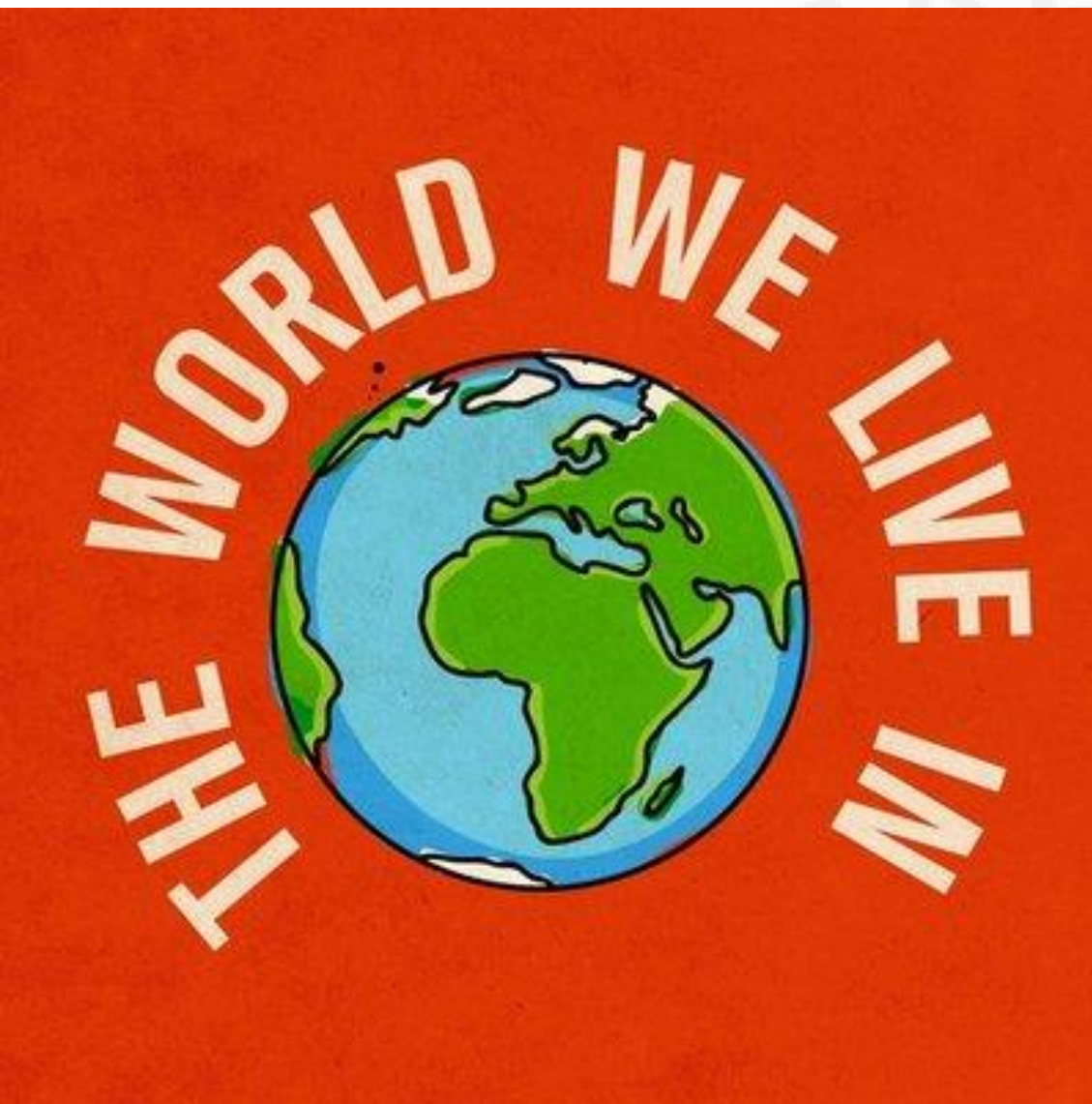


Keperluan Kemahiran Insaniah dalam Pendidikan



Mohd Fauzi bin Kamarudin, PhD.
Pensyarah Kanan/ Felo,
Malaysia Centre for e-Learning,
Universiti Teknikal Malaysia Melaka.



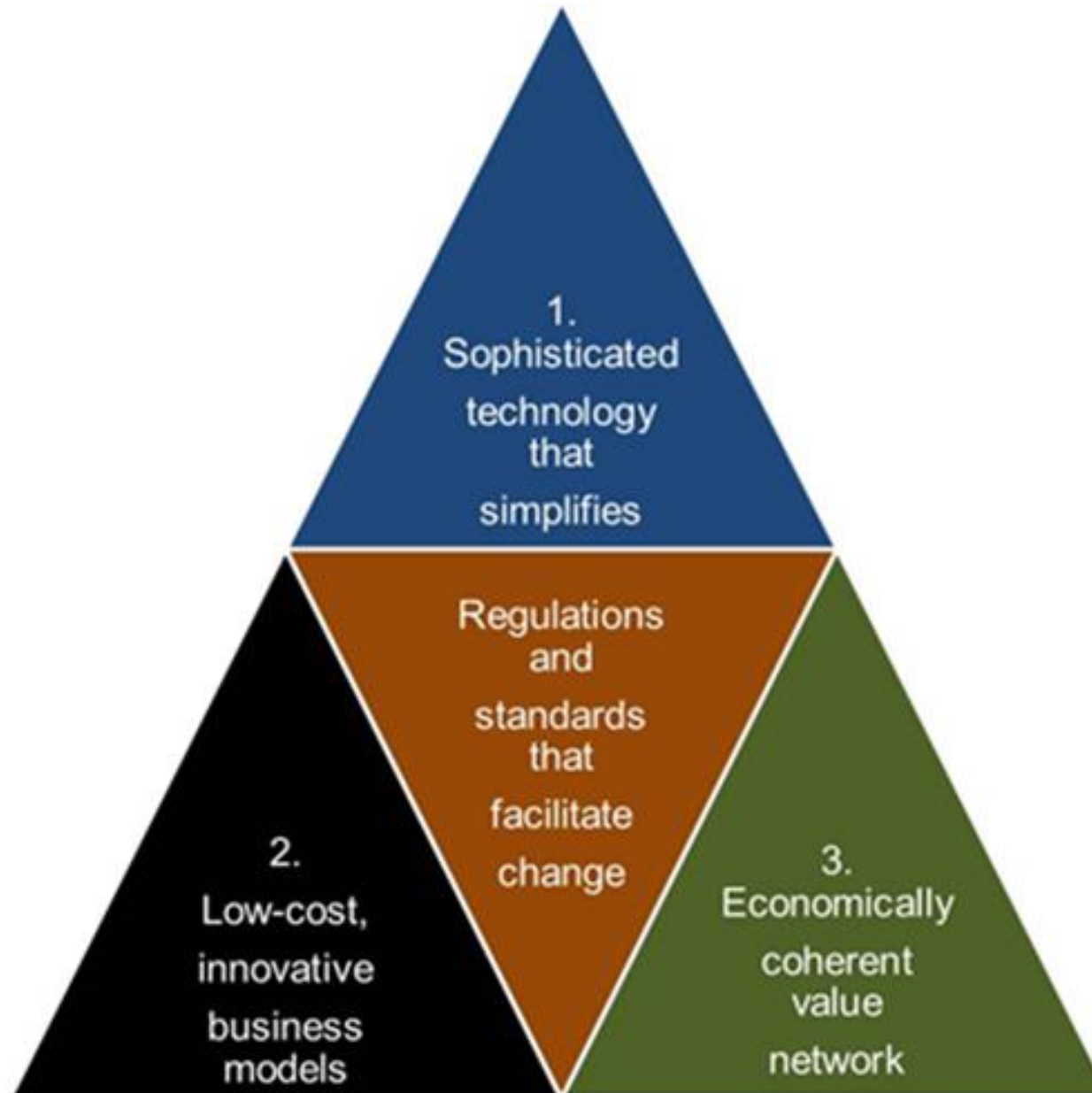
DIGITAL TECHNOLOGY



2018 *This is What happens In An* INTERNET MINUTE



ELEMENTS OF DISRUPTIVE INNOVATION





UBER

World's largest
taxi company

Owens NO

~~Taxis~~



World's largest
Accommodation provider

Owens NO

~~Real
estate~~



World's largest
Phone companies

Owens NO

~~Telco
infra~~



Alibaba Group

World's most
Valuable retailer

Owens NO

~~Inventory~~

facebook.

Most popular
Media owner

Owens NO

~~Content~~

 SocietyOne

World's fastest
Growing bank

Owens NO

~~Actual
money~~

NETFLIX

World's largest
movie house

Owens NO

~~Cinemas~~

 Apple  Google

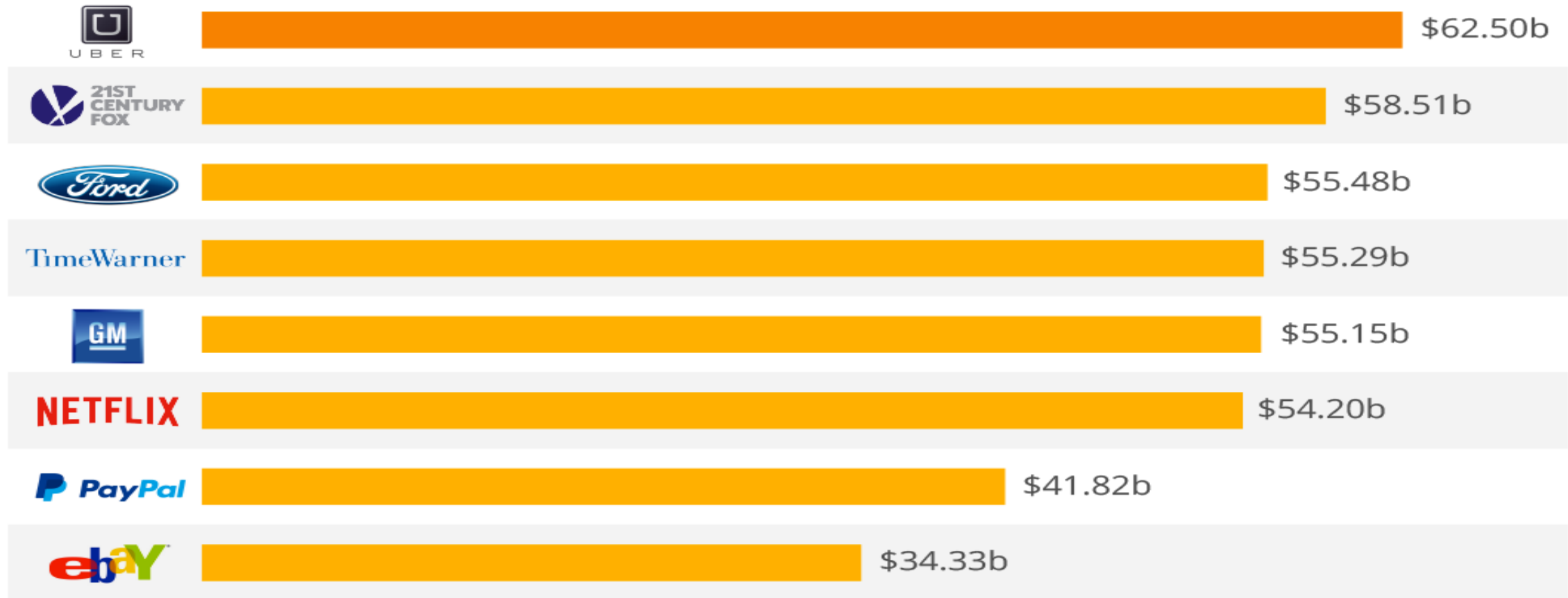
World's largest
Software vendors

Owens NO

~~Apps~~

Uber's \$62.5 Billion Valuation in Perspective

Uber's private valuation compared to the market cap of selected public companies

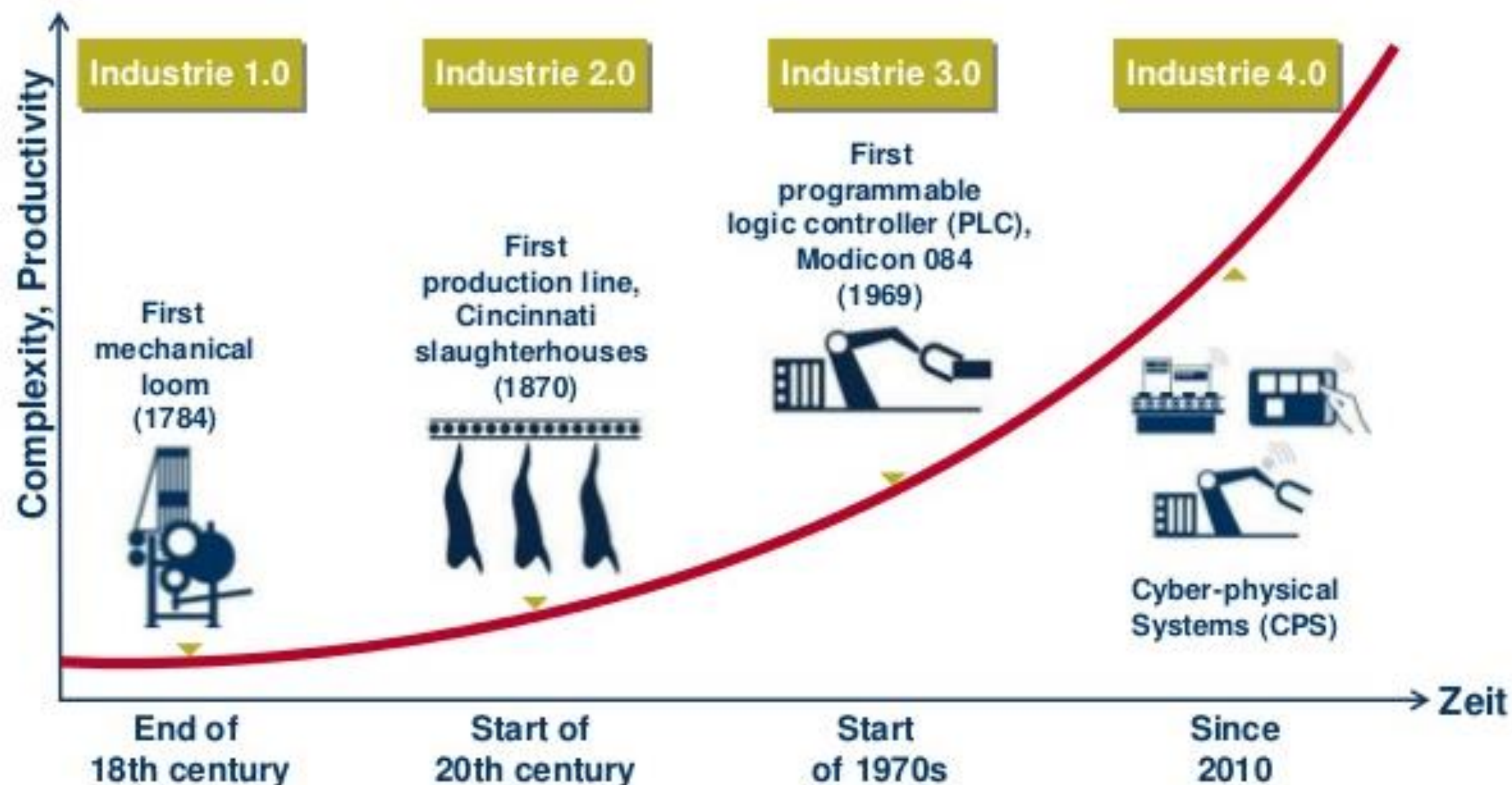


Professor Wolfgang Wahlster,
Director and CEO of the German Research Center
for Artificial Intelligence,
Industry 4.0 Hannover Messe, 2011



https://www.youtube.com/watch?v=xK3hBLKN_D0

Industrie 4.0: The next Industrial Revolution



Industry 4.0 - Technological pillars



What Makes This the 4th Revolution

- Digitization
 - The electronic creation, communication, storage and use of data
- Big Data
 - “When you just look at some basic statistics, like the fact that half of the world’s data was created just in the last ten months, meaning that half of the world’s data, in the history of mankind, was created in less than the last year.” - Bill Wiseman, ‘How Advanced Analytics Can Drive Productivity’ Podcast August 2016, McKinsey & Company
- IoT
 - An internet of all devices with an on and off switch
- Advanced Analytics (Soon to be AI)
 - Moving from data analytics to Artificial Intelligence
- Interoperability: More than just an industrial internet
 - Organizations
 - Architectures
 - Standards

GETTY IMAGES



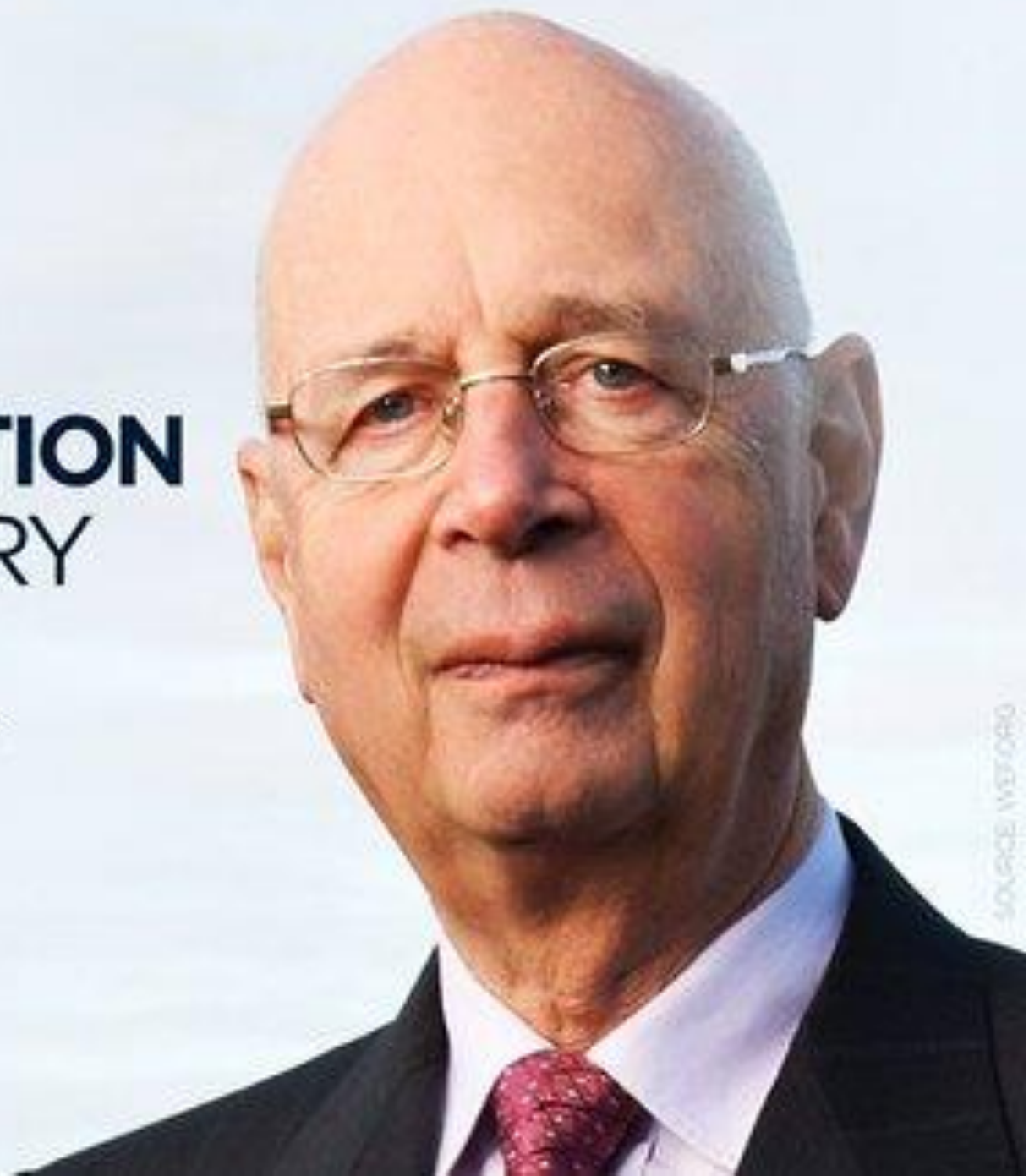
Robots Could Take Jobs From
800 Million People By 2030



“
**THE FOURTH
INDUSTRIAL REVOLUTION**
WILL AFFECT THE VERY
ESSENCE OF OUR
HUMAN EXPERIENCE.”

KLAUS SCHWAB

FOUNDER & EXECUTIVE CHAIRMAN,
WORLD ECONOMIC FORUM



Technology is neither good nor bad – it's what you do with it that makes the difference.

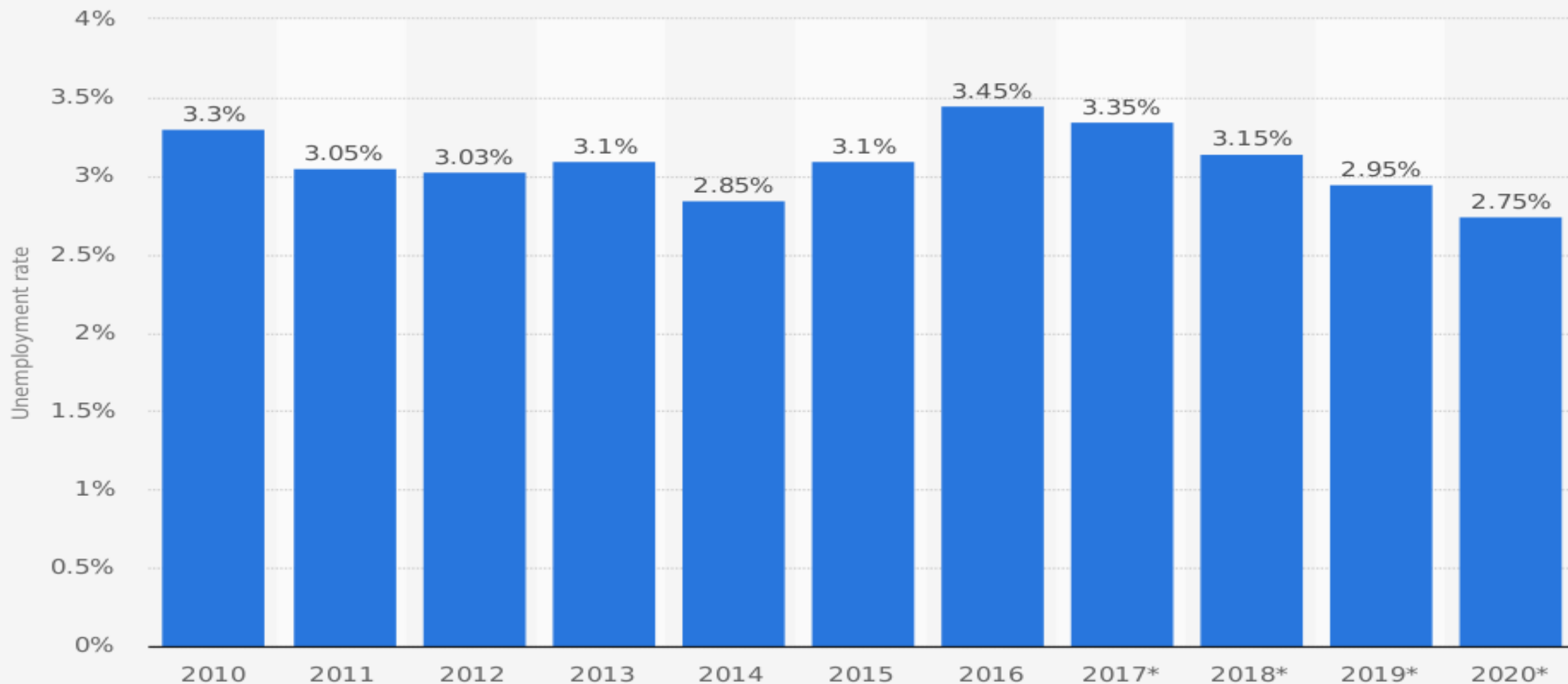
”

Marc Benioff

Chairman and Chief Executive Officer, Salesforce



Malaysia : Unemployment rate from 2010 to 2020



Source
IMF
© Statista 2017

Additional Information:
Malaysia; IMF



Principal Statistics of Labour Force, Malaysia, June 2011

Siri Masa/ Time Series,

Perangkaan Utama Tenaga Buruh, Malaysia, Januari 2009-Jun 2011
Principal Statistics of Labour Force, Malaysia, January 2009-June 2011



Tahun/ Year	Bulan/ Month	Tenaga buruh/ Labour force (^{'000})	Bekerja/ Employed (^{'000})	Penganggur/ Unemployed (^{'000})	Luar tenaga buruh/ Outside labour force (^{'000})	Kadar penyertaan tenaga buruh Labour force participation rate (%)	Kadar pengangguran Unemployment rate (%)
2011	Jan	12,576.4	12,154.6	421.8	6,858.3	64.7	3.4
	Feb	12,400.0	12,044.3	355.7	7,080.9	63.7	2.9
	Mac	12,628.7	12,248.4	380.3	6,900.4	64.7	3.0
	April	12,707.6	12,324.4	383.2	6,911.8	64.8	3.0
	Mei	12,496.4	12,116.1	380.3	7,070.8	63.9	3.0
	Jun	12,511.3	12,111.2	400.1	7,077.6	63.9	3.2

* Disemak semula/Revised

Siri/ Series 25
Bil./ Vol 9/2011
Ogos/ August 2011

400 RIBU Menganggur.

Pengangguran meningkat semula dari 2.9% (Feb) ke 3.2% (Jun) 2011!!!

BAGI MENGATASI MASALAH PENGANGGURAN INI



Masalah sikap antara faktor penyumbang kepada pengangguran di kalangan graduan

Berita Harian, 16 Februari 2009

SIKAP memilih kerja bukan saja membabitkan graduan menganggur mal di kalangan lepasan institusi pengajian tinggi (IPT) yang sudah bekerj Majoriti graduan mensasarkan pekerjaan dalam sektor kerajaan dan syarik swasta terutama dengan harapan meraih jaminan kerjaya dan gaji lumayan.

Pengarah Pusat Perhubungan Alumni Universiti Kebangsaan Malaysia, Prof Damsli Omar, berkata hal itu ketara di universiti itu apabila hasil universiti menunjukkan majoriti graduannya swasta tempatan.

Nota Niaga - Berita Harian, 10 Oct 2005

Pembangunan Modal Insan Usaha Lahirkan Graduan Berdaya Saing

Usaha kerajaan membangun modal insan harus mendapat sokongan semua pihak, terutama mereka yang diberi tanggungjawab serta peruntukan melalui bajet kerajaan. Ini termasuk semua sekolah dan institusi pengajian, institusi latihan dan institusi

pengajian, saya berusaha mencari pekerjaan saya sering ditolak dan ada kalanya

Graduan Islam wajar ceburi bidang keusahawanan

UTUSAN MALAYSIA - 14 JULAI 2006
Oleh SAPORA SIPON

ANTARA cabaran besar negara dewasa ini ialah bilangan graduan menganggur yang agak tinggi jumlah menganggarkan kira-kira 20,217 graduan institusi pengajian tinggi awam dan swasta masih menghadapi masalah mendapatkan pekerjaan.

32,000 graduan masih menganggur

Utusan Malaysia-30/06/2010

KUALA LUMPUR 29 Jun - Seramai 32,000 graduan gagal mendapatkan pekerjaan selepas enam bulan menamatkan pengajian dari institusi pengajian tinggi (IPT) di

Ramai gagal dapat kerja sesuai

Sebahagian lepasan IPT tiada kemahiran komunikasi, kurang penampilan diri

Oleh Sazarina Shahrin
sazarina@bharu.com.my

PUTRAJAYA: Masih ramai lepasan universiti gagal mendapatkan pekerjaan yang bersesuaian berikutan tidak mempunyai beberapa kemahiran termasuk komunikasi, penampilan diri serta penulisan resume.

Pengarah JobsMalaysia, Jabatan Tenaga Kerja Semenanjung Malaysia, Kementerian Sumber Manusia, Rahmat Ismail, berkata berdasarkan maklumat daripada pelbagai pihak termasuk lepasan universiti serta majikan menunjukkan golongan itu mempunyai beberapa kelemahan seperti komunikasi dan penampilan diri yang me-

nyebabkan mereka sukar mendapat pekerjaan sesuai.

"Masih ramai lepasan universiti memerlukan bantuan terutama dalam aspek penampilan diri, komunikasi dan penulisan resume untuk mendapatkan pekerjaan.

"Ini terbukti dengan tinjauan kita menunjukkan kira-kira 60 peratus daripada 1,984 responden tidak bersetuju bahawa lepasan universiti sudah boleh dianggap mempunyai kemahiran mencari pekerjaan dan sepatutnya tiada masalah untuk mendapat pekerjaan yang sesuai dengan kelayakan," katanya ketika ditemui pada Karnival Jom Cari, Kerja Azam Kerja, 1Malaysia di sini, semalam.

Berdasarkan semua maklum balas itu, beliau berkata, pihaknya mengubah pendekatan dalam karnival mencari kerja yang dianjurkan JobsMalaysia dengan menyediakan klinik graduan bagi membolehkan graduan mendapatkan nasihat dan panduan sebelum ke sesi temu duga.

"Selepas mendapat maklum balas semua pihak, kita

menukar pendekatan, kalau dulu mereka boleh datang ke karnival anjuran kita dan terus ke temu duga, kali ini, kita membuat tapisan terlebih dulu.

"Kita minta mereka memilih tiga jawatan yang ingin dimohon mengikut kelulusan masing-masing dan kita melihat mereka punya dokumen selain penampilan diri.

"Contohnya, jika mereka datang dengan pakaian yang tidak bersesuaian, kita akan minta mereka hadir klinik graduan yang kita buka supaya mereka tahu apa yang sebenarnya majikan mahu dan apa yang perlu mereka lakukan.

"Ijazah tidak menjanjikan kita mendapatkan pekerjaan

kerana pada masa ini ramai yang mempunyai ijazah tetapi yang membezakan lepasan universiti ini adalah kemahiran tambahan yang lain," katanya.

FAKTA NOMBOR

7,782

pekerjaan

Ditawarkan pada Karnival Jom Cari, Kerja Azam Kerja, 1Malaysia

- Ketua Ekonomi AmBank Research, Dr Anthony Dass, berkata pengangguran golongan muda Malaysia kekal pada kadar iaitu 10.8 peratus, lebih tinggi berbanding Singapura (4.6 peratus), Thailand (5.9 peratus), Vietnam (7.9 peratus) dan India (10.5 peratus).
- Walaupun ia lebih rendah berbanding Indonesia dan China masing-masing pada 15.6 dan 10.8 peratus, tetap kadar semasa negara adalah tinggi, katanya.
- "Meskipun kadar pengangguran (keseluruhan) Malaysia kekal baik berbanding negara serantau, namun kebimbangan utama adalah kadar pengangguran golongan belia.

“

The lack of ability of the individual to deliver his views effectively at the interview leads to rejection of even the most brilliant candidate. This is because training institutes do not make an effort to ensure that the candidates develop their skills in a wholesome manner which can contribute towards client-handling and team communication skills.

***- Siddarth Bharwani, Vice President,
Jetking Infotrain Limited***

”

WHY? - Reasons given by employers for not hiring young graduates



- Low grades and low academic accomplishments
- Poor attitudes, lack of self-confidence
- Lack of goals, poorly motivated
- Lack of enthusiasm, lack of drive, little evidence of leadership potential
- Lack of preparation for the interview
- Excessive interest in security and benefits, unrealistic salary demands and expectations
- Inadequate preparation for type of work, inappropriate background
- Lack of extracurricular activities

(AC Nielson Research, 2000)



Employers Rating of Graduate Skills/Qualities

1. Communication (verbal & written)	4.69
2. Honesty/Integrity	4.59
3. Teamwork skills	4.54
4. Interpersonal skills	4.50
5. Strong work ethics	4.46
6. Motivation & initiative	4.42
7. Flexibility/adaptability	4.41
8. Analytical skills	4.36
9. Computer skills	4.21
10. Organisational skills	4.05
11. Detail oriented	4.00
12. Leadership skills	3.97
13. Self confidence	3.95
14. Friendly/outgoing personality	3.85
15. Well mannered/polite	3.82
16. Tactfulness	3.75
17. GPA (3.0 or better)	3.68
18. Creativity	3.59
19. Sense of humour	3.25
20. Entrepreneurial skills/risk taker	3.23

Source: (Survey conducted somewhere in US)



“So what?”

***When the winds of
change blow, some
people build walls
and others build
windmills.***

~Chinese proverb

JACK MA ON RESPONDING TO INDUSTRIAL REVOLUTION 4.0:



- Education is not enough, now you have to be **creative and innovative**.
- “Education is a big challenge now. If we don’t change the way we teach, we will be in big trouble in 30 years from now.
- We need to be teaching our children **values, believing, independent thinking, teamwork, care for others**
- Let the kids learn **EQ (emotional), IQ (intelligence) and LQ (love)**.
Machines don’t have this

What are Soft Skills?

What are Hard Skills?

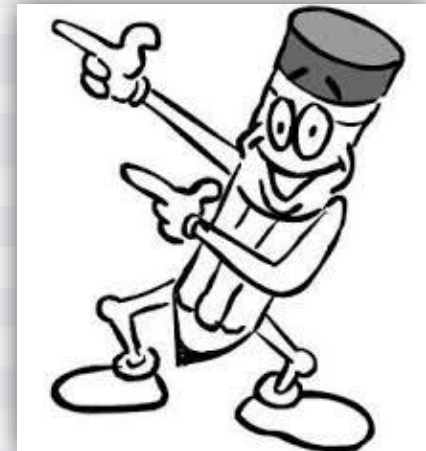
Soft Skills	Hard Skills
<p>1) Definition: Soft skills are personal attributes that enhance an individual's interactions, job performance and career prospects.</p>	<p>Definition: Hard Skills are about a person's skill set and <u>ability</u> to perform a certain type of task or activity.</p>
<p>2) Example: Personal Qualities, Interpersonal Skills, etc.</p>	<p>Example: Job Skills like typing, reading, writing, etc.</p>

Google
Hires a Indian
Boy Of Class 8
at 2.5 Cr Rupees
per Year !!
🐦🐦🐦



What is Soft Skills?

- *Generic skills are the general, over-reaching skills, qualities, knowledge, abilities and traits that a person should possess to succeed in one's studies and career.*



DEFINITION OF SOFT SKILLS OR KEMAHIRAN INSANIAH (KI)?

According to the Ministry of Education Malaysia

“KI or soft skills are skills other than cognitive and technical skills. KI includes aspects of generic skills. Although there is no specific list of KIs, but mostly related to certain skills such as leadership, teamwork, communication and continuous learning. KI is one of the most recognizable elements critical in today's global workplace, not to mention the rapidly changing technology. Therefore, graduates must be supplied with KI in an effort to meet and meet market expectations. "(KI KPT module, page 11)

SOFT SKILLS IN EDUCATION

- ❑ Higher Education Institutions (IPTs) play **a role in producing scholars and scientists** conducting research for the purpose of developing knowledge for community development.
- ❑ The challenge for IPT is now directly to produce graduates who are **the industry's top choice, employers and job market.**
- ❑ This phenomenon is in line with the objectives of the Ministry **to produce competent graduates** to meet the needs of national and international employment with a target of 75% of graduates obtaining employment in the relevant field within six months after graduation.



Challenges for Ministry of Education

1. Quality Graduates
2. Imbalances of Physical, Emotional, Spiritual and Intellectual
3. Exam oriented
4. Learning skills are not optimal
5. Globalization Challenge
 - Diversity of knowledge
 - Market and employer requirements.



Soft Skills as prescribed by the Ministry of Education

1. Kemahiran Berkomunikasi **Communication Skills**
2. Pemikiran Kritis dan Kemahiran Menyelesaikan Masalah **Critical and Creative Thinking**
3. Kemahiran Berpasukan **Teamwork**
4. Pembelajaran Berterusan dan Pengurusan Maklumat **Lifelong Learning Skills**
5. Kemahiran Keusahawanan **Entrepreneurship**
6. Moral dan Etika Profesional **Moral and Ethical Values**
7. Kemahiran Kepemimpinan **Leadership**



WHY SOFT SKILLS ?

- ✓ Team member in a group work.
- ✓ Ability to provide guidance. Leadership ability
- ✓ Ability to negotiate and solve problems.
- ✓ Customized customer management skills
- ✓ Ability to work in diverse cultural environments.
- ✓ Adaptation in social systems.



SOFT SKILLS



Why Soft Skills?



"Clint Mahlman, VP of HR and Distribution for London Drugs said: 'most of all the employee has to have an ability to communicate and to have outstanding listening skills so he or she knows what the customer wants. In other words, soft skills.'" -- Yvonne Zacharias, *The Vancouver Sun*, March 11, 2004

Generic Skills Across the Globe

- U.K. ➤ Core skills, key skills, common skills, transferable skills
- N.Z. ➤ Essential skills
- Australia ➤ Key competencies, employability skills, generic skills
- Canada ➤ Employability skills
- U.S. ➤ Basic skills, workplace know-how
- S'pore ➤ Critical enabling skills
- France ➤ Transferable skills
- Switz. ➤ Trans-disciplinary goals

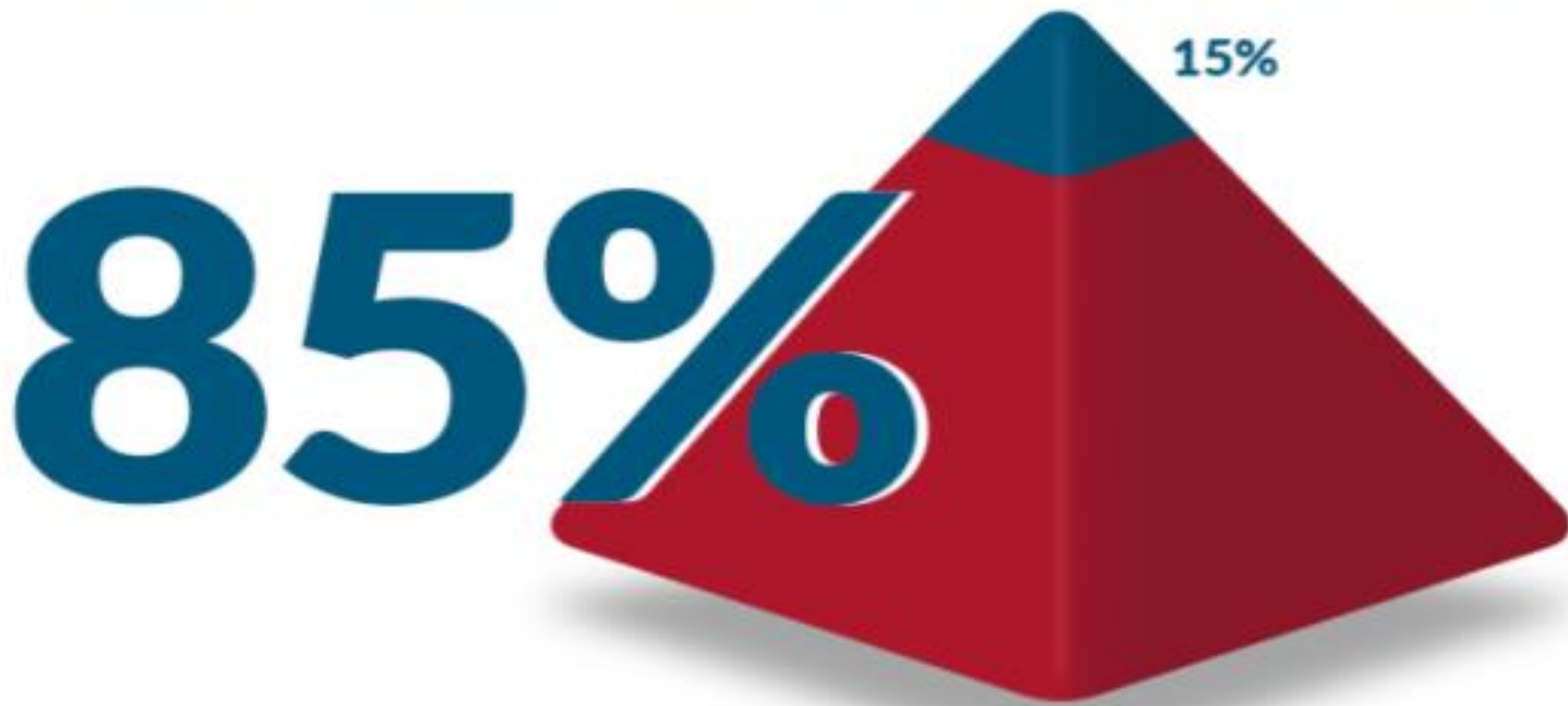


Research conducted by Harvard University,

the Carnegie Foundation and Stanford Research Center, has all concluded that

85% of job success comes from having well-developed soft skills and people skills,

and only 15% of job success comes from technical skills and knowledge (hard skills).





Must Have Soft Skills for Engineers Career Success

- While speaking, writing, and listening are everyday actions, many professionals underestimate the importance of communication skills. Engineers tend to prioritize technical skills over communication skills, not realizing that they cannot be fully effective in their jobs if they are inadequate speakers, writers, and **listeners**. Yet it is particularly in the engineering fields that effective communication skills are crucial to success.
- In a survey conducted by the American Society of Mechanical Engineers of both society members and nonmembers in engineering-related positions, respondents said they believe communication skills -- such as business writing, technical writing, public speaking, and presentation preparation -- are "crucial" for success as engineers work in and among more varied groups.
- The interaction between stakeholders, whether it is internal in an organization or external with partners or clients, is fraught with opportunities for misunderstanding. That is why **effective communication also involves listening**, which is an essential soft skill. Without actively listening to customers, clients, or project partners, problem-solving becomes much more difficult and time-consuming.



COMPETENCES

Critical thinking
Creativity
Communication
Collaboration

MINDSET & TALENT

Curiosity
Initiative
Persistence
Empathy
Adaptability

DOMAIN KNOWLEDGE

Area of specialisation
Expertise

CORE LITERACIES

- Reading and writing
- Numeracy
- Scientific literacy
- ICT fluency
- Language skills (mothertongue +1)
- Cultural and civic awareness

“Technical skills
may get you the job,
but **soft skills** can make you
or break you as a **manager**.”

“Soft Skills get little
respect, but will
make or break your
career.” - Peggy Klaus

The Entrepreneurial Engineer Of The Twenty-first Century

Knows Everything —can find information about anything quickly and knows how to evaluate and use the information. The entrepreneurial engineer has the ability to transform information into knowledge.

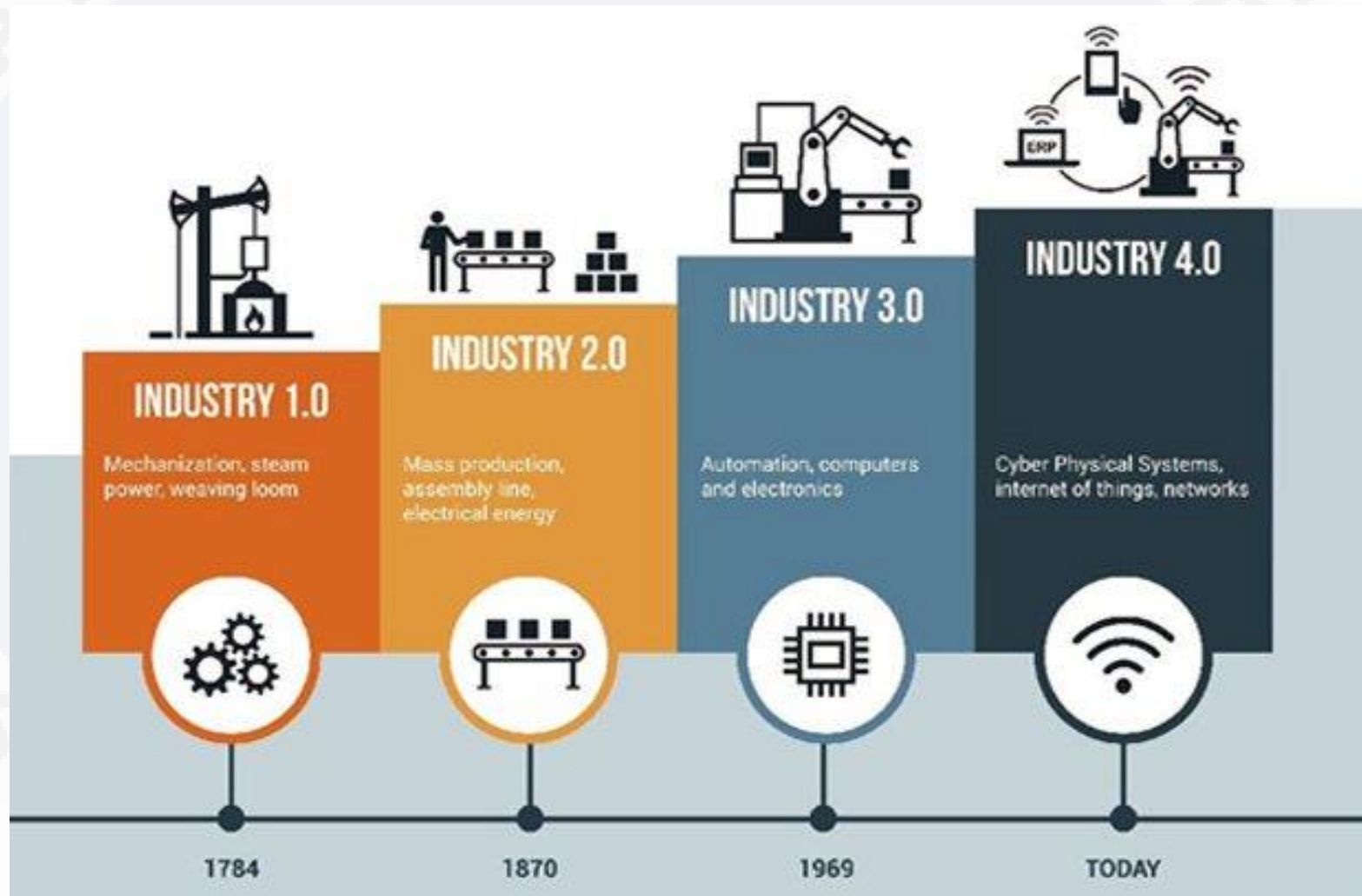
Can Do Anything —understands the engineering basics to the degree that he or she can quickly assess what needs to be done, can acquire the tools needed, and can use these tools proficiently.

Works With Anybody Anywhere —has the communication skills, team skills, and understanding of global and current issues necessary to work effectively with other people.

Imagines And Can Make The Imagination A Reality —has the entrepreneurial spirit, the imagination, and the managerial skills to identify needs, come up with new solutions, and see them through.

- Our emotionality and social IQ developed over millennia of living in groups will continue be one of the vital assets that give human workers a comparative advantage over machines. Institute for the Future for the Phoenix Research Institute, Future Work Skills 2020

IR 4.0: INDUSTRI 4.0



INDUSTRI 4.0

Industry 4.0 is an industry that combines automation technology with cyber technology. This is the trend of automation and data exchange in manufacturing technology. These include cyber-physical systems, Internet Article (IoT), cloud computing and cognitive computing.



The Connected Factory in Action



INNOVATION

TAP COMMERCIAL INNOVATION

Mobilize employees and supervisors to move across the factory floor and access data wherever they are. The iPad and other like devices are making their way into industrial settings — along with an expectation that much of the commercial innovation it brings will also apply to industrial activities.

CONNECT ENGINEERS WITH MACHINES (M2M)

Apply predictive maintenance. Gain early warnings when production, machinery or network performance is about to degrade.



EFFICIENCY

LINK INFORMATION & OPERATIONAL TECHNOLOGY

Bridge the gap from data center to control room to collaborate and share best practices and common goals between manufacturing and IT.

OPTIMIZE ASSETS

Identify where your people, equipment, works in process and finished goods are in real-time. Adjust the schedule and inventory on the fly.



AGILITY

CONNECT & COLLABORATE EXTERNALLY

Extend visibility beyond your four walls. Link the extended supply chain and distribution to create dynamic workflows. Help and expertise are available in an instant.

EXPANDABLE INFRASTRUCTURE

Design and build an Industrial Ethernet infrastructure to minimize cost and effort to expand or improve processes. One infrastructure for safety, control, SCADA, Physical Security, and LAN.



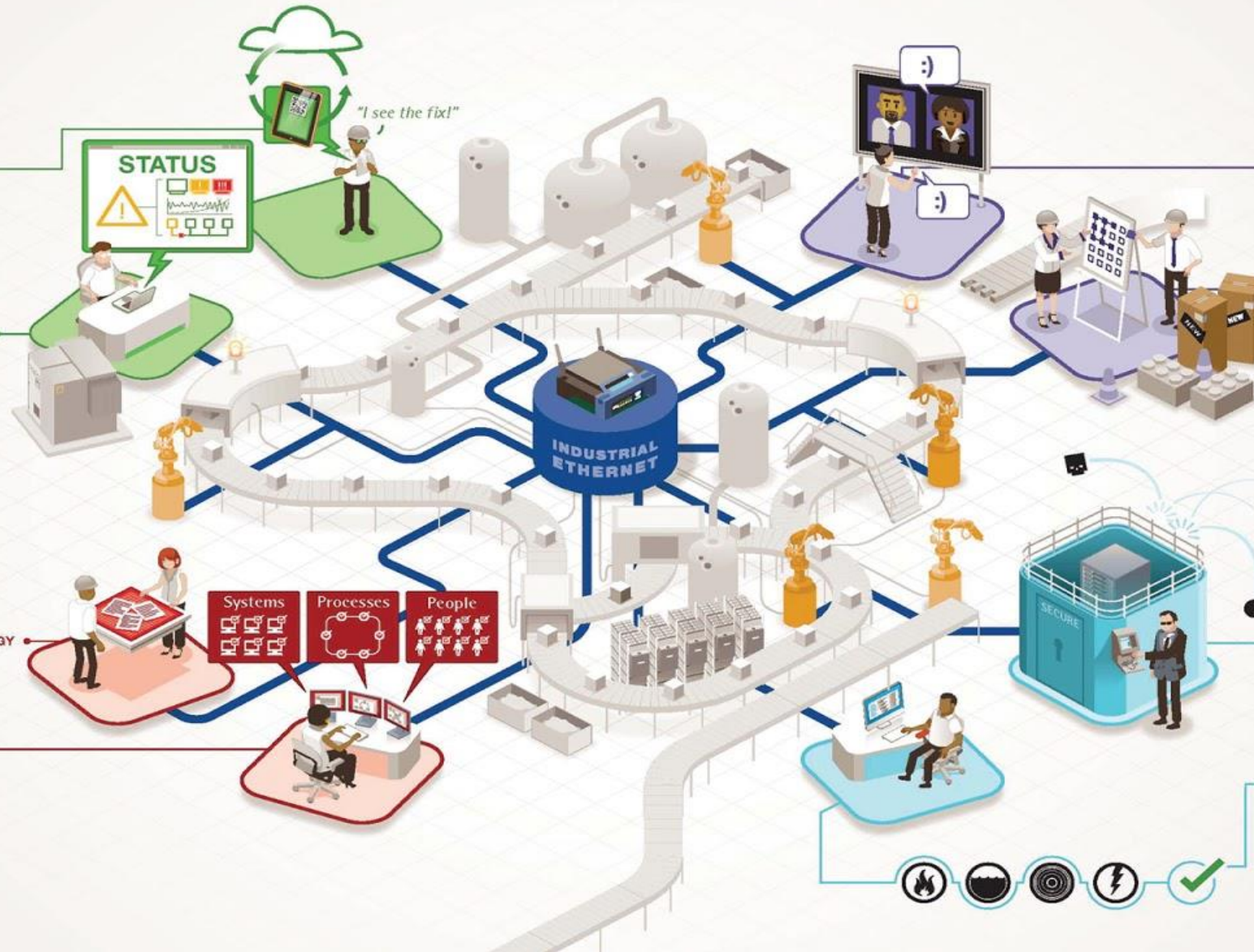
RISK

SECURE PHYSICAL & CYBER ASSETS

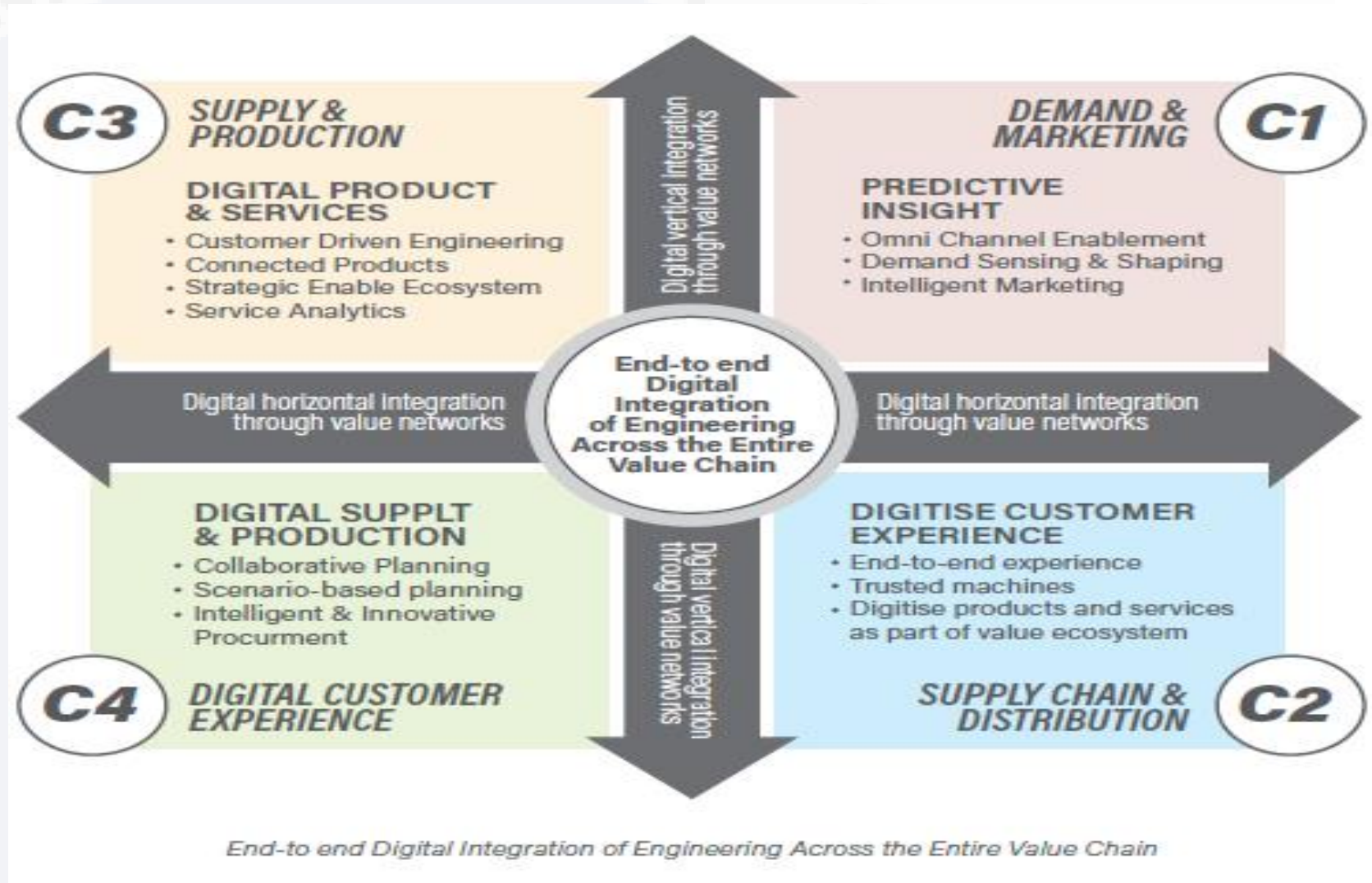
Traditional security devices, like keypad entry systems, call boxes and security cameras, need power from Industrial Ethernet cables, with secure networks, to protect your processes, people, and plans from cyber sabotage.

MAXIMIZE UPTIME

Design ruggedized industrial networking infrastructure that will endure in harsh environments with redundant communications, power and configuration backup — especially for business processes under extreme conditions.



The characteristics of Industry 4.0 can be understood from the perspectives of digital horizontal and vertical integration within the Industry 4.0 ecosystem; which forms four distinctive end-to-end digitalisations in the manufacturing and production sectors.



21st CENTURY SKILLS 2020 (TOP 10 SKILLS)

Top 10 skills

in 2020

1. Complex Problem Solving
2. Critical Thinking
3. Creativity
4. People Management
5. Coordinating with Others
6. Emotional Intelligence
7. Judgment and Decision Making
8. Service Orientation
9. Negotiation
10. Cognitive Flexibility



in 2015

1. Complex Problem Solving
2. Coordinating with Others
3. People Management
4. Critical Thinking
5. Negotiation
6. Quality Control
7. Service Orientation
8. Judgment and Decision Making
9. Active Listening
10. Creativity



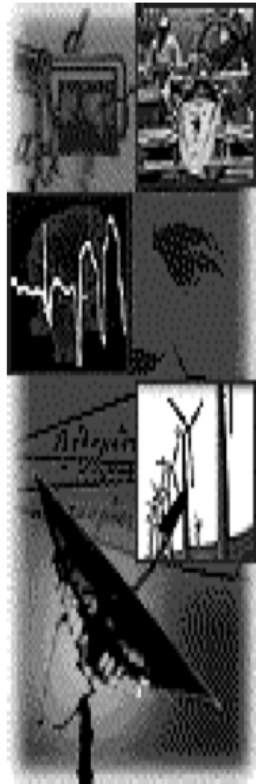
Future Skills	Related Terms
Complex Problem Solving	solve problems, discuss, deal, address, identify
Critical Thinking	analyse, discuss, examine, inspect, survey, scan, study, scrutinize, resolve, separate, reduce, decompose, disintegrate, dissect, divide, test, revise
Creativity	new ideas/style/manner, revolutionary, unfamiliar, novel, radical, discovery
People Management	appoint, delegate, decide, advise, distribute, empower, planning, organizing, leading, controlling.
Coordinating with Others	discuss and deal with others, collaborate



Future Skills	Related Terms
Emotional Intelligence	Recognize, understand and manage our own emotions, thoughts and feelings. Empathy, interpersonal awareness, commitment, motivation.
Judgement & Decision Making	identify, discuss, conclude, make predictions, judge, reflect
Service Orientation	meeting needs of others (i.e. consumers/ clients/ buyers), providing satisfaction.
Negotiation	discuss, reaching an agreement/ understanding
Cognitive Flexibility	multiple ideas, unexpected changes, restructuring ideas/knowledge, knowledge construction.



The Seven Cs – 21st Century Lifelong Skills



Seven Cs

Component Skills

Critical Thinking-and-Doing

Problem-solving, Research, Analysis, Project Management, etc.

Creativity

New Knowledge Creation, "Best Fit" Design Solutions, Artful Storytelling, etc.

Collaboration

Cooperation, Compromise, Consensus, Community-building, etc.

Cross-cultural Understanding

Across Diverse Ethnic, Knowledge and Organizational Cultures

Communication

Crafting Messages and Using Media Effectively

Computing

Effective Use of Electronic Information and Knowledge Tools

Career & Learning Self-reliance

Managing Change, Lifelong Learning and Career Redefinition

21ST CENTURY SKILLS

HOW TODAY'S STUDENTS
CAN STAY COMPETITIVE
IN A CHANGING JOB MARKET

Learning Skills

Critical Thinking



Creativity



Collaboration



Communication



Literacy Skills

Information



Media



Technology



Life Skills

Flexibility



Leadership



Initiative



Productivity



Social



Applied
educational systems

Top 10 skills for the successful 21st-century worker

Leadership

Take a cross-disciplinary approach to project teamwork. Participate in leading and following in order to prepare for your career.

Many businesses are adopting a participative management style, which involves employees in decision making.

George DeMetropolis
University of Phoenix faculty member
and leadership consultant

Collaboration

Choose courses that are collaborative and measure success by team results.

Adaptability

Take advantage of flexible course schedules and learning platforms in order to work, raise a family, volunteer and learn.

Innovation

Seek out learning environments that build technology and media fluency.

Global citizenship

Learn in a diverse classroom to gain opportunities to build cross-cultural understanding.

Critical thinking

Take coursework that offers an opportunity to engage in self-directed, project-based and applied learning.

Communication

Learn in an environment that requires participation in many modes of communication.

Students must hold themselves accountable and have the opportunity to hold others accountable for the good of the team.

Irene Blundell
University of Phoenix
faculty member

Productivity and accountability

Select a school that provides a code of conduct in learning situations to build accountability and productivity.

Accessing, analyzing and synthesizing information

Seek out a market-driven curriculum focused on real cross-functional issues to help you think about how issues interconnect.

Entrepreneurialism

Work on developing the ability to solve current and relevant issues in the safety of the classroom environment.

How to implement Super Skills in classrooms?



Digital Nomads



TOOLKITS for 21ST CENTURY TEACHING

PRACTICAL IMPLICATIONS for the 4TH INDUSTRY SKILLS DEVELOPMENT



Editors
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THE END

THANK YOU FOR YOUR ATTENTION