PGCS PROJECT AND PROGRAM MANAGEMENT SYMPOSIUM
Better Management Better Projects

Project Management started off as a management innovation. Can it transition to meet the sustainability challenge?

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UMEÅ SCHOOL OF BUSINESS, ECONOMICS AND STATISTICS
UMEÅ UNIVERSITY

Acknowledgement of country

I acknowledge the Gadigal and Guring-gai people of the Eora Nation upon whose ancestral lands UTS now stands. I also acknowledge the Ngunnawal people on whose lands I am now and acknowledge the Sámi people in Sweden where my co-authors come from. I would also like to pay respect to the Elders both past and present, acknowledging them as the traditional custodians of knowledge for these places.

Overview

- BACKGROUND TO THE STUDY
- Socio-Technical Transitions to Sustainability
- STUDY OF PROJECT MANAGEENT AS an STS
- Presentation at IRNOP 2018 in Melbourne
- PUBLICATION IN ISSS YEARBOOK 2021
- History of PM as an STS
  - Premodern and Modern
- Sustainable Project Management
- FURTHER RESEARCH PLANNED

Some personal history

1960–1970

Graduate Physics and Instrument Technology

- Maintenance engineer (ICI)

1970–1980

Instrument Engineer in Projects

- Oil & Gas, Petrochemical and Energy Industries
- India, Middle East, Southeast Asia

1980–2000

Project Manager/Operations Manager/Technical Director

- Yokogawa Electric Asia – Singapore
- Engineering Manager Yokogawa Australia

1980–2000

Master of Systems Engineering (RMIT)

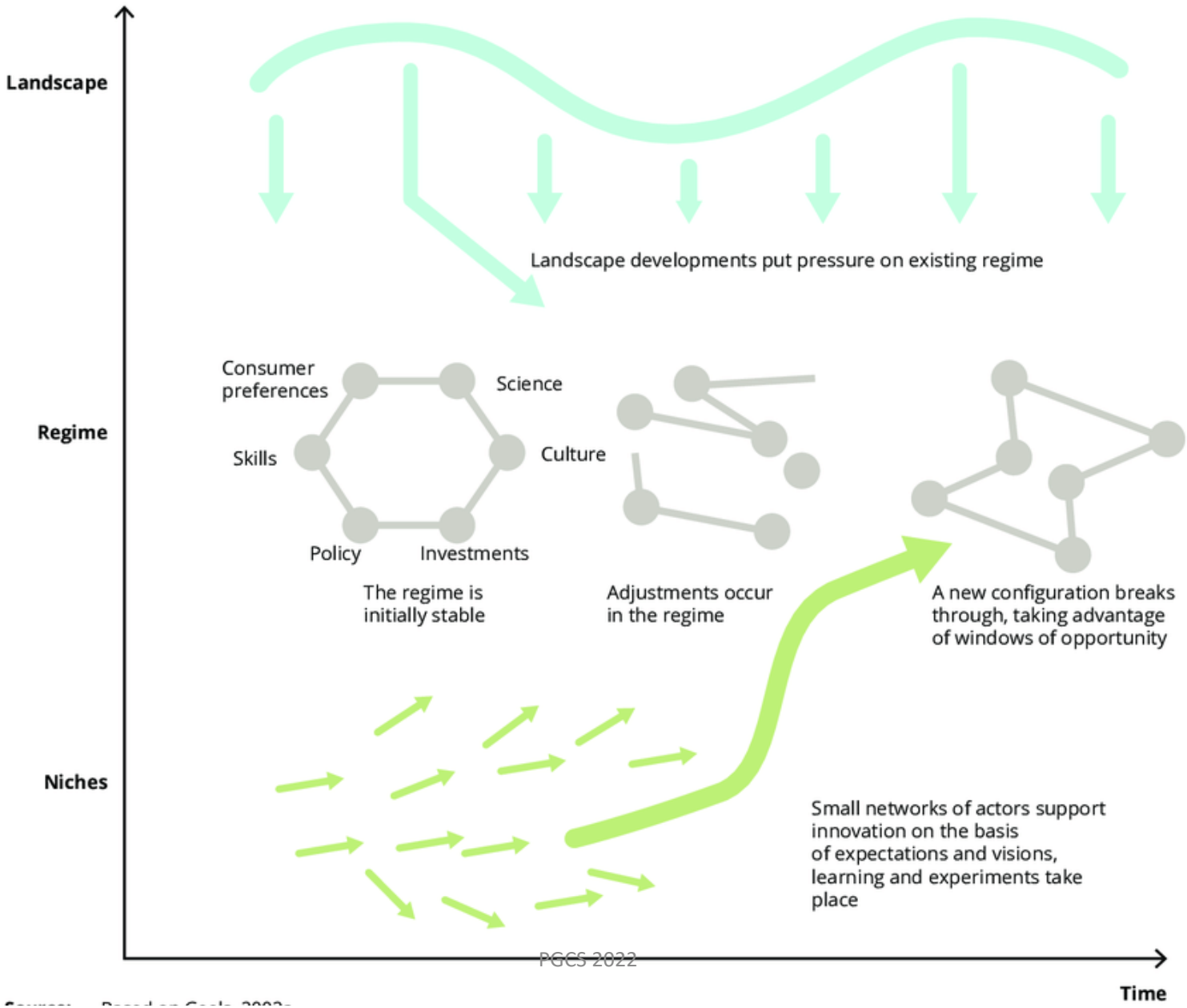
PhD in Business and Management (UniSA)

2000–2022

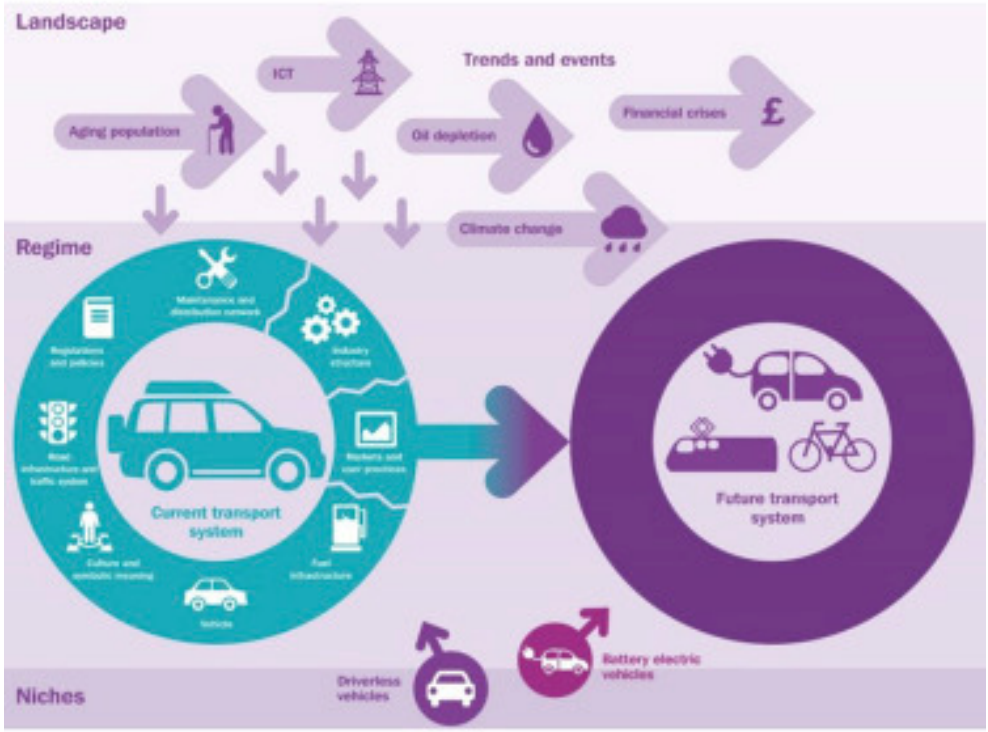
Academic - Australia

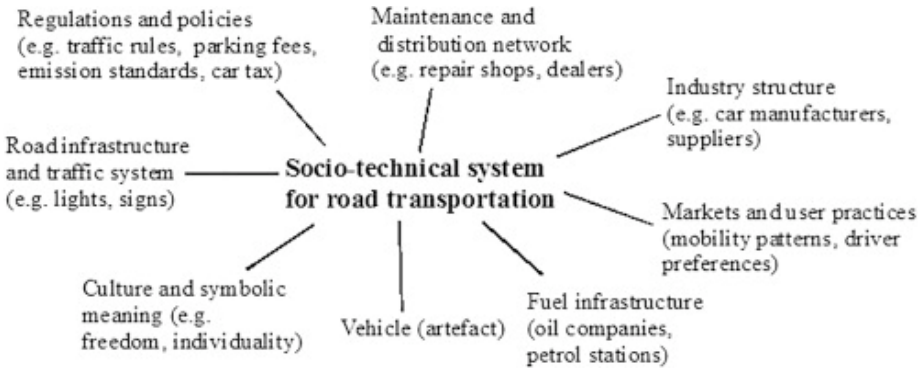
- Southern Cross University/UTS
- Business and Management/Project Management/Systems Thinking/Leadership

Sociotechnical Transition



EEA Report 2017:24; Geels 2002





EEA Report 2017
Geels et al. 2005

Levels of Transition

Landscape Level:

- How landscape factors trigger microlevel improvements in project management techniques and routines

Sociotechnical Regimes

- External influences that have had an impact on how project management transitioned over time

Technological Niches:

- Innovations introduced in the project management field – We included techniques into technical when considering innovations

Ancient Masterbuilder

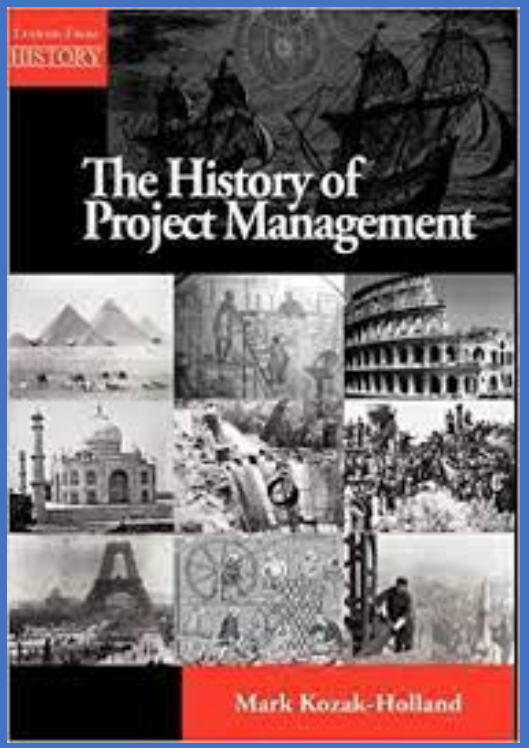
en.wikipedia.org

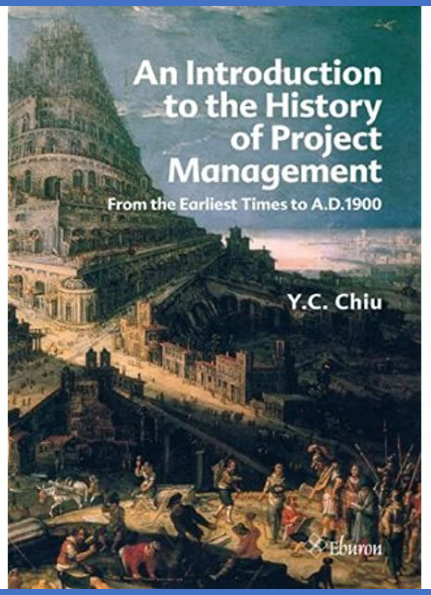
Modern Project Manager
blog.planview.com

Historical overview of project management

- Project Management before it came to be known as a profession
- Sources
  - Chiu (2020) & Kirk -Holland 2011)
  - Period : Earliest times (2100 BC) to 1900 AD
  - Chiu (2010) highlights 20 prominent buildings
  - Kirk Holland (2001) covers other projects as well such as voyages

- Modern Project Management
- Sources
  - Peter Morris (1994; 2011; 2013)
  - Stretton (2017)
  - Kwak (2005)
  - Garel (2013)
  - Weaver (2007)
  - Blomquist and Söderholm (2002)





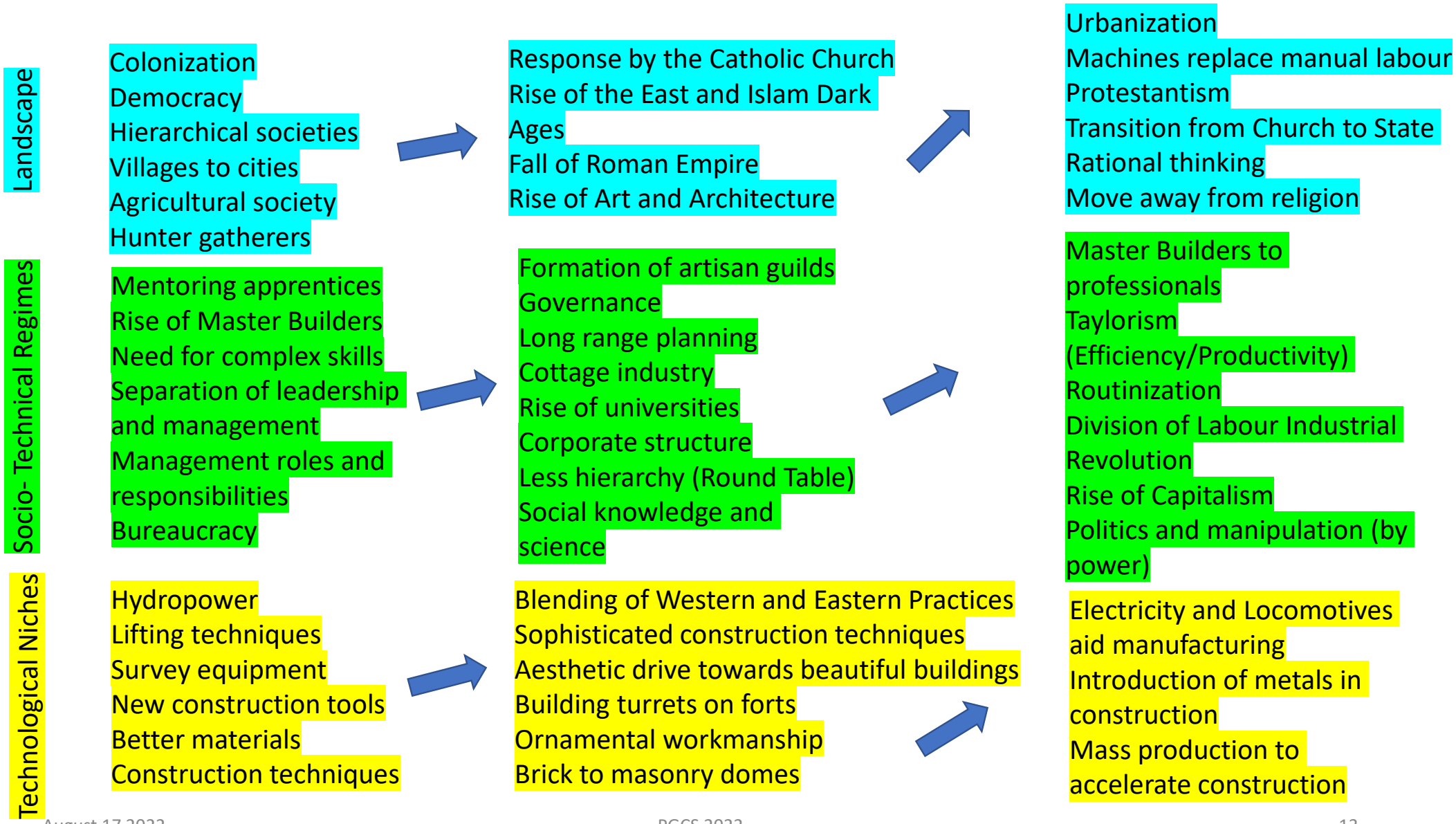
Goodreads.com

Premodern Period

Projects	Time (Chiu 2010)	Time (Kirk-Holland 2011)
Great Ziggurat of Ur	2100 BC	
Tower of Babylon	Around 600 BC	
Hanging Gardens	Around 600 BC	604-652 BC
Giza Pyramid (Egypt)	2580-2560 BC	2580-2560 BC
Parthenon (Greece)	477-438 BC	447-438 AD
Caesar's Rhine Bridge	55 BC	
Colosseum (Rome)	70-82 AD	70-80 AD
Parthenon (Rome)	118-126 AD	118-125 AD
Hagia Sophia	532-537 AD	532-537 AD
Grand Mosque of Damascus	706-715 AD	
Krak des Chevaliers, Syria	1144-1250 AD	
Pisa Cathedral	1063-1180 AD	
Notre Dame de Paris	1163-1145 AD	Gothic Cathedrals
Dome of Florence Cathedral	1420-1436 AD	1417-1436 AD
Santa Maria Novella	1456-1470 AD	
Columbus Voyage		1492-1493 AD
Ferdinand Magellan's Voyage around the world		1519-1522 AD
St Peter's Basilica	1506-1626 AD	1506-1626 AD
Taj Mahal		1631-1648 AD
St Paul's Cathedral	1668-1697 AD	
Palace of Versailles		1661-1720 AD
Iron Bridge Project		1775-1781 AD
Railway Projects		1812-1825 AD
Menai Straits Suspension Bridge	1819-1826 AD	1819-1824 AD
Crystal Palace	Mid 1850 to May 1851 AD	
Eiffel Tower	1887-1889 AD	
Panama Canal		1904-1914 AD
Empire State Building		1929-1931 AD
Hoover Dam Project		1931-1935 AD

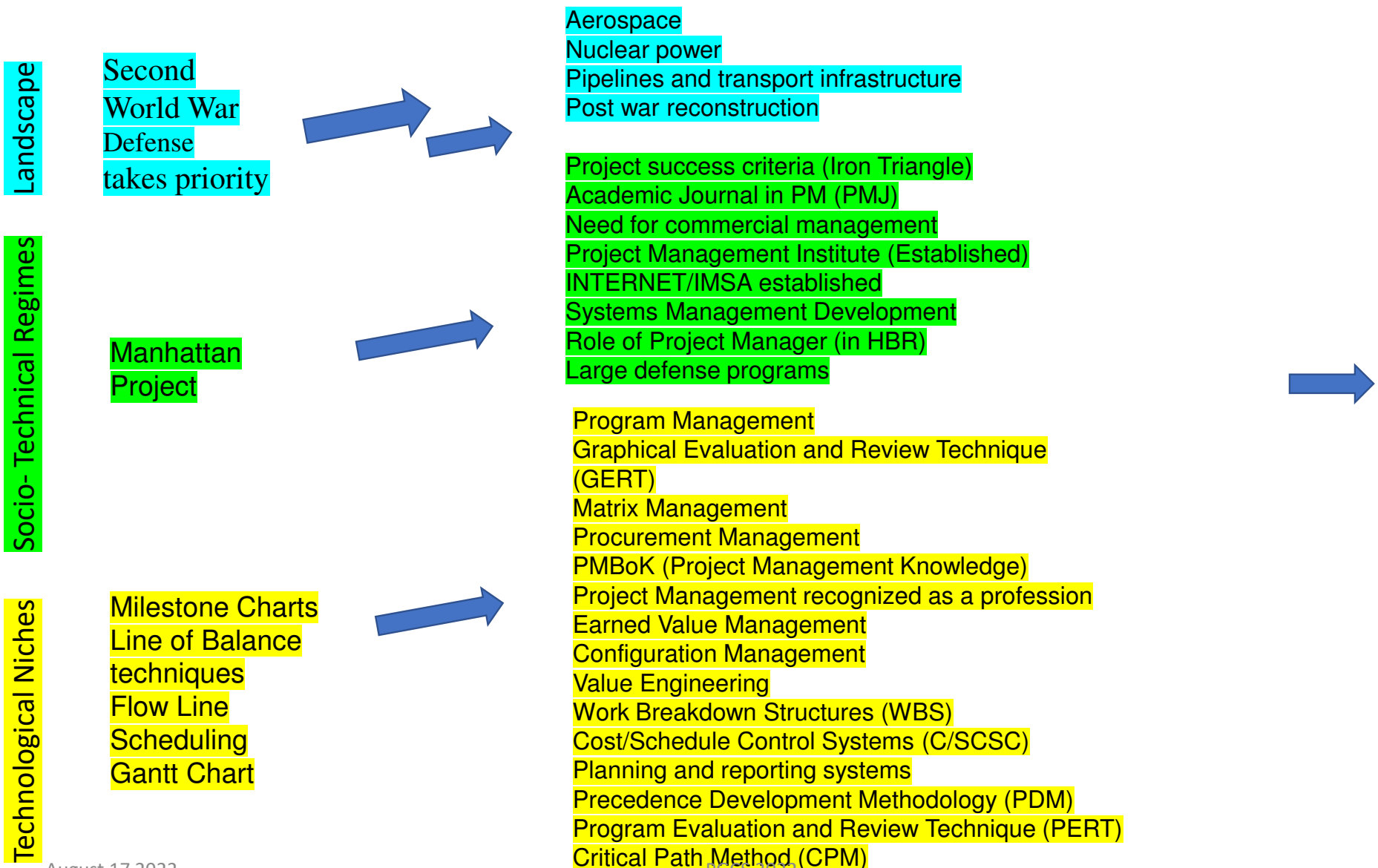
Have you visited any of these?

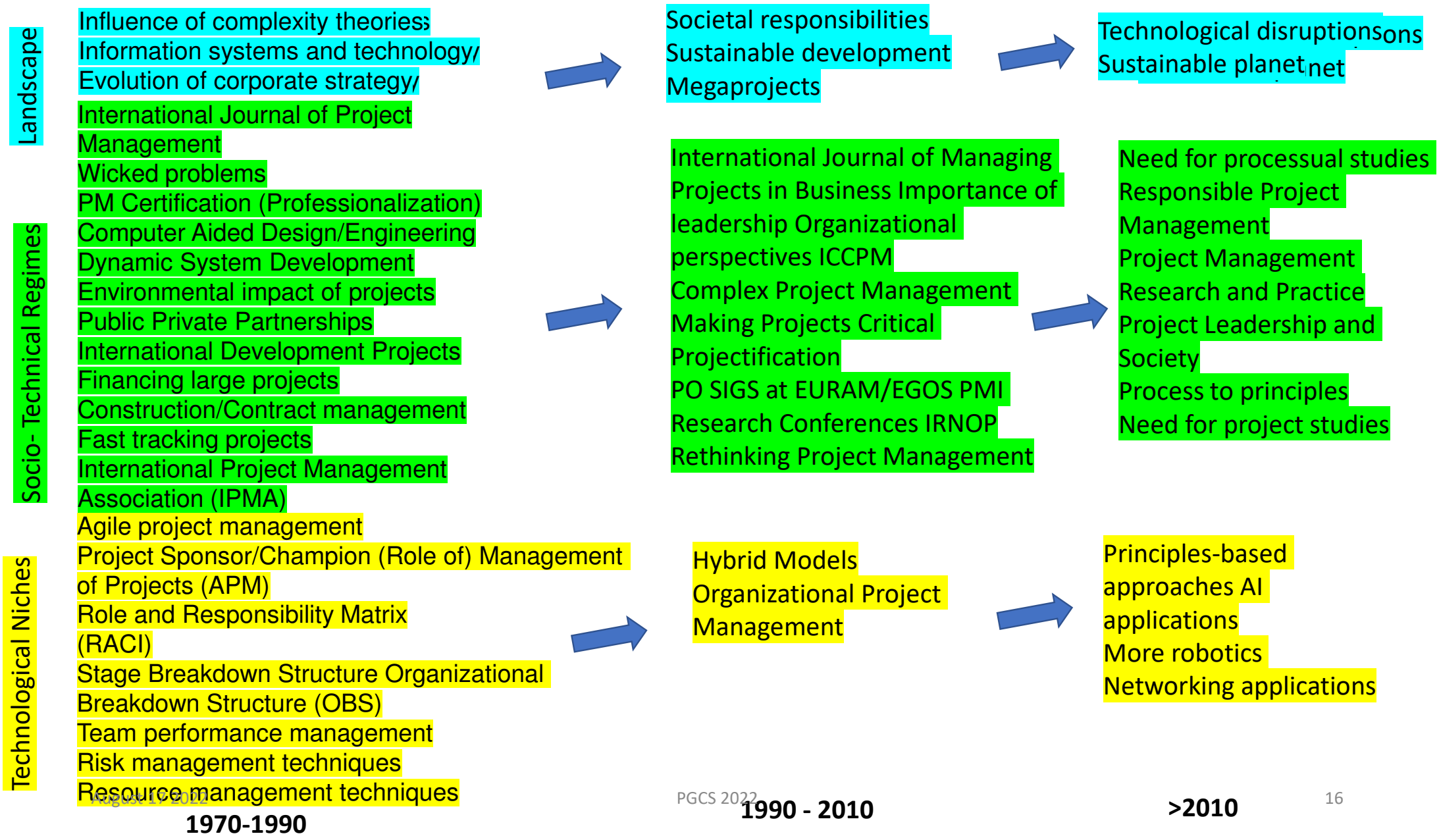
en.wikipedia.org


Landscape
Colonization
Democracy
Hierarchical societies
Villages to cities
Agricultural society
Hunter gatherers
Response by the Catholic Church
Rise of the East and Islam Dark Ages
Fall of Roman Empire
Rise of Art and Architecture
Urbanization
Machines replace manual labour
Protestantism
Transition from Church to State
Rational thinking
Move away from religion
Socio- Technical Regimes
Mentoring apprentices
Rise of Master Builders
Need for complex skills
Separation of leadership and management
Management roles and responsibilities
Bureaucracy
Formation of artisan guilds
Governance
Long range planning
Cottage industry
Rise of universities
Corporate structure
Less hierarchy (Round Table)
Social knowledge and science
Master Builders to professionals
Taylorism (Efficiency/Productivity)
Routinization
Division of Labour Industrial Revolution
Rise of Capitalism
Politics and manipulation (by power)
Technological Niches
Hydropower
Lifting techniques
Survey equipment
New construction tools
Better materials
Construction techniques
Blending of Western and Eastern Practices
Sophisticated construction techniques
Aesthetic drive towards beautiful buildings
Building turrets on forts
Ornamental workmanship
Brick to masonry domes
Electricity and Locomotives aid manufacturing
Introduction of metals in construction
Mass production to accelerate construction
~2100 BC to 500 AD
~600AD to 1500 AD
~1500 AD to 1940

Postmodern PM

Author	Periods	Classifications
Morris, 1994	Prior to 1940; 1950s; 1960's; 1970s; 1980s; Management of Projects: And now	Second World War; development of systems management; Apollo spacecraft and the decade of management systems; expansion of project management; expansion of strategic perspectives of management of managing projects; new model of the management of projects
Morris, 2011	Early history; 1950s and 1960s; 1970s to 1990s; 1990s and early 21st century	Systems development; wider applications; new strands and ontological divergence; enterprise-wide project management
Morris 2013	1900-1970s; 1953+; 1960++; 1970s; 1990++; 1995+; 2000+2005+; Relevance today	Planning and control; engineering complexity and urgency; organizational theorists starting to take an interest in project management; environmental awareness; front-end definition; lean management and relationships; enterprise-wide PM; governance; agility
Stretton, 2007	1950; 1960; 1970; 1980 & early 1990	Various headings but no major classifications
Kwak, 2001	Prior to 1958; 1958-1979; 1980-1994; 1995 to present	Craft system to human relations administration; application of management science; production centre: human resources; creating a new environment
Garel, 2013	Not very specific on periods	Management models; pre-models of PM; from rationalization to standardization of PM
Weaver, 2007	No classification of periods but covers changes from the 1700s to 2007.	Developing the technology; management history; creating the profession of modern project management
Blomquist & Söderholm 2002	1960s;1990; 2000 (no demarcation for 2nd phase)	Within industries; among industries through consultants; volume through professional associations; long-term survival through standardization bodies; scientific research and university training


Landscape
Second World War Defense takes priority
Aerospace
Nuclear power
Pipelines and transport infrastructure
Post war reconstruction
Socio- Technical Regimes
Manhattan Project
Project success criteria (Iron Triangle)
Academic Journal in PM (PMJ)
Need for commercial management
Project Management Institute (Established)
INTERNET/IMSA established
Systems Management Development
Role of Project Manager (in HBR)
Large defense programs
Technological Niches
Milestone Charts
Line of Balance techniques
Flow Line
Scheduling
Gantt Chart
Program Management
Graphical Evaluation and Review Technique (GERT)
Matrix Management
Procurement Management
PMBoK (Project Management Knowledge)
Project Management recognized as a profession
Earned Value Management
Configuration Management
Value Engineering
Work Breakdown Structures (WBS)
Cost/Schedule Control Systems (C/SCSC)
Planning and reporting systems
Precedence Development Methodology (PDM)
Program Evaluation and Review Technique (PERT)
Critical Path Method (CPM)
<1950
1950-1970


Landscape
Influence of complexity theories
Information systems and technology/
Evolution of corporate strategy/
Societal responsibilities
Sustainable development
Megaprojects
Technological disruptionsons
Sustainable planet net
Socio- Technical Regimes
International Journal of Project Management
Wicked problems
PM Certification (Professionalization)
Computer Aided Design/Engineering
Dynamic System Development
Environmental impact of projects
Public Private Partnerships
International Development Projects
Financing large projects
Construction/Contract management
Fast tracking projects
International Project Management Association (IPMA)
International Journal of Managing Projects in Business Importance of leadership Organizational perspectives ICCPM
Complex Project Management
Making Projects Critical
Projectification
PO SIGS at EURAM/EGOS PMI
Research Conferences IRNOP
Rethinking Project Management
Need for processual studies
Responsible Project Management
Project Management Research and Practice
Project Leadership and Society
Process to principles
Need for project studies
Technological Niches
Agile project management
Project Sponsor/Champion (Role of) Management of Projects (APM)
Role and Responsibility Matrix (RACI)
Stage Breakdown Structure Organizational Breakdown Structure (OBS)
Team performance management
Risk management techniques
Resource management techniques
Hybrid Models Organizational Project Management
Principles-based approaches AI applications
More robotics
Networking applications
1970-1990
1990 - 2010
>2010

Where to next?

	Climate change	Flying to the moon
Problem characteristics	Complex, ill-defined, interdependent causes, multi-dimensional, evaluative, socially constructed, moving target	Clearly defined, scientific and technological problem, shared understanding, stable target
Solutions	Technological and non-technical elements, broad array of potential solutions, no immediate tests, unwanted effects	Technical, based on science/ engineering, testable, supply-side
Scope	Global, sectoral or cross sectoral, several decades	National, technological, one decade
Actors & coordination	Broad range of distributed actors with conflicting interests, networks and coalitions	State as primary customer, hierarchy, defined roles
Public policies	Broad range of policy goals and instruments, policy interaction (policy mix) and potential conflicts, different levels	Public funding, R&D, national level

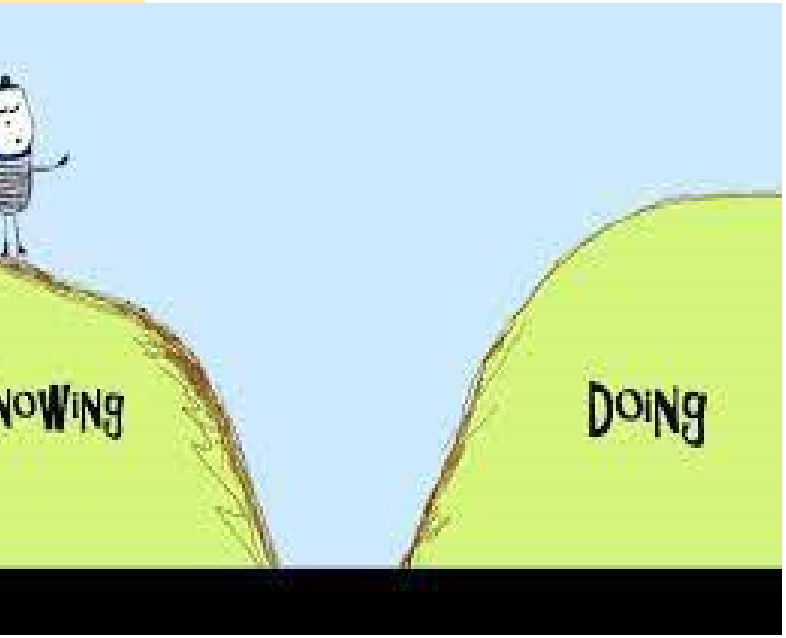
J. Markard 2017

The elephant in the room

- Morris (2013) uses Geel's (2004) work on STS to reconstruct project management
- Yvonne Schoper suggests at the IPMA Conference in 2016 that sustainability of projects is one of the 15 trends
- PMI's Pulse of the Profession Report in 2018 identifies sustainable development, climate change and renewable energy as a disruptive trend
- On its 50th Anniversary in 2019 PMI commits to be part of the UN's Global Compact to support UN's SDG's
- IPMA declares 2021 as the year of Responsible Project Management asking us to deliver better outcomes for society and the environment

https://www.forbes.com/sites/rodgerdeanduncan/2014/10/14/is-there-an-elephant-in-the-room-name-it-and-tame-it/?sh=1132aa8334dd

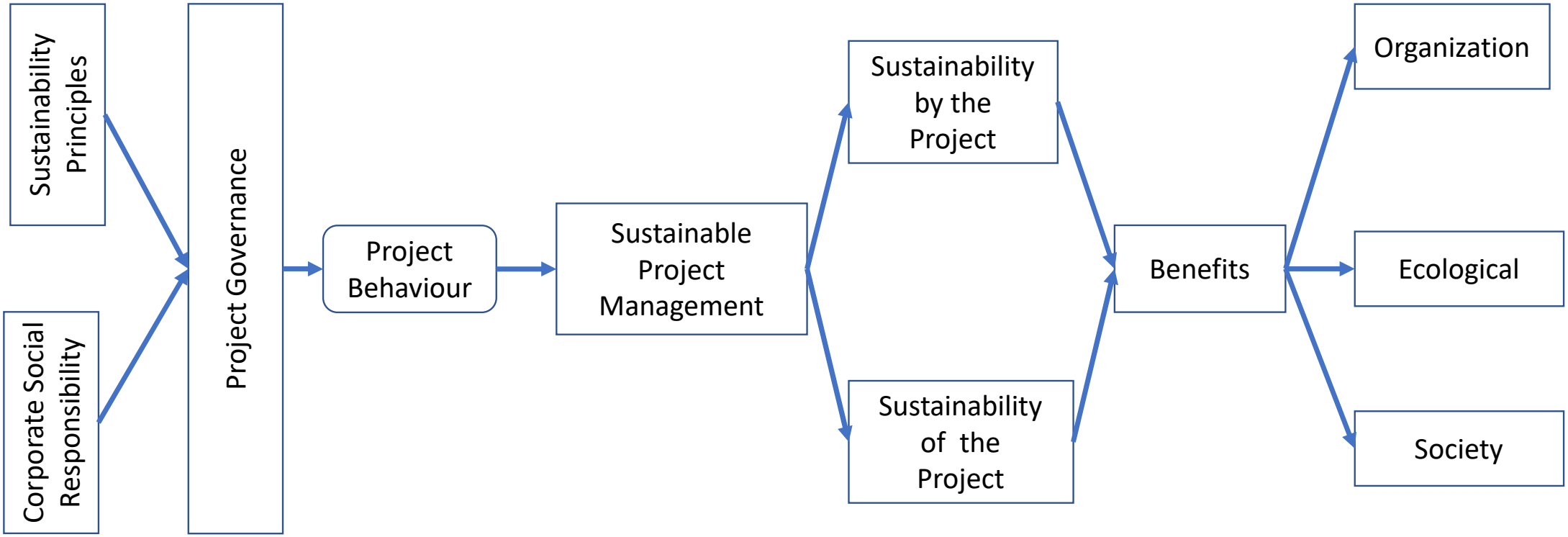
Sustainability has been recognized as a challenge for project management in the construction, infrastructure, mining, energy and new product development sectors. (Marcelino-Sadaba et al., 2014)
Project management has a vital role in contributing to sustainable development for organizations and society



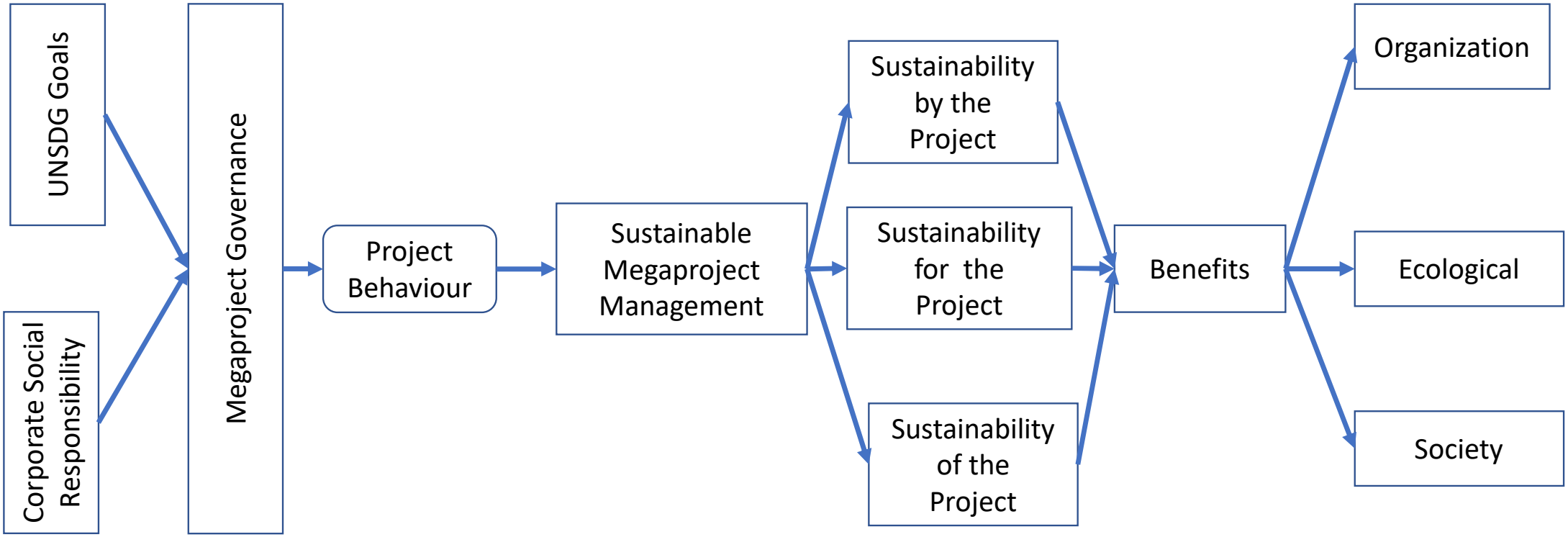
ps://ericgreid.medium.com/knowing-is-not-doing-5b1563e7ef1c

- Sustainable development seems a bridge too far for both the organization and the projects it carries out.
- Projects are often constrained by the iron triangle and considered as temporary thus decoupling them from permanent structures to achiev changes (Jones & Lichtenstein, 2008).
- Despite attempts to develop a business case for including sustainability issues, such an attempt is perceived as paradoxical in setting corporate goals (Hahn et al., 2015)
- Adding sustainability as a requirement to projects could pose several challenges to organizations (Bromley & Powell, 2012), hindering the ability to achieve sustainable development (Wijen, 2014).
- Develop new principles to govern projects for SPM (Silvius 2012)
- It is not enough if only the project organization adopted sustainability strategies. It also requires the host organization authorizing projects t provide guidelines so that the project organization can be motivated t adopt sustainable strategies. (Aarseth et al. 2017)
- We are facing a ‘knowing doing gap’

Figure 3 - Sustainable Project Management Framework



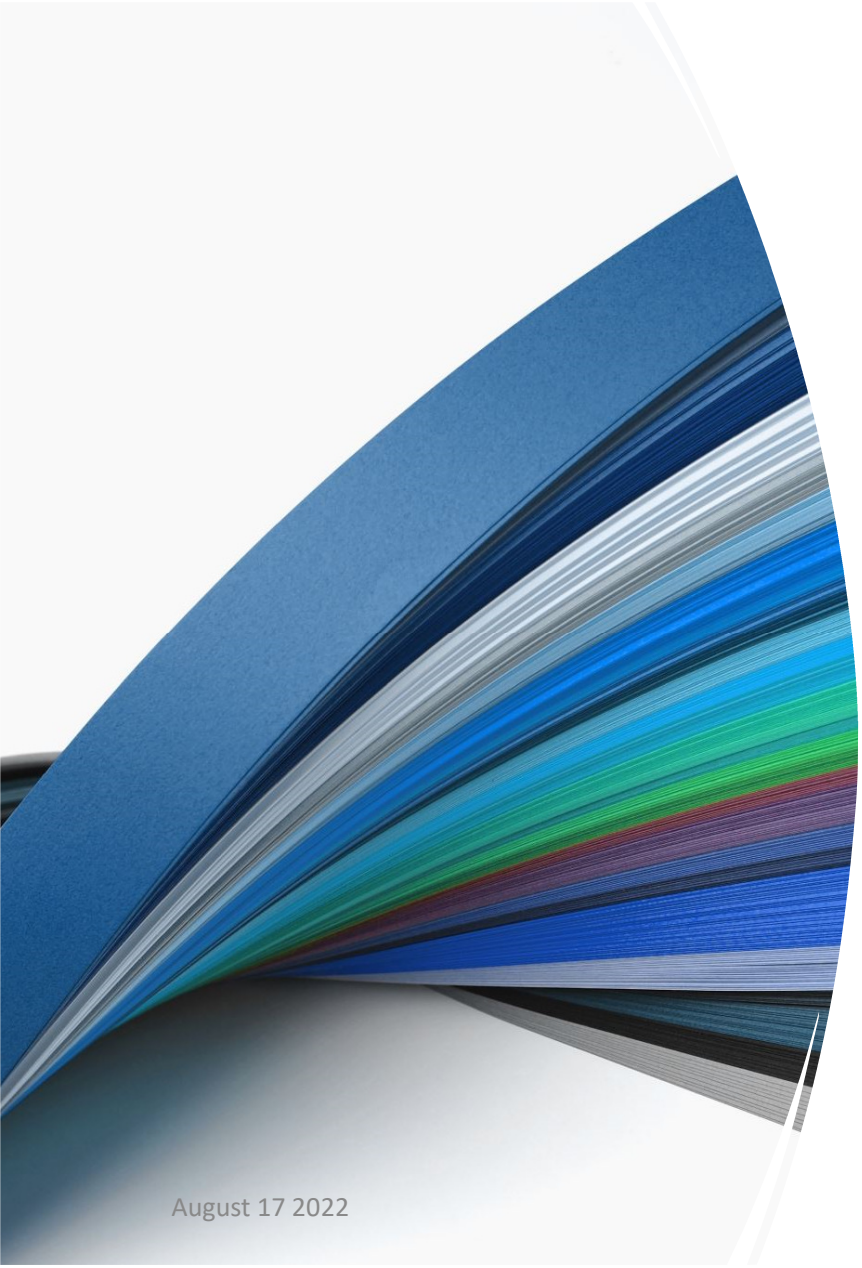
Sustainable Megaproject Management Framework



Next Steps

- Develop a questionnaire with constructs
- Interview experts to develop new constructs
- Carry out a web-based survey
- Present initial findings at the EURAM 2023 conference at the end of June at a Special Track (Paper due Jan 2023)
- Submit a journal paper to the the PMJ Special Issue titled ‘Sustainability ‘by’ and ‘of the project. (Due June 2023)
- Co-researchers: Dr. Suhair Zaid-Alkilani (University of Sydney); Mengqi Wang & Yong Ku Li (Tongji University)

Thank you
Any Questions?



Some References

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Geels, F. W., 2002a, Technological transitions as evolutionary reconfiguration processes: a multi-level perspective and a case-study *Research Policy 31*(8-9), pp. 1257-1274 (DOI: 10.1016/S0048-7333(02)00062-8)

Geels, F. W., (2005). The dynamics of transitions in socio-technical systems: a multi-level analysis of the transition pathway from horse-drawn carriages to References 142 Perspectives on transitions to sustainability automobiles (1860-1930)', *Technology Analysis & Strategic Management 17*(4), pp. 445-476.

Markard, J. (2017). Sustainability transitions: Exploring the emerging research field and its contribution to management studies. 33rd EGOS Colloquium, Copenhagen. July 6–8

Please refer to Sankaran et al. (2021) for other references on the slides