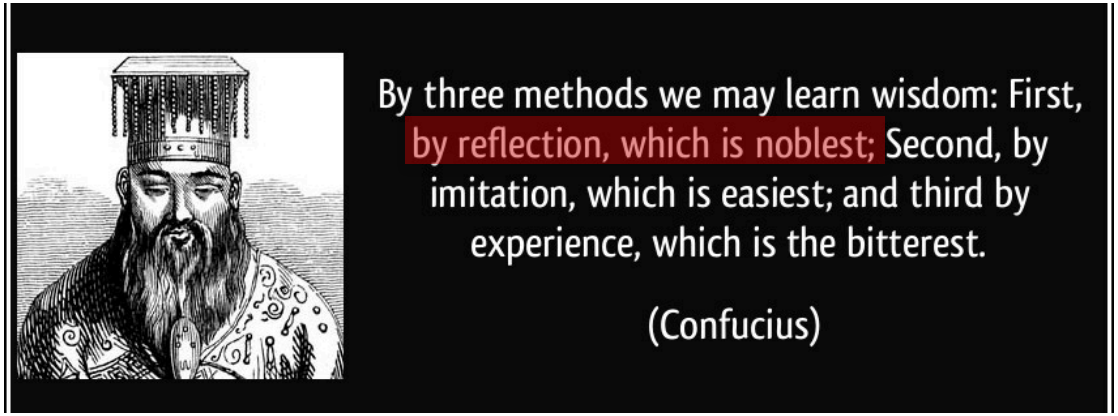
Quality Assurance: Validating Realistic Self Assessment Through External Evaluation

Douglas S. Franklin, Ph.D.
Emeritus Assistant Dean

Introduction

- What theories undergird quality assurance efforts?
- What is self-assessment and reflective practice and how might they influence organizational quality?
- How does external evaluation validate organizational self reflection?
- What Industry 4.0 tools support quality improvement and the assessment and evaluation processes.



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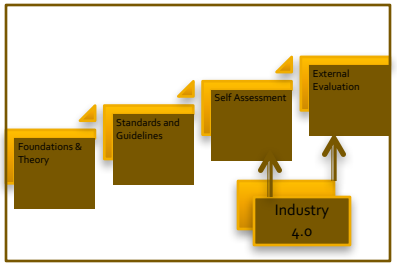
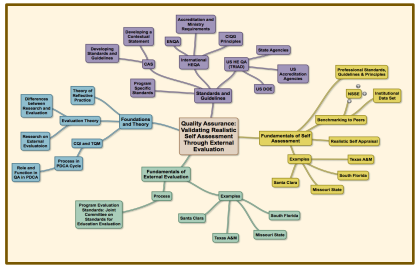
Introduction

- Process
- Mind-mapping
- Delivery
- Summary & Recommendations





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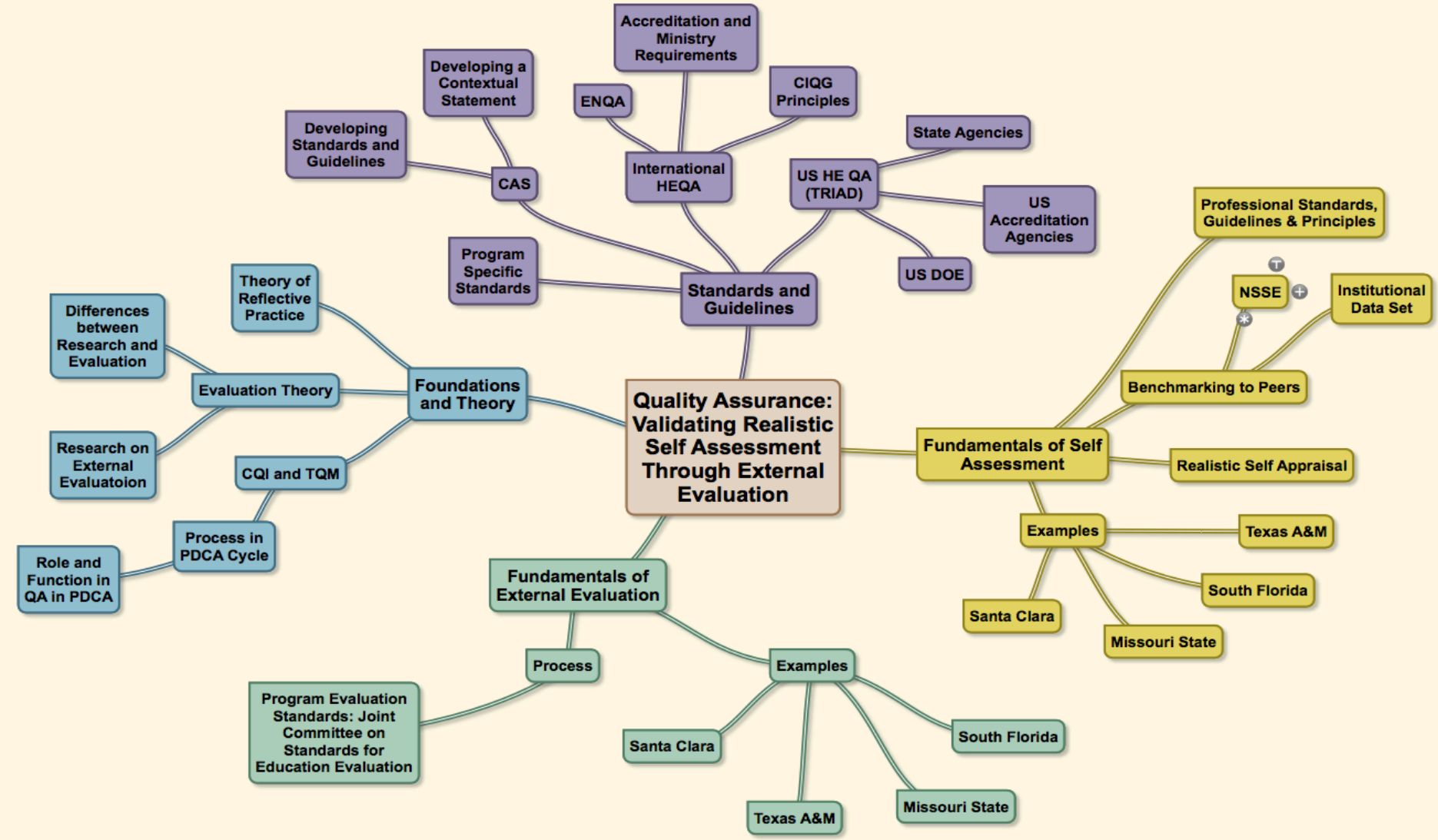

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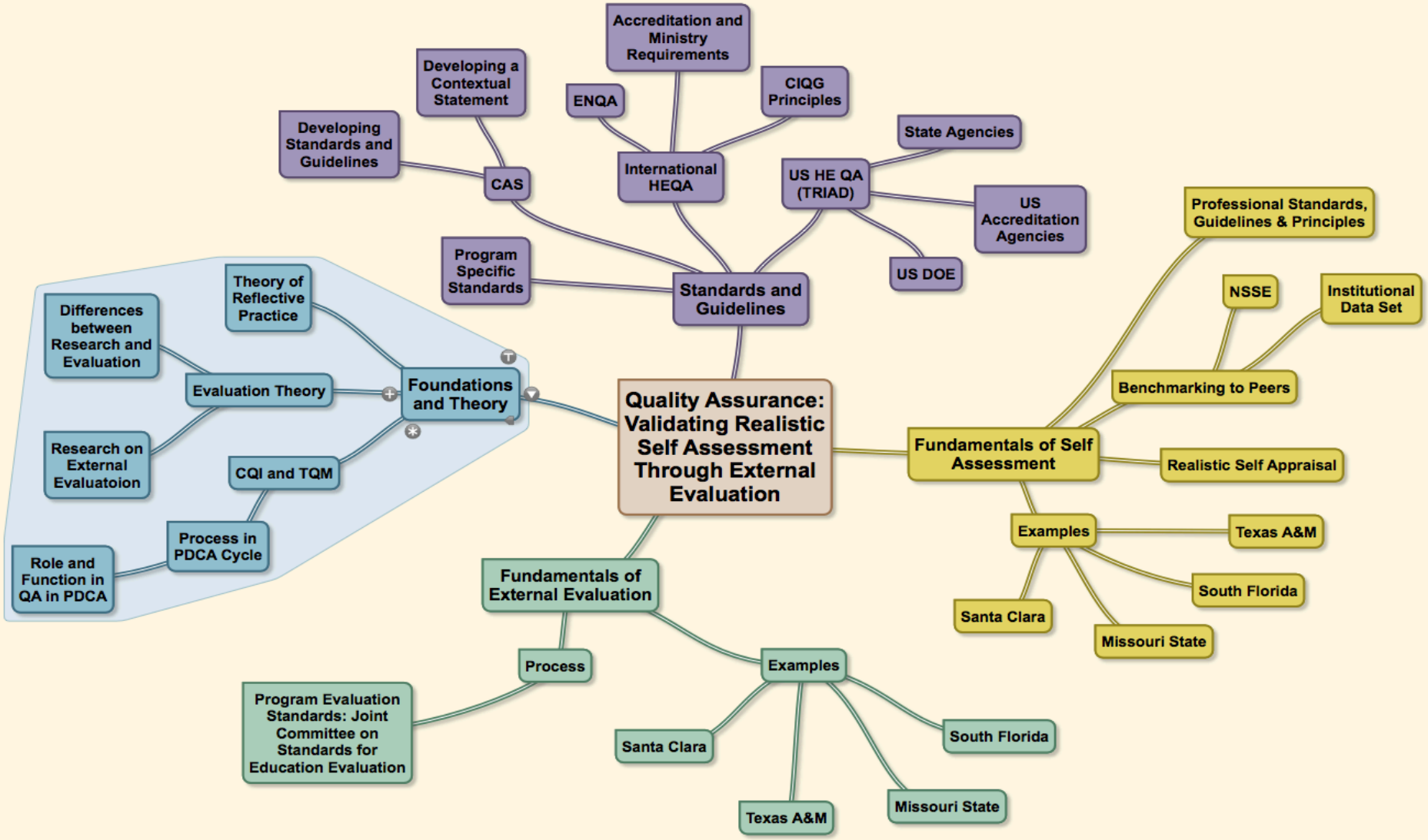

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Quality Defined

- American Society for Quality
  - "the planned and systematic activities implemented in a quality system so that quality requirements for a product or service will be fulfilled"

American Society of Quality (ASQ)

"Quality is never an accident; it is always the result of high intention, sincere effort, intelligent direction and skillful execution; it represents the wise choice of many alternatives." William A. Foster

Source: http://asq.org/learn-about-quality/quality-assurance-quality-control/overview/overview.html

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Quality Assurance

- UNESCO
  - the systematic review of educational programs to ensure that acceptable standards of education, scholarship and infrastructure are being maintained.

United Nations Educational, Scientific and Cultural Organization

"Quality is not an act, it is a habit. Aristotle

http://www.unesco.org/new/en/education/themes/strengthening-education-systems/higher-education/quality-assurance/

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Quality Assurance

- ENQA
  - "a term imported into higher education from the world of business (and predominantly from the sector of manufacturing) as is the related term 'quality control'. In France 'quality management' has been used often in place of 'quality assurance' in the translation of the ESG, with the intention of instilling a sense of responsibility to the academics to manage quality for themselves."

"The term 'quality assurance' is …to describe all activities within the continuous improvement cycle (i.e. assurance and enhancement activities)." ENQA 2015

ENQA
EUROPEAN ASSOCIATION FOR QUALITY ASSURANCE IN HIGHER EDUCATION

Crozier, F., Curvale, B., Dearlove, R., Helle, E. & Henard, F. (2006) ENQA Operational Papers 12: Terminology of quality assurance: toward shared European Values?

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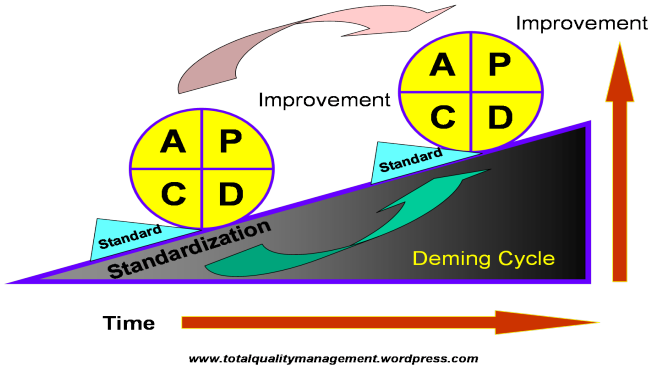
General Concepts of Quality Management

- Approach to quality management that builds upon traditional quality assurance methods by emphasizing the organization and systems that focuses on:
  - Process" rather than the individual;
  - Recognizes both internal and external "customers";
  - Promotes the need for objective data to analyze & improve processes.



Deming, W.E. (1992) *Out of the Crisis*

https://www.fpm.iastate.edu/worldclass/cqi.asp

"It is not enough to just do your best or work hard. You must know what to work on."- W. Edwards Deming

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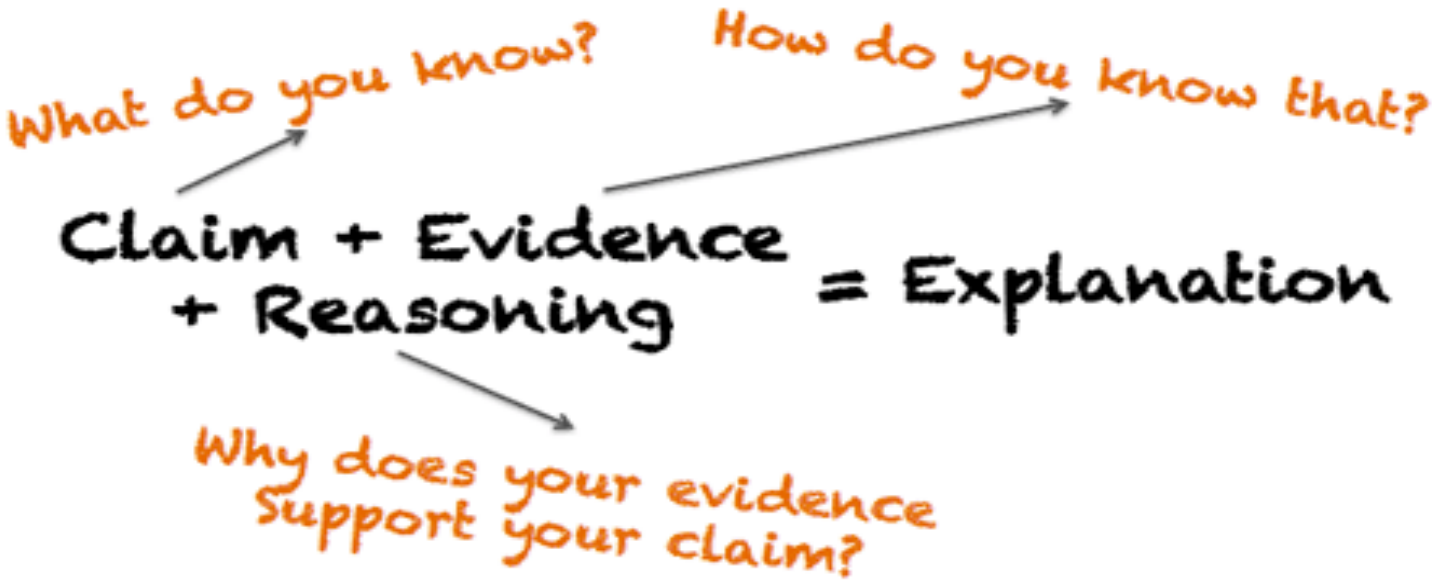
Assessment Defined



"the gathering of information concerning the functioning of students, staff and institutions of higher education. The information may or may not be in numerical form, but the basics motive for gathering it is to improve the functioning of the institution and its people."

Astin, A. & Antonio, A. (2012). Assessment for Excellences 2nd Ed., ACE Series on Higher Education

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Assessment

"...any effort to gather, analyze, and interpret evidence which describes institutional, departmental, divisional, or agency effectiveness."

Upcraft, M.L & Schuh, J.H. (1996). Assessment in Student Affairs: A Guide for Practitioners

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Maki Assessment Cycle

- "Assessment Is"
  - Evidence driven relying on multiple measures
  - Formative rather than simply summative
  - Focused on outcomes
  - A complex process of comparison
  - Always a process of reasoning from evidence
  - Always, to some degree, imprecise

From NACADA The Assessment Process in Academic Advising: An Overview
http://slideplayer.com/slide/3734281/

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Maki Assessment Cycle

- "Assessment Is NOT"
  - Episodic
  - Just about measurement
  - About performance
  - Solely an administrative process
  - Easy or quick

From NACADA The Assessment Process in Academic Advising: An Overview
http://slideplayer.com/slide/3734281/

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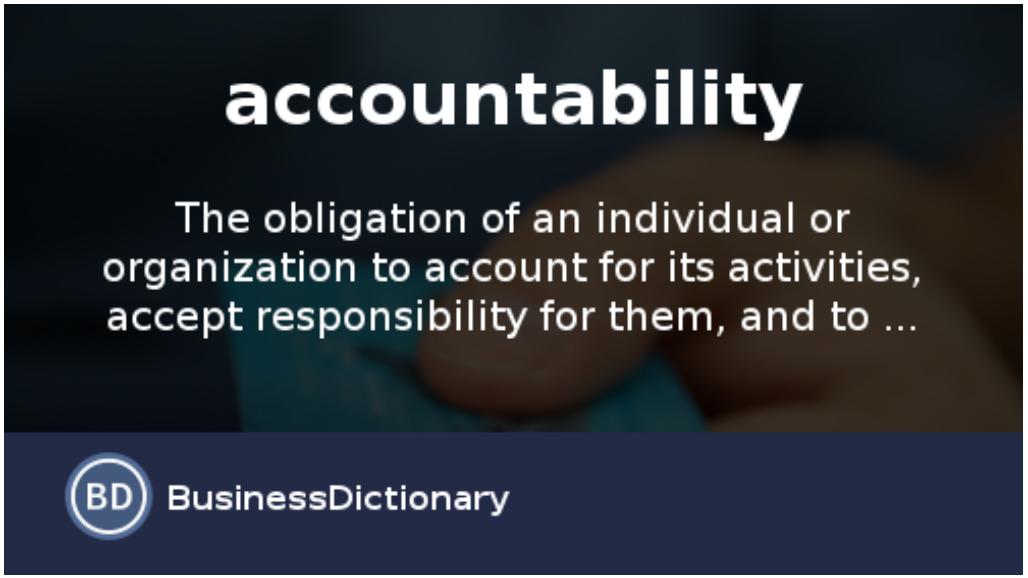
Self Assessment

- "questions of accountability, cost, quality, access, equity, and accreditation combine to make assessment a necessity in higher education."

"Accountability breeds response-ability." Stephen Covey

https://www.brainyquote.com/quotes/quotes/s/stephencov636497.html?src=t_accountability



Upcraft, M.L. & Schuh, J.H. (1996). Assessment in Student Affairs: A Guide for Practitioners.

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Self Assessment

- Why self assessment:
  - Establish a culture of realistic self appraisal and quality;
  - Determine the extent to which the organization/department/unit personnel perceive achieving the organization's designed purpose;
  - Identifying evidence to support achievement of purpose and alignment with industry standards

"We don't learn by doing, we learn by reflecting on what we've done."
Author Unknown

https://ocmbocesis.wordpress.com/2016/04/26/a-time-for-reflection-we-dont-learn-by-doing-we-learn-by-reflecting-on-what-weve-done/

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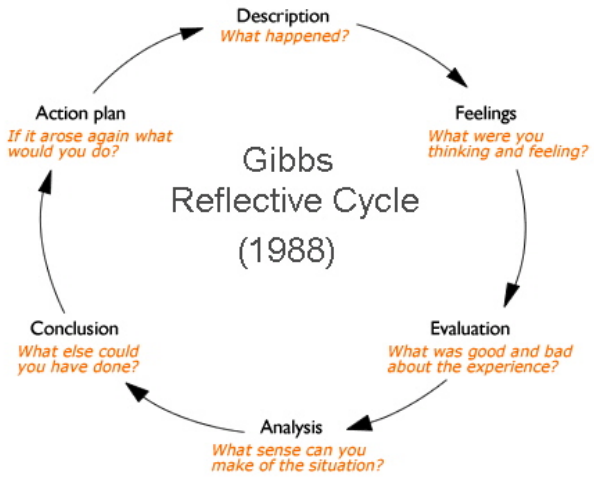
Self Assessment: Theory of Reflective Practice

- Reflective practice is:
  - Capacity to reflect on action to engage in continuous learning (Schon 1983:102-104)
  - Paying critical attention to practical values and theories which inform everyday actions, by examining practice life/work experiences reflectively and reflexively."



http://www.businessballs.com/reflective-practice.htm

"We don't learn by doing, we learn by reflecting on what we've done." Author Unknown

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Organizational Assessment

- Systematic process for obtaining valid information about the performance of an organization and the factors that affect performance.
- Conducted in order to demonstrate areas of competence, areas for improvement, and possible risks, help support investment and restructuring decisions.

http://betterevaluation.org/en/theme/organizational_performance

http://www.reflectlearn.org/discover/your-introductory-guide-to-oa

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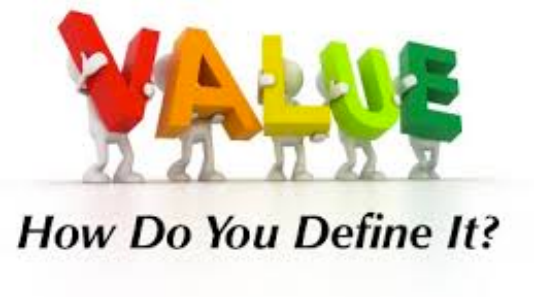
Assessing Quality in Higher Education

- Virtually everyone who has thought carefully about the question of assessing quality in higher education agrees that ?"value added?" is the only valid approach. …(or) what is improved about students' capabilities or knowledge as a consequence of their education at a particular college or university.

"Price is what you pay. Value is what you get." Warren Buffett



Bennett, D.C., 2001 AAC&U)

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Advantages of Self-Assessment

- Self assessment;
  - Provides recognition and rewards;
  - Is internally driven;
  - Is staff developed;
  - Creates shared vision;
  - Requires self awareness.

"The first principle is that you must not fool yourself - and you are the easiest person to fool." Richard Feynman *US educator & physicist (1918 - 1988)*

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Evaluation Theory (Models)

Aikin's Prescriptive Model

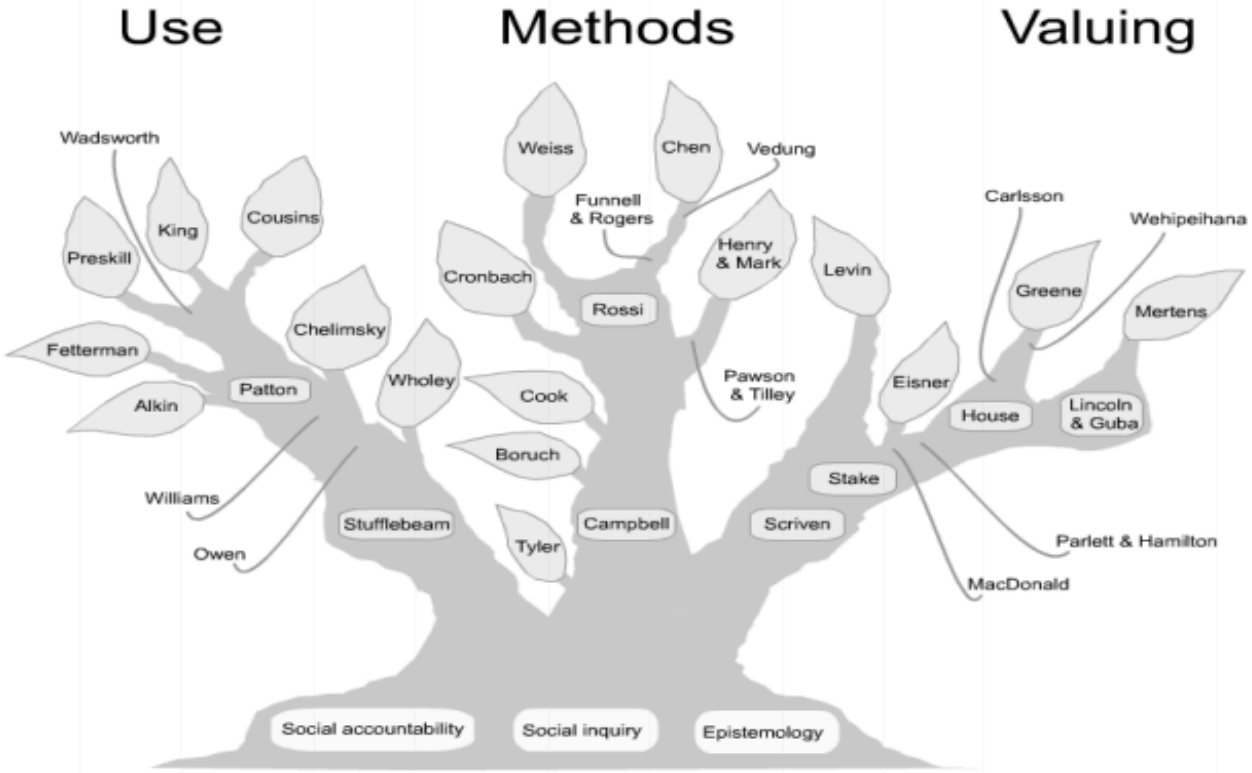

Figure 1. Evaluation Theory Tree

Source: Alkin, M. C. (2012). *Evaluation roots* (2nd ed.). Thousand Oaks, CA: Sage.

"set of rules, prescriptions, prohibitions, & guiding frameworks that specify what a good or proper evaluation is and how evaluation should be done" (e.g., empowerment evaluation, Roots, p. 4)

Program Evaluation Defined

- Defined: The systematic investigation of the worth or merit of an object. (The Joint Committee on Standards for Educational Evaluation, 1994)

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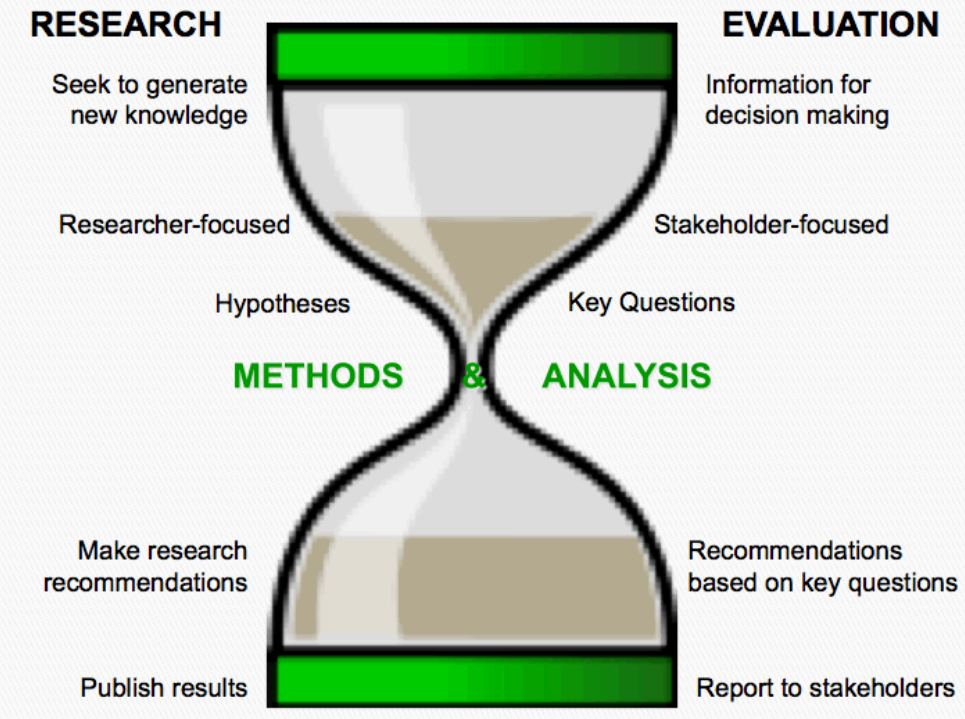
Differences in Evaluation and Research

- Purpose: Seek difference ends
  - Research: Add knowledge to the field and theory growth
  - Evaluation: Help stakeholders in decision making



Page 6 of Program Evaluation: Alternative Approaches and Practical Guidelines
Fitzpatrick, Sanders, Worthen (2004)

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System

- Set of detailed methods, procedures and routines created to carry out a specific activity, perform a duty, or solve a problem.
  - Organized, purposeful structure that consists of interrelated and interdependent elements that continually influence one another (directly or indirectly) …

"94% of problems are systems driven and only 6% are people driven"

Read more:
http://www.businessdictionary.com/definition/system.html

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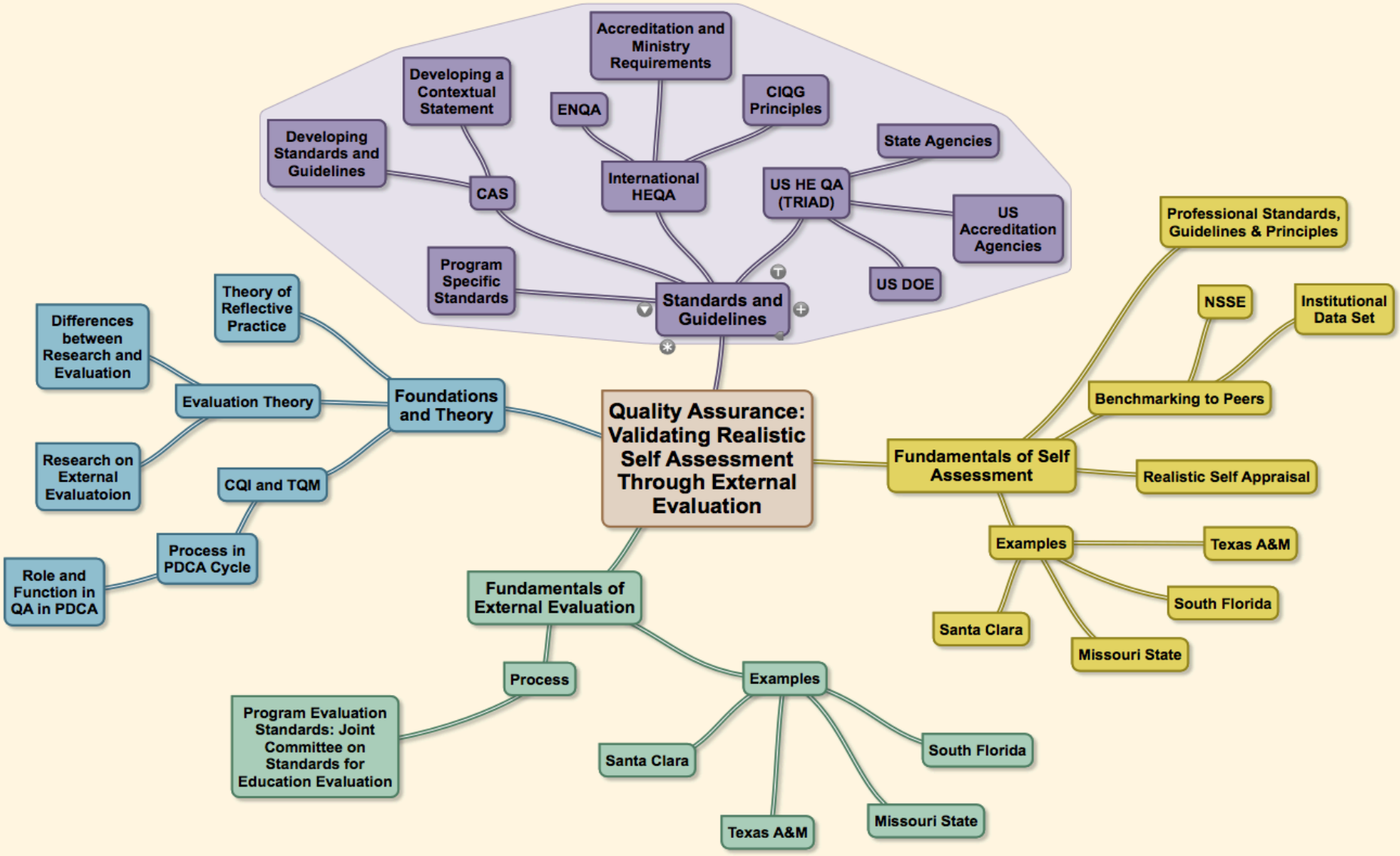

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Standards and Guidelines

- US Accrediting Agencies and the Triad
- European Association for Quality Assurance in Higher Education (ENQA)
- Council for Higher Education Accreditation (CHEA)
  - International Quality Principles
- Council for the Advancement of Standards in Higher Education (CAS)
- Program Evaluation Standards (Joint Committee)

CHEA Council for Higher Education Accreditation
Our 20th Year
CHEA International Quality Group
CIQG

CAS Council for the Advancement of Standards in Higher Education

UNESCO

ENQA
EUROPEAN ASSOCIATION FOR QUALITY ASSURANCE IN HIGHER EDUCATION

Joint Committee on Standards for Educational Evaluation

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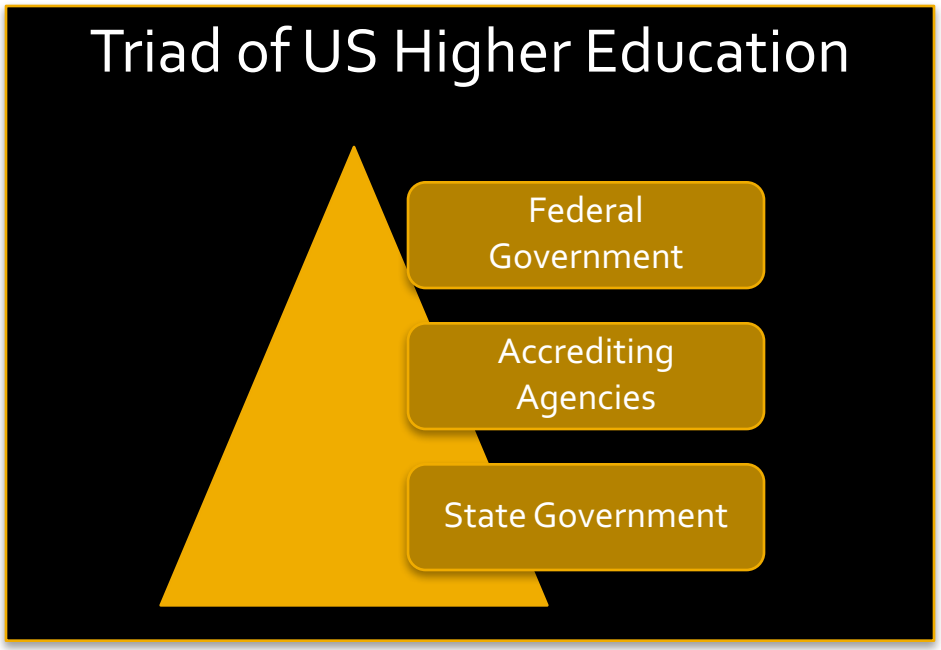
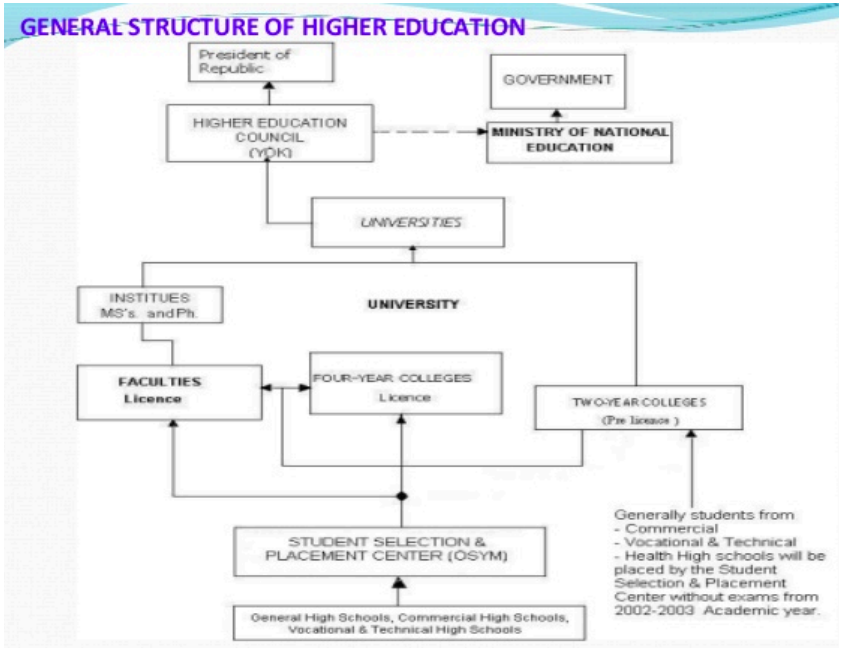
Differentiation Between US and International HE External Evaluation.

- Decentralized verse Centralized Quality in Higher Education



Innovations in Accountability and Higher Education Accreditation. Porter, S. (2014) http://www.slideshare.net/kilgore5454/thesis-innovations-in-accountability-and-higher-education-accreditation-a-libertarian-paternalism-policy-proposal



Education in Turkey. Erdogmus, Y. (2014) http://www.slideshare.net/SuperSeyoo/education-system-in-turkey-1

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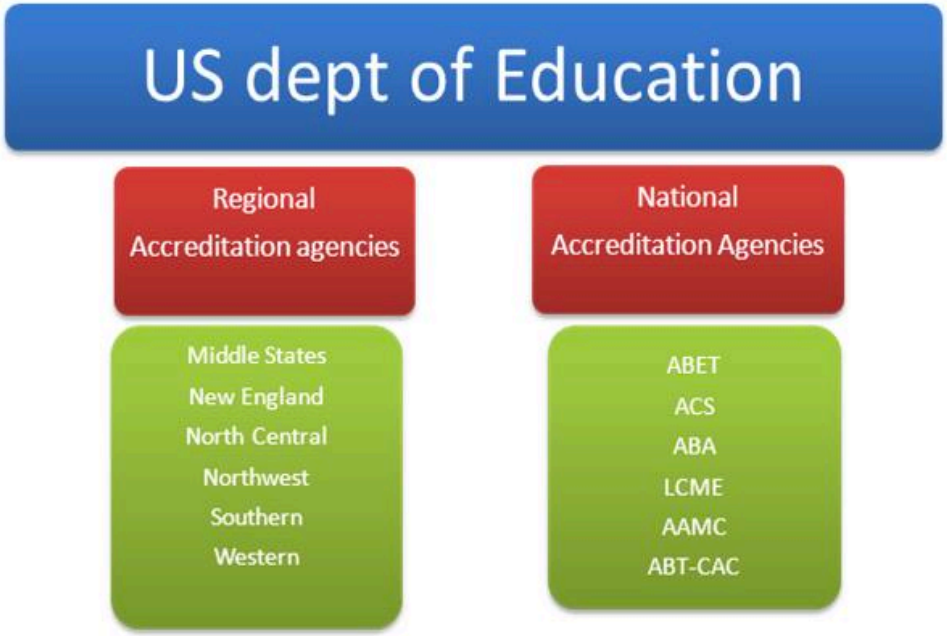
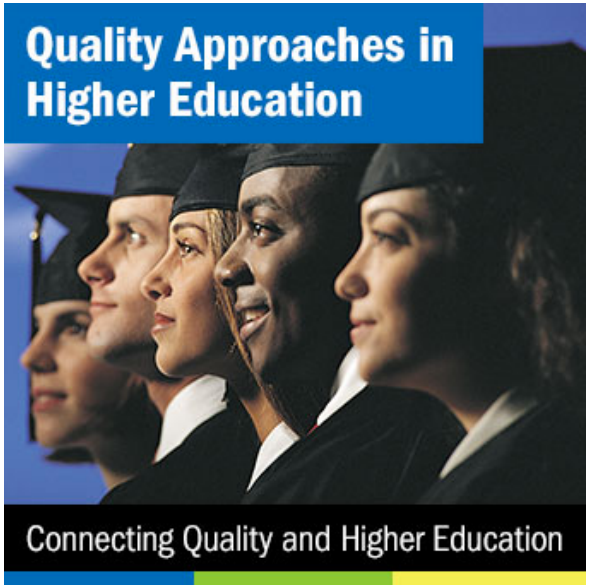
US HE Quality Assurance

- Quality Assurance:
  - Accreditors
  - Agencies
  - Advocates
  - Applications





Lumina FOUNDATION

ACE American Council on Education
Leadership and Advocacy

QUALITY MATTERS PROGRAM QM

CAS Council for the Advancement of Standards in Higher Education

ANSI American National Standards Institute

CHEA Council for Higher Education Accreditation

ASQ The Global Voice of Quality

AAC&U Association of American Colleges and Universities

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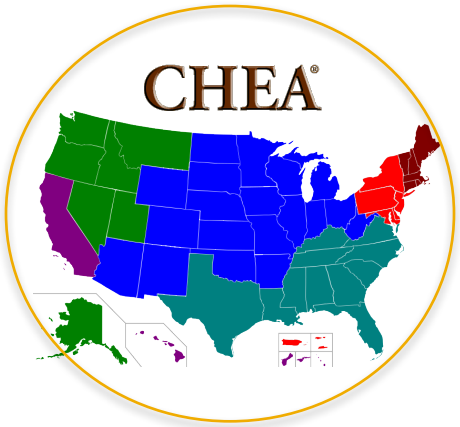
US Regional Accrediting Agencies

1. Middle States Commission on Higher Education
2. North Central Association of Colleges and Schools
3. New England Association of Schools and Colleges
4. Northwest Commission on Colleges and Universities
5. Southern Association of Colleges and Schools
6. Western Association of Schools and Colleges



"Self-regulation through accreditation embodies a traditional U.S. philosophy that a free people can and ought to govern themselves through a representative, flexible, and responsive system."
Source: Southern Association of Colleges and Schools, 2011

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Underlying Principles of Accreditation

- HEIs have primary responsibility for academic quality; colleges and universities are the leaders and the key sources of authority in academic matters.
- Institutional mission drives academic quality.
- Institutional autonomy is essential to sustaining & enhancing academic quality.

"In the United States, accreditation is carried out by private, nonprofit organizations designed for this specific purpose."
Source: Eaton, J. (2012) An Overview of U.S. Accreditation, CHEA, p. 3

CHEA

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Underlying Principles of Accreditation

- Academic freedom flourishes in an environment of academic leadership of institutions.
- Higher education enterprise and our society thrive on decentralization and diversity of institutional purpose and mission.
- Process (intentionality) leads to status.

"Accreditation…is a means to assure and improve higher education quality, assisting institutions and programs using a set of standards developed by peers."
Source: The Value of Accreditation. CHEA, 2010 pg. 3.

CHEA

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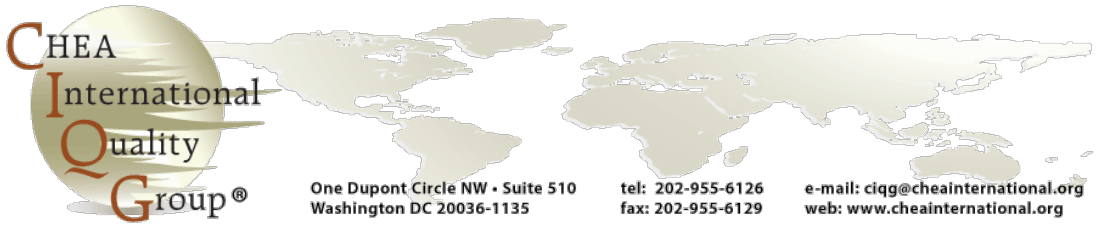
CHEA International Quality Group (CIQG)

- Forum for colleges, universities, accrediting and quality assurance organizations and others worldwide to address issues and challenges focused on quality and quality assurance in an international setting. Provides service designed to:
  - Assist institutions and organizations in further enhancing capacity for academic quality
  - Advance understanding of international quality assurance
  - Provide research and policy direction



http://www.cheainternational.org/

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Council for Higher Education Accreditation

CHEA International Quality Group

CHEA INTERNATIONAL QUALITY GROUP
INTERNATIONAL QUALITY PRINCIPLES

(May 2015)

Context

The growing international activity within higher education – greater student mobility, expanding faculty exchanges and research collaboration, more cross-border partnerships among institutions and the growing reliance on online or Web-based education – has created a sense of urgency for a shared understanding of educational quality. While any single worldwide regimen of educational quality would be difficult and perhaps undesirable, a shared understanding about the dimensions of quality would be useful. These guiding principles are one effort to move toward such understanding while acknowledging and respecting the many differences of history, culture, beliefs and values that shape our systems of higher education and our perspectives on quality.

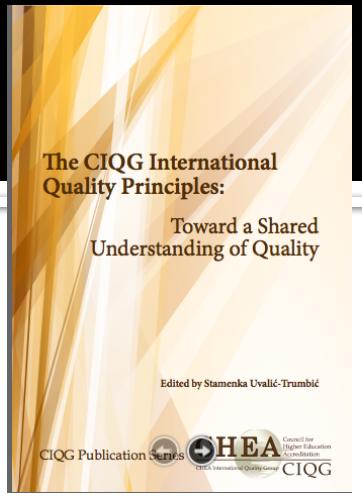
Purpose

The guiding principles are intended to serve as a framework for international deliberation about quality in higher education. Their aim is to seek common ground and establish a foundation for understanding quality. The principles may be used to inform discussions of quality, quality assurance and qualifications at the country, regional or international level. The intended audiences include academics and other higher education professionals, students, employers, government officials and the public. They are invited to affirm and use these principles in the ongoing quest for effectiveness and quality in higher education.[1]

Principles

1. ***Quality and higher education providers***: Assuri… primary respon… …education prov…
2. ***Quality and students***: The … learning outcomes pursued.
3. ***Quality and society***: The quality of higher edu… of society, engenders public confidence and su…
4. ***Quality and government***: Governments have a … education.
5. ***Quality and accountability***: It is the responsibili… and accreditation bodies to sustain a strong co… of quality.
6. ***Quality and the role of quality assurance and a…*** bodies, working with higher education provider… …for the implementation of processes, tools, benchmarks and measures of learning outcomes that help to create a shared understanding of quality.
7. ***Quality and change***: Quality higher education needs to be flexible, creative and innovative; developing and evolving to meet students' needs, to justify the confidence of society and to maintain diversity.

1. Quality and higher education providers: Assuring and achieving quality in higher education is the primary responsibility of higher education providers and their staff.



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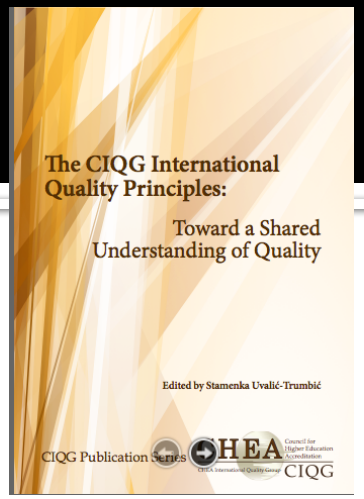
2. Quality and students: The education provided to students must always be of high quality whatever the learning outcomes pursued.



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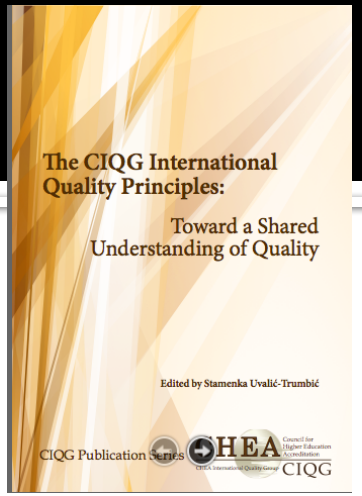
7. ***Quality and change***: Quality higher education needs to be flexible, creative and innovative; developing and evolving to meet students' needs, to justify the confidence of society and to maintain diversity.

3. Quality and society: The quality of higher education provision is judged by how well it meets the needs of society, engenders public confidence and sustains public trust.



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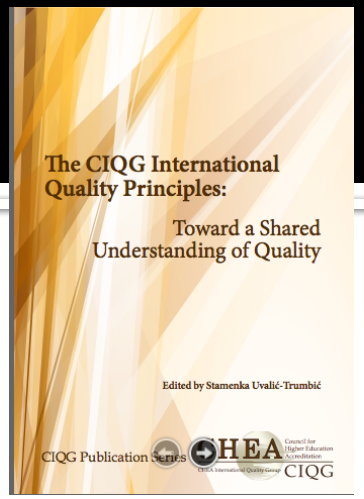
The guiding principles are intended to serve as a framework for international deliberation about quality in higher education. Their aim is to seek common ground and establish a foundation for understanding quality. The principles may be used to inform discussions of quality, quality assurance and qualifications at the country, regional or international level. The intended audiences include academics and other higher education professionals, students, employers, government officials and the public. They are invited to affirm and use these principles in the ongoing quest for effectiveness and quality in higher education.[1]

Principles

1. ***Quality and higher education providers***: primary responsibility of higher educatio
2. ***Quality and students***: The education pro learning outcomes pursued.
3. ***Quality and society***: The quality of highe of society, engenders public confidenc
4. ***Qual*** education.
5. ***Quality and accountability***: It is the resp and accreditation bodies to sustain a strong commitment to accountability and provide regular evidence of quality.
6. ***Quality and the role of quality assurance and accreditation bodies***: Quality assurance and accreditation bodies, working with higher education providers and their leadership, staff and students, are responsible for the implementation of processes, tools, benchmarks and measures of learning outcomes that help to create a shared understanding of quality.
7. ***Quality and change***: Quality higher education needs to be flexible, creative and innovative; developing and evolving to meet students' needs, to justify the confidence of society and to maintain diversity.

4. Quality and government: Governments have a role in encouraging and supporting quality higher education.



OHIO UNIVERSITY

CHEA
Council for Higher Education Accreditation

CHEA International Quality Group

CHEA INTERNATIONAL QUALITY GROUP
INTERNATIONAL QUALITY PRINCIPLES

(May 2015)

Context

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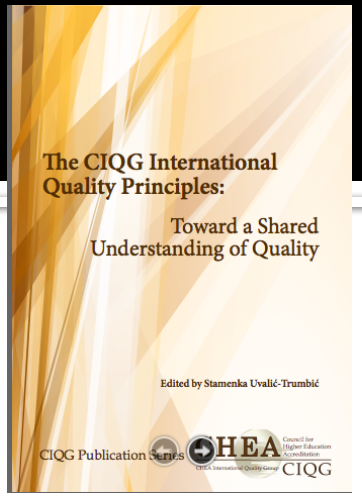

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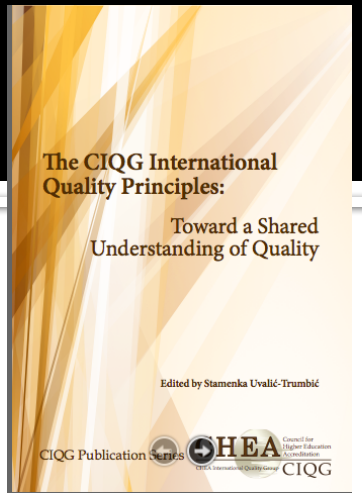

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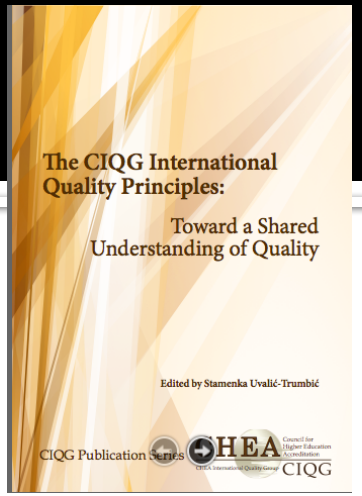


OHIO UNIVERSITY

Standards and Guidelines for Quality Assurance in European Higher Education (ESG)

- ESG are based on the following four principles for quality assurance in the EHEA:
  - Higher education institutions have primary responsibility for the quality of their provision and its assurance;
  - QA responds to the diversity of higher education systems, institutions, programmes and students;
  - QA supports the development of a quality culture;
  - QA takes into account the needs and expectations of students, all other stakeholders and society.

http://www.eua.be/Libraries/quality-assurance/esg_2015.pdf?sfvrsn=0

ESG standards and guidelines are for internal and external quality assurance in higher education…not standards for quality, nor a prescription for how QA processes are implemented. They provide guidance, covering areas vital for successful quality provision and learning environments in higher education. (pg. 6).

OHIO UNIVERSITY 1804

Council for the Advancement of Standards in Higher Education (CAS)

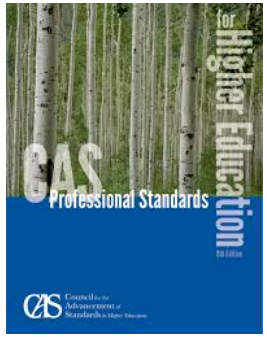
CAS Parts

1. Mission
2. Program
3. Organization & Leadership
4. Human Resources
5. Ethics
6. Law, Policy & Governance
7. Diversity, Equity, & Access
8. Internal and External Relations
9. Financial Resources
10. Technology
11. Facilities & Equipment
12. Assessment

http://www.cas.edu/

Council for the Advancement of Standards in Higher Education

Founded in 1979, CAS is the pre-eminent force for promoting standards in student affairs, student services, and student development programs. CAS creates and delivers dynamic, credible standards, guidelines, and Self-Assessment Guides …designed to lead to a host of quality programs and services. CAS aims to foster and enhance student learning, development, and achievement.



OHIO UNIVERSITY 1804

Council for the Advancement of Standards in Higher Education (CAS)

GENERAL STANDARDS

CAS Standards and

Part 1. MISSION

Programs and services must develop, disseminate, implement, and regularly review their missions. The mission must be consistent with the mission of the institution and with professional standards. The mission must be appropriate for the institution's student populations and community settings. Mission statements must reference student learning and development.

Part 2. PROGRAM

The formal education of students, consisting of the curriculum and co-curriculum, must promote student learning development outcomes that are purposeful, contribute to students' realization of their educational goals, and prepare students for satisfying and productive lives.

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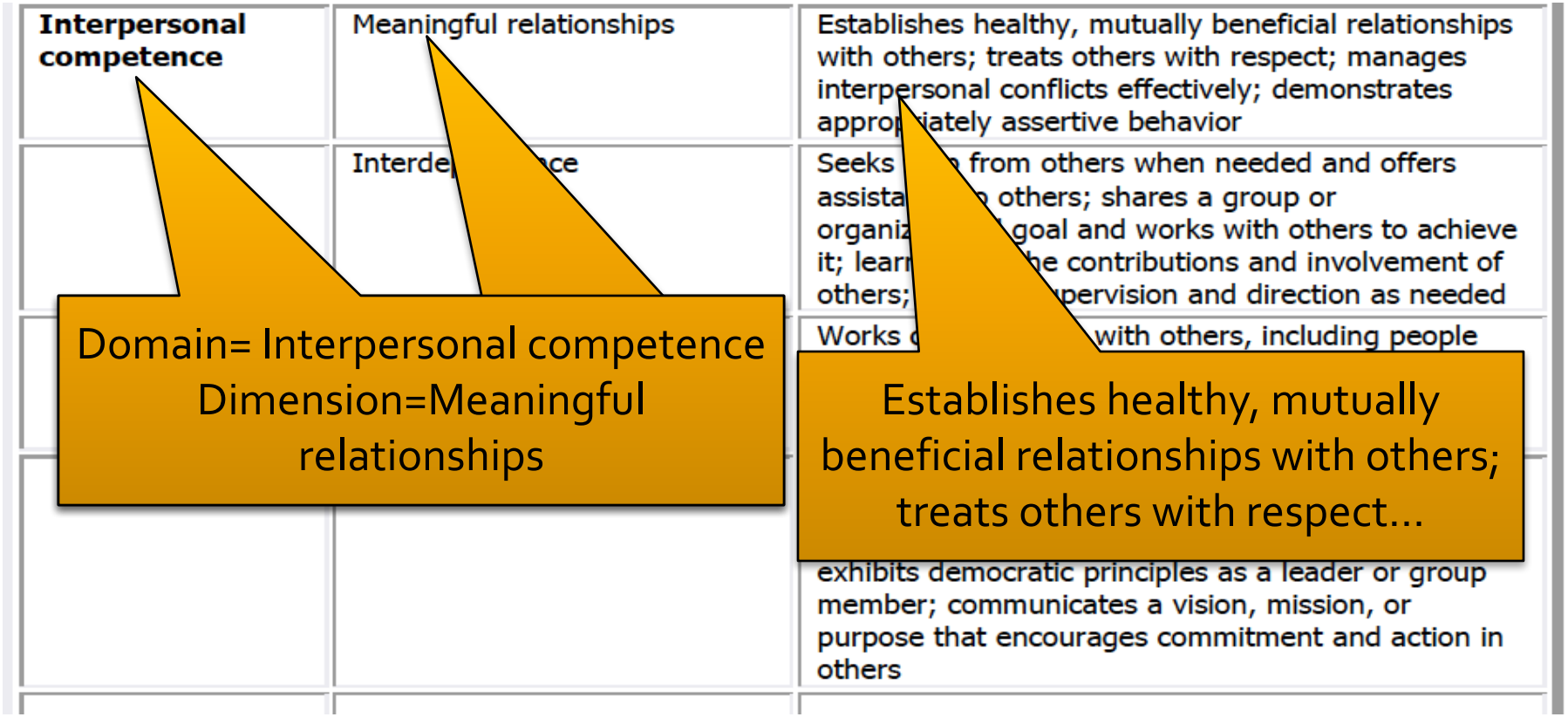
Council for the Advancement of Standards in Higher Education

OHIO UNIVERSITY 1804

Council for the Advancement of Standards in Higher Education (CAS)

Student Learning Outcomes



Interpersonal competence	Meaningful relationships	Establishes healthy, mutually beneficial relationships with others; treats others with respect; manages interpersonal conflicts effectively; demonstrates appropriately assertive behavior
	Interde ce	Seeks from others when needed and offers assista others; shares a group or organiz goal and works with others to achieve it; learn he contributions and involvement of others; pervision and direction as needed
		Works with others, including people
		exhibits democratic principles as a leader or group member; communicates a vision, mission, or purpose that encourages commitment and action in others

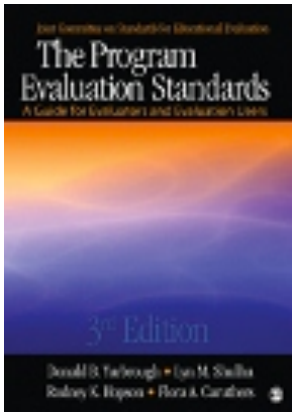
http://www.cas.edu/

Council for the Advancement of Standards in Higher Education

OHIO UNIVERSITY 1804

Evaluation Standards

- Utility Standards
- Feasibility Standards
- Propriety Standards
- Accuracy Standards
- Evaluation Accountability Standards



Joint Committee on Standards for Educational Evaluation: Created in 1975 is a coalition of major professional associations in the United States and Canada concerned with the quality of evaluation.

Joint Committee on Standards for Educational Evaluation

OHIO UNIVERSITY 1804

Utility Standards	Feasibility Standards	Propriety Standards	Accuracy Standards	Evaluation Accountability Standards
The utility standards are intended to increase the extent to which program stakeholders find evaluation processes and products valuable in meeting their needs.	The feasibility standards are intended to increase evaluation effectiveness and efficiency.	The propriety standards support what is proper, fair, legal, right and just in evaluations.	Accuracy standards are intended to increase dependability and truthfulness of evaluation representations, propositions, and findings, especially those that support interpretations and judgments about quality.	Accountability standards encourage adequate documentation of evaluations and a meta-evaluative perspective focused on improvement and accountability for evaluation processes and products.
U1 Evaluator Credibility Evaluations should be conducted by qualified people who establish and maintain credibility in the evaluation context.	**F1 Project Management** Evaluations should employ effective project management.	**P1 Responsive and Inclusive Orientation** Evaluations should be responsive to stakeholders and their communities.	**A1 Justified Conclusions and Decisions** Evaluation conclusions and decisions should be explicitly justified in the cultures and contexts where they have consequences.	**E1 Evaluation Documentation** Evaluations should fully document their negotiated purposes and implemented designs, procedures, data, and outcomes.
U2 Attention to Stakeholders Evaluations should devote attention to the full range of individuals and groups invested in the program and affected by its evaluation.	**F2 Practical Procedures** Evaluation procedures should be practical and responsive to the way the program operates.	**P2 Formal Agreements** Evaluation	**A2 Valid Information** Evaluation information and	**E2 Inter Meta evaluation** Evaluators should use these and other applicable standards to examine the accountability of the evaluation design, procedures employed, information collected, and outcomes.
U3 Negotiated Purposes Evaluation purposes should be identified and continually negotiated based on the needs of stakeholders.	**F3 Contextual Viability** Evaluations should recognize, monitor, and balance the cultural and political interests and needs of individuals and groups.		procedures and intended uses.	**E3 Exter Meta-evaluation** Program evaluation sponsors, clients, evaluators, and other stakeholders should encourage the conduct of external meta-valuations using these and other applicable standards.
U4 Explicit Values Evaluations should clarify and specify the individual and cultural values underpinning purposes, processes, and judgments.	**F4 Resource Use** Evaluations should use resources effectively and efficiently.		document appropriate purposes.	
U5 Relevant Information Evaluation information should serve the identified and emergent needs of stakeholders.			uations tion storage	
U6 Meaningful Processes and Products Evaluations should construct activities, descriptions, and judgments in ways that encourage participants to rediscover, reinterpret, or revise their understandings and behaviors.		**P6 Conflicts of Interests** Evaluations should openly and honestly identify and address real or perceived conflicts of interests that may compromise the evaluation.	**A6 Sound Designs and Analyses** Evaluations should employ technically adequate designs and analyses that are appropriate for the evaluation purposes.	
U7 Timely and Appropriate Communicating and Reporting Evaluations should attend to the continuing information needs of their multiple audiences.		**P7 Fiscal Responsibility** Evaluations should account for all expended resources and comply with sound fiscal procedures and processes.	**A7 Explicit Evaluation Reasoning** Evaluation reasoning leading from information and analyses to findings, interpretations, conclusions, and judgments should be clearly and completely documented.	
U8 Concern for Consequences and Influence Evaluations should promote responsible and adaptive use while guarding against unintended negative consequences and misuse.			**A8 Communication and Reporting** Evaluation communications should have adequate scope and guard against misconceptions, biases, distortions, and errors.	

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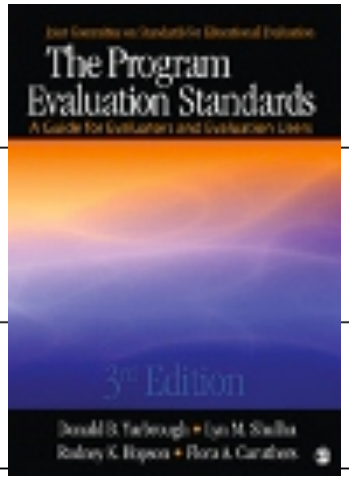

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U5 Relevant Information Evaluation information should serve the identified and emergent needs of stakeholders.		**P5 Transparency and Disclosure** Evaluations should provide complete descriptions of findings, limitations, and conclusions to all stakeholders, unless doing so would violate legal and propriety obligations.	**A5 Information Management** Evaluations should employ systematic information collection, review, verification, and storage methods.	
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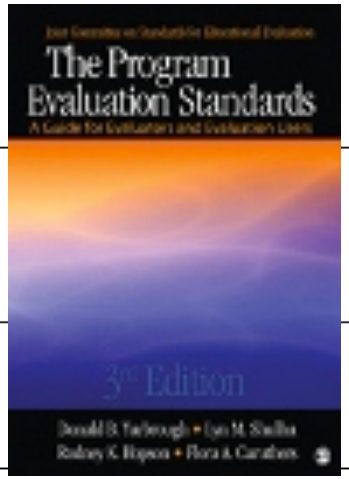

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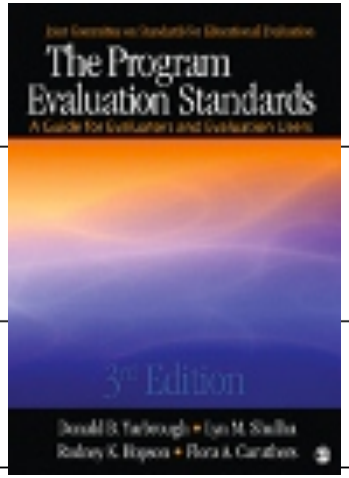

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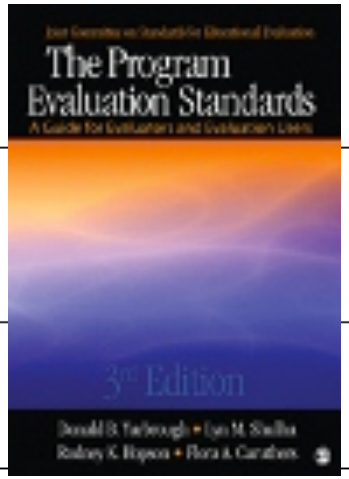

Utility Standards	Feasibility Standards	Propriety Standards	Accuracy Standards	Evaluation Accountability Standards
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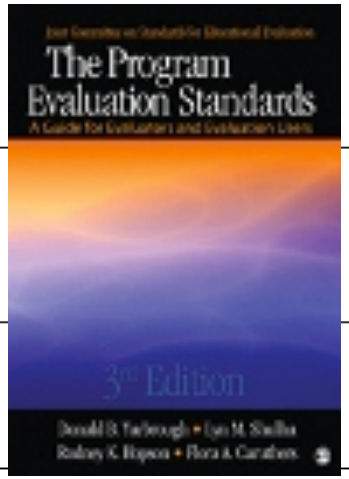
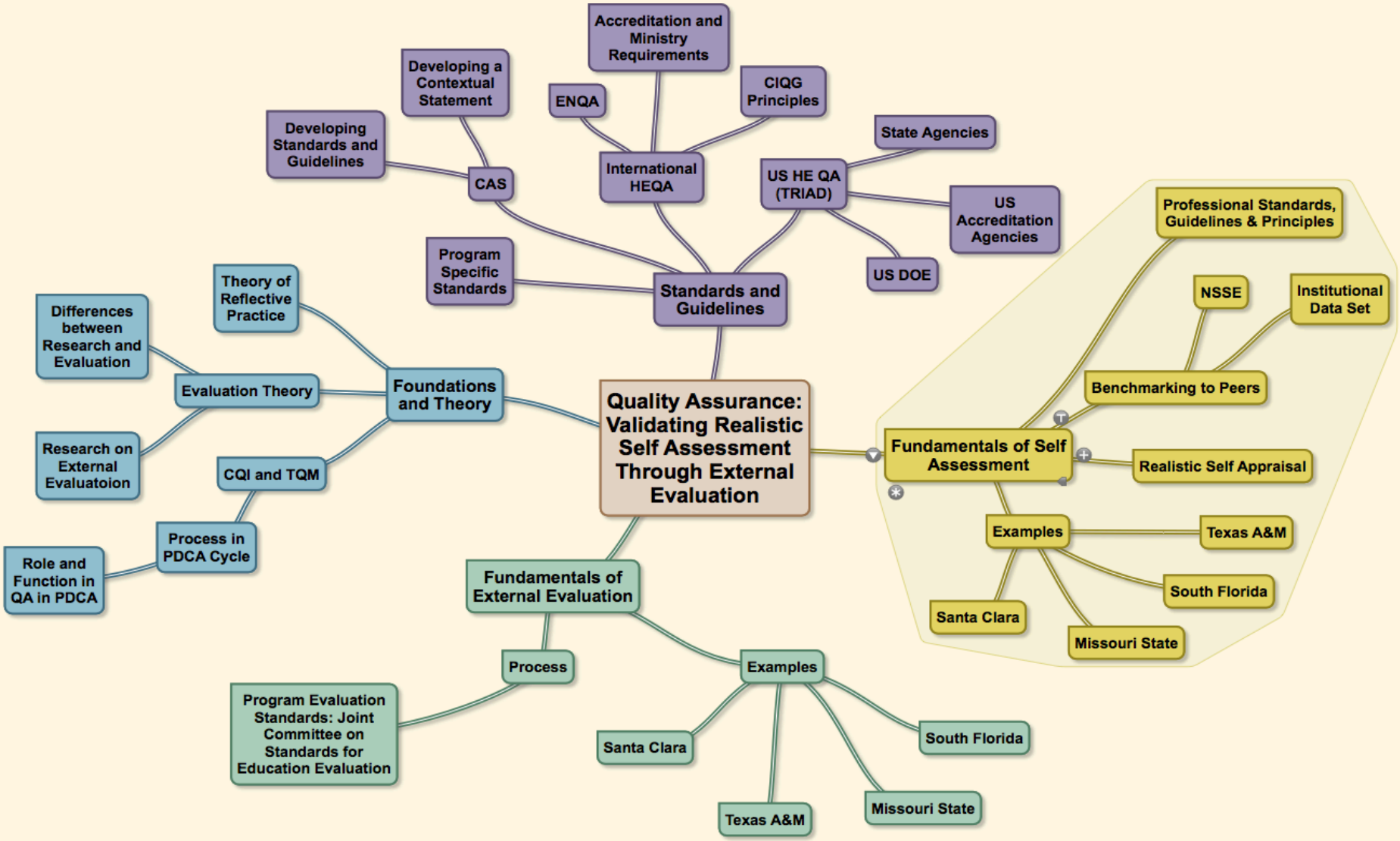
U1 Evaluator Credibility Evaluations should be conducted by qualified people who establish and maintain credibility in the evaluation context.	**F1 Project Management** Evaluations should use effective project management strategies.	**P1 Responsive and Inclusive Orientation** Evaluations should be responsive to stakeholders and their communities.	**A1 Justified Conclusions and Decisions** Evaluation co decisions should be explicit cultures and contexts w sequences.	**E1 Evaluation Documentation** Evaluations should fully document their negotiated purposes and implemented designs, procedures, data, and outcomes.
U2 Attention to Stakeholders Evaluations should devote attention to the full range of individuals and groups invested in the program and affected by its evaluation.	**F2 Practical Procedures** Evaluation procedures should be practical and responsiv operates.	**P2 Formal Agreements** Evaluation agreements should be negotiated	n Evaluation information intended purposes and	**E2 Inter Meta evaluation** Evaluators should use these and other applicable standards to examine the accountability of the evaluation design, procedures employed, information collected, and outcomes.
U3 Negotiated Purposes Evaluation purposes should be identified and continually negotiated based on the needs of stakeholders.	**F3 Contex** should re balance t interests and grou		tion procedures lable and ntended uses.	**E3 Exter Meta-evaluation** Program evaluation sponsors, clients, evaluators, and other stakeholders should encourage the conduct of external meta-valuations using these and other applicable standards.
U4 Explicit Values Evaluations should clarify and specify the individual and cultural values underpinning purposes, processes, and judgments.	**F4 Resou** use resou efficientl		**xt** d document th appropriate ion purposes.	
U5 Relevant Information Evaluation information should serve the identified and emergent needs of stakeholders.			valuations mation and storage	
U6 Meaningful Processes and Products Evaluations should construct activities, descriptions, and judgments in ways that encourage participants to rediscover, reinterpret, or revise their understandings and behaviors.		evaluation.	s Evaluations uate designs te for the	
U7 Timely and Appropriate Communicating and Reporting Evaluations should attend to the continuing information needs of their multiple audiences.		**P7 Fiscal Responsibility** Evaluations should account for all expended resources and comply with sound fiscal procedures and processes.	**A7 Explicit Evaluation Reasoning** Evaluation reasoning leading from information and analyses to findings, interpretations, conclusions, and judgments should be clearly and completely documented.	
U8 Concern for Consequences and Influence Evaluations should promote responsible and adaptive use while guarding against unintended negative consequences and misuse.			**A8 Communication and Reporting** Evaluation communications should have adequate scope and guard against misconceptions, biases, distortions, and errors.	

Accountability Standards: encourage adequate documentation of evaluations and a meta-evaluative perspective focused on improvement and accountability for evaluation process and products.



Quality Assurance: Validating Realistic Self Assessment Through External Evaluation

OHIO UNIVERSITY
1804



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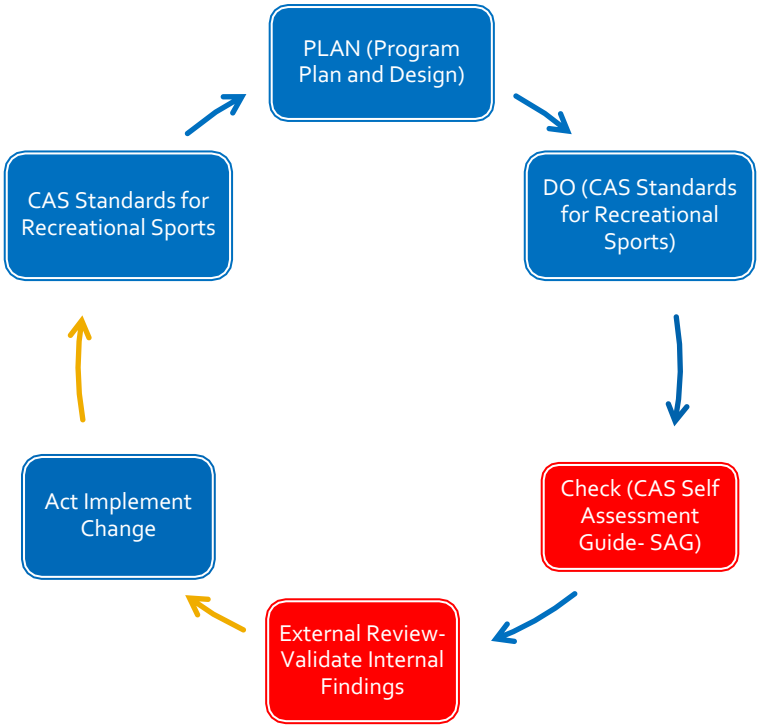
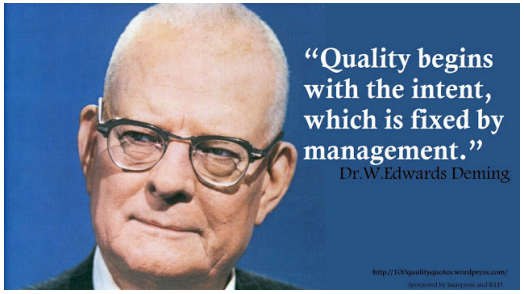
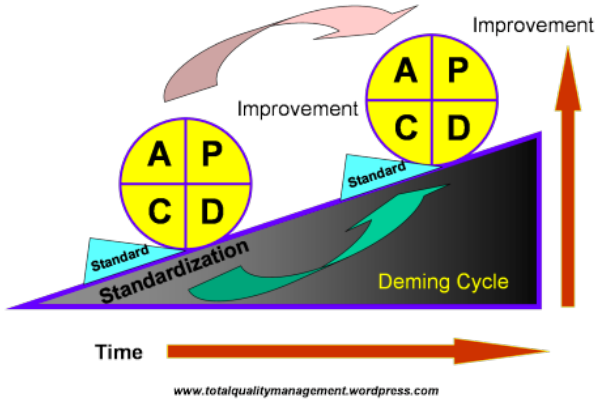
Self Assessment and External Evaluation in the CQI Cycle







Quality begins with the intent, which is fixed by management."- W. Edwards Deming

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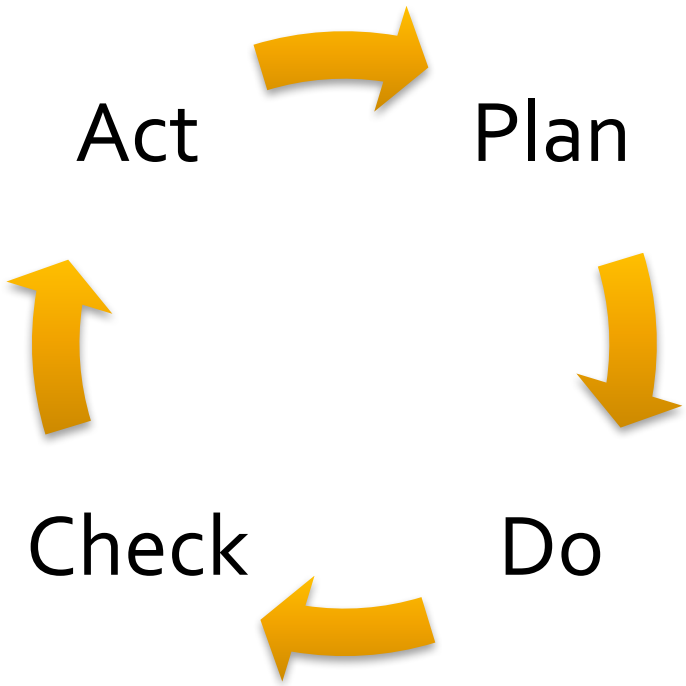
Self Assessment for Quality



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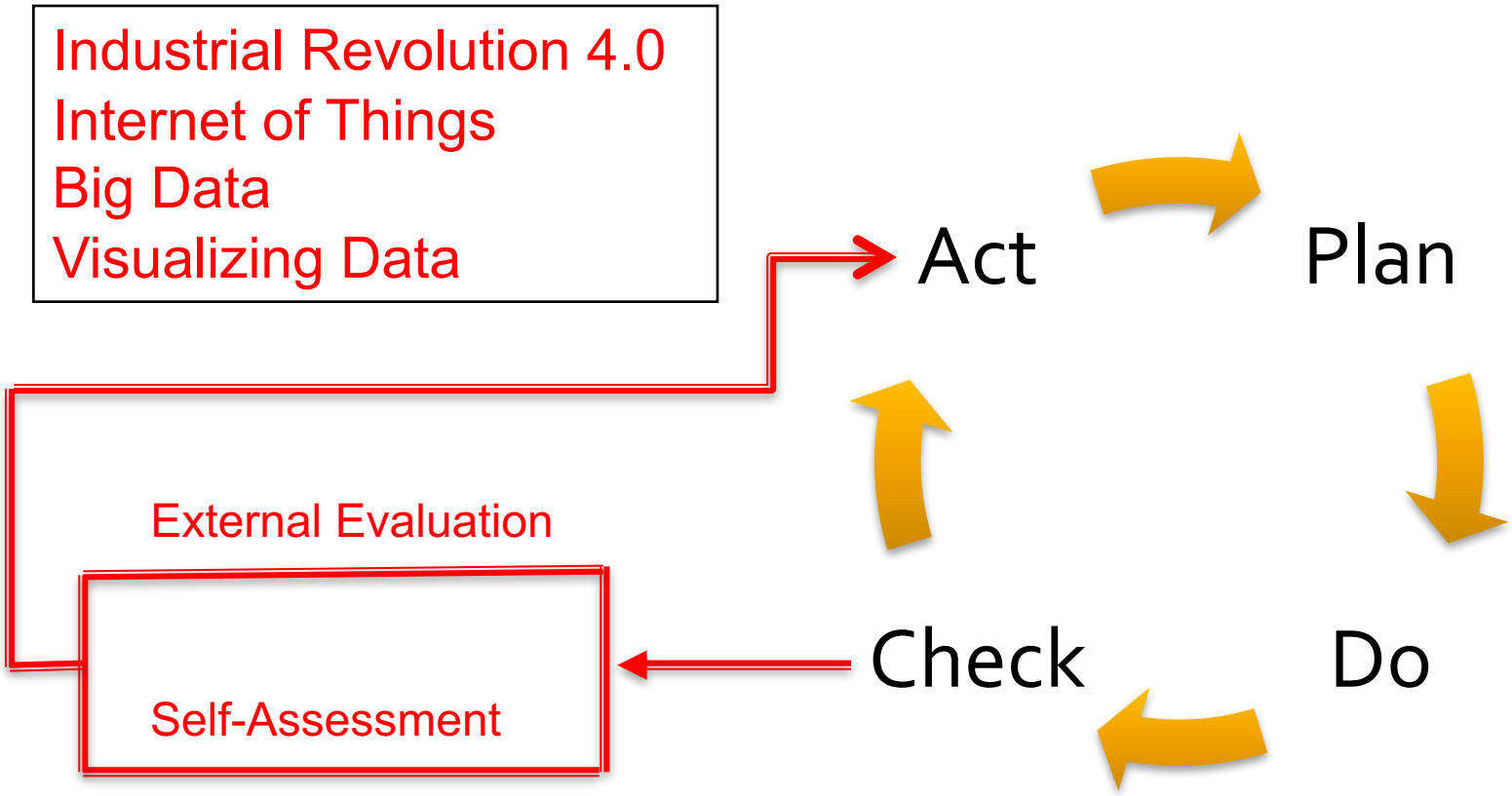
Self Assess for Quality



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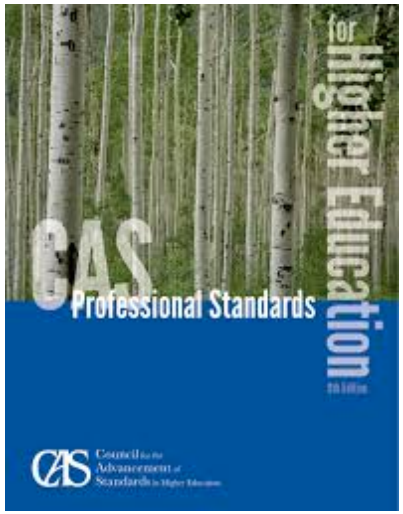
CAS Self-Assessment Process

- Understand the CAS Standards and Guidelines
  - Must and Shall
  - Should and May
  - Criterion measures internal ratings
- Establish and prepare the team
  - As a group, examine the standards

CAS Parts

1. Mission
2. Program
3. Organization & Leadership
4. Human Resources
5. Ethics
6. Law, Policy & Governance
7. Diversity, Equity, & Access
8. Internal and External Relations
9. Financial Resources
10. Technology
11. Facilities & Equipment
12. Assessment

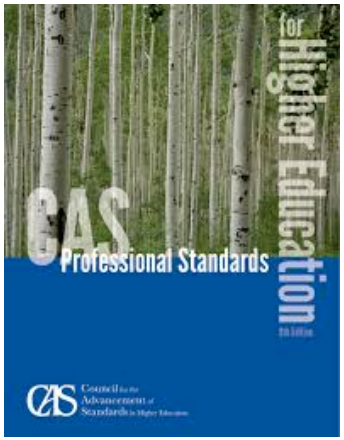


Council for the Advancement of Standards in Higher Education

OHIO UNIVERSITY 1804

CAS Self-Assessment Process

- Compile and review evidence
  - Student Recruitment and Marketing Materials
  - Program Documents
  - Institutional Administrative Documents
  - Research, Assessment and Evaluation Data
  - Staff Activity Reports
  - Student Activity Reports



"Facts are stubborn things; and whatever may be our wishes, our inclinations, or the dictates of our passion, they cannot alter the state of facts and evidence." **John Adams**, *US diplomat & politician (1735 - 1826)*

Council for the Advancement of Standards in Higher Education

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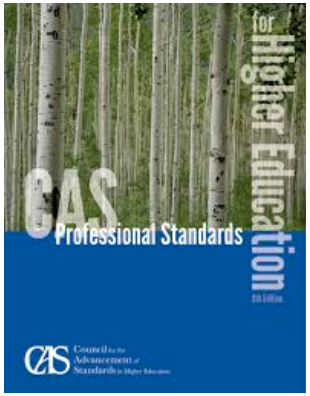
CAS Self-Assessment Process

- Judge Performance
  - 5-Point rating scale
  - Rationale for rating

CAS Criterion Measure Rating Scale						
ND	0	1	2	3	4	5
Does Not Apply	Insufficient Evidence/Unable to Rate	Does Not Meet	Partly Meets	Meets	Exceeds	Exemplary



Council for the Advancement of Standards in Higher Education

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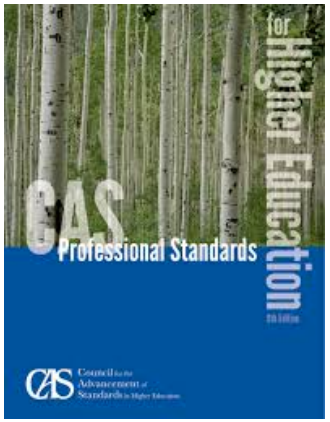
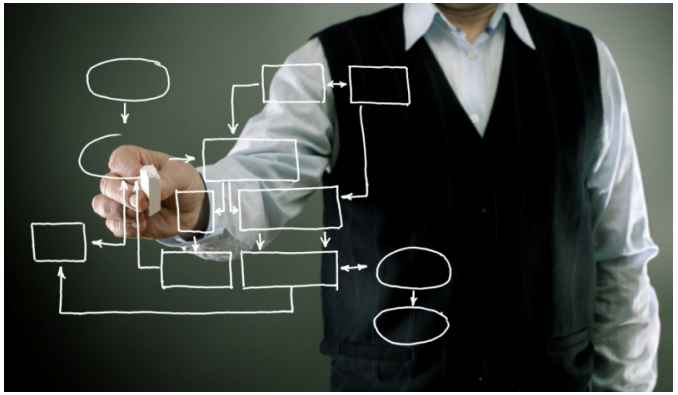
CAS Self-Assessment Process

- Complete the Assessment Process
  - Explain mission, purpose and philosophy
  - Review the outcome of the assessment
  - Make recommendations for action



"In preparing for battle I have always found that plans are useless, but planning is indispensable." Dwight D. Eisenhower *34th president of US 1953-1961 (1890 - 1969)*



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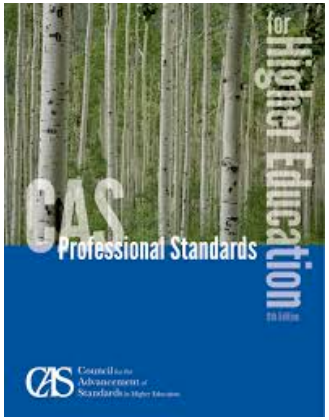
OHIO UNIVERSITY 1804

Answer Qualitative Overview Questions

- Stimulate summary thinking
- Identify overarching issues
- Interpret ratings
- Develop report
- Identify Program Strength
- Identify Program Weakness

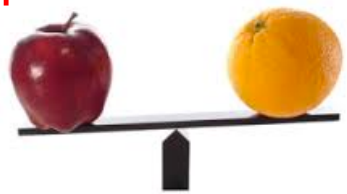


CAS Council for the Advancement of Standards in Higher Education

OHIO UNIVERSITY 1804

Benchmarking

- Measurement of the quality of an organization's policies, products, programs, strategies, etc., (compared with) with standard measurements, or similar measurements of its peers.
- Objectives:
  - Determine what and where improvements are called for;
  - Analyze how other organizations achieve high performance levels;
  - Use this information to improve performance



Read more:
http://www.businessdictionary.com/definition/benchmarking.html

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U.S. DEPARTMENT OF EDUCATION

College Scorecard

http://nces.ed.gov/ipeds/

124 Results SHARE

SORT: Name (A to Z)

PAGE: < 2 3 4 5 6 7

Ohio State University-Main Campus
Columbus, OH
43,733 undergraduates

Average Annual Cost	Graduation Rate	Salary After Attending
$18,068	83%	$42,900

National Average

VIEW MORE DETAILS >

Ohio University-Main Campus
Athens, OH
23,390 undergraduates

Average Annual Cost	Graduation Rate	Salary After Attending
$20,351	67%	$39,600

National Average

VIEW MORE DETAILS >

Oklahoma State University-Main Campus
Stillwater, OK
20,636 undergraduates

Average Annual Cost	Graduation Rate	Salary After Attending
$14,408	60%	$43,800

National Average

VIEW MORE DETAILS >

Old Dominion University
Norfolk, VA
19,842 undergraduates

Average Annual Cost	Graduation Rate	Salary After Attending
$13,067	51%	$42,500

National Average

VIEW MORE DETAILS >

Oregon State University
Corvallis, OR
22,925 undergraduates

Average Annual Cost	Graduation Rate	Salary After Attending
$18,202	62%	$46,000

National Average

VIEW MORE DETAILS >

Pennsylvania State University-Main Campus
University Park, PA
39,958 undergraduates

Average Annual Cost	Graduation Rate	Salary After Attending
$28,201	86%	$47,700

National Average

VIEW MORE DETAILS >

Portland State University
Portland, OR
19,662 undergraduates

Average Annual Cost	Graduation Rate	Salary After Attending
$13,992	42%	$42,100

National Average

VIEW MORE DETAILS >

Purdue University-Main Campus
West Lafayette, IN
29,977 undergraduates

Average Annual Cost	Graduation Rate	Salary After Attending
$14,797	71%	$54,300

National Average

VIEW MORE DETAILS >

IPEDS

"Primary source for information on U.S. colleges, universities, and technical and vocational institutions."

OHIO Peer University Peer Study 2012

- Comparison Variables
  - SAT/ACT 25th-75th Percentile
  - Freshman in Top 10% of HS Class
  - Freshman Acceptance Rate
  - Freshman Retention Rate
  - Actual Graduation Rate
  - US News Predicted Grad. Rate
  - US News Performance Rate
  - % of Classes under 20
  - % of Classes with 50 or more
  - Student Faculty Ratio
  - % Living on Campus
  - Tuition & Fees
  - Government Grants

- Comparison Variables
  - Capital Grants and Contracts
  - Gifts including contributions
  - Auxiliary Sales & Services
  - Federal Appropriations
  - State Appropriations
  - Capital Appropriations
  - Investment Income
  - Other Revenues

U.S.News & WORLD REPORT

IPEDS
Integrated Postsecondary Education Data System

https://www.ohio.edu/instres/univ/peerstudy/index.html

1804 OHIO UNIVERSITY

NSSE national survey of student engagement

NSSE 2014 Frequencies and Statistical Comparisons

Ohio University

First-Year Students

Frequency Distributions[a]

Item wording or description	Variable name[c]	Values[d]	Response options	Ohio University Count	Ohio University %	Peer Institutions Count	Peer Institutions %	Carnegie Class Count	Carnegie Class %	NSSE 2013 & 2014 Count	NSSE 2013 & 2014 %
d. Examined the strengths and weaknesses of your own views on a topic or issue	RIownview	1	Never	31	6	218	5	1,513	5	[illegible]	5
		2	Sometimes	194	37	1,481	35	10,[illegible]	[illegible]	[illegible]3,075	32
		3	Often	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	42
		4	Very often	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			Total	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
e. Tried to better understand someone else's views by imagining how an issu looks from his or her perspective	RIperspect	1	Never	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		2	Sometimes	152	30	1,400	33	9,157	30	[illegible]	30
		3	Often	221	40	1,722	42	12,768	[illegible]	[illegible]9	42
		4	Very often	1[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			Total	5[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
f. Learned something tha changed the way you understand an issue or concept	[illegible]iew	1	Never	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		2	Sometimes	1[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		3	Often	213	40	1,772	43	12,674	42	94,388	41
		4	Very often	131	24	857	20	6,949	23	53,352	[illegible]
			Total	530	100	4,1[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
g. Connected ideas from your cours prior expe knowledg		1	Never	6	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
				[illegible]	[illegible]21	8[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
				[illegible]	[illegible]42	1,9[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
				[illegible]	[illegible]36	1,221	29	9,666	32	73,332	33
				[illegible]	[illegible]00	4,105	100	29,912	100	221,871	100
3. During th											
a. Talked ab plans with member				[illegible]	19	794	20	[illegible]	[illegible]	[illegible]	[illegible]
				[illegible]	47	2,001	49	[illegible]	[illegible]	[illegible]	[illegible]
				[illegible]	22	896	22	[illegible]	[illegible]	[illegible]	[illegible]
				[illegible]	12	422	10	2,802	10	24,348	11
			Total	528	100	4,113	100	30,015	100	222,806	100
b. Worked with a faculty member on activities other than coursework (committees, student groups, etc.)	SFotherwork	1	Never	256	49	2,020	49	16,001	53	113,835	52
		2	Sometimes	164	31	1,320	32	8,854	29	66,782	29
		3	Often	68	12	507	12	3,408	12	27,238	12
		4	Very often	39	8	249	6	1,603	6	14,011	6
			Total	527	100	4,096	100	29,866	100	221,866	100

Statistical Comparisons[b]

Your first-year students compared with

Item wording or description	Ohio University Mean	Peer Institutions Mean	Peer Institutions Effect size[e]	Carnegie Class Mean	Carnegie Class Effect size[e]	NSSE 2013 & 2014 Mean	NSSE 2013 & 2014 Effect size[e]
d. Examined the strengths and weaknesses of your own views on a topic or issue	[illegible].7	2.7	[illegible]	2.8	-.08	2.8 * ▽	-.10
e. Tried to better understand someone else's views by imagining how an issu looks from his or her perspective	2.9	[illegible].8 * △	.11	2[illegible]	.05	2.9	.04
f. Learned something tha changed the way you understand an issue or concept		2.8 * △		2.8	.05	2.9	.02
g. Connected ideas from your cours prior expe knowledg			.10	3.1	.07	3.1	.06
a. Talked ab plans with member			.05	2.2 * △	.11	2.2	.06
b. Worked with a faculty member on activities other than coursework (committees, student groups, etc.)	1.8	1.8	.04	1.7 * △	.10	1.7	.07

Ohio University

Peer Institutions

Carnegie Class

NSSE 2013&14

Examined strengths & weaknesses of own views on topics and issues

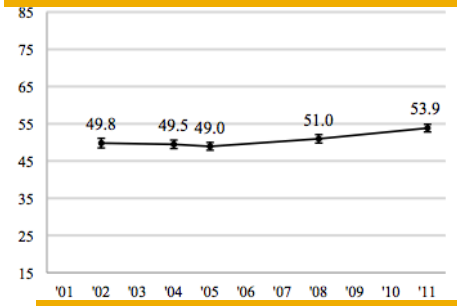
*p<.05, **p<.01, ***p<.001 (2-tailed); Refer to p. 2 for key to triangle symbols.

NSSE national survey of student engagement

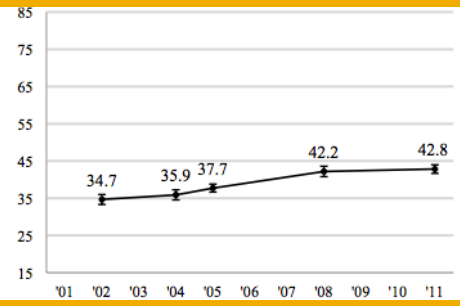
NSSE 2011 Multi-Year Benchmark Report
Multi-Year Charts[a]
Ohio University

First-year Students

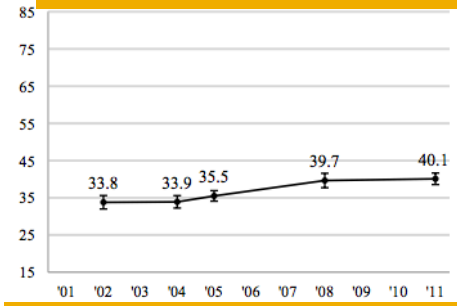
Level of Academic Challenge



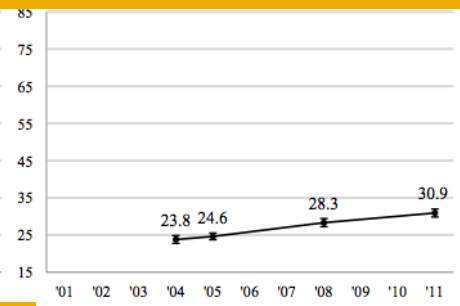
Active & Collaborative Learning



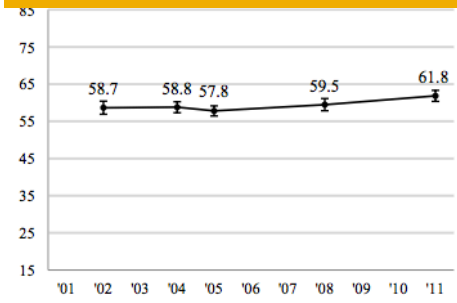
Student-Faculty Interaction



Enriching Educational Experiences



Supportive Campus Environment



Notes:

a. Recalculated benchmark scores are charted for all years of participation since 2001. See page 5 for detailed statistics. For more information and recommendations for analyzing multi-year NSSE data, consult the *Multi-Year Data Analysis Guide*. **nsse.iub.edu/pdf/MYDAG.pdf**

b. For institutions with 2001-2003 data, due to a change to the 'research with faculty' item in 2004, 'SFC' (a version of 'SFI' that does not include that item) is charted on this page. Statistics for both versions are provided on page 5.

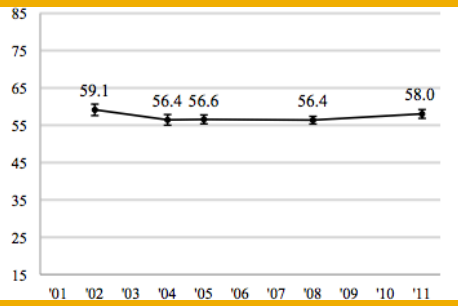
c. 2001-2003 'EEE' scores are not provided because response options for several 'EEE' items were altered in 2004, and thus scores are incompatible with those of later years.

NSSE national survey of student engagement

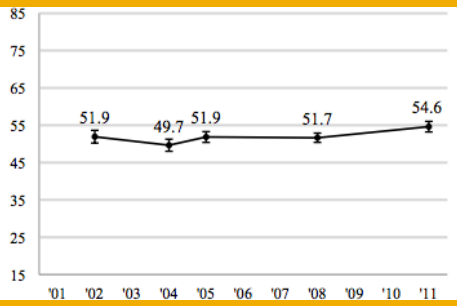
NSSE 2011 Multi-Year Benchmark Report
Multi-Year Charts[a]
Ohio University

Seniors

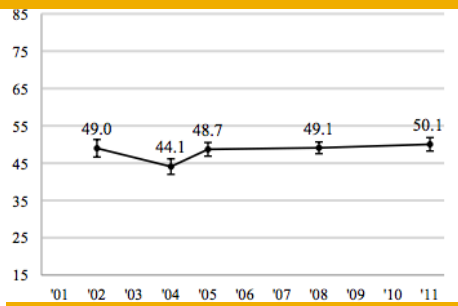
Level of Academic Challenge



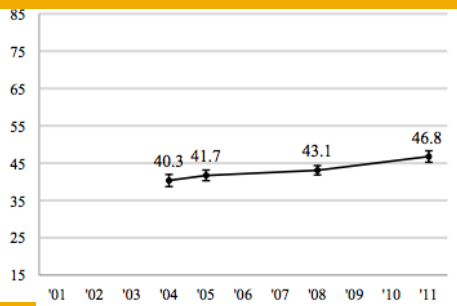
Active & Collaborative Learning



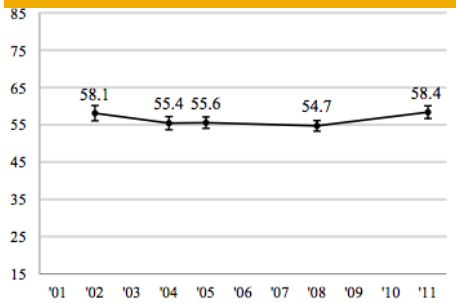
Student-Faculty Interaction



Enriching Educational Experiences



Supportive Campus Environment



Notes:

a. Recalculated benchmark scores are charted for all years of participation since 2001. See page 7 for detailed statistics. For more information and recommendations for analyzing multi-year NSSE data, consult the *Multi-Year Data Analysis Guide*. **nsse.iub.edu/pdf/MYDAG.pdf**

b. For institutions with 2001-2003 data, due to a change to the 'research with faculty' item in 2004, 'SFC' (a version of 'SFI' that does not include that item) is charted on this page. Statistics for both versions are provided on page 7.

c. 2001-2003 'EEE' scores are not provided because response options for several 'EEE' items were altered in 2004, and thus scores are incompatible with those of later years.

Quality Assurance: Validating Realistic Self Assessment Through External Evaluation

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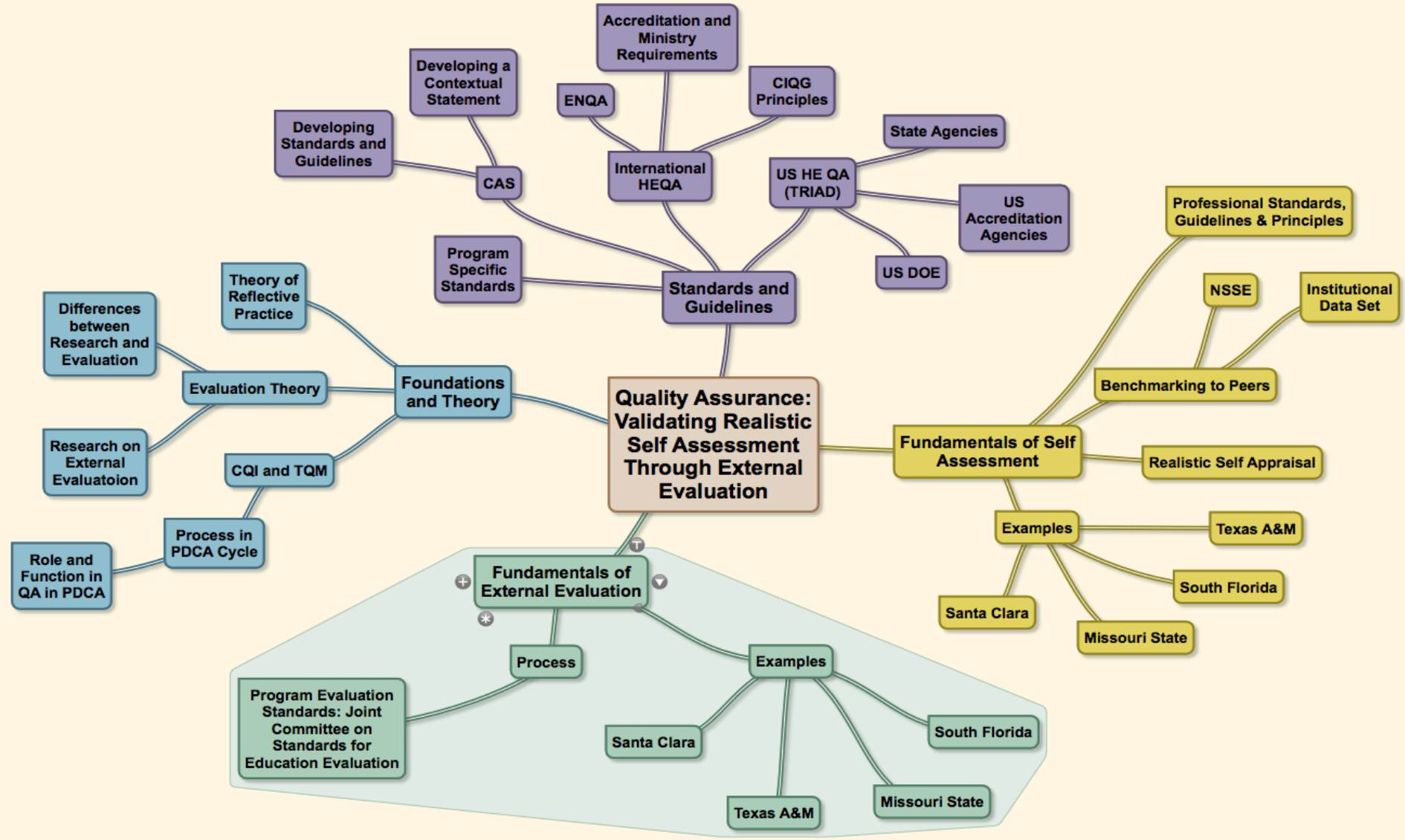

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Program Evaluation Defined

- "A form of appraisal using valid and reliable research methods, that examines the process of outcomes of an organization that exists to fulfill some social need." (Grinnel and Unrau, 2008, pg. 553)

PROCESS

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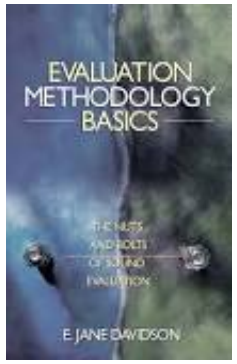
Potential Evaluation Checklist (Modified from Scriven, 2003)

- Executive Summary
- Preface
- Methodology
- Background and Context
- Descriptions and Definitions
- Consumers
- Resources
- Values
- Process Evaluation
- Outcome Evaluation
- Comparative Cost-effectiveness
- Exportability
- Overall Significance
- Recommendations
- Responsibilities
- Reporting and Follow-up
- Meta Evaluation



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External Evaluation Process

- Organizational data were triangulated using a variety of methods and sources, including:
  - Review of documentary evidence including, department's CAS-self assessment;
  - Externally developed survey of employees and;
  - Onsite interviews and focus groups of employees and participants.
- External program review of the program, including analysis the documents and evidence, a survey of employees, and focus groups finalized the data collection portion of the comprehensive review.

DSF Evaluation Process

- Review of Evidence
  - Align with CAS Standards and identified benchmarks
- Conduct and analyze survey
- Site visit for interviews and focus groups
- Create report focused on:
  - General findings
  - Specific findings
  - Recommendations

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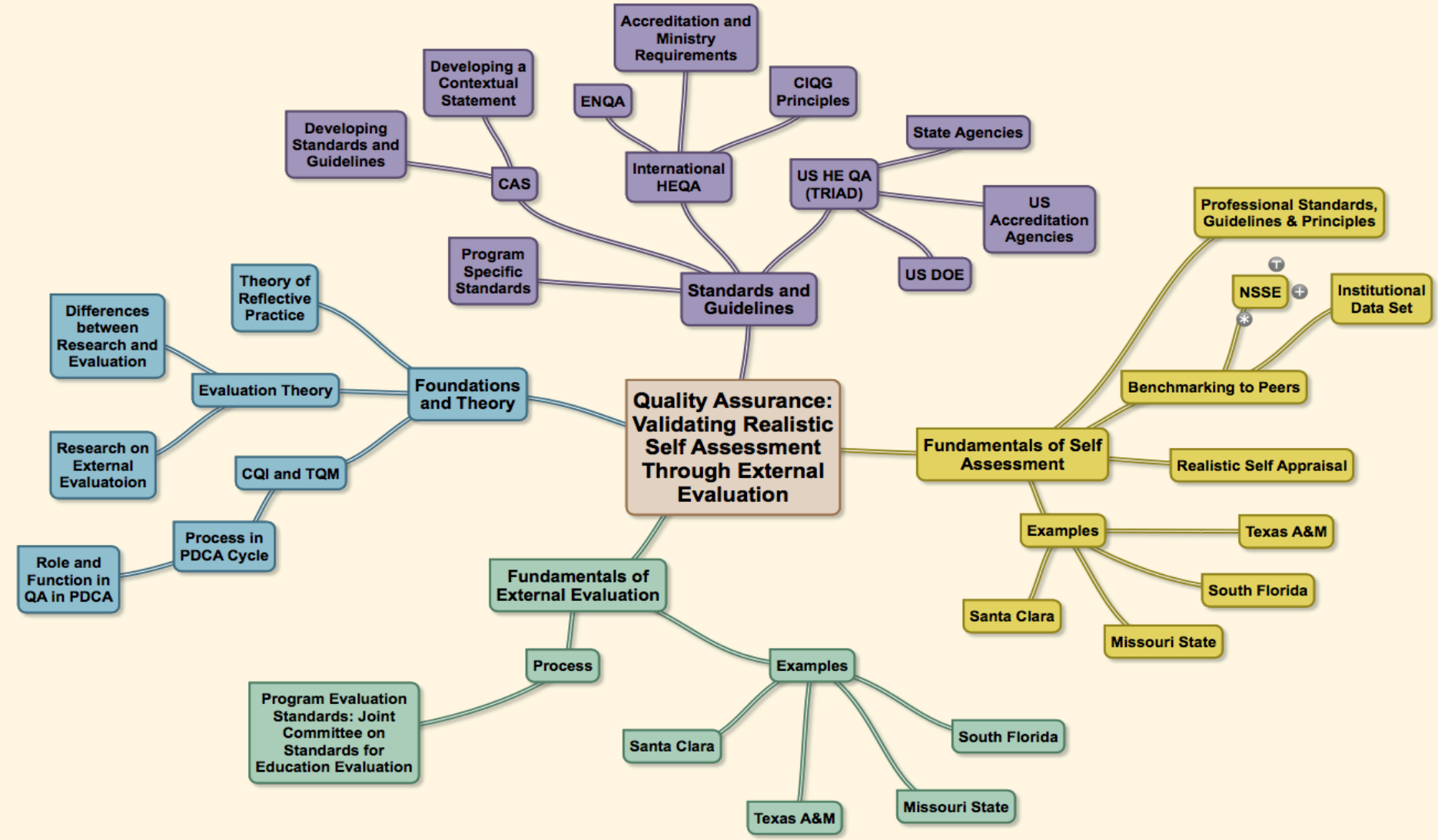

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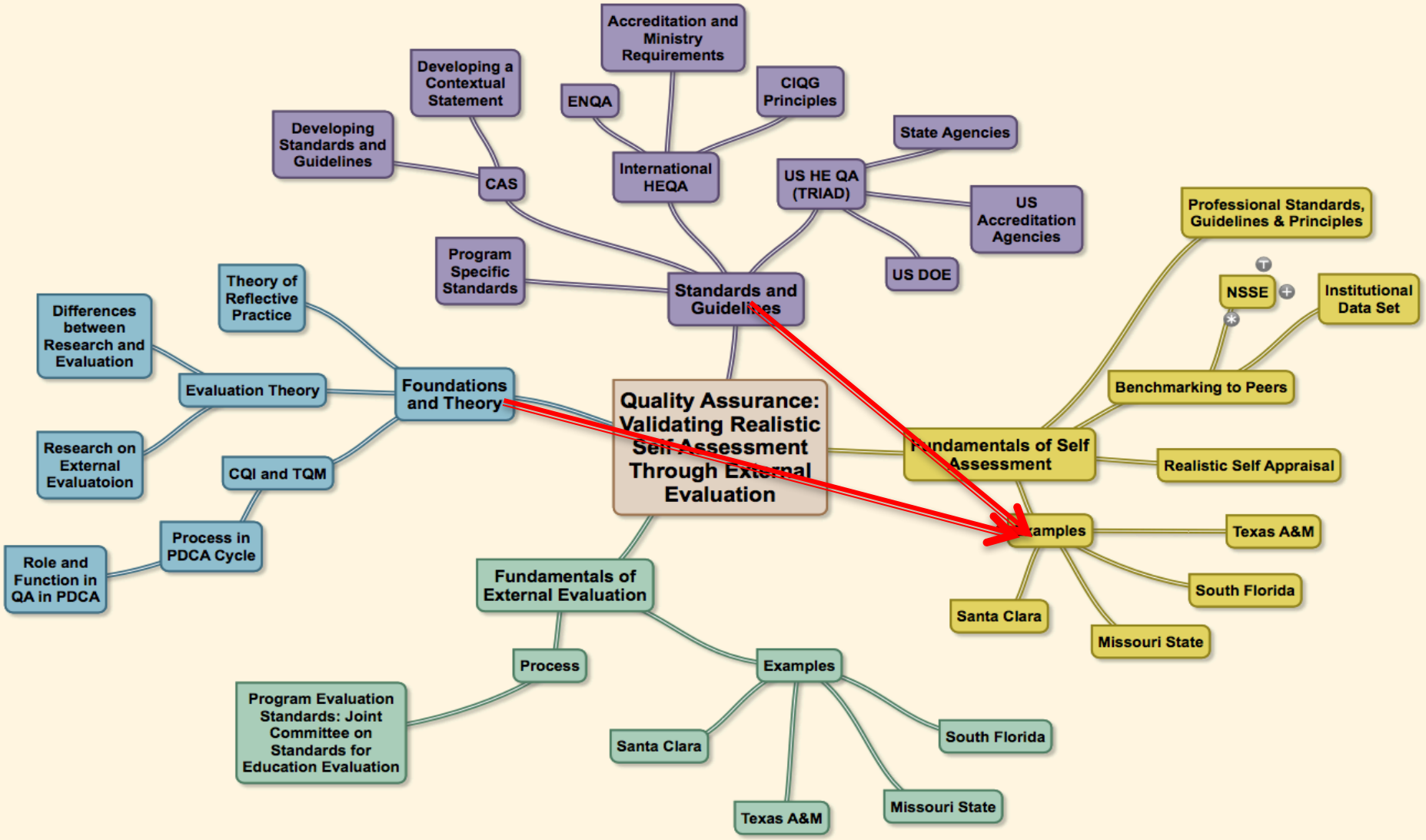

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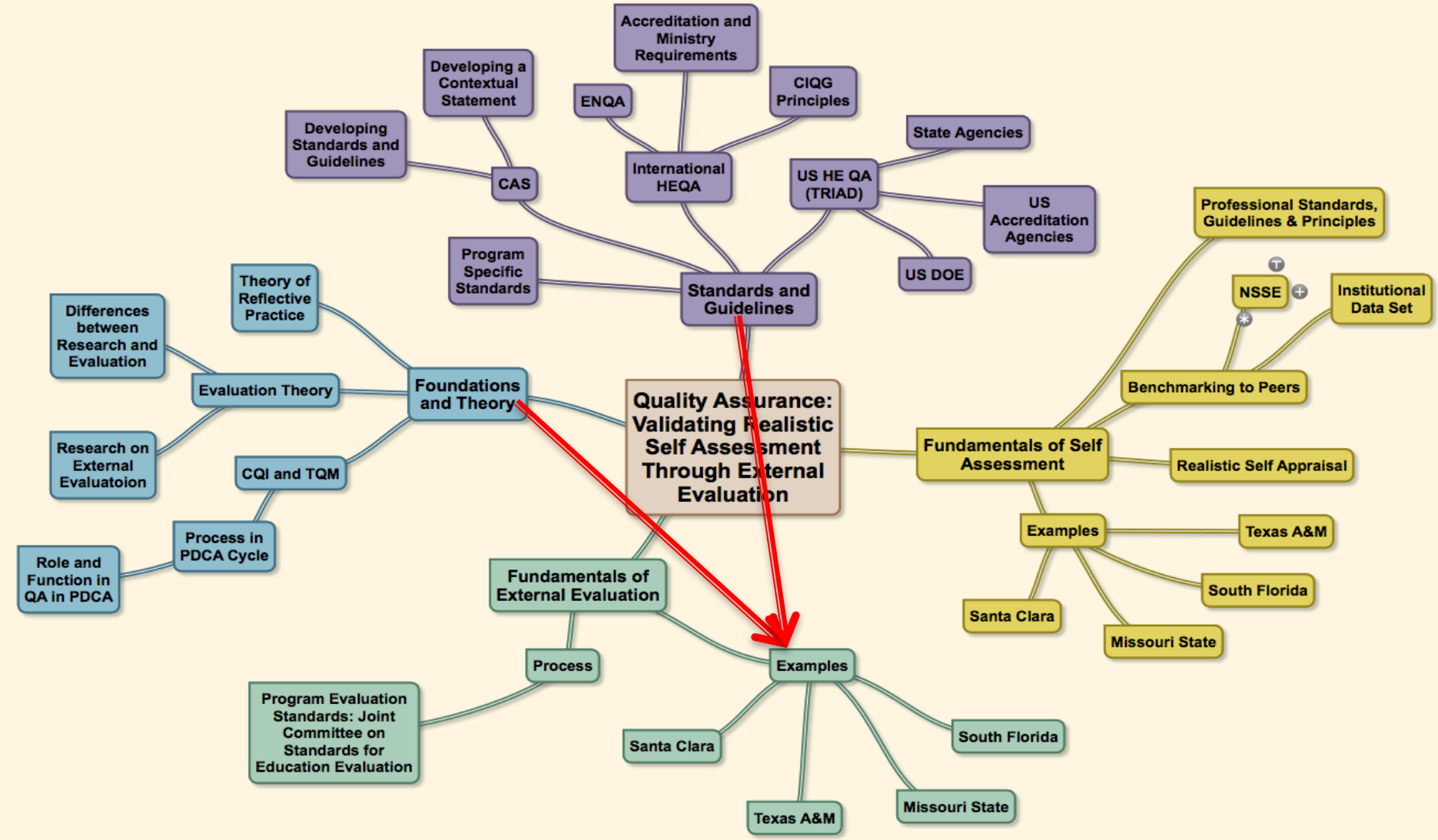

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Validation of Self Assessment through External Evaluation

- Texas A&M University (Large Research)
- Missouri Sate University (Mid size regional)
- University of South Florida (Large Mid-tier)
- Santa Clara University (Small Private)

Missouri State

USF UNIVERSITY OF SOUTH FLORIDA

Santa Clara University

CAS Council for the Advancement of Standards in Higher Education

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Texas A&M: CAS Self Assessment

- Part 1. Mission:
  - The mission of Recreational Sports Programs (RSP) must be to enhance the mind, body and spirit of students and other eligible individuals by providing programs, services and facilities that are responsive to the physical social, recreational and lifelong educational needs of the campus community.
  - TAMU Response: Department of Recreational Sports Mission is to provide quality programs, services and facilities to a diverse Texas A&M community. We encourage the lifelong pursuit of active healthy lifestyles and enhance student development by providing leadership and employment opportunities.

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Texas A&M: External Evaluation

- ***Mission:*** The mission addresses the fundamental purpose of the organization and emphasizes that the program need for enhancing the mind, body, and spirit of students and other eligible individuals by providing programs, services, and facilities that are responsive to the physical, social, recreational, and lifelong educational needs of the campus community as they relate to health, fitness, and learning.
- *Finding:* The department's mission aligns well with relevant standards as well as with the Division and Institutional mission. Review of the department's mission is irregular and there is no evidence of any review or revision. The lack of review of the mission was viewed as limited and supported by statement "there is no documentation to support that a regular, systematic process is utilized to review the mission statement."

Recommendation: The department would benefit from regularly reviewing its mission and to consider a revision to include the term "student learning."

Missouri State: CAS Self Assessment

- **Part 2. Program**
  - The RSP must contribute to student learning and development outcomes that are purposeful:
  - MSU Response:
    - Personal Training is designed for participants who seek assistance in developing exercise routines. Trainers can increase or decrease the difficulty of the workout to maximize participant effort and satisfaction.
    - Swimming lessons classes are designed for participants who are unable to swim or swim well. Three levels of lessons are offered to accommodate most participants.
    - Intramurals offers programming for various skill levels.

Missouri State

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Missouri State: External Evaluation

- ***Program:*** … program area focuses on the promotion of student learning and development outcomes that are purposeful,…
- *Finding:* …programming efforts are up-to-date and inclusive of varying interests and abilities. Operational and program policy/procedure are well-written and available to participants in easy-to-find places on the department's website. Many student-employees articulated a learning value associated with their employment that exceeded what they had learned in the classroom and alignment of student employment with academic preparation was not harnessed.

Recommendation: The department should explore co-curricular collaborations that provide experiential learning opportunities as well as academic partnerships with units closely associated with student employment.

Missouri State

OHIO UNIVERSITY 1804

University of South Florida: CAS Self Assessment

- Part 4. Human Resources: RSP must be staffed adequately by individuals qualified to accomplish mission and goals.
- USF Response:
  - USF CR is staffed adequately to meet the mission and goals. One area identified as lacking support is office administrative assistance. USF CR intentionally reclassified an office manager position to emphasize the importance of membership services (coordinator), the result is a hybrid position that still handles limited office management and administrative support.
  - USF CR has advanced its efforts in ensuring appropriate marketing messaging, campaigns, and program advertisement through a reclassification of a senior clerk (reception and administrative support) into a Marketing officer. This move has improved marketing but again challenges the department by removing administrative support. The marketing officer

s.

Criterion Measures:

DNA	IE	0	1	2 Meets	3
Does Not Apply	Insufficient Evidence/ Unable to Rate	Does Not Meet	Partly Meets		Exceeds

2

4.1 Adequate Staffing and Support

- → Recreational Sports Programs (RSP) is staffed adequately to accomplish mission and goals.
- → RSP has access to technical and support personnel adequate to accomplish the mission.

USF UNIVERSITY OF SOUTH FLORIDA

CAS Council for the Advancement of Standards in Higher Education

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University of South Florida: External Evaluation

- ***Human Resources:*** The department appears to be staffed by experienced and qualified professionals. With the exception of "hiring practices are fair", survey responses in all areas related to human resources showed some growth. There was no evidence presented that hiring practices were "unfair." Training and performance evaluation could be enhanced to improve performance.
  - *Finding:* Professional development and training for departmental personnel is irregular and does not include continuing education in the development of student learning outcomes and assessment.

Recommendation: Education and training in student learning outcomes and assessment would enhance department personnel's ability to create an enhanced learning environment for student participants and employees.

USF
UNIVERSITY OF SOUTH FLORIDA

External Review 2005

External Review 2010

External Review 2016

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Santa Clara University

- Part 8. Institutional and External Relations
  - Recreational Sports Programs (RSP) must reach out to relevant individuals, groups, communities, and organizations internal and external to the institution to establish, maintain, and promote understanding and effective relations with those that have a significant interest in or potential effect on the students or other constituents served by the programs and services
- SCU Response
  - The SCU CR program maintains effective relations with the institutional offices of Risk Management, Athletics, Student Life, Center for Student Leadership, Wellness Ctr., Healthy and Safety, Facilities, Development, Alumni, General Counsel , and Center for Sustainability. Outside of campus – SCU CR works with other universities in the Bay Area, and NIRSA friends and colleagues.

Santa Clara University

Council for the Advancement of Standards in Higher Education

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Santa Clara University

- ***Internal and External Relations:***
  - *Finding:* Relationship building is a key strength of Campus Recreation as evidenced by the large number of focus group participants representing a variety of partner organizations. Survey responses indicate the perception that campus and external relationships were valued (86.30%; 3.26). A great example of collaboration by Campus Recreation has been exhibited by their leadership role in achieving institutional goals related to sustainability (94%; 3.70). Focus group discussions with partners revealed professional staff are actively engaged throughout campus and perceived as leaders in collaboration.

Recommendation: Maintain current collaborative engagement practices with internal and external partners. Address partner needs during the facility expansion process.

Santa Clara University

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Quality Assurance: Validating Realistic Self Assessment Through External Evaluation

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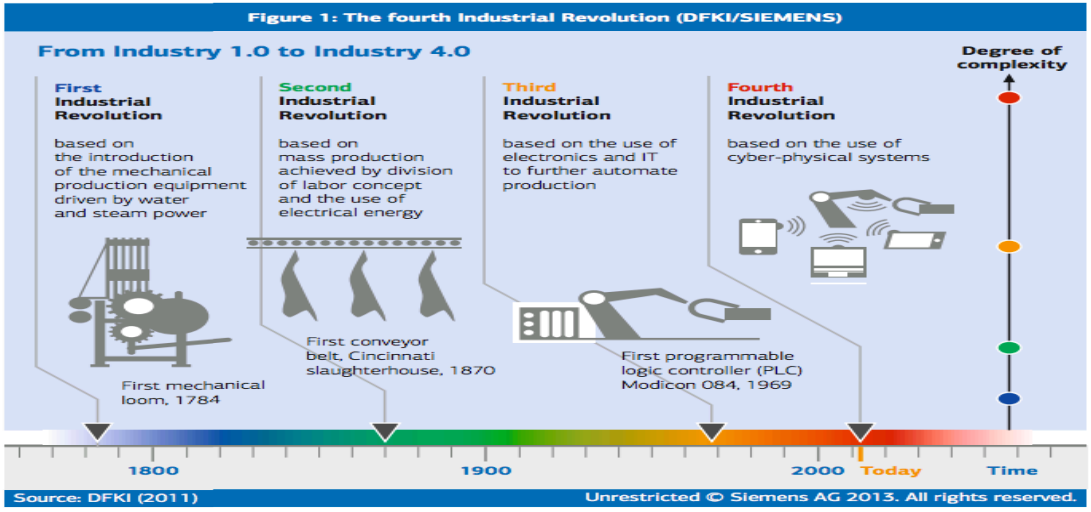
Industrial Revolution 4.0

- Higher Education and Industrial Revolution 4.0
  - Potential Impact on Higher Education
    - Institutional Processes
    - Content-Knowledge Triangle
    - Support in CQI and QA



3 IRISS Deliverable 6.4 Strategic Research Agenda on Smart Systems Integration, to be published.
4 http://www.smart-systems-integration.org/public

https://www.cleverism.com/industry-4-0-everything-need-know/

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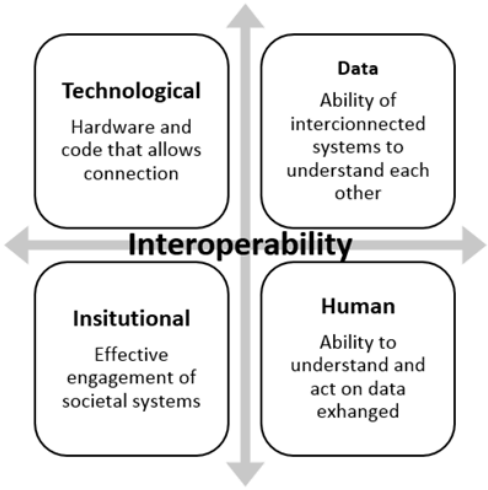
Principles in Industry 4.0

- Interoperability: Ability of machines, devices, sensors, and people to connect and communicate with each other via the Internet of Things (IoT) or the Internet of People (IoP).



http://www.forbes.com/sites/bernardmarr/2016/06/20/what-everyone-must-know-about-industry-4-0/#bb5aacd4e3b9

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Principles in Industry 4.0

- Technical assistance:
  - Systems to support humans by aggregating and visualizing information comprehensibly for making informed decisions, solving urgent problems on short notice and conducting a range of tasks that are unpleasant, too exhausting, or unsafe for their human co-workers.

http://www.forbes.com/sites/bernardmarr/2016/06/20/what-everyone-must-know-about-industry-4-0/#bb5aacd4e3b9

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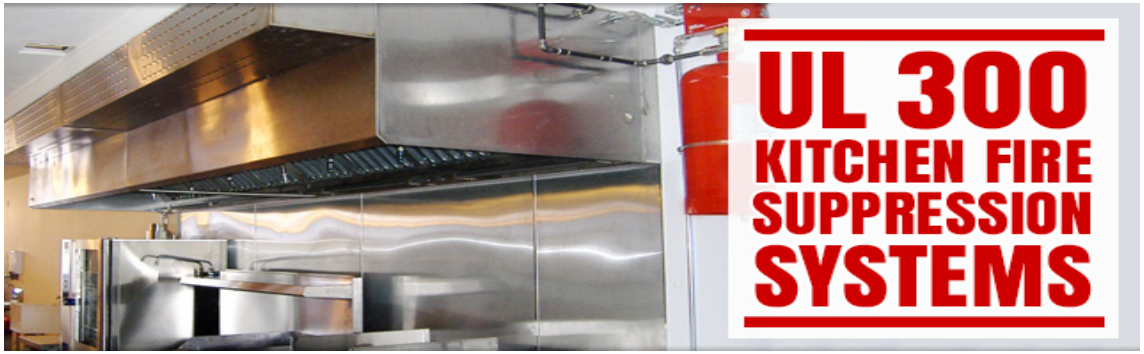
Principles in Industry 4.0

- Decentralized decisions: ability of cyber physical systems to make decisions on their own and to perform their tasks as autonomous as possible. Only in case of exceptions, interferences, or conflicting goals, tasks are delegated to a higher level.



http://www.forbes.com/sites/bernardmarr/2016/06/20/what-everyone-must-know-about-industry-4-0/#bb5aacd4e3b9

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Industry 4.0 Applications for HE

- IoT devices already on campus today
  - HVAC controls
  - Smart washing machines
  - Sprinkler controls
  - Door locks/security systems
  - Alarms
  - Sustainable trash cans
  - Temperature alerts for lab freezers
  - Robots for distance education
  - Supply inventory tracking
  - Parking Sensors

UB University Business

Lacey, K. 2016. University Business Magazine

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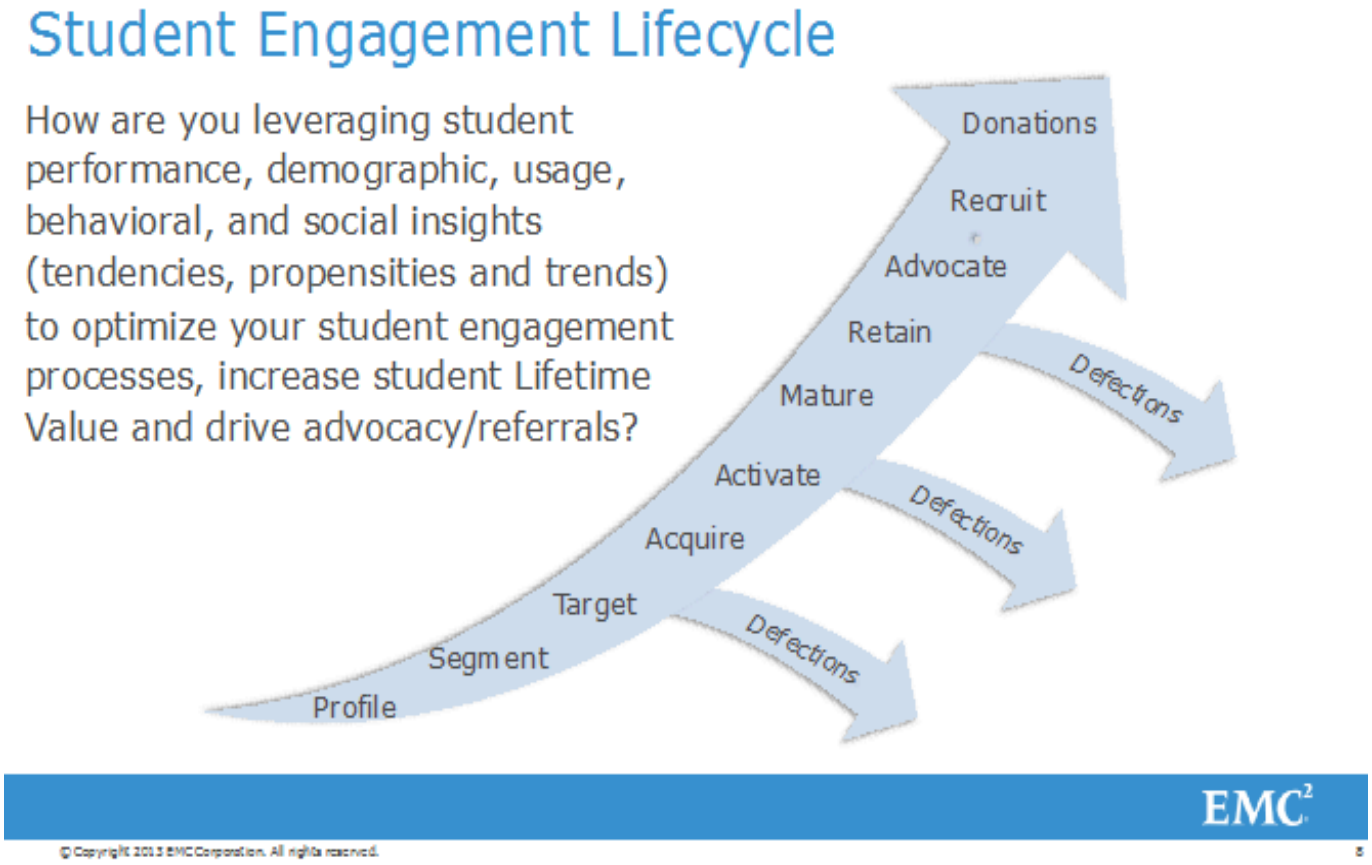
Industry 4.0 Applications for HE

- Acquisition
- Course/Major Selection
- Performance Effectiveness
- Work Groups
- Retention
- Teacher Effectiveness
- Value/Booster Effectiveness
- Advocacy



https://infocus.emc.com/william_schmarzo/what-universities-can-learn-from-big-data-higher-education-analytics/

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Industry 4.0 Applications for HE

- Predictive Analytics in HE: Data-Driven decision-making for the student life cycle
  - Improve student learning outcomes
  - Improve retention and graduation rates
  - Improve institution ROI on recruitment costs
  - Increase operational efficiency
  - Demonstrate success in a key area of focus for accrediting agencies and governments

"an area of statistical analysis that deals with extracting information using various technologies to uncover relationships and patterns within large volumes of data that can be used to predict behavior and events." (Source: Educause)

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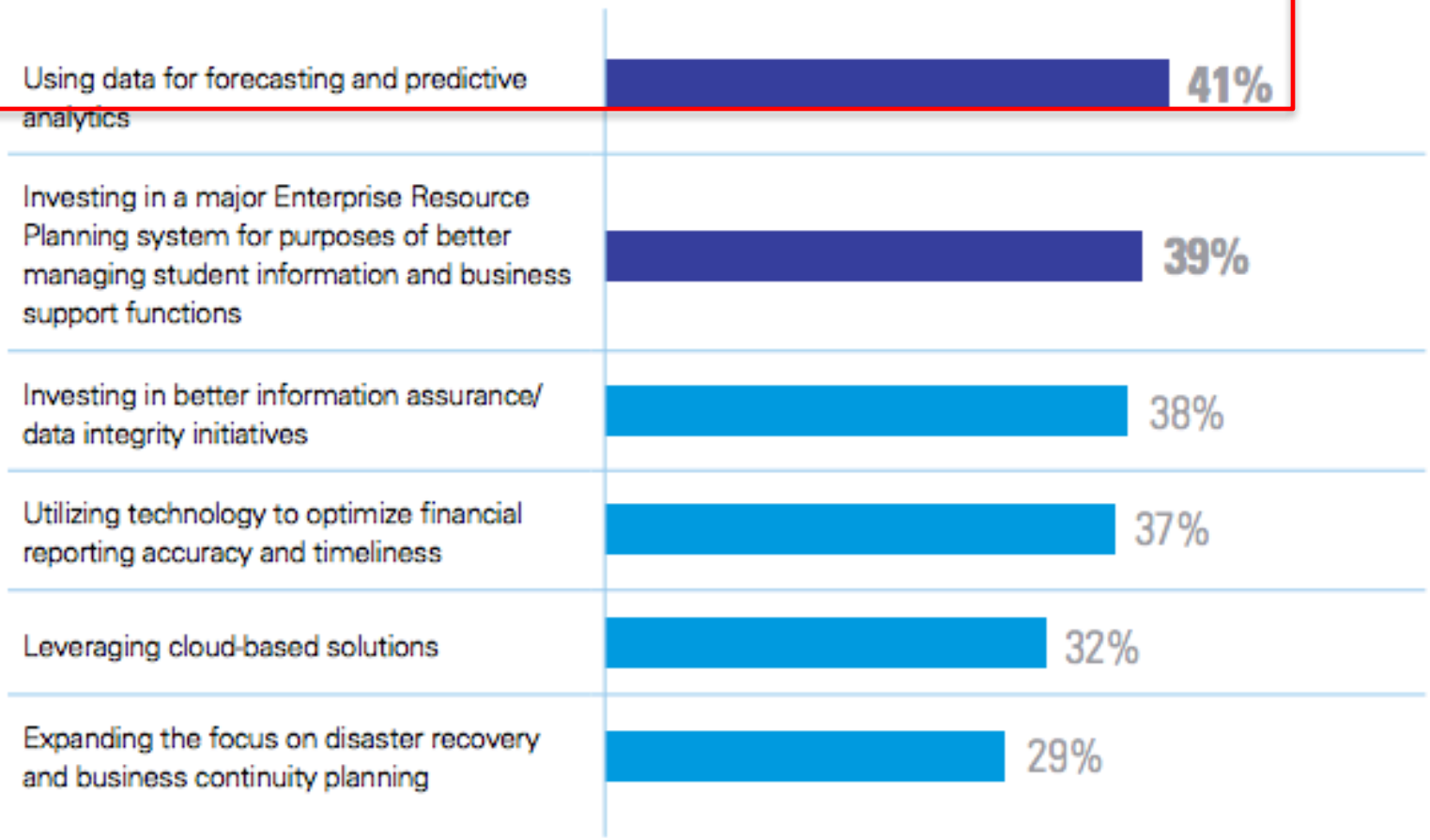
Technological change and innovation are major challenges for higher education

Q: Which of the following apply to your institution?



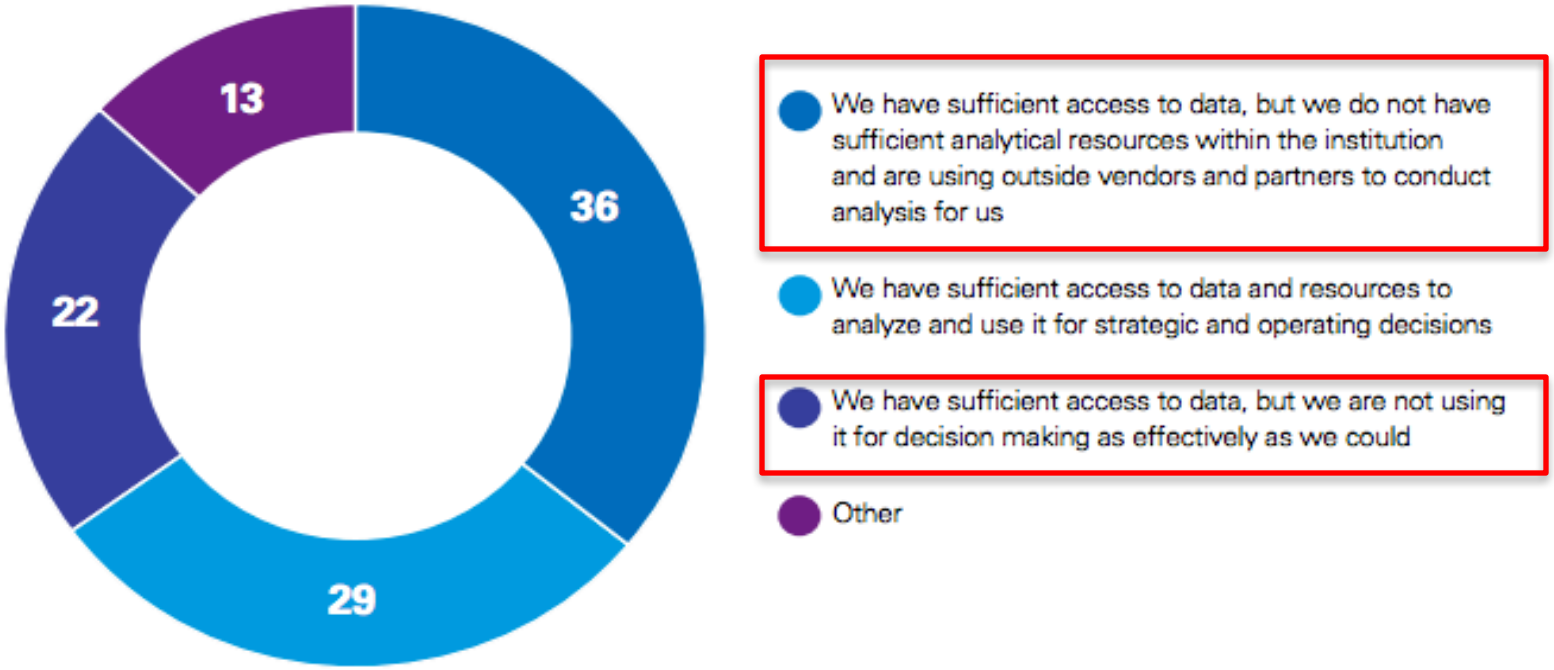
Multiple responses allowed

Source: KPMG Embracing Innovation http://www.kpmg-institutes.com/content/dam/kpmg/governmentinstitute/pdf/2015/he-outlook-2016.pdf

Data and analytics

Statements describing institution with respect to data and analytics.

Q: Which of the following statements best describes your institution regarding data and analytics?



Source: KPMG Embracing Innovation http://www.kpmg-institutes.com/content/dam/kpmg/governmentinstitute/pdf/2015/he-outlook-2016.pdf

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Industry 4.0 Applications in HE: Findings from EDUCAUSE Study (2012)

- Analytics:
  - Investment should be made in area which HE institutions are making the least progress;
  - Institutions should focus investments on expertise, process and policies before acquiring new tools;
  - Institutions that have made more progress in investment, culture/process, data tools, expertise and governance are more likely to use data to make predictions or projections or to trigger action in a variety of areas.

EDUCAUSE: Analytics in HE: Benefits, Barriers, Progress and Recommendations- http://net.educause.edu/ir/library/pdf/ers1207/ers1207.pdf

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Industry 4.0 Applications in HE: EDUCAUSE Study (2005)

- Advancement/fundraising
- Business and Finance
- Budget and Planning
- Institutional Research
- Human Resources
- Research Administration
- Academic Affairs & Student Services

Outcome	Mean	SD
Improved institution's financial results	3.09	0.928
Managed workforce more productively	2.78	.0928
Managed grants effectively	2.61	0.984
Improved ability to obtain grant funding	2.47	.0962
Improved admissions/enrollment mgmt. results	**3.43**	**1.012**
Improved fundraising results	2.93	1.087
Improved retention results	3.16	0.952

- Characteristics of Institutions with Successful Outcomes
  - Effective Training
  - Staff skilled at academic analytics
  - Leadership committed to evidence-based decision making

https://er.educause.edu/articles/2007/7/~/media/27801b66e5ba4ade864120add7fe129d.ashx

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What Types of HE Data Are There?

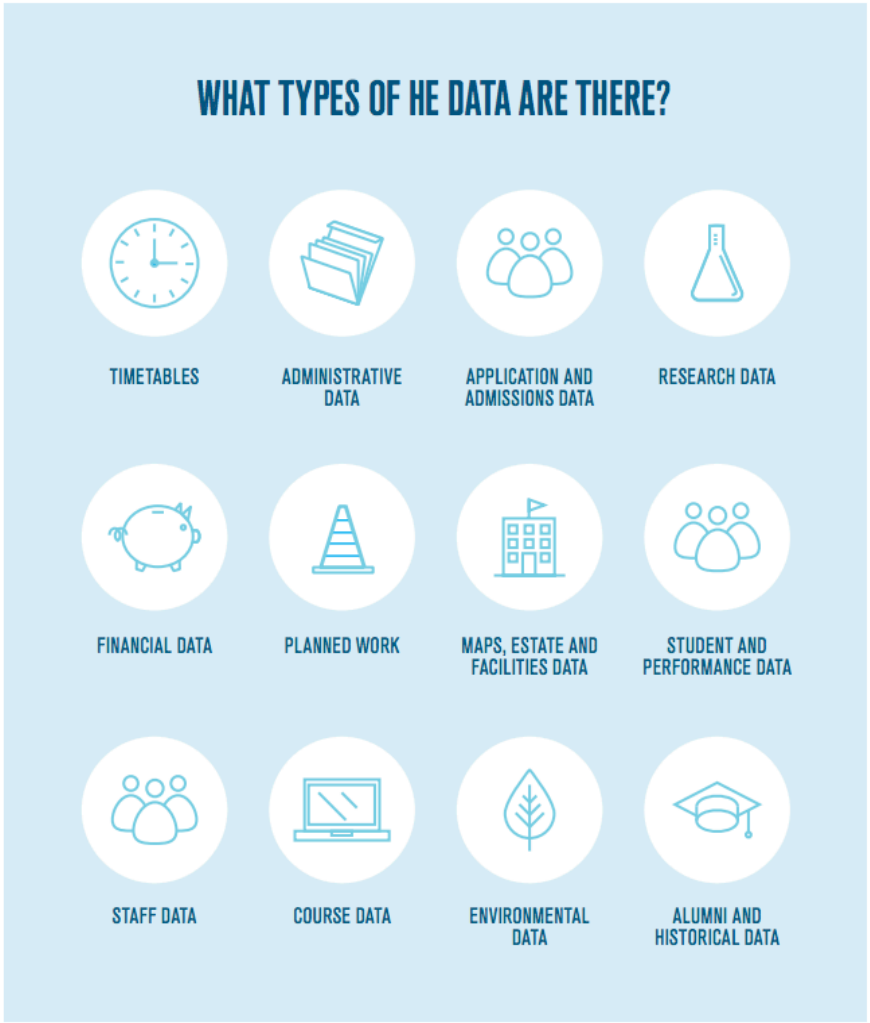
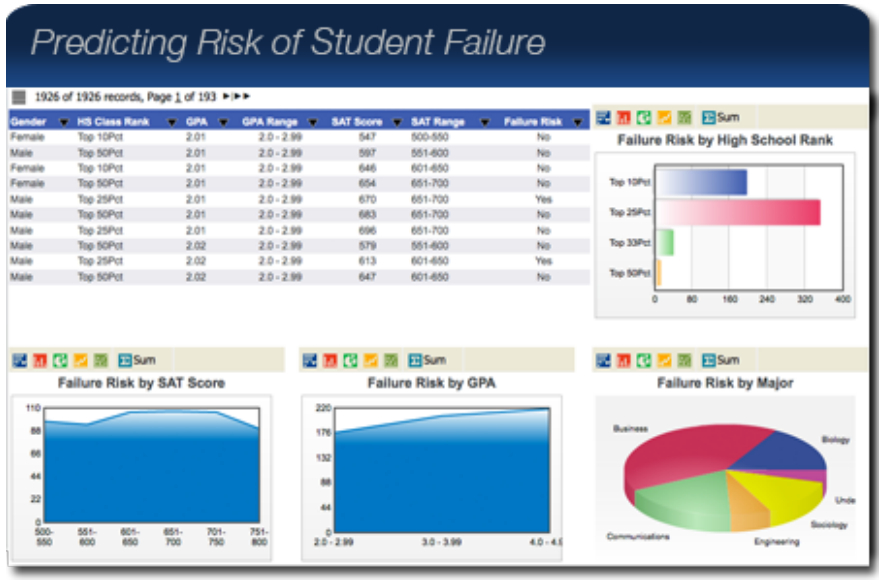


Figure 1. "Types of HE Data." Source: *Deloitte*, 2014

How is the Data Translated?



http://www.slideshare.net/UniversitiesUK/open-data-potential-into-practice-harvey-lewis-research-director-analytics-deloitte-london

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Big Data and Analytics Applications

campuslabs Data Driven Innovation

ClearStory DATA

tableau

PARFRAMEWORK

sas THE POWER TO KNOW.

Bb Blackboard

ACADEMIC ANALYTICS

MicroStrategy

CIVITAS LEARNING

SAP

ORACLE

HUMAN CAPITAL MANAGEMENT

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Dashboards

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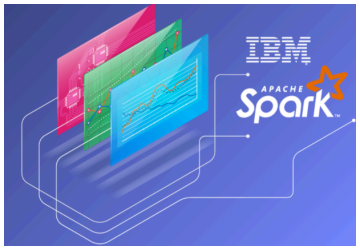

Qlik

Rapid Insight® data driven decisions™

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Industry 4.0 Evaluation Question

- How is the institution:
  - Educating students to live and work in the 4th industrial age?
  - Using using big data in making data driven decisions in support of CQI?
  - Using the IoT to achieve efficiencies and effectiveness in achieving its academic mission?

"The Fourth Industrial Revolution urges us to think creatively about the manufacturing process, value chain, distribution and customer service processes. In the meanwhile, the future of education emphasizes the immense need to look beyond these areas and strategically utilize the "Internet of Things" to prepare the coming workforce for the challenges ahead." Mezied, A.A. (2016)

https://www.weforum.org/agenda/2016/01/what-role-will-education-play-in-the-fourth-industrial-revolution/

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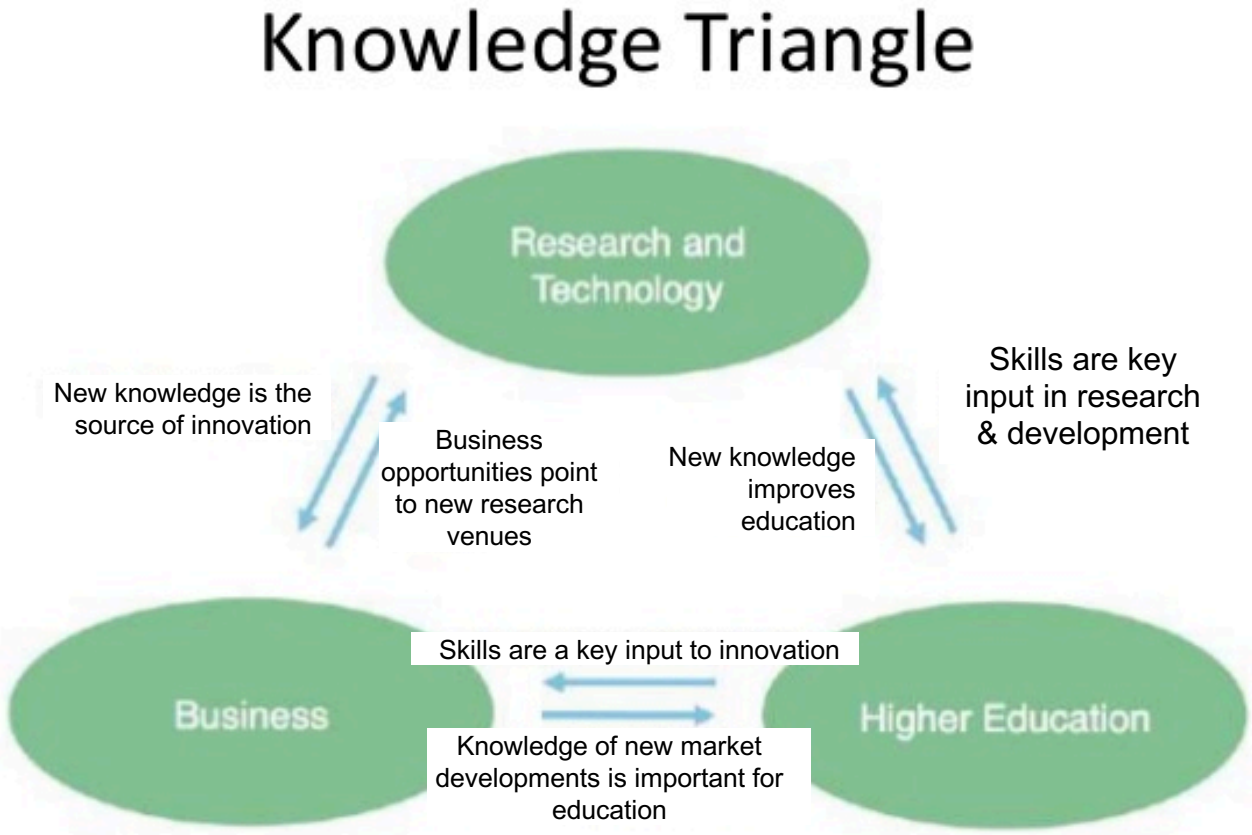
Knowledge Triangle & Innovation



https://www.oecd.org/sti/inno/knowledge-triangle.htm

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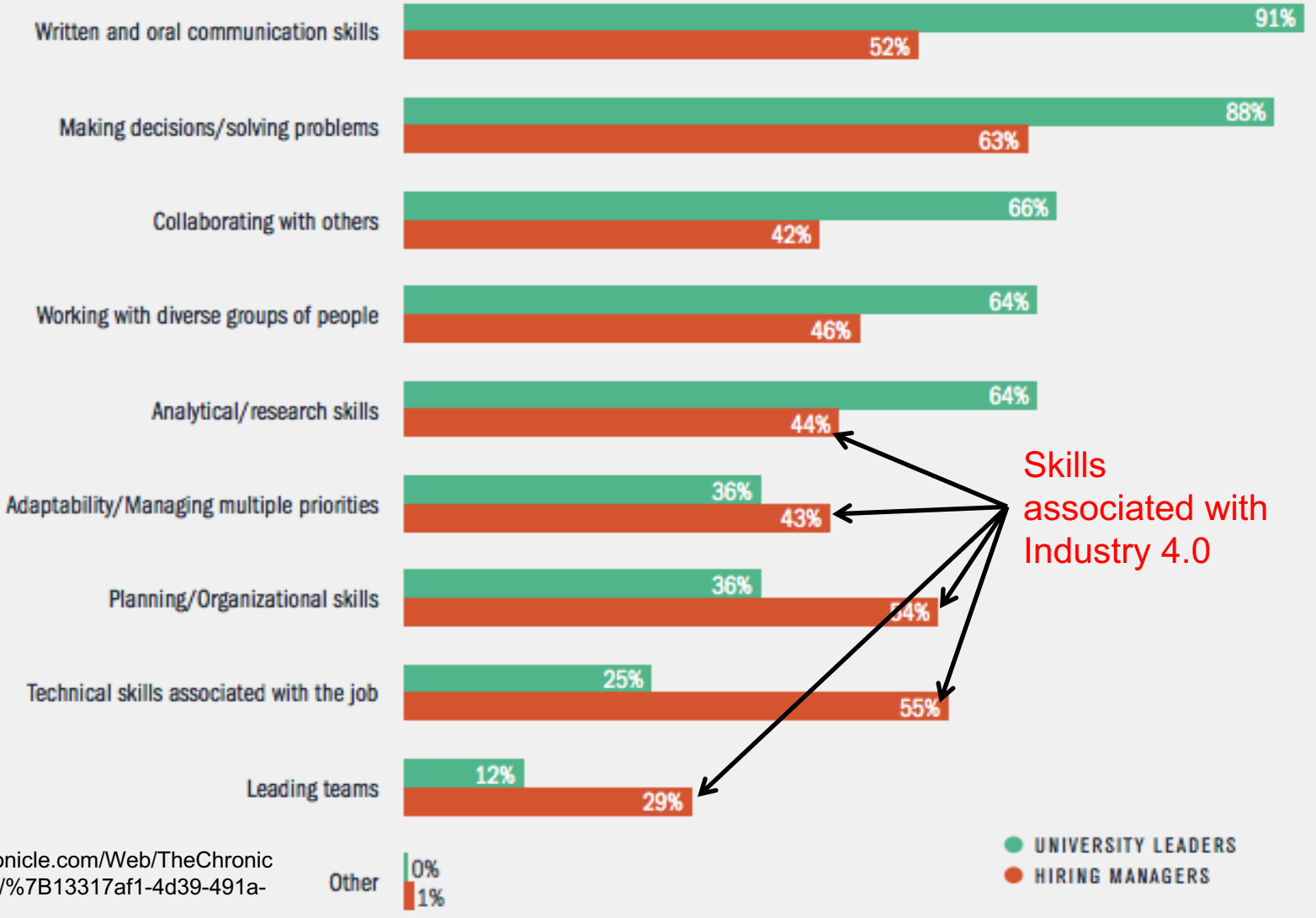
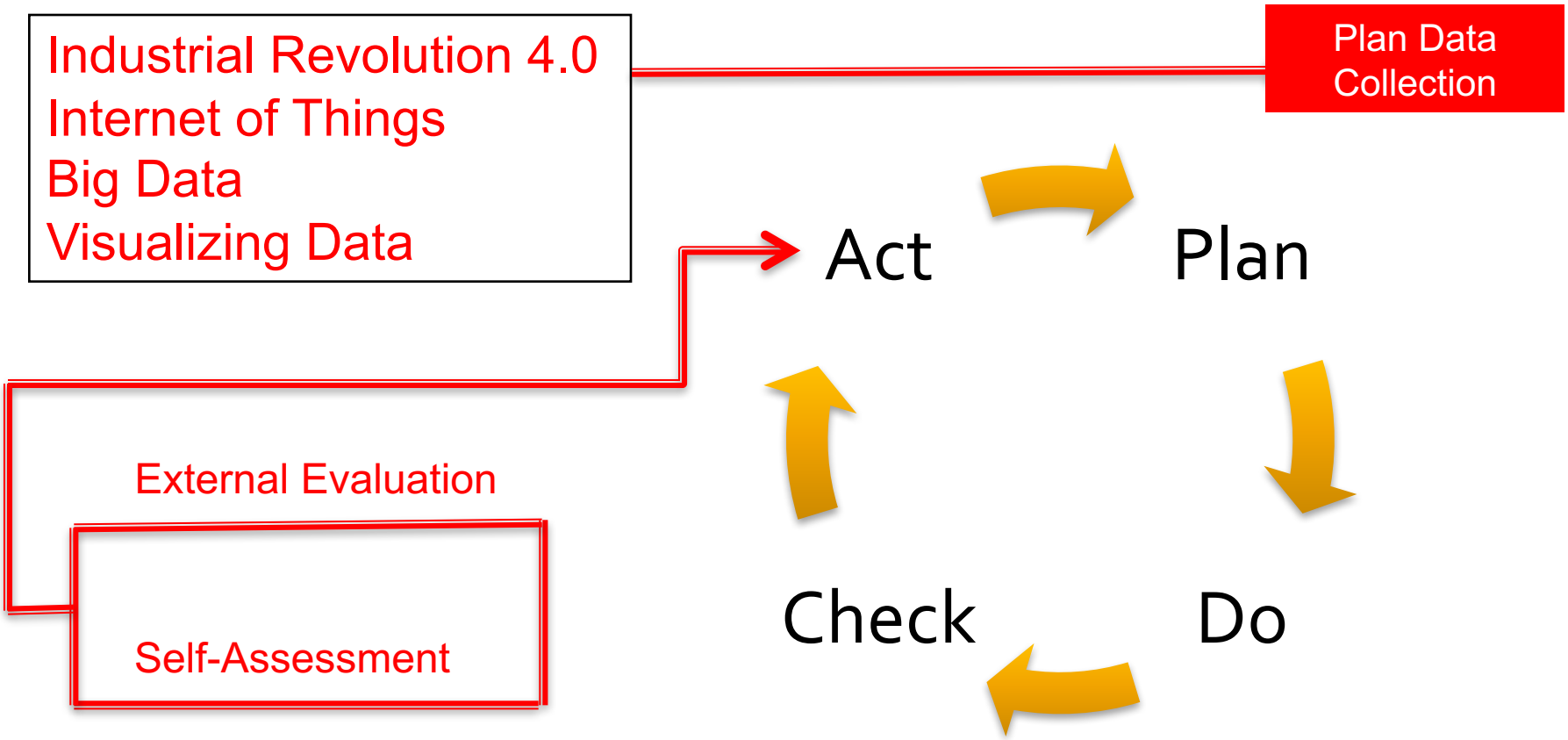
FIGURE 5

WHAT SKILLS UNIVERSITY LEADERS AND HIRING MANAGERS SAY ARE MOST IMPORTANT FOR COLLEGES AND UNIVERSITIES TO DEVELOP IN THEIR GRADUATES



Source: //images.results.chronicle.com/Web/TheChronicleofHigherEducation/%7B13317af1-4d39-491a-9dbe-cb27356653b9%7D_2016_CollegeToCareer_Report_v3_Interactive.pdf

Industry 4.0 Tools



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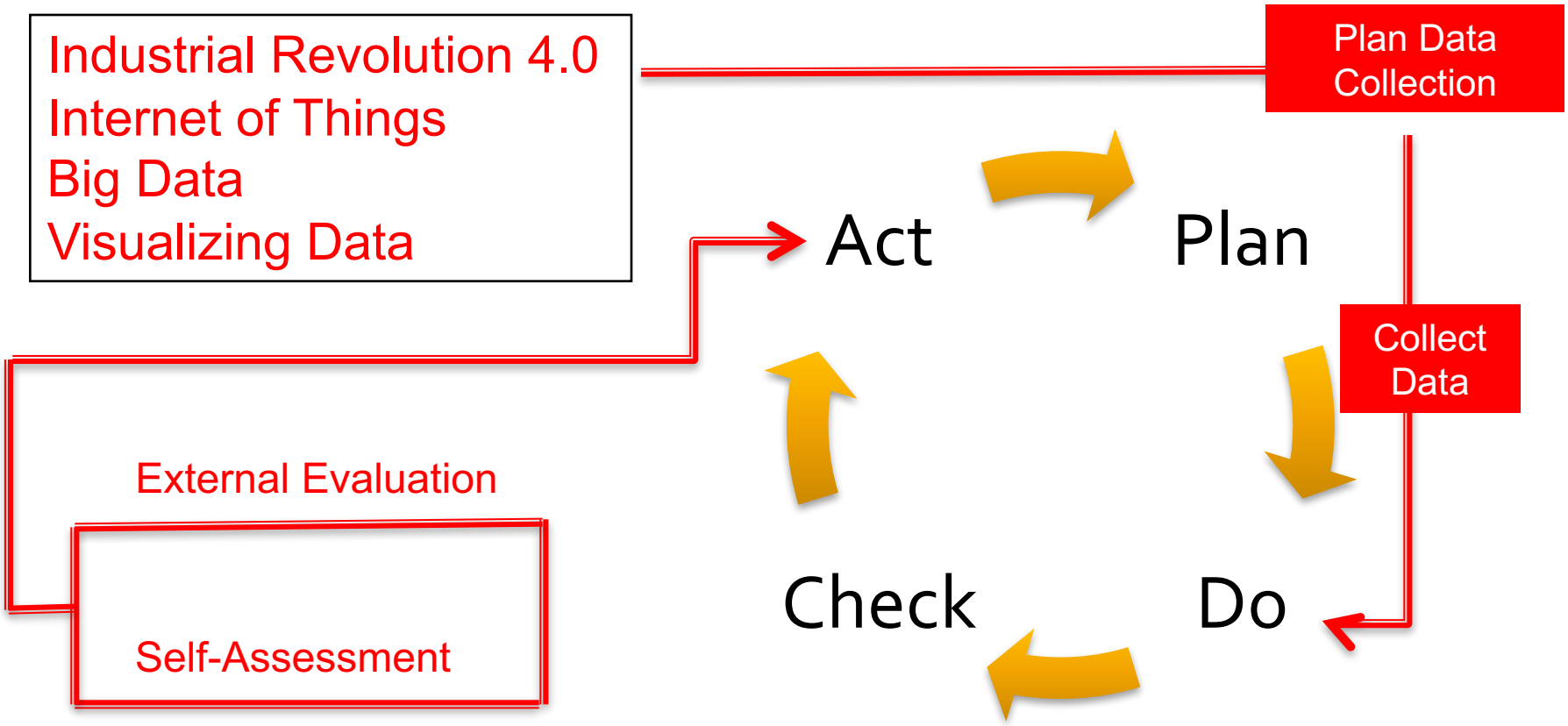
Industry 4.0 Tools



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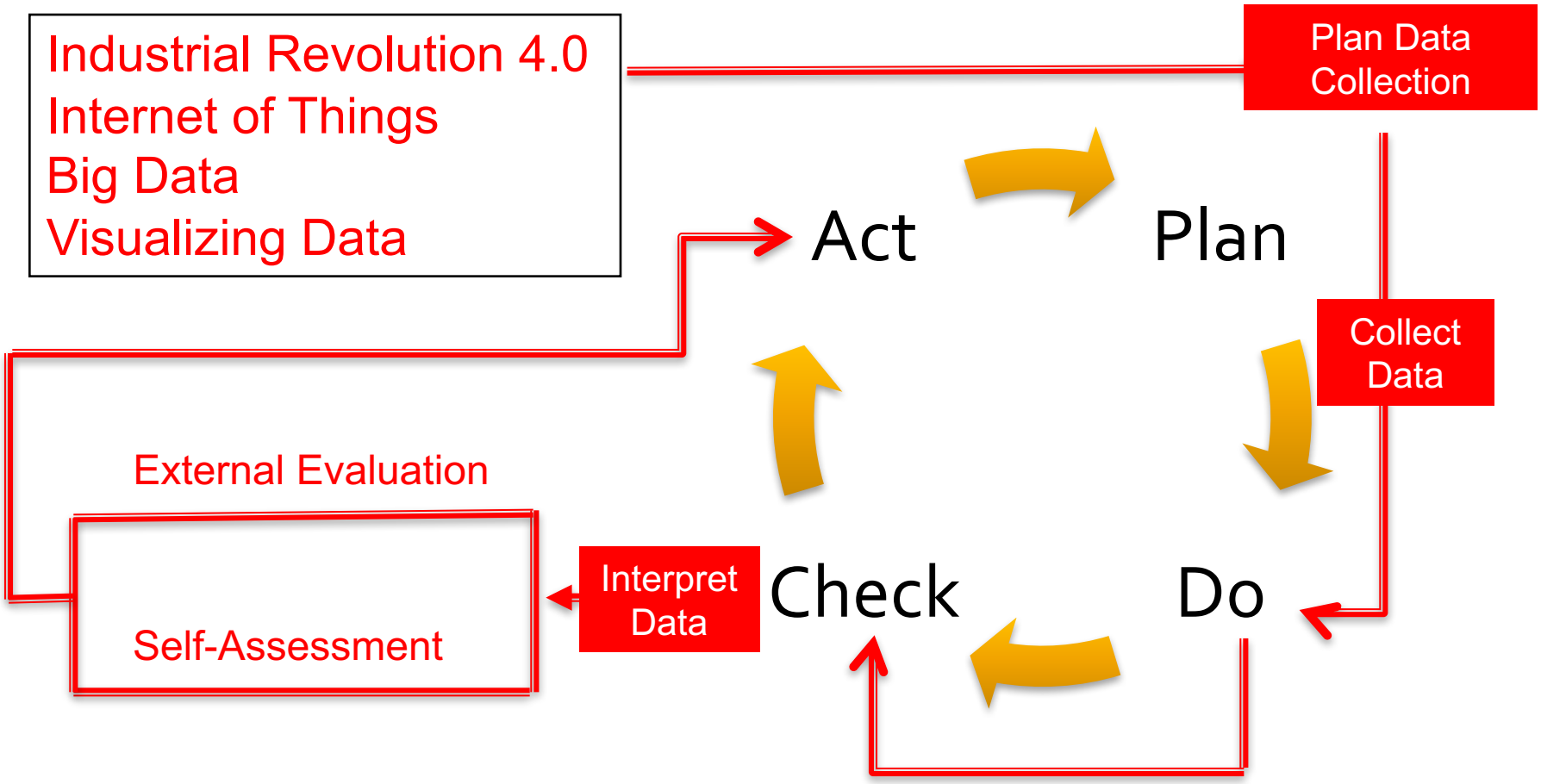
Industry 4.0 Tools



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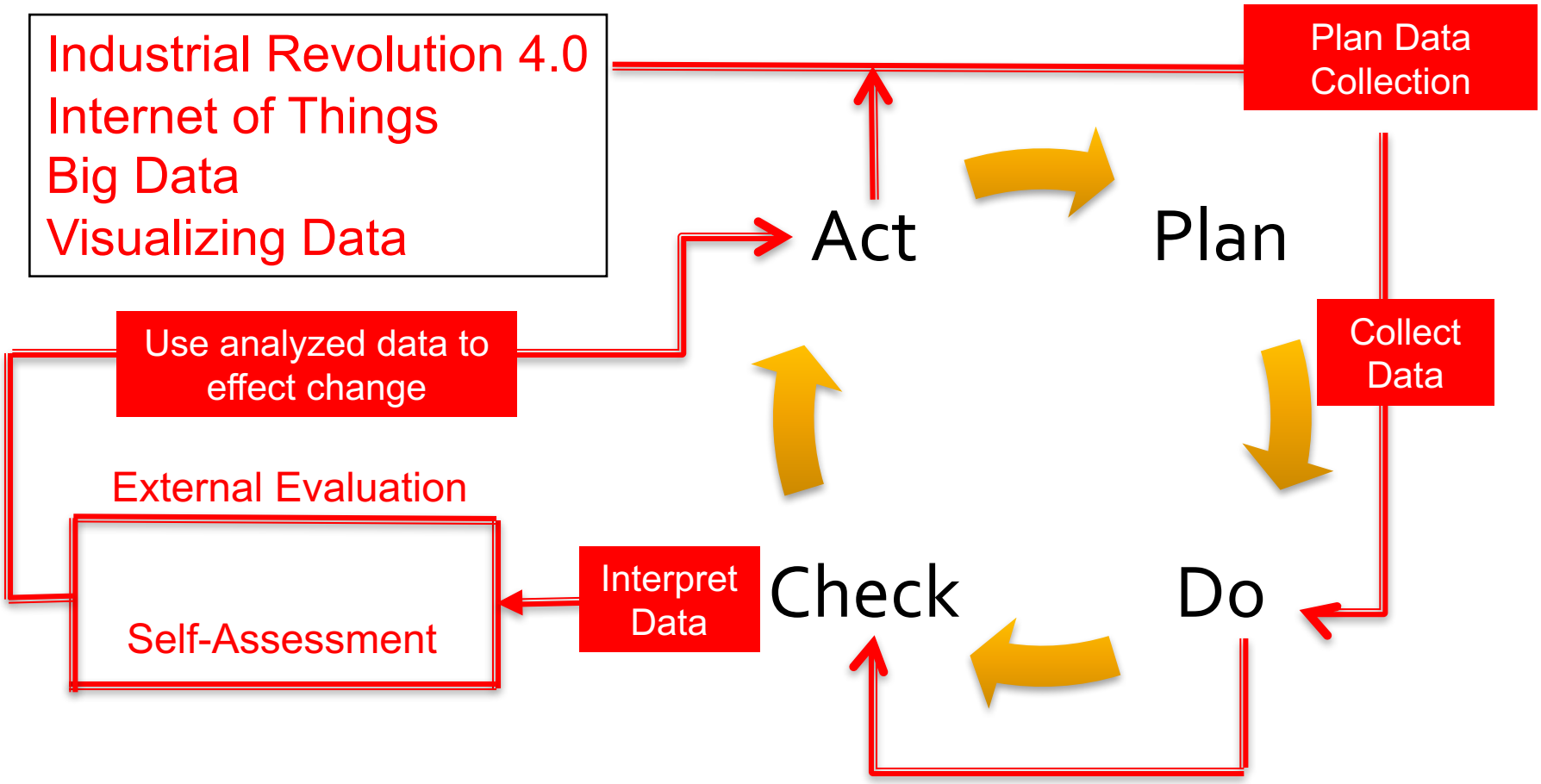
Industry 4.0 Tools



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Summary and Conclusions

- Basic theories of continuous quality improvement, assessment, and evaluation undergird quality assurance.
- Self-assessment and reflective practice are the foundations of appraisal of organizational systems, processes and actions.
- Standards based external evaluation verifies organizational actions and self perceptions with industry or professional standards.
- Big data and data analytics can provide evidence of organizational efficiency and effectiveness.

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Thank You

- Douglas S. Franklin, Ph.D.
- Emeritus Assistant Dean, Ohio University
- franklin@ohio.edu

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Fundamentals of Self Assessment

- Defined process
- Realistic Self Appraisal
- Benchmarking With Peers
- Professional Standards, Guidelines & Principles

CHEA Council for Higher Education Accreditation
Our 20th Year
CHEA International Quality Group
CIQG

CAS Council for the Advancement of Standards in Higher Education

Joint Committee on Standards for Educational Evaluation

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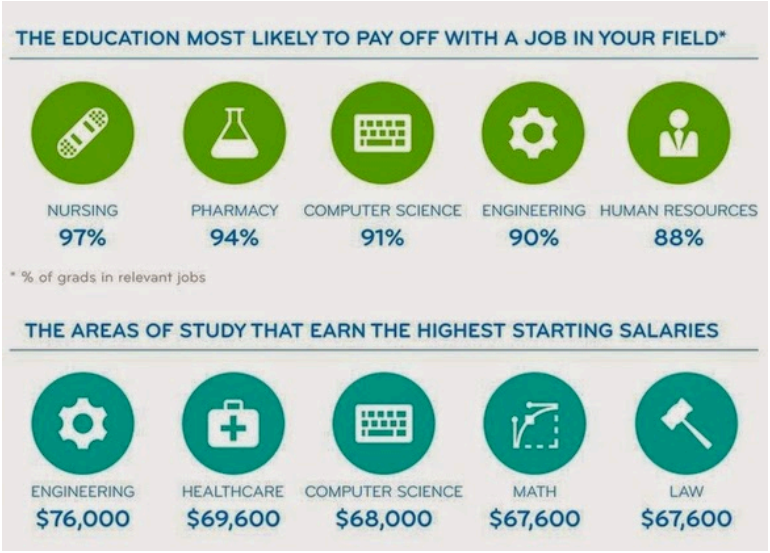
Industry 4.0

- Potential Impact
  - Services and Business Models
  - Workers Education and skills
  - Reliability and continuous productivity
  - IT security
  - Machine safety
  - Product lifecycles
  - Industry value chain
  - Socio-economic



"There has never been a time of greater promise, or greater peril." Schwab, K. Founder and Executive Chairman of the World Economic Forum (2016)

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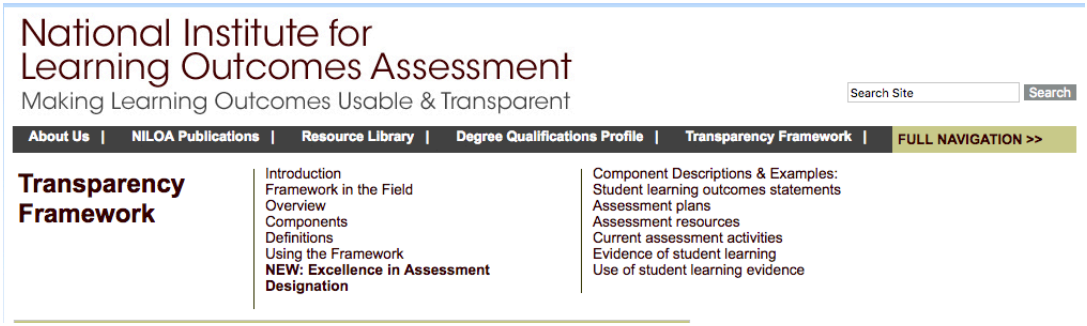
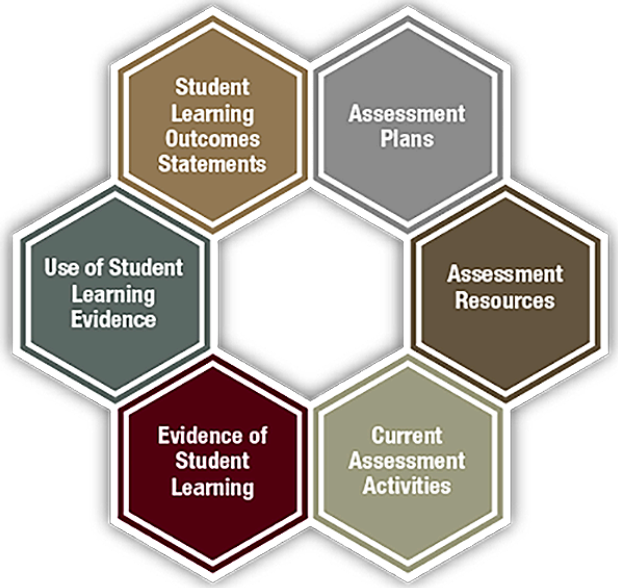
Principles in Industry 4.0

- Information transparency: Ability of information systems to create a virtual copy of the physical world by enriching digital plant models with sensor data.
  - Requires aggregation of raw sensor data to higher-value context information.





http://www.forbes.com/sites/bernardmarr/2016/06/20/what-everyone-must-know-about-industry-4-0/#bb5aacd4e3b9

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Industry 4.0 Applications in HE: Findings from EDUCAUSE Study (2012)

- Analytics:
  - Widely used but data still limited at most institutions;
  - Efforts should start by defining strategic questions and developing a plan;
  - Programs require neither perfect data nor data culture-should start when institution is ready to invest and commit;
  - Programs are most successful when various constituents work in partnership;

EDUCAUSE: Analytics in HE: Benefits, Barriers, Progress and Recommendations- http://net.educause.edu/ir/library/pdf/ers1207/ers1207.pdf

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OHIO Peer University Peer Study 2012

- Selection Variables
  - US News Peer Assessment
  - Freshman Admissions Selectivity
  - Retention and Graduation Rates
  - Faculty Salary/Compensation
  - Institutional Characteristics
  - Student Body Race/Ethnicity
  - Tuition & Financial Aid
  - Student Experience
  - Institutional Finances

U.S.News & WORLD REPORT

IPEDS
Integrated Postsecondary Education Data System

https://www.ohio.edu/instres/univ/peerstudy/index.html

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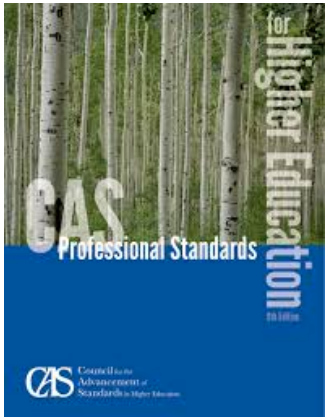
Formulating an Action Plan

- Answer qualitative overview questions
  - Describe Practices Requiring Follow-up
  - Summarize Actions Required to Meet Standards
  - Summarize program enhancement actions
  - Write program action plan



Council for the Advancement of Standards in Higher Education

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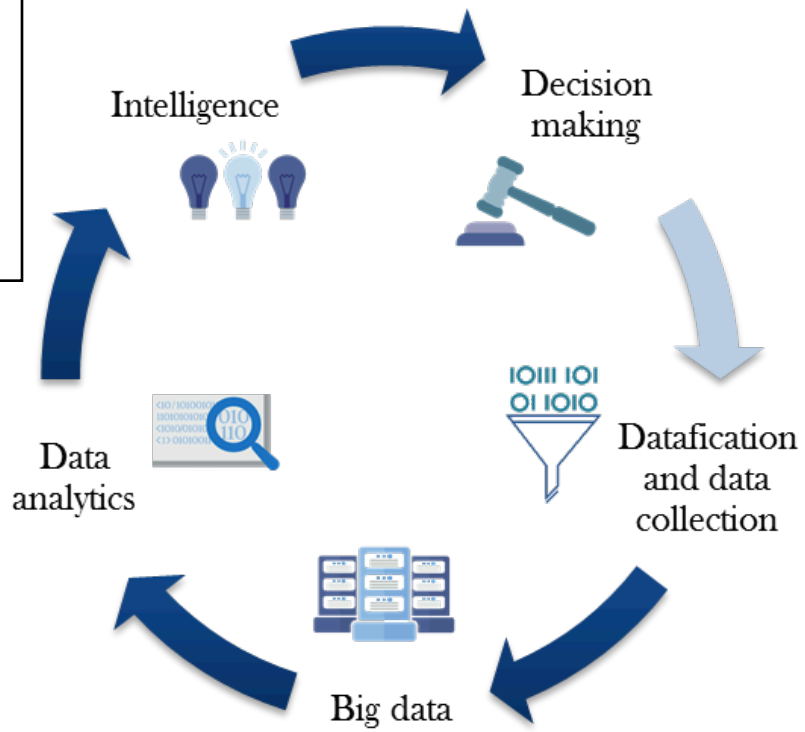
Data Driven Innovation: Data Value Cycle

Industrial Revolution 4.0
Internet of Things
Big Data
Visualizing Data



https://www.oecd.org/sti/inno/data-driven-innovation-interim-synthesis.pdf

http://www.keepeek.com/Digital-Asset-Management/oecd/science-and-technology/data-driven-innovation_9789264229358-en#.WBI8qeErL1I#page34

OECD
BETTER POLICIES FOR BETTER LIVES

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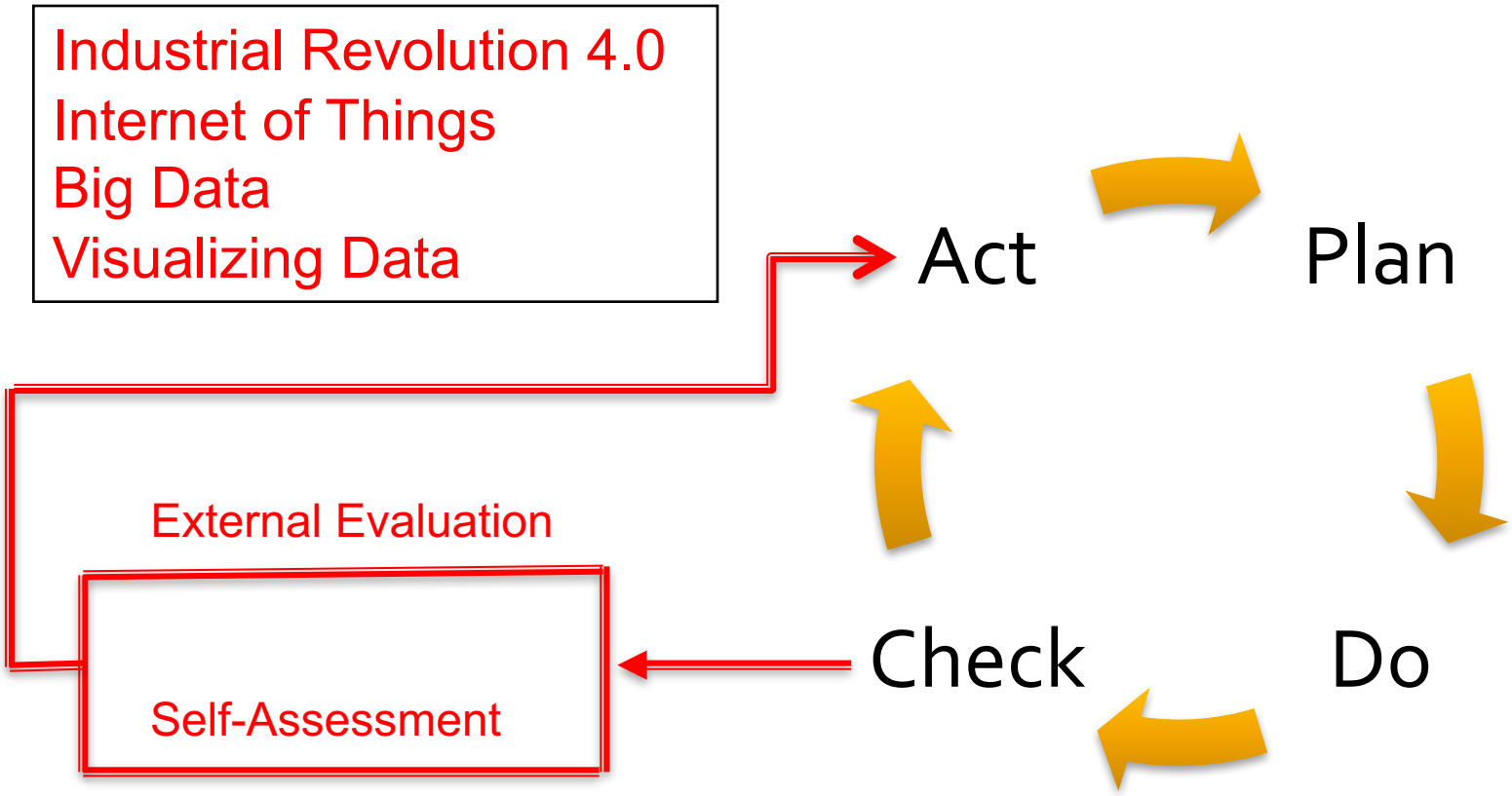
Self Assess for Quality



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NSSE national survey of student engagement

NSSE 2016 Snapshot

NSSEville State University

A Summary of Student Engagement Results

Student engagement represents two critical features of collegiate quality. The first is the amount of time and effort students put into their studies and other educationally purposeful activities. The second is how institutional resources, courses, and other learning opportunities facilitate student participation in activities that matter to student learning. NSSE surveys first-year and senior students to assess their levels of engagement and related information about their experience at your institution.

Comparison Group

The comparison group featured in this report is

GLC Peers

See your *Selected Comparison Groups* report for details.

This *Snapshot* is a concise collection of key findings from your institution's NSSE 2016 administration. We hope this information stimulates discussions about the undergraduate experience. Additional details about these and other results appear in the reports referenced throughout.

Engagement Indicators

Sets of items are grouped into ten Engagement Indicators, organized under four broad themes. At right are summary results for your institution. For details, see your *Engagement Indicators* report.

Key:

▲ **Your students' average** was significantly higher ($p < .05$) with an effect size at least .3 in magnitude.

△ **Your students' average** was significantly higher ($p < .05$) with an effect size less than .3 in magnitude.

-- No significant difference.

▽ **Your students' average** was significantly lower ($p < .05$) with an effect size less than .3 in magnitude.

▼ **Your students' average** was significantly lower ($p < .05$) with an effect size at least .3 in magnitude.

		Your students compared with GLC Peers	
Theme	*Engagement Indicator*	*First-year*	*Senior*
Academic Challenge	**Higher-Order Learning**	--	△
	Reflective & Integrative Learning	--	--
	Learning Strategies	--	△
	Quantitative Reasoning	△	--
Learning with Peers	**Collaborative Learning**	▽	--
	Discussions with Diverse Others	--	--
Experiences with Faculty	**Student-Faculty Interaction**	△	△
	Effective Teaching Practices	--	△
Campus Environment	**Quality of Interactions**	--	△
	Supportive Environment	--	△

NSSE national survey of student engagement

NSSE 2016 Snapshot

NSSEville State University

Item Comparisons

By examining individual NSSE questions, you can better understand what contributes to your institution's performance on the Engagement Indicators. This section displays the five questions[a] on which your first-year and senior students scored the highest and the five questions on which they scored the lowest, relative to students in your comparison group. Parenthetical notes indicate whether an item belongs to a specific Engagement Indicator or is a High-Impact Practice. While these questions represent the largest differences (in percentage points), they may not be the most important to your institutional mission or current program or policy goals. For additional results, see your *Frequencies and Statistical Comparisons* report.

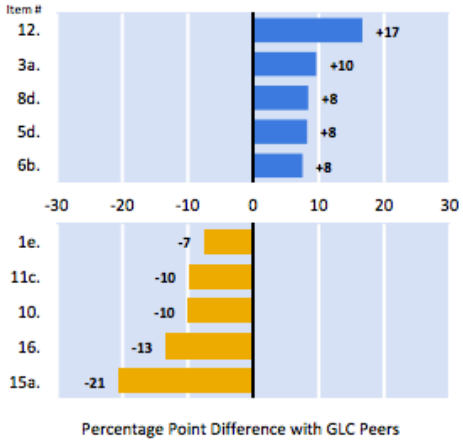
First-year

Highest Performing Relative to GLC Peers

	Item #	
About how many courses have included a community-based project (service-learning)?[e] (HIP)	12.	+17
Talked about career plans with a faculty member[b] (SF)	3a.	+10
Discussions with... People with political views other than your own[b] (DD)	8d.	+8
Instructors provided feedback on a draft or work in progress[c] (ET)	5d.	+8
Used numerical information to examine a real-world problem or issue (...)[b] (QR)	6b.	+8

Lowest Performing Relative to GLC Peers

Asked another student to help you understand course material[b] (CL)	1e.	-7
Participated in a learning community or some other formal program where... (HIP)	11c.	-10
Extent to which courses challenged you to do your best work[d]	10.	-10
Spent more than 10 hours per week on assigned reading[f]	16.	-13
Spent more than 15 hours per week preparing for class	15a.	-21



Percentage Point Difference with GLC Peers

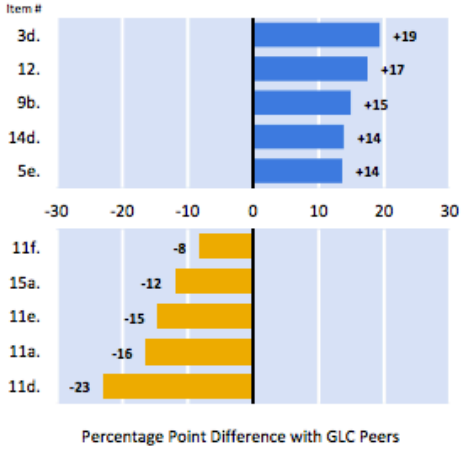
Senior

Highest Performing Relative to GLC Peers

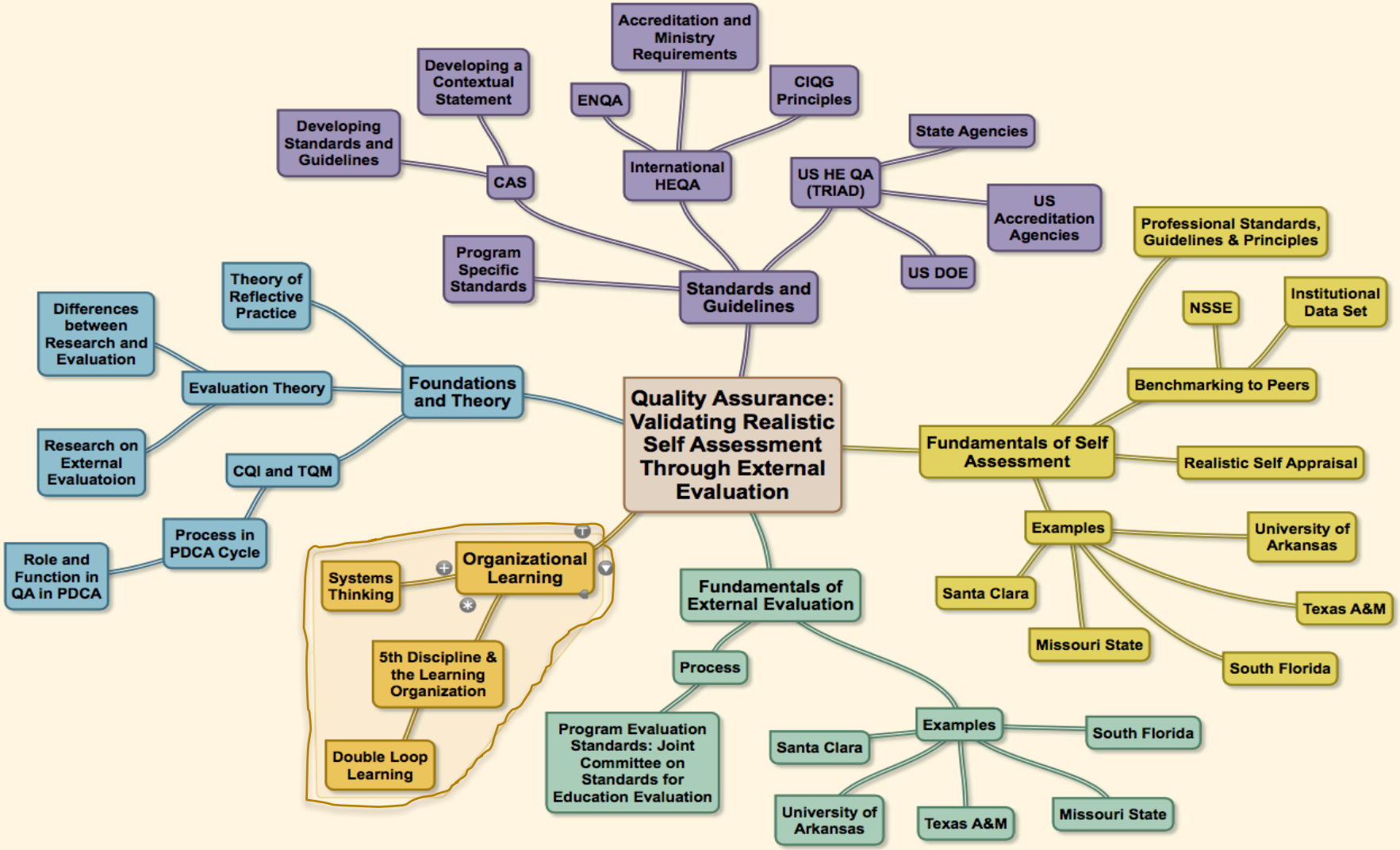
	Item #	
Discussed your academic performance with a faculty member[b] (SF)	3d.	+19
About how many courses have included a community-based project (service-learning)?[e] (HIP)	12.	+17
Reviewed your notes after class[b] (LS)	9b.	+15
Institution emphasis on encouraging contact among students from different backgrounds...[c] (SE)	14d.	+14
Instructors provided prompt and detailed feedback on tests or completed assignments[c] (ET)	5e.	+14

Lowest Performing Relative to GLC Peers

Completed a culminating senior experience (...) (HIP)	11f.	-8
Spent more than 15 hours per week preparing for class	15a.	-12
Worked with a faculty member on a research project (HIP)	11e.	-15
Participated in an internship, co-op, field exp., student teach., clinical placemt. (HIP)	11a.	-16
Participated in a study abroad program (HIP)	11d.	-23



Percentage Point Difference with GLC Peers



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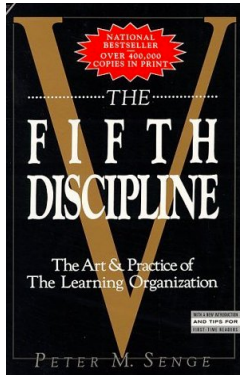
Learning Organizations

- Personal Mastery
- Mental Models
- Building Shared Vision
- Team Learning
- Systems Thinking

"*Business and human endeavors are systems…we tend to focus on snapshots of isolated parts of the system. And wonder why our deepest problems never get solved.*" Peter M. Senge



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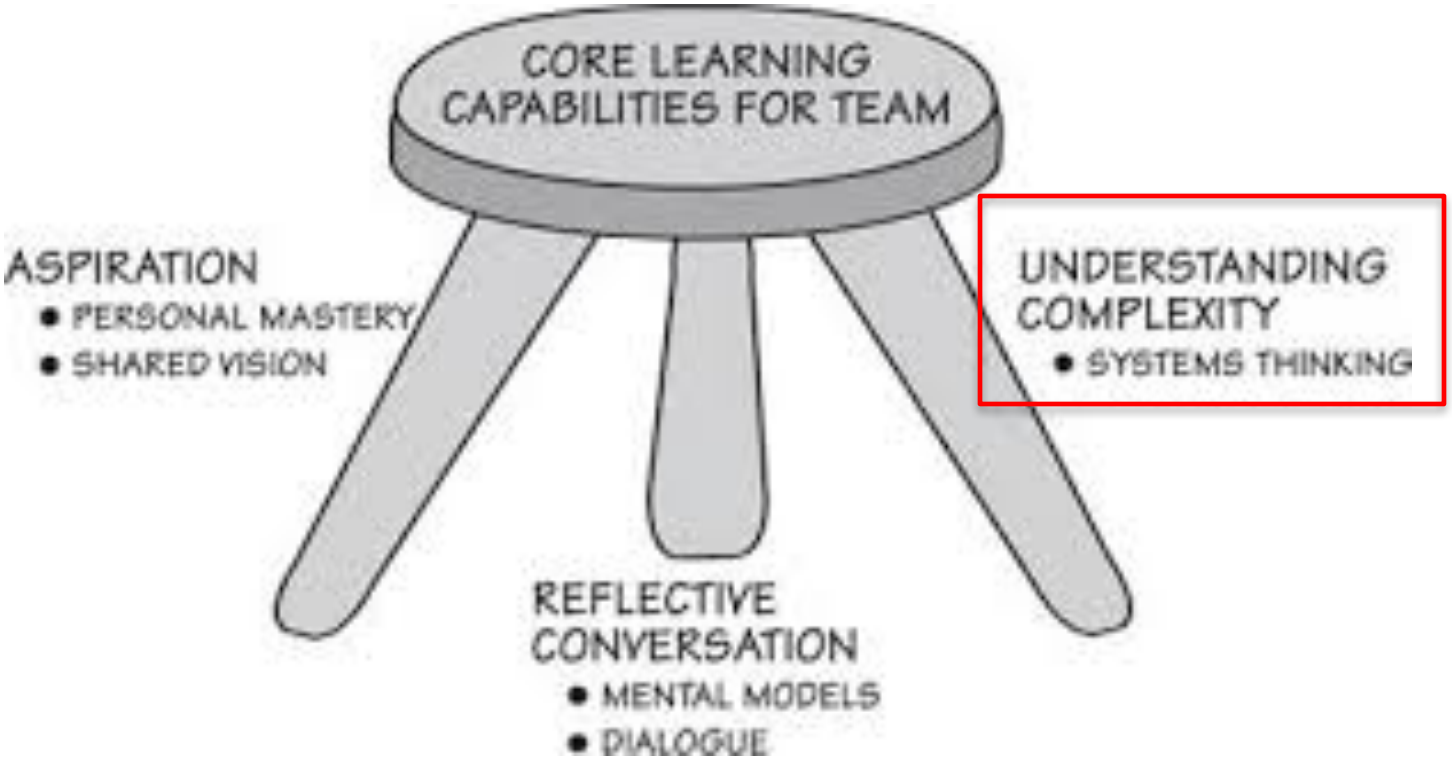
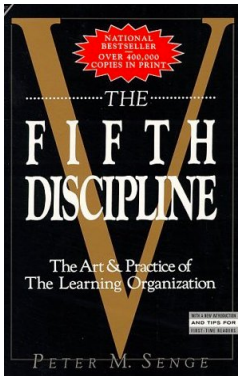
Learning Organizations





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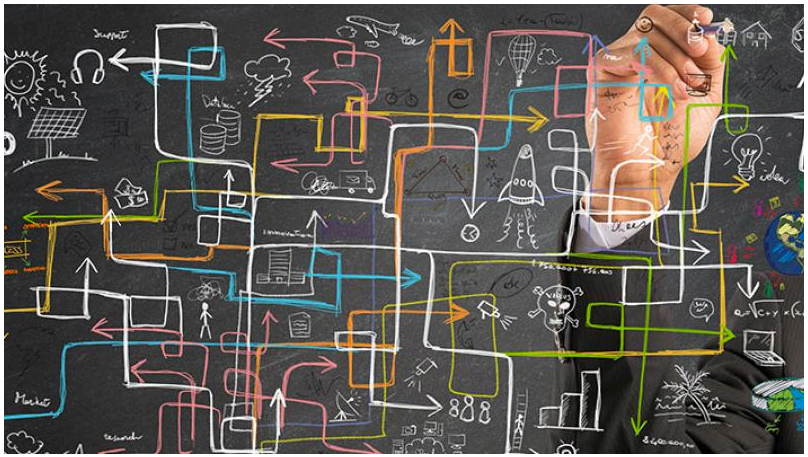
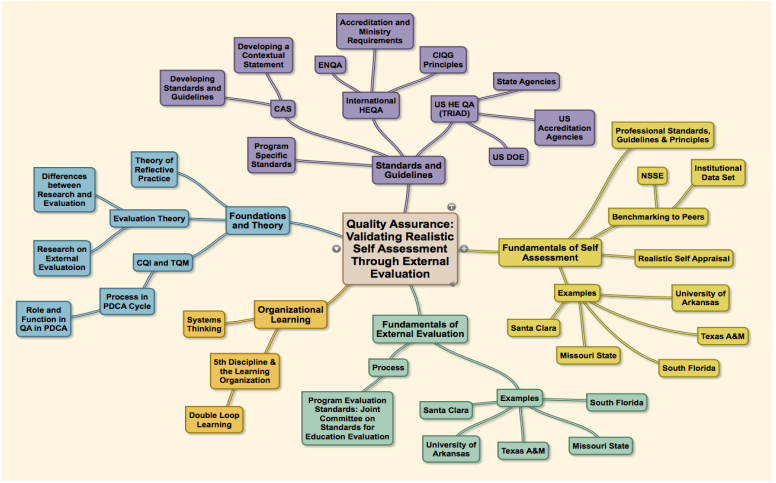
Learning Organizations

- Complex
  - State of being complex or intricate





Read more:
http://www.referenceforbusiness.com/management/Bun-Comp/Complexity-Theory.html#ixzz4QJEk1JMl

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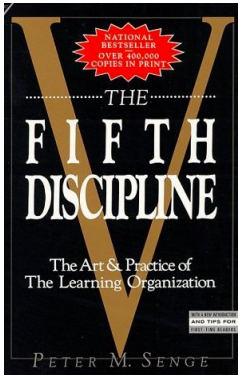
Learning Organizations

- Systems Thinking: discipline for seeing:
  - Wholes rather than parts;
  - Patterns of change rather than static snapshots
  - Understanding subtle interconnectedness that gives living systems their unique character.



Peter Senge, Author of The Fifth Discipline: The Art and Practice of the Learning Organization

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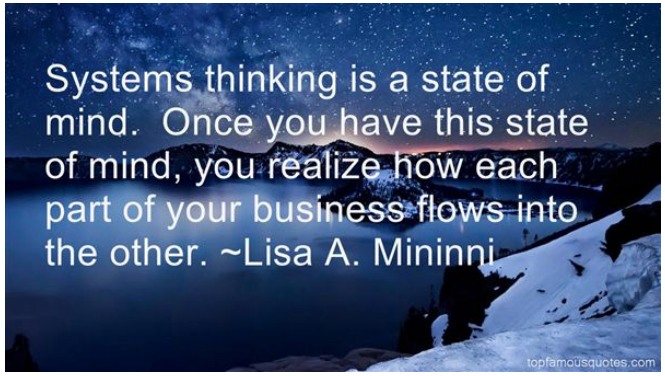
System

- All systems have:
  - inputs, outputs and feedback mechanisms;
  - maintain an internal steady-state (called homeostasis) despite a changing external environment;
  - display properties different than the whole (called emergent properties) but not possessed by any of the individual elements, and have boundaries usually defined by the system observer.



Read more:
http://www.businessdictionary.com/definition/system.html

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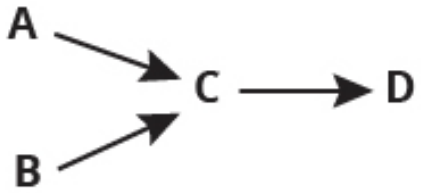
Systems Thinking

- What is system thinking and how does it play out in ensuring organizational quality?

Event Oriented Thinking

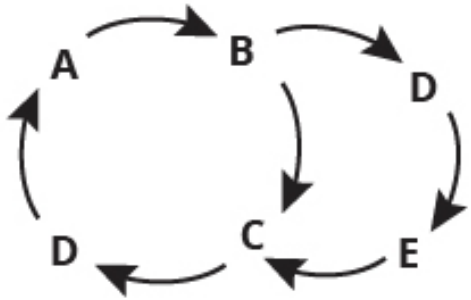
Thinks in straight lines



In event oriented thinking everything can be explained by causal chains of events. From this perspective the **root causes** are the events starting the chains of cause and effect, such as A and B.

Systems Thinking

Thinks in loop structure



In systems thinking a system's behavior emerges from the structure of its feedback loops. **Root causes** are not individual nodes. They are the forces emerging from particular feedback loops.

http://www.thwink.org/

"Systems thinking is a management discipline that concerns an understanding of a system by examining the linkages and interactions between the components that comprise the entirety of that defined system."

http://www.systemicleadershipinstitute.org/systemic-leadership/theories/basic-principles-of-systems-thinking-as-applied-to-management-and-leadership-2/

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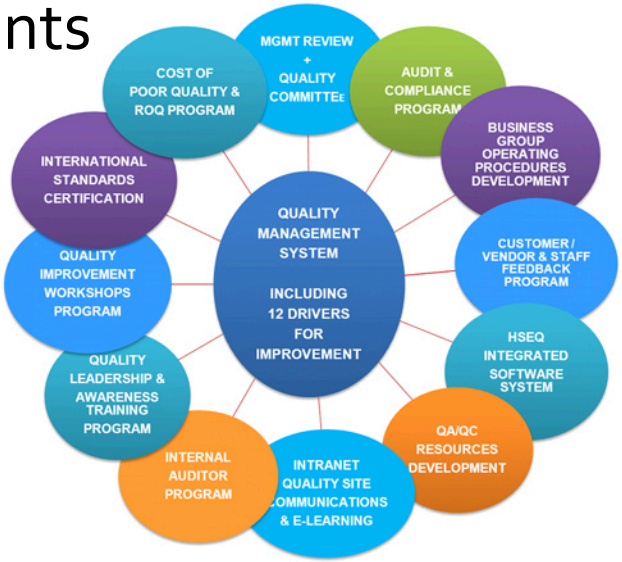
Quality Management System

- "Formalized system that documents processes, procedures, and responsibilities for achieving quality policies and objectives…helps coordinate and direct an organization's activities to meet customer and regulatory requirements and improve its effectiveness and efficiency on a continuous basis."



ASQ

American Society of Quality (ASQ)

Source: http://asq.org/learn-about-quality/quality-management-system

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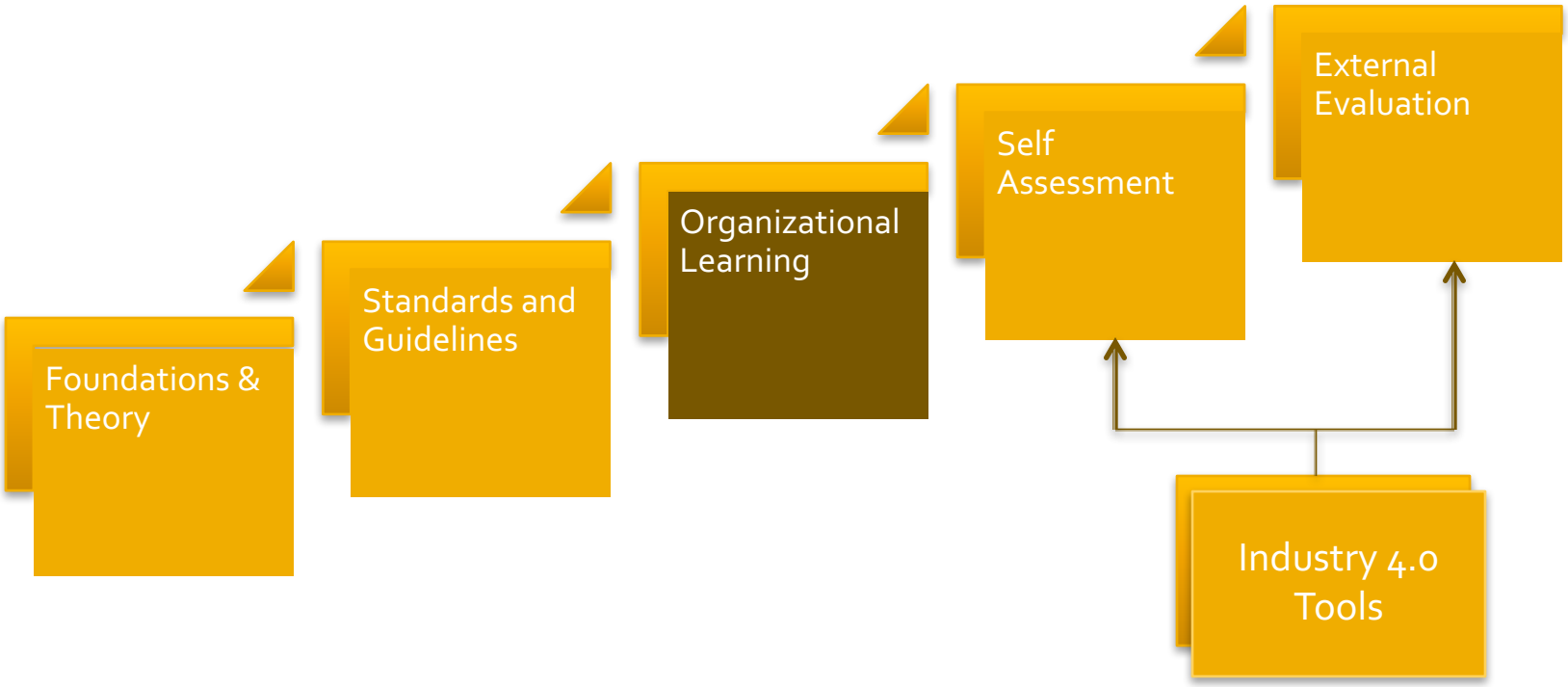
Quality Assurance: Validating Realistic Self Assessment Through External Evaluation



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