SOFTWARE SIZING – THE CORNERSTONE FOR ICEAA'S SCEBoK

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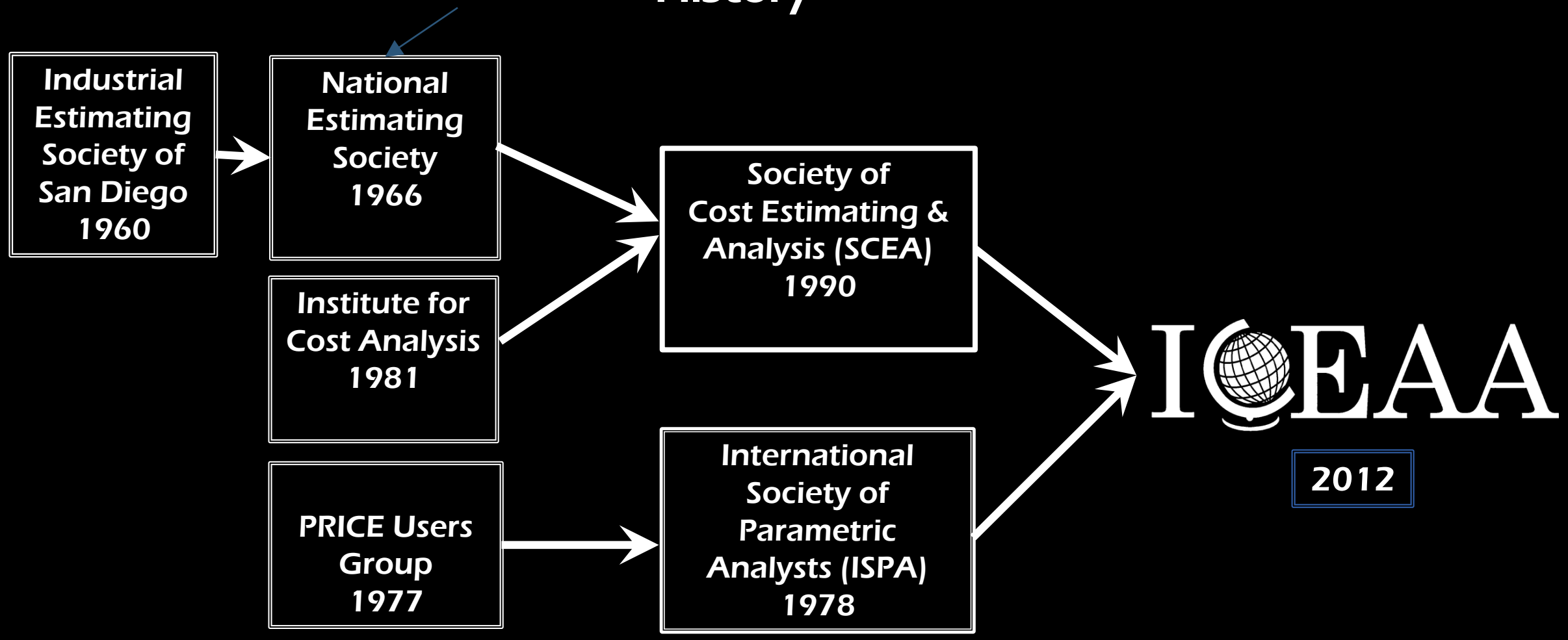
ABOUT ME

Carol Dekkers, PMP, CFPS (Fellow), P.Eng, CSM, AEC, is founder and CEO of Quality Plus Technologies, Inc. and currently is the lead author of the ICEAA Software Estimating Body of Knowledge (SCEBoK). She specializes in working with companies who want to succeed with software measurement and functional size measurement. She is a co-author of several textbooks (*The IT Measurement Compendium: Estimating and Benchmarking Success with Functional Size Measurement; Program management toolkit for software and systems development; Practical Software Project Estimation*; and others,) and is a frequent speaker worldwide on **estimating, measurement, ISO standards, project management, communication and quality. Ms Dekkers is a Past-president and former Director of Communications and Marketing for the International Function Point Users Group (IFPUG). She is also a U.S. expert as part of the USNB delegation to ISO/IEC SC7 software engineering standards.**

International Cost Estimation and Analysis Association (ICEAA) History



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THE INTERNATIONAL COST ESTIMATING AND ANALYSIS ASSOCIATION IS A 501(C)(6) INTERNATIONAL NON-PROFIT ORGANIZATION DEDICATED TO ADVANCING, ENCOURAGING, PROMOTING AND ENHANCING THE PROFESSION OF COST ESTIMATING AND ANALYSIS, THROUGH THE USE OF PARAMETRICS AND OTHER DATA-DRIVEN TECHNIQUES.

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ICEAA International Cost Estimating & Analysis Association

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2007-2019 Workshop Proceedings are available online. For 2006 and earlier, please email us.

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Search:

Title	Author(s)	Summary	Year	Track
Establishing Standards as the Basis for Effective Measurement and Affordability	Pete Pizzutillo	Measurement of application development output has long been a controversial topic. Yet as contracting relationships within industry and public sector become more strategic, buyers and sellers of	2018	Software Estimating

ICEAA Products

- **Current: Cost Estimating Body of Knowledge (CEBoK)**
  - Serves as the foundation for its certifications CCEA® and PCEA ®
  - Includes one module on software cost estimating

- **Launching in 2021: Software Cost Estimating Body of Knowledge (SCEBoK)**
  - Project started in 2015 with ICEAA, IFPUG, & Nesma
  - 2016/17: Software Certification Curriculum Working Group → 7 modules presented
  - 2018/19 → 16 modules presented
  - 2020 → Partnership with U.S. Defense Acquisition University (DAU) to use BCF-250 Software Cost Estimation materials, set up formal SCEBoK Review Group *(Nesma, Tecolote, Galorath, Boeing, PRICE Systems, CGI, MITRE, QinetiQ)*, hired project manager
  - 2021 planned release and presentation of SCEBoK content in Minneapolis

SCEBoK

SCEBoK Goals

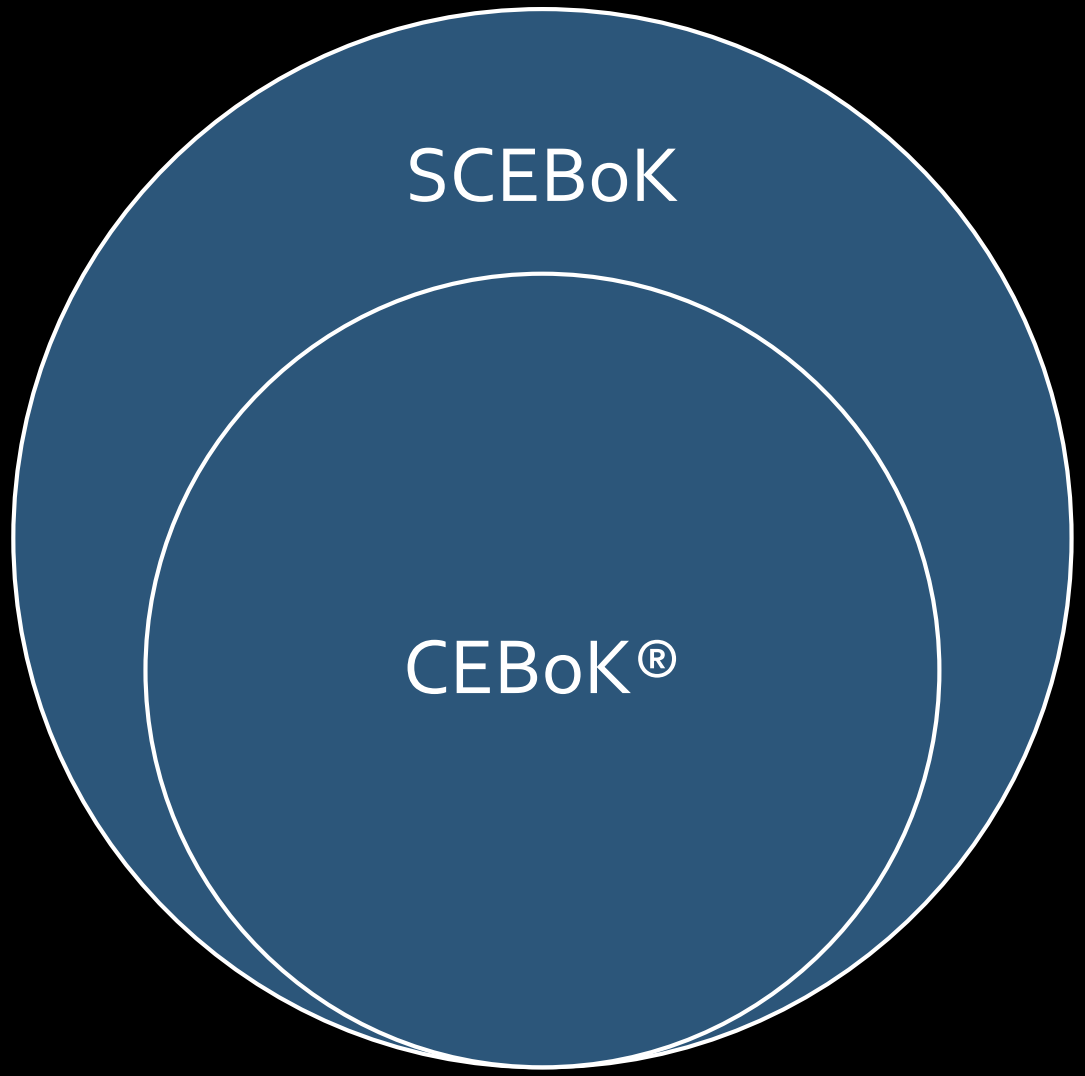
- Factually and objectively present a variety of software sizing methods (to allow users to draw their own conclusions about the merits of any given method)
- Deliver unbiased content for an international audience. Minimize focus on US Government / Department of Defense
- Provide users with an understanding of best practices in software estimating, to compliment and enhance CEBoK® cost estimates and analysis
- Provide guidance to the essential considerations in software cost estimating

SCEBoK

SCEBoK Target Audiences

- Commercial organizations
- Original Equipment Manufacturers (OEMs)
- Government organizations
- Consulting firms
- Quasi-government organizations (e.g., Federally Funded Research & Development Centers)
- Academic institutions

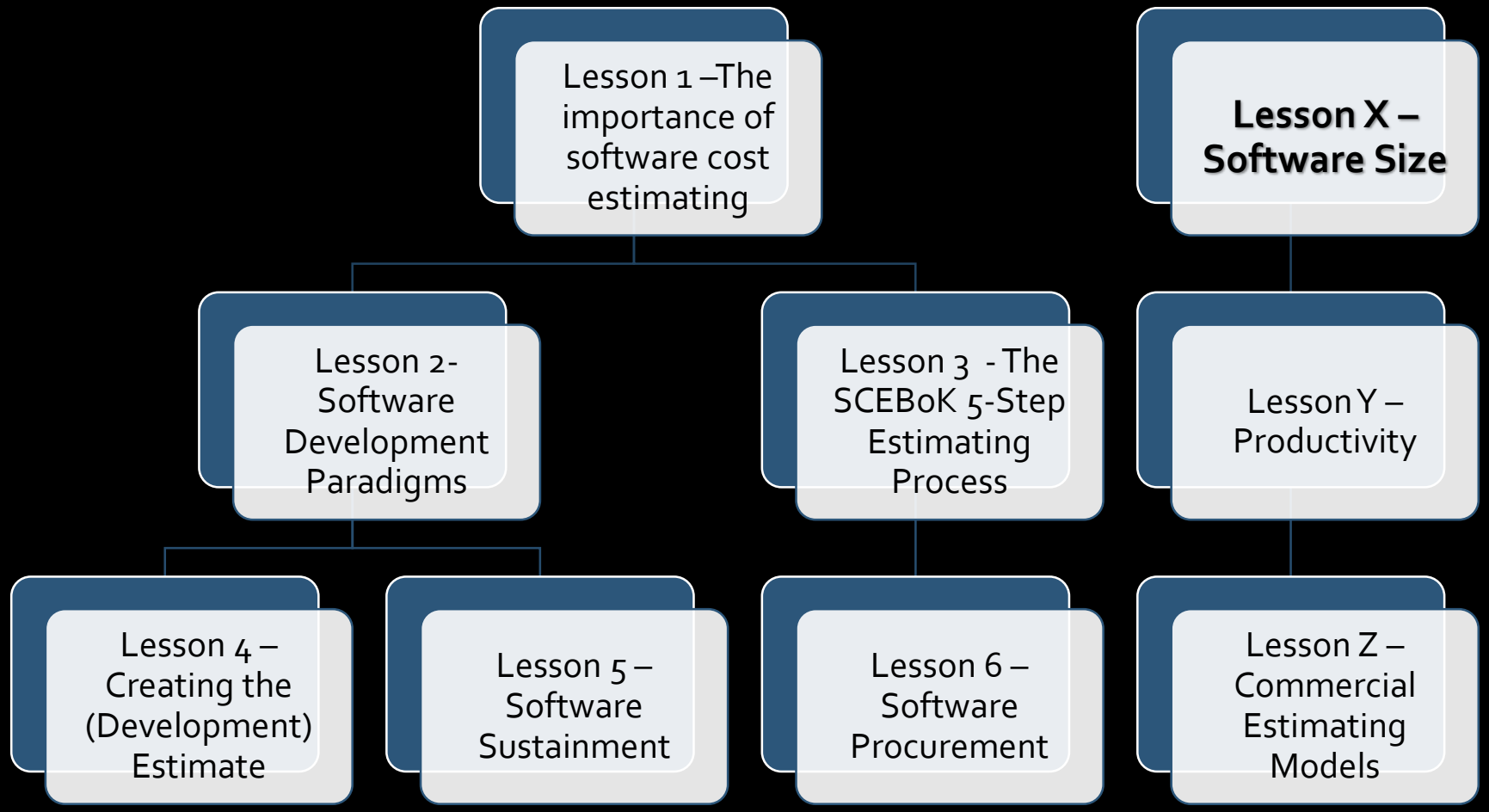
SCEBoK and CEBoK®



SCEBoK will be an extension of ICEAA's Cost Estimating Body of Knowledge (CEBoK®)

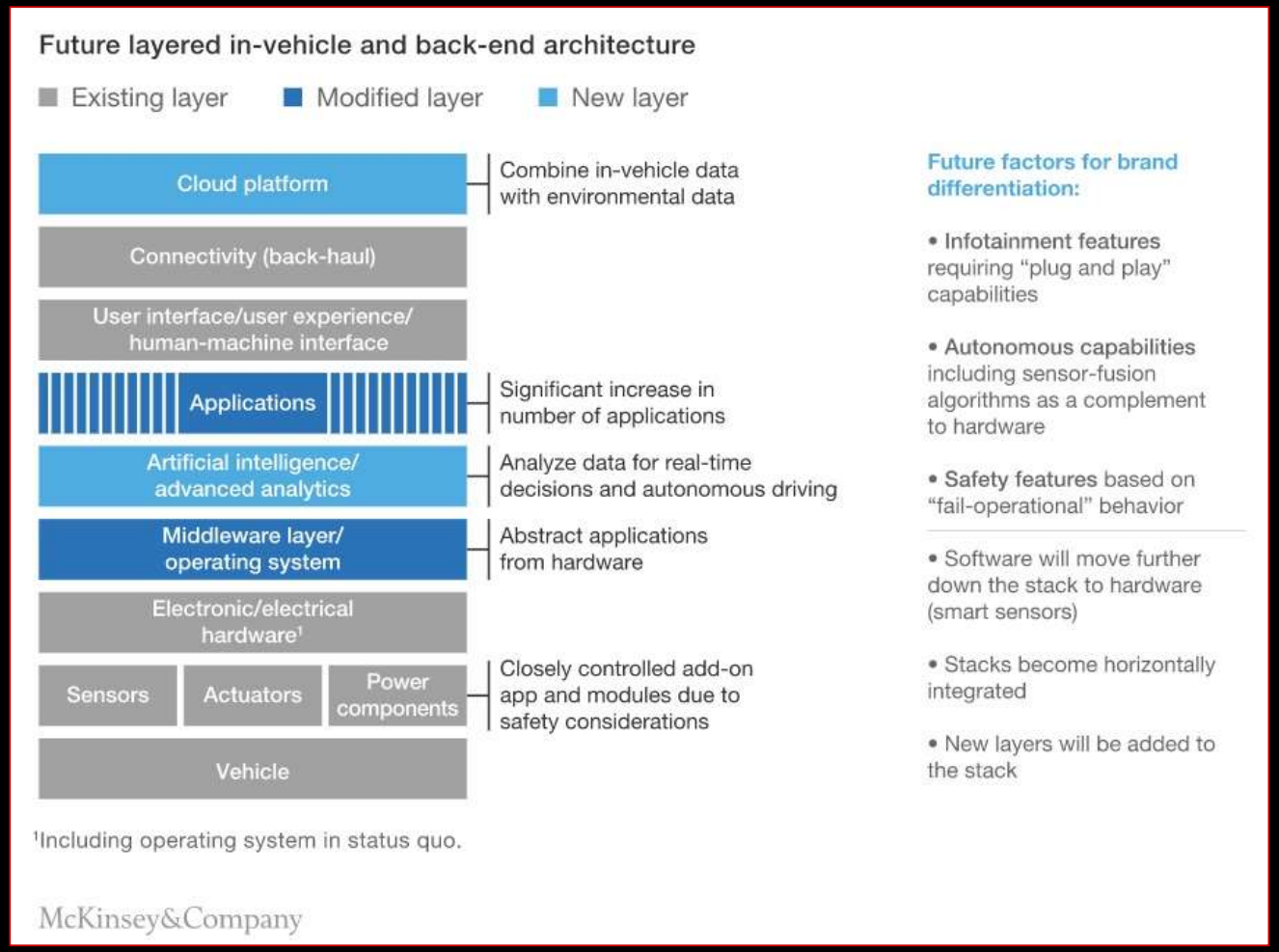
- Fundamental cost estimating lessons will not be repeated in SCEBoK
- SCEBoK will only be available as an add-on purchase to CEBoK®
- References and links will cross between core CEBoK® lessons and SCEBoK modules

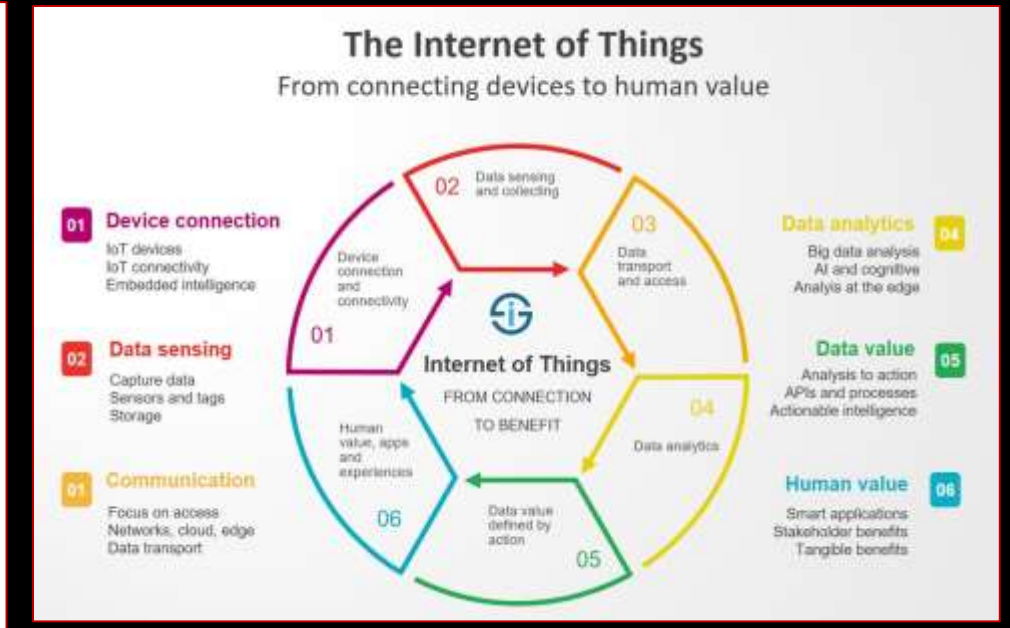
Lessons 1-6 (subject to change)



Lesson 1: Why is Software Cost Estimating Important?

Software is increasingly embedded (in everything)





Why Cost and Schedule Growth Occur

Numerous Reasons, Both Internal and External

"The Non-Secret of Good Cost [and Schedule] Estimating: Don't Drink the Kool-Aid"- ***Lawrence Goeller, OSD Cost Analysis Improvement Group***

1. OPTIMISM
2. COST, SCHEDULE, TECHNICAL MISALIGNMENT
3. MOORE'S LAW
4. BLACK SWANS
5. LAKE WOBEGON

Source: Christian B. Smart, Solving for Risk Management: Understanding the Critical Role of Uncertainty in Project Management

LESSON 3: SCEBoK 5-STEP ESTIMATING PROCESS

STEP 1: DEFINITION & PLANNING (INCLUDES SCOPE)

STEP 2: DATA COLLECTION, NORMALIZATION, AND ANALYSIS

STEP 3: PREPARING THE POINT ESTIMATE

STEP 4: SENSITIVITY, RISK & UNCERTAINTY ANALYSIS

STEP 5: DOCUMENTATION & PRESENTATION

UPDATE ESTIMATE AND COLLECT DATA

Software Estimates are Part of the Program Estimate

Software-intensive program[1]

Investment:

- Program/project management
- Systems engineering
- BPR/ Change management
- System Development
- System Procurement
  - Hardware
  - Software
- System level integration & test
- System deployment/implementation

Operations & support (O&S)[2]

- Help desk/service desk support
- Technology refresh/upgrade
- System maintenance

Software life cycle (example)

- Investment
  - Plan (sourcing, business case, governance)
  - Develop and/or procure
    - **Software development estimate** — **SCEBoK Lessons 2, 4**
      - Req → implementation
    - **Software procurement** — **SCEBoK Lesson 6**
  - System Integration
  - Deployment
- Operations & Support (O&S)
  - Help desk, licenses, hosting, etc.
  - **Software sustainment** — **SCEBoK Lesson 5**
- End of life

LESSON X: SOFTWARE SIZE

FUNCTIONAL SIZE (IFPUG, NESMA, COSMIC, SIFP, OBJECT POINTS, USE CASE POINTS, REQUIREMENTS

RELATIVE EFFORT SIZING

EFFECTIVE SOURCE LINES OF CODE

ACCOUNTING FOR REUSED AND ADAPTED CODE

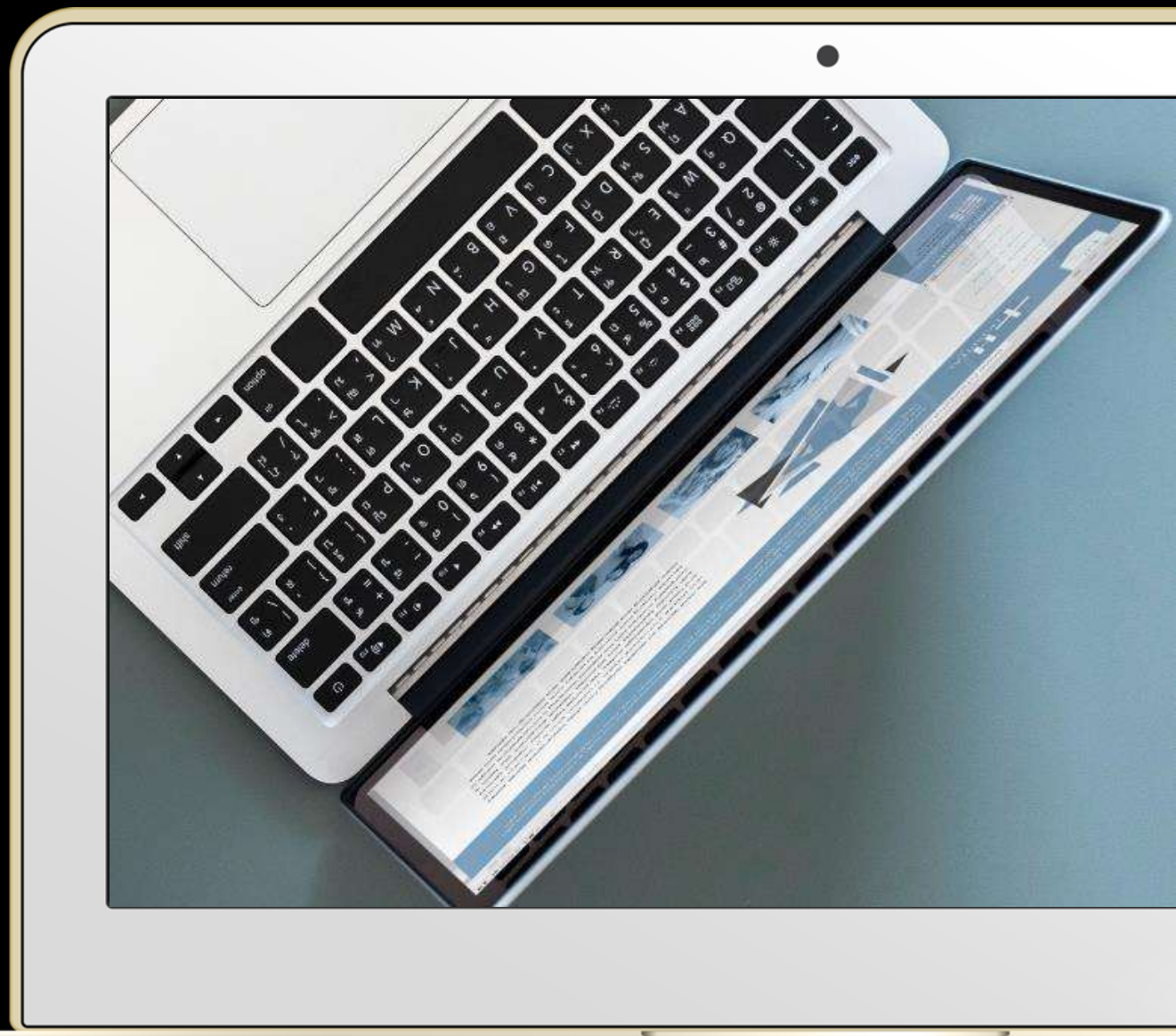
OTHER CONSIDERATIONS, RULES OF THUMB

QUESTIONS TO ASK ABOUT SOFTWARE SIZE

SOFTWARE SIZE IS CORNERSTONE

SIZE AND PRODUCTIVITY COST DRIVERS, SOLID ESTIMATING TECHNIQUES

- Estimated effort depends on realistic software size
- Cost and schedule depend on realistic effort estimate (based on size)
- Robust software sizing is critical to estimating success



GOOD NEWS FOR MEASUREMENT PRACTITIONERS AND ESTIMATORS

SCEBOK PROVIDES CAREER GROWTH FOR MEASUREMENT PRACTITIONERS (WHO ARE NOT SOFTWARE ESTIMATING EXPERTS)

SCEBOK PROVIDES GROWTH FOR COST ESTIMATORS (WHO ARE NOT FAMILIAR WITH SOFTWARE)

SCEBOK PROVIDES GROWTH FOR PROFESSIONALISM IN SOFTWARE COST ESTIMATING

THANK YOU

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