Innovation – A conversation

IT’s Opportunities

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Innovation – Agenda Today

• Personal perspective
• Quick clarifications regarding innovation
• A bit of innovation history, bits hinting at IT
• IT opportunities – Overview
• IT opportunities – Actions Internal
• IT opportunities – An Example
• Close
Innovation – A conversation

Topics not covered

Activities internal to IT that are not on the agenda today:

• Technology research
• Strategy work
• Methodology development

*Clearly part of the Innovation Ecosystem, but not for today’s conversation*

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“Innovate or Adapt”

Innovate or Adapt?

Innovate or Die?

Innovate and Thrive!
IT ≡ Innovate Together

“The five essential entrepreneurial skills for success are concentration, discrimination, organization, innovation and communication.”

– Michael Faraday
Physicist (1791 – 1867)
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Invention: Creation of a new idea, mechanism, or process. *Means to generate a concentrated beam of coherent light – the laser – was an invention.*

Innovation: Putting inventions into practice, translating capability into successful use. Creating change and creating value. *“Laser eye surgery” was an innovation.*
Innovation and invention are synonymous

- **Innovation:** Putting inventions into practice, translating capability into successful use. Creating change and creating value.

Innovation creates whole new techniques, new ways of doing things.

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Invention is the value generator

- 1947 – Scientists at Bell Laboratories (AT&T) invent the transistor; it is patented, but AT&T not able to promptly apply
- 1952 – AT&T licenses the invention -- for US$25,000 to Texas Instruments (TI) [Sony and IBM buy in too!]
Invention is the value generator

- 1947 – Scientists at Bell Laboratories (AT&T) invent the transistor; it is patented, but AT&T not able to promptly apply
- 1952 – AT&T licenses the invention -- for US$25,000 to Texas Instruments (TI) [Sony and IBM buy in too!]
- 1954 – TI innovates: designs/manufactures first transistor radio
- 1958 – TI innovates: integrated circuit (7400 series to follow!)
- 1967 – TI innovates: hand-held calculator
- 1973 – TI innovates: microprocessor
- 2011 – TI Market capitalization is $42 billion

Invention is important, but **Innovation** creates the change, change creates/alters the value stream.
There is only one type of Innovation

Product performance innovation (features, efficiency, etc.) is just one of 10 possibilities!
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Innovation requires a new invention

1. Ford invented the assembly line

❌ 2. Ford invented the **automotive** assembly line

First automotive assembly installed by Olds Motor Company 1901

Increased production from 425 cars in 1901 to 2,500 in 1902!

12 years before Ford
Innovation requires a new invention

1. Ford invented the assembly line
2. Ford invented the **automotive** assembly line
3. Ford invented interchangeable parts

Portsmouth Block Mills – 1800’s
In 1802 used patented machinery to manufacture interchangeable blocks for sailing ships.

Division of labor helped manufacturing transition from small craft shops to early factories.

- Efficiency gains lead to the rise of furniture and clothing manufacture and other industries in the late 1800’s.

4. Ford invented division of labor
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Clarifications Regarding Innovation

What did Ford do?

Ford combined three key elements:
1. Moving assembly line
2. Division of labor
3. Interchangeable parts

Ford combined all these earlier innovations to create a new, innovative, effective means of automotive mass production!
Ford was a man, and a team.

IT Innovation Opportunities

Just a history lesson?

Ford combined three key elements:
1. Moving assembly line
2. Division of labor
3. Interchangeable parts

Cloud Computing
SOA, Services
Standards, APIs, Protocols, Service Bus

Combinatorial Innovation.
“Mashups”
Huge innovation opportunity for IT!
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Apple?

Automotive?

In 2007?
The current technology revolution has changed how we live, play, work, and learn; also changing business, governments, society, and the world.

All enabled by information technology
“Skate where the puck's going, not where it's been.”

- Walter Gretzky

*Strategy development coach with a proven record*

<table>
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<td>business model, distribution channel, financing, process, etc.</td>
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<td>Innovations as a competitive advantage</td>
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“Innovation is rapidly becoming democratized. Users, aided by improvements in computer and communications technology, increasingly can develop their own new products and services.”
Trends in Auto Industry

• Hyper-competitive, globally competitive
• Faster product cycle times needed
• Product complexity increasing
• Electronic/IT/Software content becoming a dominant Critical Success Factor in the market

As the functionality of automobiles moves beyond transportation, innovation prowess and speed will determine an automotive company's future success.

- Thilo Koslowski, Auto Industry Analyst
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IT Evolution Supporting Innovation

Evolving From…

Innovation is the objective of just dedicated research teams or individuals
Innovation is focused on technology and tools
Innovation is the exception to our business model
Innovation is viewed as disruptive

Evolving To…

Innovation is a natural element of the global organization’s day-to-day life
Innovation encompasses the entire spectrum of our capabilities
Innovation is supported through processes, actions and behaviors
Innovation is valued as disruptive
### Create and grow a culture of innovation (1)
- Capability and opportunity to contribute
- Recognize achievements
- Job content with impact
- Increase empowerment

### Launch a platform for co-creation with business partners (2)
- Solutions for opportunities that don’t exist yet!
- Business transformation for competitive advantage

### Rapidly bring new concepts/differentiating tech to the business (3)
- Rapid Response
- Processes that support rapid innovation

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**People**  
**Transformation**  
**Cycle Time**

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“*You have to spend as much time directing your innovation and creativity to fostering a culture of creativity and a receptiveness to innovation as you spend on the ideas themselves.*”

— Bill Buxton  
Pioneer in the human–computer interaction field and multi-touch interfaces.
Innovation – A conversation

In-Vehicle Computing
- RFID / Sensors
- High Fidelity Collaboration
- Seamless Mobility
- Pattern Recognition and Analytics

In-Vehicle Project #1
In-Vehicle Project #2
In-Vehicle Project #3

The e4 process is streamlined to introduce technology in a systematic fashion

Experiment
- Illumination of new ideas
- Recombination of existing ideas based on business need

Evaluate
- Drive use cases around ideas
- Prototype new technology

Economize
- Ensure core ideas can be created
- Create business cases for core ideas

Engineer
- Architect Platform
- Define products
- Integrate into environment

Owners
- Individuals
- x-functional team

Deliverables
- Informal Research
  - Sandbox
  - Position Papers
- Formal Research
  - Technology vision and strategy alignment
  - Technology/Business PoCs
  - Research Products

Owner
- Production Planning
  - Business Use Cases
  - Business Value Proposition
  - Eng Project Charter
  - Tech Architecture

Deployment Team
- Production
  - Pilots
  - Arch and Patterns
  - Industry Standards
  - End Products
  - Services
• Democratize Innovation
  – Allow everyone to participate – by influence or action.
  – Encourage more innovation

• Promote an Innovative Environment
  – By rewarding and recognizing innovation.
  – Creating a culture of idea sharing.
  – Giving people an opportunity to make a difference.

• Extract valuable ideas from the enterprise
  – Learn about the organization
  – Learn from the organization
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7. Close
Multi-dimensional product strategy
- Built in (911 Assist, Vehicle Health Report)
- Brought in (SYNC Mobile apps)
- Beamed in (Turn-by-turn directions, info services)

Brief Intro to Ford SYNC AppLink

The link that enables mobile applications to connect and use SYNC’s HMI
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We’ve added a layer onto SYNC called “The Service”. The Service provides connectivity between SYNC and mobile device applications.

Mobile devices use a Reference Library to interact with a published interface.

Developers can use this interface to enable their applications for in-vehicle use.

Here’s how it works...

sample mobile apps

Follow Me

Sync ‘Brought In’ Mobile Apps

The Big Picture...

Synced with the Internet, Ford’s SYNC® system has formed the digital ecosystem of the car.

1. Connects to a mobile phone.
2. Plays music, makes calls, and manages data.
3. Provides turn-by-turn navigation.
4. Integrates social networking.

SYNC is the conduit through which a world of information and entertainment flows into the car.

Developers can now create custom apps that use SYNC to connect with the internet.

Pandora

• Millions of listeners.
• 300 million songs, 50,000 channels.

Blackberry

• Java, C++, Java.
• Operating system: OS.

iPhone

• Objective C.
• iOS.

Android

• Java.
• Android.

Stitcher

• Connects to various internet radio stations.
• Allows users to create their own channels.

Windows Mobile

• .NET.
• Windows Mobile.

SYNC Application Programming Interface (API)

SYNC

Microsoft

Windows Mobile

.Net or C#
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SYNC - Timeline

SDK
API

Hands Free
Voice Controlled
- Cell Phones
- MP3 Players

Peace of Mind
- E-911 Assist
- Vehicle Health Report

Off-Board Services
- Traffic
- Directions
- Information

Next-Gen
SYNC Platform
- Sig-HMI
- Media Gateway
- Wi-Fi
- Global Platform
Services:
- Destination Download
- Send-To-Car

Ford Sync AppLink
Applications
- Pandora
- Stitcher
- Twitter

2007
V1.0

2008
V2.0

2009
V3.0

2010
GEN-II

2010
V4.0

2011?

SDK
API

PANDORA internet radio

stitcher

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Ford Partners With Bug Labs To Develop Open Source Platform For In-Car Innovatin’

At the TechCrunch Hackathon on Saturday, the 108-year-old, All-American automaker, Ford, teamed up with the newly-American music service, Spotify, to showcase the growing opportunities for developers looking to take advantage of in-car gadgetry to integrate their apps and mobile services.

Today at TechCrunch Disrupt in San Francisco, Ford looks to continue pushing forward with in-car connectivity and gadgetry, announcing a partnership with Bug Labs — an open-source hardware and software provider that tinkerers and engineers can use to create their own digital devices. The two companies will be collaborating on a new in-car research platform, named OpenXC, which looks to transform the car into a plug-and-play platform that will support open-source hardware and software to allow developers to make the car a playground for all kinds of cool new technologies.
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Good time to be a mammal!
Additionally, it’s a good time to embrace change.

“The picture’s pretty bleak, gentlemen. The world’s climates are changing, the mammals are taking over, and we all have a brain about the size of a walnut.”

Source: Gary Larson

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The future is already here – it's just not evenly distributed.

- William Gibson, 2003