

Making Meaning

INST 154

Apollo at 50

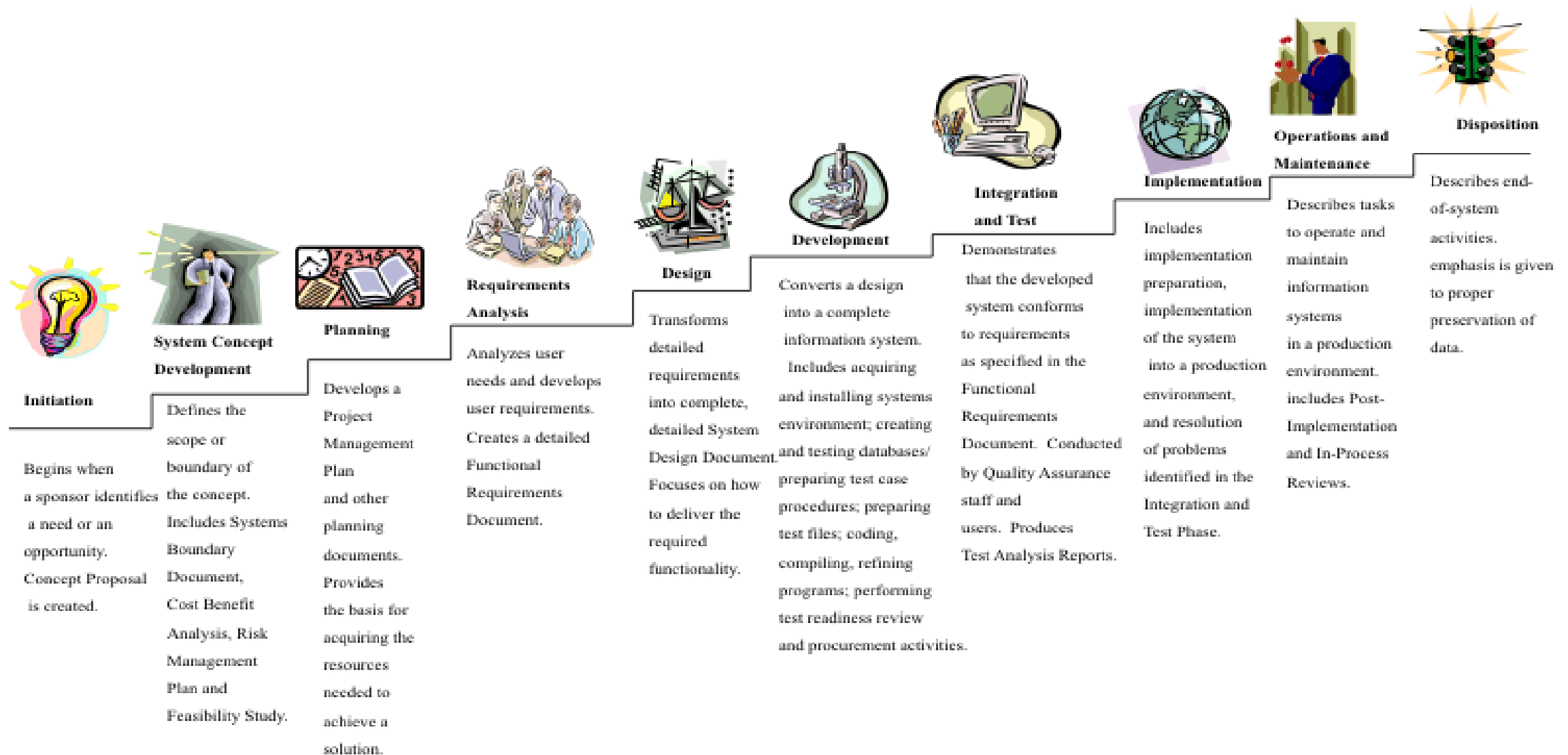
[Ted Sorensen](#) (start at 41:30)

A Full-Class Discussion Group

- Apollo: Reflections and Lessons video
 - A unique forum that brought together politicians and managers from Apollo
- Siddiqi article (“Competing Technologies, Nationalist Narratives, and Universal Claims: Toward a Global History of Space Exploration”)
- de Monchaux Chapter 19 (“Cities and Cyborgs”)
 - The failure of Apollo’s systems analysis approach to improve life in cities
- Rittel article (“Dilemmas in a General Theory of Planning”)
 - Why some “wicked problems” are not amenable to the Apollo approach

Systems Development Life Cycle (SDLC)

Life-Cycle Phases



Open Systems: Wicked Problems

- Wicked problems are interconnected; each is a symptom of others
- Choices have consequences, and those consequences have consequences, ...
- Some of those consequences are irreversible, so every try is playing for keeps
- Truly understanding the problem implies knowing every possible solution
- Wicked problems do not have an enumerable set of potential solutions
- Explanations constrain your thinking, and all explanations are incomplete
- There is no way to know which solutions you have not yet thought of
- Solutions to wicked problems can be better or worse, but not right or wrong
- Wicked problems may seem similar, but their differences may be crucial
- Decisions need to be made by those who have the right to be wrong

Some Wicked Problems?

- Gender pay gap
- Racial wealth gap
- Permanent colony on Mars
- Achievement gap in education
- Global warming
- Mass shootings
- Cybersecurity
- Airline safety
- Reducing recidivism
- Ending colonialism
- Obesity
- Electoral reform
- AIDS crisis
- Immigration reform
- Electric cars
- Roman conquest of Britain
- Expansion of Islam
- Victory of the North in the Civil War
- Defeat central powers in WW1
- Rebuild German power after WW1
- Defeat Nazi Germany in WW2
- Defeat Japan in WW2
- Post-WW2 GI Bill
- Catalan independence movement
- War on drugs
- Great depression
- UN sustainable development goals
- Gun violence
- Eradicate smallpox
- Eradicate polio

Some Tame Problems

- Transatlantic telegraph cable
- Development of the Internet
- Development of satellite Internet
- Curing Alzheimer's
- Cure cystic fibrosis
- Transcontinental railroad
- Military drones
- Curing cancer
- Manhattan project