SWEN90016

Software Processes & Project Management

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2021 – Semester 1
Lecture 2

Case Study

What is the NHS? (Understand the context)

UK National Health Service

(publicly-funded healthcare systems)

What was the project?

How a large teaching hospital developed, executed and practically implemented a KMS (knowledge management system).

Electronic Patient Record (EPR) system – medical records stored in digital form

[1]

Case Study

What was the motivation for the project

Knowledge available to clinicians at the point of care to enhance the communication and decision making processes.

(A move to a new facility and the corresponding lack of space for paper records presented a problem)

IT

Commercial product that was customised by the Trust's own ICT staff

[1]

Case Study

Development and implementation was overseen by **EPR Board**, which comprised a mix of senior managers, IT professionals and clinical leads

Initial pilot phase (feasibility)

There was no formal written communication plan

Research conducted

A qualitative study was conducted over a 2.5 year period with data collected from semi-structured interviews with
8 members of the strategic management team,
12 clinical users and
20 patients
(in addition to non-participant observation of meetings and documents)

[1]

Case Study

Findings

- Identification of business problem to be solved and alignment of the KM project with overall business objectives. (Business case)
- Communication strategies should heavily focus on transparency including both structured and unstructured
- Communication methods.
- Communication strategies play a large role in changing attitude and mentality of workforce.
- Opportunities to highlight and sell positive messages about the KM initiative
- Engage all workers and address issues and concerns (users)

[1]

[1] Sara S. McCracken and John S. Edwards, “Implementing a knowledge management system within an NHS hospital: a case study exploring the roll-out of an electronic patient record (EPR),” Knowledge Management Research & Practice, vol. 15, pp. 1-11, 2015.

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Lecture 2

Lecture 2- Case Study 2

UK Passport Agency (1999)

Passport fiasco cost ~ £13m (~ £6m on extra staff), with a £16,000 bill (umbrellas)+ 500 spoilt holidays

UK passport Agency -new computerised processing system to replace an old system and provide more secure passports.

They aimed to introduce the system in their Liverpool and Newport offices before the summer busy period.
[1]

Lecture 2- Case Study 2

What happened- The timeline was tight

18 November 1998 suspended the rollout of the computer system.

February 1999, applications began to increase and processing times rose.

March 1999, the delays started to attract Parliamentary and media attention. The number of applications then rose steeply.

[1]

Module 5. 1 - Identifying Stakeholders & the Stakeholder Register

Internal Stakeholders	**External Stakeholders**
Shareholders	End Users / Customers
Employees	Suppliers
Board Members	Governments
Sponsor / Business Managers	Unions
Project Manager	Local Communities / General Public
Management	Other Related Institutions
Project Team	Competitors

Lecture 2- Case Study 2

What happened- Stakeholder communication

Should've consulted the stakeholder communication plan- put in measures to engage with the media and the public

Instead they withdrew some staff from the telephones and moved them to processing applications.

[1]

Lecture 2- Case Study 2

Analysis

The timeline was tight

Agency failed to provide enough time for staff to learn and adapt to the new system.

Failure to adequately assess the time needed to implement the system and lack of a contingency plan in the event of a problem

[1]

Lecture 2- Case Study 2

Stakeholder analysis

Agency could have increased their channels of communication to engage with their key stakeholders

Instead they altered their recorded message to advise callers to write to the Agency and provided a fax number. The number of written queries quickly exceeded the Agency’s ability to cope

[2]

Lecture 2- Case Study 2

Stakeholder analysis

Without adequate information the feeling of panic increased and applicants were forced to join queues of thousands outside the passport offices.

The Agency responded by buying umbrellas and luncheon vouchers.

[2]

Lecture 2- Case Study 2

Cost

£13m (~ £6m on extra staff)

£16,000 bill (umbrellas)

500 spoilt holidays

+ £9 million in lost business borne by Siemens Business Services

[1]

References

[1] (05/03/2021) The Passport Delays of Summer 1999. [Online]

https://www.nao.org.uk/report/united-kingdom-passport-agency-the-passport-delays-of-summer-1999/

[2] (05/03/2021) Why Stakeholder Management is so important. [Online]
https://www.stakeholdermap.com/importance-stakeholder-management.html

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SDLCs
Case Study

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2021 – Semester 1
Lecture 3

Background

Early ’90s, sending and receiving payments online between individuals was not an easy process.

People didn’t even imagine the possibility of such transactions, even though banks and other financial institutions had the means of conducting them.

Used in 200+ countries in the world.

50+ curriences

PayPal Case Study- Eileen O'Callaghan

A success story

An example of first mover advantage.

1998: Initial product created to encrypt word documents

But no one wanted to keep word documents secret

Encrypted money transfer between PalmPilots

The **first tool** to transfer money electronically

Built web interface as a sales demo tool **ACCIDENT**

PalmPilot device not popular, so demo-ed the tech on the web

1999: Encrypted money transfer **service** component

2000: Merge with an online bank (Elon Musk- X.com)

2001: Changed name to PayPal (Confinity + X.com)

2002 Listed on NASDAQ; Acquired by Ebay

Slow down

2002 -

Company was small, they could rapidly build solutions which put them at the leader

Innovation began to decrease, release cycles increased from weeks to months and many months

2008 - 6 key drivers for the slow down

1. Annual Planning –defined and documented in a Product Requirements Document (PRD) which could take months and were often out of date before coding began.

[1]

Slow down

2. Complex quarterly planning
New process for planning to allow for more flexibility, added complexity

3. Domain bottlenecks
Divided the environment into 85 domains, unintended consequence was a bottleneck at certain key areas (necessary for every project). These included risk, compliance, payments.

4. Developer context switching
To enable more projects to kick-off, developer were assigned to multiple projects during planning. This context switching reduced productivity of the individual and team.
[1]

Slow down

5. Traditional waterfall development
To facilitate and coordinate efforts across the organisation, they used waterfall. Those teams that had developed using grass root agile efforts were forced to follow the strict process of Waterfall.

6. Integration testing cycles
To ensure quality of each release- rigorous testing required, code branches grew and integration and testing cycles increased even for the smallest change- 6 weeks of integration testing cycle to ensure it didn't break the site.

[1]

Results

People (developers) were frustrated.

Exec management was frustrated.

Customers were frustrated

What happened?

[1]

Results

2012

PayPal promoted David Marcus- President
Focus was on the customer

Kirsten Wolberg joined as Lead Technology Business Operations
(had experience with agile as CIO at salesforce.com)

Alignment executive sponsorship and leadership with the employees and this enabled PayPal to embark on a radical transformation.

[1]

References

[1] (10 March 2021) PayPal Enterprise Transformation
Available:
https://www.paypalobjects.com/webstatic/en_US/mktg/pages/stories/pdf/paypal_transformation_whitepaper_sept_18_2015.pdf

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Risk Management Case Study

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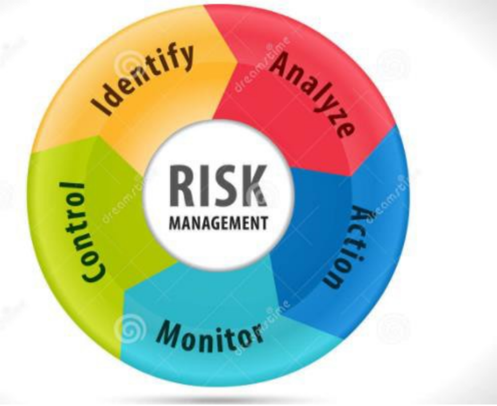
2020 – Semester 2
Lecture 6

RECAP – Risk Management



Risk Planning ➡ Risk Management Plan

Risk Identification:

Kinds of Risks:

Project
Product
Business

Identification Techniques:

Pondering	Interviewing
Brainstorming	Checklists
Delphi	SWOT Analysis

Risk Identification

Risk identification techniques

- Pondering
- Interviewing
- Brainstorming (WBS) learn about in project scheduling
- Checklists:
- Delphi Technique:
- **SWOT Analysis**

Case study

Understand the business and IT risk management

1. Small projects
2. Big organisations

Risk Identification Techniques

- Pondering
  - This simply involves an individual taking the “pencil and paper” approach of risk identification, which involves sitting and thinking about the possible risks that could occur in the project
  - This is one of the initial risk assessment tasks used in many projects

- Interviews/questionnaires
  - Interviewing project stake holders, or asking them to fill out questionnaires, to harness their knowledge of a domain
  - It is unlikely that a risk manager in a software project will have sufficient knowledge of the methods and tools to be employed to provide a comprehensive view of the risks, so input from stakeholder and domain experts is essential

Risk Identification Techniques

- Brainstorming –
  - The team can use a *risk framework* or the *Work Breakdown Structure (WBS)* to identify threats and opportunities
  - The key is to encourage contributions from everybody
  - The group then discuss and evaluate

- Checklists
  - This involves the use of standard checklists of possible risk drivers that are collated from experience
  - These checklists are used as triggers for experts to think about the possible types of risks in that area

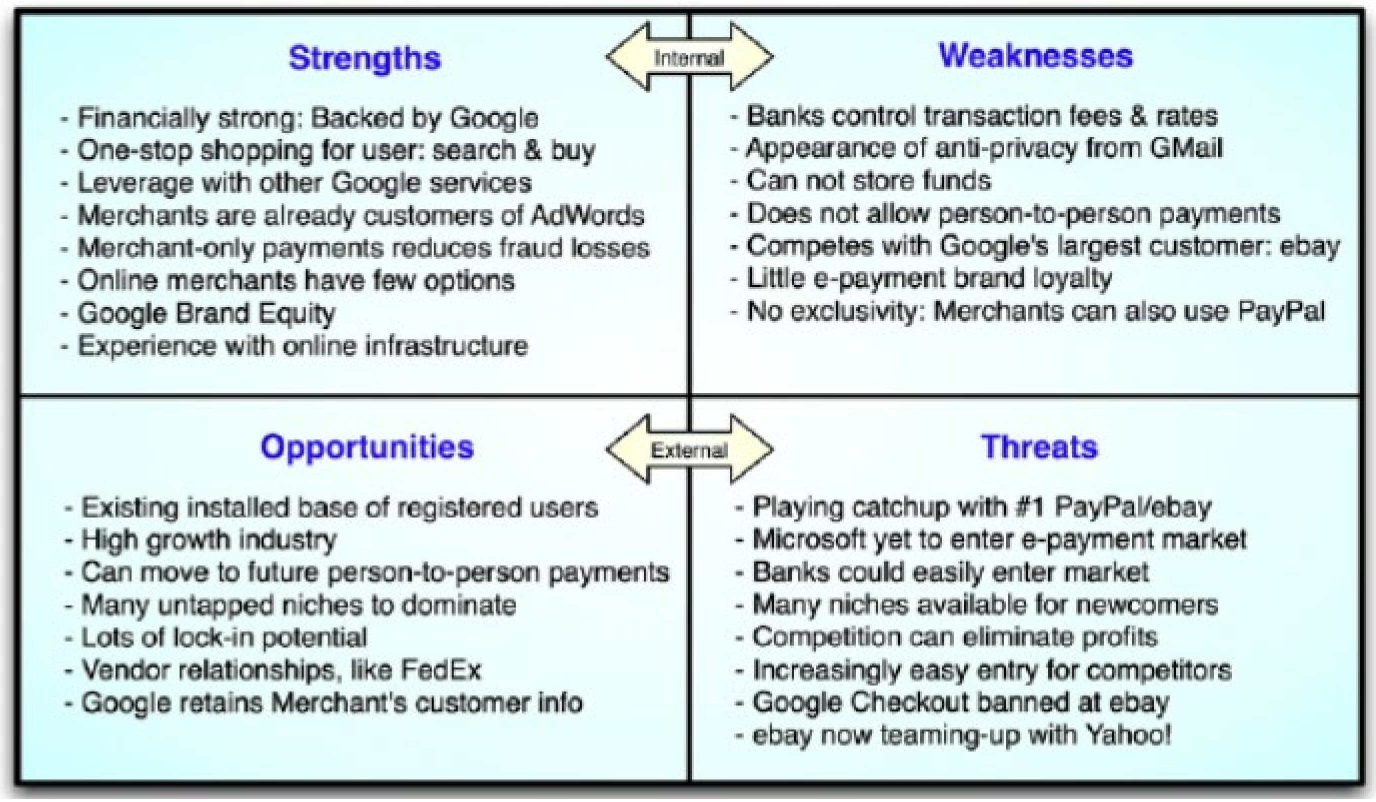
Risk Identification Techniques

- Delphi Technique
  - A group of experts are asked to identify risks and their impact
  - The responses are them made available to each other anonymously
  - The experts are then asked to update their response based on the responses of others – repeated until consensus is reached

- SWOT Analysis (BUSINESS)
  - Strengths, Weaknesses, Opportunities and Threats
  - This technique allows finding strengths and weaknesses

Risk strategy and responses

SWOT analysis of Google Checkout.



Strengths

- Financially strong: Backed by Google
- One-stop shopping for user: search & buy
- Leverage with other Google services
- Merchants are already customers of AdWords
- Merchant-only payments reduces fraud losses
- Online merchants have few options
- Google Brand Equity
- Experience with online infrastructure

Weaknesses

- Banks control transaction fees & rates
- Appearance of anti-privacy from GMail
- Can not store funds
- Does not allow person-to-person payments
- Competes with Google's largest customer: ebay
- Little e-payment brand loyalty
- No exclusivity: Merchants can also use PayPal

Opportunities

- Existing installed base of registered users
- High growth industry
- Can move to future person-to-person payments
- Many untapped niches to dominate
- Lots of lock-in potential
- Vendor relationships, like FedEx
- Google retains Merchant's customer info

Threats

- Playing catchup with #1 PayPal/ebay
- Microsoft yet to enter e-payment market
- Banks could easily enter market
- Many niches available for newcomers
- Competition can eliminate profits
- Increasingly easy entry for competitors
- Google Checkout banned at ebay
- ebay now teaming-up with Yahoo!

Fenwick, David & Daim, Tugrul & Gerdsri, Nathasit. (2009). Value Driven Technology Road Mapping (VTRM) process integrating decision making and marketing tools: Case of Internet security technologies. Technological Forecasting and Social Change - TECHNOL FORECAST SOC CHANGE. 76. 1055-1077. 10.1016/j.techfore.2009.04.005.

Risk strategy and responses

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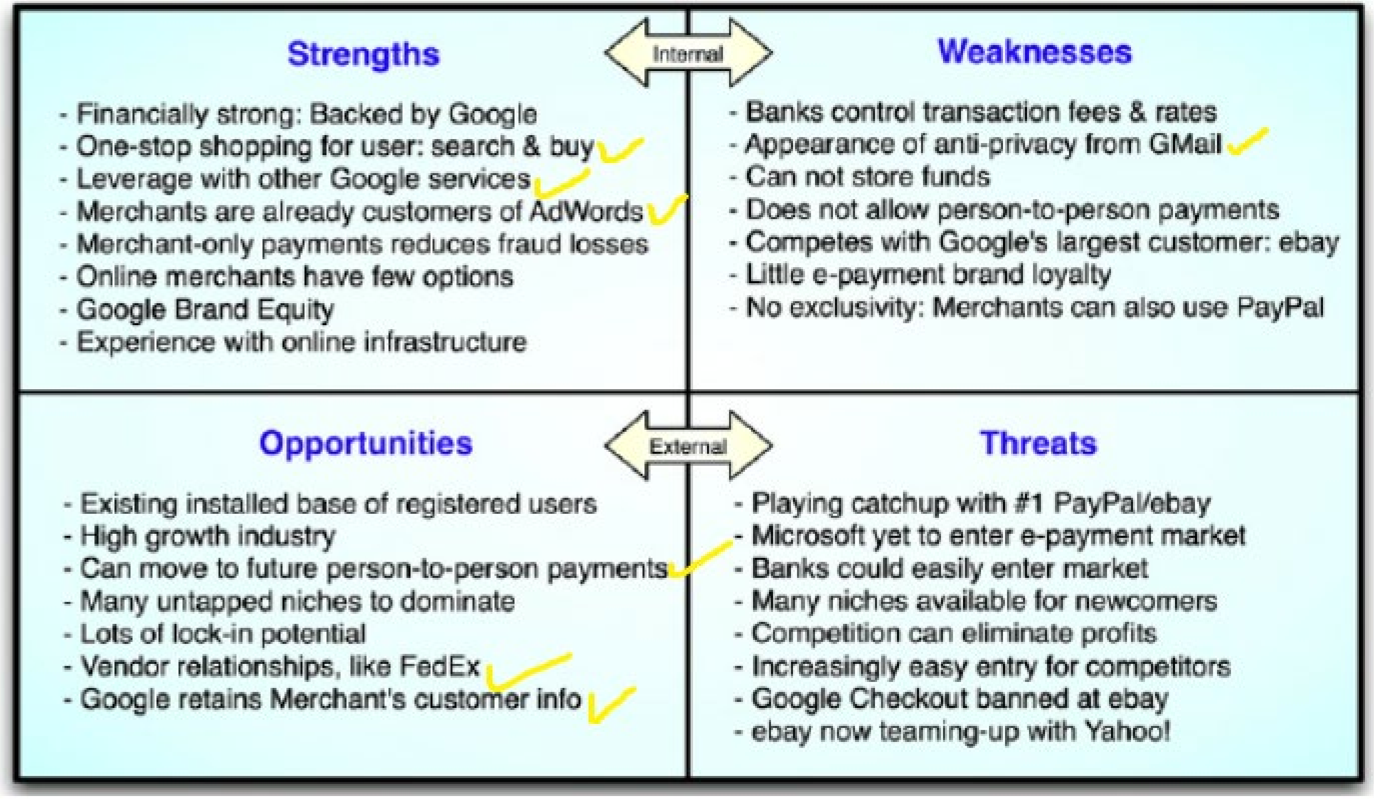

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Risk Response Strategies

Four common strategies to handle *threats:*

1. Accept or Ignore
2. Avoid
3. Mitigate
4. Transfer

Risk Response Strategies

- Four common strategies to handle *opportunities*:

1. Exploit:

   Add work or change the project to make sure the opportunity occurs

2. Enhance:

   Increase the probability and positive impact of risk events

3. Share:

   Allocate ownership of opportunity to a third-party

4. Accept

   This means that we believe that the cost to exploit or enhance is not justifiable so do nothing about it.

Other

We have looked at PayPal and Google Checkout

Another would be -
Alibaba

Quiz

Two practice timed quiz

Set up a practice timed quiz within a time limit

Any Qs

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2021 – Semester 1

Lecture 6

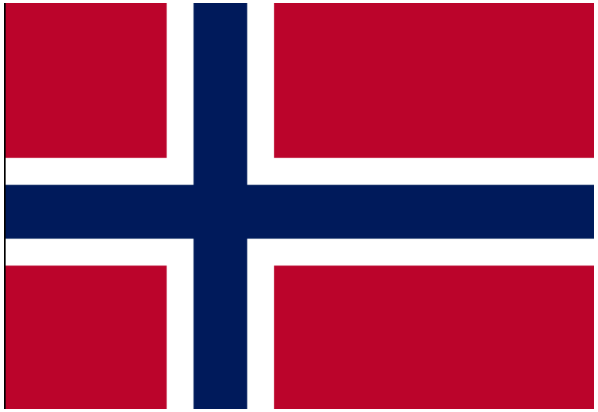
Project scheduling

Positive or negative amounts

() = negative

No brackets = positive

Case Study



https://en.wikipedia.org/wiki/Norway#/media/File:Flag_of_Norway.svg
https://www.fjordnorway.com/top-attractions/vikings

Case Study

	Organisation A (150 employees in four organizational units)		Organisation B	
	Project A	Project B	Project C	Project D
Project size	3 years	3 years	9 months	12 months
Developers	7 (Norway: 4, India: 3)	5 (including 2 consultants)	6	4
Scrum master	One of the developers	One of the developers	From the quality and marketing department	The department head
Product owner	From the sales and business department	Former project manager	Former project manager, in another city	Former project manager, in another city
System developed	Information system for integrity management of pipelines, both off-shore and on-shore	Information system for designing and maintaining off-shore installations	Geographical information system for planning and coordination work	Information system for handling reports from clients

[1]

Case Study

	Organisation A (150 employees in four organizational units)		Organisation B	
	Project A	**Project B**	**Project C**	**Project D**
Scrum introduced	Middle of project	Middle of project	Beginning of project	Beginning of project
Scrum practices	All. No retrospective in every sprint	All	All. No retrospective in every sprint	All. No retrospective in every sprint
Physical wall with tasks	No	Yes	No	Yes

[1]

Case Study

[1]

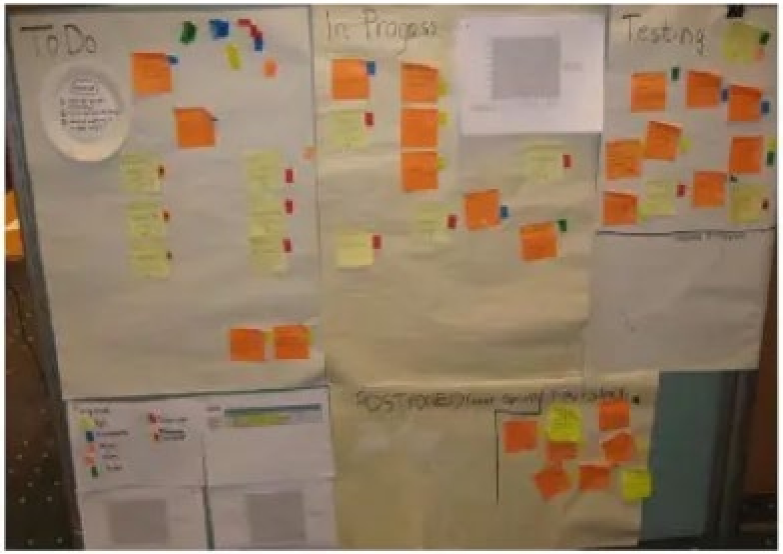


Fig. 1. The Scrum wall of project B showing the task status and task flow.

Case Study

Product backlog and scope creep

The Scrum master said:

- “Everything cannot be equally important. The product-backlog makes it easier for us to tell the Product owner to prioritize what is most important. The prioritized backlog helped in aligning all input to the project”

A developer said:

- “The sprint and sprint backlog makes it easier to say ‘‘no’’ to the Product owner. . .”

(Project A)

[1]

Case Study

Resourcing

Scrum master

- “It is now more difficult to ‘‘steal’’ resources from us, because the consequences of losing resources during a sprint are more visible with Scrum. Earlier the deadline was 6–12 months ahead, and it was easy to steal a day or two. There has been a change of attitude in the company, and it is now well accepted that you do not steal resources from a Scrum team during a sprint”

(Project A)

[1]

Case Study

Resourcing

- Lost resources during iterations because of conflicting priorities within the company. The teams were lacking support from the organization and adequate resources, which are two important factors for achieving self-management. Not aligning tactical decisions on the company level resulted in challenges on the project and product level.

(Project C and D)

[1]

Case Study

Planning

A developer said:

- When we use planning-poker we do it too fast and without preparation , we only suggest numbers without really knowing. The tasks are more complex than we realize. Because we lack knowledge about the problem to solve, the meetings are time consuming. And when I propose an estimate I do not get really valuable feedback from the others.
- When it comes to the daily Scrum, I do not pay attention when Annis talking. For me it is a bit far off what she talks about, and I do not manage to pay attention. She talks about the things she is working on. I guess this situation is not good for the project.

(Project B)

[1]

Case Study

Sprints

Third, projects C and D were missing a clear definition of ‘done’ and the Scrum master often wanted to make the team look better than they actually were. Therefore, each iteration started by performing tasks that were officially finished in the previous iteration, and then everybody in the team knew they could not complete what was planned for the current iteration

A developer said:

- Since we also added so many features we knew we could not finish, we did not care if we did not complete all the tasks during a sprint. Some tasks were moved four sprints before they were even started

(Project C and D)

[1]

Case Study

Sprints

The team moved from Waterfall to Agile

The scrum master said

- I perceive the team as not taking real responsibility. When they have finished a task they ask me “what should I do now?”. I would expect them to take more responsibility. They are used to be given single tasks. This is how we used to work. They do not see all the tasks as a pool they can choose from

(Project B)

[1]

[1] Nils Brede Moe, Aybüke Aurum and Tore Dybå , “Challenges of shared decision-making: A multiple case study of agile software development,” Information and Software Technology, vol. 54, (8) pp. 853-865, 2012.

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Lecture 6

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Leadership style Quiz

Let’s go to Kahoot.it

Phone/computer

Piece of paper

Modified from mindtools [1]

Leadership styles

- **Authoritarian or autocratic leadership style.**
- Rarely consult your team members and, instead, tend to tell them what you want, when you want it, and how you want it done.
- Style works well in a crisis, when a task must be completed quickly.
- Medium long term can demoralize, demotivate and aggravate people if you use it all the time.
- This can translate into high absenteeism and turnover rates.
- Miss out on a wealth of ideas,
- Stifles innovation and creativity.

[1]

Leadership styles

Good

- very precise detailed tasks – followed "to the letter," to manage a significant risk.
- if team is missing deadlines, or when the situation requires quick decisions being made.

Not so Good

- control and punishment to maintain standards will likely drive people away.
- demand that your team works at top speed => exhausting everyone.
- can mean that it is difficult for you to stand back from the detail and take a wider, more strategic view.

Tips

- show respect for team members by providing the rationale for your decisions (more likely comply with your expectations if you take the trouble to explain Why the Rules Are There).
- don't be afraid to listen and collaborate more.

[1]

Leadership styles

- **Democratic or participative style of leadership.**
- Set the parameters for the work and have the final say on decisions,
- Actively involve your team members in the process.
- Builds trust between you and your people,
- Team feels engaged and valued.
- Not great in a high-pressure situation that requires a fast turnaround, as it will slow you down.
- If you dislike disagreement or conflict, you might struggle with how people respond to consultation.

[1]

Leadership styles

Good

- you also acknowledge that your people can have valuable insight into a problem or process, so you actively consult them.
- gain creative input and fresh ideas that you wouldn't have come up with if you were working alone.

Not so Good

- processes could become dangerously slow if you involve your team members in every decision.

Tips

- need to judge carefully whether you need to adopt a more autocratic approach, even if it's only briefly.
- build a culture in which people can have healthy debates with one another. How?
  1. set an example by being open and flexible yourself.
  2. make managing mutual acceptance a priority, to ensure everyone's participation.
  3. learn some conflict resolution skills.

[1]

Leadership styles

- **Delegating (Laissez faire)**
- Team members free rein in how they work toward their goals.
- Ideal approach when your people are highly skilled and motivated,

- Ideal approach when you're working with contractors and freelancers who you trust.

- If a team member is inexperienced or untrustworthy, or if you lose sight of what's going on, this approach can backfire catastrophically.

[1]

Leadership styles

Good

- empower your team to make decisions and to organize its own processes, with little or no guidance.
- team is experienced, knowledgeable, confident, creative, and driven, or if deadlines are flexible and processes are simple..

Not so Good

- people have low motivation or poor skills
- as a leader you are accountable, so use wisely

Tips

- to delegate the right task to the right person, as a mismatch could mean that the whole team fails.
- can occur at any time in business, so your organization's requirements for your team might shift after your initial brief.
- avoid becoming too remote, even with a high-performing, highly autonomous team
- consistently excellent and long-lasting teams have leaders that are inspiring and set a good example

[1]

[1] Retrieved 24 August 2020 https://www.mindtools.com/pages/article/leadership-style-quiz.htm

SWEN90016: Software Processes and Management
Ethical Case Studies

Case Study 1: AUSTRALIAN COMPUTER SOCIETY CODE OF ETHICS – CASE STUDIES

Tax Software Package

A software development company has just produced a new software package that incorporates the new tax laws and figures taxes for both individuals and small businesses.

The president of the company knows that the program has a number of bugs. He also believes the first firm to put this kind of software on the market is likely to capture the largest market share. The company widely advertises the program. When the company actually ships a CD, it includes a disclaimer of responsibility for errors resulting from the use of the program. The company expects it will receive a number of complaints, queries, and suggestions for modification. The company plans to use these to make changes and eventually issue updated, improved, and debugged versions. The president argues that this is general industry policy and that anyone who buys version 1.0 of a program knows this and will take proper precautions.

Because of bugs, a number of users filed incorrect tax returns and were penalized by the ATO.

Source: http://www.acs.org.au/publication/docs/ACS_CaseStudiesFinal.pdf and Burmeister, O.K, (2000),
Applying the ACS Code of Ethics, Journal of Research & Practice in Information Technology, Vol. 32, No. 2, May

Questions

1. What would you have done?

2. How could the ACS code of ethics have guided you?