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MSc, IS Development and Implementation in a Business Context
24-hour take-home exam, Winter 2020/21

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24-hour individual home assignment

How to hand in your exam paper

Start preparing the hand in well in advance of the exam deadline.

Your exam paper must be handed in as **one PDF file** in WISEflow. The maximum permitted file size is **200 MB**.

Additional material/appendices may (if permitted) be uploaded in other file formats. The total maximum permitted file size is 5 GB.

If you experience problems uploading and handing in your exam paper in WISEflow, you can send the paper to the following email address: **bss.exam@au.dk**. You need to ask for permission to hand in your paper for final assessment in WISEflow. Use the formula "Exemption" under "Applications to Study Councils" in the Student Self-Service. You need to apply as soon as possible after sending your paper to the email address.

If you need technical assistance during the exam, you can contact **BSS IT-support, phone: 8715 0933.**

Be aware that exam papers are as a rule only permitted for final assessment if handed in in the right format/size and within the exam deadline.

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Assignment

As a consequence of the COVID-19 situation, this examination has been changed, and there are therefore no formal requirements regarding the number of characters you may use. The recommendation is that you use no more than 1 page (approximately) for the 10-point assignments, and 1½ - 3 pages at the most for the 20-point assignments. If you are using more space than recommended, you might be better off improving your text instead of writing more.

Your answer should include a list of the references from the curriculum that you are using, and you should insert references to the curriculum when relevant.

Assignment 1: IT value creation

1.1 Concepts: non-IS investment (complementary investment). 10 points.

You are taking part in the planning of a new systems development and implementation project.

Choose and briefly describe the specific kind of system that is going to be developed and implemented. The system could be any kind of BI system or an ERP system tailored for the organization (as described in the paper by Brehm, Heinzl & Markus, 2001). It could also be any other kind of system for example a Webshop, a word processing system like MS Word, an e-mail system, a system like Zoom, a home bank application, a social media application etc. Describe the system in a table like the table below using no more than five lines of text.

Chose and briefly describe the organization that is going to use the system. It could be any organization, for example the university or a company that you are or have been working for or otherwise have information about. Use no more than five lines of text in the table below.

Describe four, at the most, different kinds of non-IS investments that you think are important for creating IT business value from investing in this particular system in this particular organization. For example, what kind of non-IS investments are needed to benefit from implementing Zoom at Aarhus University? Describe why you think that this specific non-IS (complementary) investment is important in this case.

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Use a table like the table below.

The system	Briefly describe the system
The organization	Briefly describe the organization
Non-IS inv.	Briefly describe a non-IS investment
Argumentation	Describe why you choose this non-IS investment
Non-IS inv.	Briefly describe a non-IS investment
Argumentation	Describe why you choose this non-IS investment
Non-IS inv.	Briefly describe a non-IS investment
Argumentation	Describe why you choose this non-IS investment
Non-IS inv.	Briefly describe a non-IS investment
Argumentation	Describe why you choose this non-IS investment

Your answer should be short and precise, and you should provide arguments. As a part of your argumentation, you may include references to parts of the curriculum when relevant.
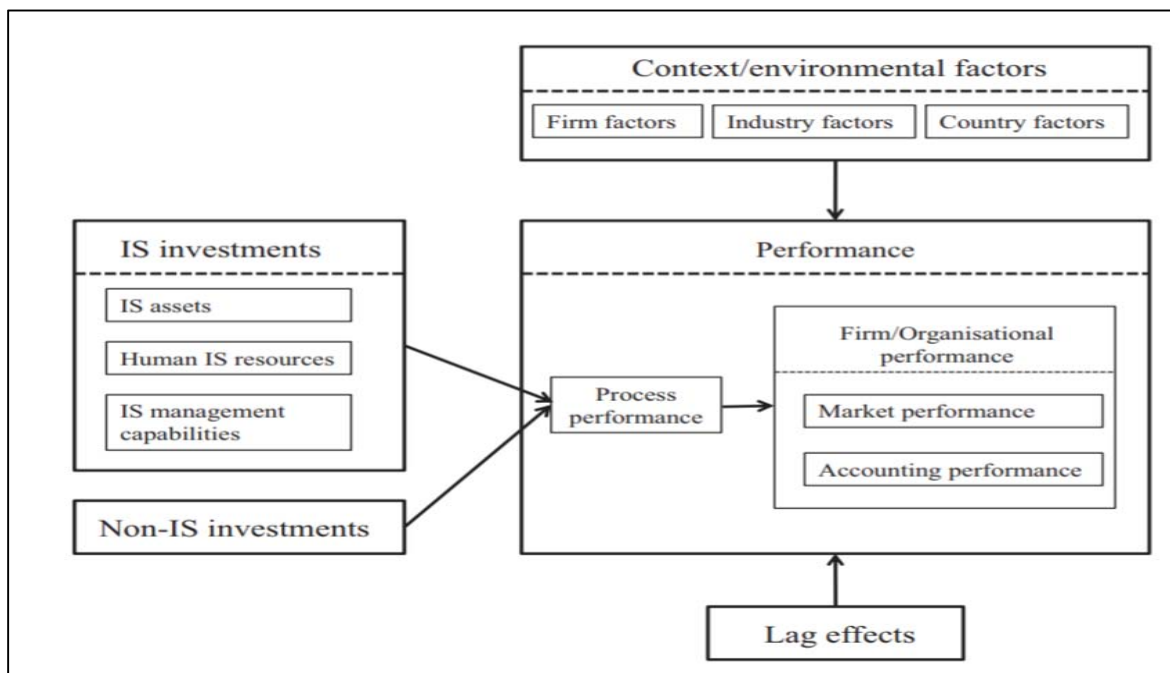

1.2 The essence. 20 points

Figure 1 IS business value model (Schryen, 2013)

In the organization in the previous assignment, you are involved in selecting the candidate projects chosen for execution.

Currently there are many different ideas, and you only have resources for a few of these projects. Describe what you would like to know about the different concepts in the model for the different projects in order to prioritize

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and select the projects for execution. For example, you would probably like to know the costs of the IS investment (e.g. how expensive it is to buy or develop a specific system). Insert what you would like to know as well as your arguments for wanting this knowledge in a table like the table below.

Concept	What you would like to know about a project to prioritize and select
IS investments	Insert what you would like to know
Argumentation	Insert your argumentation for wanting this knowledge
Non-IS investments	Insert what you would like to know
Argumentation	Insert your argumentation for wanting this knowledge
Lag effects	Insert what you would like to know
Argumentation	Insert your argumentation for wanting this knowledge
Contextual factors	Insert what you would like to know
Argumentation	Insert your argumentation for wanting this knowledge
Process performance	Insert what you would like to know
Argumentation	Insert your argumentation for wanting this knowledge
Firm / organizational performance	Insert what you would like to know
Argumentation	Insert your argumentation for wanting this knowledge

Your answer should be short and precise, and you should provide arguments. As a part of your argumentation, you may include references to parts of the curriculum when relevant.

1.3. Relations and reflections. 20 points

If the paper about Technochange management (Markus, 2004), she describes two different kinds of projects: IT projects and Technochange projects. In the organization that you have described in assignment 1.1 you have both kinds of projects.

Looking at these projects from the perspective of Schryen's (2013) model, how would they probably differ? For example we might assume that the level of non-IS investments would be different for the two types of projects, and we would probably expect different levels of impact on process performance.

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Use a table like the table below.

Concept	How would the two kinds of projects probably be different?
IS investments	Insert the ways that Technochange projects and IT projects could be different (if any)
Argumentation	Insert your argumentation why they could be different (or not)
Non-IS investments	Insert the ways that Technochange projects and IT projects could be different (if any)
Argumentation	Insert your argumentation why they could be different (or not)
Lag effects	Insert the ways that Technochange projects and IT projects could be different (if any)
Argumentation	Insert your argumentation why they could be different (or not)
Contextual factors	Insert the ways that Technochange projects and IT projects could be different (if any)
Argumentation	Insert your argumentation why they could be different (or not)
Process performance	Insert the ways that Technochange projects and IT projects could be different (if any)
Argumentation	Insert your argumentation for why they could be different (or not)
Firm / organizational performance	Insert the ways that Technochange projects and IT projects could be different (if any)
Argumentation	Insert your argumentation for why they could be different (or not)

The organization you are working in is collaborating with several public sector organizations. They have asked if you would assist them in using Schryen's model (2013). Which parts of the model would you change, or use in a different way, because they are less relevant in a public sector context?

Use a table like the table below.

Concept	What would you change / use in a different way?
IS investments	Insert changes / different ways of use
Argumentation	Insert your argumentation for the changes / different ways of use
Non-IS investments	Insert changes / different ways of use
Argumentation	Insert your argumentation for the changes / different ways of using
Lag effects	Insert changes / different ways of use
Argumentation	Insert your argumentation for the changes / different ways of use
Contextual factors	Insert changes / different ways of use
Argumentation	Insert your argumentation for the changes / different ways of use
Process performance	Insert changes / different ways of use
Argumentation	Insert your argumentation for the changes / different ways of use
Firm / organizational performance	Insert changes / different ways of use
Argumentation	Insert your argumentation for the changes / different ways of use

Your answer should be short and precise, and you should provide arguments. As a part of your argumentation, you may include references to parts of the curriculum when relevant.

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Assignment 2: Systems development models

2.1 Concepts: Prototyping. 10 points

You are taking part in the planning of a new systems development and implementation project. Briefly describe a specific kind of system as in assignment 1.1 and an organization of your own choice as in assignment 1.1. You may use the same system and organization as in assignment 1.1, if you want to.

The developers would like to use prototyping as a major part of the development process. Describe four, at the most, advantages and four, at the most, disadvantages of using prototyping in this specific case. Provide arguments. Insert your answers in a table as the table below.

The system	Briefly describe the system
The organization	Briefly describe the organization
Advantage 1	Describe an advantage here
Argumentation	Insert your argumentation why it is an advantage
Advantage 2	Describe an advantage here
Argumentation	Insert your argumentation why it is an advantage
Advantage 3	Describe an advantage here
Argumentation	Insert your argumentation why it is an advantage
Advantage 4	Describe an advantage here
Argumentation	Insert your argumentation why it is an advantage
Disadvantage 1	Describe an disadvantage here
Argumentation	Insert your argumentation why it is a disadvantage
Disadvantage 2	Describe an disadvantage here
Argumentation	Insert your argumentation why it is a disadvantage
Disadvantage 3	Describe an disadvantage here
Argumentation	Insert your argumentation why it is a disadvantage
Disadvantage 4	Describe an disadvantage here
Argumentation	Insert your argumentation why it is a disadvantage

Your answer should be short and precise, and you should provide arguments. As a part of your argumentation, you may include references to parts of the curriculum when relevant.

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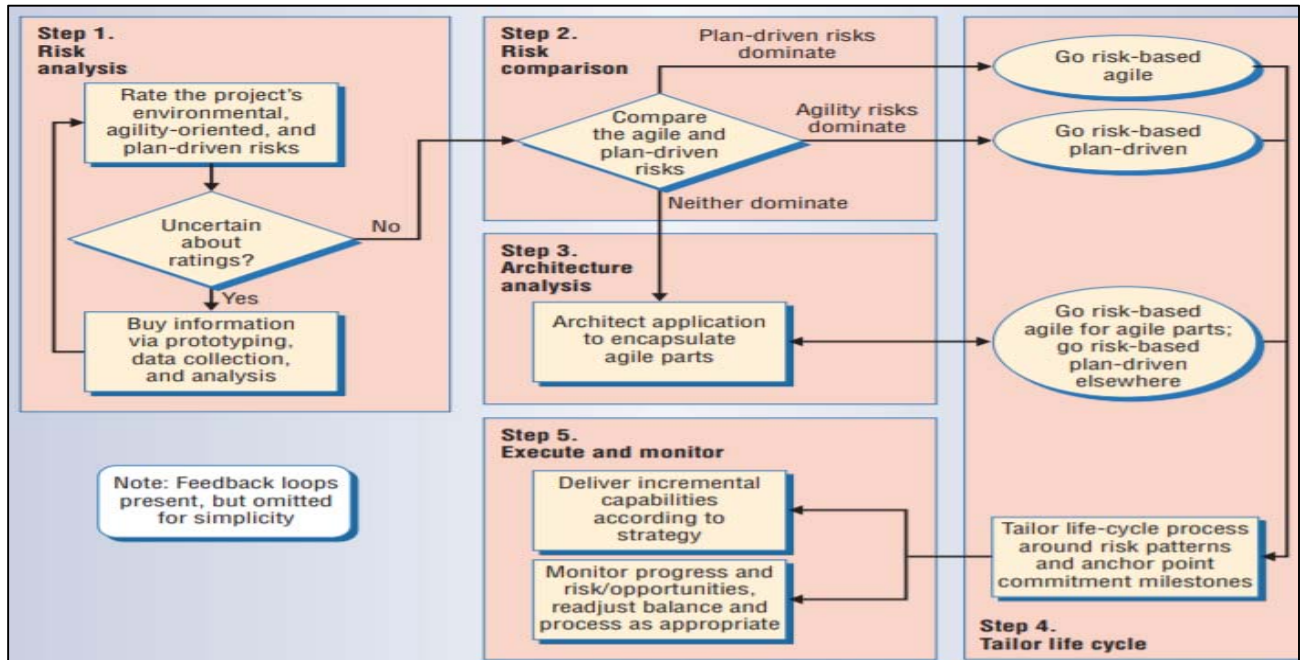
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2.2 The essence. 20 points

Figure 2 . Using risk to balance agile and plan-driven methods (Boehm & Turner, 2003)

Returning to the case in assignment 2.1, you convince the developers to use the structured process for choosing and tailoring a systems development approach as illustrated in figure 2.

Identify three potential risks in the project, and describe a) how these risks would affect the choice between plan-based and agile development, and b) how the project might overcome these risks.

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Use a table like the table below.

Risk 1	Insert a description of the risk
Impact on choice between agile and plan-based	Describe whether the risk would make you prefer agile or plan-based development.
Argumentation	Insert your argumentation why the risk makes you prefer a specific option
How to overcome the risk	Describe how the project could overcome the risk.
Argumentation	Insert your argumentation why the risk makes you prefer a specific option
Risk 2	Insert a description of the risk
Impact on choice between agile and plan-based	Describe whether the risk would make you prefer agile or plan-based development.
Argumentation	Insert your argumentation about why the risk makes you prefer a specific option
How to overcome the risk	Insert a description of how the project could overcome the risk.
Argumentation	Insert your argumentation about why the risk makes you prefer a specific option
Risk 3	Insert a description of the risk
Impact on choice between agile and plan-based	Insert a description of whether the risk would make you prefer agile or plan-based development.
Argumentation	Insert your argumentation about why the risk makes you prefer a specific option
How to overcome the risk	Insert a description of how the project could overcome the risk.
Argumentation	Insert your argumentation about why the risk makes you prefer a specific option

Your answer should be short and precise, and you should provide arguments. As a part of your argumentation, you may include references to parts of the curriculum when relevant.

2.3. Relations and reflections. 20 points

You are a bit concerned about the implementation of the project and the resistance that you might face during the implementation process. The systems development models do not provide much advice about implementation. Describe how implementation concerns could be added to the development model that you think is most appropriate for the project described in 2.1 and 2.2. Pick one idea / contribution from each of the following papers and describe how that idea / contribution could be used during the project.

- Markus, M. L. (1983). Power, politics, and MIS implementation. Communications of the ACM, 26(6), 430-444.
- Petter, S., DeLone, W., & McLean, E. R. (2013). Information systems success: The quest for the independent variables. Journal of Management Information Systems, 29(4), 7-62.
- Markus, M. L., & Keil, M. (1994). If we build it, they will come: Designing information systems that people want to use. Sloan Management Review, 35(4), 11.

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Use a table like the table below.

Paper	Markus, M. L. (1983).
Idea	Insert a short description of the idea / contribution from the paper
How to use	Insert a description how to use the idea / contribution from the paper
Argumentation	Insert your argumentation for the use of this idea / contribution in this project
Paper	Petter, S., DeLone, W., & McLean, E. R. (2013)
Idea	Insert a short description of the idea / contribution from the paper
How to use	Insert a description how to use the idea / contribution from the paper
Argumentation	Insert your argumentation for the use of this idea / contribution in this project
Paper	Markus, M. L., & Keil, M. (1994).
Idea	Insert a short description of the idea / contribution from the paper
How to use	Insert a description how to use the idea / contribution from the paper
Argumentation	Insert your argumentation for the use of this idea / contribution in this project

Your answer should be short and precise, and you should provide arguments. As a part of your argumentation, you may include references to parts of the curriculum when relevant.

Assignment 3: Requirements analysis, benefits and strategies

3.1 Concepts: Problem-based and Innovation-based interventions. 10 points

Peppard, Ward, & Daniel, E. (2007) distinguish between problem-based and innovation-based IT investments.

Briefly describe a specific kind of system as in assignment 1.1 and an organization of your own choice as in assignment 1.1. You may use the same system and organization as in assignment 1.1 and 2.1, if you want to.

Would you consider the development and implementation of this particular system in this particular organization as a problem-based or innovation-based IT (or something in between) investment?

Use a table like the table below.

The system	Briefly describe the system
The organization	Briefly describe the organization
Problem- or innovation-based?	Describe whether it is problem- or innovation-based.
Argumentation	Insert your argumentation for your choice

Your answer should be short and precise, and you should provide arguments. As a part of your argumentation, you may include references to parts of the curriculum when relevant.

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3.2 The essence. 20 points

Figure 1: A Partial Benefits Dependency Network (BDN) for the New CRM System at a European Paper Manufacturer
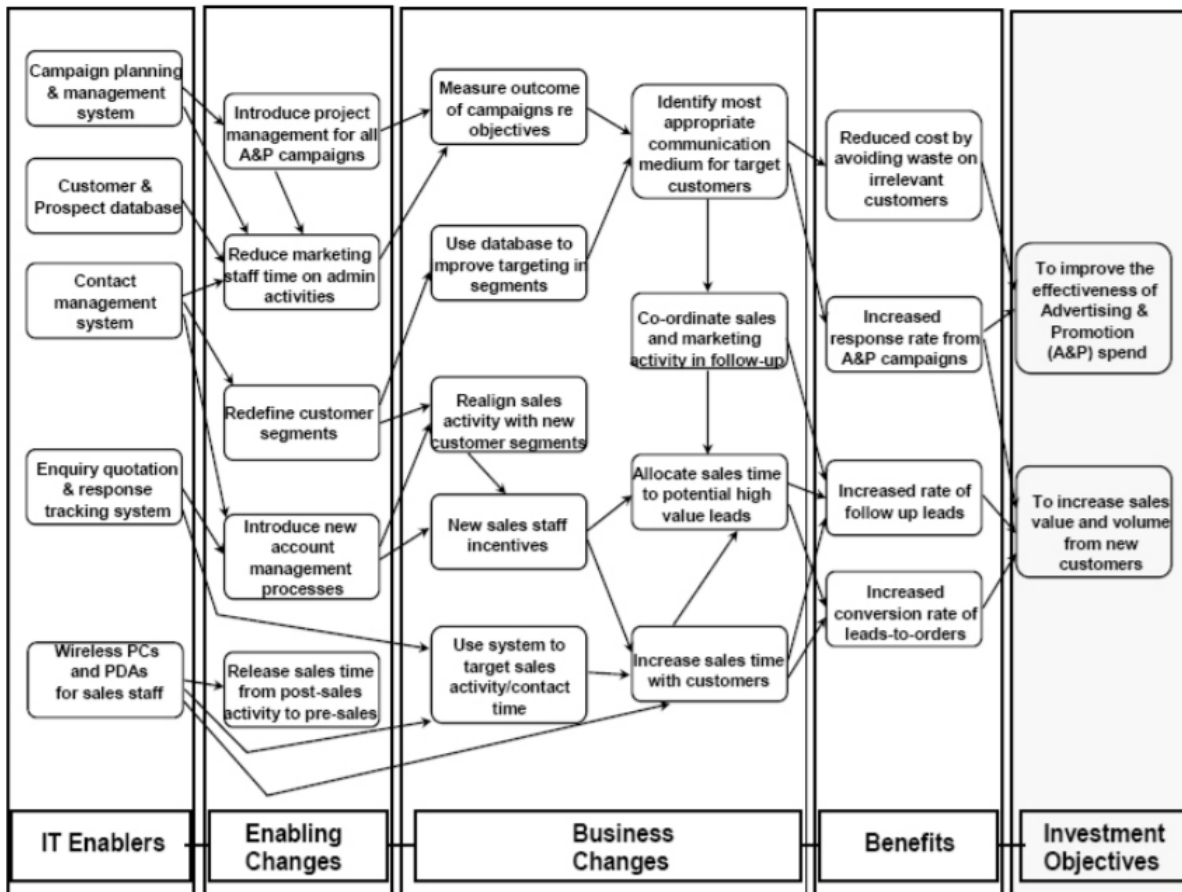

Figure 3 Benefits dependency network (Peppard, Ward & Daniel, 2007).

To establish an understanding of how the development and implementation of the system described in assignment 3.1 will create value for the organization, you develop a benefits dependency network in collaboration with business managers in the organization. Even though the diagram looks simple, it might be quite challenging. Please describe some of the challenges (no more than four lines) that you imagine you could face during this process. Provide arguments.

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Use a table like the table below.

Challenge 1	Describe the challenge
Argumentation	Describe why you think that it is challenging
Challenge 2	Describe the challenge
Argumentation	Describe why you think that it is challenging
Challenge 3	Describe the challenge
Argumentation	Describe why you think that it is challenging
Challenge 4	Describe the challenge
Argumentation	Describe why you think that it is challenging

Your answer should be short and precise, and you should provide arguments. As a part of your argumentation, you may include references to parts of the curriculum when relevant.

3.3 Relations and reflections. 20 points

Having defined the benefits, IT enablers etc. in the benefits dependency diagram, you are now going to identify the specific requirements to the IT enablers. Design the process that the developers are going to use to identify the detailed requirements (for example, they might analyze the business process). Include concerns about how to secure the quality of the identified requirements. Your process can include no more than 10 steps. Each step should be described, using no more than five lines in a table like the table below. Provide a brief description of what you think is important in the process. Provide arguments for each step. Provide a brief description about how a specific part of the curriculum could be used in the step, for example that the method by Sharp & McDermott (2009) could be used to analyze the existing business process.

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What I believe to be important in the process	Insert a description of what you think is important
Argumentation	Insert your argumentation why you think that these issues are important
Step 1	A description of the step
Argumentation	Your argumentation why this step is needed
Use of literature	Describe how literature from the curriculum could be used during this step
Step 2	A description of the step
Argument	Your argumentation why this step is needed
Use of literature	Describe how literature from the curriculum could be used during this step
Step 3	A description of the step
Argument	Your argumentation why this step is needed
Use of literature	Describe how literature from the curriculum could be used during this step
Step 4	A description of the step
Argument	Your argumentation why this step is needed
Use of literature	Describe how literature from the curriculum could be used during this step
Step 5	A description of the step
Argument	Your argumentation why this step is needed
Use of literature	Describe how literature from the curriculum could be used during this step
Step 6	A description of the step
Argument	Your argumentation why this step is needed
Use of literature	Describe how literature from the curriculum could be used during this step
Step 7	A description of the step
Argument	Your argumentation why this step is needed
Use of literature	Describe how literature from the curriculum could be used during this step
Step 8	A description of the step
Argument	Your argumentation why this step is needed
Use of literature	Describe how literature from the curriculum could be used during this step
Step 9	A description of the step
Argument	Your argumentation why this step is needed
Use of literature	Describe how literature from the curriculum could be used during this step
Step 10	A description of the step
Argument	Your argumentation why this step is needed
Use of literature	Describe how literature from the curriculum could be used during this step

Your answer should be short and precise, and you should provide arguments. As a part of your argumentation, you may include references to parts of the curriculum when relevant.

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References

Boehm, B., & Turner, R. (2003). Using risk to balance agile and plan-driven methods. Computer, 36(6), 57-66.Schryen

Markus, M. L. (2004). Technochange management: using IT to drive organizational change. Journal of Information technology, 19(1), 4-20.

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Markus, M. L., & Keil, M. (1994). If we build it, they will come: Designing information systems that people want to use. Sloan Management Review, 35(4), 11.

Petter, S., DeLone, W., & McLean, E. R. (2013). Information systems success: The quest for the independent variables. Journal of Management Information Systems, 29(4), 7-62.

Peppard, J., Ward, J., & Daniel, E. (2007). Managing the realization of business benefits from IT investments. *MIS Quarterly Executive*, *6*(1).

Sharp, A., & McDermott, P. (2009). *Workflow modeling: tools for process improvement and applications development*. Artech House*.*