

**Adapted criteria for assessing  
the design process of a  
technological design**

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In May 2010 the 3TU.School for Technological Design, Stan Ackermans Institute, published criteria for assessing the design process of a technological design. All programmes used these criteria and evaluated them. During the evaluation the observation was made that the evaluation was too time consuming, because there are too many indicators.

Based on these experiences we have redesigned the evaluation of technological designs. We have made the following changes:

1. We distinguish 4 criteria (instead of 12 aspects) that cover only 14 indicators (instead of 44).
1. Each indicator is valued by a 5-point ordinal subject scale. We offer one interpretation of the scales, but the evaluators have the freedom to take another one depending on the type of project.
2. The indicators are only offered as an aid to compute the criterias' value in case the members of the evaluation team cannot agree.
3. We offer a simple recipe to determine a final mark.

The aspects and indicators are specified on the following pages. An assessment form is added. A five point grading scale is proposed: from Fail to Excellent.

## 1. Organization and planning

Includes: project planning, time management, organizing meetings, reaching milestones

Indicator	1	2	3	4	5
	Fail	Poor	Fair	Good	Excellent
<i>Project planning</i>	No planning	Only phasing	Planning contains phases and milestones	Planning contains milestones and specifications of activities	Planning contains milestones, specifications of activities and updates during the project
<i>Plan realization</i>	Reaches less than 30% of the updated milestones	Reaches no more than 40% of the updated milestones	Reaches at least 50% of the updated milestones, even if there were great disturbances during the course of the project	Reaches at least 70% of the updated milestones, even if there were great disturbances during the course of the project	Reaches 90% of the updated milestones, even if there were disturbances during the course of the project
<i>Conducting meetings</i>	Is not reliable in preparing meetings: no agenda, room reservations and no invitations to stakeholders	Prepares a basic agenda, reserves a room and invites stakeholders, but fails in preparing supporting documentation	Prepares a detailed agenda, takes care of supporting documentation, reserves a room and invites stakeholders	Prepares a detailed agenda, takes care of supporting documentation, reserves a room and invites stakeholders, prepares detailed minutes of the meeting	Prepares a detailed agenda, takes care of supporting documentation, reserves a room and invites stakeholders, prepares detailed minutes of the meeting, follows up the actions agreed during the meeting

## 2. Problem analysis and solution

Includes: problem statement, analysis of the context, conducting a literature study, showing creative thinking in searching for a solution.

Indicator	1	2	3	4	5
	Fail	Poor	Fair	Good	Excellent
<i>Analysis</i>	No clear problem formulation	Only problem formulation	Problem formulation with motivation	Problem formulation with motivation and non validated assumptions	Problem formulation with motivation and validated assumptions
<i>Understanding of impact</i>	Does not understand the impact of reaching the project goal on the project environment	Realises that reaching the project goal may have impact on the project environment	Has tried to understand the impact of reaching the project goal on the project environment	Demonstrates understanding of the impact of reaching the project goal on the project environment	Demonstrates understanding of the impact of reaching the project goal on the project environment and beyond
<i>Creativity</i>	Has difficulties with understanding and applying the standard method	Is somewhat familiar with the standard method and realizes that there may be alternatives	Is familiar with the standard methods, but also explores alternatives	Considers abandoning the well-understood standard methods and proposes plausible alternatives	Dares to abandon the well-understood standard methods and creates and applies better ones resulting from exploring several alternatives
<i>Genericity</i>	The solution is not even adequate for a subset of the problem domain	The solution is only adequate for a subset of the problem domain	The solution is adequate for the entire problem domain	The solution is applicable for the entire problem domain and beyond	The solution is applicable in the entire problem domain and other well-described domains

### 3. Communication and social skills

Includes: communication with stakeholders, knowledge mobilization, working in teams, giving presentations, keeping a logbook, preparing agenda's for meetings and writing minutes, formulating meeting goals and summarizing the results of the meeting, looking for and using expert knowledge.

Indicator	1	2	3	4	5
	Fail	Poor	Fair	Good	Excellent
<i>Reporting (orally and written)*</i>	No clear purpose, no structure and no audience awareness	There is a clear purpose	There is a clear purpose and structure	There is a clear purpose and structure and the reporting is adequate for the intended audience	There is a clear purpose and structure and the reporting is adequate for various audiences
<i>Knowledge management</i>	Is not aware of external knowledge and is not sharing own knowledge	Does not share knowledge, but uses some external knowledge	Actively looks for information sources, but does not share knowledge	Actively looks for information sources and shares knowledge when asked	Actively looks for information sources and proactively shares knowledge
<i>Stakeholder motivation</i>	Does not initiate any kind of communication with stakeholders	Has a passive role in the communication	Shows little persuasion in communication	Shows adequate persuasion in communication	Shows adequate persuasion and negotiation in communication and is able to manage expectations
<i>Atmosphere</i>	Lacks basic social skills and unnecessarily causes conflicts	Incapable of increasing or improving a feeling of comfort for his/her peers and of detecting (potential) conflicts	Capable of detecting (potential) conflicts and is aware of the level of comfort	Knows how to prevent (potential) conflicts from escalating and makes others feel comfortable working with her/him	Knows how to manage and mitigate conflicts, makes others feel comfortable working with her/him, and actively creates a good atmosphere

\* *Presentations skills is assumed to be covered by 'orally reporting'.*

#### 4. Structure and attitude

Includes: giving stakeholders feedback and receiving feedback from stakeholders, self reflection using a strengths and weaknesses analysis, having a constructive, systematic, creative and critical attitude.

Indicator	1	2	3	4	5
	Fail	Poor	Fair	Good	Excellent
<i>Structure and consistency</i>	Is not aware of the need of coherence and consistency in his/her working and reporting	Realizes that coherence and consistency are necessary, but is incapable of achieving them	His/her work and reports show some structure and consistency	His/her work and reports show explicit and adequate structure and consistency	Has consciously chosen among various methods of structuring and consistency in his/her working and reporting
<i>Reflection and critical attitude</i>	Takes everything for granted	Lacks reflective thinking on the own design process and the knowledge involved; sees errors and flaws only when pointed at	Occasionally demonstrates reflective thinking in parts of the design process and the knowledge involved; sees errors and flaws when pointed at, and reacts adequately	Demonstrates reflective thinking in the major part of the design process and the knowledge involved; tends to seek errors and flaws	Consistently demonstrates reflective thinking throughout the design process and the knowledge involved; tends to find and call attention to errors and flaws
<i>Independency</i>	Has no well-formulated own opinion	Reluctantly formulates and incompletely substantiates a personal opinion	Incidentally formulates and substantiates a personal opinion	Consistently formulates and substantiates a personal opinion	Consistently formulates and substantiates a personal opinion and defends it, when necessary going against commonly shared opinions

**Appendix – Evaluation Form Assessment Criteria Design Process\***

Project name	
Designer	
Company	
Company supervisor	
University supervisor	

Scale:

fail	poor	fair	good	excellent
1	2	3	4	5

Criteria of design process	Indicators	Value per indicator	Score criterium
Organization and planning	Project planning		
	Plan realization		
	Conducting meetings		
Problem Analysis and Solution	Analysis		
	Understanding of impact		
	Creativity		
	Genericity		
Communication and social Skills	Reporting (orally and written)		
	Knowledge management		
	Stakeholder motivation		
	Atmosphere		
Structure and attitude	Structure and consistency		
	Reflection and critical attitude		
	Independency		
<b>Total score</b>			

*\* Please, use the scale descriptions on page 2,3,4 and 5 of this report when filling out the evaluation form.*

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