Skills for the future

Catapult your Pharma career

sas
THE POWER TO KNOW.

Agenda

- Pharma future is bright – new skills are needed
- Both hard and soft skills – Artificial Intelligence is an important new skill
- War on talent – develop your existing staff
- Make skill building a priority
- Use both new and existing ways for skill development
- Keep learning for adapting to the upcoming changes

Bright Future

Healthcare is one of the **highest growth industries** in the entire world....
According to the Bureau of Labor Statistics, more than 14.3 million people are employed in the healthcare industry, and it's projected that **3.2 million new healthcare related jobs** will be created over the next 8 years.

The life sciences industry in 2023

Key trends – linked to use of analytics and digitization

Technology and scientific disruption

- Gene and immune therapy
- Drive for data harmonization
- Digital transformation of healthcare

Life Sciences Industrialization

- Plant of the future
- Quantified Self
- Horizontal integration

Regulatory, reputation and compliance

- NLP and AI in post-marketing
- Detection and investigation
- Increasing regulatory oversight

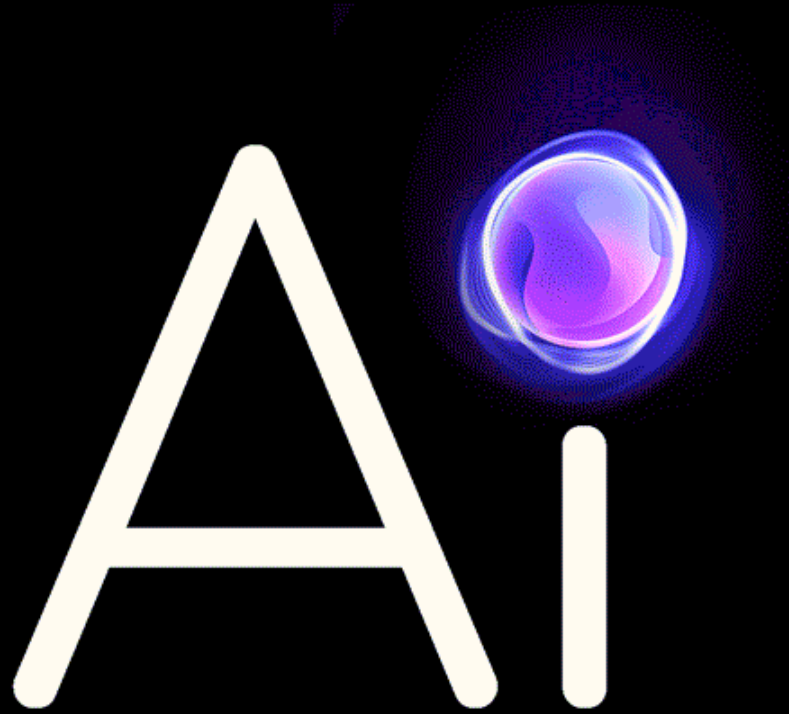
sas

HLS 2019

IDC Futurescape: Worldwide Health Industry Top 10 Predictions 2019

Source: IDC, 2018

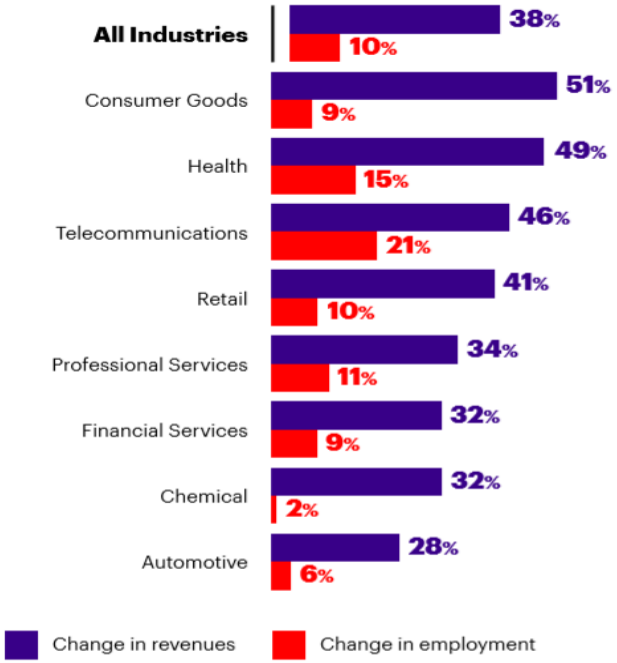
1. *Driven by rising consumer expectations, 60% of healthcare providers will make optimizing the digital patient experience a top 3 strategic imperative by 2020.*
2. *Personal data stewardship practices in healthcare will triple globally by 2023 due to digitally engaged patients bringing their own data and industry-and government-led data guardian initiatives.*
3. *The steady progress in artificial intelligence technology adoption will directly impact 25% of business processes by 2020.*
4. *By 2022, 50% of clinical apps will include ambient interfaces —speech recognition, sensors, and/or gesture —as their primary data capture model, supported by AI, enabling a 40% rise in data quality.*
5. *By 2022, 20-30% of acute care providers will deploy smartwatch-based apps, thus improving clinician productivity by more than 50%.*
6. *Orchestration of healthcare provider engagement will allow 50% of pharma reps to accomplish all field duties on one device —a smartphone —by 2022.*
7. *With growing patient advocacy and favorable regulatory guidance, real world evidence will lead to the approval of five new drugs and 10 new medical devices by 2023.*
8. *Driven by the cost of specialty drugs and the evolution of negotiated bundled procedures, 30% of the Fortune 500 will offer employer-direct healthcare by 2021, bypassing traditional health insurance.*
9. *The need to liberate data for secure multiparty information sharing across healthcare and life-science ecosystems will increase blockchain use eightfold by 2022.*
10. *By 2022, 40% of healthcare providers will leverage machine-learning and AI-algorithm advances to improve their cybersecurity capabilities with automated threat detection to thwart ransomware.*


Ai

How higher AI investment can boost revenues and employment by industry, 2018 to 2022.

Accenture estimates that if companies invest in AI and in human–machine collaboration at the same rate as top-performing businesses, they could boost revenues by 38 percent between 2018 and 2022 (as much as 50 percent in the consumer goods and health sectors) and lift global profits by a total of US$4.8 trillion by 2022. For the average S&P 500 company, this equates to US$7.5 billion of revenues and a US$880 million lift to profitability. They could also increase employment by 10 percent (see Figure 2).

Figure 2



Source: Accenture Future Workforce Study 2017

Employers underestimate the willingness of employees to acquire the relevant skills.

On average, they deem only about a quarter (26 percent) of their workforce as ready for AI adoption. Nearly one in four cite resistance by the workforce as a key obstacle. However, as our research revealed, 68 percent of highly skilled workers and nearly half (48 percent) of their lower skilled peers are positive about AI's impact on their work. Overall, 67 percent of workers consider it important to develop their own skills to work with intelligent machines. Millennials strongly support this view (75 percent) but even 56 percent of baby boomers do as well. Workers are impatient to embrace AI (see Figure 3).

Figure 3

ONLY 3% of executives say they intend to significantly increase investment in training and reskilling programs in the next three years.


Jeep
23
22
21
8
26
19

Meet Your Team

Data Engineer

Data preparation ensures the quality, depth and breadth of data. Data engineers are responsible for defining and implementing the integration of data into the overall AI architecture.

Explore

Data Scientist

Data scientists covers a broad spectrum of analytical techniques, reaching from statistics, forecasting, machine learning and optimization.

Explore

Business Analyst

Business analysts use results from the data science models and often act between the business users and the machine learning team.

Explore

Business User

Business users apply the results from analytics into the daily work using reports and visual analytical tools.

Explore

IT Expert

IT takes care of the data storage, security and governance. As well as, managing architecture, systems and database access.

Explore

Team Leader

The team leader manages the AI team.

Explore

Data Engineer

SAS Programming

Learn how to access, explore, prepare, and analyze data.

Explore Training

Data Management

Recognise how data should be organised for business use.

Explore Training

Data Preparation

Know how to confidently prepare data for business use.

Explore Training

Querying & Reporting

The point & click approach to SAS using menu-driven tasks.

Explore Training

Business User

Artificial Intelligence

Understand the benefits of using artificial intelligence.

Explore Training

Querying & Reporting

The point & click approach to SAS using menu-driven tasks.

Explore Training

Data Visualisation

Present data in a format accessible to all users.

Explore Training

Data Scientist

SAS Programming

Learn how to access, explore, prepare, and analyze data.

Explore Training

Statistics

Perform in depth statistical analysis on data in order to drive business actions..

Explore Training

Machine Learning

Analyse data to automate analytical model building.

Explore Training

Data Visualisation

Present data in a format accessible to all users.

Explore Training

IT Expert

Platform Administration

Understand and manage the SAS server architecture.

Explore Training

Data Management

Recognise how data should be organised for business use.

Explore Training

Business Analyst

SAS Programming

Learn how to access, explore, prepare, and analyze data.

Explore Training

Statistics

Perform in depth statistical analysis on data in order to drive business actions..

Explore Training

Analytics

Carry out advanced analytics to discover patterns and inform decisions.

Explore Training

Data Visualisation

Present data in a format accessible to all users.

Explore Training

Team Leader

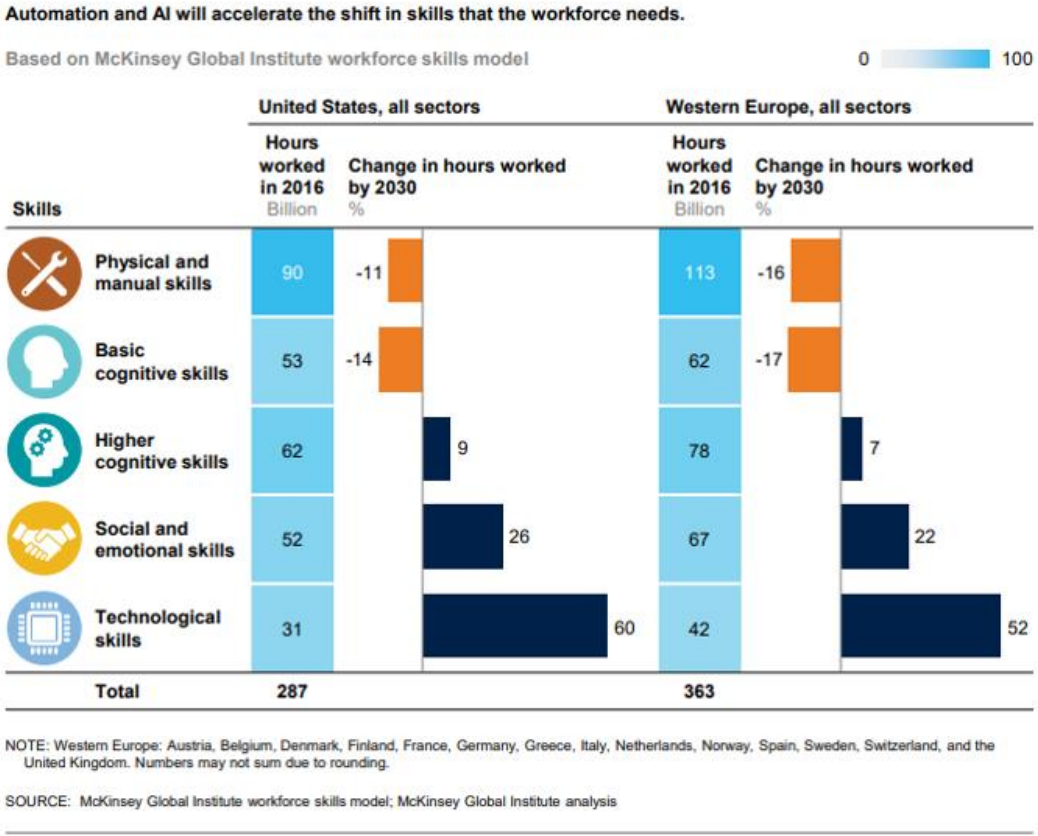
Managing Teams

Pair expertise about the business with data science.

Explore Training

Be ready for the future

From World Economic Forum – 2018 June report McKinsey



2022 Skills Outlook

Growing

1. Analytical thinking and innovation
2. Active learning and learning strategies
3. Creativity, originality and initiative
4. Technology design and programming
5. Critical thinking and analysis
6. Complex problem-solving

"Competition for high-skill workers will increase," the report states

Act now

Re-invent the HR Function

- The rate of skills change accelerates across both old and new roles in all industries.
- Business leaders need to manage skills disruption.
- Proactive and innovative skill-building and talent management is an urgent issue.
- This requires is an HR function that is more strategic.
- Employ new analytical tools to spot talent trends and skills gaps, and provides insights that can help organizations.
- Act in order to capitalize on transformational trends.

Longer term focus

Re-think Education

- Rethink Education. Schools cannot keep up with fast changing demand of skills.
- Incentivize lifelong learning. Young talent will not close the skills gap. Invest re-training.
- Cross industry and public-private collaboration.
  Partnerships between multiple businesses, educational institutions and accreditation providers can result in an overall increase in the quality of the talent pool, at lower costs and with greater social benefits.

When hiring Millenials

8 things you should know

- They are quick to try new technology. 2,5 x quicker than early than generations
- Millennials value knowledge over just getting a degree.
- Half of this generation doesn’t feel they need to be in a classroom to learn.
- 75% of the global workforce will be made up of millennials by the year 2025.
- Over half of them refuse to work for companies that ban social media.
- They are more likely to embrace remote working.
- The traditional 9-to-5 office job doesn't support the lives millennials want to live.
- Hiring costs to replace a millennial employee averages $24,000.

Developing and retaining Millenials

7 things you should do

- Make Learning **Flexible** and **On-Demand**. Also works for older workers.
- **Bite-sized** = Right-sized. With small goals and checkpoints to burst motivation.
- Create Courses that encourage **Discovery**, that is motivating. Giver personal **Purpose**.
- Provide **Continuous** Training. Learn new skills. Grow in the position, small steps.
- Get Your **Game On**. Outside rewards as prizes work for them. Share on Social media.
- Use **Video** to make them Care. Like Youtube, it will get their attention.
- Engage, Predict and **Give Choice.** Like on Netflix, get advise on your next learning step

What is happening in the learning space?

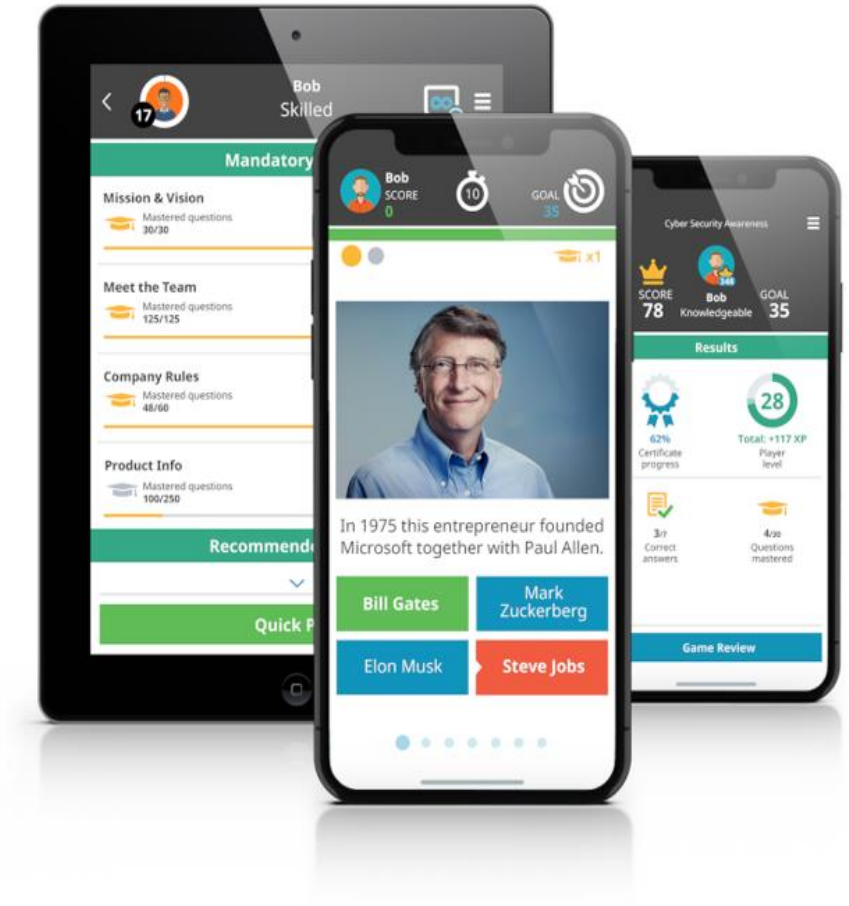
Examples

- Micro learning – short – repetitive – fun
- AR and VR – fun - engaging
- Collaborative – learn with colleagues or community
- On the job – no travel – short – when needed
- Learner centered – tailored – applicable – when and where you need it
- Mixed model – Class – Community – Google – eLearning – MOOC
- AI driven – continuously personalized
- Holistic approach to organizational learning

App on smartphone

Start up - Knowingo

- Daily 5 minute training / quiz / fun
- Anywhere
- Get rewards
- Compete with others, leaderboard
- Get personalized content with AI
- Customized for your company
- Manager reporting, org and individual
- Winner Accenture Innovation Award 2017 in Future skills



AR supported learning

3D models

- Help explain abstract and difficult topics
- You can walk around or view inside
- More fun and engaging
- E.g. human anatomy

#1 Augmented Reality classroom

VR supported learning

Experience it

- Field trips
- Language immersion by playing with attendees from other countries
- Skills training more effective than videos
- Distance learning
- Game based learning

AI Driven

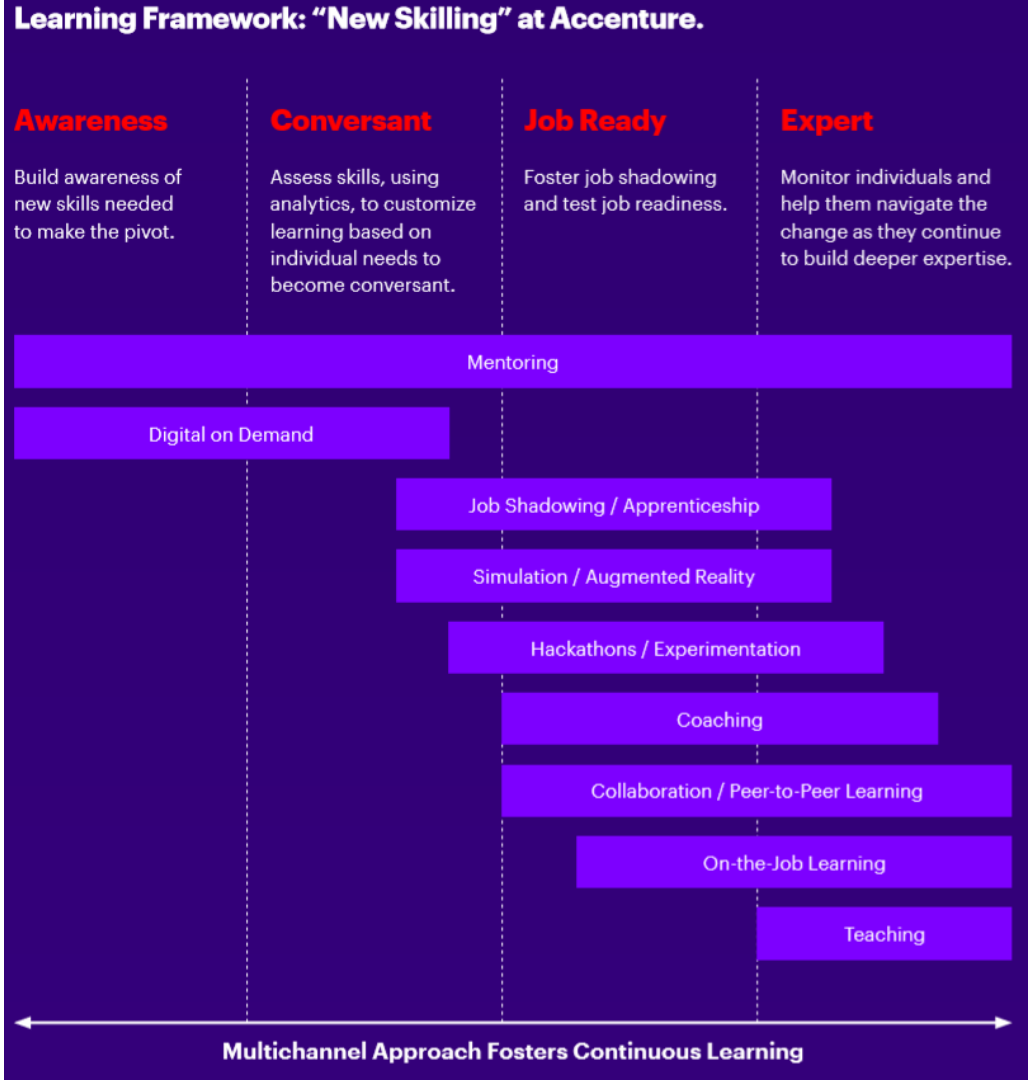
Squirrel – China – School children

- Children in K-12, > 1700 schools, > 3000 teachers in China
- Adaptive individual learning
- Personalized learning plan
- One-on-one tutoring
- Chinese, Math, English, Physics, and Chemistry classes
- Research connections around the world
- Won the Human-AI competition, AUG18

Continues learning

Accenture

- Framework.
- Blended approach.
- Team involvement, lead by example.



Novartis – Simon Brown – Global Learning

Why are new skills so critically needed in a company like Novartis?

- I believe that learning is even more important today than in the past.
- With the acceleration of globalization and digitalization.
- We need to develop new skills,
  to be successful today and in the future.
- Skills such as artificial intelligence,
  data science or robotic process automation.
- Building capabilities by investing in
  our own people is the best way forward.
- Global Digital Capability program.
  Leaders. Sponsor Digital projects. Create culture for digital.
  Practitioners. Build skills. Data Science. Design thinking. IoT. Blockchain.
  Associates. Demystify and build confidence. Why digital. What is it.
  Platform for knowledge exchange, skills framework, community of practice, learning assets like videos and quizzes.


FIFA WO CUP
018
© REUTERS

Future skills are key

There is a digital talent gap

Talent development strategy

Drive from top management

Re-skill existing staff

Apply new learning formats

Thank you

pascal.lubbe@sas.com

sas.com