How to Remain Relevant in a Changing IT Environment

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How to remain Relevant in a changing IT Environment

- Technology is Transforming Business
- Companies that Failed /Succeeded
- Lunatics Run the Asylum
- Careers and Learning
- The Secret Power of the Generalist
- Ways to Advance Your IT Career by Staying Relevant
- Stack Overflow Yearly Survey
Clayton Christensen has studied why companies fail for the past 20 years. What is unique about his study is that he concentrates on companies that were once successful!
4 Ways In Which Technology Is Transforming Business

Four principles that should guide us

1. We Think in Linear Terms, but Technology Moves at an Exponential Pace
   • We’re taught to be logical but we make judgements based on experience

2. Scale Advantages Have Diminished
   • Banks used to be in large ornate building... scale meant safety

3. Business Models No Longer Last
   • Business Models didn’t change for generations

4. The Lunatics Run The Asylum
   • Managers today, manage people with skills they don’t have (sometimes don’t understand)
4 Ways In Which Technology Is Transforming Business

1. We Think in Linear Terms, but Technology Moves at an Exponential Pace
   • Business schools teach us to think logically and methodically.
   • **Why We’re Not as Rational as We’d Like to Think**
     • What everyone knows – Remember March 2000 when the dot-com boom was in full swing... we were at the cusp of a whole new economic reality
     • Once many dotcoms began to report a lack of profits, the *dotcom bubble burst* in 2001.
2. Scale Advantages Have Diminished

- Large companies allowed for economics of scale
  - Today in many industries small companies have access to resources that allow them to compete with large companies
- Doing business with Large companies was the accepted model
  - History told us they would be around to stand by their products
  - No one ever got fired for buying from IBM
3. Business Models No Longer Last

- In the Industrial age, the business model didn’t change much for generations
  - Changed materials into a saleable product
  - Companies offered a product in a certain way for a valued price
- In the Knowledge age, the business model constantly changes
  - The economics are not related to scarcity but of abundance. Knowledge and information can be readily shared
  - Many products can be duplicated immediately and sold
    - Software, Music etc

“What if we don’t change at all... and something magical just happens?”
Companies that failed to innovate

Kodak
- founded in 1884
- the company for pictures
- Access to early digital technology
  - Didn’t pursue because they felt it would Ruin the Film business
Companies that failed to innovate

Killed by Netflix
- Not really!
- Almost acquired Netflix in 2007

Infighting in boardroom
- Couldn’t agree on their business model
  ... Lack of focus

Netflix’s online offering took over
Companies that failed to innovate

Sun Microsystems

- Began building high-end servers when the computer revolution was just starting.
- The Java programming language helped make it and industry giant in the 90’s
- The dot-com took out many of its customers and the way customers met their computing needs changed...
- Ended up being bought by Oracle in 2010
Companies that failed to innovate

Companies failure can be traced to it’s decision to NOT go online.

Out sourced its online presence to Amazon and stayed with the Brick & Mortar business model.

Oops!
Companies that Succeeded by Changing Their Business Model

PayPal

Started as a cryptography company and later as a means of transmitting money. Only through trial and error did they become the default online payment system.
Not much of a business model for years. In 2003, it launched its AdWords program. By 2008, it reported $21 billion in advertising revenue. AdWord still plays a significant role in its total revenue.
Companies that Succeeded by Changing Their Business Model

At first, comprised only of college students. This limited its ability to expand. Then in 2005, Mark Zuckerberg decided to open to anyone over 13 with a valid email address. By 2017 Facebook is worth over $500 Billion.
4. The *Lunatics Run The Asylum*

When the modern corporation was created at General Motors by *Alfred Sloan*, the military was its primary model.

- Companies were split into divisions, each with their own leadership.
- Orders flowed downwards and your rank determined your responsibility.

In the new *Knowledge economy*, Managers need to manage employees with expertise they don’t have.

Competent performance can no longer be driven by Rules and Regulations. The business changes too fast.
Why The Lunatics Really Do Run The Asylum

So, it is significant that detailed orders have fallen out of fashion in military circles in favor of commander’s intent.

The idea is that detailed orders often end up being either useless or worse in the heat of battle when facts are changing by the minute, if not by the second.

Plans, no matter how well thought out, can’t foresee how events will unfold in the real world.
Why The Lunatics Really Do Run The Asylum

The Military Version

- Commander’s Intent is "the commander's stated vision which defines the purpose of an operation, the end state."

The Product Development Version

- The reason why project is being done
- The real project requirements
- What will the end state be once the project is done successfully
In their 2017 survey, improving employee careers and transforming learning is now listed number one.

Learning technologies are changing the way people learn. The typical classroom model is being replaced by technologies that include content curation, video distribution and online delivery.

In this year’s survey, the surveyed executives (45%) that employee education is urgent or very important.
What Does it Mean to Have a Career Today?

Specifically, what does it mean in a world where careers span 60 years, even as the half-life of learned skills continues to fall to only about five years?

In the past, employees learned to gain skills for a career; now, the career itself is a journey of learning.

<table>
<thead>
<tr>
<th>Length of career</th>
<th>Average tenure in a job</th>
<th>Half-life of a learned skill</th>
</tr>
</thead>
<tbody>
<tr>
<td>60 to 70 years</td>
<td>4.5 years</td>
<td>5 years</td>
</tr>
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</table>

The new rules call for a learning and development organization that can deliver learning that is always on and always available over a range of mobile platforms.

<table>
<thead>
<tr>
<th>Old rules</th>
<th>New rules</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employees are told what to learn by their managers or the career model</td>
<td>Employees decide what to learn based on their team's needs and individual career goals</td>
</tr>
<tr>
<td>Careers go “up or out”</td>
<td>Careers go in every direction</td>
</tr>
<tr>
<td>Managers direct careers for people</td>
<td>People find their career direction with help from leaders and others</td>
</tr>
<tr>
<td>Corporate L&amp;D owns development and training</td>
<td>Corporate L&amp;D curates development and creates a useful learning experience</td>
</tr>
<tr>
<td>People learn in the classroom and, sometimes, online</td>
<td>People learn all the time, in micro-learning, courses, classrooms, and groups</td>
</tr>
<tr>
<td>The corporate university is a training center</td>
<td>The corporate university is a “corporate commons,” bringing leaders and cross-functional groups together</td>
</tr>
<tr>
<td>Learning technology focuses on compliance and course catalog</td>
<td>Learning technology creates an always-on, collaborative, curated learning experience</td>
</tr>
<tr>
<td>Learning content is provided by L&amp;D and experts</td>
<td>Learning content is provided by everyone in the organization, and curated by employees as well as HR</td>
</tr>
<tr>
<td>Credentials are provided by universities and accredited institutions; skills are only certified through credentials</td>
<td>Credentials come in the form of “unbundled credentials,” where people obtain certificates in many ways</td>
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</tbody>
</table>
The Secret Power Of The Generalist... And How They'll Rule The Future

In the Animal Kingdom

Specialists thrive when the conditions are “Just right!”

Generalist are able to survive under many conditions.

In a Professional Setting – Employees Follow a Similar Pattern

The Specialist Programmer.... I only write fixed format RPG

OR

The Generalist programmer... Expert RPG (new and traditional), some mobile/web technologies.

Who will succeed in today’s Information Technology Environment?

Which One are YOU?
Ways to Advance Your IT Career by Staying Relevant

- **Stay Current with Industry News**
  - IT Jungle, System I Magazine

- **Conferences**
  - COMMON, PLUS, WMCPA, MITEC...

- **Boot Camps and Classes**

- **Certifications**
  - Take time and get “Certified”
  - if your current employer doesn’t care... the next one might

- **Online User Communities**
  - LinkedIn
  - Twitter
  - Facebook
Ways to Advance Your IT Career by Staying Relevant

Industry Magazines
- IBM Systems Magazine, IT Jungle, Computer World

Industry Blogs – Who’s Blogging?
- Steve Will, Susan and Jon, Dawn May, Liam Allan, Ted Holt, Scott Klement, Brian May… to name a few

IBM User Groups
- What’s going on in other IBM i Shops
- COMMON, WMCPA, MITEC, QUSER

Job Boards
- Tell a Larger Picture
- Find out what jobs are available and the skills needed

Stay Current
- If you are writing fixed format RPG using SEU… you aren’t current!
As a seasoned professional, you need to take on tasks that highlight your skills. Do a video or develop a website on your IBM i. Show people that you still “Have it!”

COBOL, RPG and Fortran were the only legacy languages in town; now C, Turbo Pascal, Delphi, Microsoft Basic, some C++, ActionScript and Ada are on that list.
Don’t be a Dinosaur

• Older developers are often perceived as “Stuck in their ways” There are two camps... those who embrace new technology, and those who stay stuck in the past.
• You need to learn a new technology or a new language tomorrow

Why Look at Older Developers?

• I’ve told students for years, the hardest language you’ll ever learn is the first one. How many ways can you write an “If” statement?
• “Business knowledge” and “Soft Skills’ are important promote them!
Conclusion

Never get off the “Learning curve” after all that’s what IT is about!

Don’t just focus on programming languages learn a new technology

Don’t forget that you bring more than programming to your company

Realize... you might have to learn this on your “Own time!”
Conclusion

Embrace Technology – Don’t get stuck in the past.

Have you ever heard, “I only have ‘X’ years to retirement...”

I don’t want to learn this new technology!

We put the email server on a Microsoft email server... I won’t have to worry about it

Fixed format RPG has worked just fine for 35+ years

I can do anything in SEU that you can do in RDI
Developer Survey Results
2017

Overview

This year, over 64,000 developers told us how they learn and level up, which tools they’re using, and what they want.

Each year since 2011, Stack Overflow has asked developers about their favorite technologies, coding habits, and work preferences, as well as how they learn, share, and level up. This year represents the largest group of respondents in our history: 64,000 developers took our annual survey in January.
What to learn?

2017 Stack Overflow Survey

64,000 developers Worldwide responded how they learn which tools they’re using and what they want.
What Developer Roles?

2017 Stack Overflow Survey
75% of respondents identify as web developers but also stated they work on Desktop and Mobile Apps.
2017 Stack Overflow Survey
Between respondents who identified as men or women, nearly twice the number of women said they had been coding for less than a year.

Women in IT... Great News!

These people are technologists and usually don’t have a great understanding of Business
Formal Education

2017 Stack Overflow Survey
Among current students:
48.3% said they were majoring in computer science
30.5% said they were majoring in closely-related fields
21.2% said they were focusing on other fields
2017 Stack Overflow Survey

Developers love to learn:
90% say they are at least partially self-taught.

Among current professional developers:
55.9% say they’ve taken an online course, and
53.4% say they’ve received on-the-job training.
Figure Out What to Learn

1. Inventory your skills
2. What are your strengths?
3. What interests you (Networking or Web Design)?
4. Is it time for a career change?
Skills needed for the Modern IBM i Developer

<table>
<thead>
<tr>
<th>Primary Skills – IBM i</th>
<th>Secondary Skills – Web / Open Source</th>
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<tbody>
<tr>
<td>Modern ILE RPG Skills</td>
<td>XML, HTML, HTML5</td>
</tr>
<tr>
<td>DB2 - SQL DML &amp; DDL Skills</td>
<td>MySQL, NoSQL</td>
</tr>
<tr>
<td>Web Services</td>
<td>JavaScript, JSON, jQuery, Java, PHP, NodeJS</td>
</tr>
<tr>
<td>Rational Developer for I / ACS</td>
<td>Apache, IWS, Zend Server, WebSphere Servers</td>
</tr>
<tr>
<td>System Security Basics</td>
<td>.Net, C, C#, Perl or Apple Swift</td>
</tr>
<tr>
<td>Major ERP Systems</td>
<td>Vendor Modernization Skills</td>
</tr>
<tr>
<td>Traditional RPG Skills</td>
<td></td>
</tr>
</tbody>
</table>
2017 National Salary Ranges

Add the percentage below, based on national averages, to IT salaries for the following skills:

- AJAX (Asynchronous JavaScript and XML) development skills 5%
- Business Objects skills 5%
- C# development skills 7%
- C++ development skills 4%
- Hyperion skills 5%
- Java development skills 8%
- Java EE/2EE development skills 8%
- LAMP (Linux, Apache, MySQL and Perl/PHP/Python) skills 7%
- .NET development skills 7%
- PHP development skills 7%
- SAP development skills 5%
- SharePoint skills 8%

How to Learn Today

- **Classroom**: Take a class at a local college...
- **Online Resources**: Many options available...
- **Self-taught**: Treat the technology/language as a toy!
Treehouse

Premium site:
• $25.00 monthly Fee
• Organized into tracks to teach a specific skill
• Closest to a college structure
• Includes quizzes and sample code
Lynda

Premium site:
• $29.99 monthly Fee (Premium)
• No tracks... access to 1000’s of courses
• Not just programming - animation, photography, film, and music
• If you like to jump and learn by example... this is for you!
**CodeAcademy**

**Free site:**
- Course based
- Rather than a set of videos, you are walked through code examples
- Without the videos, you might miss some theory
Free site:

- Covers most of the Web technologies
- Primarily example based
- Without the videos, you might miss some theory
Free site:
- Covers IT technologies
- Primarily example based
- Without the videos, you might miss some theory
Internships / Mentoring
Senior Employees

Understanding of purchasing, manufacturing or retail processes

Knowledge not taught in a classroom

Business Knowledge of Company

Strategic knowledge

Much of this knowledge is undocumented
Internships / Mentoring Junior Employees

Junior Employee

- Technology Difficult for Senior employees
- No Business Knowledge of Company
- Manufacturing Scheduling Process??
- Bill of Material??
- Business theory learned in college
- Limited business knowledge
- New Technologies
- New Ideas
- Enthusiasm

Limited business knowledge

Business theory learned in college

Enthusiasm

New Technologies

New Ideas

Technology Difficult for Senior employees

No Business Knowledge of Company

Manufacturing Scheduling Process??

Bill of Material??
Companies need to develop a process for the exchange of these skills...

Senior Employee

Business Knowledge
Company Culture
Soft Skills
Experience

Junior Employee

New languages
Enthusiasm
New Tools
Insight to today’s culture
Starting a Mentoring program

- Young people are looking for opportunities
- Limited business understanding
- Colleges might teach business theory but not the purchasing or manufacturing process
- Ask a young developer to explain a Bill of Material or the Manufacturing Scheduling process
How to start a Mentoring program

1. Decide what your needs are
2. Develop a plan
3. Contact your local two or four year college
4. Talk to other companies about their experiences
Questions or Comments?

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