School of Engineering

Project Management & Engineering Practice
(GENG 5505)

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Project Management & Engineering Practice (GENG5505)

Organizational capability: Emerging strategy, justification and capability (Ch 2)

(Week 2a) - Lecture three, 30 July 2024

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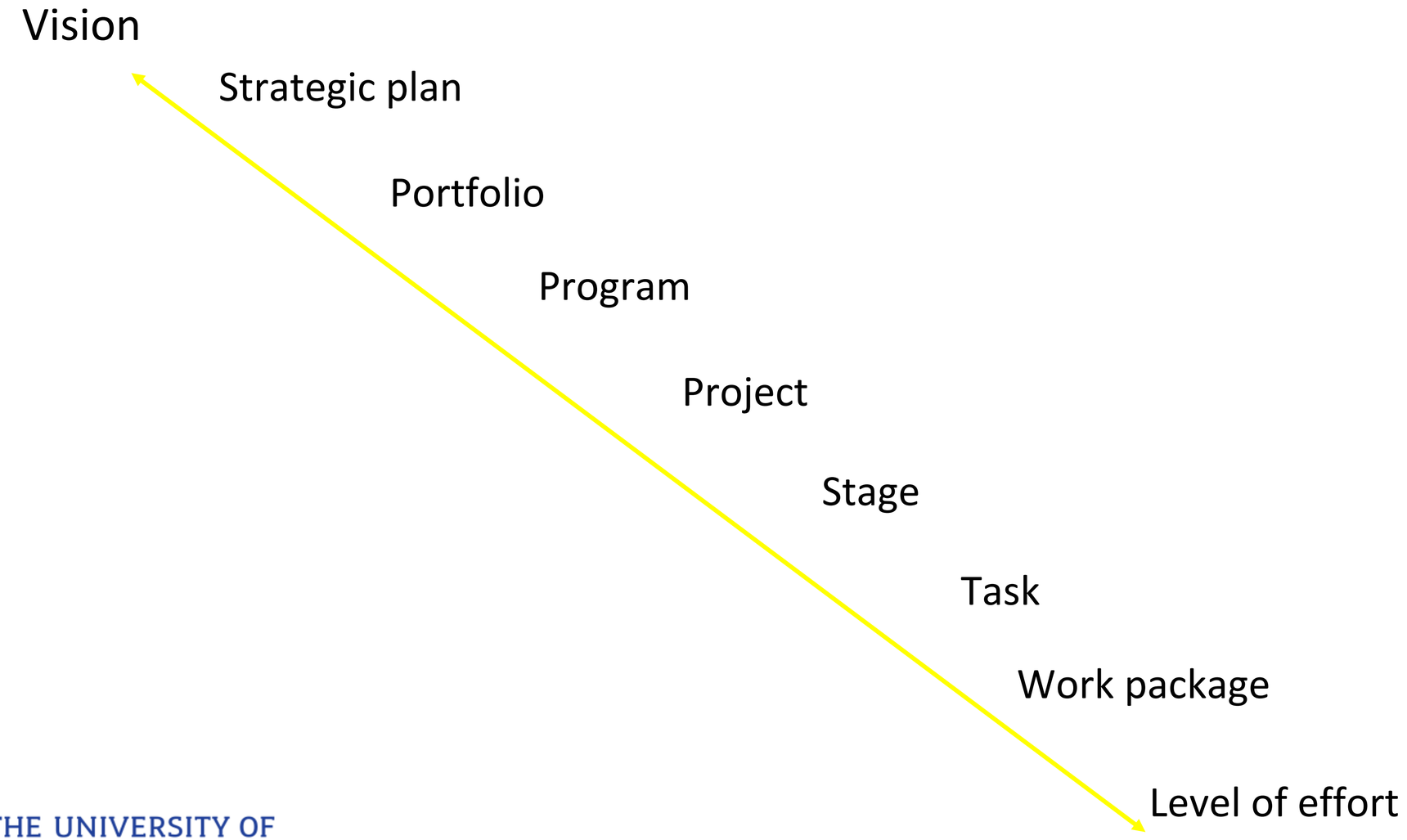
Decomposing vision - strategy - effort



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Vision & project success

Christenson et al 2004

- Compare organizational vision with project vision

To be successful a project vision should be:

- Understood
- Credible
- Motivational
- Demanding & challenging

Effective communication is essential to achieve the above, & the project manager should be responsible for successfully achieving it

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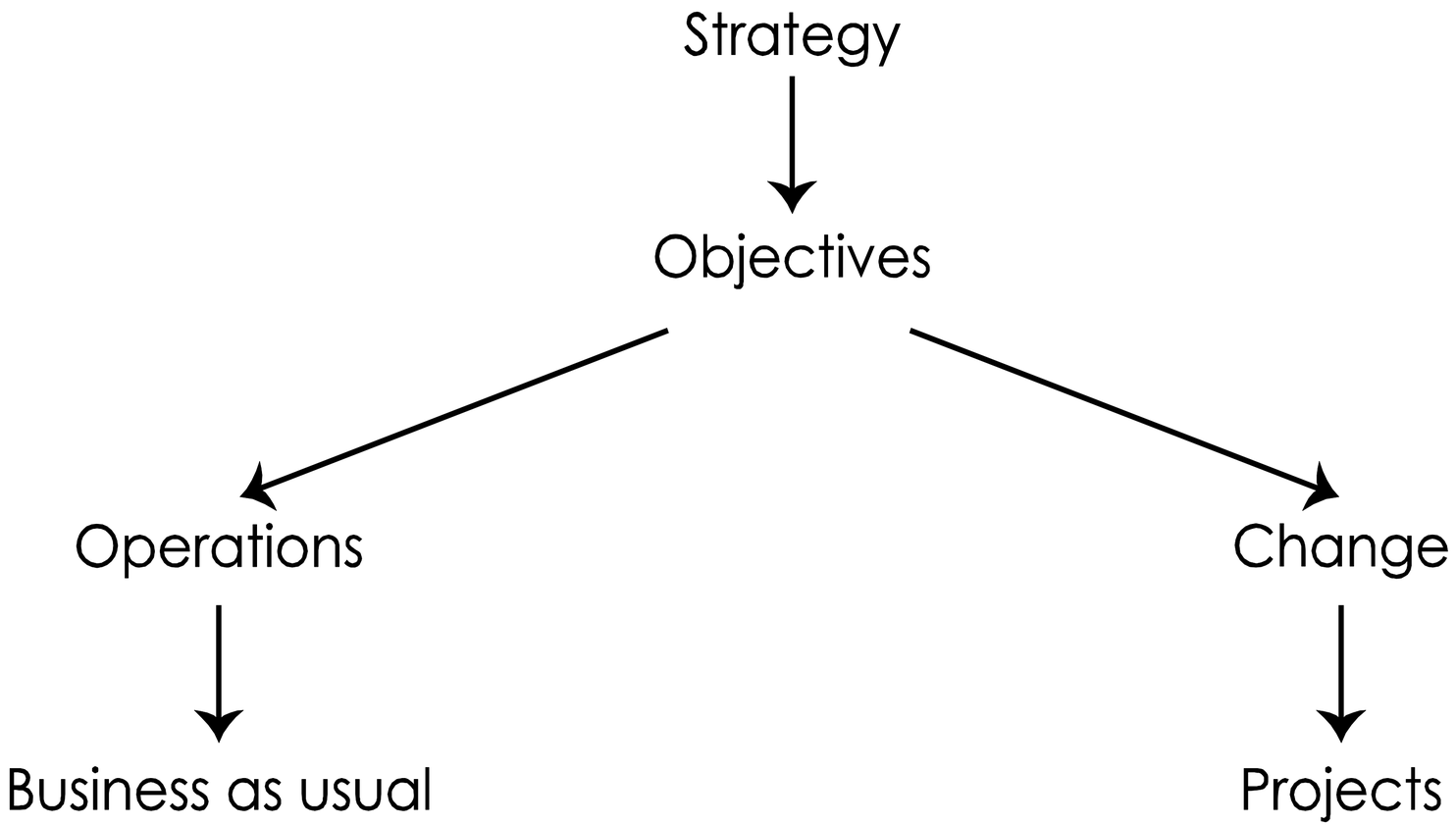
Deconstructing strategy



The role of an inspiring strategy

- Involves corporate management
- Identifies and exploits differential strengths, weaknesses, opportunities and threats (SWOT)
- Be future, value and results oriented
- Be integrated organisation wide
-
- Provide coherence and momentum
- Be qualitative in design
- Have a ‘relative’ long- term focus
- Target action- oriented, measurable activities
- ….

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Maintaining the credibility and process of change

- The vision before the plans and programs
- Without a sensible vision, any change initiative can easily dissolve into a list of confusing and incompatible projects

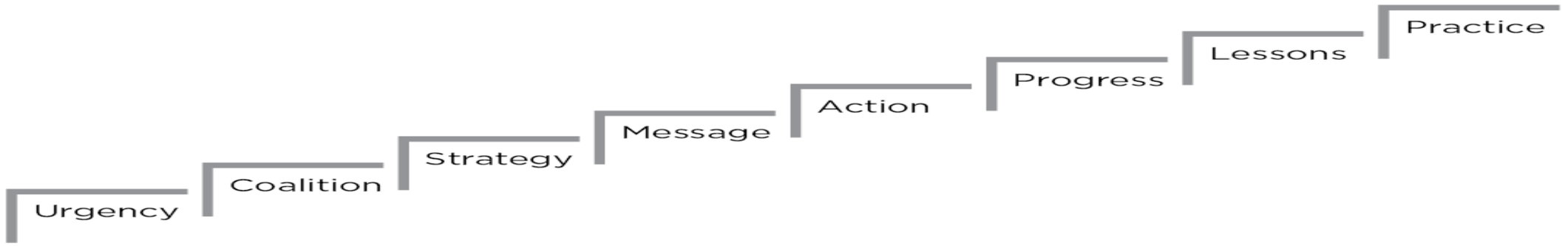

Figure 2.3 Change management process

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Managing project changes (Zhang, 2012)

➢Wide range of factors can impact on a project
- (i.e. internal and external factors);

➢Assumptions of future events are also necessary for every project;

➢As a result significant project changes can occur (especially in complex solution based projects);

➢How key stakeholders could deal with potential project changes:

-Organizational learning;

-Specifications management;

-Tension management.

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Strategic investment and Portfolio: Justification

- Return on investment & profitability growth
- Cost efficiency
- Competitive advantage
- Sponsor/client advantage
- Product mix diversity
- Consistent with TBL & life cycle thinking
- ….

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Project selection models

Non-numeric

1. Sacred cow
2. Operating necessity
3. Competitive necessity
4. Product extension
5. Comparative benefit

Numeric

1. Payback period
2. Return on investment (ROI)
3. Net present value (NPV)

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Project selection: Non-numeric models

1) Sacred cow

- Project chosen/ protected by senior executive...& the project becomes sacred
- Priority status
- Empire building
- (Potential) Lack of organizational support
- .....

2) Operating necessity

- To maintain operational functionality (e.g. during a crisis)
- Driven by situational events
- Fast-tracked decision making
- Limited budget provision
- Reduced planning time
- .....

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Project selection: Non-numeric models...continues

3) Competitive necessity

- Maintaining a competitive advantage in the marketplace
- Ability to match (or win) competitors
- Danger of fierce competition
- Insufficient industry analysis
- Little competitor analysis
- .....

4) Comparative benefit

- Applies to companies seeking multiple projects with differing benefits
- No valid selection criteria used
- Highly subjective choice
- Support for high profile projects (but who defines what high profile means?)
- ....

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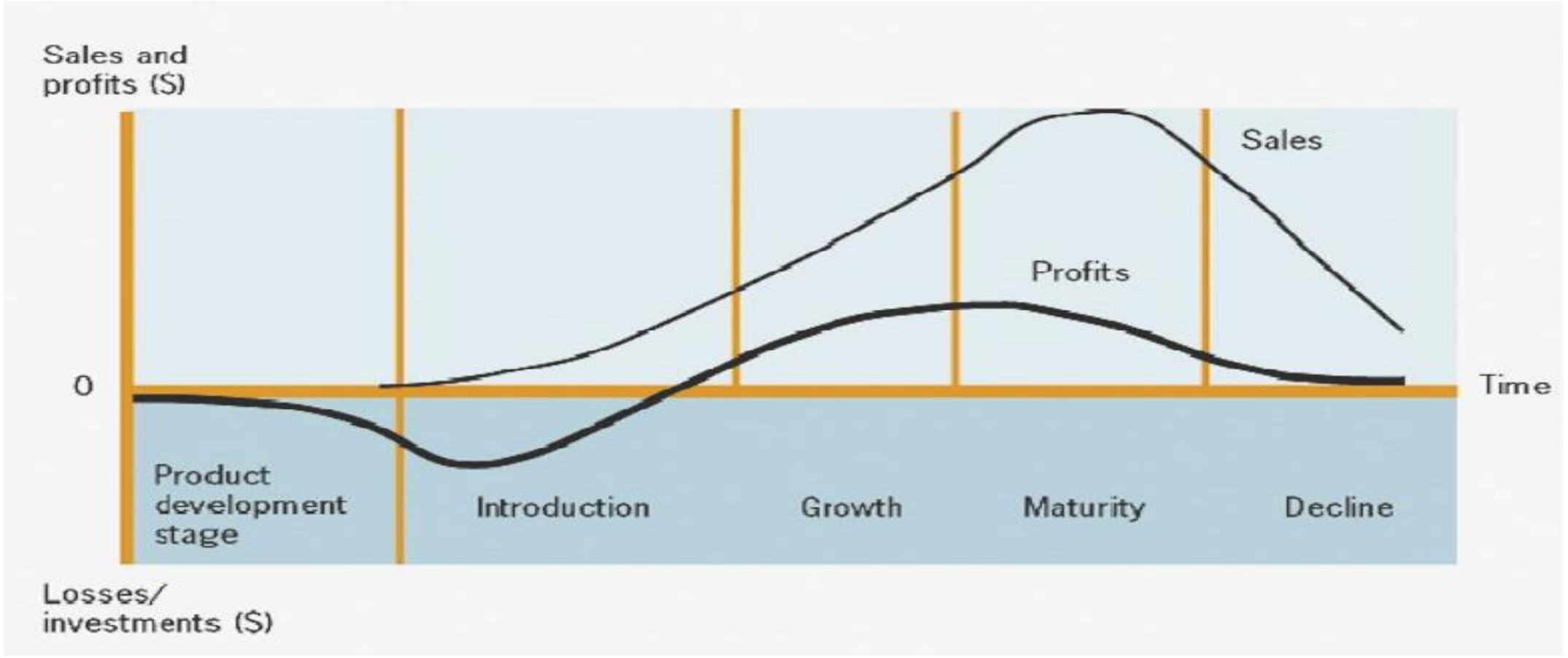
Project selection: Non-numeric models...continues

5) Product line extension – the product/service is repositioned favourably with customers

- Taking advantage of market conditions & opportunities
- Use both data analysis and intuition in the decision making process
- Increased market penetration
- Possibility of gaining economy of scale, but
- No guarantee of market success
- Risk of reducing current market share &/or profit

Product line extension: Importance of Product Life Cycle (PLC)



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Project selection: Numeric models

1. Payback period = The time it takes to earn back the money invested in a project

** Payback period formula = Cost of project/annual cash revenue

Thus, if a project cost $100,000 & was expected to generate $25,000 annually, the payback period would be: $100,000/$25,000 = 4 years

So, it would take 4 years for the initial investment to be returned

If the revenues generated by the project are expected to vary from year to year, add the revenues expected for each succeeding year until you reach the total project cost

Simple to use, but this model doesn't take into account the time-value of money. Any additional cash flow (after year 4) are of no use with this model

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Project selection: Numeric models...continues

2. Return on investment (ROI) (popular method) = The overall profit (or loss) on an investment calculated as a percentage (%) of the total amount invested

**ROI formula = net profit/total investment x 100

Assuming a net profit of $40,000 over a period of 6 years, & the total investment is $100,000 the ROI is:

$40,000/$100,000 x 100 = 40% return

Contrary to the payback period, ROI takes into consideration the entire cash-flow period of the project, but not the time value of money.

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Project selection: Numeric models...continues

3. Net present value (NPV) = the projected profitability of an investment, based on future (anticipated) cash-flows & discounted (from year 2) at a stated interest rate

**NPV formula: Cash flow x discount factor

* Discount factor = 1/(1+i)n - (from annuity table – e.g. in finance, data analysis, accounting texts)

Application of NPV model

Year 1:(initial project cost) ($100,0000)
Cash flow (CF) year 2: $30,000
CF year 3 : $40,000
CF year 4 : $40,000
CF year 5: $35,000

$45,000

*It would seem a 45% on the initial investment of $100,000 (according to ROI)

However, take a look at what happens when applying the discount factor to obtain the NPV

Cash flow	Table factor (9%)	Present value
CF Y 1 = $100,0000	x 1.00	($100,000)
CF Y 2 = $30,000	x 0.9174	$27,522
CF Y3= $40,000	x 0.8417	$33,667
CF Y4= $40,000	x 0.7722	$30,887
CF Y 5=$35,000	x 0.7084	$24,795
NPV =		$ 16,871

*According to this model the return on our initial investment is less than 17%

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Prioritising the project

- Sponsor, client, customer classifications
- Return on investment (ROI) and cost savings
- Organisational impact & portfolio management
- Resource capability & availability and time to implement
- Scale of complexity and risk exposure
- External compliance regulations – e.g. Approvals by the Environmental Protection Authority (EPA) http://www.epa.wa.gov.au
- Consistent with TBL and life cycle thinking
- ….

L^3 - Project classification guide examples of how to scale & classify projects

CRITERIA	CLASSIFICATION		
	1- Lean	2 - Lite	3 - Large
Planning	No	Limited	Extensive
Budget forecast	No	< $100,000	> $100,000
Timeframe	No	< 45 Days	> 45 days
Risk	Low	Low – Moderate	High
Stakeholders concerned	Few	Many	Multiple
Scope revision	Minor	Moderate	Extensive
Benefits	No	Monitored	Evaluated
Project manager	Functional personnel	Full-time / Part – time	Full - time
Organizational impact	Slight	Low	High
PM methodology	Reduce	Complete	Complete

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Readings week 2

- Christenson D. and Walker D., 2004, Understanding the role of “Vision” in project success, *Project Management Journal*, pp 39-52

- Zhang L., 2012, Managing project changes: Case studies on stage iteration and functional interaction, *International Journal of Project Management*, pp 958 – 970

- Aaltonen K. and Sivonen R., 2009, Response strategies to stakeholder pressures in global projects, *International Journal of Project Management*, pp 131 – 141