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Innovation contexts	
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PhD Course Part 1: Innovation in Projects	
BI Norwegian Business School 4-6 September 2017	
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Overview	
Contingency theory of the innovative organisation	
Firm strategy and innovation management	
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 Managing uncertainty: optimal vs adaptive models of innovation and project management 	
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Overview	
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Contingency theory: no single best organisation



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The adhocracy or innovative organisation

- The adhocracy temporary projects and ad hoc teams – Alvin Toffler Future Shock (1970)
- "The context is, above all, one of complexity and unpredictability"
- · Flexible, organic, adaptive
- Unit producers of unique products
- Focused on problem solving and innovation
- · Horizontal integration
- · Coordination by mutual adjustment



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More recent thinking inspired by contingency theory

- Eisenhardt and Tabrizi (1995)
 - Experiential vs compression strategies in new product development
 - Adaptive teams are mechanistic and organic
- Edmondson (2012)
 - Stable and dynamic project teams

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Contingency theories of project management	
Uncertainty Stinchombe and Heimer (1985), Loch, Pich and DeMeyer (2006)	
 Complexity Davies and Hobday (2005), Shenhar and Dvir (2007) 	
 Urgency or pace Eisenhardt and Tabrizi (1995), Lindkvist, Söderlund and Tell (1998) 	
Integrated framework – The Diamond Model – Shenhar and Dvir (2007) Reinventing Project Management	
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Tim strategy an imovation management	
REVOLUTIONIZING	
PRODUCT RESTORING OUR Development Restoring our Product Development Reformance	
Ocombus Leaps in Speed. Efficiency, and Quality Manufacturing Competing Through Manufacturing Strategy, Organization, and Management in the	
ROPENT IN HAVES STEVEN C. WIREDWRIGHT	

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Innovation and firm strategy – the intellectual foundations

- · Joseph Schumpeter father figure of innovation studies
 - Business Cycles (1939), Capitalism, Socialism and Democracy (1943)
 - Capitalism is a process of "creative destruction": "....incessantly destroying the old one, incessantly creating the new one", p83
 - "The fundamental impulse comes that sets and keeps the capitalist engine in motion comes from the new consumers' goods, the new methods of production or transportation, the new forms of industrial organization that capitalist enterprise creates" p83



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Innovation defined

 "Schumpeter identified innovation as the 'carrying out of new combinations'...Innovations in organizational routine similarly consist, in large part, of new combinations of existing routines". A novel core "may be surrounded by the same routines that have prevailed for years". pp130-131



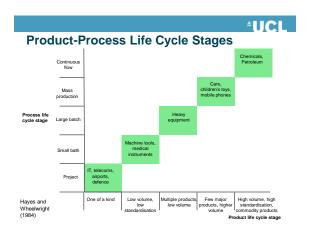
- Nelson and Winter An Evolutionary Theory of Economic Change (1982)
- "An Innovation is a new idea, which may be a recombination of old ideas, a scheme that challenges the present order, a formula, or a unique approach which is perceived as new by the individuals involved". p592
 - Van de Ven, Central Problems in the Management of Innovation (1986)
 Management Science

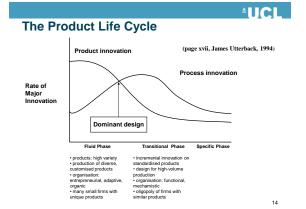
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Concepts of innovation

- Radical or incremental (Freeman 1974)
- Product life cycle product or process innovation (Abernathy and Utterback 1978)
- Continuous or discontinuous (Tushman and Anderson (1986)
- Modular or architectural (Henderson and Clark 1990)
- Sustaining or disruptive (Christensen 1997)
- · Open or closed innovation strategies (Chesbrough 2003)
- More recent concepts:
- Service innovation
- Business model innovation
- · Management innovation

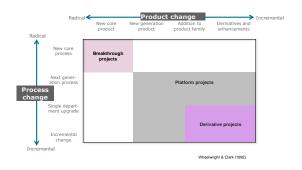
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Innovation through projects



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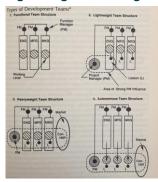
Managing innovation over time

Rate of Innovation

	Product novation	
Breakthrough project	Sony Walkman	
	Sony personal audio	Process innovation
	Derivative projects	200 walkman models
Product innovatio radical innovation products: high variety production of diverse, cust products	 incremental innovation on standardised products 	
		(Source: Product Life Cycle

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Organising and leading innovation projects



Wheelwright and Clark (1992)

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Dynamic capabilities for innovation

- · Now the most influential approach to innovation
- Dynamic capabilities (DC)
 - "The ability of an organization and its management to integrate, build, and reconfigure internal and external competences to address rapidly changing environments" (Teece et al., 1997)
 - Firms rely on the dynamic capabilities of senior management to create innovation by modifying and recombining existing and/or creating new lower-order operating capabilities
- Unlike earlier studies, DC research is silent about the role of projects in innovation

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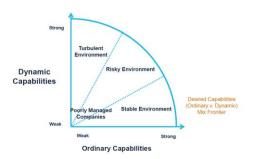
Dynamic capabilities research distinguishes between risk and uncertainty





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Dynamic capabilities to manage different types of environment



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Overview

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Innovation and uncertainty	
"Both in customary usage and in our technical use of the term, 'innovation' involves change in routine. We have stressed the uncertainty that inevitably	
surrounds technical innovation — the implementation of a design for a new product, or of a new way to produce a product. A similar uncertainty surrounds other kinds of innovation — the establishment of a new marketing policy, or a new decision rule for restocking inventories. In general two kinds of uncertainty	
surround these innovations. The precise nature of innovation actually arrived at is not closely predictable at the start of the endeavor that culminates in the innovation. And the consequences of employing the innovation – changing the routine – in general will not be closely predictable until a reasonable amount of	
actual operating experience with it has been accumulated", pp128-129 Nelson and Winter (1982) An Evolutionary Theory of Technical Change	
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In teams of two	
. Identify uncontainting appropriated with impossition	
Identify uncertainties associated with innovation	
23	
Innovation and uncertainty in projects	
imovation and uncertainty in projects	
RAND Corporation Cold War and weapons systems projects	
 Operations Research: invention and innovation Nelson, Klein, Marshak, Marshall, Meckling, etc. 	
 Klein and Meckling (1958) – two alternative models for innovation projects 	
 The optimising model rational planning, formal processes and analytical techniques at the start to predict future conditions and select the best outcome from a range of alternatives 	
The adaptive model — the goal of innovation and path to achieving it are uncertain Let it is a large most informal processor and beginning gained from trial and	
 Intuitive judgement, informal processes and learning gained from trial and error experience to guide the decision making process 	

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Optimising model	
Innovation can be planned and executed to address known and	
Innovation can be planned and executed to address known and predictable conditions	
·	
Project and program management Project and program management Project and Program Fugliation Registry Technique (PERT) Critical Rest Method	
 e.g. Program Evaluation Review Technique (PERT), Critical Path Method (CPM) and Program Planning Model (PPM) 	
Van de Venn (1980) three-way matching of phased tasks avoids	
anarchical decision making • Stage-gate system	
 Cooper (1990) - optimise and compress the time taken from novel idea to 	
product launch Innovation process divided into pre-determined stages of development	
work and gates (checkpoints) which determine whether a product moves	
to the next stage - Product specifications frozen early	
,	
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Adaptive model	
Adaptive model	
No "one size fits all": contingency theory	
Approach to innovation needs is adapted to uncertainty and complexity	
 Optimal model techniques work with low uncertainty projects 	
Innovation requires flexibility, learning and adaptation	
 Multiple approaches and feedback from learning to deal with the unforseen 	
(Loch et al, 2006; Lenfle and Loch, 2010) Progressive design freeze to address unforeseen events	
 "Multiple approaches, flexibility, and speed are required for innovation 	
because of the advance of new ideas through random and often highly intuitive insights and because of the discovery of unanticipated problems.	
Project teams need to be unencumbered by formal plans, board approval,	
and other 'bureaucratic delays', that might act as constraints against the change of direction" Kanter (1990)	
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Conclusion	
Scholars avamining innovation have focused on projects.	
 Scholars examining innovation have focused on projects Two main bodies of literature 	
 Contingency theory 	
Firm strategy and innovation management	
Innovation is inherently uncertain and uncertainty can be managed by	
adopting two different models	
- Optimal vs Adaptive Models	
Next question we need to consider more deeply: How do projects	
relate to innovation?	