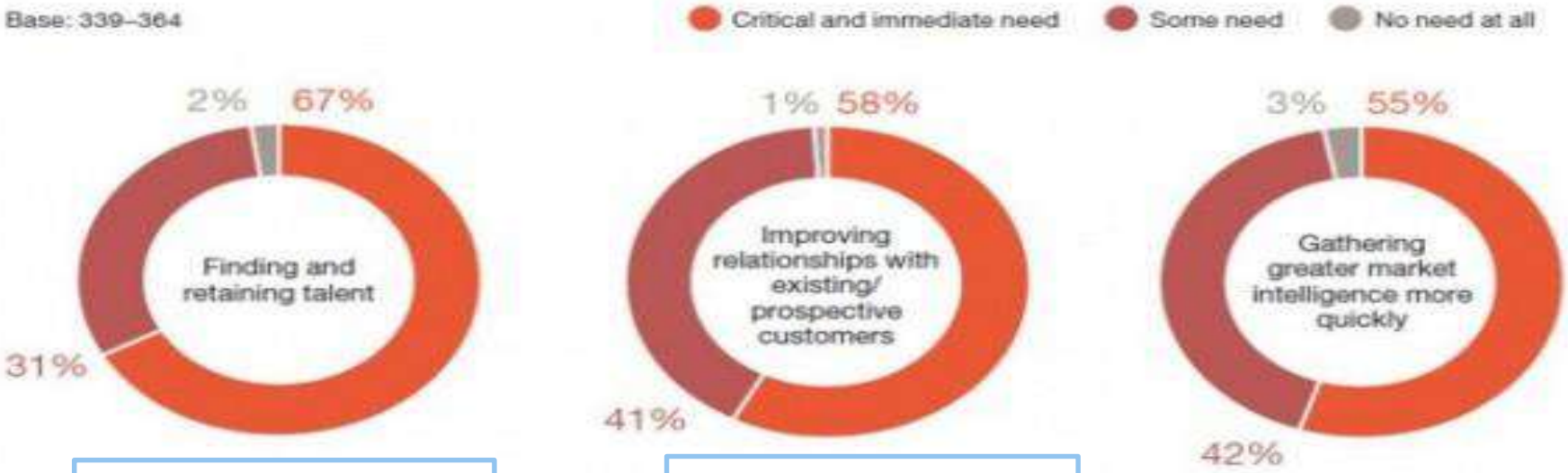
PWC 2012: What Global CEOs Want from Technology Innovation

CEOs identify where technology is most needed—talent and customer management are critical

How great is the need to significantly improve the following areas within your organization through technology and innovation?

Base: 339–364



Millennial Generation Technological World

Customer Experience Management Tools

Big Data Analytics

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PWC 2012: What Global CEOs Want from Technology Innovation

Digital Business Strategy

Millennial Generation Technological World

Customer Experience Management Tools

Big Data Analytics

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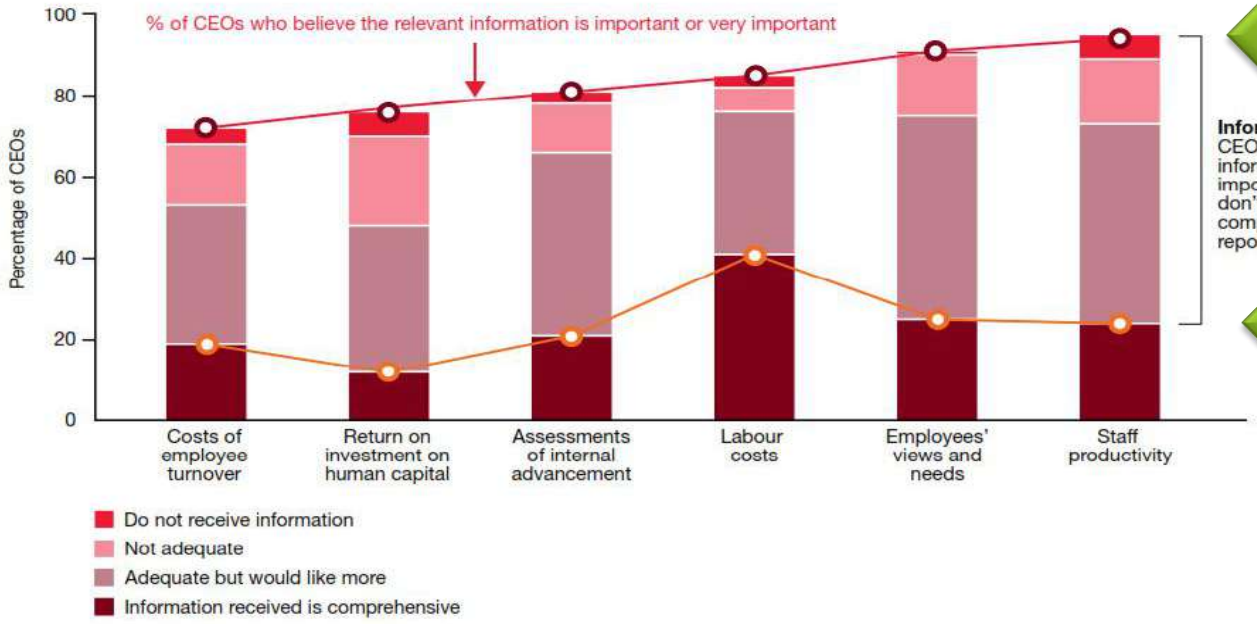
A “majority” of CEOs ***think they don’t*** get enough information

Q: When making decisions, how important is it to have information on each of the following talent-related areas? For those areas that are important to you, how adequate is the information that you currently receive?



Information Gap: CEOs believe information is important but don’t receive comprehensive reports

Info needed

Information Gap

Info gotten

Base: All respondents (1,258)
Source: PwC 15th Annual Global CEO Survey 2012

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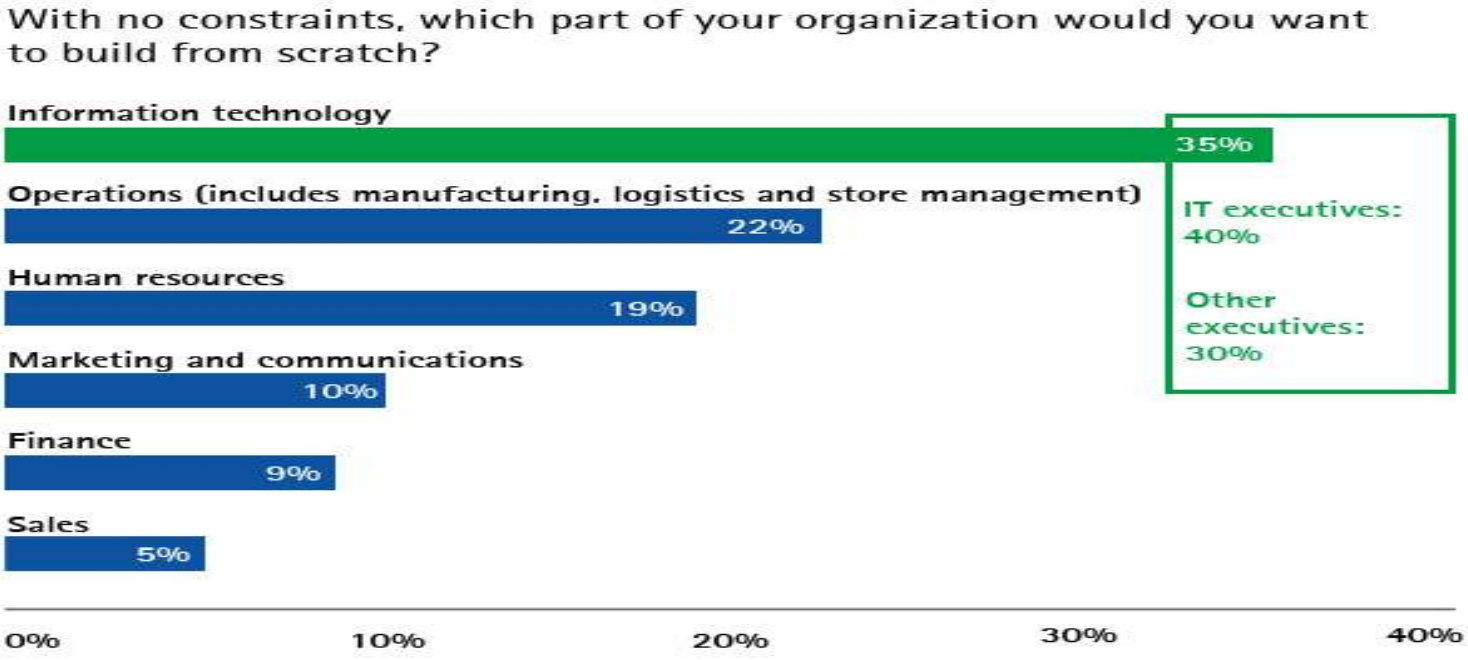
CEOs and the Board demand innovation by IT.. or else!!!



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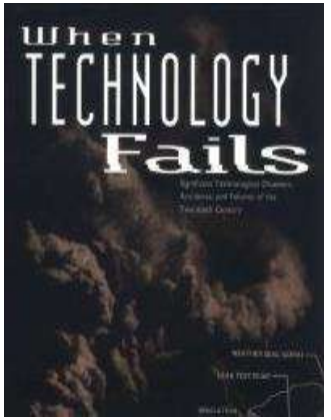
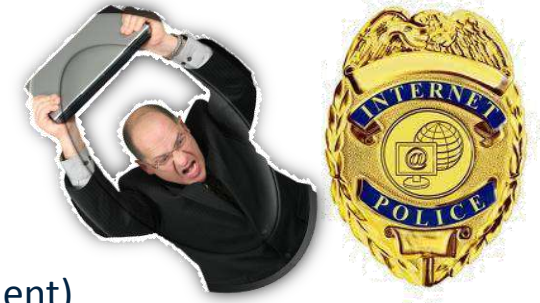
Employees/users haven't forgotten or forgiven :



- **IT initially resisted** :
  - PCs, Internet, email/messaging, social media, cloud services, mobile devices, and all the other on-the-desk technologies

- **IT has taken the "police function"** or build a prison around employees:
  - around employees that are "not careful" with data/information
  - allegedly wasting company time by playing Angry Birds or shopping online.

- **IT is responsible of:**
  - programming mistakes that cost a bundle (Y2K)
  - disruptive ERP deployments
  - periodic email outages
  - red tape because of a wave of compliance and regulations (government)



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IT at the crossroads: Lead or fade away

Inability to connect :

CoIT-Mobile, Social, Big Data, Cloud with the Enterprise IT maximizing Customer Experience

***show that* old-style CIOs will be changed**

Certain management consultant firm recently sent a warning to CEOs :

-" remove CIOs from technology leadership ; IT isn't suited for discovering business value" -

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The IT community is facing an existential decision

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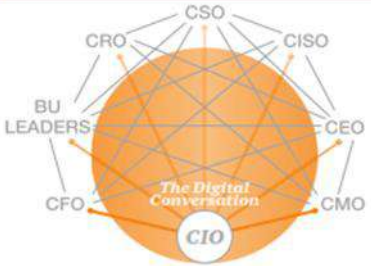
The IT community is facing an existential decision

- **Should IT retreat** or **can it evolve**?
  - ***IT can retreat into the data center***, safely surrounded by servers and core systems it ***manages "economically"*** but away from those "end-users" that demand strategic business initiatives
  - ***IT can make the leap out of the 1960s-era data center mentality*** into the 21st-century broader ***strategic role advising*** and enabling better business through its technology. The ***promise of "digitizing" business*** that IT made in the 1990s is now coming true.

Digital conversations among C-level executives can raise Digital IQ

PwC's 5th Annual Digital IQ Survey

Strong Ties mean X4 becoming top performers



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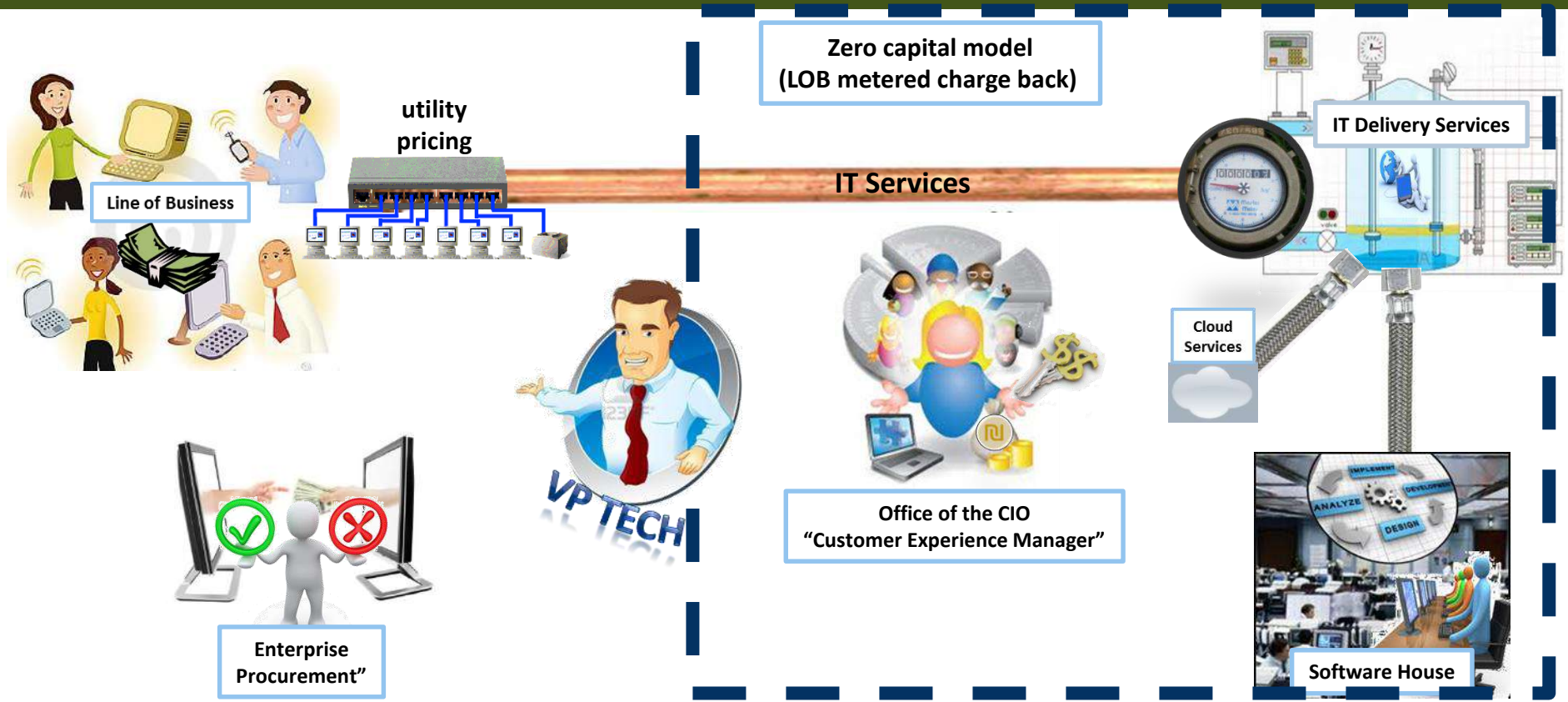
New IT Department



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Who is the new CIO/VPTech ?

An **internal strategic consultant** more like (the model) HR [illegible] ncial VPs.

- That will help the business move ***from enterprise IT pr[illegible]*** ***ivity***
- LOB managers will view their new CIO/VP[illegible] ***nd improvement***

Develops the [illegible] vation:

- [illegible] ness
- [illegible]
- [illegible]
- Le[illegible] that will uncover transformative opportunities
- De[illegible] implements ***technology used by the clients of the enterprise*** in order to increase revenues (new business models) by ***defining new service touch-points***:
  - ***M-Commerce, M-Advertising, M-Sharing, M-Payments, M-Sharing, etc***.

As business technology (IT) ***becomes easier to acquire, use and manage,*** the traditional role of CIO/VPtech shifts ***from controlling and managing to coaching and guiding.***

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Who is the new CIO/VPTech ?

An **internal strategic consultant** more like (the model) HR, legal, financial VPs.

- That will help the business move ***from enterprise IT productivity to business productivity***
- LOB managers will view their new CIO/VPtech as a ***partner for business innovation and improvement***

Develops the **Enterprise Digital Strategy** that builds value through innovation:

- ***Technology solutions*** for the LOBs and ***manages the business change*** needed (new business processes)
- ***Defines the "technological" space*** where:
  - enterprise meets the customer
  - revenue is generated
  - enterprise mission is accomplished
- Leadership in tablet efforts that will uncover transformative opportunities
- Defines and implements ***technology used by the clients of the enterprise*** in order to increase revenues (new business models) by ***defining new service touch-points***:
  - ***M-Commerce, M-Advertising, M-Sharing, M-Payments, M-Sharing, etc***.

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The new CIO/ VPTech has to deliver:

- Defines ***IT investment model***
- Manages the ***IT Department as an IT vendor***
- Delivers best-of-class ***portfolio of services*** (not portfolio ***of systems and technologies***)
- ***DATA*** (Defines Data architecture, data quality and data governance)
- Supports ***regulation and risk*** management compliance
- Manages operational ***risk, security and cyber*** (for ***all technologies*** the enterprise uses)

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APIs: interfaces are the new **top priority**

IT is responsible for delivering APIs for all core systems and services.

- IT doesn't have to do all the coding anymore
- IT ***has to deliver*** standard robust and reliable ***interfaces against the core systems*** (RESTful stds)
- LOBs ***use these interfaces*** with self-generated or sourced functionality to ***create new capabilities***.
- Through this ***co-creation process***, marketing, sales, and other internal ***groups become full partners***

Delivers information services from internal and external sources

- Private and Public Clouds (connected
- IaaS, PaaS, SaaS and BPaaS
- Packaged Software Packages

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Office of the CIO

Line of Businesses

Pay per Use

OCIO

Customers' needs

SOW

Software House

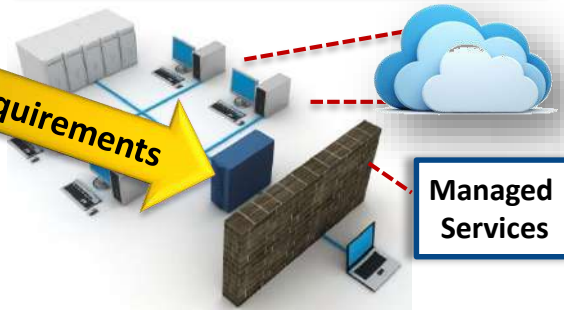
Enterprise Procurement

Bill of materials

Office of the CIO
"Customer Experience Manager"

Infra requirements

IT Delivery Services



Managed Services

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LOB take all/partial ownership of budgets

LOB execs will be ***directly involved*** in most of new IT investments

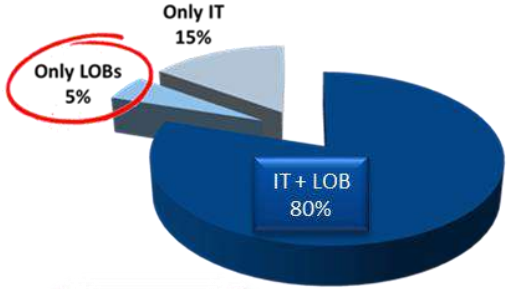
LOBs will ***no longer*** view technology investments as ***"IT investments";*** they will be treated in the same way as any other investment

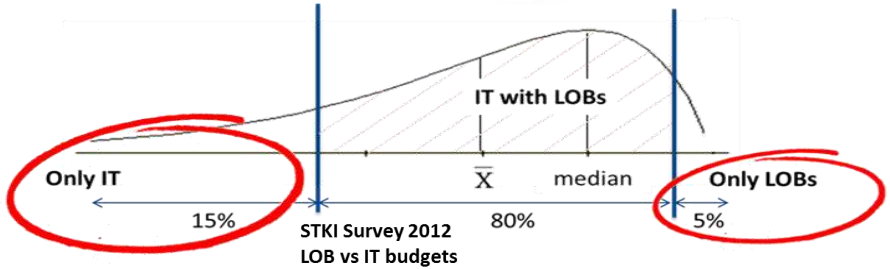
No more investments ***based only on infrastructure*** requirements

Younger more IT savvy LOB ***professionals driving demand definitions***

In-house ***(departmental) analytics*** capability

BYOEverything culture





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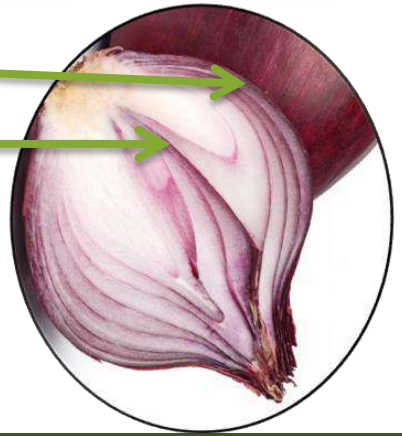
Different way for many in IT to think:

- Requires IT to **share ownership of risk management and technology decision** making with LOBs:
  - On the technology side, the framework favors policies, not rigid barriers, to steer employees to the right outcomes while allowing appropriate freedom and creativity.
- IT technology as an onion with multiple layers.
  - The **outer, employee-oriented** layers should **be flexible and individualized.**
  - The **inner, core systems** should be **standardized and safeguarded as much as possible.**
  - **The bad news** is that **not all the technology** is available **to manage** this onion model.
  - **The good news** is that by shifting responsibility from an IT only job to a shared one, IT incentivizes LOBs into **project ownership**.



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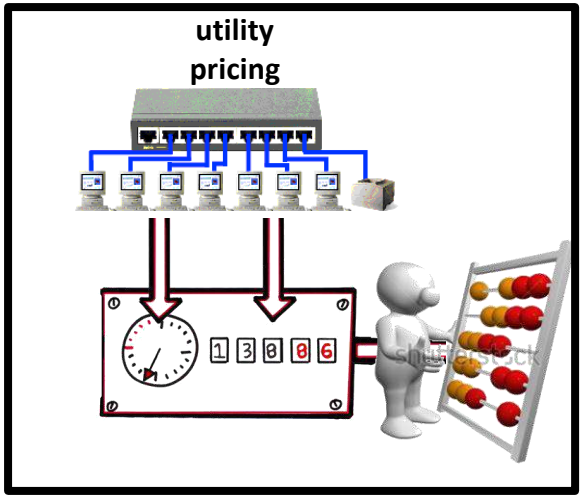
Chargeback: a necessity by 2014

NO more all inclusive IT!



"different" time & materials allocation to internal customers!

Chargeback connected to actual consumption

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IT procurement incorporated into the enterprise wide procurement department

- IT procurement gets a **"Bill of Materials"** from the Office of the CIO
  - RFP are managed ***under the "technology" umbrella of the IT*** department
  - Contracts are signed with a second "different" appendix:
    - **The statement of work *defines the scope* of the agreement.**
    - **Contracts and SOWs should be *audited regularly***
- **Asset lifecycle management** :mgmt. of all hardware/software assets
  - Planning, ***purchasing,*** configuration, installation, production support and maintenance, together with ***decommissioning*** and disposal
- **Software licensing** : model of proof of ownership, administration and management of licenses (minimize shelveware)
  - involve security audits, enterprise architecture reviews, vendor analysis, compliance and regulatory checks
- **Staff-Augmentation Vendor Management:**

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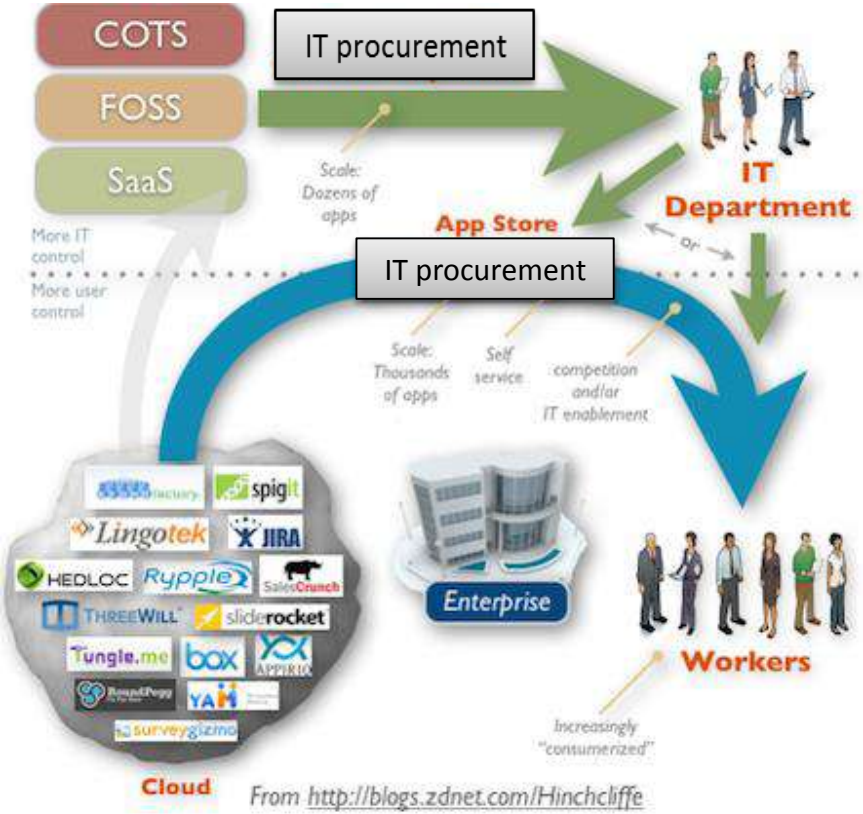
How App stores will change Software Acquisitions

Long tail of ***pent-up demand*** in business software that several times larger than the typical ***enterprise application backlog***.

Smaller, more targeted solutions, especially at a departmental level **are needed.**

Users are just taking things into their own hands (up to 30% of all IT at this point) and obtaining the software they need from the cloud or their mobile devices.

Further complicating the situation is that more and more applications are also adding social media features of their own.



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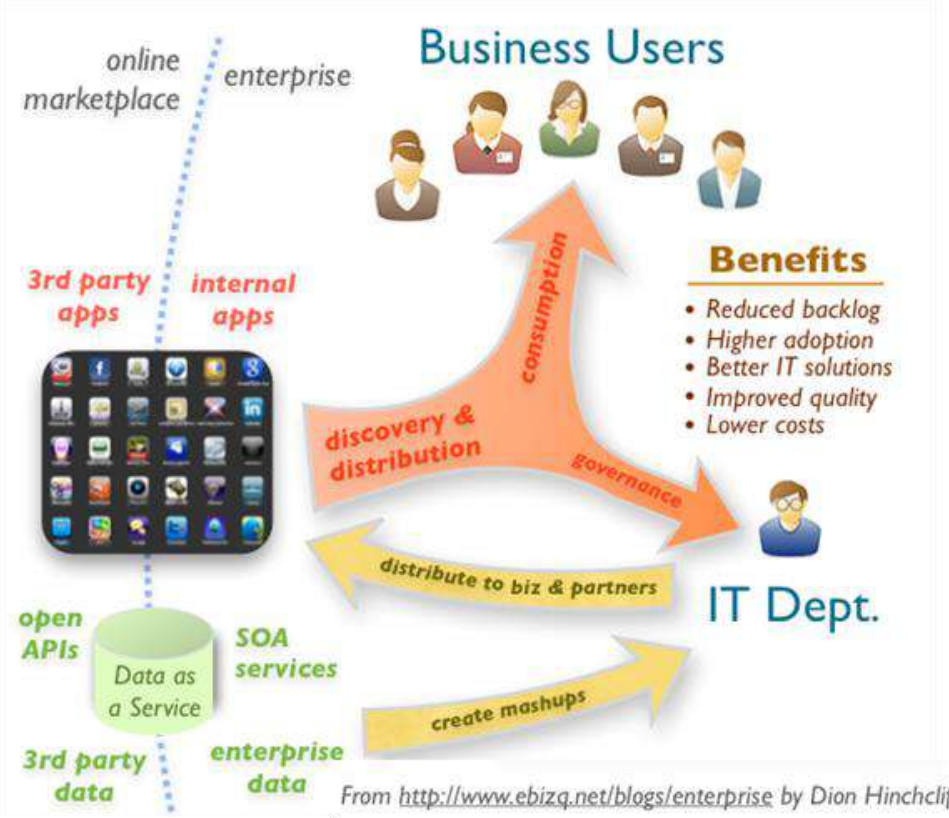
Enterprise App Stores that behave as “ME” App stores do



- Enables purchase, consumption and use of Apps (ME and IT)
- A must in the next 18 months
- IT does:
  - License management
  - Approve and control install/update
  - Market Manager
- App store requirements:
  - Self service install/update
  - User choices
  - Discovery/evaluation

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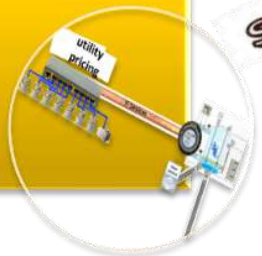
IT Delivery Services Department

- ***from an infrastructure-component*** focused IT that is expensive to sustain and maintain
- ***to one focused on end-to-end service management***, user experience and "fair" chargeback policies

IT Delivery Services moves:

- ***Formal governance*** structures for operational risks.
- ***Automation*** of management and control functionalities
- ***Secure access*** of users based on location and function
- Charges for ***"real" metered*** service delivery
- Validates, audits, protects, backups data
- Validates cloud provider service levels (SLAs)

Datacenter transformation, consolidations, vendor management, cloud, and application rationalization mandate:



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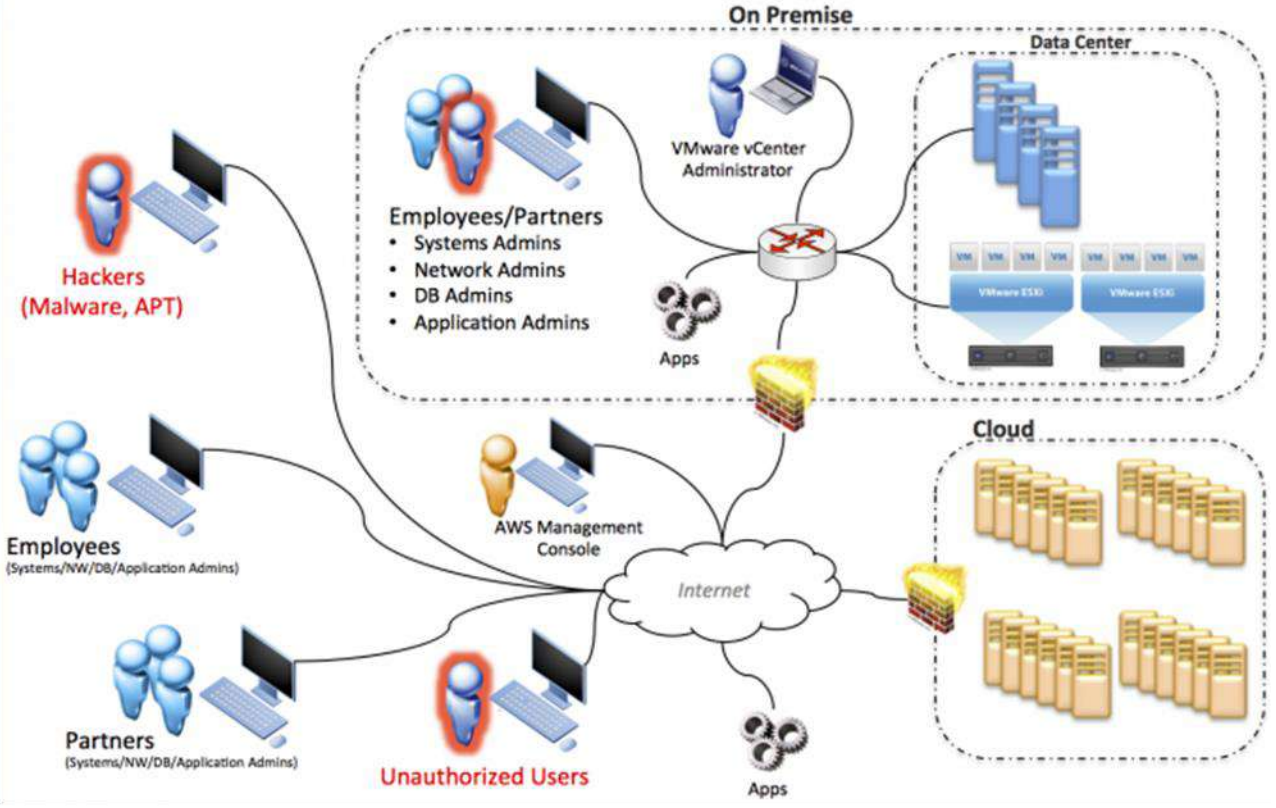
High priority: *Privileged Identity Management (PIM) Controls*

The "new"
Delivery Department's
Headaches



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High priority: *Privileged Identity Management (PIM) Controls*

1. User-based access control: Who owns the device?

2. Device-based access control: Trust the device?

3. Location-based access control: Where is the device?

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Software House (lean development group)

Competence Centers

- **ERP and Core**
- **Mobile and Analytics**

Development portfolios skewed (marketing, sales, and service):

- **In charge of *full customer's development cycle* (Development, SysTest, Integration, Production testing)**
- ***DevOps and Continuous* Delivery of solutions**
- **Provides *full* auditability, rollback, reproduction, and redeployment**

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The CIO challenge: how to innovate FAST

- The CIO's agenda has transformed:
  - from ….. **"how to keep the lights on with IT"**

  - to….. **"how to innovate the business with technology"**

A growing number of companies have already created competitive distinction/differentiation through the use of advanced use of technology.

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Emerging and Disruptive IT Technologies

Emerging and disruptive technologies ***are reshaping strategies, business models and enterprise investments***.

Each of these technologies has the ***potential to be a key driver in an organization's business agenda***.

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Information technology has created a data explosion

- We now record petabytes of data on what we buy, sell or even consider:
  - every click of every visitor to a website
  - every search on Google or Bing
  - every transaction at every cash register
  - every call or text on cellphones
  - every inventory change in our supply chains
- This creates a level of visibility that managers have never had before.
- It also creates enormous opportunities to use data to change the way decisions are made

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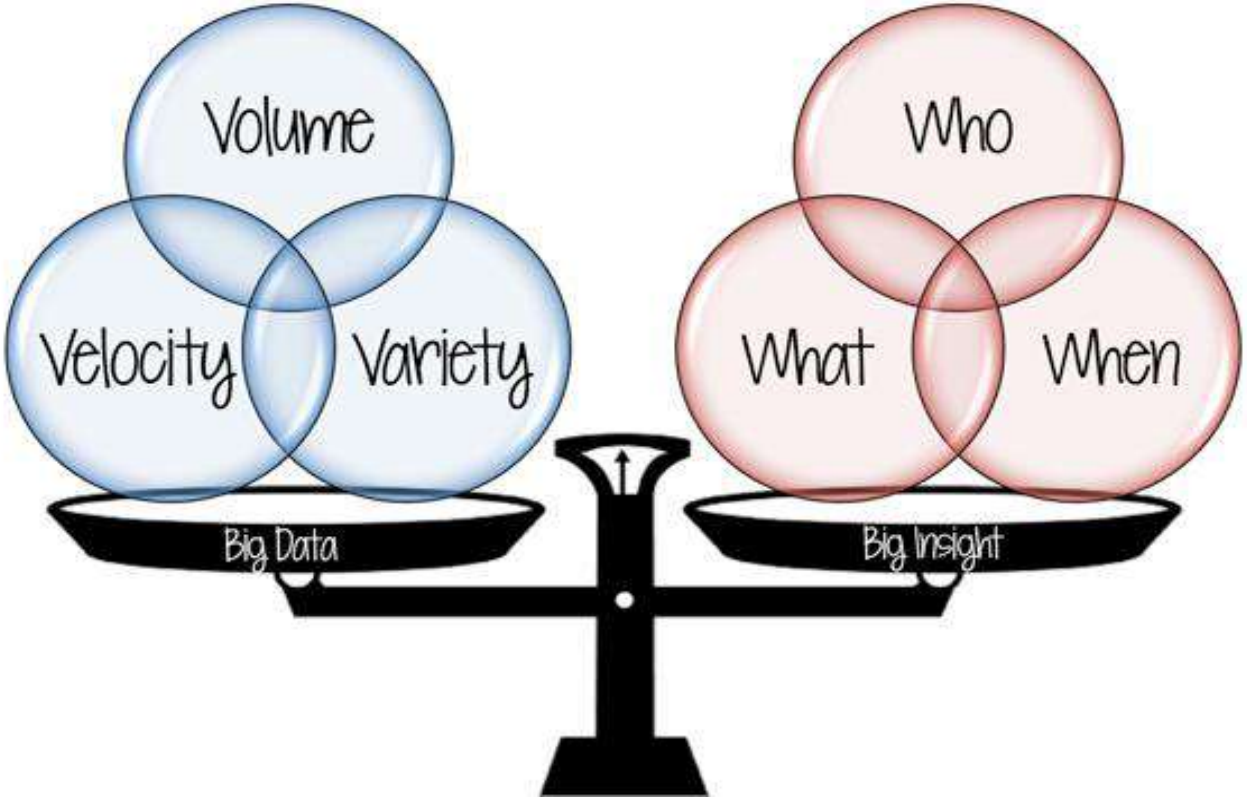
Big Data: a must in 2013 ?



Big Data Mining & Analysis

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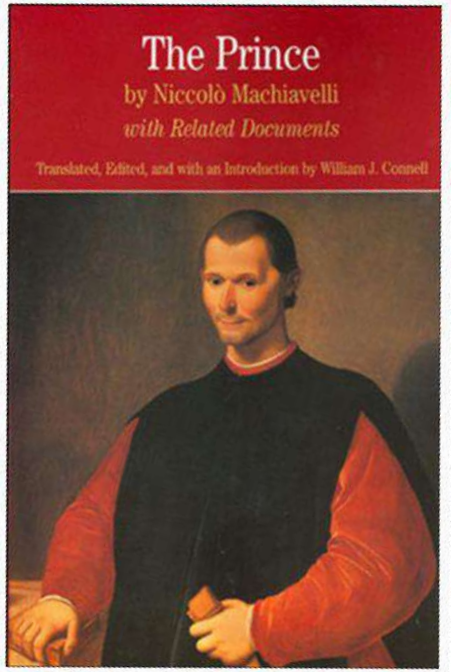
Violence

may be necessary for the successful transfer of power

but against whom?



Force may be used to:

- eliminate political rivals
- to coerce resistant populations
- to purge previous rulers

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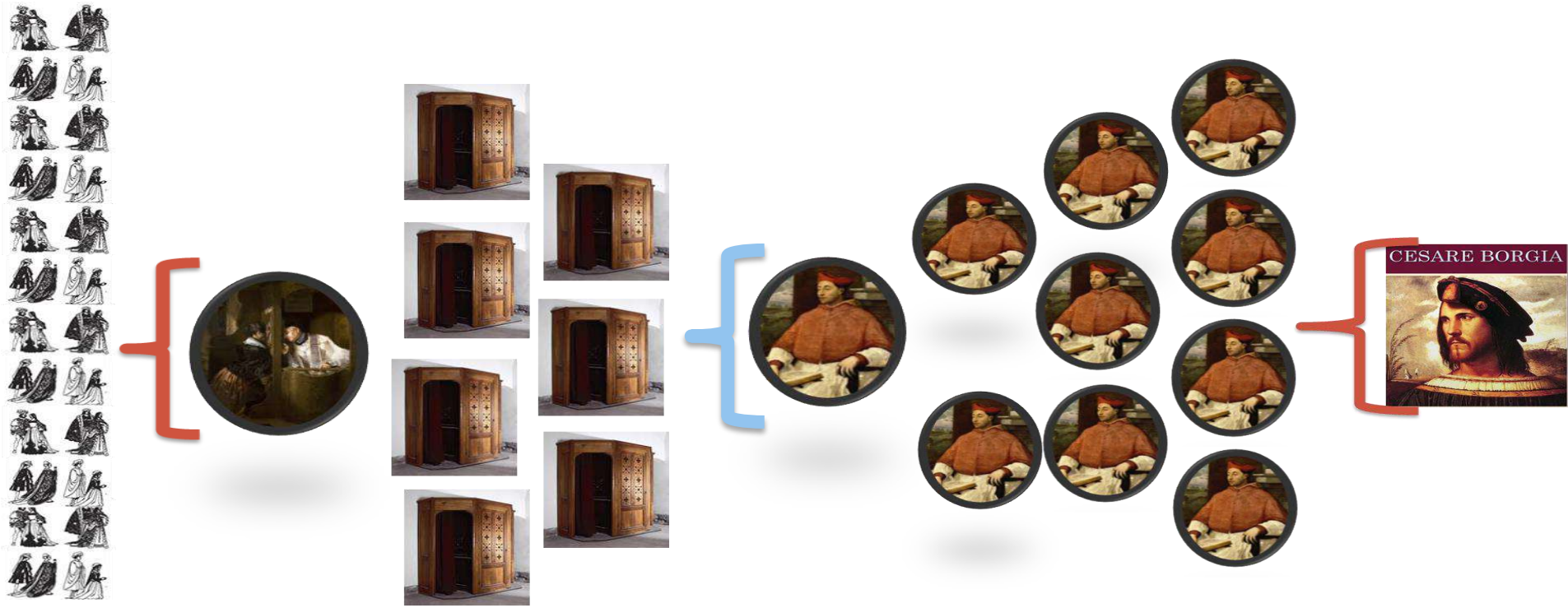
Wicked problem: How did the Borgia know who to kill?



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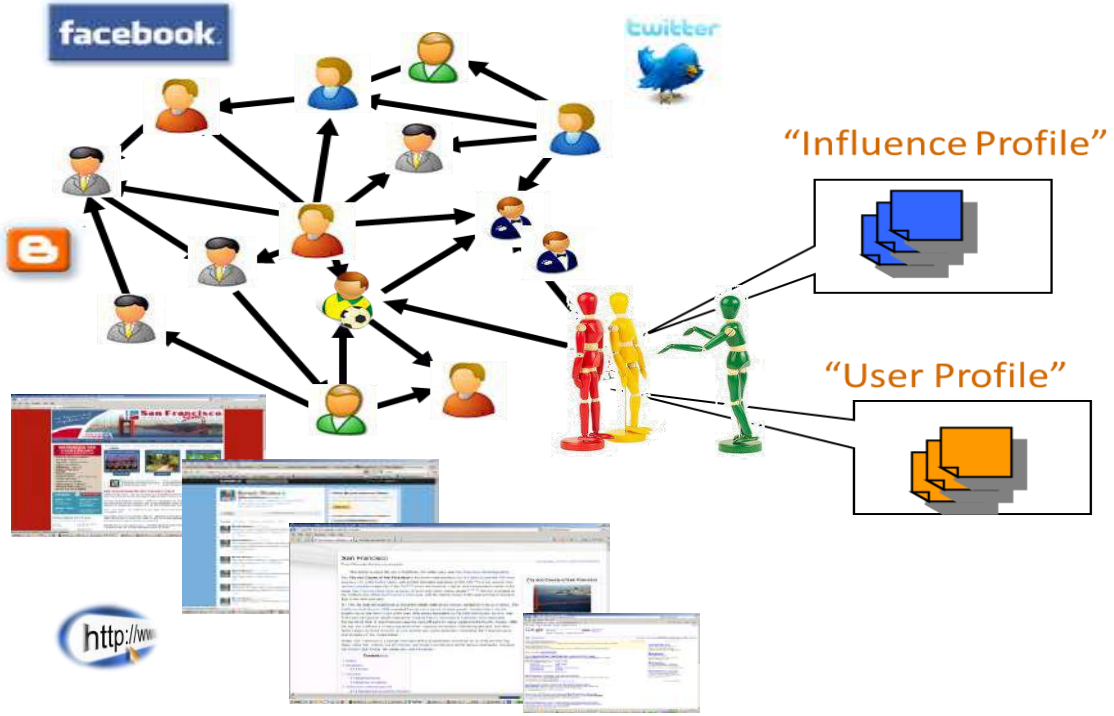
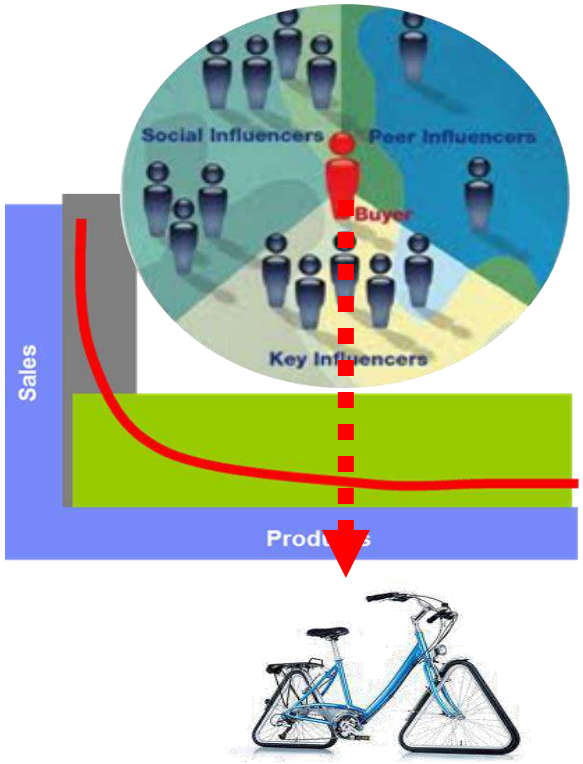
Wicked Problem : marketing





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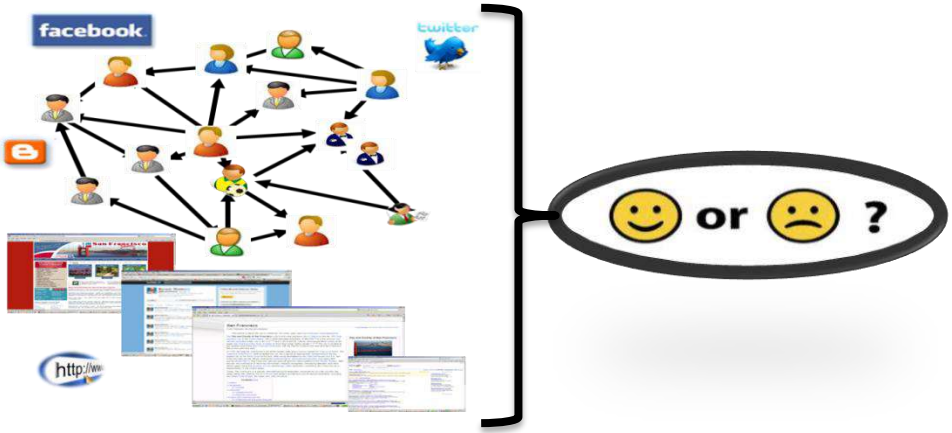
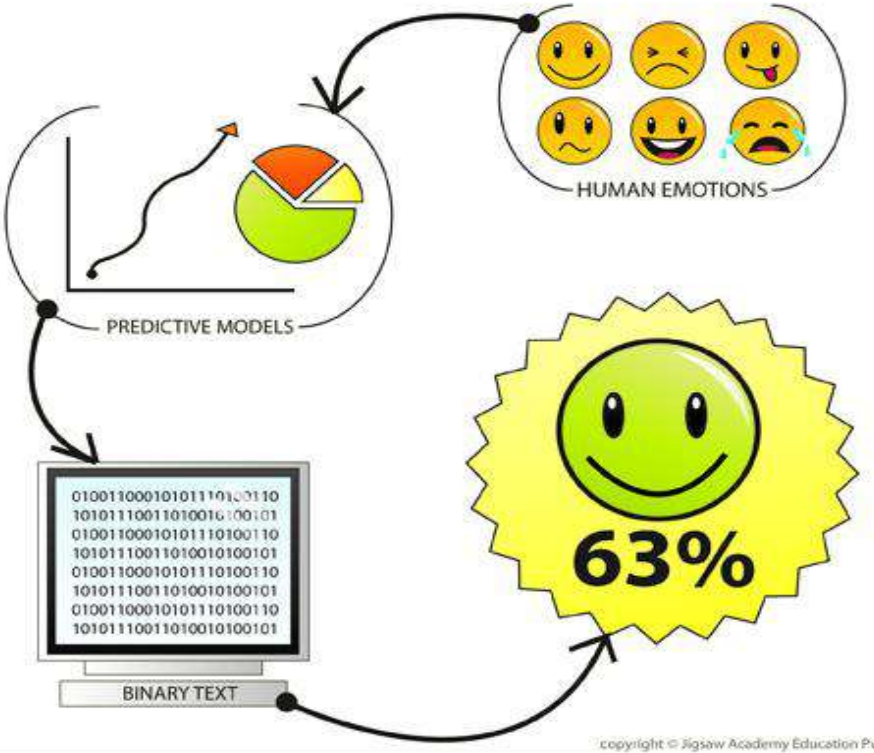
Wicked Problem : Sentiment Analysis:





- What do customers think of my product?
- Are they happy with the services?
- How do I impact my customers' perception of me?
- What do customers like about my competitors?

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TRADITIONAL vs. *WICKED* data analysis

Business Users

Determine what question to ask

NO!

IT

Structures the data to answer that question

IT

Delivers a platform to enable creative discovery

Business

Explores what questions could be asked

Traditional Approach
Structured & Repeatable Analysis

Wicked Approach
Iterative & Explorative Analysis

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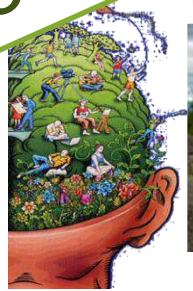

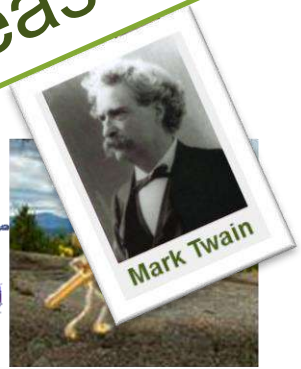

Business

Explores what questions could be asked

> "Get your facts first, then you can distort them as you please"

Traditional Approach
Structured & Repeatable Analysis

Wicked Approach
Iterative & Explorative Analysis

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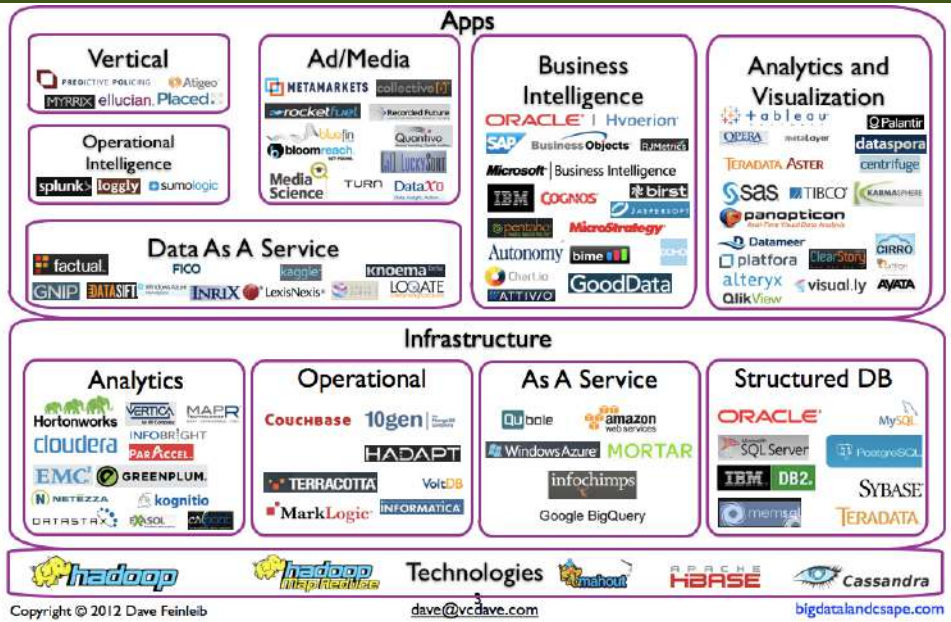
Data, data everywhere - but what to do with it all?

- Enables **self-service discoveries** and exploratory BI by users while:
  - managing data quality
  - establishing data governance
  - creating effective "channels" for users to access and analyze the data

- Move from using analytics as a ***"measurement" tool into a decision support tool***.



-"Instead of viewing information as a resource that resides in databases, we need to see information as something that people themselves make valuable"-

professors Donald Marchand and Joe Peppard

Common sense analytics – the analytics we need

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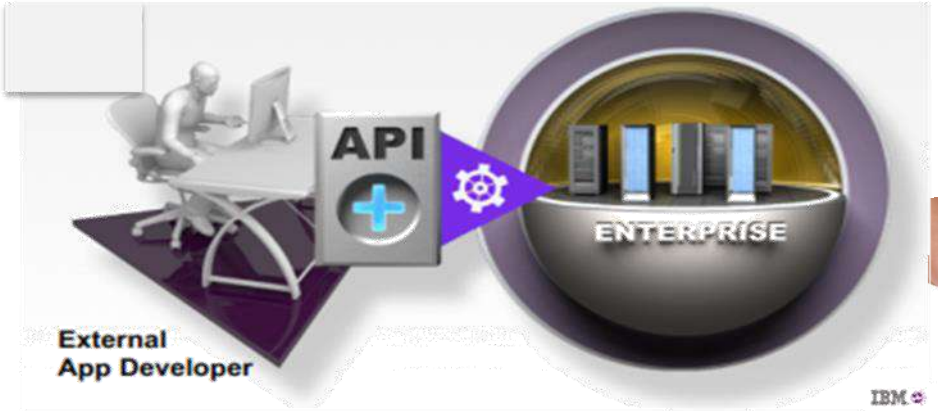
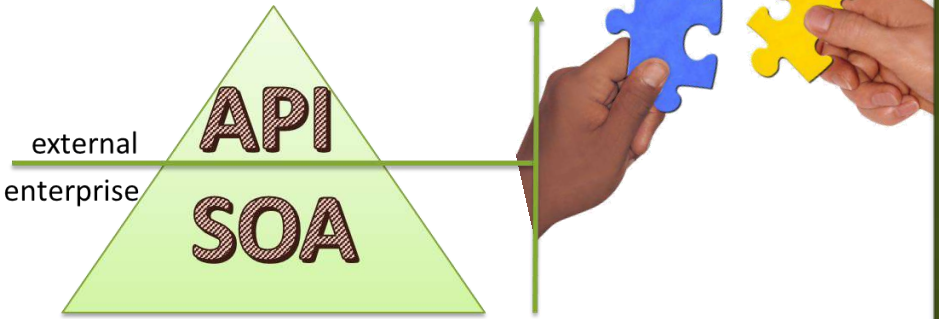
Connectivity 2013





Personal Computing	Mobile
	Wintel
legacy apps	
ERP and package apps	
other custom apps	
Unstructured Data Apps	Mail
	ECM
Big Data Applications	
Cloud Applications	Enterprise
	Personal
Social Apps	On-premises
	cloud

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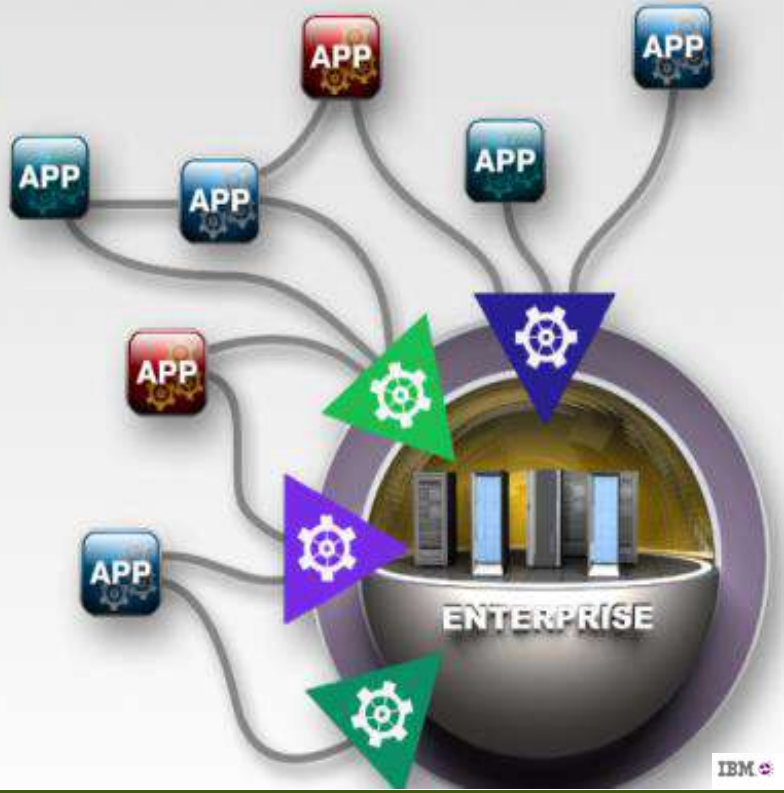
The API Economy

Web APIs become like a Product in their own right and need to be nurtured

Web APIs will affect your business channel structure and you need to be aware of how

Web APIs need a business strategy



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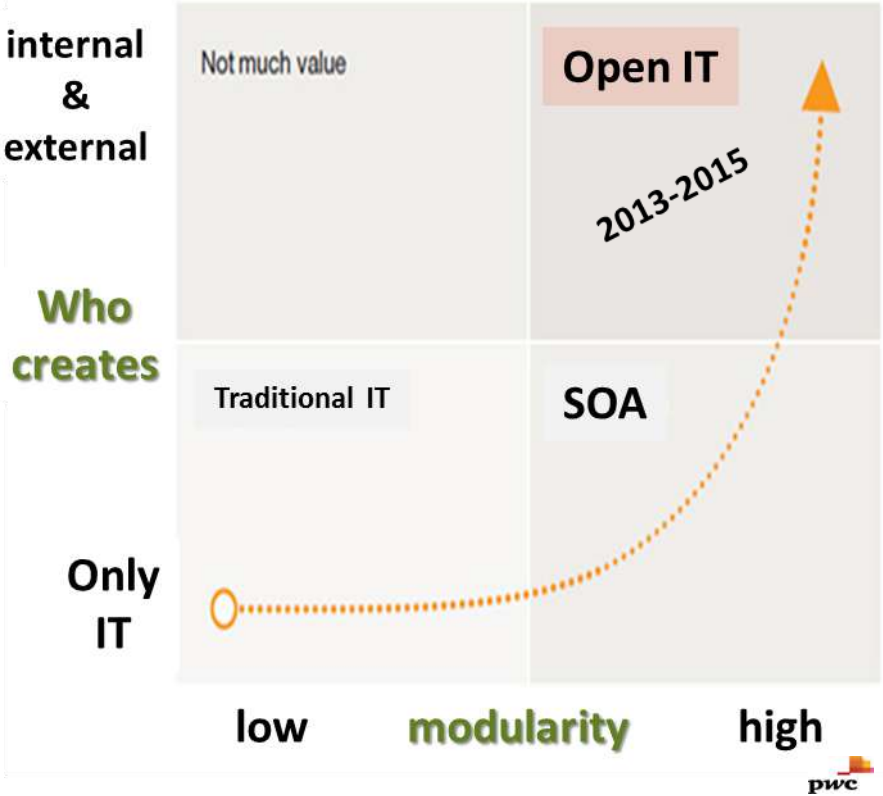
Consumerization of APIs: PERMEABLE ENTERPRISES and RESTful APIs

- **Early APIs :** proprietary and created **interdependent coupling** among pieces of code and systems.
  - If one side of the coupling required a code change, the other side was affected.
- **Service-oriented architecture (SOA):** using web services built on SOAP, has been popular within organizations as a **mechanism for sharing information across the enterprise**.
- **RESTful:** (representational state transfer APIs) **mechanisms for "hybrid" uses** (in and out of the enterprise).
  - Twitter and Facebook are now processing API calls on the order of billions per day.



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The REST architectural style requires :

Client/server loose coupling:

client and server may be developed and replaced independently of each other.

Stateless:

Information about client states is embedded in the messages the clients send to servers.

Cacheable:

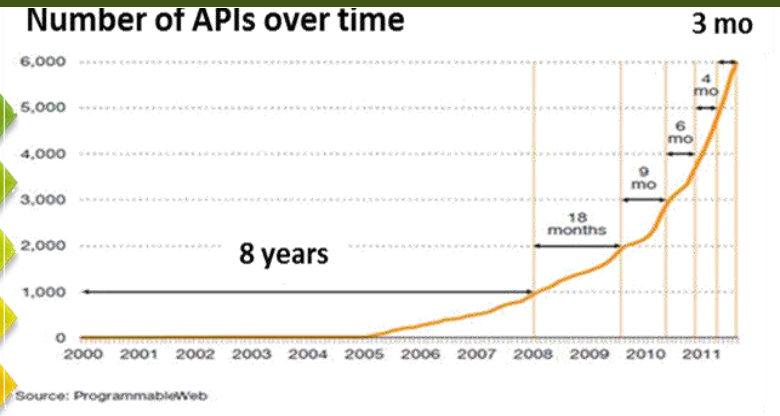
Clients can have the ability (and must let the server know whether they do or not) to temporarily store data received from the server.

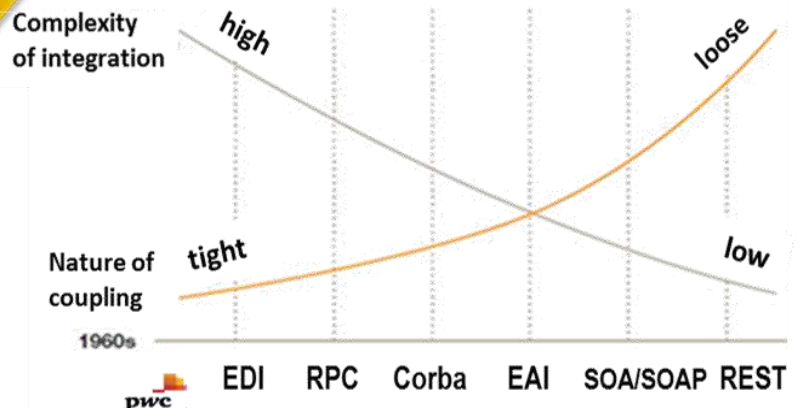
Layering:

Servers do not know whether there are layers of abstraction between themselves and the end client (multiple security policies, APIs, etc.).

Code on demand:

Servers are able to send custom functions as executable code to clients for them to execute.





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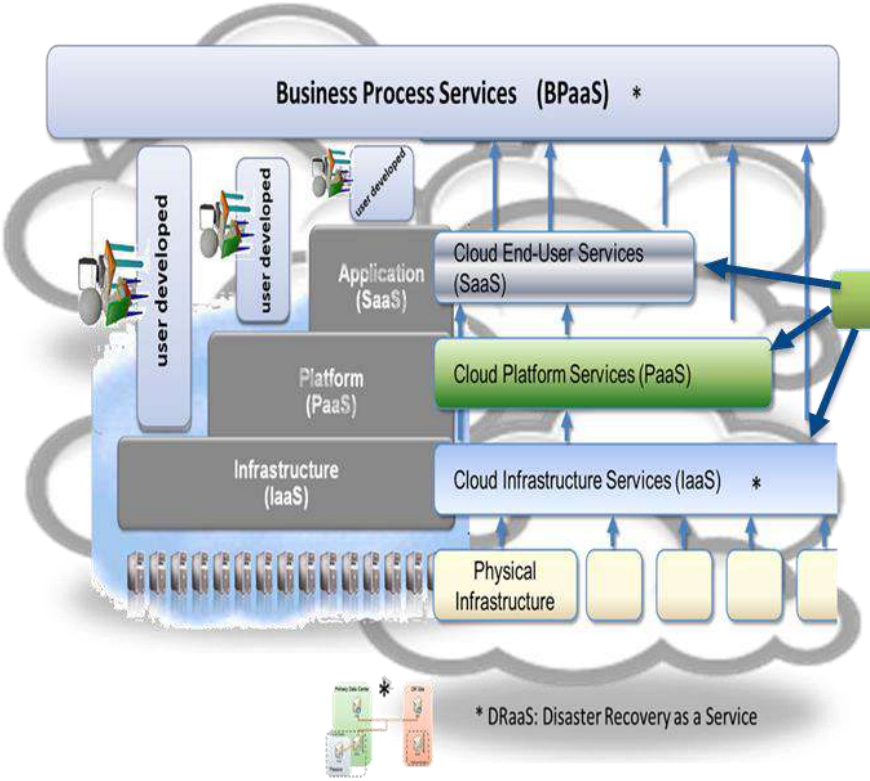
Mobile Backend as a Service (MBaaS),



MBaaS

provide pre-built, cloud hosted components for developing mobile application backend

- Storage for mobile data
- **Automatic generation of REST-based interfaces**
- Internet optimized data access
- User/security management tools
- Usage analytics

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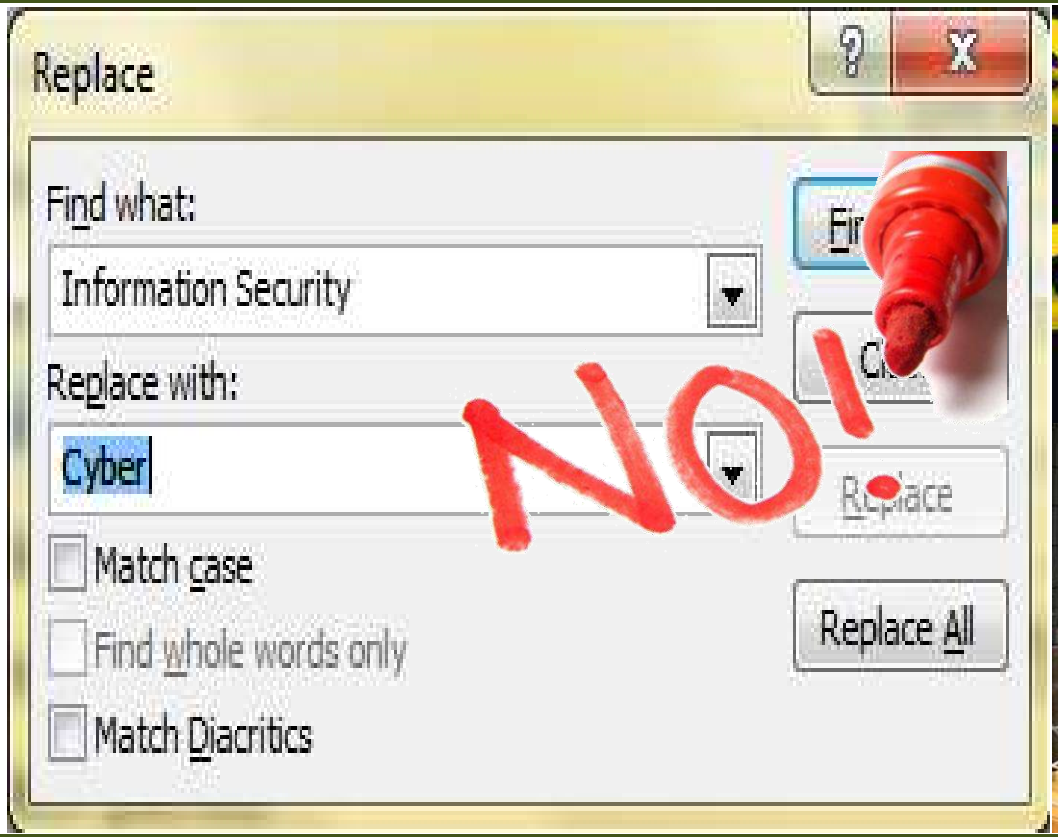
New Buzz ?



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What are we responsible for?

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Innovate based on transitions is key for 2013

Enterprise mobility	Data center transformation	Consumerization
Smart phones and pads Small apps Security Wireless networks Virtual desktop	Converged infrastructure Reference architecture Hybrid IT consumption Big data and analytics Software-defined enterprises	Bring your own IT buyers/users Apps and app stores Social media and UC integration

Internet of Things	**Non-stop always connected customer**	Private and Public Cloud Services	Pervasive Connectivity	Consumerization of APIs (RESTful)

VP Tech (CIO) challenges

Israel Economic uncertainty	Connectedness as an IT metric	Procurement & Budgets models	Security Compliance Regulation	Need of new core applications

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Conclusion: Most Important Paradigm Change

How to do?

What to do?

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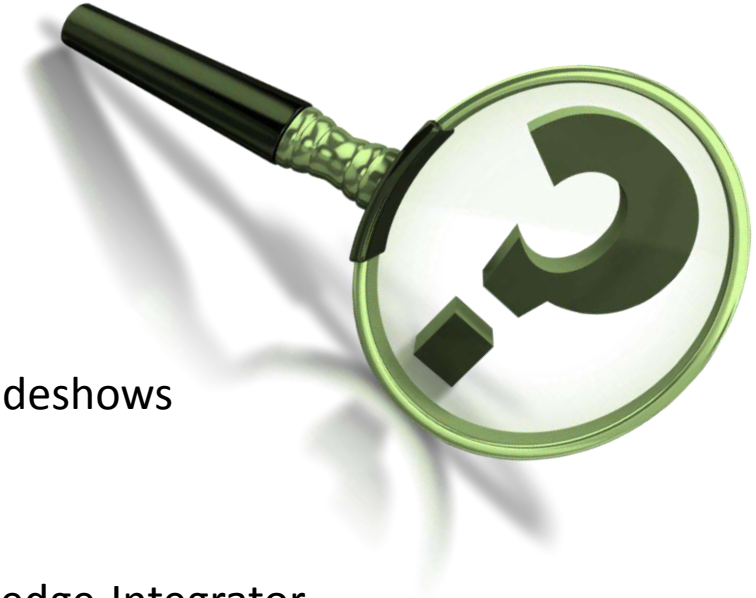

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