Failure to Modernize…
The Real Cost

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A Perfect Storm?

By Jim Buck

December 2008

A "Perfect Storm" is IBM's term for the poor condition of Information Technology's (IT) current college enrollment. This fall beings my seventh year teaching IBM i classes at Gateway Technical College and was marked with the college mailing "Voluntary" layoff letters to the entire Information Technology faculty. This was due to steadily declining student enrollment in all of the IT programs since 2002.

As president of the WMCPA (www.wmcpa.org), I interact with many IT professionals both in Wisconsin and Illinois. Often asked how classes are going, I always answer "Great… except for the lack of students." The person asking the question inevitably replies something akin to "What? I figured your classes would be full!" Many times, potential employers ask if I have any outstanding recent graduates

College IT Enrollment Trends

Gateway Technical College is a member of the Wisconsin Technical College System (WTCS); which includes 16 colleges and 47 campuses. Many graduates of this system continue their education and complete four year degrees. The table below displays the Information Technology enrollment and graduation figures for all WTCS colleges. Enrollment in IT programs has decreased 57% in the last 5 years with graduation at only 27% of the rate in 2002.

Wisconsin Technical College System							
	2002	2003	2004	2005	2006	2007	%
Enrollment	9165	7635	6309	5160	4048	3915	42.72%
Graduation	1089	1088	995	816	640	289	26.54%

Agenda

- Employment Trends
- IT Future Growth
- I.T. Retirements
- College Today
- Skills Gap
- Students Today
- How To Fail
- What You Can Do

Failure To Modernize

Employment Trends

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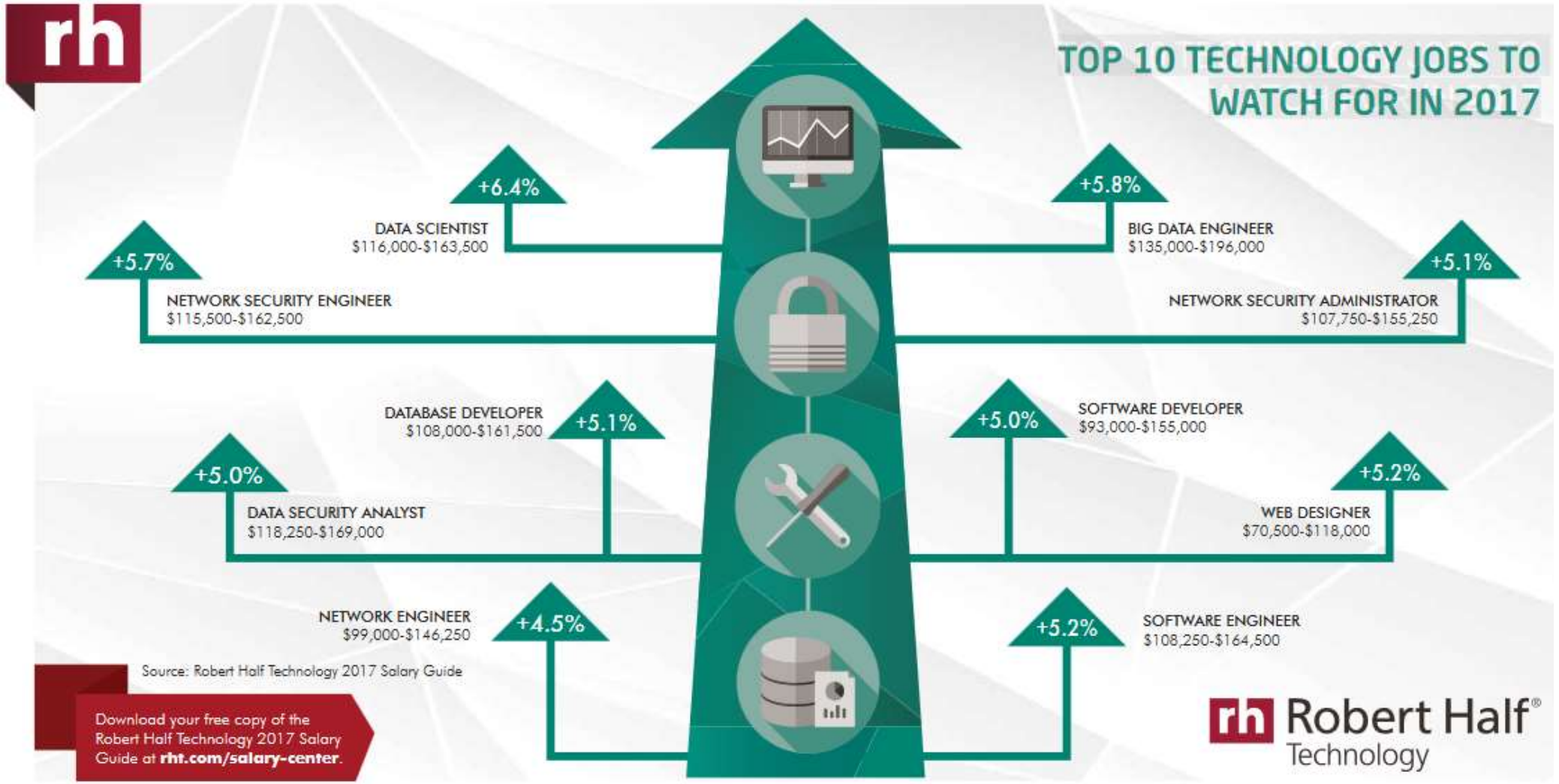
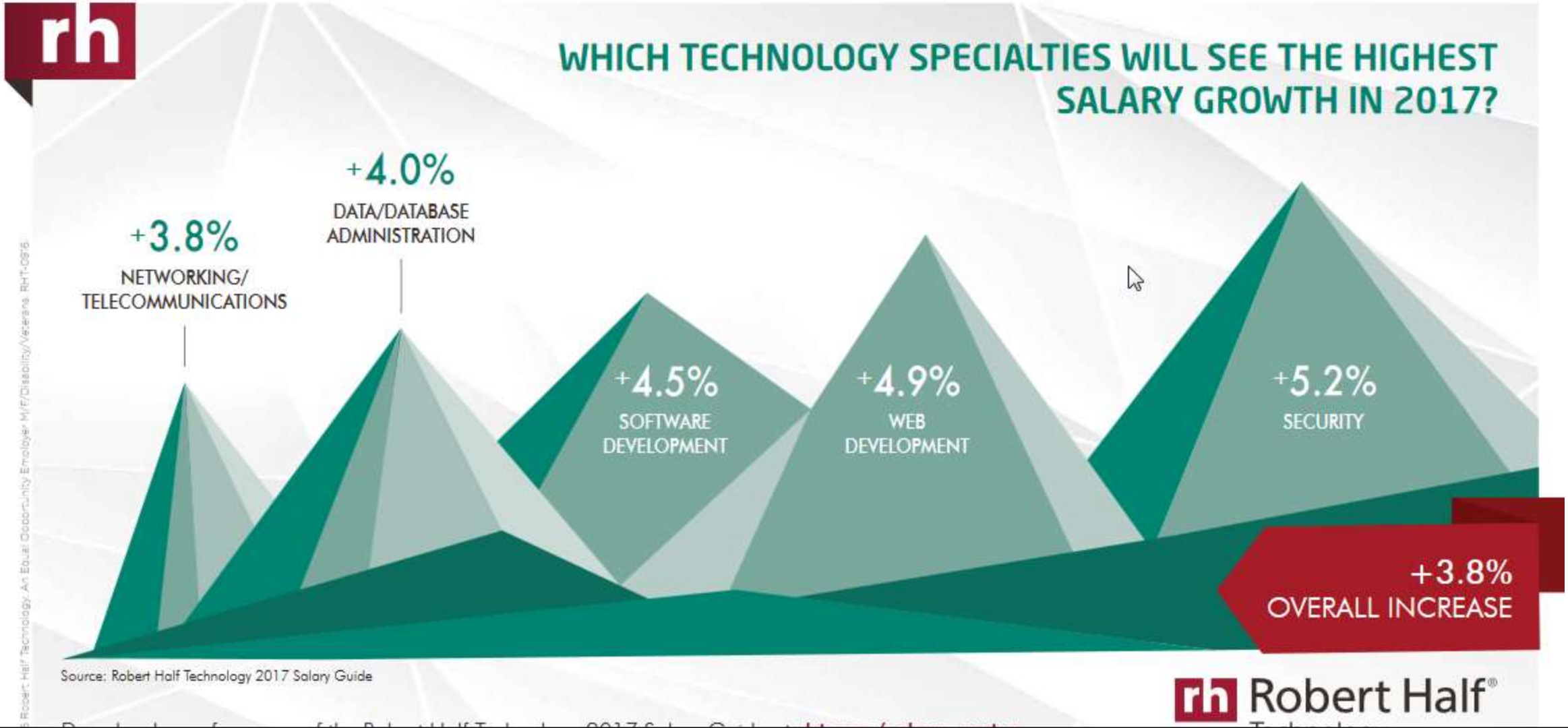
TOP 10 TECHNOLOGY JOBS TO WATCH FOR IN 2017



https://www.roberthalf.com/sites/default/files/Media_Root/images/rht-pdfs/rht_0916_ig_sg2017-jobstowatch_nam_eng.pdf

TECHNOLOGY SPECIALTIES HIGHEST SALARY GROWTH IN 2017?



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4 TRENDS AFFECTING HIRING AND PAY FOR TECHNOLOGY JOBS

4 TRENDS AFFECTING HIRING AND PAY FOR TECHNOLOGY JOBS

1. Timing is everything

Top candidates often receive multiple offers, so organizations need to move quickly. When faced with a lengthy hiring process, 39% of candidates lose interest and pursue other roles.

2. Skilled talent is in short supply

The unemployment rates for specialized positions are typically lower than the national rate. These professionals are difficult to hire given the high demand and short supply.

3. Education is essential

Employers consider college a must for most professional roles. More than 95% of jobs created during the recovery have gone to those with some college education.

4. Temporary is becoming permanent

Rather than let a job sit vacant, firms are bringing in temporary professionals. This gives them more time to recruit or determine if the temporary worker is the right fit for a full-time role.

Sources:
1. Robert Half survey of more than 1,000 working professionals 2. U.S. Department of Labor's Bureau of Labor Statistics
3. "America's Divided Recovery: College Have and Have-Nots," Georgetown University Center on Education and the Workforce

Download your free copy of the Robert Half Technology 2017 Salary Guide at rht.com/salary-center.

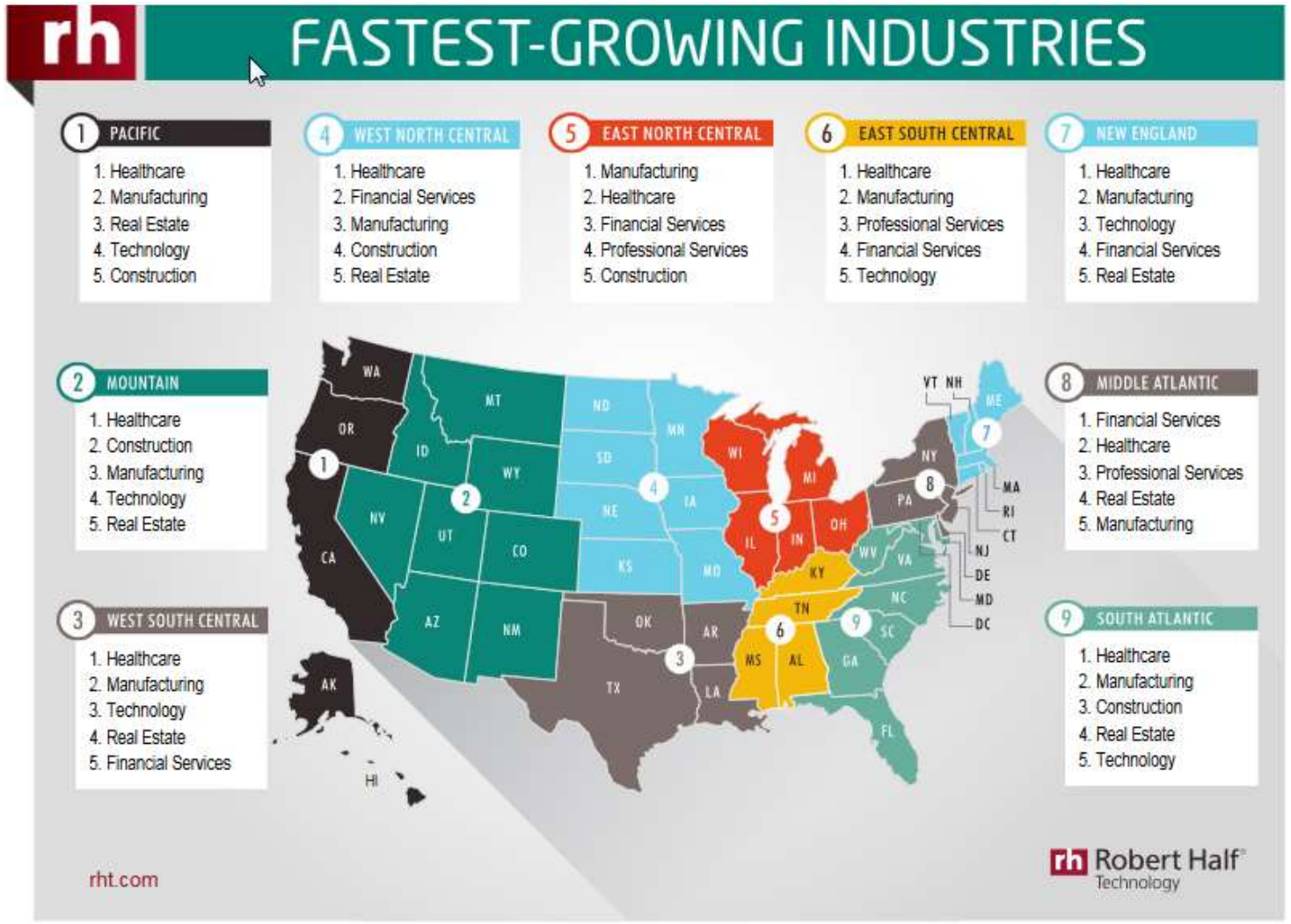
Robert Half® Technology

https://www.roberthalf.com/sites/default/files/Media_Root/images/rht-pdfs/rht_0916_ig_sg2017-trends_nam_eng.pdf

FASTEST GROWING INDUSTRIES

Top National Growth Industries are heavy users of Information Technology

- #1 Healthcare
- #2 Manufacturing
- #3 Technology
- #4 Financial Services



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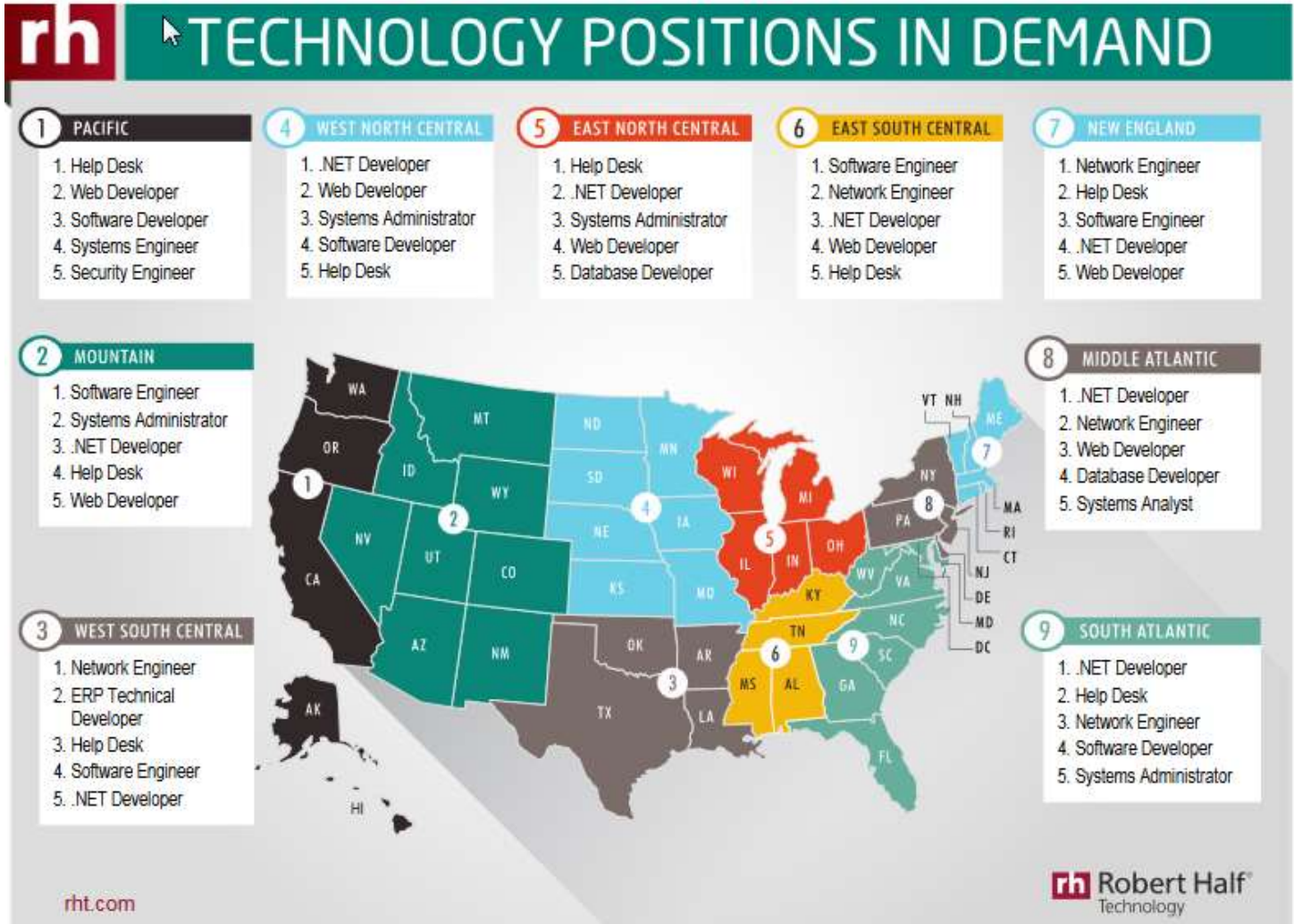
TECHNOLOGY POSITIONS IN DEMAND

Top IT Positions

- Developers (web, software and mobile applications)
- Business intelligence analysts
- Database administrators
- Help desk and desktop support professionals
- Systems engineers and systems administrators



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NATIONAL SALARY RANGES

APPLICATIONS DEVELOPMENT (A)	2016	2017	
Manager	$105,750 - $160,500	$107,750 - $167,250	3.3%
Project Manager	$ 95,250 - $146,500	$ 97,250 - $151,750	3.0%
Systems Analyst	$ 81,750 - $121,000	$ 84,500 - $125,000	3.3%
Applications Architect	$121,250 - $171,750	$124,500 - $178,750	3.5%
Business Systems Analyst	$ 84,000 - $122,000	$ 86,250 - $127,000	3.5%
CRM Business Analyst	$ 87,500 - $126,000	$ 89,500 - $132,250	3.9%
CRM Technical Developer	$ 98,500 - $137,750	$100,000 - $146,000	4.1%
Developer/Programmer Analyst	$ 80,000 - $137,000	$ 83,000 - $143,250	4.3%
ERP Business Analyst	$ 92,500 - $132,000	$ 95,000 - $137,750	3.7%
ERP Technical/Functional Analyst	$ 98,000 - $140,750	$100,000 - $146,250	3.1%
ERP Technical Developer	$100,750 - $148,500	$102,750 - $154,250	3.1%
Lead Applications Developer	$110,750 - $160,750	$115,000 - $167,000	3.9%
Mobile Applications Developer	$115,250 - $175,750	$118,750 - $182,250	3.4%
Technical Writer	$ 55,500 - $ 87,250	$ 56,500 - $ 89,250	2.1%

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/J2EE 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%

Emsi

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Using labor market data to connect and inform people, education, and business.

http://www.economicmodeling.com/

Breaking Down the Labor Market Supply & Demand Software Developers

WAGES & JOBS TRENDS

Occupation Summary for Software Developers, Applications

792,329	+3.7%	$47.68/hr
Jobs (2016)	% Change (2016-2017)	Median Hourly Earnings

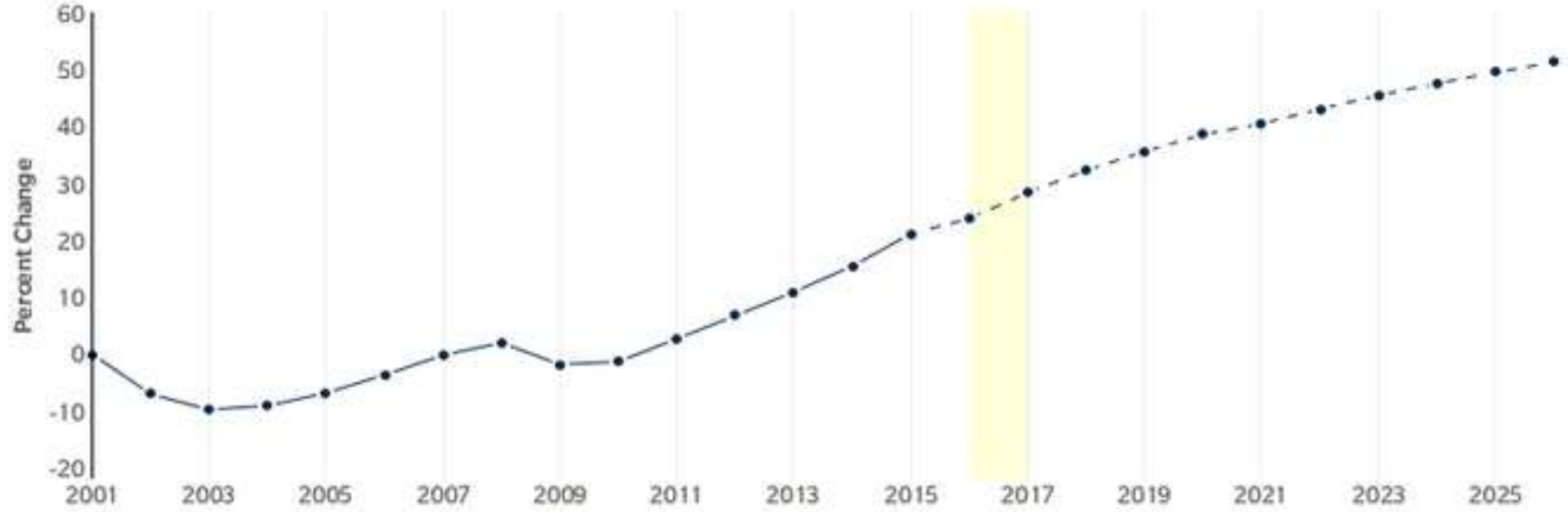
Job totals for software developers have swelled to nearly 800k and show no sign of slowing over the next ten years. Median wages are strong at $47.68/hr and leave plenty of room for growth with a 90th percentile wage of $70/hr.

http://www.economicmodeling.com/supply-and-demand-of-software-developers/

Breaking Down the Labor Market Supply & Demand Software Developers

Regional Trends

Jump to Regional Comparison by Occupation



Region	2016 Jobs	2017 Jobs	Change	% Change
United States	792,329	821,693	29,364	3.7%

http://www.economicmodeling.com/supply-and-demand-of-software-developers/

Breaking Down the Labor Market Supply & Demand Software Developers

In an average month:

- 115,058 unique job postings for Software Developers
- 33,579 actually hired.
- Approximately 1 hire for every 3 unique job postings.

http://www.economicmodeling.com/supply-and-demand-of-software-developers/

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IT Future Growth?

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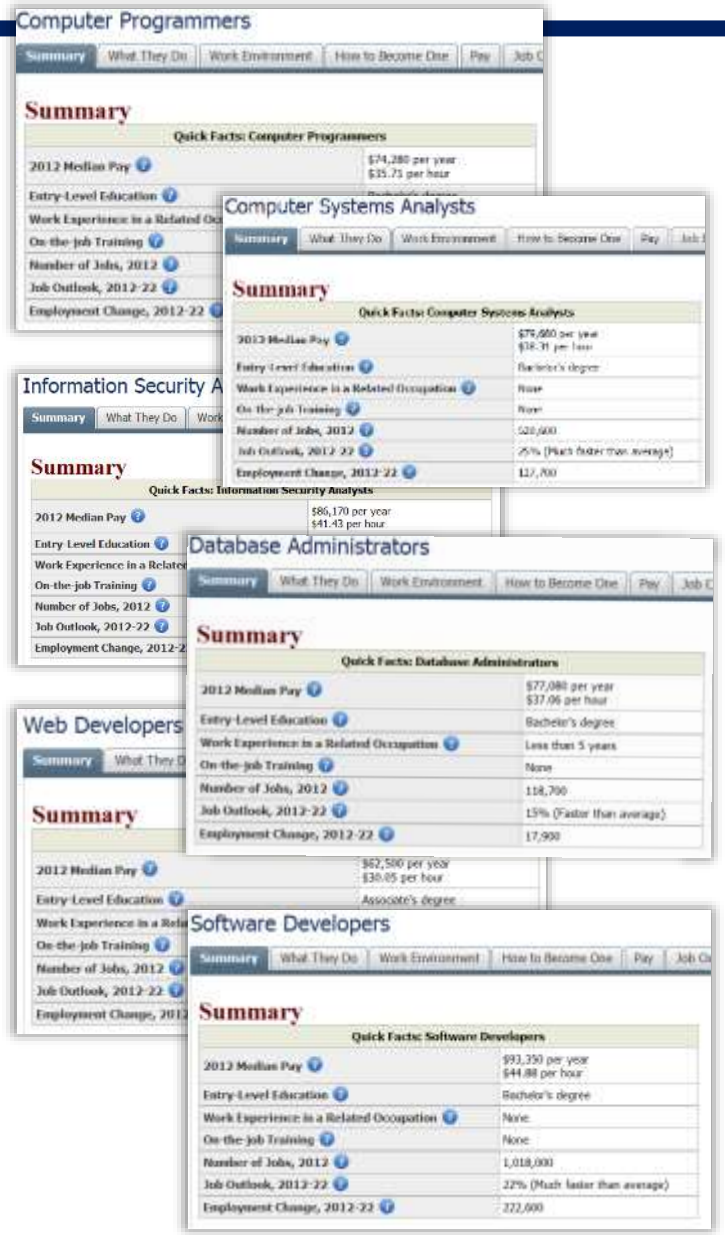
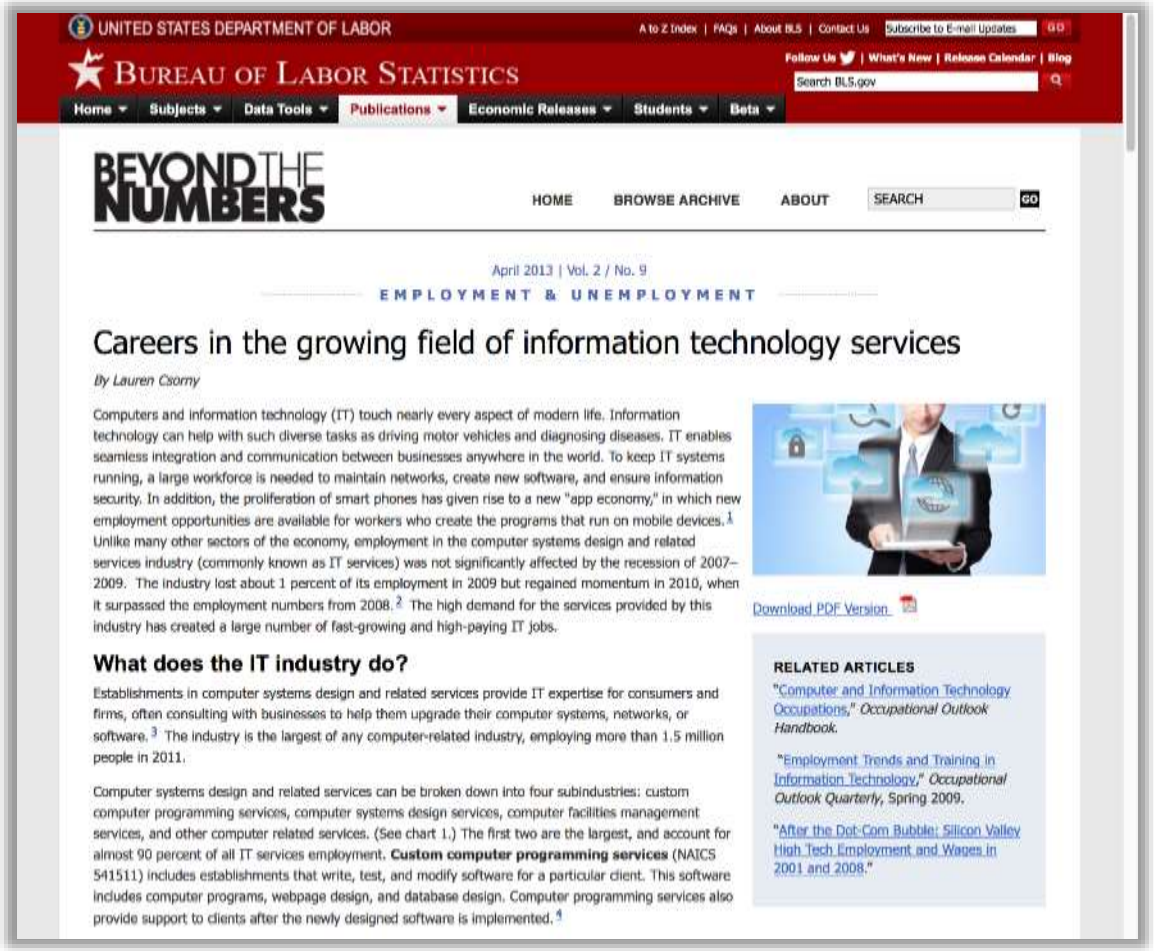
US Dept. of Labor - Bureau of Labor Statistics

- Information Security Analysts - 37%
  - Much faster than average
- Computer Systems Analysts - 25%
  - Much faster than average
- Software Developers - 22%
  - Much faster than average
- Database Administrators - 15%
  - Faster than average



I.T. Services Growing

- IT Employment expected to grow
- Average annual rate of 6.1%



www.bls.gov/opub/btn/volume-2/careers-in-growing-field-of-information-technology-services.htm

2017 H-1B Visa Job Categories

Top 6 Jobs are IT Positions!

2017 H1B Visa Report: Top H1B Visa Occupation

1 - 50 | 51 - 100 | 101 - 150 | 151 - 200 | search all

Other Reports: All | Occupation | Visa Status | Job Title | Industry | Work City | Work State

Rank	Occupation	Number of LCA *	Average Salary
1	Software Developers, Applications	121,227	$95,988
2	Computer Systems Analysts	98,750	$81,394
3	Computer Programmers	81,814	$69,478
4	Computer Occupations, All Other	53,875	$80,892
5	Software Developers, Systems Software	21,851	$111,170
6	Computer Systems Analyst	16,835	$78,813
7	Management Analysts	15,009	$92,937
8	Accountants And Auditors	11,204	$67,426
9	Network And Computer Systems Administrators	11,152	$76,233
10	Mechanical Engineers	9,616	$80,632

2017 H-1B Visa Sponsors

2017 H1B Visa Reports: Top 100 H1B Visa Sponsors

Rank: 1 - 25 | 26 - 50 | 51 - 75 | 76-100 | search all

SubReports: Visa Status | Job Title | Occupation | Industry | Work City | Work State

Rank	H1B Visa Sponsor	Number of LCA *	Average Salary
1	Infosys	25,405	$81,705
2	Capgemini	17,479	$93,213
3	Tata Consultancy Services	13,134	$76,099
4	IBM	12,381	$87,378
5	Wipro	10,607	$72,720
6	Accenture	9,479	$81,585
7	Tech Mahindra (Americas)	8,615	$75,879
8	Deloitte Consulting	7,645	$122,667
9	Cognizant Technology Solutions	5,370	$74,628
10	Microsoft	5,029	$129,610
11	Hcl America	4,930	$84,040
12	Google	4,897	$129,997
13	Ernst & Young	4,625	$98,722
14	Ust Global	3,170	$69,819
15	Larsen & Toubro Infotech	3,092	$76,755

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I.T. Retirements

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Retirement Leads to IT Job Opportunities

- In the US…
  - 10K people turn 65 every day
  - Trend will continue through 2030

wiseCAREERS Career News, Tips, and Tricks

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Baby Boomer Retirement Makes Way For IT Job Opportunities

17 September 2013 - 4:58pm

Baby boomers are retiring at a rapid rate, and this could mean more job opportunities for anyone pursuing a career in information technology. Approximately 10,000 people in the United States turn 65 every year, and that trend will continue through 2030. According to a study from Georgetown University, this means that 31 million jobs will open up as baby boomers retire.

This is excellent news for anyone who has been struggling to find work since the U.S. economic downturn. In the case of IT, veteran workers are still relied upon to help run critical systems on somewhat dated technology, according to CIO. However, many have been relegated to part-time or consultancy positions, which opens up opportunities for those who are new to the IT field.

As baby boomers move toward retirement, many companies are opting to have them help transition new IT professionals into their roles by providing training on how to use and maintain older technologies.

wisecareers.com/articles/information-technology/baby-boomer-retirement-makes-way-it-job-opportunities

Retirees Help Create 55 Million Jobs

- Baby boomers retiring
- 31M jobs will open up
- 24M more by 2020

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BABY BOOMER RETIREES WILL HELP CREATE 55 MILLION JOBS BY 2020

A new Georgetown study finds that once the nation's baby boomers retire, 31 million jobs will open by 2020, and 65 percent of those job vacancies will require some postsecondary education and training.

June 28, 2013 – A Georgetown report released this week predicts that 31 million jobs will open up as baby boomers retire, and another 24 million new jobs will be available by 2020, barring any unforeseen economic or political surprises.

The report by Georgetown's Center on Education and the Workforce (CEW) also predicts a shortfall of five million workers with postsecondary education and training.

"If the U.S. Congress can deal with budgetary challenges, we are on schedule for recovery," says center director Anthony P. Carnevale. "But we will still face a major shortage of college-educated workers, especially as baby boomers retire."

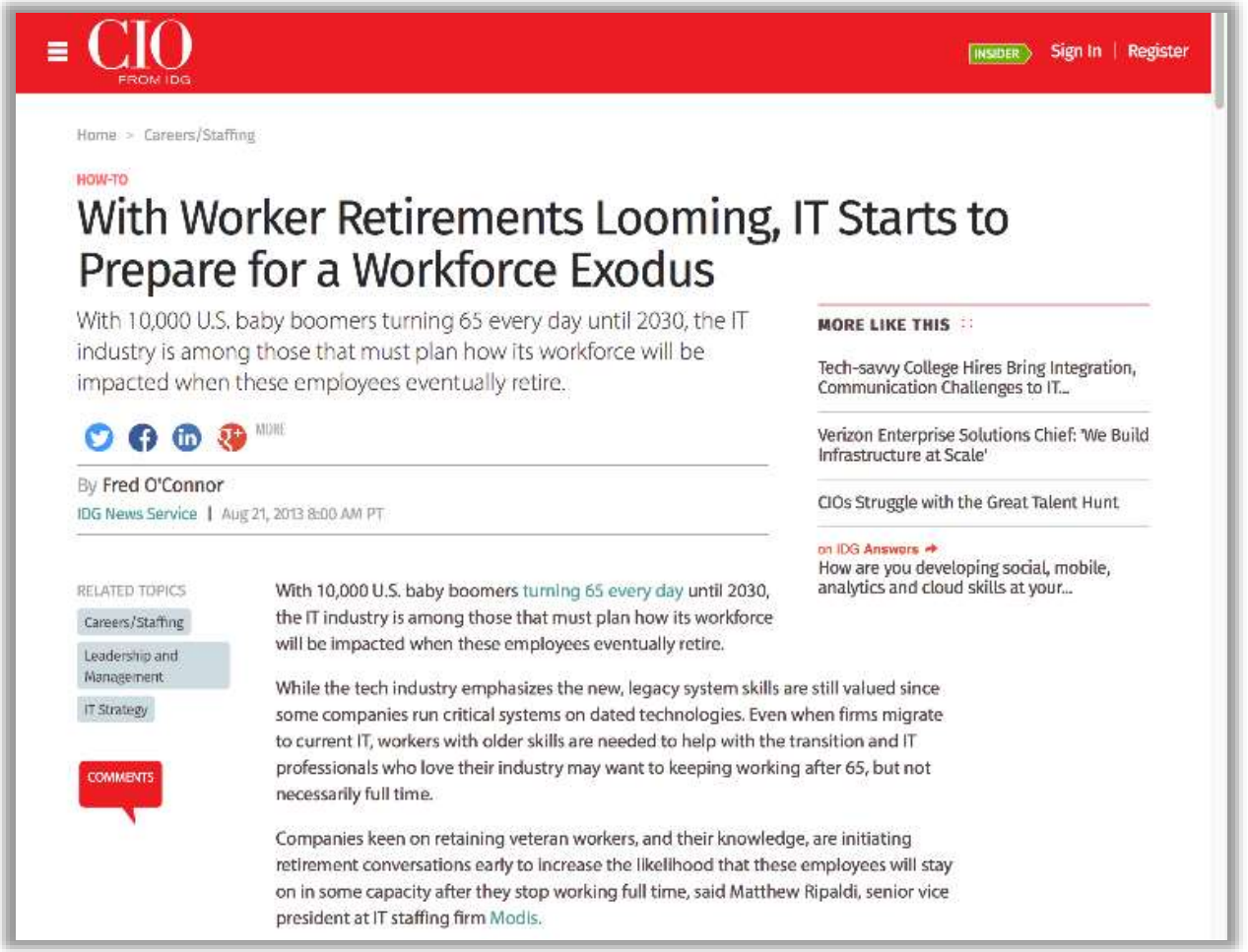
FASTEST GROWING JOBS

Four out of five of the fastest growing occupations – health care professionals and technical, STEM, education and community services – will require high levels (80 percent) of people with postsecondary educations. Information technology and government jobs

www.georgetown.edu/news/study-finds-retirees-will-create-more-jobs-2020.html

IT Starts to Prepare for a Workforce Exodus

- IT veteran workers
  - Still relied upon
  - Help run critical systems
  - On somewhat dated technology



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HOW-TO

With Worker Retirements Looming, IT Starts to Prepare for a Workforce Exodus

With 10,000 U.S. baby boomers turning 65 every day until 2030, the IT industry is among those that must plan how its workforce will be impacted when these employees eventually retire.

MORE

By Fred O'Connor

IDG News Service | Aug 21, 2013 8:00 AM PT

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COMMENTS

With 10,000 U.S. baby boomers turning 65 every day until 2030, the IT industry is among those that must plan how its workforce will be impacted when these employees eventually retire.

While the tech industry emphasizes the new, legacy system skills are still valued since some companies run critical systems on dated technologies. Even when firms migrate to current IT, workers with older skills are needed to help with the transition and IT professionals who love their industry may want to keeping working after 65, but not necessarily full time.

Companies keen on retaining veteran workers, and their knowledge, are initiating retirement conversations early to increase the likelihood that these employees will stay on in some capacity after they stop working full time, said Matthew Ripaldi, senior vice president at IT staffing firm Modis.

MORE LIKE THIS

Tech-savvy College Hires Bring Integration, Communication Challenges to IT...

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www.cio.com/article/2383118/careers-staffing/with-worker-retirements-looming--it-starts-to-prepare-for-a-workforce-exodus.html

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Colleges Today

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Colleges Have Changed

- BIG business now!
- It's the bottom line
- It's "Butts in the seat!"
- Receive funding
  based on enrollment & grants
- Constantly trying
  to maximize revenues

An Instructor Teaches What Sells…

- Instructors paid by the number of students

An Instructor Teaches What Sells…

- Instructors paid by the number of students
- A low number of students
  - Class is cancelled
  - Instructor receives a lower percentage of his workload

An Instructor Teaches What Sells…

- Instructors paid by the number of students
- A low number of students
  - Class is cancelled
  - Instructor receives a lower percentage of his workload
- Instructors teach many classes…
  - They have to make a living!

An Instructor Teaches What Sells…

- College instructors in “Highly skilled” areas
  - Compensated at a much lower rate than their counterparts in industry
- No compensation difference between teaching
  - Microsoft Office and PC Basics
  - IBM i System Administration
- Teach Large number of classes
  - Limited time to learn new technologies

What Instructors Do

- Teach what is easy & fun!
- What will entertain my students?
- Teach topics that
  - Are easy to learn
  - Have unlimited resources for the instructor & student
- Popular technologies lead to more students

College performance

Question – If college's are doing a great job…

Why do we need 1.2 million H1B's?

Today's businesses have limited input on what colleges teach.

Usually a "Pizza Party" for the college to announce what they plan for their students

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Skills Gap

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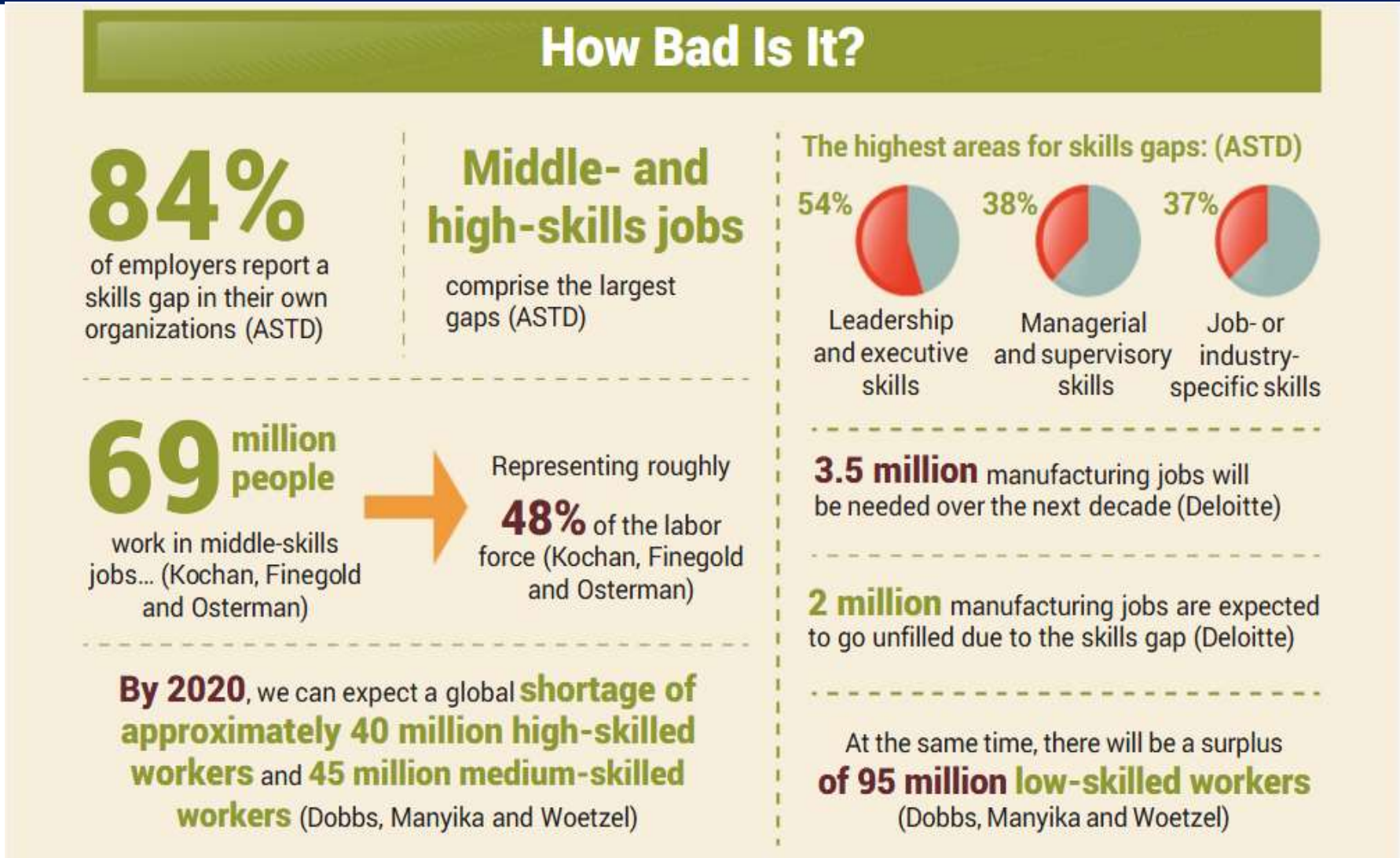
The Skills Gap… it's a growing problem



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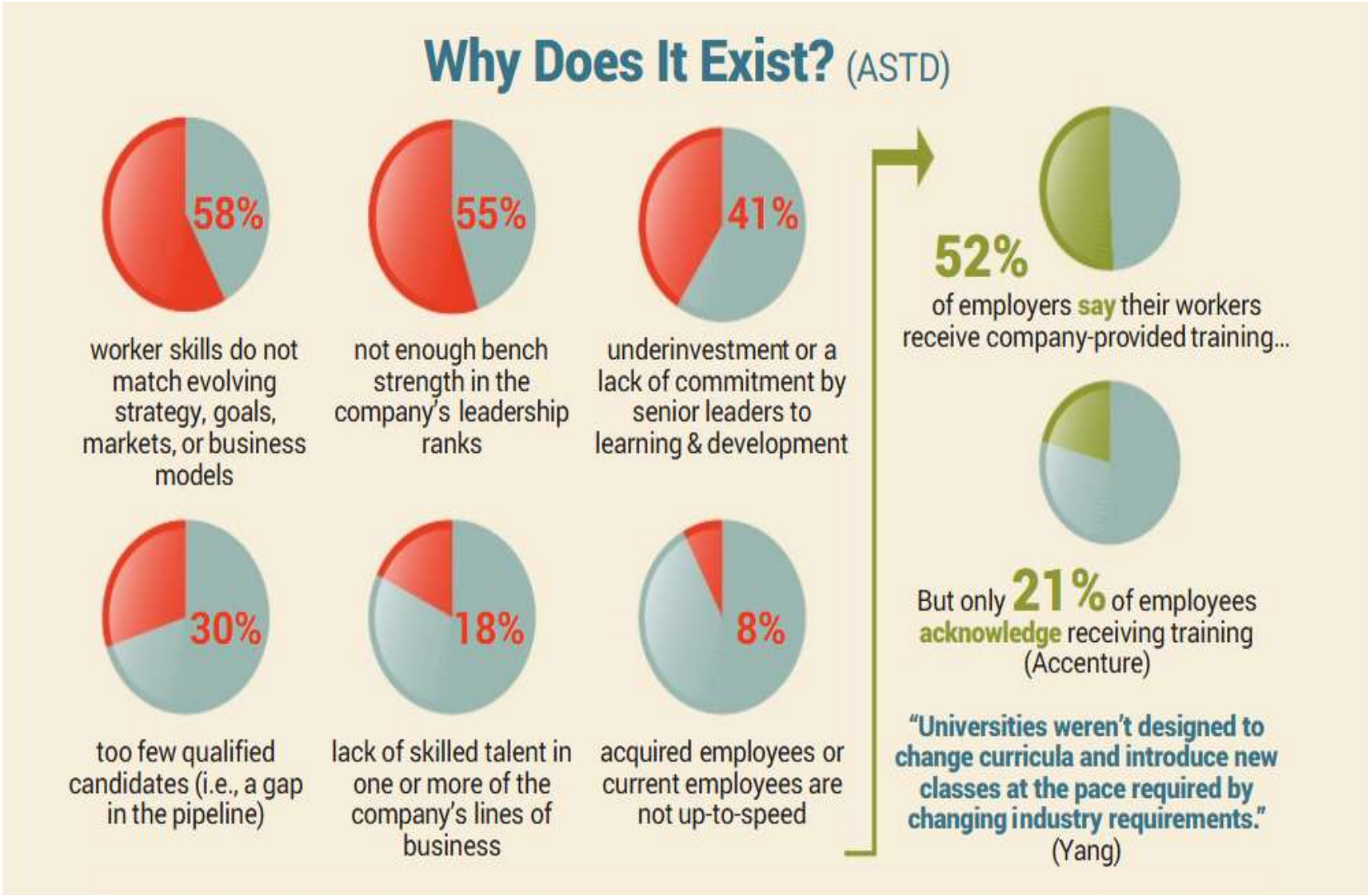
The Skills Gap… it's a growing problem



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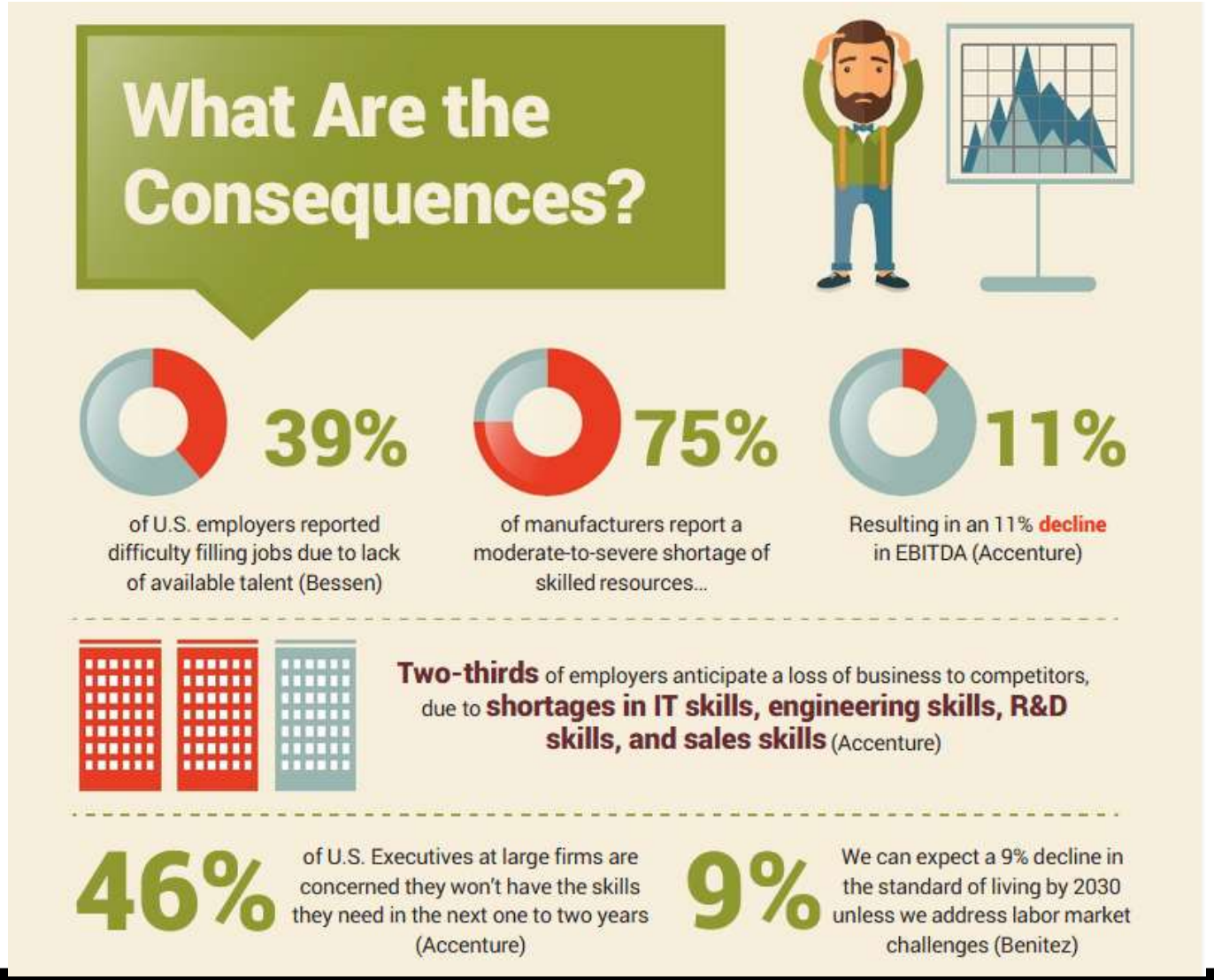

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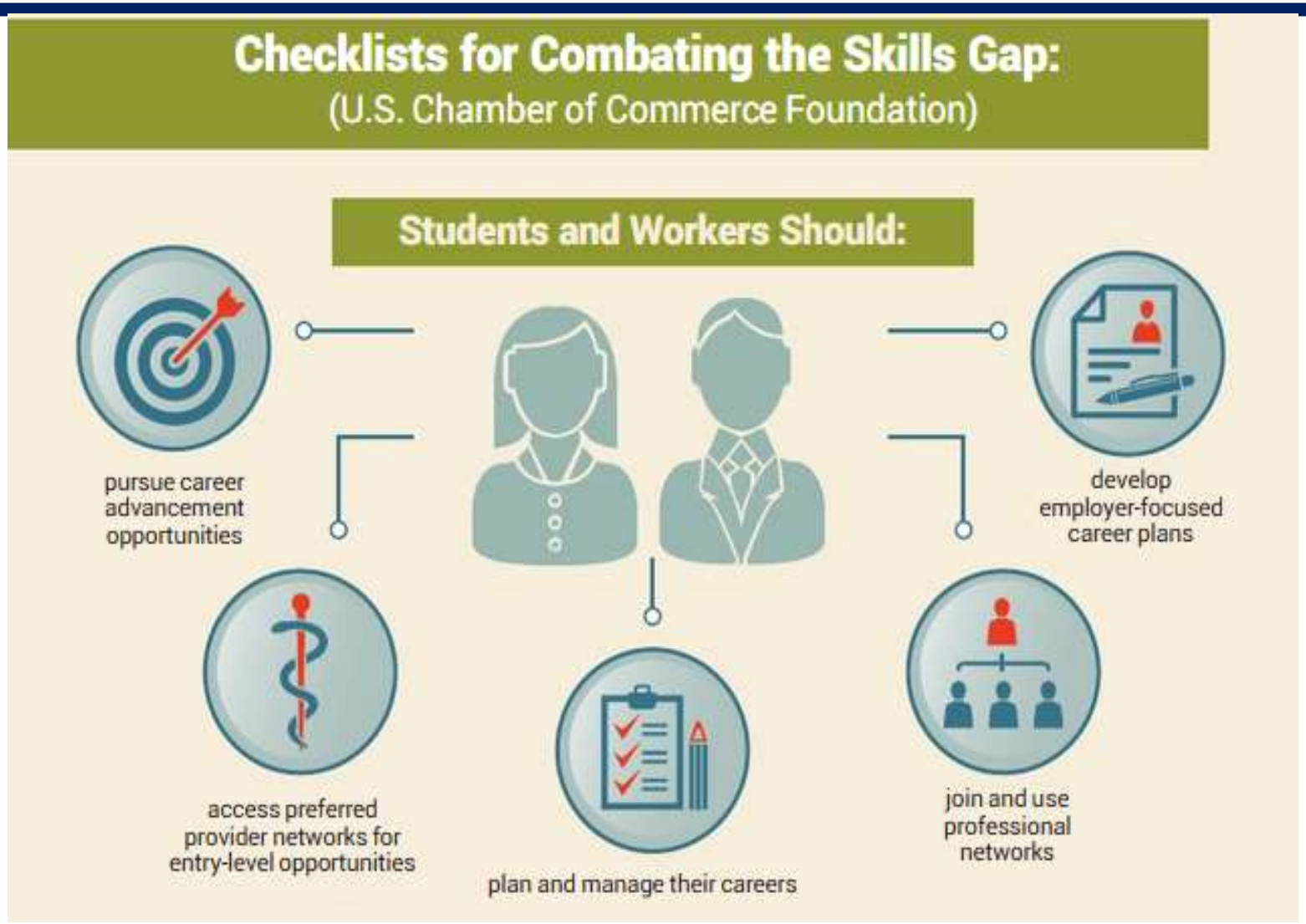

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The Skills Gap… it's a growing problem

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The Skills Gap… What about Canada???

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Demand for Skilled Talent

This report is a collection of the latest research, including data from Statistics Canada, to help shed light on the hiring environment and talent shortage, and why hiring managers need to move quickly in their recruiting efforts.

Learn more. Download our free report *The Demand for Skilled Talent — Volume*

Workplace Research

Demand for Skilled Talent

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https://www.roberthalf.ca/sites/roberthalf.ca/files/rh-pdfs/rh_demand_skilled_talent_vol13_can.pdf

The Skills Gap… it's a growing problem

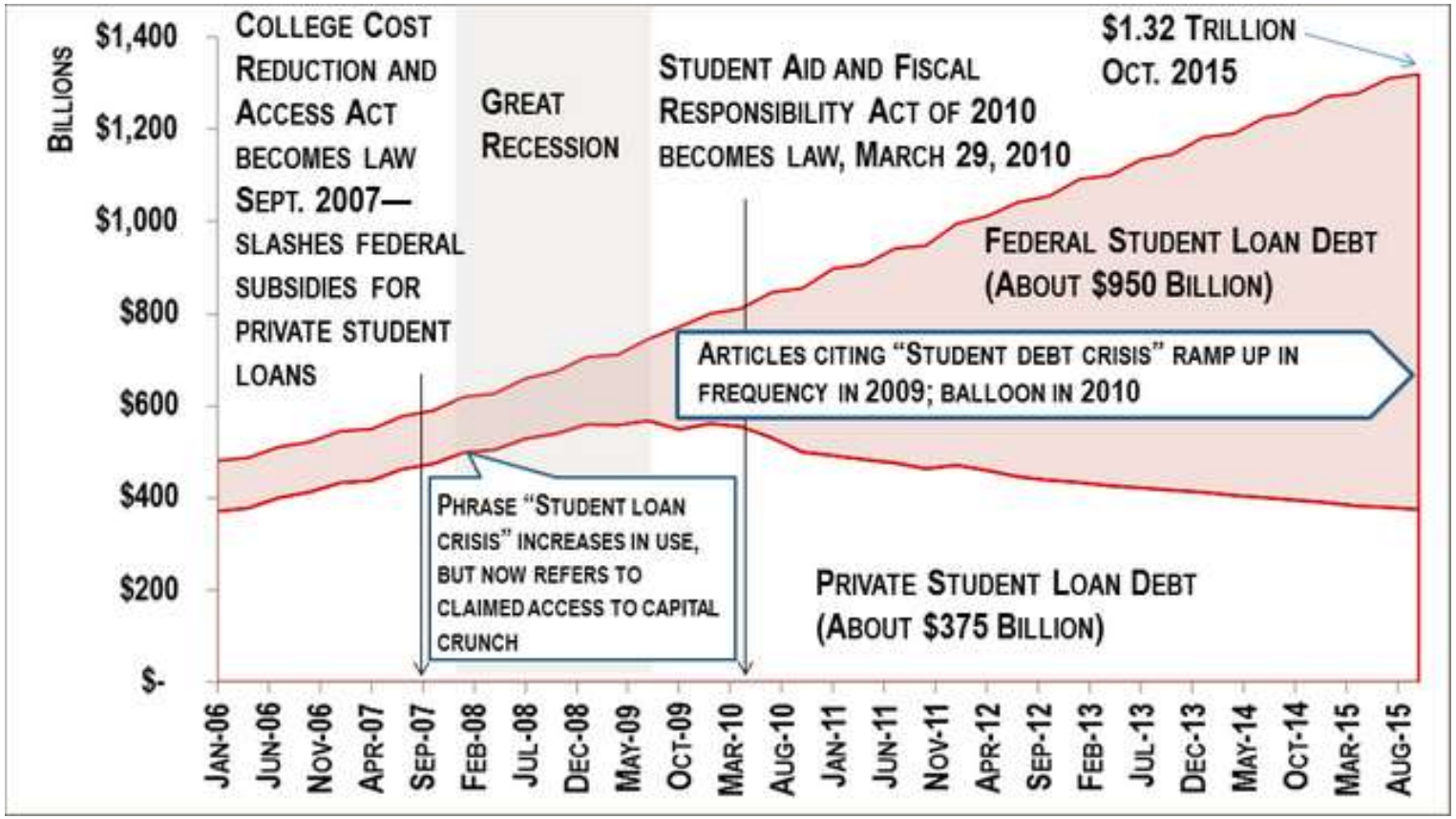
Employers are having difficult time filling jobs

- Interesting fact when more people are graduating with college degrees then ever before;
- 39% of people under 25 unemployed or underemployed
- 64% of today's jobs don't require a college education

The Skills Gap… it's a growing problem

Student Debt:

- Totals 1.3 Trillion
- This amounts to 2/3 of total Credit Card and Auto Loans
- 15 percent of retirees have student loan debt



[Student Debt Crisis: The Recession Started It; Colleges Sustain It; And Politicians Make It Worse](#) - **Forbes**

The Skills Gap…What about Canada???

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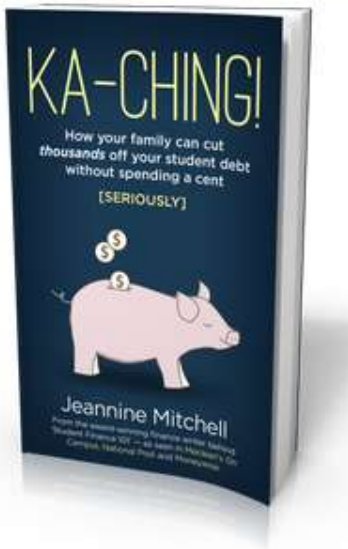


useful? spread the word!

How Big is Canada's Student Debt Today?

The Canada Student Loan Debt Clock

The Canadian Federation of Students (CFS) has something special on its website. A *Canada Student Loan Debt clock* lets you watch student debt adding up across the country. *Tick-tick tick-tick tick-tick tick-tick tick-tick...*

http://www.debt101.ca/news/how-big-is-canadas-student-debt-today

The Skills Gap… What about Canada???

http://www.debt101.ca/news/how-big-is-canadas-student-debt-today

The Skills Gap… it's a growing problem

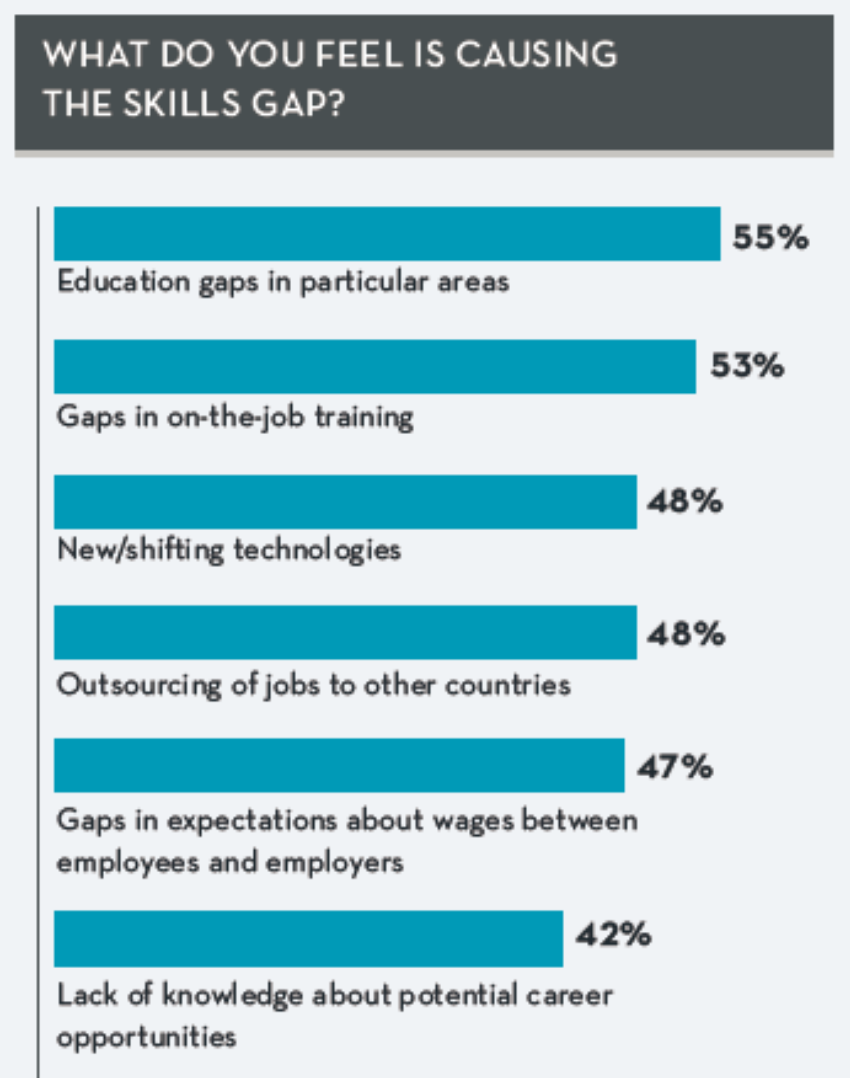
Three Players:

- The Employer
- The Job Seeker
- Academia

The Skills Gap… it's a growing problem

The Employer

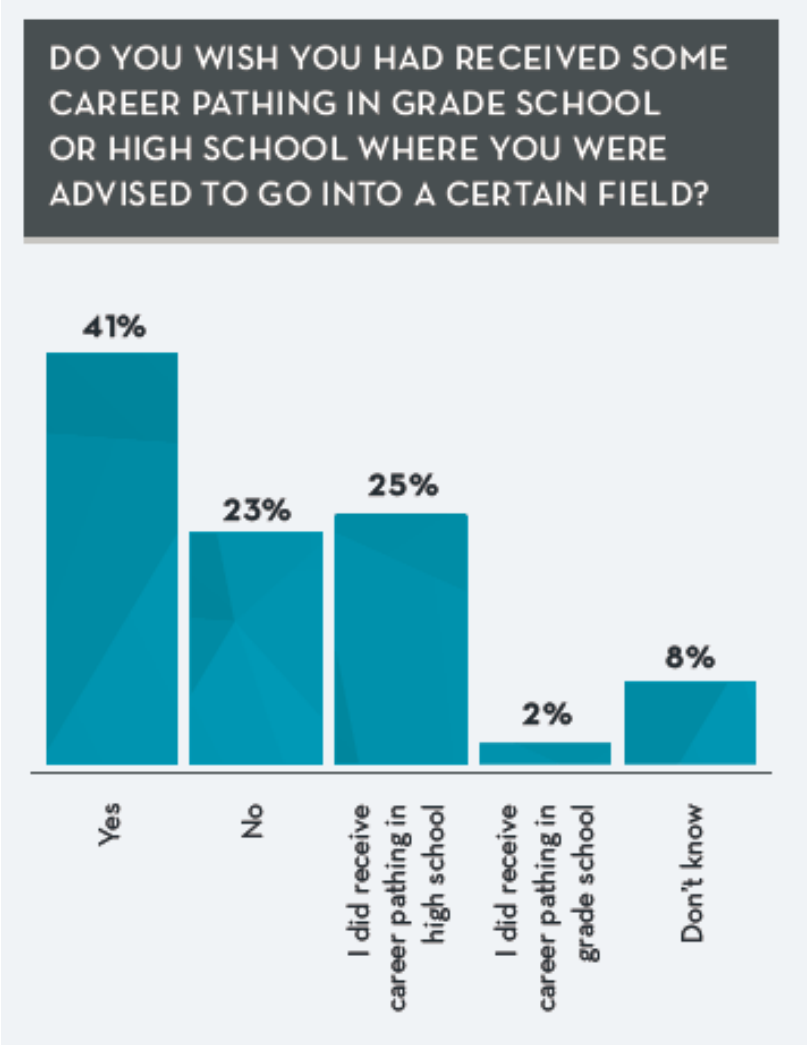
- Complain about a shortage of qualified workers
- Hiring managers want workers that are immediately productive
- 49 % of employers site… Lack of job specific skills…
  - **System Z, IBM PowerSystems, RPG & COBOL?**
- Only 24% of employers agree that lack of on the job training causes a shortage



The Skills Gap… it's a growing problem

The Job Seeker

- Today's youth are told to "Follow your dreams"
- Little education about the entry level positions available to them
- 44% of college graduates under 25 hold jobs requiring less than a college degree.



The Skills Gap… it's a growing problem

Academia

- 96% of academics think they should communicate with potential employers about their curriculum
- Only 45% polled report doing so on a regular basis
  - This communication is often is a biyearly meeting to tell employers about the college curriculum changes
- Changes to college curriculum often takes 2 – 3 years.
- By the time the curriculum is changed the class is no longer relevant

Failure To Modernize

Students Today

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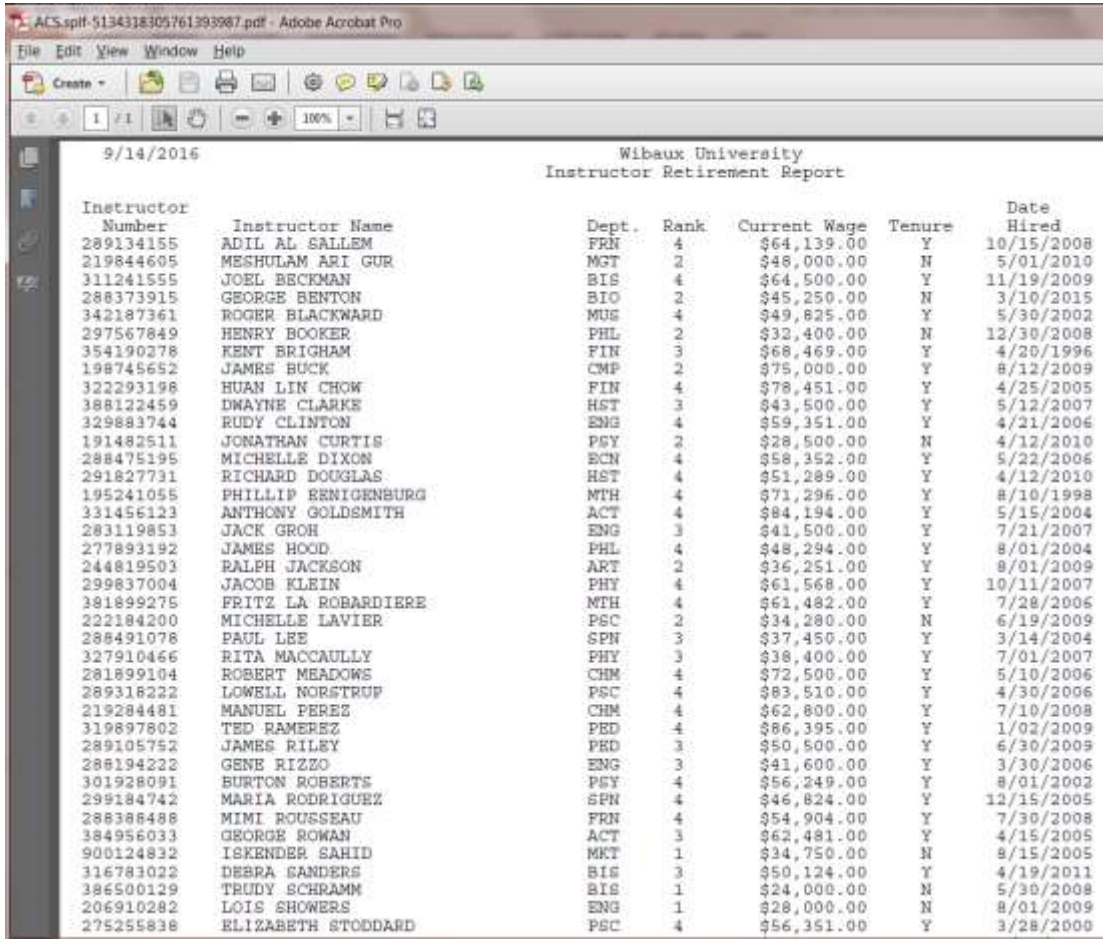
Would a Student Want to Code...

- Employee payroll report
- Order Entry Application



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9/14/2016

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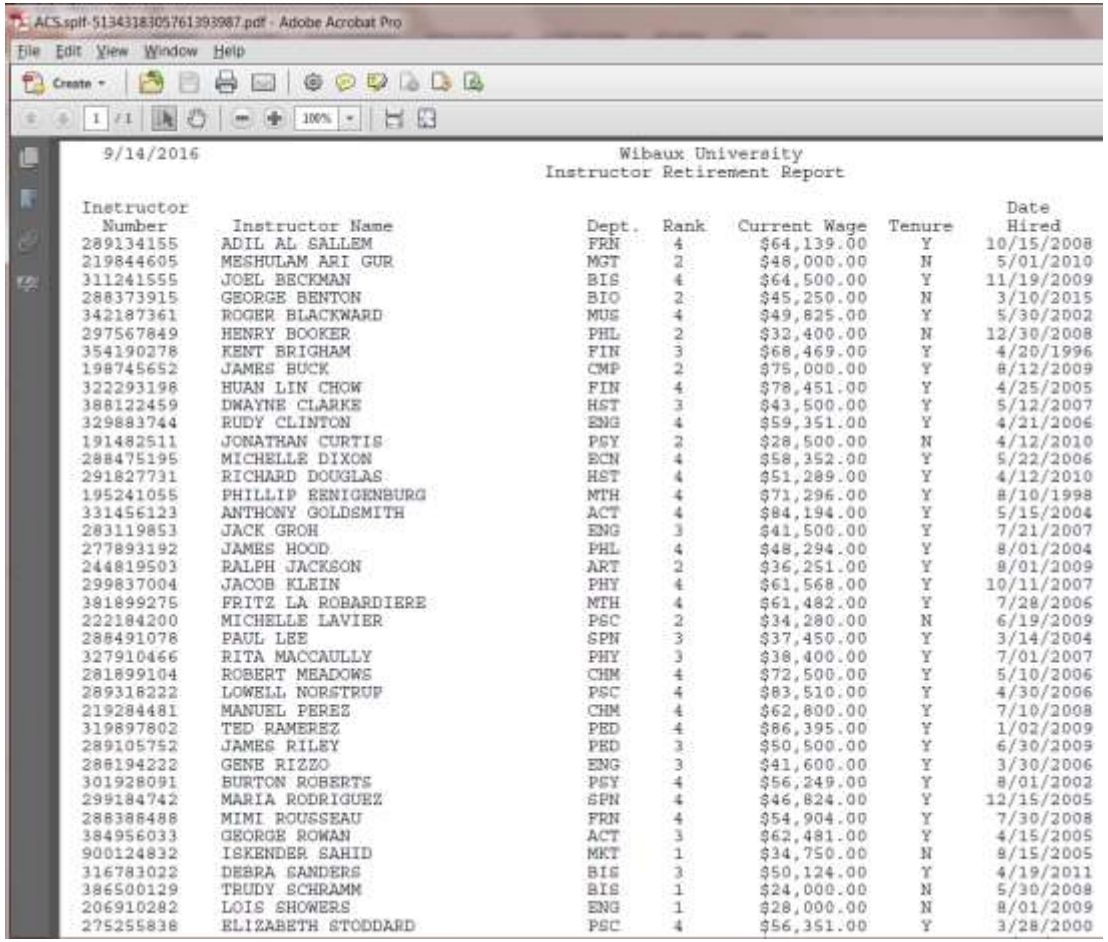
- Employee payroll report
- Order Entry Application

Or…



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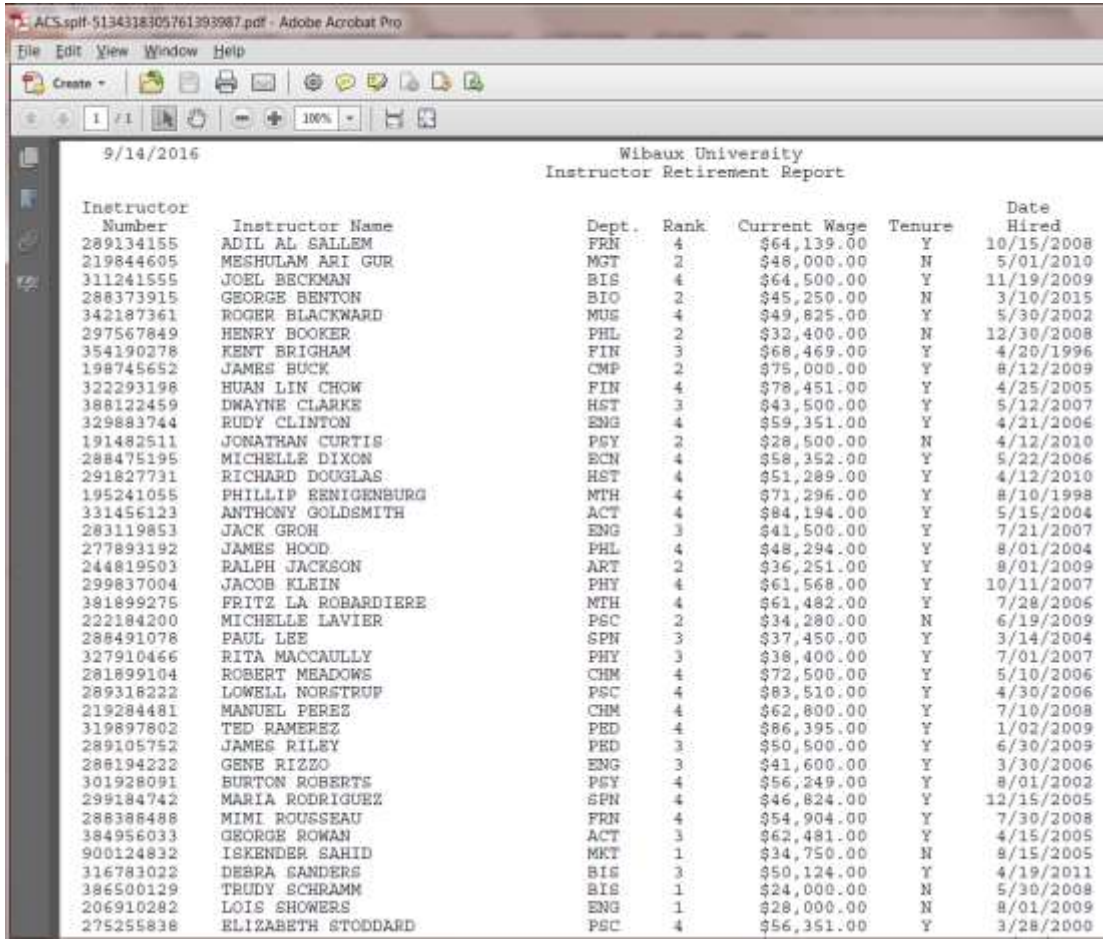
Or...

- $1M iPhone App
- $100M Online Game of the century



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Students Think..

“I’ll write one program & I’m done!”

Enterprise System Topics are Not “Sexy!”

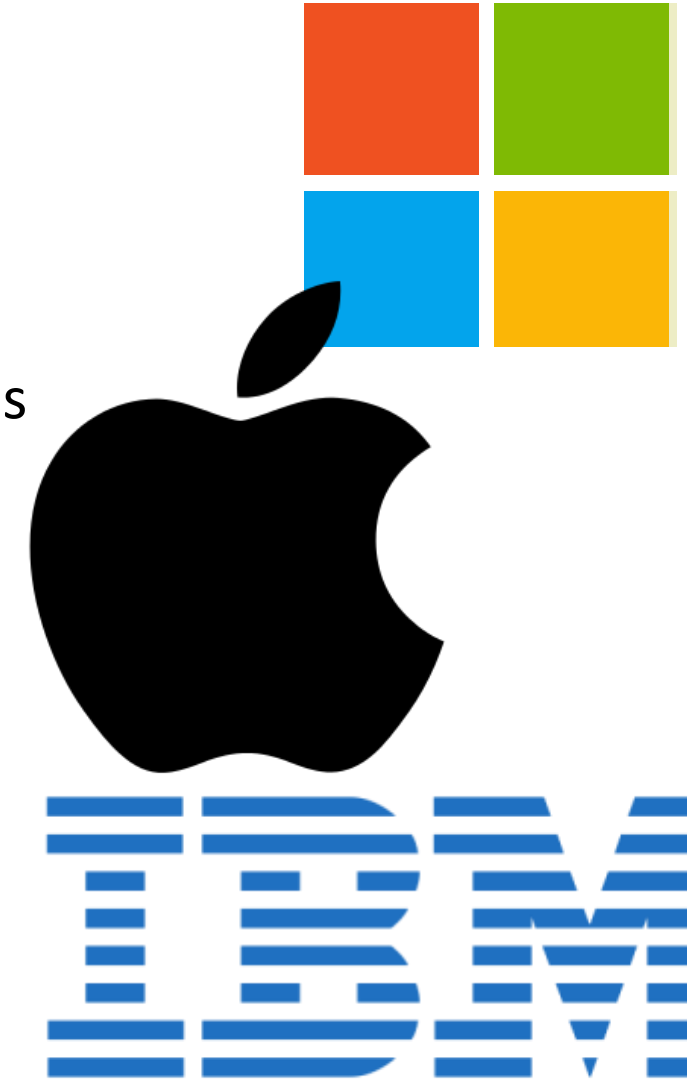
- What’s cool about enterprise systems?
  - Usually a *“Boring”* business application
- IBM is out of business
  - They used to make good typewriters
- People talk about dead systems
  - Mainframes
  - AS400
  - iSeries
  - System i

Enterprise System Topics are Not “Sexy!”

- RPG & COBOL are old…
  - No one uses those languages
  - Why would I want to learn this “*Old Stuff?*”
- Most students have had limited interaction with business
- Student life & the world’s processing is on their iPhone
- Recent Sprint Advertisement!
  - *“Now that your life is on your phone!”*

Students Don’t Understand the Big Picture

- They Grew up with Microsoft & Apple
- I asked a first semester class
  - *“What is IBM’s business?”*
  - Three had never heard of IBM
  - Five students didn’t have a clue what the company does
  - Most said *“Something to do with computers?”*
  - They are rarely exposed to Enterprise systems
    - Except in History Books!
- Even a Gateway IT program advisor
  - “IBM is out of business!”
  - “Why does the Software Developer program teach IBM classes?”
  - He thought Lenovo bought IBM!



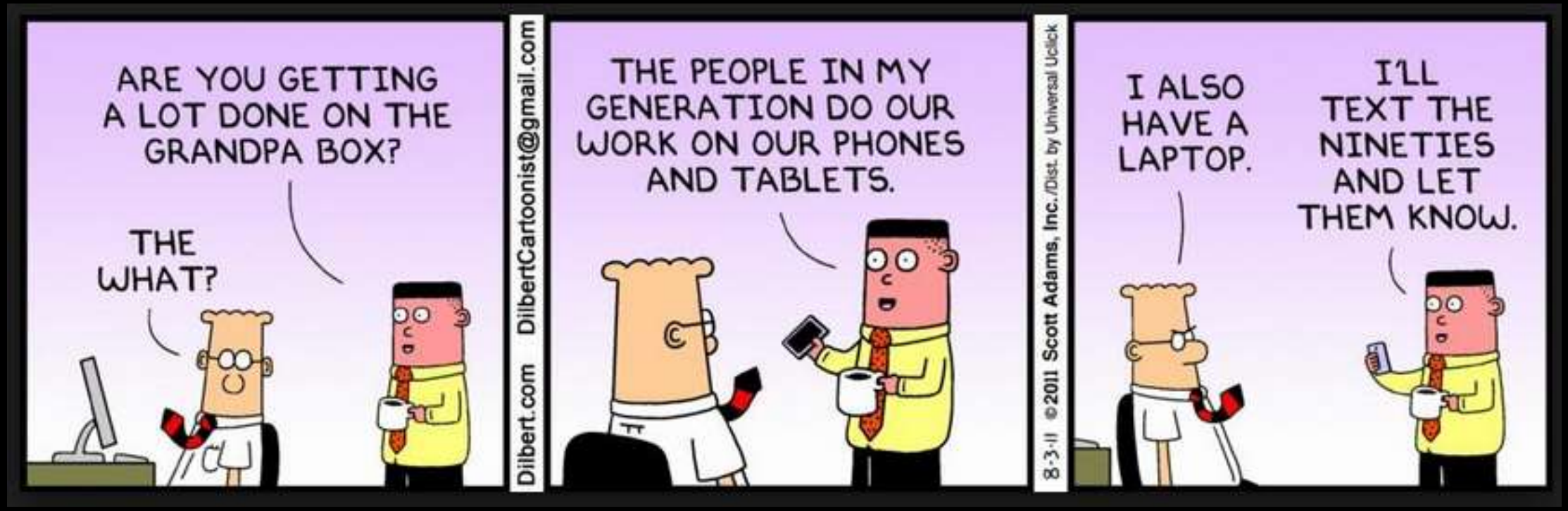
Perception of a Mainframe

Perception of a Mainframe

Z13 IBM Mainframe

Perception of Cloud Computing

Would a Young IT Professional Work for You?



Failure To Modernize

How To Fail

jbuck@ jbuck@impowertechnologies.com

Jbuck_imPower

80’s Tools & Techniques

Use 80’s Tools & Techniques

Use 80's Tools & Techniques

```
 Columns . . . :     6  76              Edit                          FRLIB/QRPGLESRC
 SEU==> ____________________________________________________________________  NEWTEST2
        **************** Beginning of data ***********************************
0001.00 FTESTFILE  IF   E           K DISK
0002.00 FNEWFILE   O  A E             DISK
0003.00  ** Where FIELD1 is an Alpha Field
0004.00  ** Where FIELD2 is a Numeric Field of Consecutive (1,2,3,4) numbers
0005.00 C     KEY           Klist
0006.00 C                   KFld                    FIELD1
0007.00 C                   KFld                    FIELD2
0008.00  * Read the first 1000 customers for "ATSALOT"
0009.00 C                   EVAL      FIELD1 = 'ATSALOT'
0010.00 C                   EVAL      FIELD2 = 1
0011.00 C     KEY           Setll     TESTFILE
0012.00 C                   DoU       FIELD2 >= 1000
0013.00 C                   Read      TESTFILE                          9999
0014.00 C                   IF        *IN99 = *On OR
0015.00 C                             FIELD2 > 1000
0016.00 C                   LEAVE
0017.00 C                   ENDIF
0018.00 C                   WRITE     NEWFILE
0019.00 C                   EndDo
0020.00 C                   Eval      *INLR = *On
```

Use 80's Tools & Techniques

Failure to Modernize

- Deal with dwindling “AS400” or “Mainframe” professional resources
  - Higher costs to work on your “Old stuff”
  - Business costs because your system cannot adapt to changes
- Overseas skills
  - Next generation of IT professionals will “PASS” on your company
  - Will there always be “Unlimited” foreign workers
- Eventually $$$$$$$.
  - Complete rewrite or migration
  - Different software and/or platform.

Failure To Modernize

What You Can Do

jbuck@ jbuck@impowertechnologies.com

Jbuck_imPower

What Your Company Can Do

- Work with high schools & college's
- Understand that young people will not work with old technologies
  - Modernize to attract young IT professionals.
  - They are excited about helping to move your company forward.
- Offer Internships & jobs
- Support academic & industry organizations

Become involved with Education

- Support Enterprise Education
- Talk to students about enterprise systems
  - Visit colleges, high schools & middle schools
- Volunteer to help high schools & colleges
  - Computer systems and software
  - Help them with curriculum that will help business
- Typically, instructors don’t interact well with businesses.
  - Most haven’t been involved in business for years… if ever
  - Take one to lunch or offer to help with a class.
  - Help them understand what is going on in industry

Lend Technical Resources to Colleges

Where are the resources.. A recent example!

Subject: Re: Problem with new ILE coding

Never mind on this.....I went ahead and contacted IBM and I needed to turn off the 'Syntax Checker' since I was using SEU. A
are wondering.....yes we have RDi loaded, but are still having issues with the licensing per my previous email to you. I have
person that set up our SWMA and find out what to do in order to get that resolved. Thanks!

From: [redacted]
Sent: Thursday, September 1, 2016 10:00:46 AM
To: Jim Buck
Subject: Problem with new ILE coding

Hey Jim! I am trying to create a very simple program using the new format, but I am receiving errors and from what I read or
they did not apply all the PTFs required when I upgraded last May. Can you please look at the screenshot below and the erro
you think that is the case?

```
 SEU==>
 FMT **  ... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+..
        ********** Beginning of data **********************************
0001.00   DCL-F GTCSTP   DISK      USAGE(*INPUT);
0002.00   DCL-F GTCSTPAP PRINTER   USAGE(*OUTPUT) OFLIND(EndOfPage);
0003.00
0003.01   Dcl-s EndOfPage Ind Inz(*On);
0017.02   READ GTCSTP;
0017.04   DOW NOT %EOF(GTCSTP);
```

Young People Won’t Work with OLD Technology

- Your company MUST develop a modernization plan
  - The software & tools to modernize are available
- Less expensive to modernize than
  - Changing platforms
  - Completely rewriting your system
- Modernization
  - Keep your Core Business Logic
  - Modernize your Database
  - Modernize your User Interface

Young People Won’t Work with OLD Technology

Modernization Steps

- Start slow
- Concentrate on one area
- Model, View, Controller architecture
- Be prepared for the next “Final Solution!”

Replace your “*Retro*” RPG Code

```
 Columns . . . :    6  76            Edit                          FRLIB/QRPGLESRC
 SEU==> ____________________________________________________________________  NEWTEST
        *************** Beginning of data ***************************************
0001.00 FTESTFILE  IF   E           K DISK
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0010.00 C                   EVAL      FIELD1 = 'ATSALOT'
0011.00 C                   EVAL      FIELD2 = XX
0012.00 C     KEY           CHAIN     TESTFILE                          99
0013.00 C                   IF        *IN99 = *Off
0014.00 C                   WRITE     NEWFILE
0015.00 C                   ENDIF
0016.00 C                   EndFor
0017.00 C                   Eval      *INLR = *On
        ***************** End of data ***************************************
```
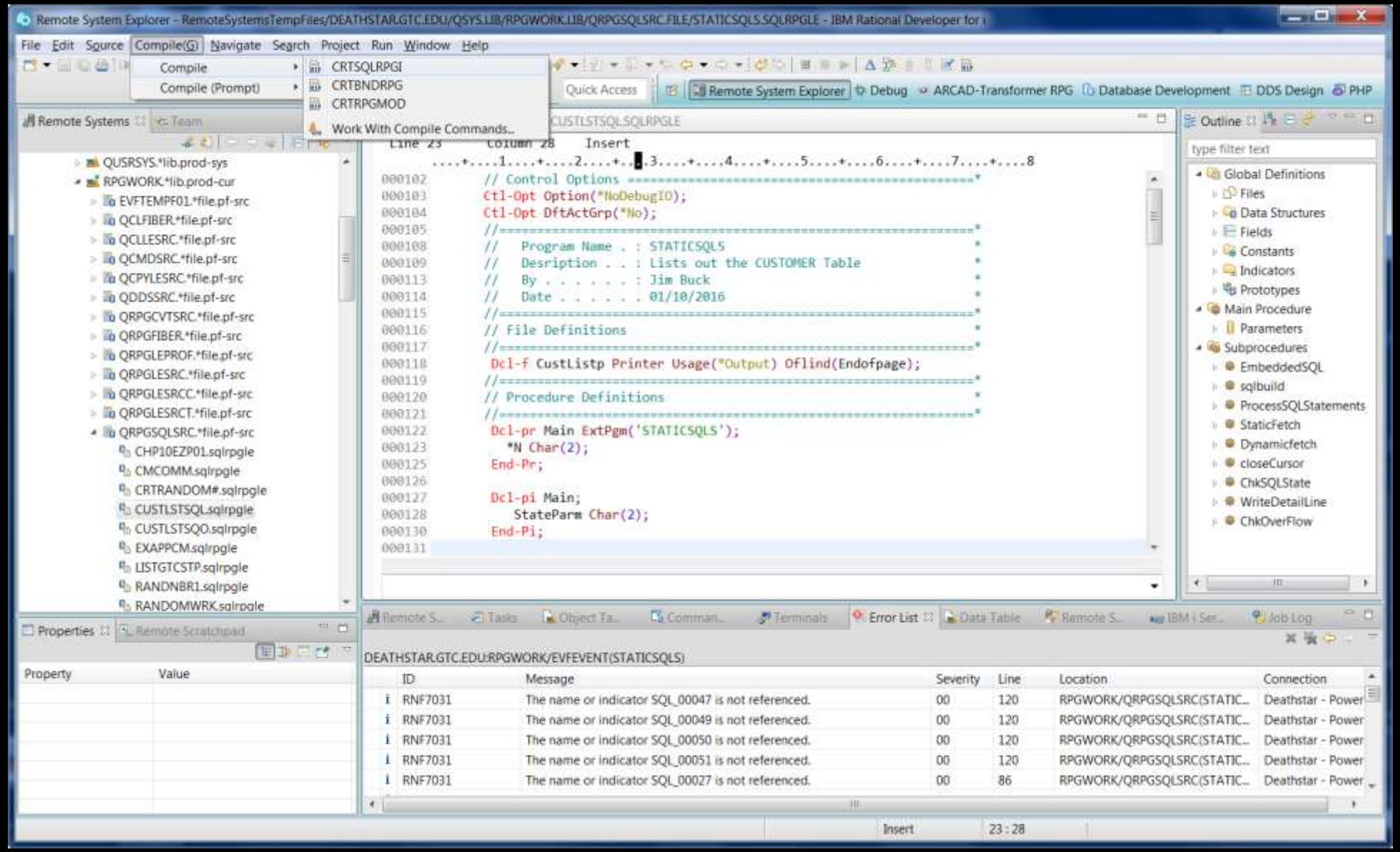

[1] As Michelle Lyons refers to the old stuff!

Use RDi & Modern RPG



By Buying An Old Mainframe Computer

IBM z890 Mainframe computer weighs 1,500 pounds and stands over five feet tall. When it was first unveiled in 2004, it cost over $300,000

19-year-old Connor Krukosky bought a used one last year. He always had an interest in the behemoth machines.

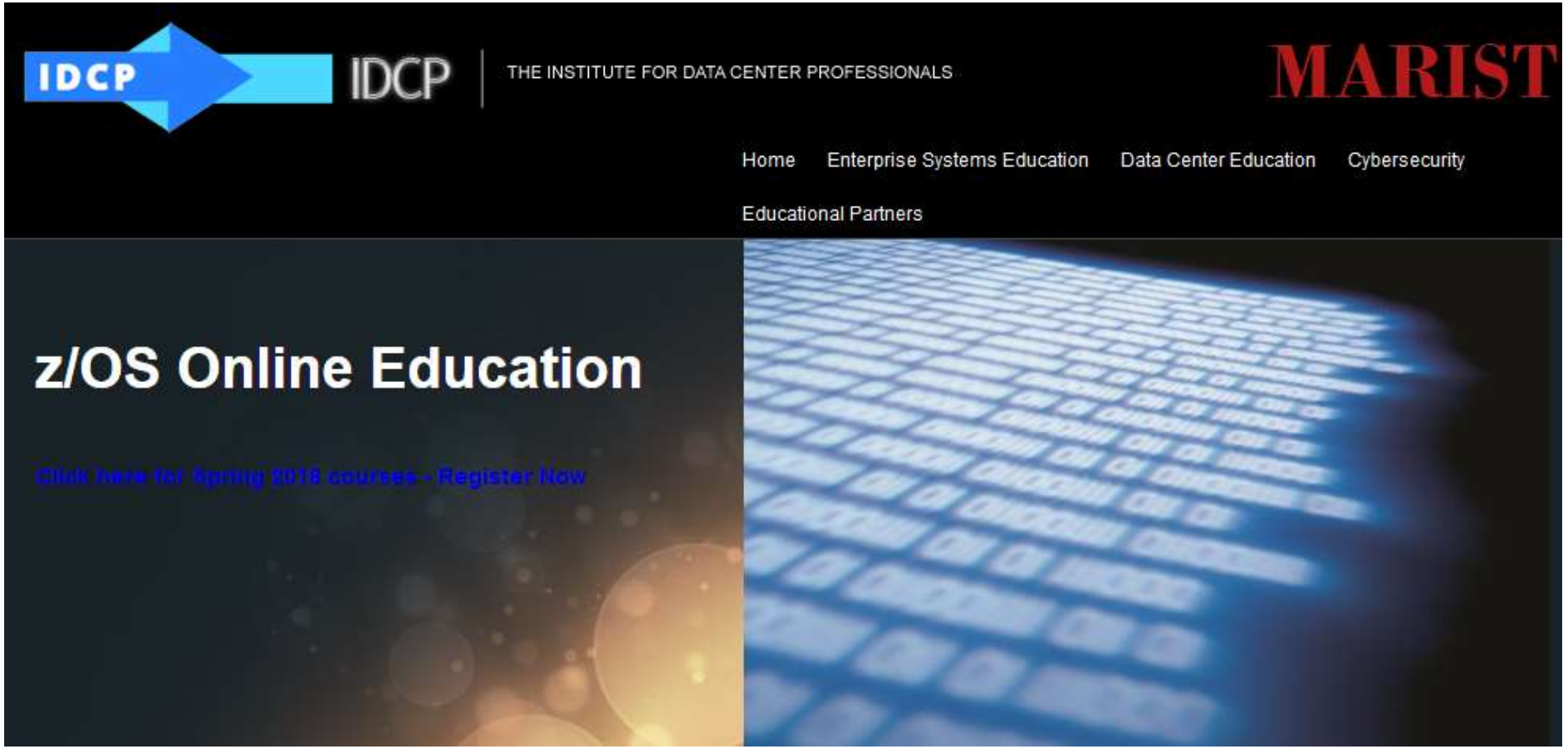
Krukosky also enjoys taking computers apart. For years he did just this: Tinker with old machines and peek into their insides to try and figure out what precisely they did.

There’s a lot of these young people!

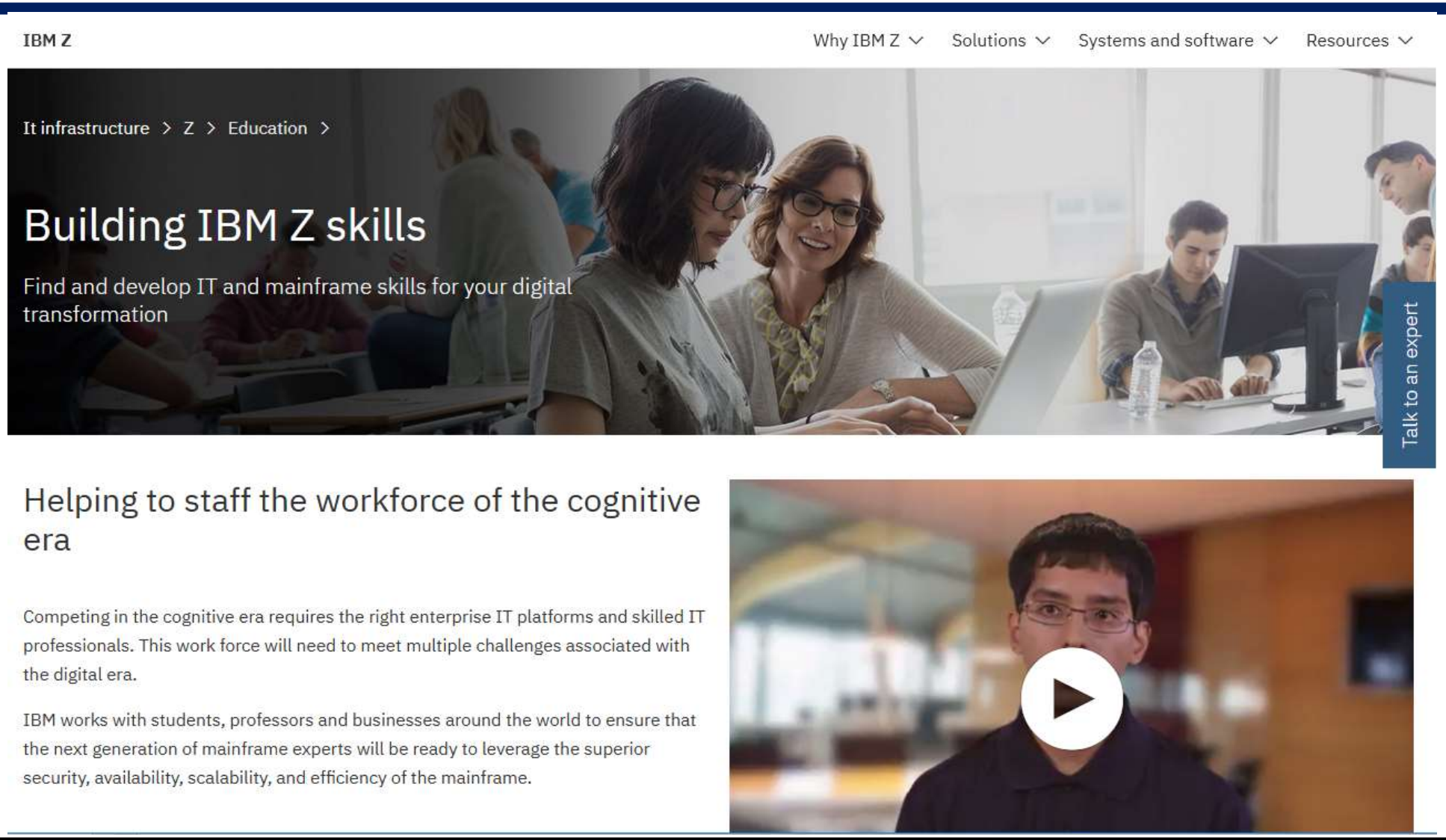
Offering Internships & Jobs

- What are the Benefits of Young IT Professionals?
- New skills
  - Linux, PHP, HTML, JavaScript
- Many new technologies are second nature to young people
- You will teach young IT professionals your business
  - Retirements lose technical skills
  - Retirements lose business knowledge
- Old timers will learn from the youngsters and vice versa!

MARIST - *Poughkeepsie, NY*

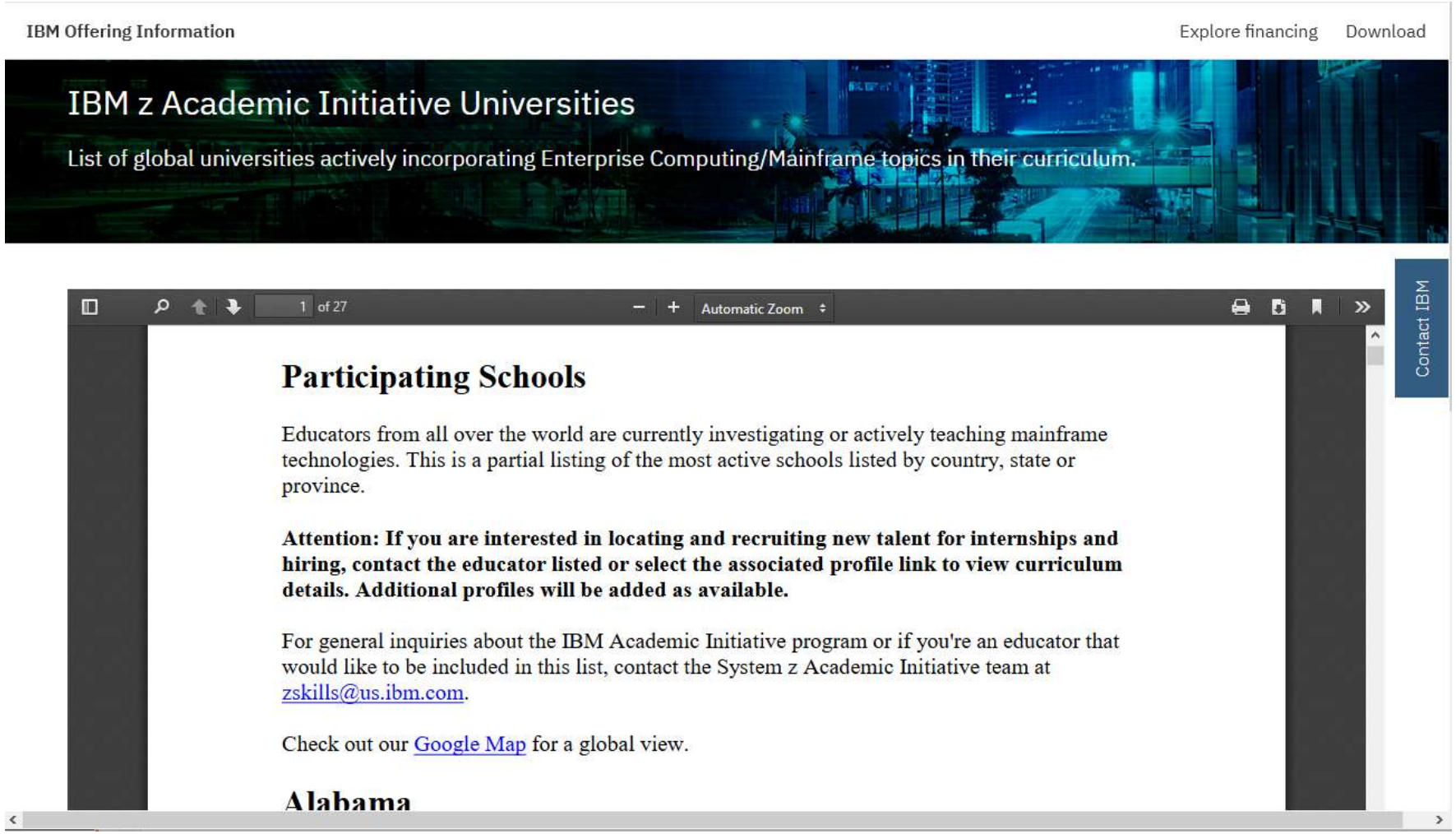


Building IBM Z skills



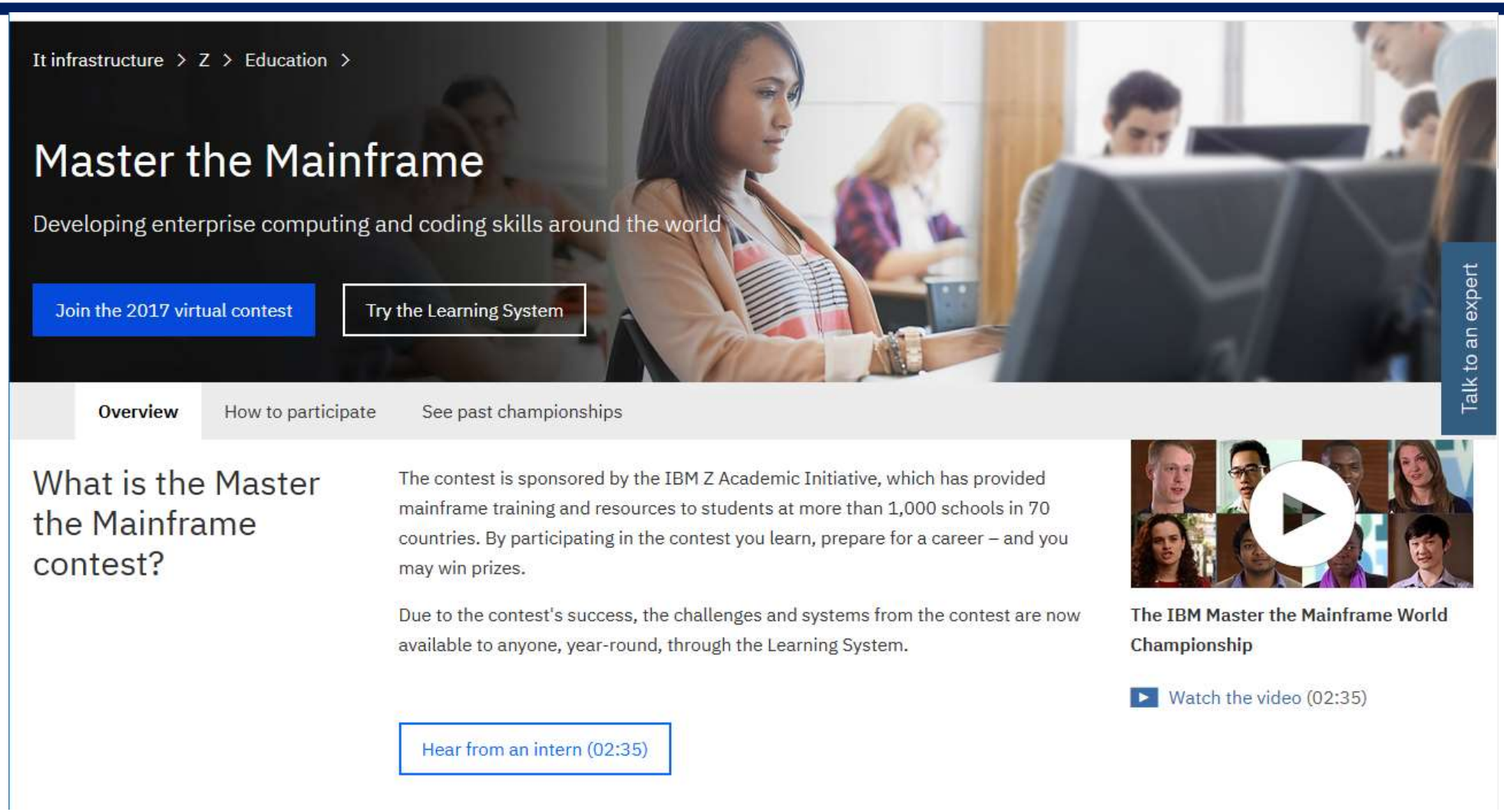
https://www.ibm.com/it-infrastructure/z/education/academic

IBM z Academic Initiative Universities



https://www-01.ibm.com/common/ssi/cgi-bin/ssialias?htmlfid=ZSL03445USEN

IBM Master the Mainframe



https://www.ibm.com/it-infrastructure/z/education/master-the-mainframe

The Inevitable Return of COBOL

JULY 6, 2015 BY RITIKA TRIKHA

The Inevitable Return of COBOL

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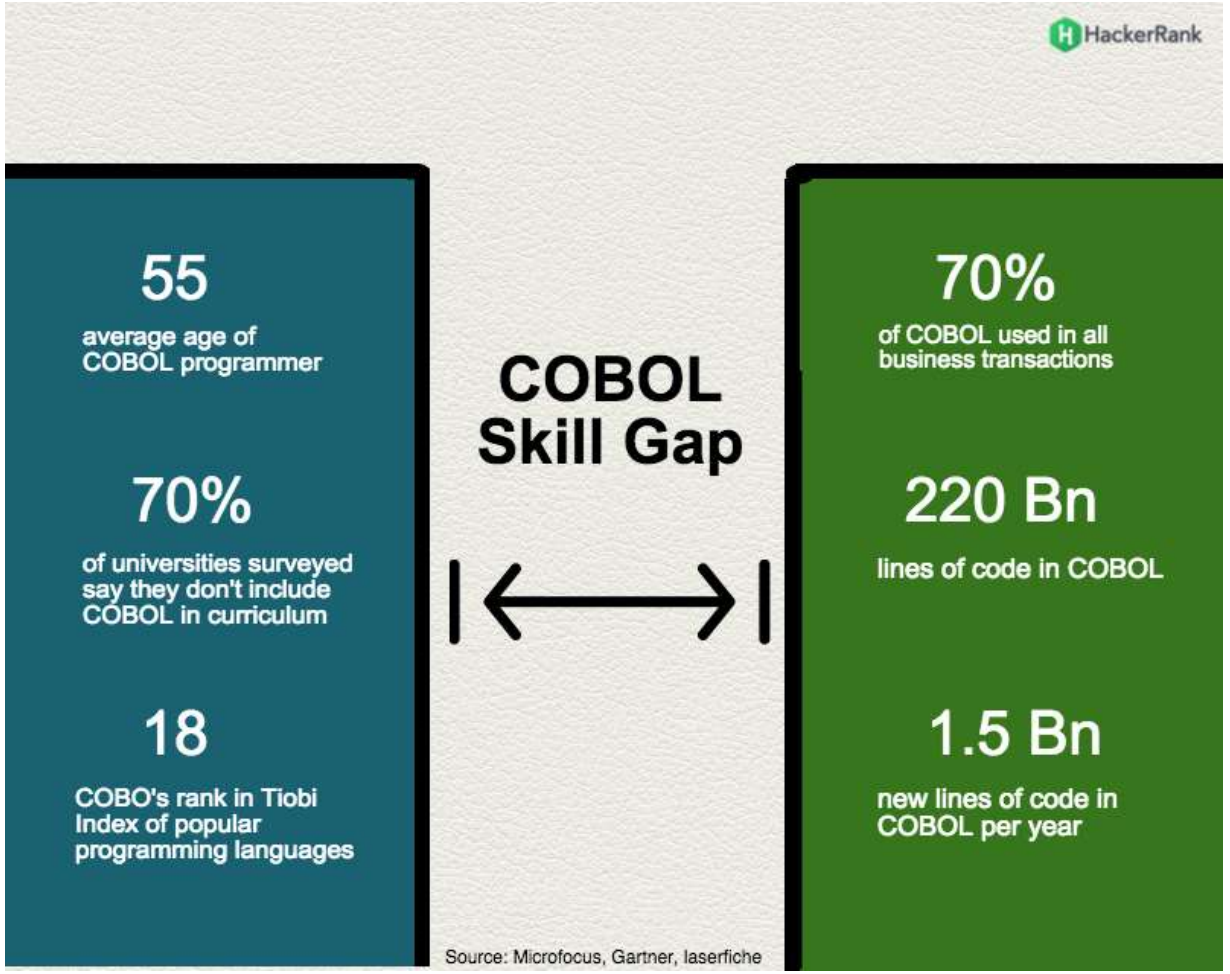
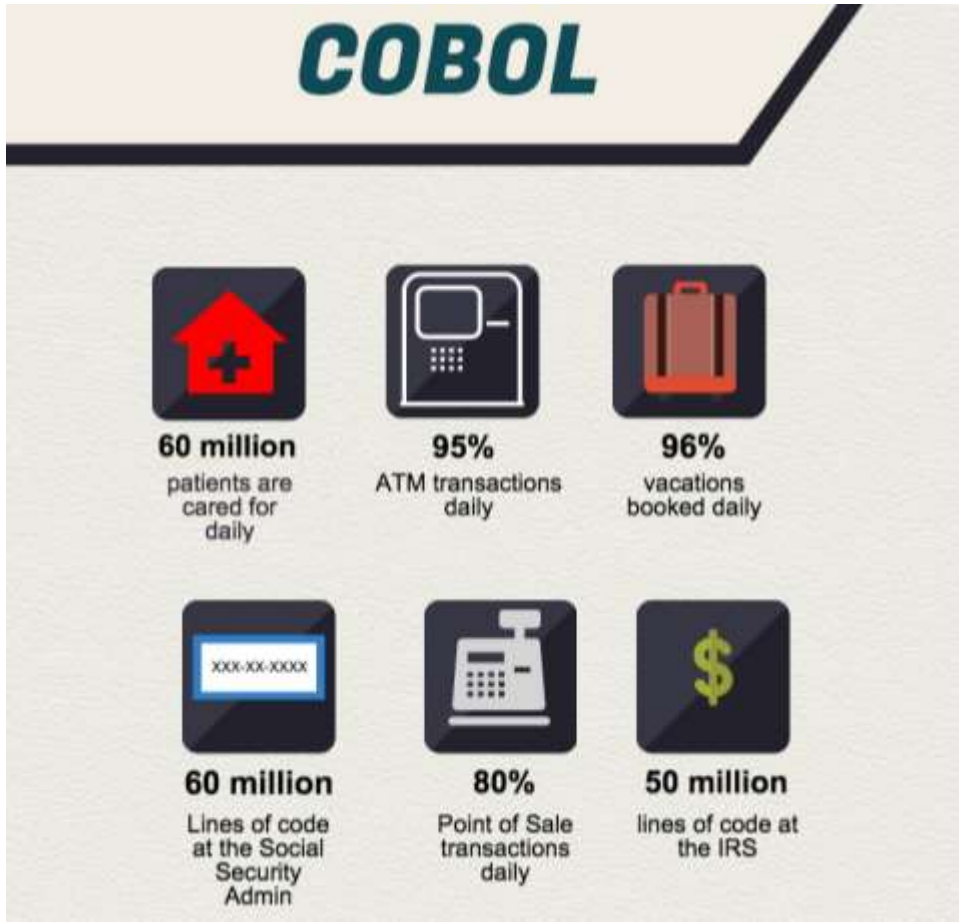


https://blog.hackerrank.com/the-inevitable-return-of-cobol/

The Inevitable Return of COBOL

If COBOL's been such a foundational root of business apps for decades, why hasn't something better come along?

The short answer: *If it ain't broke, don't fix it.* The long answer requires us to take a step back in time. COBOL was created in 1959, the computing era when programming languages were tailored for specific purposes.



https://blog.hackerrank.com/the-inevitable-return-of-cobol/

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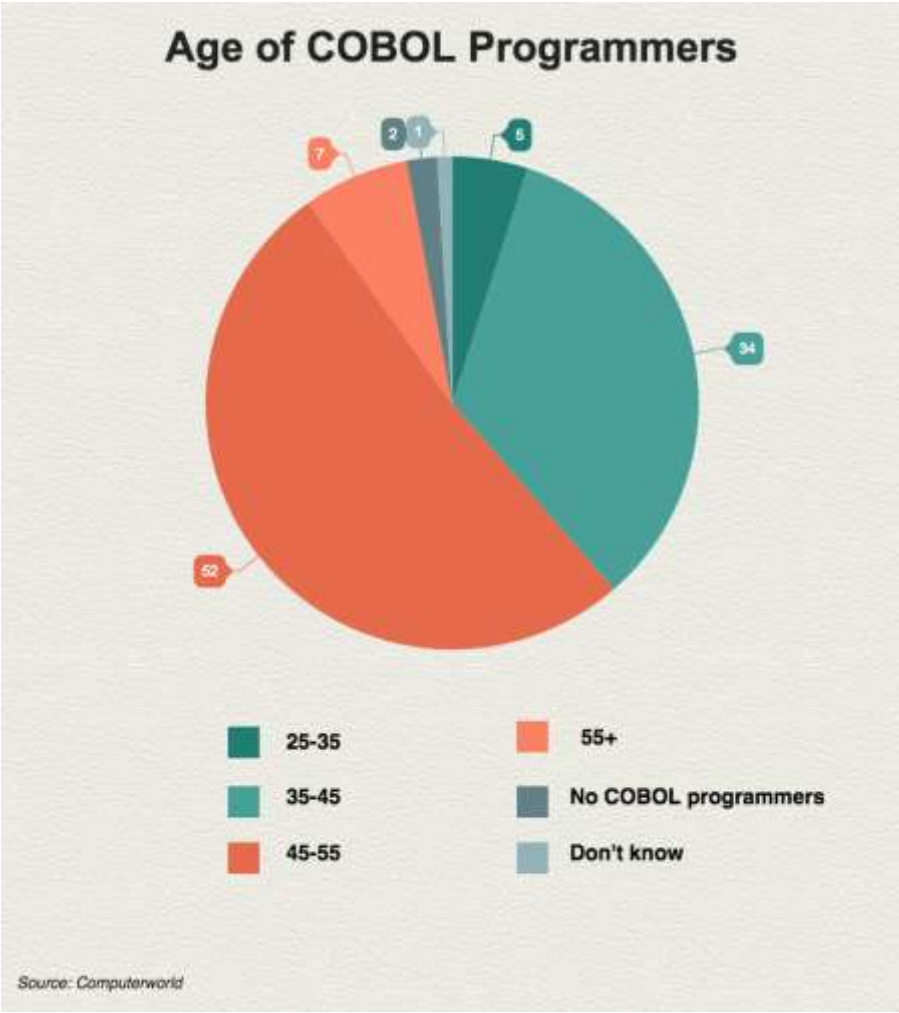

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Industry Organizations

- SHARE, COMMON & Local user groups
  - The web has hurt these organizations…
    - The boss says *“Can’t you watch a webinar or something?”*
  - Attend conferences & learn new skills
  - Volunteer with COMMON
  - Volunteer with your local user group
  - Invite local Colleges to attend user group events
    - College Administrators
    - Instructors
    - Students

share.org, common.org & wmcpa.org

Questions or Comments

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Failure to Modernize…
The Real Cost

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