Modeling Considerations For Study of Veterans Health Administration Medical Facilities

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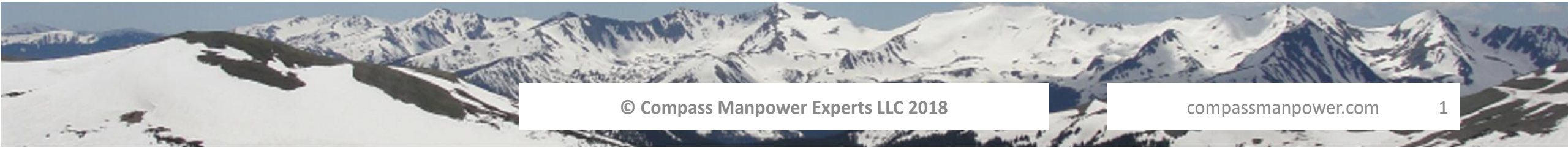
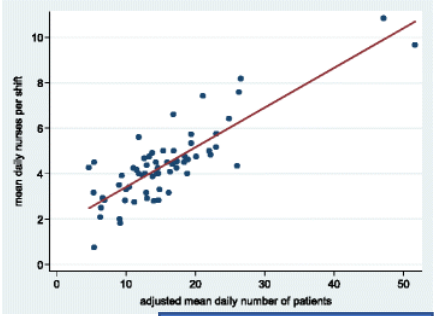


MODELING: What are we talking about?

- Model: A physical, mathematical, or otherwise logical representation of a system, entity, phenomenon, or process.

- Mathematical Model: A series of mathematical equations or relationships that can be discretely solved.



Y=mx+b

- Manpower or "Staffing Requirements" Model: A tool made up of one or more mathematical equations and/or logical relationships that represent a system. It is used to calculate an expected level of manpower needed to generate an estimated level of required workload.

"ALL MODELS ARE WRONG; SOME MODELS ARE USEFUL" – Attributed to George E.P. Box

PURPOSE TO INVEST IN "MODELING":

Workforce and Budget Planning

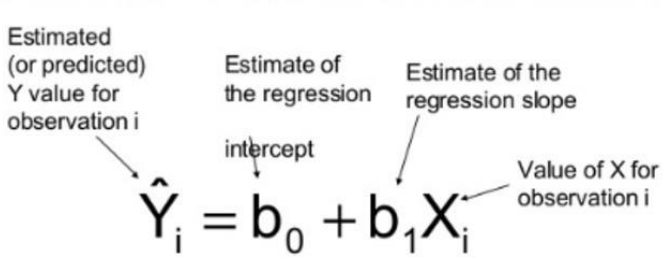
- Creating within VA means to provide the right number of FTEs, with the right skills, in the right jobs, at the right time

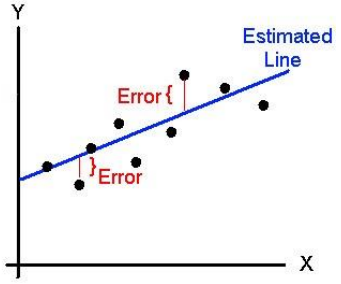
Workload Analysis -- A part of Workforce Planning

- To deliver the necessary staffing to maintain systems that support delivery of VA's core missions
- To help standardize level of service and bring increased performance in the years ahead
- To objectively define, budget for and employ some of VA's most expensive resources: people … and the critical mission infrastructure they maintain

A “USEABLE” MODEL WILL:

- Have characteristics to make it relatively easy to employ
- Provide credible information to support decision makers
- Provide consistent results when applied across a set of similar circumstances
- Be easy to adapt when changes occur, and
- Be easily understood by people outside the development team





Reference: US Army Manpower Analysis Agency (USAMAA) White Paper, undated

UN-USEABLE MODELS:

- Only apply in a very narrow set of circumstances
- Use a mathematical equation that does not logically match the business process
- Require so many input variables that they become cumbersome to use, and difficult to understand, or
- Are subject to too much randomness

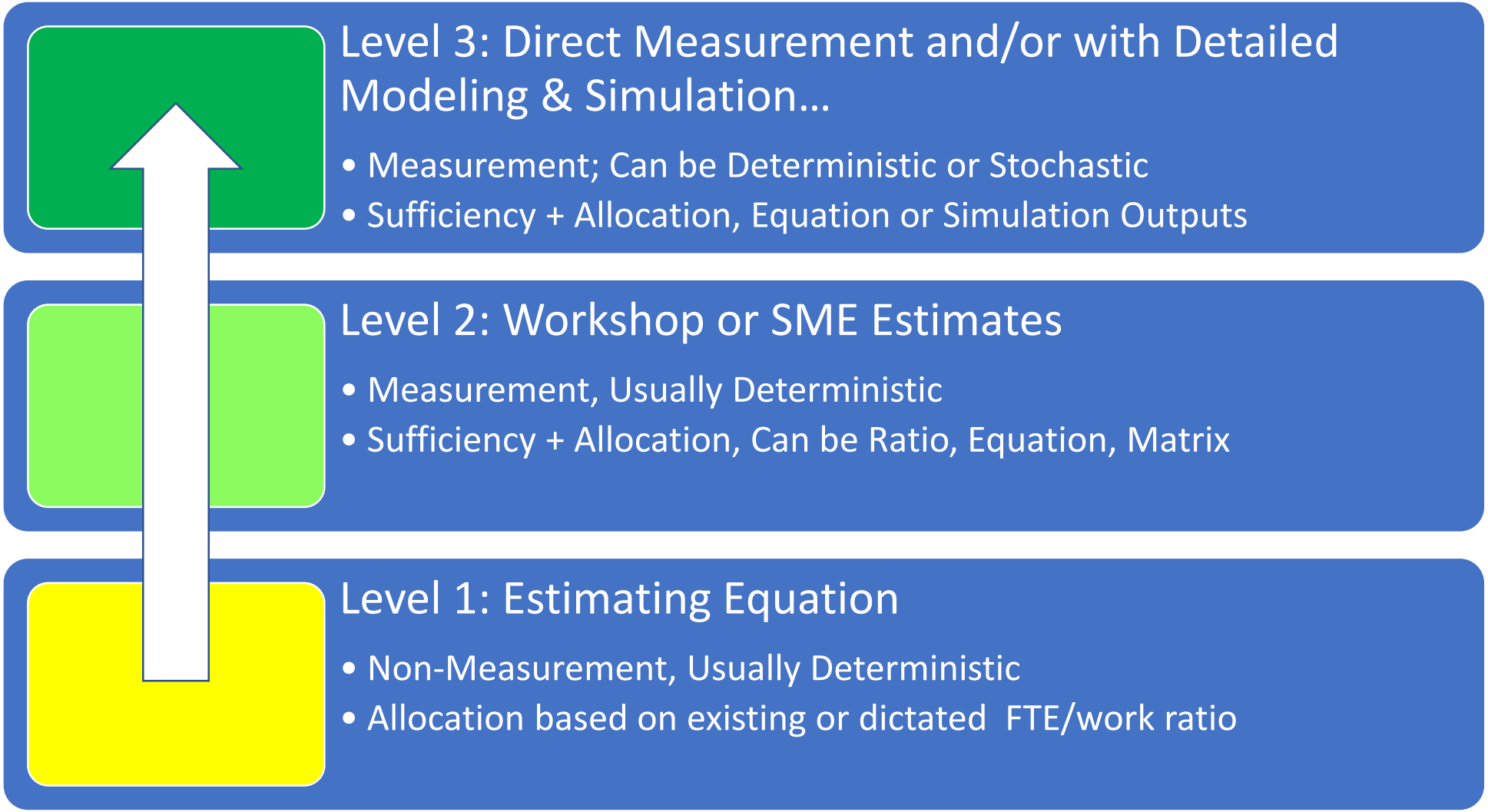
Reference: US Army Manpower Analysis Agency (USAMAA) White Paper, undated

A *USEFUL* MODEL WILL:

- Generate results that add value to the overall decision making process, and
- Provide a clear understanding of the cause and effect relationships between workload and the manpower necessary to produce it.

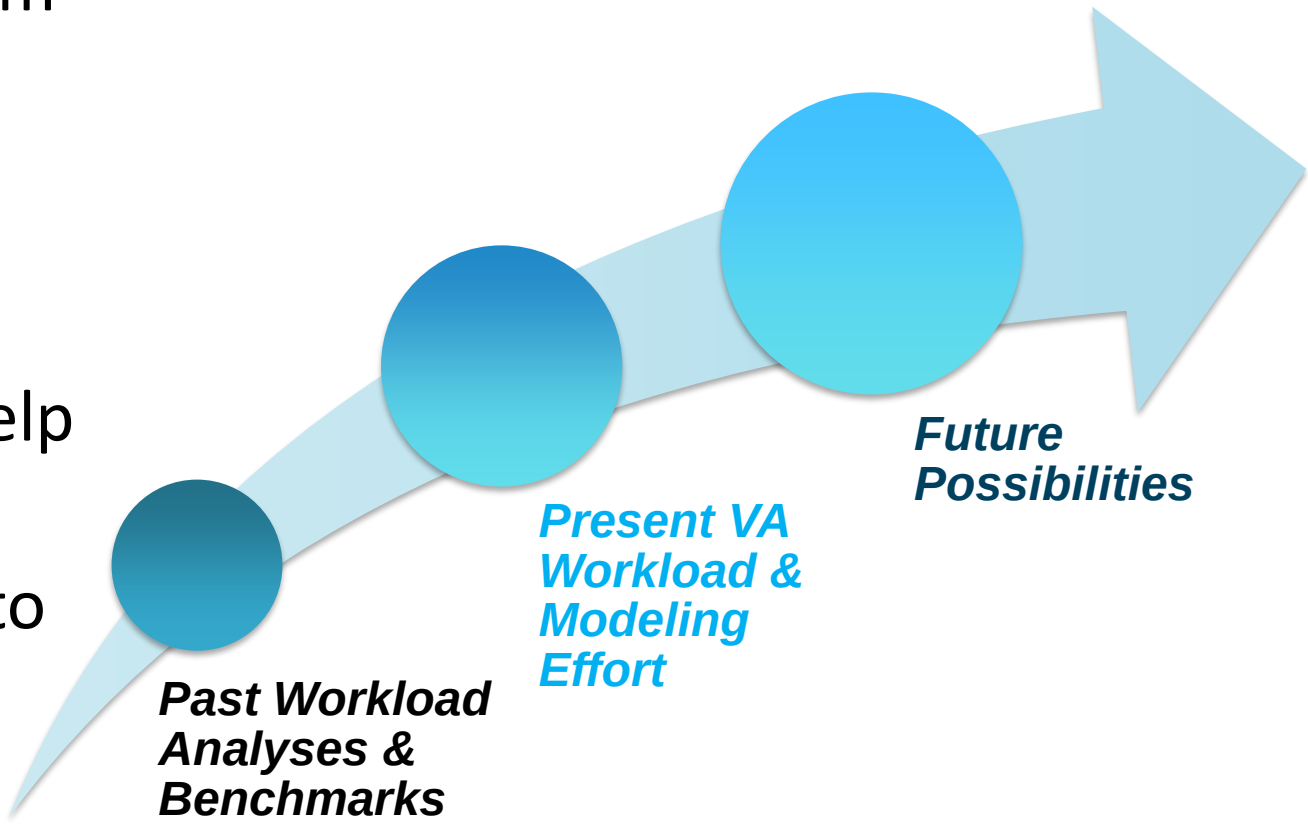
Reference: US Army Manpower Analysis Agency (USAMAA) White Paper, undated

THREE LEVELS OF MODEL SOPHISTICATION



STRATEGIC CONTEXT

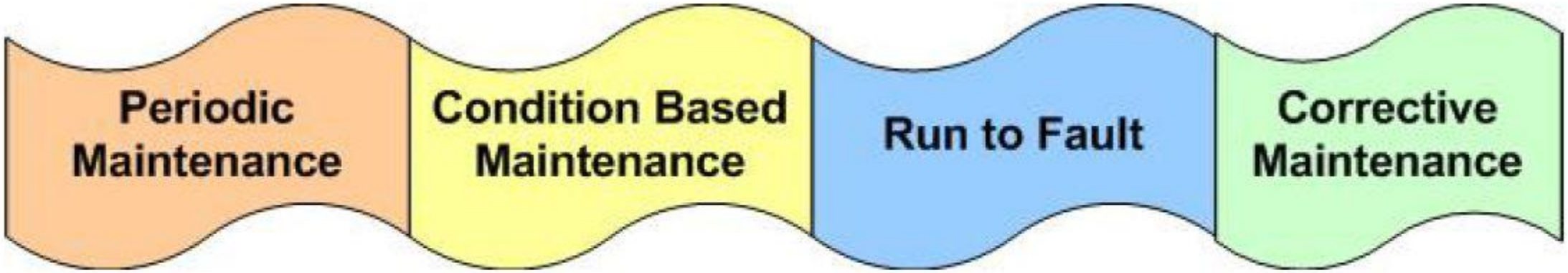
- VA seeking to implement many concurrent reforms and system improvements in a resource-challenged environment
- Studying VA Facilities O&M mission outputs and human resource requirements can help allocate resources to need
- Previous efforts can be used to help in this journey



HOW WE MAINTAIN DRIVES WORKLOAD… AND IMPACTS ON OPERATIONS

Reference: July 2013 NAS Assessment of Staffing Needs of Systems Specialists in Aviation

Reliability Centered Maintenance (RCM)



Periodic Maintenance (PM)
- *Safety related checks*
- *Preventive maintenance inspections*
- *Performance checks and routine maintenance*

Conditioned Based
- *Time-Based actions*
- *Cycle-Based actions*
- *Predictive Analysis and Intervention (PAI)*

Run-to-Fault (RTF)
a conscience decision to accept the risk of a facility problem or failure.

Corrective Maintenance is employed after a failure or to correct a problem.

"Big Data" and Tech Today Enables more PREDICTIVE APPROACHES – to Anticipate/Plan Actions

YOU ARE NOT ALONE: FINDING BENCHMARKS

- OTHER FEDERAL CAMPUSES
- PRIVATE SECTOR / INDUSTRY / FOR-PROFIT HEALTHCARE SYSTEMS
- VOLUNTARY / NON-PROFIT HEALTHCARE SYSTEMS
- ACADEMIC INSTITUTIONS / UNIVERSITIES
- PROFESSIONAL ASSOCIATIONS: IFMA, ASHE, APPA, etc.
- PROFESSIONAL / ACADEMIC RESEARCH & PUBLICATIONS
- INDUSTRY EXPERTS / CONSULTANTS

Recommendation: Also Perform your own Baseline and Benchmark Assessment

What's the situation today?

- BACKLOG or DEFERRED WORK
  - Some is good; a LOT is probably not. Can we clearly define the backlog?
- USE OF OVERTIME
  - Is "Overtime" normal in these work centers? How much? Why?
- USE OF SHORTCUTS or deviations from directed practice
  - How often do workers resort to "creatively accomplishing" the jobs?
  - Should those actions be recommended as "innovations" or should we return to standard practices to reduce risk?

Other Key Staffing Model Considerations

- Potential Workload Factors /Drivers
  - Try a lot of these – but you may not need to specifically incorporate all of them into the models! (not all are “significant”)
- Great models can be built with great data:
  - Data Systems, Data Quality and Availability
- Take time to gather solid baseline data
- Staffing Ratios – wonders and the pitfalls – but great starting point
- Cost and Risk considerations – what happens if we do/don’t maintain
- As-Is Modeling vs To-Be Modeling…are we doing the right things now in the best way?

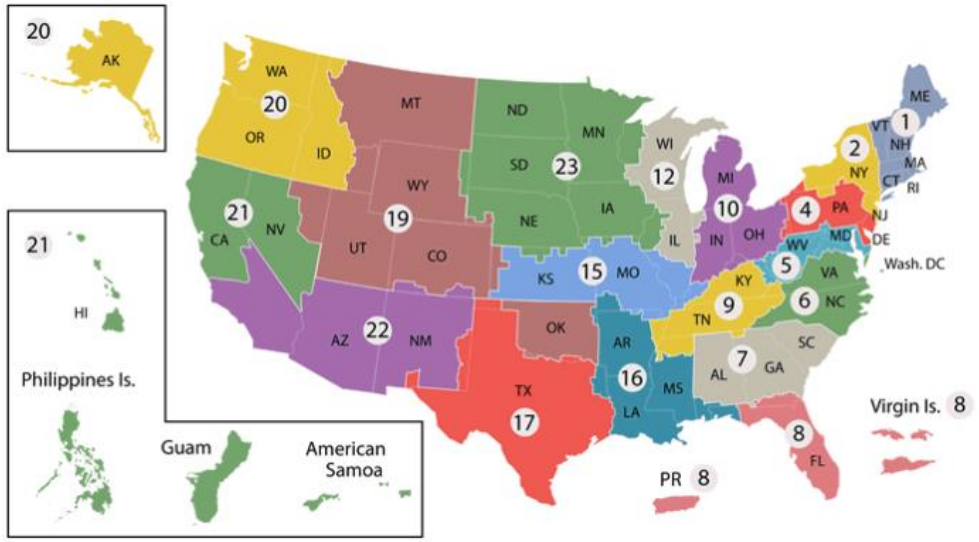
OUTPUTS

- Workforce Expressed in Man-hours or Full-Time Equivalents
- Decision Points for: 1) In-House; 2) Overtime; 3) Contract FTEs
- Labor Skill Types and Levels (Electrician/Plumber/Mechanical/etc.)
- At Least three general Labor Pools: 1) Professional & Office; 2) Skilled Trades; 3) General Labor/Custodial/Cleaning
- Activities: Routine/Major/Minor

Categorize and Prioritize the Differing Elements and Functions You Want to Study

WHERE SHOULD THE WORK BE PERFORMED? (AND STUDIED…)

- Per Facility
- Per Campus
- Geographic /Regional
- Travel Teams
- Shared Services
- Centralized Services
- Outsourced



Source: VA website

Clearly Define Scope: What's In – What's Out – and take in parts

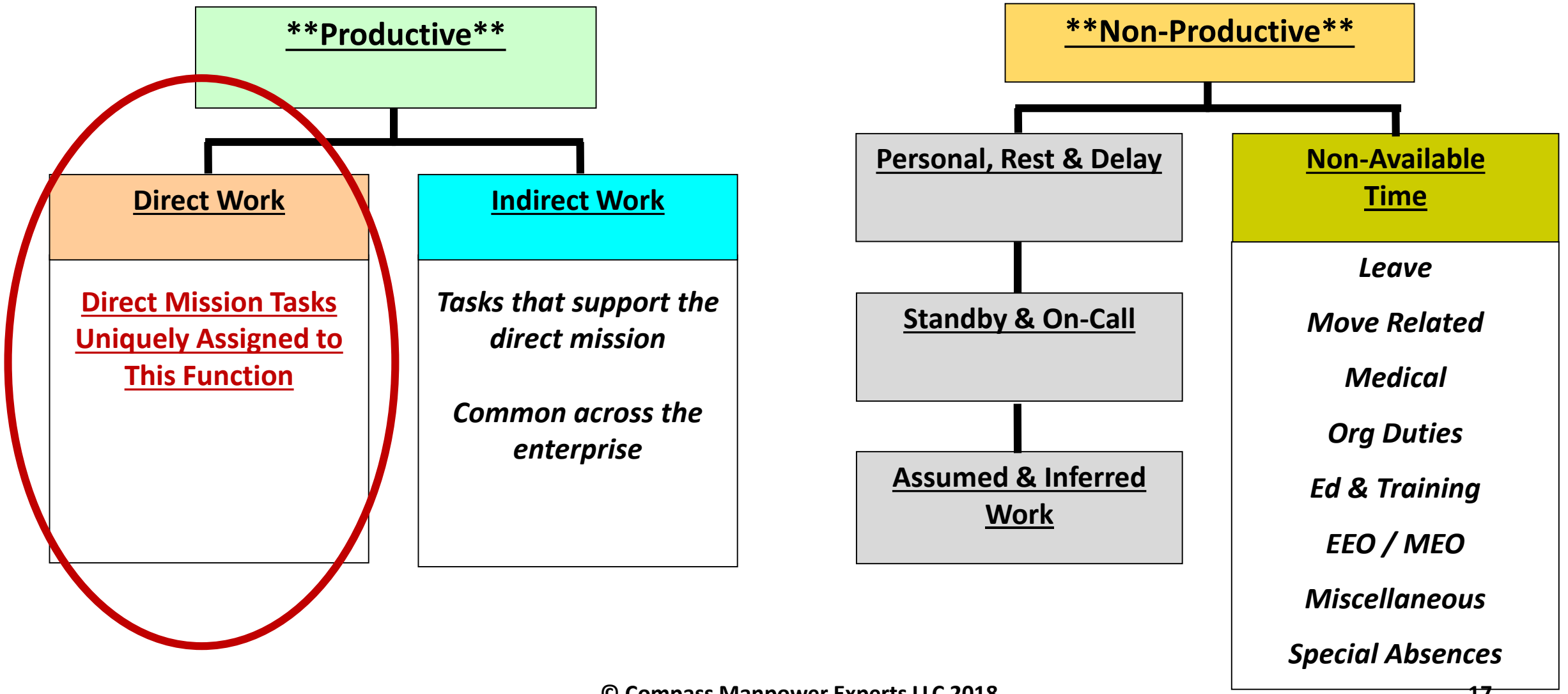
- Headquarters or "Corporate" Level Activities
- Management / Project Planning, Construction Oversight / Reporting / Budgeting /Environmental / Real estate/Property
- Routine Maintenance
- Facility Operations (Boilers, Power Production, Climate / Lighting etc.)
- Custodial / Cleaning / Grounds Keeping / Pavements
- Painting, Touch up
- Construction / Reconstruction / Renovations / Moves
- Maintenance Supplies, Equipment, Parts
- Furnishing Mgt / Fixtures / Art
- Medical Systems Calibration and Maintenance (Imaging, Labs, O2, etc.)

WHAT'S INCLUDED IN AN FTE?

- TOTAL TIME -- AVAILABLE TIME -- NON-AVAILABLE TIME
- HOW MANY HOURS A WEEK -- MONTH -- YEAR?
- ANNUAL LEAVE -- MEDICAL -- TRAINING -- PARENTAL
- 168 vs 150 vs ??? HOURS / MONTH
- OVERTIME -- COMP TIME
- UTILIZING PART-TIME vs FULL-TIME
- HOURLY PRODUCTIVE TIME (JOB PLANNING, ETC)
- ON-CALL and STANDBY (and COMPENSATED vs UNCOMPENSATED)

FTE *DOES NOT EQUAL* "HEAD COUNT"

Manpower Study: Types of Work Activity



Conditions for a Better Model

Can you clearly document how many FTE's of In-House and Contract Workers you Employ TODAY?

	None	Some	Strong
Standard Organization Structures			
Strong Workload Data Systems			
Clear Performance Measures/Goals			
Detailed Job Descriptions			
Accurate Work Time Accounting			
Standard Work Processes			
Highly Trained Workforce			

Proprietary: Compass Manpower Experts Methodology with Similar Clients

Better for success

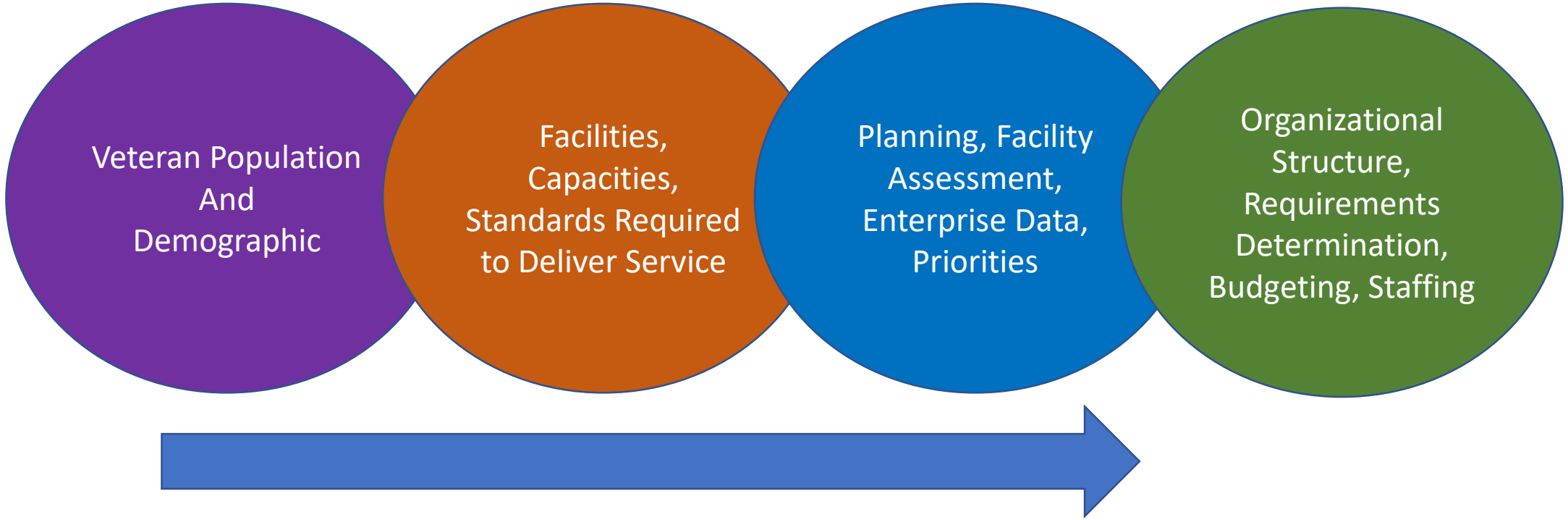
CASE STUDY: AIR FORCE JOURNEY

NOTE: Tableau Software is a software company headquartered in Seattle, Washington, United States that produces interactive data visualization products focused on business intelligence. BUILDER™ Sustainment Management System (SMS) is a web-based software application developed by ERDC's Construction Engineering Research Laboratory. Air Force Civil Engineering Center and Air Force Manpower Analysis Agency are appropriate POCs for further discussion of this effort.

- In 2012, the AF "physical plant" consisted of 166 installations, 10M acres of land, 634M square feet of facilities, 154M square yards of pavement, and 75,800 homes -- aging and suffering series of historical budget challenges
- Legacy Air Force Manpower Standards built upon K-Sq Feet, etc. with Variances
- Civil Engineering Workforce: AF HQ, IMSC - AFCEC, Squadrons, Flights (CEN, CEO, etc.) plus whatever contracted out
- Gathering the Necessary Data: Assessing Facility Status and Defining the Need w/ BUILDER with TABLEAU – Installation Health Assessments very useful
- Can use to express in out-year dollars the project costs to restore and maintain – to properly program Facilities, Sustainment, Restoration and Modernization (FSRM) dollars required – and do required Planning, etc.
- Working with AFMAA, using innovative methods to estimate FTE's required to accomplish the workload associated with the maintenance estimates

RECOMMENDATION: TALK WITH AF CIVIL ENGINEERS AND AFMAA

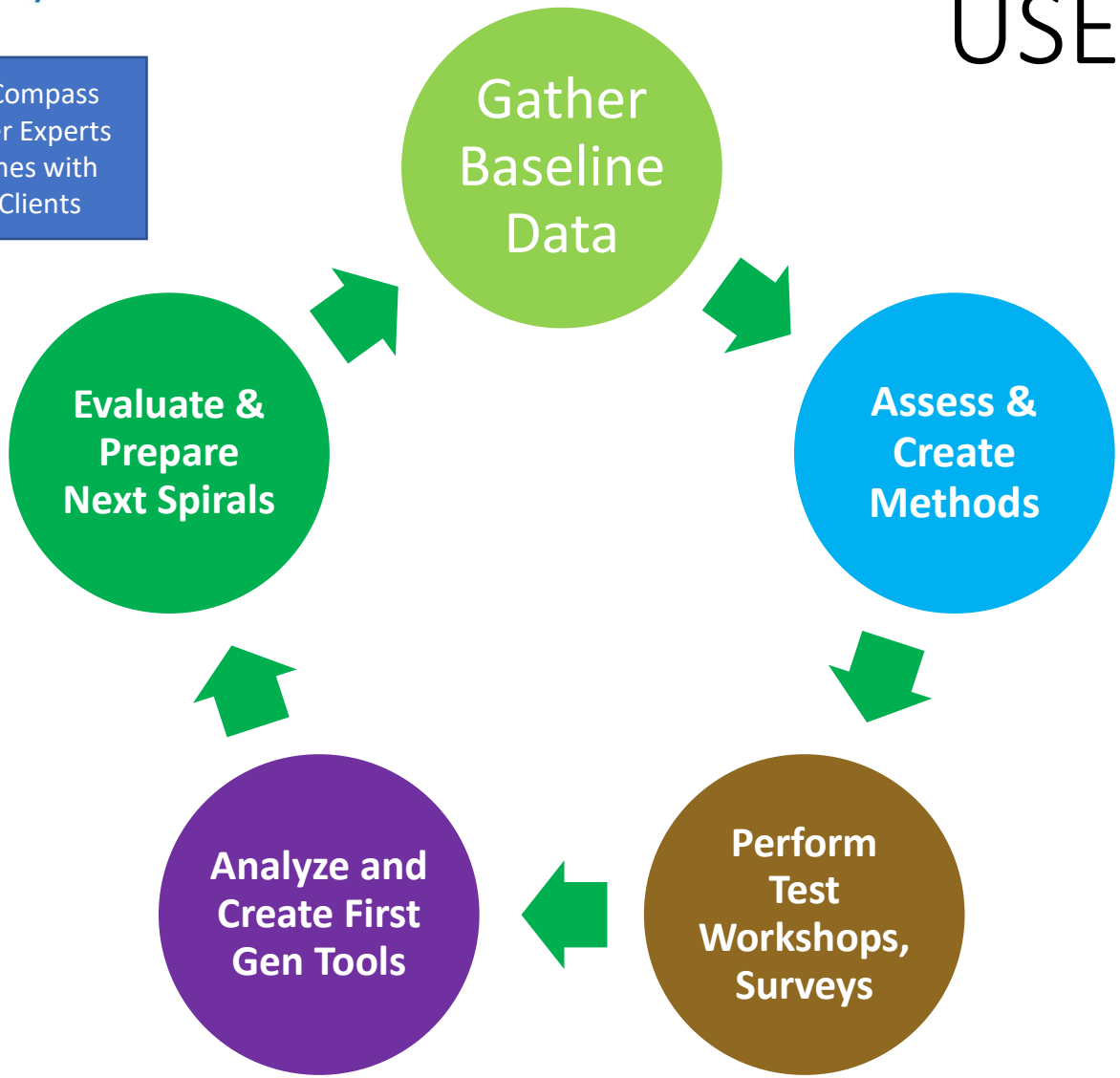
VHA MODELS FRAMED UPON KEY "Prerequisites"



Compass Manpower Experts

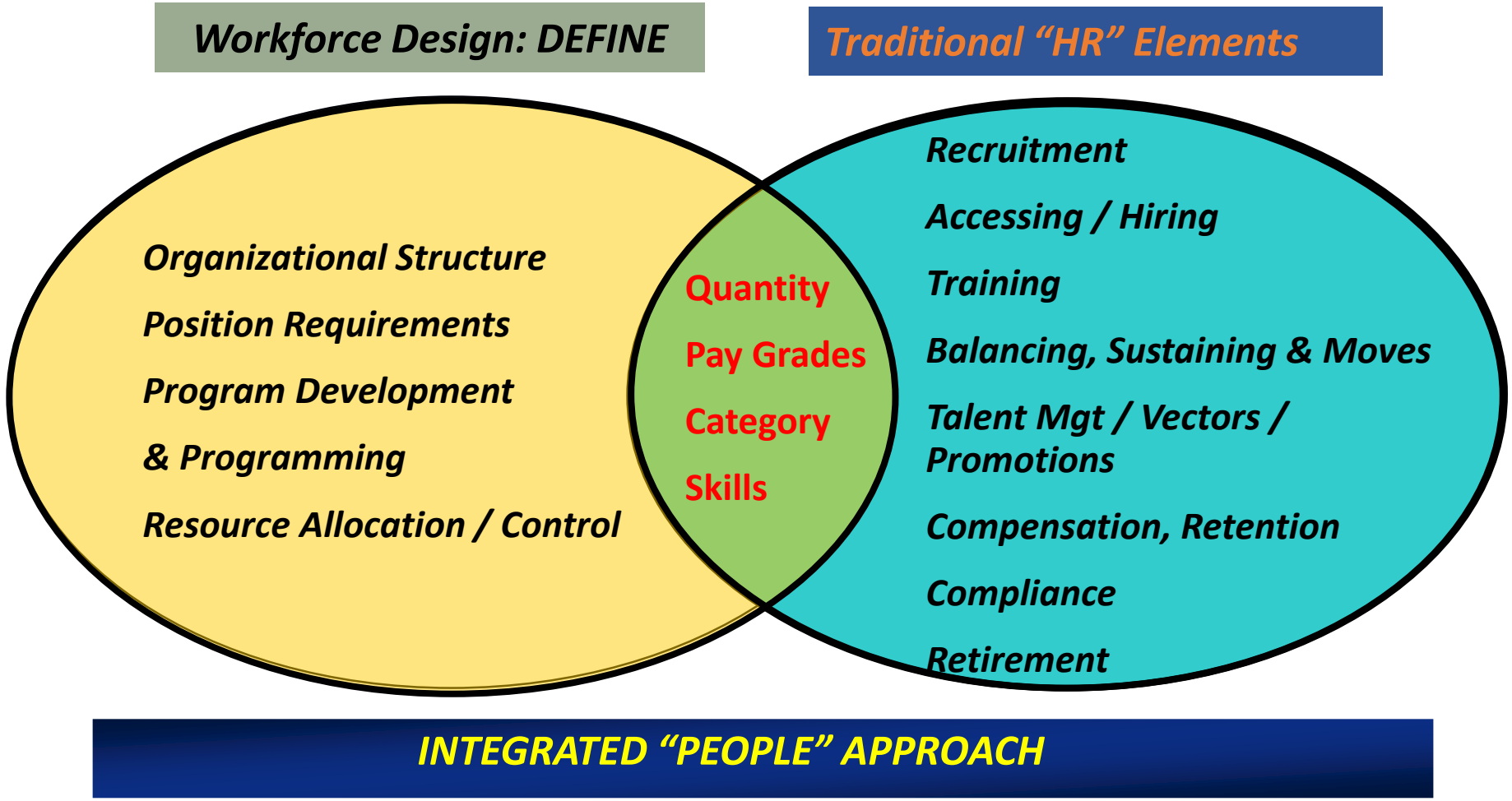
Source: Compass Manpower Experts Approaches with Similar Clients

USE SPIRAL APPROACH



- Start with a great baseline
- Benchmark / compare what you've got
- Get something together – then make it better
- Select a portfolio of tools to define requirements by functions / placement within the enterprise

Federal Workforce Staffing Considerations



This is the beginning of the journey…what questions do you have for me today?