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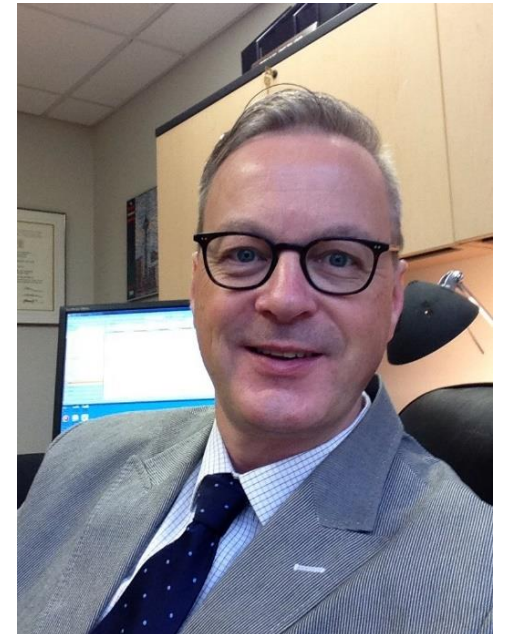
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About today's talk

- ***Two broad themes:***
 - The latest trends (innovations) in Project Management
 - Managing innovative projects and partnerships



Trends in Project Management

- *Artificial Intelligence (AI) in Project Management*
- *Broader Skills for Project Managers*
- *Hybrid Project Management Approaches*
- *Diverse Project Management Teams*

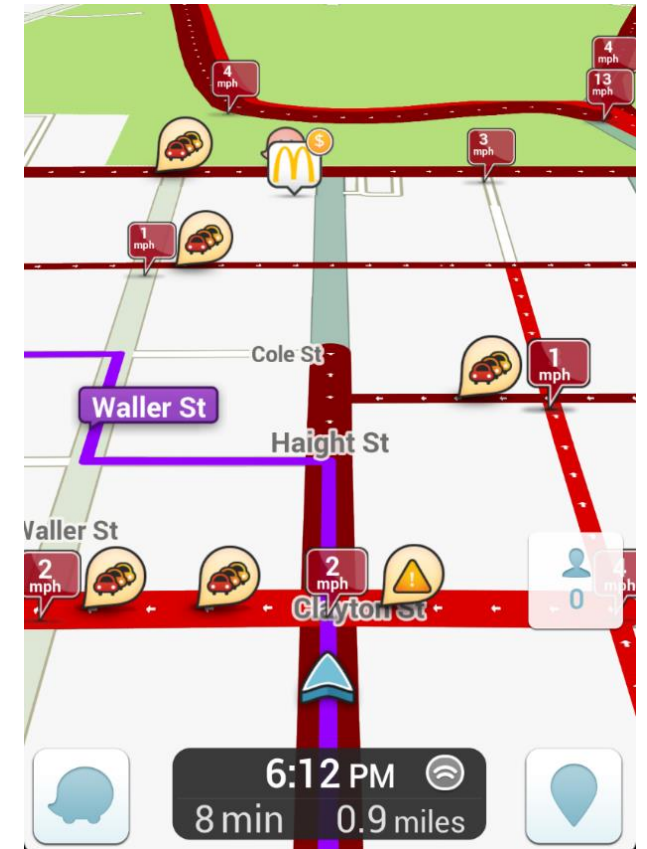
TREND: AI in Project Management

- ***What is AI?***

- Artificial Intelligence (AI) is intelligence demonstrated by machines, in contrast to the natural intelligence displayed by humans
- We've actually had AI for awhile...
 - Examples?

TREND: AI in Project Management

- *GPS navigation (Waze)*
 - Combines satellite data with real-time traffic patterns to deduce the best route



TREND: AI in Project Management

- *Alexa*

- A virtual assistant that listens to you, translates your voice into commands so it can play music, turn the lights on, or order stuff from Amazon



TREND: AI in Project Management

- *Shazam*
 - Identifies the name of a song by listening to music being played



TREND: AI in Project Management

- *So how will AI affect Project Management?*



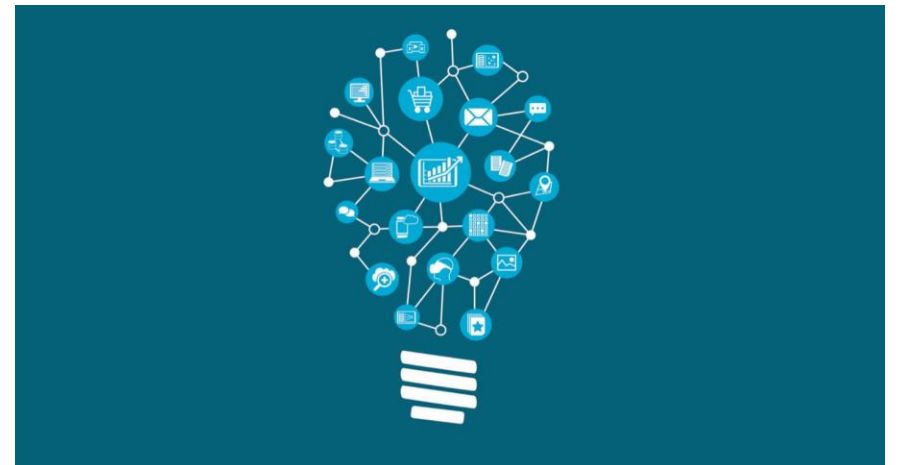
TREND: AI in Project Management

- ***First, AI systems will effectively handle scheduling, reminders, and follow-ups to eliminate the need for human input***
 - Think of Amazon's Alexa for Project Management!
 - *These systems will integrate with popular communication tools like Slack, as well as project management tools like JIRA, to make for a more efficient process when it comes to getting matters resolved.*
 - *An AI bot will send notifications reminding people to follow-up on an email or that a deliverable is approaching its due date.*



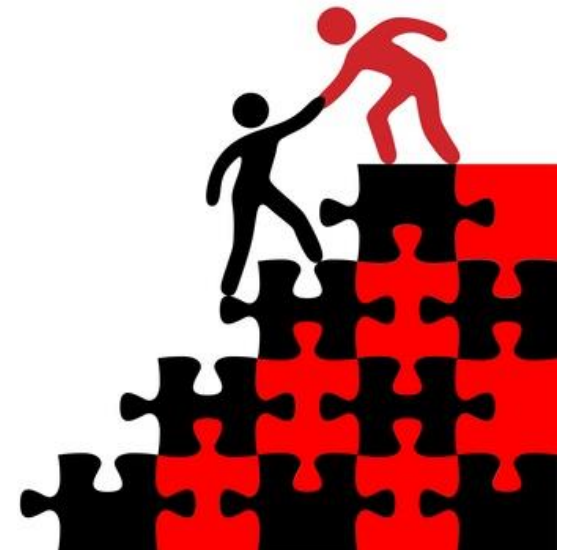
TREND: AI in Project Management

- ***Second, AI systems will offer predictive analytics***
 - An AI system can observe the way a project is progressing and make educated predictions about the future of the project
 - *AI is capable of monitoring budgets and scheduling, and over time it can learn to identify potential impacts based on historical data*
 - *AI is also capable of monitoring project team members and make predictions based off of the patterns that it sees*
 - *This may not be an inherently good thing!*



TREND: AI in Project Management

- *So how will AI affect Project Management?*
 - *AI will take away routine, mundane tasks* (such as the generation of an initial project plan, and the collection of performance metrics, and the communication of performance reporting)
 - This will allow the Project Manager to assume more of a leadership role than that of a directive manager
 - Or will it replace the Project Manager?



TREND: AI in Project Management

- ***The PMI Talent Triangle***

- The triangle consists of three complementary skills:
 - 1) Strategic business management
 - 2) Leadership
 - 3) Technical project management
- AI is most likely to take over many if not all of the technical project management skills
 - These skills are related to specific domains of project management like managing constraints and using tools and techniques
- AI is not expected to fully take over the other two skills: strategic and leadership.
 - These skills require more human involvement

PMI Talent Triangle

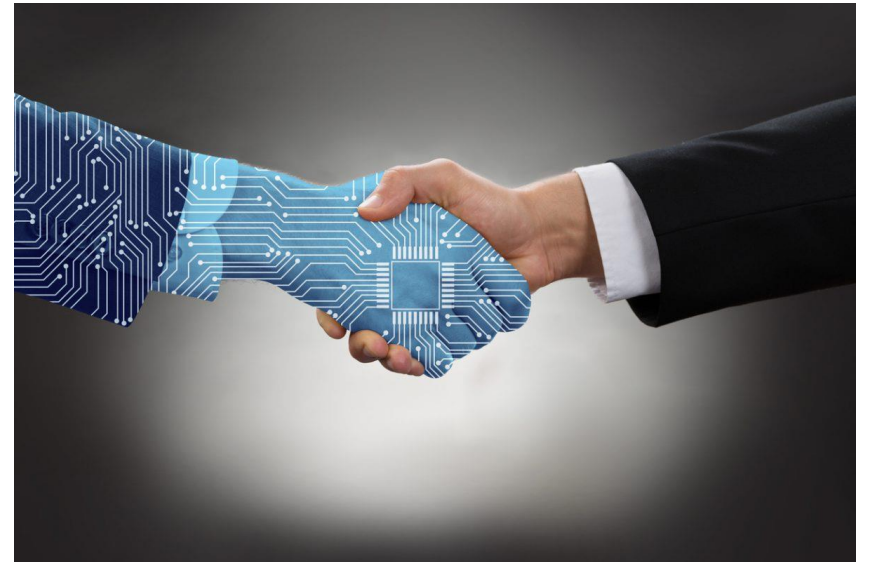


TREND: AI in Project Management

- ***Humans are still needed!***
 - AI has its limitations
 - While machines are good at collecting and analyzing data, AI is only as good as the data it's fed. If there are gaps in the data, AI will miss them
 - For this reason, organizations need knowledgeable individuals to fill in the gaps that data leaves behind
 - It takes human input to tell the story that isn't always apparent in the data
 - Humans are needed to set the criteria that AI initially uses as well as update its algorithms with the latest protocols
 - Projects in the future will combine AI robots and human beings
 - Human Project Managers are needed who have emotional intelligence, and skills to understand how humans communicate (e.g., read body language) and the context surrounding situations (e.g., office politics)

TREND: AI in Project Management

- ***What should humans do?***
 - Rather than fearing AI, embrace AI
 - Learn how AI works and how it can be used to solve PM issues
 - Tell others about AI (especially senior management)

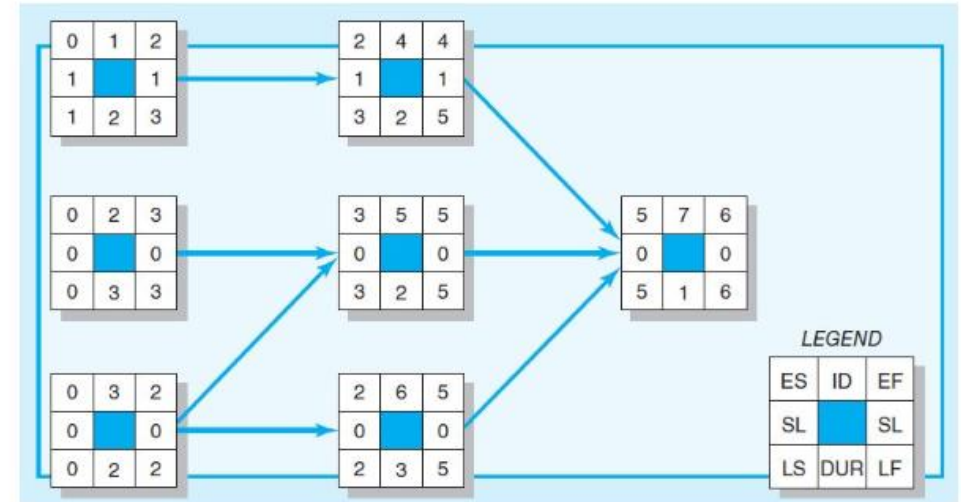


TREND: AI in Project Management

- **AI can improve PM education**

- McCraw-Hill's Connect Product
- Online tool
- Asks algorithmic questions
 - Same question to all students but with different numbers
 - Auto-grading
- A widget tool imports final grades into the instructor's grade book

Given the project network and baseline information below, complete the form to develop status reports for periods 1–4. Report the final SV, CV, CPI, and PCIB.



Schedule information						Baseline budget needs (\$ 000)						
ACT/ WP	DUR	ES	LF	SL	Total PV	Time period						
						0	1	2	3	4	5	6
1	2	0	3	1	12	4	8					
2	3	0	3	0	15	3	7	5				
3	2	0	2	0	8	4	4					
4	2	2	5	1	6			3	3			
5	2	3	5	0	10				6	4		
6	3	2	5	0	9			3	3	3		
7	1	5	6	0	5							5
Total PV by period						11	19	11	12	7	5	
Cumulative PV by period						11	30	41	53	60	65	

End of Period 1						
Task	Actual % Complete	EV	AC	PV	CV	SV
1	45	5.40	5.00	4.00	0.40	1.40
2	35	5.25	10.00	3.00	(4.75)	2.25
3	30	2.40	2.00	4.00	0.40	(1.60)
Cumulative Totals		13.05	17.00	11.00	(3.95)	2.05

End of Period 2						
Task	Actual % Complete	EV	AC	PV	CV	SV
1	100	12.00	13.00	12.00	(1.00)	0.00
2	65	9.75	14.00	10.00	(4.25)	(0.25)
3	70	5.60	9.00	8.00	(3.40)	(2.40)
Cumulative Totals		27.35	36.00	30.00	(8.65)	(2.65)

End of Period 3						
Task	Actual % Complete	EV	AC	PV	CV	SV
1	100	12.00	13.00	12.00	(1.00)	0.00
2	65	9.75	15.00	15.00	(5.25)	(5.25)
3	100	8.00	11.00	8.00	(3.00)	0.00
4	50	3.00	3.00	3.00	0.00	0.00
5	0	0.00	0.00	0.00	0.00	0.00
6	40	3.60	3.00	3.00	0.60	0.60
Cumulative Totals		36.35	45.00	41.00	(8.65)	(4.65)

End of Period 4						
Task	Actual % Complete	EV	AC	PV	CV	SV
1	100	12.00	13.00	12.00	(1.00)	0.00
2	100	15.00	18.00	15.00	(3.00)	0.00
3	100	8.00	11.00	8.00	(3.00)	0.00
4	100	6.00	6.00	6.00	0.00	0.00
5	25	2.50	4.00	6.00	(1.50)	(3.50)
6	80	7.20	8.00	6.00	(0.80)	1.20
7	0	0.00	0.00	0.00	0.00	0.00
Cumulative Totals		50.70	60.00	53.00	(9.30)	(2.30)

Performance Indexes Summary							
Period		EV	AC	PV	SPI	CPI	PCI-B
1		13.05	17.00	11.00	1.19	0.77	0.20
2		27.35	36.00	30.00	0.91	0.76	0.42
3		36.35	45.00	41.00	0.89	0.81	0.56
4		50.70	60.00	53.00	0.96	0.85	0.78
EACf	=	78.92		VACf =	(11.92)		

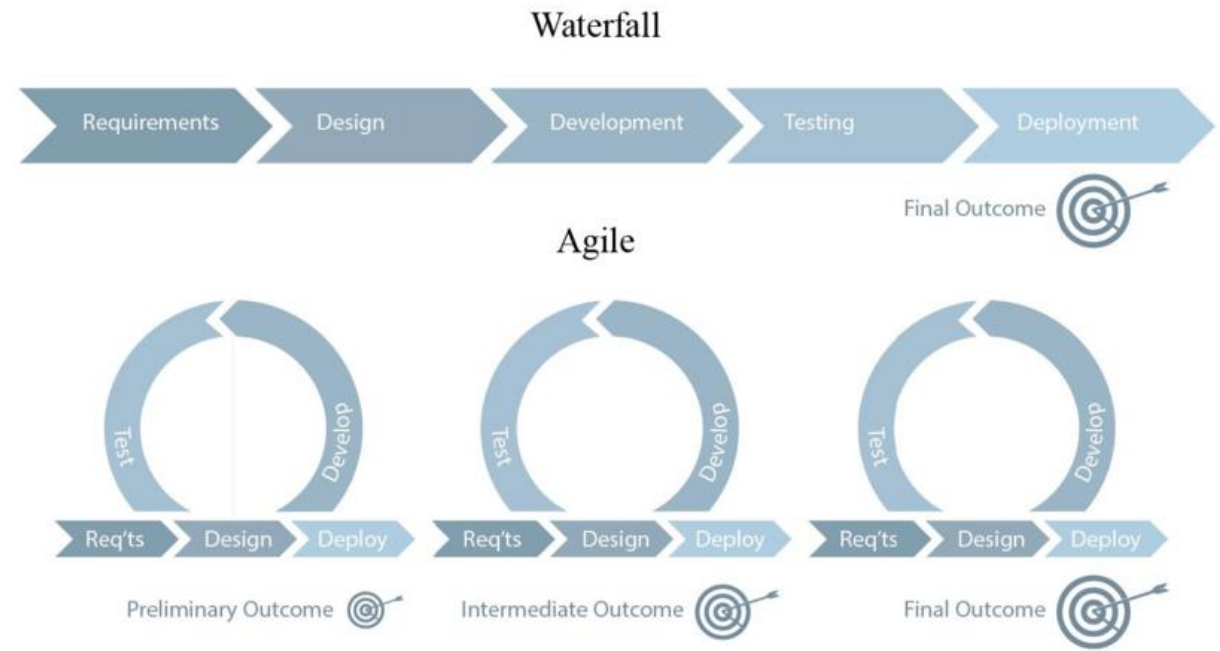
TREND: Broader Skills for Project Managers

- ***Both technical and soft skills will be in higher demand for project managers in years to come.***
 - On the ***technical side***, project managers will more likely become engaged on projects that incorporate AI
 - This will require them to acquire basic knowledge in AI
 - On the ***soft skills side***, as projects become more complex and interconnected, project managers will need to collaborate with (and ultimately seek to satisfy) broader groups of stakeholders.

TREND: Hybrid PM Approaches

- **Hybrid project management refers to methods combining approaches from the traditional PM environment and the agile world.**

- Traditional PM: Uses the waterfall approach
- Agile PM: Divides the development cycle into short-term deliveries called “sprints”



TREND: Hybrid PM Approaches

- ***With a hybrid approach:***
 - The project team plans before starting work on the project, but also divides the development cycle into sprints
 - The planning is done using the **waterfall** approach.
 - The execution and delivery are handled by the **agile** method.

This approach makes planning and project estimation more accurate, while at the same time, the team can react to market changes and deliver what the market demands in place of what the team planned.

TREND: Diverse Project Teams

- ***Projects are becoming more diverse everyday***
 - Factors driving this increase in diversity:
 - Changing parental roles; shifting policies and attitudes regarding sexual orientation/gender identity; increasing globalization, an aging workforce; varied types of workers (including full time, part time, contractor/freelance) remote / online work
 - Impacts:
 - These factors will impact significantly on team culture and cohesiveness

Managing Innovative Projects

- ***What is innovation in Project Management?***

- According to Gallagher (2015):

- Innovation is “generating and implementing ideas that add value to the organization”
 - Innovation is a core competency for project managers
 - Project managers need to interpret business strategy, assess the feasibility of objectives, analyze the cause of a problem, recommend solutions, establish project scope, execute a project, and monitor project performance.
 - There are obstacles
 - Many project managers operate in risk-adverse organizations where best practice is valued over new ideas
 - The tools needed to innovate effectively are not widely known or understood
 - The tactical demands of a project manager’s time (i.e., fighting fires) leave little room for innovation and root cause solutions

Gallagher, S. (2015). Time, risk, and innovation: creating space in your day to solve meaningful problems. Paper presented at PMI® Global Congress 2015 — EMEA, London, England. Newtown Square, PA: Project Management Institute.

Managing Innovative Projects

- *Schultz et al.'s (2019) article in the Project Management Journal*

How Project Management and Top Management Involvement Affect the Innovativeness of Professional Service Organizations—An Empirical Study on Hospitals

Carsten Schultz¹, Jan Graw¹, Søren Salomo², and Alexander Kock³

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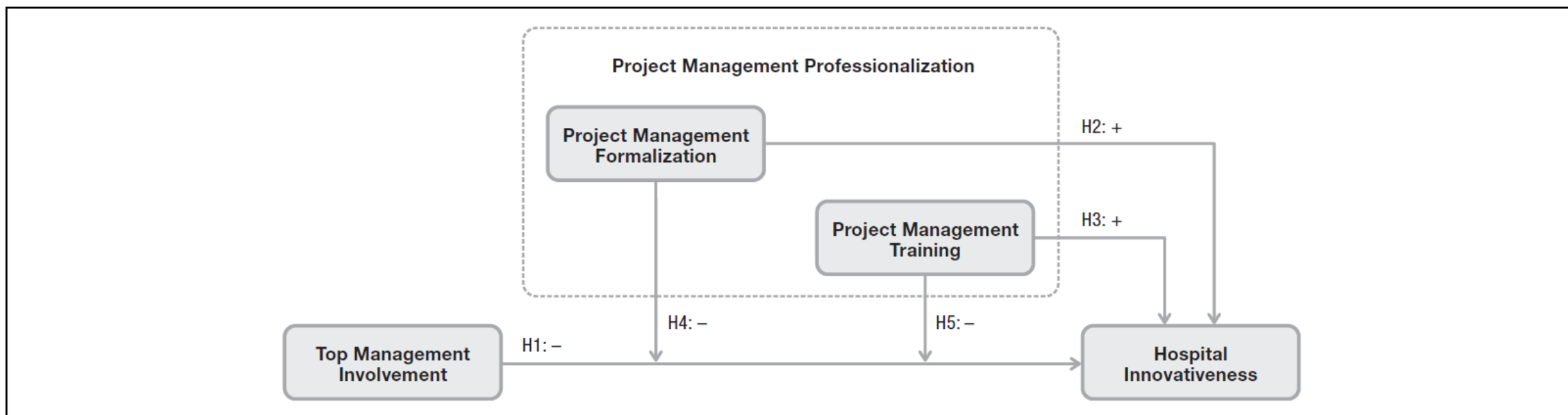


Schultz et al.'s (2019) study

- ***General Overview***

- Focused on hospitals as representatives of professional service organizations
- Conducted a multi-year analysis (2010 to 2015)
 - Administered a project management survey and collected objective project performance data from 90 hospitals in Germany

Schultz et al.'s (2019) study



Top Management Involvement: The degree to which a hospital's leadership (like the CEO and management board) was on average committed to projects and involved in project decisions

Project Management Formalization: Systematic practice of formalized project planning and monitoring activities

Project Management Training: The extent to which a hospital systematically qualifies employees in PM methods

Hospital Innovativeness: Number of unique newly performed operation procedures

Schultz et al.'s (2019) study

- ***Managerial Implications***

- In professional service organizations (like hospitals), responsibilities and power are diffused, and individual employees and departments are reluctant to accept the involvement of centralized support functions.
- Top management should be aware of negative consequences of interfering with individual innovators.
 - A too strong managerial involvement would most likely reduce these innovators' motivation, and therefore diminish the opportunity to profit from employees' innovative work behaviour.
 - Top managers often lack knowledge of operational processes and are limitedly positioned to monitor projects.

Kenny (2003)

- **Revolutionary (radical) innovation projects**
 - Top management should back-off
- **Evolutionary (incremental) innovation projects**
 - Top management should engage

Effective Project Management for Strategic Innovation and Change in an Organizational Context

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449 Swanson St., Melbourne, Victoria, 3000 Australia

▼ Abstract

Projects are a means of implementing strategy, the relationship of project management to strategic implementation in an organization is explored. Some of the recent project management literature is examined and a case study from the education sector is used to consider how to effectively link project management to organizational strategic processes. Project management techniques have been used very successfully in a wide range of areas. They are routinely applied in IT development, building, government, and education. Recent thinking has raised questions about how to more closely match the techniques to the nature of individual projects.

The nature of different types of projects is explored through consideration of projects involving high levels of change, and/or innovation. By their nature, the final outcomes of such projects are not clearly defined and their execution may require many iterations of development.

A means of categorizing projects within an organization is developed. This, along with a set process guidelines, will enable an organization's management to more effectively consider the implications of implementing strategic projects. Monitoring such projects can present problems in an organization when management accountability mechanisms demand results and rigid processes are imposed.

Keywords: innovation; action learning; new product development; typology; cultural change; uncertainty; strategic change

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Project management is the disciplined application of certain knowledge, techniques, tools and skills to create a unique product or service. The project manager can choose from a range of recommended processes to manage any particular project. Traditionally, the project management process does not distinguish between different types of projects. The choice of which particular processes will be employed in any situation is left to the judgment of the individual project manager. A range of accepted practices is documented in *A Guide to the Project Management Body of Knowledge, PMBOK® Guide* (2000).

The individual practitioner makes judgments about when and how to intervene in a situation, often drawing on an accepted range of practices. The key is for the individual practitioner to be able to choose and articulate why a particular practice has been employed.

Project management has emerged as a profession in its own right, with accepted practices, professional bodies, and codes of conduct. The Australian Institute of Project Management (AIPM) has defined competency standards for project management, in conjunction with industry representatives and the Australian National Training Authority (ANTA). The Project Management Institute (PMI®) is based in the United States and was founded in 1969. PMI has almost 100,000 members worldwide. It is a leading nonprofit professional association for project managers. PMI establishes project management standards, provides seminars and educational programs, and provides professional certification. It publishes the *PMBOK® Guide* (2000) along with other PMI standards.

The *PMBOK® Guide* (p. 4) describes a project as "a means by which strategy is implemented." Project management is therefore seen as a process applied to manage the implementation of strategy.

The Nature of the Projects

The *PMBOK® Guide* (2000, p. 3) states that the basic project management processes can "generally" be applied to "most projects most of the time." Recent thinking has identified fundamental differences between some project types. This raises the question, "What project management processes are the most appropriate to apply in particular in situations?"

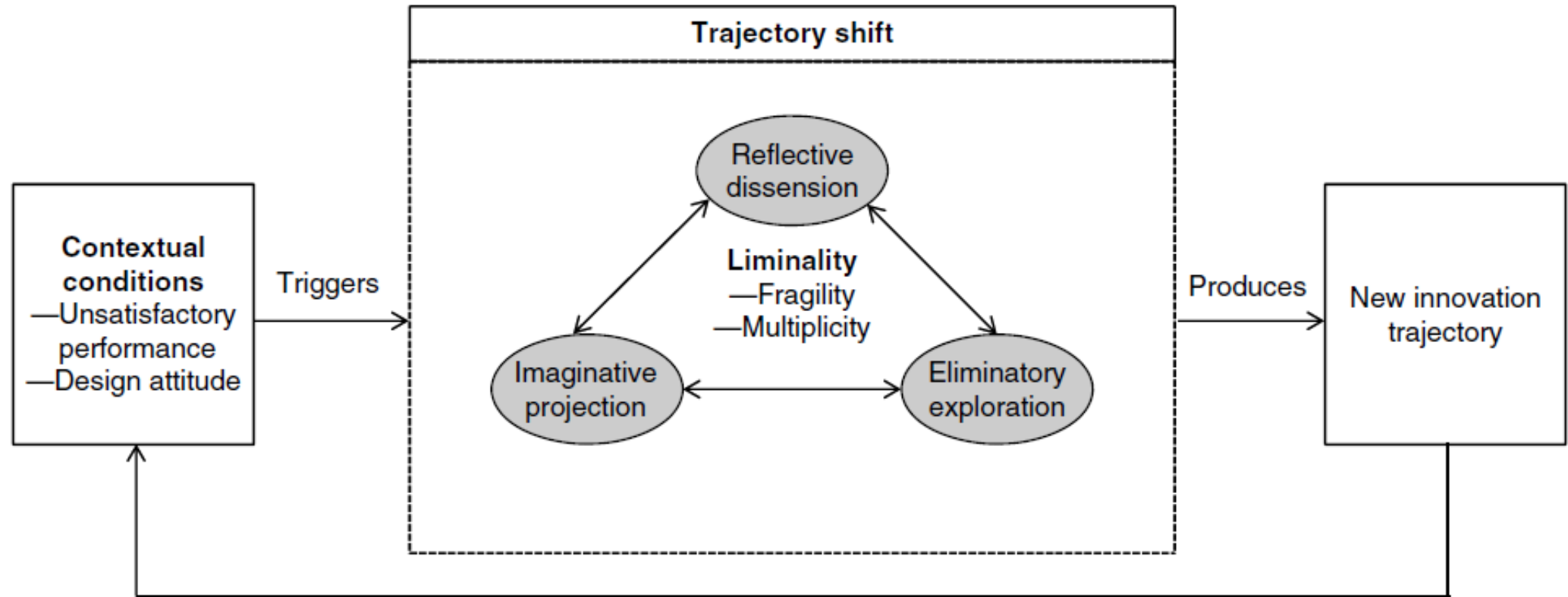
Obstacles to innovative projects

- *Many project managers operate in risk-averse organizations where best-practice is valued more than new ideas*
- *The tools needed to innovate effectively are not widely known or understood by many organizations*
- *The tactical demands on a project manager's time ("fighting fires") leave little room for innovation and root cause solutions*

Gallagher (2015). Time, risk, and innovation: Creating space in your day to solve meaningful problems. Paper presented at PMI Global Conference (2015), London, UK.

The Context of Organizational Innovations

Figure 3 A Process Model of Trajectory Shifts in Institutional Entrepreneurship

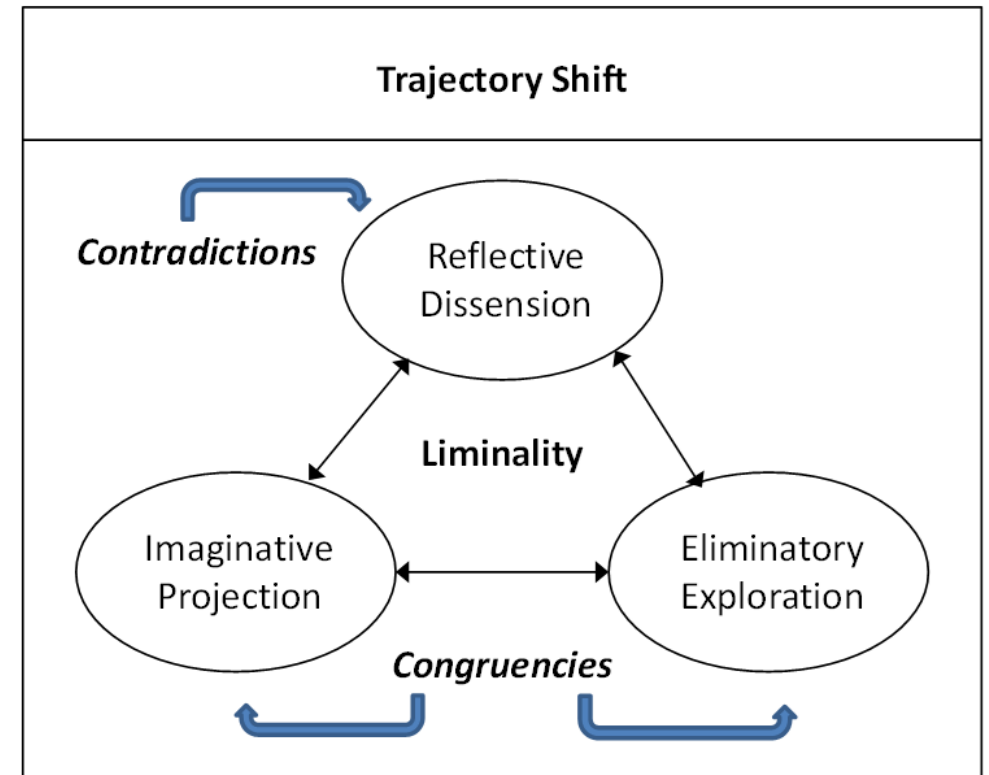


Ola Henfridsson, Youngjin Yoo (2014) The Liminality of Trajectory Shifts in Institutional Entrepreneurship. *Organization Science* 25(3):932-950

The Context of Organizational Innovations

IDEA: Treat organizational innovation as an “activity” and leverage insights from Activity Theory (Engestrom, 1987, 1999) to explain how innovation activity happens

- **Contradictions** (tensions) occur within activities. As contradictions arise, they expose the dynamics, inefficiencies and importantly opportunities for change within an activity (Helle, 2000; Engestrom, 1999).
- **Congruencies** are forces within an activity that promote stability and reproduction of the activity in its current form. (Allen et al., 2013; Karanasios & Allen, 2014)
- Contradictions challenge activities (i.e., innovations), while congruencies help stabilize them (Allen et al., 2013; Karanasios & Allen, 2014).



Case Study: LYCSYS

- ***The “Love Your City, Share Your Stories” Digital Storytelling Project***
 - Involved the creation, storage and dissemination of a collective memory of digital stories concerning significant cultural icons in Hamilton and their history as a means to promote the City of Hamilton to others



Working Paper available at: <http://hdl.handle.net/11375/21317>

Case Study: LYCSYS

- ***Project Management Context:***

- The project (innovation) was elicited by senior management
- A project charter was established
- A governance steering committee was established
 - The committee met monthly
- No Gantt charts, network diagrams, performance metrics carried out

Case Study: LYCSYS

- ***Contradictions***

- Three different partner organizations
- New activity (digital storytelling)
- Different views on how stories would be collected and rendered
 - Which stories to collect?
 - Only positive stories?
 - Adhere to archival standards?
 - Use new digital technology?



Case Study: LYCSYS

- ***Congruencies***

- Co-operative partnerships
- Sufficient funding
- Senior management commitment / leadership
- Good project governance
- Strong community support
- Flexibility



Managing Partnerships

- ***Strategic Partnerships are tricky to manage***
 - As work in a partnership happens, change occurs.
 - In a single organization, such change can be handled internally
 - But in a partnership, it takes two to tango!
 - Without a contract, you are treading on thin ice
 - Even with a contract, there are gaps... contracts are often incomplete
 - What to do?

Managing Partnerships

- ***In advance, you need to establish good partnerships***
 - Good partnerships involve partners who are aware of each other and their needs
 - Good partnerships regularly share information
 - They talk about possible events and what to do when such events occur
 - Partnerships are like a marriage
 - You don't know in advance what will befall the couple, but the partners agree how to work together to face the future

Questions?

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