



Learning business by doing business



TOPSIM-Planspiele

Learning business by doing business

TOPSIM – Project Management

Participants' Manual Appendix I

Planning Sheets

Version 2.5

Work package No.: 1		Designation: Design																																																	
Duration (Weeks): 8	Costs (T€): 210	Responsible: Internal Departments																																																	
Description and information on the work package: At the beginning of the process, the basic concept of the layout is established. In the design process, the initial sketches and designs for the equipment are completed. Most importantly the calculations for the track's design are determined according to kinematic and kinetic principles.																																																			
<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> Risk Assessment * (green) = low ** (yellow) = middle *** (red) = high </div> <div style="text-align: center;">↓</div> <div style="border: 1px solid black; padding: 5px;"> Work package based on the original planning </div>		<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <th colspan="4" style="background-color: #d9ead3;">Alternative 1</th> <th colspan="4" style="background-color: #fce4d6;">Alternative 2</th> <th colspan="4" style="background-color: #d9ead3;">Alternative 3</th> </tr> <tr> <td>Time</td><td>6</td><td>Costs</td><td>320</td> <td>Time</td><td>5</td><td>Costs</td><td>380</td> <td>Time</td><td>10</td><td>Costs</td><td>190</td> </tr> <tr> <td>Points</td><td>Tech. -1</td><td>Qual. -1</td><td></td> <td>Points</td><td>Tech. -2</td><td>Qual. -2</td><td></td> <td>Points</td><td>Tech. +1</td><td>Qual. +1</td><td></td> </tr> <tr> <td colspan="4" style="background-color: #d9ead3;">Overtime and an external engineering company are required.</td> <td colspan="4" style="background-color: #fce4d6;">Overtime and weekend work are required.</td> <td colspan="4" style="background-color: #d9ead3;">Important workers from another project are occasionally made available.</td> </tr> </table>		Alternative 1				Alternative 2				Alternative 3				Time	6	Costs	320	Time	5	Costs	380	Time	10	Costs	190	Points	Tech. -1	Qual. -1		Points	Tech. -2	Qual. -2		Points	Tech. +1	Qual. +1		Overtime and an external engineering company are required.				Overtime and weekend work are required.				Important workers from another project are occasionally made available.			
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Risk:		Risk:																																																	

Evaluation of Alternatives

Changes compared to Phase 0	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€
Potential Time (Weeks)									
Cost of Work Package (T€)									
Cost of Change (T€)									
Project Technology (Points)									
Project Quality (Points)									
Sum									
Profit Margin (T€)									
Δ Profit Margin/Weeks Accelerated (T€)									
Δ Profit Margin/Weeks Extended (T€)									

Work Package No.: 2	Designation: Project Management														
Duration (Weeks): 50	Costs (T€): 400	Responsible: Internal Departments													
Description and information on the work package: The project manager's tasks include coordinating the overall design, detail specification and generating offers, selecting suppliers and subcontractors with the purchaser, and coordinating and monitoring the completion of the work in progress. Hint: The duration of this work package depends on the duration of the whole project.															
<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> Risk Assessment * (green) = low ** (yellow) = middle *** (red) = high </div> <div style="text-align: center;">↓</div> <div style="border: 1px solid black; padding: 5px;"> Work package based on the original planning </div>	Alternative 1		Alternative 2		Alternative 3										
	Time	40	Costs	430	Time	40	Costs	450	Time	40	Costs	500			
	Points	Tech.	+1	Qual.	+1	Points	Tech.	+2	Qual.	+2	Points	Tech.	+2	Qual.	+1
	Hire a project assistant.				Hire more workers onto the project team.				Hire more workers onto the project team. Establish a project office and train workers.						
Risk:				Risk:				Risk:				Risk:			

Evaluation of Alternatives

Changes compared to Phase 0	+/-	Δ Costs T€	Δ Reve- nues T€	+/-	Δ Costs T€	Δ Reve- nues T€	+/-	Δ Costs T€	Δ Reve- nues T€
Potential Time (Weeks)									
Cost of Work Package (T€)									
Cost of Change (T€)									
Project Technology (Points)									
Project Quality (Points)									
Sum									
Profit Margin (T€)									
Δ Profit Margin/Weeks Accelerated (T€)									
Δ Profit Margin/Weeks Extended (T€)									

Work Package No.: 3	Designation: Steel Support Development		
Duration (Weeks): 7	Costs (T€): 130	Responsible: Engineering Company	
Description and information on the work package: A steel suspension tower secured to the ground holds the roller coaster together and supports the highly dynamic loads. Appropriate manufacturing specifications are derived from mathematical computations. The roller coaster is to provide a thrilling and extreme experience, but will also conform to safety regulations. Safety is very important in the construction of amusement park equipment and accordingly the involvement of the Safety Standards Authority is required from the outset.			

Risk Assessment

* (green) = low

** (yellow) = middle

*** (red) = high

↓

Work package based on the original planning

Alternative 1				Alternative 2				Alternative 3						
Time	6	Costs	150	Time	5	Costs	190	Time	9	Costs	110			
Points	Tech.	0	Qual.	0	Points	Tech.	0	Qual.	0	Points	Tech.	+1	Qual.	+1
Award the engineering company overtime.				Assign the task to another engineering company that has considerable experience with steel supports.				An institute specializing in steel Supports is ready to take over this task.						

Risk:		Risk:		Risk:		Risk:	
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Evaluation of Alternatives

Changes compared to Phase 0	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€
Potential Time (Weeks)									
Cost of Work Package (T€)									
Cost of Change (T€)									
Project Technology (Points)									
Project Quality (Points)									
Sum									
Profit Margin (T€)									
Δ Profit Margin/Weeks Accelerated (T€)									
Δ Profit Margin/Weeks Extended (T€)									

Work Package No.: 4		Designation: Track Development																																																																			
Duration (Weeks): 6	Costs (T€): 90				Responsible: Internal Departments																																																																
Description and information on the work package: The layout of the track is determined by the roller coaster cars' specifications and passenger loads, both of which are intricately linked to the structural steelwork. The technical designers' objective is to convert the roller coaster concept into a technical reality. Strength checks must be performed, security measures must be implemented, and the constructed pieces arranged and fitted together.																																																																					
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Evaluation of Alternatives

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Potential Time (Weeks)									
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Sum									
Profit Margin (T€)									
Δ Profit Margin/Weeks Accelerated (T€)									
Δ Profit Margin/Weeks Extended (T€)									

Work Package No.: 5	Designation: Car Development																																																		
Duration (Weeks): 7	Costs (T€): 120	Responsible: Internal Departments																																																	
Description and information on the work package: It is important for the roller coaster cars to have a spacious design to allow for passenger seating and switching. The four wheel configurations are individually assembled instead of having two axles. Dividing the cars into two parts by means of a clutch ensures increased mobility in narrow curve segments.																																																			
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Evaluation of Alternatives

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Potential Time (Weeks)									
Cost of Work Package (T€)									
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Sum									
Profit Margin (T€)									
Δ Profit Margin/Weeks Accelerated (T€)									
Δ Profit Margin/Weeks Extended (T€)									

Work Package No.: 6		Designation: Electrical Development																																																							
Duration (Weeks): 5	Costs (T€): 80				Responsible: Internal Departments																																																				
Description and information on the work package: Development of electronics for the track and all of the equipment. Designing of safety measures in conjunction with software development.																																																									
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Evaluation of Alternatives

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Potential Time (Weeks)									
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Cost of Change (T€)									
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Sum									
Profit Margin (T€)									
Δ Profit Margin/Weeks Accelerated (T€)									
Δ Profit Margin/Weeks Extended (T€)									

Work Package No.: 7		Designation: Building Site Preparation																											
Duration (Weeks): 3	Costs (T€): 90		Responsible: Subcontractor																										
Description and information on the work package: Subcontracting to Grader Ltd. which performed satisfactorily on the last project. The work is unproblematic and to date no problems have been experienced.																													
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Time		2		Costs		130		Time		1		Costs		190		Time		5		Costs		80							
Points		Tech.		0		Qual.		0		Points		Tech.		0		Qual.		0		Points		Tech.		0		Qual.		0	
Subcontract to "Supergrader Ltd."		Subcontract to the well known "Turobograder" Company.		A local enterprise "Mastergrader" requests an order.																									
Risk:				Risk:				Risk:				Risk:				Risk:				Risk:				Risk:					

Evaluation of Alternatives

Changes compared to Phase 0	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€
Potential Time (Weeks)									
Cost of Work Package (T€)									
Cost of Change (T€)									
Project Technology (Points)									
Project Quality (Points)									
Sum									
Profit Margin (T€)									
Δ Profit Margin/Weeks Accelerated (T€)									
Δ Profit Margin/Weeks Extended (T€)									

Work Package No.: 8	Designation: Accelerator Development														
Duration (Weeks): 4	Costs (T€): 180	Responsible: Engineering company													
Description and information on the work package: The engineering company G-force Ltd. will develop the accelerator. The G-force accelerator is an upgrade from the proven Launch-Coasters technology. The G-force accelerator will provide the roller coaster cars with an acceleration of 0 to 100km/h in 4.2 seconds.															
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	Time	3	Costs	240	Time	2	Costs	400	Time	5	Costs	160			
	Points	Tech.	-1	Qual.	0	Points	Tech.	-1	Qual.	0	Points	Tech.	+1	Qual.	+1
	The engineering company Acceleron Ltd. offers the same performance as G-force in a shorter time but at a higher cost.				The company Speedstart Ltd. specializes in speedy solutions and offers a shorter turnaround time at a higher cost.				Management favors internal development to build know-how within the company.						
Risk:				Risk:				Risk:				Risk:			

Evaluation of Alternatives

Changes compared to Phase 0	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€
Potential Time (Weeks)									
Cost of Work Package (T€)									
Cost of Change (T€)									
Project Technology (Points)									
Project Quality (Points)									
Sum									
Profit Margin (T€)									
Δ Profit Margin/Weeks Accelerated (T€)									
Δ Profit Margin/Weeks Extended (T€)									

Work Package No.:	9	Designation:	Software Specification													
Duration (Weeks):	6	Costs (T€):	40	Responsible: Internal Departments												
Description and information on the work package:																
<p>The IT department can utilize previous experience and software modules from earlier models. Excellent documentation and error-free timely work is expected.</p>																
<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> Risk Assessment * (green) = low ** (yellow) = middle *** (red) = high </div> <div style="text-align: center;">↓</div> <div style="border: 1px solid black; padding: 5px;"> Work package based on the original planning </div>		Alternative 1		Alternative 2		Alternative 3										
		Time	5	Costs	60	Time	4	Costs	70	Time	8	Costs	40			
		Points	Tech.	0	Qual.	0	Points	Tech.	0	Qual.	0	Points	Tech.	0	Qual.	0
		Engage more software developers.				Integrate proven modules with fewer new developments.				Avoid problems by having detailed discussions with project participants.						
Risk:				Risk:				Risk:				Risk:				

Evaluation of Alternatives

Changes compared to Phase 0	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€
Potential Time (Weeks)									
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Δ Profit Margin/Weeks Extended (T€)									

Work Package No.:	10	Designation:	Sound System Development													
Duration (Weeks):	8	Costs (T€):	240	Responsible: Engineering company												
Description and information on the work package:																
<p>A novel and unique feature of the RocketStar is its Dolby-40-Crazy-Sound equipment provided by Hyperwave. Each car will have 22 4D loudspeakers with a frequency range of 20 to 20.000 Hz. Along the tracks the steel supports will hold 200 loudspeakers. By synchronizing all of the stationary and onboard loudspeakers passengers will have a 4 dimensional sound experience.</p>																
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		Time	8	Costs	300	Time	6	Costs	380	Time	9	Costs	320			
		Points	Tech.	+2	Qual.	+1	Points	Tech.	-2	Qual.	-2	Points	Tech.	+2	Qual.	+1
		Hyperwave offers sensational new developments straight out of the lab.				Hyperwave will drop everything to work exclusively on your project – at an appropriate surcharge.				The engineering company, Supersound, warns against hasty development of new technologies and offers its own high quality solution.						
Risk:				Risk:				Risk:				Risk:				

Evaluation of Alternatives

Changes compared to Phase 0	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€
Potential Time (Weeks)									
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Δ Profit Margin/Weeks Extended (T€)									

Work Package No.: 11		Designation: Foundation Excavation																																																				
Duration (Weeks): 4	Costs (T€): 260	Responsible: Subcontractor																																																				
Description and information on the work package: Excavation of the station's foundation, the power supply building, and the individual steel supports is required. Caterpillar Ltd. with its solid track record and considerable experience is assigned to this task.																																																						
<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="width: 20%; border: 1px solid black; padding: 5px;"> Risk Assessment * (green) = low ** (yellow) = middle *** (red) = high <div style="text-align: center;">↓</div> <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 0 auto;"> Work package based on the original planning </div> </div> <table border="1" style="width: 80%; border-collapse: collapse;"> <thead> <tr style="background-color: #d9ead3;"> <th colspan="4">Alternative 1</th> <th colspan="4">Alternative 2</th> <th colspan="4">Alternative 3</th> </tr> </thead> <tbody> <tr> <td style="background-color: #d9ead3;">Time</td> <td style="background-color: #d9ead3;">3</td> <td style="background-color: #d9ead3;">Costs</td> <td style="background-color: #d9ead3;">310</td> <td style="background-color: #d9ead3;">Time</td> <td style="background-color: #d9ead3;">2</td> <td style="background-color: #d9ead3;">Costs</td> <td style="background-color: #d9ead3;">390</td> <td style="background-color: #d9ead3;">Time</td> <td style="background-color: #d9ead3;">6</td> <td style="background-color: #d9ead3;">Costs</td> <td style="background-color: #d9ead3;">220</td> </tr> <tr> <td style="background-color: #d9ead3;">Points</td> <td style="background-color: #d9ead3;">Tech.</td> <td style="background-color: #d9ead3;">0</td> <td style="background-color: #d9ead3;">Qual.</td> <td style="background-color: #d9ead3;">0</td> <td style="background-color: #d9ead3;">Points</td> <td style="background-color: #d9ead3;">Tech.</td> <td style="background-color: #d9ead3;">0</td> <td style="background-color: #d9ead3;">Qual.</td> <td style="background-color: #d9ead3;">0</td> <td style="background-color: #d9ead3;">Points</td> <td style="background-color: #d9ead3;">Tech.</td> <td style="background-color: #d9ead3;">0</td> <td style="background-color: #d9ead3;">Qual.</td> <td style="background-color: #d9ead3;">0</td> </tr> <tr> <td colspan="4" style="background-color: #d9ead3;">An alternative offer from Caterpillar.</td> <td colspan="4" style="background-color: #fff2cc;">An offer from Superexcavation Ltd.</td> <td colspan="4" style="background-color: #d9ead3;">Team Excavation Ltd. has undertaken a project in close proximity and offers a favorable price.</td> </tr> </tbody> </table> </div>				Alternative 1				Alternative 2				Alternative 3				Time	3	Costs	310	Time	2	Costs	390	Time	6	Costs	220	Points	Tech.	0	Qual.	0	Points	Tech.	0	Qual.	0	Points	Tech.	0	Qual.	0	An alternative offer from Caterpillar.				An offer from Superexcavation Ltd.				Team Excavation Ltd. has undertaken a project in close proximity and offers a favorable price.			
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Evaluation of Alternatives

Changes compared to Phase 0	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€
Potential Time (Weeks)									
Cost of Work Package (T€)									
Cost of Change (T€)									
Project Technology (Points)									
Project Quality (Points)									
Sum									
Profit Margin (T€)									
Δ Profit Margin/Weeks Accelerated (T€)									
Δ Profit Margin/Weeks Extended (T€)									

Work Package No.: 12		Designation: Track Manufacture																																																							
Duration (Weeks): 5	Costs (T€): 90				Responsible: Internal Departments																																																				
Description and information on the work package: Existing manufacturing plants must be adjusted to accommodate the new track design. This is accomplished through internal departments.																																																									
<div style="display: flex; align-items: center; justify-content: space-between;"> <div style="border: 1px solid black; padding: 5px; width: 20%;"> Risk Assessment * (green) = low ** (yellow) = middle *** (red) = high <div style="text-align: center; margin-top: 10px;">↓</div> </div> <div style="display: flex; flex-direction: column; align-items: center;"> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="4" style="background-color: #d9ead3;">Alternative 1</th> <th colspan="4" style="background-color: #fff2cc;">Alternative 2</th> <th colspan="4" style="background-color: #d9ead3;">Alternative 3</th> </tr> <tr> <td style="background-color: #d9ead3;">Time</td> <td style="background-color: #d9ead3;">4</td> <td style="background-color: #d9ead3;">Costs</td> <td style="background-color: #d9ead3;">140</td> <td style="background-color: #fff2cc;">Time</td> <td style="background-color: #fff2cc;">3</td> <td style="background-color: #fff2cc;">Costs</td> <td style="background-color: #fff2cc;">190</td> <td style="background-color: #d9ead3;">Time</td> <td style="background-color: #d9ead3;">7</td> <td style="background-color: #d9ead3;">Costs</td> <td style="background-color: #d9ead3;">90</td> </tr> <tr> <td style="background-color: #d9ead3;">Points</td> <td style="background-color: #d9ead3;">Tech. -1</td> <td style="background-color: #d9ead3;">Qual. -1</td> <td></td> <td style="background-color: #fff2cc;">Points</td> <td style="background-color: #fff2cc;">Tech. -1</td> <td style="background-color: #fff2cc;">Qual. -1</td> <td></td> <td style="background-color: #d9ead3;">Points</td> <td style="background-color: #d9ead3;">Tech. +1</td> <td style="background-color: #d9ead3;">Qual. +1</td> <td></td> </tr> <tr> <td colspan="4" style="background-color: #d9ead3;">Engage an external consultant to optimize the material flow.</td> <td colspan="4" style="background-color: #fff2cc;">Overtime and weekend work.</td> <td colspan="4" style="background-color: #d9ead3;">Use less of your own personnel and utilise temporary workers instead.</td> </tr> </table> <div style="border: 1px solid black; padding: 5px; width: 20%; margin-top: 10px;"> Work package based on the original planning </div> </div> </div>										Alternative 1				Alternative 2				Alternative 3				Time	4	Costs	140	Time	3	Costs	190	Time	7	Costs	90	Points	Tech. -1	Qual. -1		Points	Tech. -1	Qual. -1		Points	Tech. +1	Qual. +1		Engage an external consultant to optimize the material flow.				Overtime and weekend work.				Use less of your own personnel and utilise temporary workers instead.			
Alternative 1				Alternative 2				Alternative 3																																																	
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Evaluation of Alternatives

Changes compared to Phase 0	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€
Potential Time (Weeks)									
Cost of Work Package (T€)									
Cost of Change (T€)									
Project Technology (Points)									
Project Quality (Points)									
Sum									
Profit Margin (T€)									
Δ Profit Margin/Weeks Accelerated (T€)									
Δ Profit Margin/Weeks Extended (T€)									

Work Package No.: 13		Designation: Car manufacture																																																	
Duration (Weeks): 6	Costs (T€): 70	Responsible: Internal departments																																																	
Description and information on the work package: The assembly line for the roller coaster cars must be expanded as the cars are longer and wider than previous models. Internal departments have this responsibility. One potential problem is the availability of workers.																																																			
<div style="display: flex; align-items: center; justify-content: center;"> <div style="border: 1px solid black; padding: 5px; margin-right: 10px; text-align: left;"> Risk Assessment * (green) = low ** (yellow) = middle *** (red) = high ↓ Work package based on the original planning </div> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <th colspan="4" style="background-color: #d9ead3;">Alternative 1</th> <th colspan="4" style="background-color: #fce4d6;">Alternative 2</th> <th colspan="4" style="background-color: #d9ead3;">Alternative 3</th> </tr> <tr> <td>Time</td><td>5</td><td>Costs</td><td>120</td> <td>Time</td><td>3</td><td>Costs</td><td>160</td> <td>Time</td><td>8</td><td>Costs</td><td>80</td> </tr> <tr> <td>Points</td><td>Tech. -2</td><td>Qual. -1</td><td></td> <td>Points</td><td>Tech. -2</td><td>Qual. -1</td><td></td> <td>Points</td><td>Tech. +2</td><td>Qual. +2</td><td></td> </tr> <tr> <td colspan="4" style="background-color: #d9ead3;">The manufacturing layout is simplified to save time.</td> <td colspan="4" style="background-color: #fce4d6;">The work is transferred to a subcontractor.</td> <td colspan="4" style="background-color: #d9ead3;">The shortage of internal workers internally can be solved by extending the production time.</td> </tr> </table> </div>				Alternative 1				Alternative 2				Alternative 3				Time	5	Costs	120	Time	3	Costs	160	Time	8	Costs	80	Points	Tech. -2	Qual. -1		Points	Tech. -2	Qual. -1		Points	Tech. +2	Qual. +2		The manufacturing layout is simplified to save time.				The work is transferred to a subcontractor.				The shortage of internal workers internally can be solved by extending the production time.			
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Evaluation of Alternatives

Changes compared to Phase 0	+/-	Δ Costs T€	Δ Reve- nues T€	+/-	Δ Costs T€	Δ Reve- nues T€	+/-	Δ Costs T€	Δ Reve- nues T€
Potential Time (Weeks)									
Cost of Work Package (T€)									
Cost of Change (T€)									
Project Technology (Points)									
Project Quality (Points)									
Sum									
Profit Margin (T€)									
Δ Profit Margin/Weeks Accelerated (T€)									
Δ Profit Margin/Weeks Extended (T€)									

Work Package No.:	14	Designation:	Software Programming													
Duration (Weeks):	21	Costs (T€):	270	Responsible: Internal Departments												
Description and information on the work package:																
Monitoring, control, and safety systems must be programmed. Internal modules will be used, which will be updated soon.																
<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> Risk Assessment * (green) = low ** (yellow) = middle *** (red) = high </div> <div style="text-align: center;">↓</div> <div style="border: 1px solid black; padding: 5px;"> Work package based on the original planning </div>		Alternative 1		Alternative 2		Alternative 3										
		Time	18	Costs	340	Time	16	Costs	410	Time	24	Costs	260			
		Points	Tech.	0	Qual.	0	Points	Tech.	-1	Qual.	0	Points	Tech.	+1	Qual.	0
		Employ a few additional experienced programmers.				Acquire software modules from Softech Co., these modules must be adapted.				Update internal modules to the newest technical standards.						
Risk:				Risk:				Risk:				Risk:				

Evaluation of Alternatives

Changes compared to Phase 0	+/-	Δ Costs T€	Δ Reve- nues T€	+/-	Δ Costs T€	Δ Reve- nues T€	+/-	Δ Costs T€	Δ Reve- nues T€
Potential Time (Weeks)									
Cost of Work Package (T€)									
Cost of Change (T€)									
Project Technology (Points)									
Project Quality (Points)									
Sum									
Profit Margin (T€)									
Δ Profit Margin/Weeks Accelerated (T€)									
Δ Profit Margin/Weeks Extended (T€)									

Work Package No.:	15	Designation:	Foundation laying													
Duration (Weeks):	8	Costs (T€):	380	Responsible: Subcontractor												
Description and information on the work package:																
<p>The area of the recreational park to be used was previously a moor land and the soil is very soft, accordingly building the individual foundations for each support is complex and expensive. The base is a network of steel sections which distributes the loads evenly over a broad foundation. Concrete Star Ltd. is to be the contractor.</p>																
<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> Risk Assessment * (green) = low ** (yellow) = middle *** (red) = high </div> <div style="border: 1px solid black; padding: 5px; text-align: center;"> Work package based on the original planning </div>		Alternative 1		Alternative 2		Alternative 3										
		Time	7	Costs	420	Time	5	Costs	490	Time	10	Costs	360			
		Points	Tech.	0	Qual.	-1	Points	Tech.	0	Qual.	-2	Points	Tech.	0	Qual.	+2
		An alternative "Standard" offer from Turbo Concrete Ltd.				An offer from Ultraconcrete Ltd.				An alternative "High Quality" offer from Turbo Concrete Ltd.						
Risk:				Risk:				Risk:				Risk:				

Evaluation of Alternatives

Changes compared to Phase 0	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€
Potential Time (Weeks)									
Cost of Work Package (T€)									
Cost of Change (T€)									
Project Technology (Points)									
Project Quality (Points)									
Sum									
Profit Margin (T€)									
Δ Profit Margin/Weeks Accelerated (T€)									
Δ Profit Margin/Weeks Extended (T€)									

Work Package No.:	16	Designation:	Steel Support Production													
Duration (Weeks):	18	Costs (T€):	1100		Responsible: Subcontractor											
Description and information on the work package: In previous projects steel supports have been constructed by external companies. The current subcontractor was recently acquired by a large-scale enterprise. Up to now the work has always been satisfactorily completed and it is hoped that that this will continue.																
<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> Risk Assessment * (green) = low ** (yellow) = middle *** (red) = high </div> <div style="text-align: center;">↓</div> <div style="border: 1px solid black; padding: 5px;"> Work package based on the original planning </div>		Alternative 1		Alternative 2		Alternative 3										
		Time	16	Costs	1250	Time	12	Costs	1350	Time	22	Costs	950			
		Points	Tech.	0	Qual.	-2	Points	Tech.	0	Qual.	-3	Points	Tech.	0	Qual.	+2
		The offer is for a shorter time at a surcharge.				Acquire standard steel supports from Korea and modify them yourself.				The Polish company Polstaal Ltd. wants to establish itself in Germany and makes an offer.						
Risk:				Risk:				Risk:				Risk:				

Evaluation of Alternatives

Changes compared to Phase 0	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€
Potential Time (Weeks)									
Cost of Work Package (T€)									
Cost of Change (T€)									
Project Technology (Points)									
Project Quality (Points)									
Sum									
Profit Margin (T€)									
Δ Profit Margin/Weeks Accelerated (T€)									
Δ Profit Margin/Weeks Extended (T€)									

Work Package No.: 17		Designation: Track Production																																																	
Duration (Weeks): 16	Costs (T€): 900	Responsible: Internal Departments																																																	
Description and information on the work package: The individual segments of the track are to be produced with varying curves and a unique rail surface which will guarantee a smooth ride. Production is to occur internally.																																																			
<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="width: 25%; border: 1px solid black; padding: 5px;"> Risk Assessment * (green) = low ** (yellow) = middle *** (red) = high <div style="text-align: center; margin-top: 10px;">↓</div> </div> <div style="width: 75%;"> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr style="background-color: #d9ead3;"> <th colspan="4">Alternative 1</th> <th colspan="4">Alternative 2</th> <th colspan="4">Alternative 3</th> </tr> </thead> <tbody> <tr> <td>Time</td><td>15</td><td>Costs</td><td>950</td> <td>Time</td><td>12</td><td>Costs</td><td>1000</td> <td>Time</td><td>18</td><td>Costs</td><td>820</td> </tr> <tr> <td>Points</td><td>Tech. 0</td><td>Qual. 0</td><td></td> <td>Points</td><td>Tech. -2</td><td>Qual. -2</td><td></td> <td>Points</td><td>Tech. +2</td><td>Qual. +1</td><td></td> </tr> <tr> <td colspan="4" style="text-align: left; padding: 5px;"> In terms of job planning a suggestion is made to reduce time with a better construction process. </td> <td colspan="4" style="text-align: left; padding: 5px;"> Reduce time by integrating external specialists. </td> <td colspan="4" style="text-align: left; padding: 5px;"> Because of unfavourable past experiences, the production manager requests more time to guarantee a high quality result. </td> </tr> </tbody> </table> </div> </div>				Alternative 1				Alternative 2				Alternative 3				Time	15	Costs	950	Time	12	Costs	1000	Time	18	Costs	820	Points	Tech. 0	Qual. 0		Points	Tech. -2	Qual. -2		Points	Tech. +2	Qual. +1		In terms of job planning a suggestion is made to reduce time with a better construction process.				Reduce time by integrating external specialists.				Because of unfavourable past experiences, the production manager requests more time to guarantee a high quality result.			
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Evaluation of Alternatives

Changes compared to Phase 0	+/-	Δ Costs T€	Δ Reve- nues T€	+/-	Δ Costs T€	Δ Reve- nues T€	+/-	Δ Costs T€	Δ Reve- nues T€
Potential Time (Weeks)									
Cost of Work Package (T€)									
Cost of Change (T€)									
Project Technology (Points)									
Project Quality (Points)									
Sum									
Profit Margin (T€)									
Δ Profit Margin/Weeks Accelerated (T€)									
Δ Profit Margin/Weeks Extended (T€)									

Work Package No.:	18	Designation:	Production of Car 1 - Prototype																																																													
Duration (Weeks):	17	Costs (T€):	280		Responsible: Internal Departments																																																											
Description and information on the work package: Passenger vehicles must be newly manufactured because of the new accelerator and drops in the track of more than 90°. Roller coaster car seatbelts are of the utmost importance.																																																																
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Changes compared to Phase 0	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€
Potential Time (Weeks)									
Cost of Work Package (T€)									
Cost of Change (T€)									
Project Technology (Points)									
Project Quality (Points)									
Sum									
Profit Margin (T€)									
Δ Profit Margin/Weeks Accelerated (T€)									
Δ Profit Margin/Weeks Extended (T€)									

Work Package No.: 19		Designation: Electrical Production													
Duration (Weeks): 8	Costs (T€): 160	Responsible: Internal Department													
Description and information on the work package: The circuit boxes, cables, control switches and other electrical equipment are produced internally as individual components and their operability have already been largely tested.															
<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> Risk Assessment * (green) = low ** (yellow) = middle *** (red) = high </div> <div style="text-align: center;">↓</div> <div style="border: 1px solid black; padding: 5px;"> Work package based on the original planning </div>	Alternative 1		Alternative 2		Alternative 3										
	Time	7	Costs	190	Time	6	Costs	220	Time	10	Costs	150			
	Points	Tech.	0	Qual.	-1	Points	Tech.	0	Qual.	-1	Points	Tech.	0	Qual.	+2
	Alternative suggestion, a Standard module from Electronics Dept.				Alternative suggestion, a Quick-module from Electronics Dept.				Alternative suggestion, a Super-module from Electronics Dept.						
Risk:				Risk:				Risk:							

Evaluation of Alternatives

Changes compared to Phase 0	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€
Potential Time (Weeks)									
Cost of Work Package (T€)									
Cost of Change (T€)									
Project Technology (Points)									
Project Quality (Points)									
Sum									
Profit Margin (T€)									
Δ Profit Margin/Weeks Accelerated (T€)									
Δ Profit Margin/Weeks Extended (T€)									

Work Package No.:	20	Designation:	Accelerator Production
Duration (Weeks):	20	Costs (T€):	340
		Responsible:	Subcontractor

Description and information on the work package:

Katax Ltd. is to manufacture the accelerator developed by the engineering company. Katax looks forward to this opportunity because it will be a challenge and a leap forward in their own technology.

Risk Assessment

* (green) = low

** (yellow) = middle

*** (red) = high

↓

Work package based on the original planning

Alternative 1					Alternative 2					Alternative 3				
Time	18	Costs	420		Time	16	Costs	480		Time	22	Costs	350	
Points	Tech.	-1	Qual.	-1	Points	Tech.	-2	Qual.	-2	Points	Tech.	+2	Qual.	+1
An alternative offer from Katax Ltd.					The start-up CashBurn Ltd. guarantees the performance you require.					In-house manufacturing.				

Risk:		Risk:	
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Evaluation of Alternatives

Changes compared to Phase 0	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€
Potential Time (Weeks)									
Cost of Work Package (T€)									
Cost of Change (T€)									
Project Technology (Points)									
Project Quality (Points)									
Sum									
Profit Margin (T€)									
Δ Profit Margin/Weeks Accelerated (T€)									
Δ Profit Margin/Weeks Extended (T€)									

Work Package No.: 21	Designation: Software Test		
Duration (Weeks): 4	Costs (T€): 60	Responsible: Internal departments	
Description and information on the work package: The software module must be tested for operability and interface compatibility.			

Risk Assessment

* (green) = low

** (yellow) = middle

*** (red) = high

↓

Work package based on the original planning

Alternative 1				Alternative 2				Alternative 3						
Time	3	Costs	90	Time	2	Costs	130	Time	6	Costs	70			
Points	Tech.	0	Qual.	-1	Points	Tech.	0	Qual.	-1	Points	Tech.	0	Qual.	+2
Speed up the tests with more personnel.				Assign an additional subcontractor to the work.				Test more carefully than usual.						

Risk:		Risk:		Risk:		Risk:	
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Evaluation of Alternatives

Changes compared to Phase 0	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€
Potential Time (Weeks)									
Cost of Work Package (T€)									
Cost of Change (T€)									
Project Technology (Points)									
Project Quality (Points)									
Sum									
Profit Margin (T€)									
Δ Profit Margin/Weeks Accelerated (T€)									
Δ Profit Margin/Weeks Extended (T€)									

Work Package No.: 22	Designation: Sound System Production		
Duration (Weeks): 15	Costs (T€): 180	Responsible: Subcontractor	
Description and information on the work package: The company Soundtrack Ltd. has made the most attractive offer to produce the sound system. Although unknown to the project team they have made a good impression and have supplied good references. With the current development documents they should be able accomplish the task without any problems.			

Risk Assessment

* (green) = low

** (yellow) = middle

*** (red) = high

↓

Work package based on the original planning

Alternative 1				Alternative 2				Alternative 3			
Time	14	Costs	200	Time	12	Costs	270	Time	17	Costs	200
Points	Tech. -2	Qual. -2		Points	Tech. -3	Qual. -3		Points	Tech. +2	Qual. +2	
An alternative offer from Soundtrack Ltd.				An offer from Soundgate Ltd. (10 years experience).				An offer from Soundmaster Ltd. (40 years experience).			

Risk:	Risk:	Risk:	Risk:
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Evaluation of Alternatives

Changes compared to Phase 0	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€
Potential Time (Weeks)									
Cost of Work Package (T€)									
Cost of Change (T€)									
Project Technology (Points)									
Project Quality (Points)									
Sum									
Profit Margin (T€)									
Δ Profit Margin/Weeks Accelerated (T€)									
Δ Profit Margin/Weeks Extended (T€)									

Work Package No.: 23		Designation: Building/Station Production																																				
Duration (Weeks): 16	Costs (T€): 600	Responsible: Subcontractor																																				
Description and information on the work package: A loading station for the passengers and a building for the power supply must be built. The purchaser favors a local construction company called Woodbuilder Ltd.																																						
<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> Risk Assessment * (green) = low ** (yellow) = middle *** (red) = high </div> <div style="border: 1px solid black; padding: 5px; text-align: center;"> Work package based on the original planning </div>																																						
				Alternative 1		Alternative 2		Alternative 3																														
				<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Time</td><td>14</td> <td>Costs</td><td>690</td> </tr> <tr> <td>Points</td><td>Tech. 0 Qual. -1</td> <td>Points</td><td>Tech. 0 Qual. -2</td> </tr> <tr> <td colspan="2">Woodbuilder makes an alternative offer.</td> <td colspan="2">There is an offer from Speedbuild Ltd. who has a reputation for meeting deadlines.</td> </tr> </table>	Time	14	Costs	690	Points	Tech. 0 Qual. -1	Points	Tech. 0 Qual. -2	Woodbuilder makes an alternative offer.		There is an offer from Speedbuild Ltd. who has a reputation for meeting deadlines.		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Time</td><td>11</td> <td>Costs</td><td>790</td> </tr> <tr> <td>Points</td><td>Tech. 0 Qual. -2</td> <td>Points</td><td>Tech. 0 Qual. +2</td> </tr> <tr> <td colspan="2">There is an offer from Speedbuild Ltd. who has a reputation for meeting deadlines.</td> <td colspan="2">There is an offer from Teambuild Ltd. which has been operating locally for 50 years.</td> </tr> </table>	Time	11	Costs	790	Points	Tech. 0 Qual. -2	Points	Tech. 0 Qual. +2	There is an offer from Speedbuild Ltd. who has a reputation for meeting deadlines.		There is an offer from Teambuild Ltd. which has been operating locally for 50 years.		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Time</td><td>19</td> <td>Costs</td><td>620</td> </tr> <tr> <td>Points</td><td>Tech. 0 Qual. +2</td> <td>Points</td><td>Tech. 0 Qual. +2</td> </tr> <tr> <td colspan="2">There is an offer from Teambuild Ltd. which has been operating locally for 50 years.</td> <td colspan="2"></td> </tr> </table>	Time	19	Costs	620	Points	Tech. 0 Qual. +2	Points	Tech. 0 Qual. +2
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Risk:		Risk:	
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Evaluation of Alternatives

Changes compared to Phase 0	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€
Potential Time (Weeks)									
Cost of Work Package (T€)									
Cost of Change (T€)									
Project Technology (Points)									
Project Quality (Points)									
Sum									
Profit Margin (T€)									
Δ Profit Margin/Weeks Accelerated (T€)									
Δ Profit Margin/Weeks Extended (T€)									

Work Package No.: 24		Designation: Steel Support Assembly																																																																			
Duration (Weeks): 8	Costs (T€): 290				Responsible: Internal Departments																																																																
Description and information on the work package: In order to mount the steel supports special cranes are required. The company has five such cranes and management is confident that four cranes are available for the roller coaster project.																																																																					
<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="border: 1px solid black; padding: 5px; width: 20%;"> Risk Assessment * (green) = low ** (yellow) = middle *** (red) = high ↓ Work package based on the original planning </div> <table border="1" style="width: 80%; border-collapse: collapse; text-align: center;"> <thead> <tr style="background-color: #d9ead3;"> <th colspan="5">Alternative 1</th> <th colspan="5">Alternative 2</th> <th colspan="5">Alternative 3</th> </tr> </thead> <tbody> <tr> <td>Time</td><td>7</td><td>Costs</td><td colspan="2">360</td> <td>Time</td><td>5</td><td>Costs</td><td colspan="2">490</td> <td>Time</td><td>10</td><td>Costs</td><td colspan="2">300</td> </tr> <tr> <td>Points</td><td>Tech. 0</td><td>Qual.</td><td colspan="2">-1</td> <td>Points</td><td>Tech. 0</td><td>Qual.</td><td colspan="2">-2</td> <td>Points</td><td>Tech. 0</td><td>Qual.</td><td colspan="2">+1</td> </tr> <tr> <td colspan="5" style="text-align: left;">Acceleration of the work through overtime.</td> <td colspan="5" style="text-align: left;">Acceleration of the work through the use of 5 cranes and overtime.</td> <td colspan="5" style="text-align: left;">Proceed with the work with only three cranes, therefore requiring more time.</td> </tr> </tbody> </table> </div>										Alternative 1					Alternative 2					Alternative 3					Time	7	Costs	360		Time	5	Costs	490		Time	10	Costs	300		Points	Tech. 0	Qual.	-1		Points	Tech. 0	Qual.	-2		Points	Tech. 0	Qual.	+1		Acceleration of the work through overtime.					Acceleration of the work through the use of 5 cranes and overtime.					Proceed with the work with only three cranes, therefore requiring more time.				
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Risk:		Risk:		Risk:		Risk:		Risk:																																																													

Evaluation of Alternatives

Changes compared to Phase 0	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€
Potential Time (Weeks)									
Cost of Work Package (T€)									
Cost of Change (T€)									
Project Technology (Points)									
Project Quality (Points)									
Sum									
Profit Margin (T€)									
Δ Profit Margin/Weeks Accelerated (T€)									
Δ Profit Margin/Weeks Extended (T€)									

Work Package No.:	25	Designation:	Software Documentation													
Duration (Weeks):	3	Costs (T€):	20		Responsible: Internal Departments											
Description and information on the work package: It is extremely important to properly document the software, as otherwise the client may reject the work. The documentation department bears this responsibility.																
<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> Risk Assessment * (green) = low ** (yellow) = middle *** (red) = high </div> <div style="text-align: center;">↓</div> <div style="border: 1px solid black; padding: 5px;"> Work package based on the original planning </div>		Alternative 1		Alternative 2		Alternative 3										
		Time	2	Costs	30	Time	1	Costs	50	Time	5	Costs	20			
		Points	Tech.	0	Qual.	0	Points	Tech.	0	Qual.	0	Points	Tech.	0	Qual.	0
		External specialists offer their documentation services. Your workers have reservations about this option.				Software developers can complete the documentation themselves.				The documentation can be performed by specialists in the documentation department.						
Risk:				Risk:				Risk:				Risk:				

Evaluation of Alternatives

Changes compared to Phase 0	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€
Potential Time (Weeks)									
Cost of Work Package (T€)									
Cost of Change (T€)									
Project Technology (Points)									
Project Quality (Points)									
Sum									
Profit Margin (T€)									
Δ Profit Margin/Weeks Accelerated (T€)									
Δ Profit Margin/Weeks Extended (T€)									

Work Package No.:	26	Designation:	Track Assembly																																																
Duration (Weeks):	14	Costs (T€):	280																																																
		Responsible:	Internal Departments																																																
Description and information on the work package: The assembly of track modules is a task for experienced specialists. The specialists are assigned to this on a long-term basis and the project team has the full support of management.																																																			
<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="width: 25%; border: 1px solid black; padding: 5px;"> Risk Assessment * (green) = low ** (yellow) = middle *** (red) = high ↓ Work package based on the original planning </div> <table border="1" style="width: 75%; border-collapse: collapse; text-align: center;"> <thead> <tr style="background-color: #d9ead3;"> <th colspan="4">Alternative 1</th> <th colspan="4">Alternative 2</th> <th colspan="4">Alternative 3</th> </tr> </thead> <tbody> <tr> <td>Time</td> <td>12</td> <td>Costs</td> <td>380</td> <td>Time</td> <td>10</td> <td>Costs</td> <td>470</td> <td>Time</td> <td>16</td> <td>Costs</td> <td>290</td> </tr> <tr> <td>Points</td> <td>Tech. -1</td> <td>Qual. -1</td> <td></td> <td>Points</td> <td>Tech. -2</td> <td>Qual. -2</td> <td></td> <td>Points</td> <td>Tech. +2</td> <td>Qual. +2</td> <td></td> </tr> <tr style="height: 100px;"> <td colspan="4" style="background-color: #d9ead3; vertical-align: top;">Acceleration through overtime. The union agrees to this.</td> <td colspan="4" style="background-color: #fce4d6; vertical-align: top;">Consult external workers in critical phases.</td> <td colspan="4" style="background-color: #d9ead3; vertical-align: top;">Assemble with more care and quality control.</td> </tr> </tbody> </table> </div>				Alternative 1				Alternative 2				Alternative 3				Time	12	Costs	380	Time	10	Costs	470	Time	16	Costs	290	Points	Tech. -1	Qual. -1		Points	Tech. -2	Qual. -2		Points	Tech. +2	Qual. +2		Acceleration through overtime. The union agrees to this.				Consult external workers in critical phases.				Assemble with more care and quality control.			
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Evaluation of Alternatives

Changes compared to Phase 0	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€
Potential Time (Weeks)									
Cost of Work Package (T€)									
Cost of Change (T€)									
Project Technology (Points)									
Project Quality (Points)									
Sum									
Profit Margin (T€)									
Δ Profit Margin/Weeks Accelerated (T€)									
Δ Profit Margin/Weeks Extended (T€)									

Work Package No.: 27		Designation: Assembly of Car 1 - Prototype																																														
Duration (Weeks): 9	Costs (T€): 60	Responsible: Internal Departments																																														
Description and information on the work package: Assembling a new prototype is always an exciting affair. When the individual pieces are constructed properly and fit together with precision then assembly can proceed faster than anticipated.																																																
<div style="display: flex; justify-content: space-between; align-items: flex-start;"> <div style="width: 25%; border: 1px solid black; padding: 5px; margin-bottom: 10px;"> Risk Assessment * (green) = low ** (yellow) = middle *** (red) = high <div style="text-align: center;">↓</div> <div style="border: 1px solid black; padding: 2px; margin-top: 5px;"> Work package based on the original planning </div> </div> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr style="background-color: #d9ead3;"> <th colspan="4">Alternative 1</th> <th colspan="4">Alternative 2</th> <th colspan="4">Alternative 3</th> </tr> <tr> <td>Time</td><td>8</td><td>Costs</td><td>90</td> <td>Time</td><td>7</td><td>Costs</td><td>130</td> <td>Time</td><td>10</td><td>Costs</td><td>60</td> </tr> <tr> <td>Points</td><td>Tech. 0</td><td>Qual. -1</td> <td>Points</td><td>Tech. 0</td><td>Qual. -2</td> <td>Points</td><td>Tech. 0</td><td>Qual. +1</td> </tr> <tr style="height: 80px;"> <td colspan="4" style="background-color: #d9ead3; vertical-align: top;">Accelerating assembly by employing more personnel.</td> <td colspan="4" style="background-color: #fff2cc; vertical-align: top;">The project team makes a novel procedural suggestion to reduce the work time which management approves.</td> <td colspan="4" style="background-color: #d9ead3; vertical-align: top;">The manager of the prototype assembly team emphasizes careful work.</td> </tr> </table> </div>				Alternative 1				Alternative 2				Alternative 3				Time	8	Costs	90	Time	7	Costs	130	Time	10	Costs	60	Points	Tech. 0	Qual. -1	Points	Tech. 0	Qual. -2	Points	Tech. 0	Qual. +1	Accelerating assembly by employing more personnel.				The project team makes a novel procedural suggestion to reduce the work time which management approves.				The manager of the prototype assembly team emphasizes careful work.			
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Risk:		Risk:		Risk:		Risk:																																										

Evaluation of Alternatives

Changes compared to Phase 0	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€
Potential Time (Weeks)									
Cost of Work Package (T€)									
Cost of Change (T€)									
Project Technology (Points)									
Project Quality (Points)									
Sum									
Profit Margin (T€)									
Δ Profit Margin/Weeks Accelerated (T€)									
Δ Profit Margin/Weeks Extended (T€)									

Work Package No.: 28	Designation: Electrical Assembly																																																
Duration (Weeks): 7	Costs (T€): 50	Responsible: Internal Departments																																															
Description and information on the work package: The assembly of electrical components, modules, and systems is perceived to be problem-free. However, the in-house Electronics Dept. anticipates potential problems with the integration of electrical modules with software modules.																																																	
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Alternative 1				Alternative 2				Alternative 3																																									
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Risk:		Risk:		Risk:		Risk:																																											

Evaluation of Alternatives

Changes compared to Phase 0	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€
Potential Time (Weeks)									
Cost of Work Package (T€)									
Cost of Change (T€)									
Project Technology (Points)									
Project Quality (Points)									
Sum									
Profit Margin (T€)									
Δ Profit Margin/Weeks Accelerated (T€)									
Δ Profit Margin/Weeks Extended (T€)									

Work Package No.: 29		Designation: Accelerator Assembly					
Duration (Weeks): 8	Costs (T€): 40	Responsible: Subcontractor					
Description and information on the work package: Screwfix Ltd., a subcontractor, will complete the assembly of the accelerator. The accelerator equipment is pre-assembled by the subcontractor and the rest of the assembly occurs on site at the amusement park.							
<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> Risk Assessment * (green) = low ** (yellow) = middle *** (red) = high </div> <div style="border: 1px solid black; padding: 5px; text-align: center;"> Work package based on the original planning </div>		Alternative 1		Alternative 2		Alternative 3	
		Time 7 Costs 60	Time 5 Costs 110	Time 10 Costs 50			
		Points Tech. 0 Qual. -1	Points Tech. 0 Qual. -2	Points Tech. 0 Qual. +2			
		An alternative offer from Screwfix Ltd.	An offer from Turboscrew Ltd.	Your own assembly department has idle capacity and offers its resources.			
Risk:		Risk:		Risk:		Risk:	

Evaluation of Alternatives

Changes compared to Phase 0	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€
Potential Time (Weeks)									
Cost of Work Package (T€)									
Cost of Change (T€)									
Project Technology (Points)									
Project Quality (Points)									
Sum									
Profit Margin (T€)									
Δ Profit Margin/Weeks Accelerated (T€)									
Δ Profit Margin/Weeks Extended (T€)									

Work Package No.: 30	Designation: Software Installation		
Duration (Weeks): 2	Costs (T€): 30	Responsible: Internal departments	
Description and information on the work package: The software is installed in conjunction with the monitoring, control, and safety systems at the amusement park. The in-house IT department bears this responsibility.			
<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> Risk Assessment * (green) = low ** (yellow) = middle *** (red) = high </div> <div style="text-align: center;">↓</div> <div style="border: 1px solid black; padding: 5px;"> Work package based on the original planning </div>	Alternative 1	Alternative 2	Alternative 3
	Time 2 Costs 20	Time 1 Costs 50	Time 4 Costs 30
	Points Tech. 0 Qual. -1	Points Tech. 0 Qual. 0	Points Tech. 0 Qual. +2
	Cost savings are possible with a small reduction in quality.	Acceleration through the use of more personnel.	A single worker installs the software.
Risk:	Risk:	Risk:	

Evaluation of Alternatives

Changes compared to Phase 0	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€
Potential Time (Weeks)									
Cost of Work Package (T€)									
Cost of Change (T€)									
Project Technology (Points)									
Project Quality (Points)									
Sum									
Profit Margin (T€)									
Δ Profit Margin/Weeks Accelerated (T€)									
Δ Profit Margin/Weeks Extended (T€)									

Work Package No.: 31		Designation: Sound System Assembly							
Duration (Weeks): 10	Costs (T€): 140	Responsible: Subcontractor							
Description and information on the work package: The 200 loudspeakers are mounted above the track on the steel supports and special fastening devices were developed to this end. Assemblesound Ltd. Has provided the best references for this work package.									
<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> Risk Assessment * (green) = low ** (yellow) = middle *** (red) = high </div> <div style="border: 1px solid black; padding: 5px; text-align: center;"> Work package based on the original planning </div>									
				Alternative 1		Alternative 2		Alternative 3	
				Time 9	Costs 190	Time 7	Costs 220	Time 12	Costs 150
Points Tech. -2 Qual. -1		Points Tech. -3 Qual. -1		Points Tech. +2 Qual. +1					
An alternative offer from Assemblesound.		An Offer from Bang-on Ltd. which has never missed a deadline so far.		The internal assembly department offers idle capacity.					

Risk:		Risk:	
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Evaluation of Alternatives

Changes compared to Phase 0	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€
Potential Time (Weeks)									
Cost of Work Package (T€)									
Cost of Change (T€)									
Project Technology (Points)									
Project Quality (Points)									
Sum									
Profit Margin (T€)									
Δ Profit Margin/Weeks Accelerated (T€)									
Δ Profit Margin/Weeks Extended (T€)									

Work Package No.: 32		Designation: Power Supply Installation																																				
Duration (Weeks): 6	Costs (T€): 340	Responsible: Subcontractor																																				
Description and information on the work package: Internal cable lines must be connected to the power station and the transporter facility must be assembled and started. A subsidiary of a power plant, Electricity Ltd. has won the contract for this task.																																						
<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> Risk Assessment * (green) = low ** (yellow) = middle *** (red) = high </div> <div style="text-align: center;">↓</div> <div style="border: 1px solid black; padding: 5px;"> Work package based on the original planning </div>																																						
				Alternative 1		Alternative 2		Alternative 3																														
				<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Time</td><td>5</td> <td>Costs</td><td>370</td> </tr> <tr> <td>Points</td><td>Tech. 0 Qual. 0</td> <td>Points</td><td>Tech. 0 Qual. -2</td> </tr> <tr> <td colspan="2">An alternative offer 1 from Electricity Ltd.</td> <td colspan="2">An alternative offer 2 from Electricity Ltd.</td> </tr> </table>	Time	5	Costs	370	Points	Tech. 0 Qual. 0	Points	Tech. 0 Qual. -2	An alternative offer 1 from Electricity Ltd.		An alternative offer 2 from Electricity Ltd.		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Time</td><td>4</td> <td>Costs</td><td>410</td> </tr> <tr> <td>Points</td><td>Tech. 0 Qual. -2</td> <td>Points</td><td>Tech. 0 Qual. +2</td> </tr> <tr> <td colspan="2">An alternative offer 2 from Electricity Ltd.</td> <td colspan="2">An offer from Cabel Ltd., whose previous high quality work has been recognised.</td> </tr> </table>	Time	4	Costs	410	Points	Tech. 0 Qual. -2	Points	Tech. 0 Qual. +2	An alternative offer 2 from Electricity Ltd.		An offer from Cabel Ltd., whose previous high quality work has been recognised.		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Time</td><td>8</td> <td>Costs</td><td>360</td> </tr> <tr> <td>Points</td><td>Tech. 0 Qual. +2</td> <td>Points</td><td>Tech. 0 Qual. +2</td> </tr> <tr> <td colspan="2">An offer from Cabel Ltd., whose previous high quality work has been recognised.</td> <td colspan="2"></td> </tr> </table>	Time	8	Costs	360	Points	Tech. 0 Qual. +2	Points	Tech. 0 Qual. +2
Time	5	Costs	370																																			
Points	Tech. 0 Qual. 0	Points	Tech. 0 Qual. -2																																			
An alternative offer 1 from Electricity Ltd.		An alternative offer 2 from Electricity Ltd.																																				
Time	4	Costs	410																																			
Points	Tech. 0 Qual. -2	Points	Tech. 0 Qual. +2																																			
An alternative offer 2 from Electricity Ltd.		An offer from Cabel Ltd., whose previous high quality work has been recognised.																																				
Time	8	Costs	360																																			
Points	Tech. 0 Qual. +2	Points	Tech. 0 Qual. +2																																			
An offer from Cabel Ltd., whose previous high quality work has been recognised.																																						
Risk:		Risk:																																				

Evaluation of Alternatives

Changes compared to Phase 0	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€
Potential Time (Weeks)									
Cost of Work Package (T€)									
Cost of Change (T€)									
Project Technology (Points)									
Project Quality (Points)									
Sum									
Profit Margin (T€)									
Δ Profit Margin/Weeks Accelerated (T€)									
Δ Profit Margin/Weeks Extended (T€)									

Work Package No.:	33	Designation:	Function Test A
Duration (Weeks):	3	Costs (T€):	110
		Responsible:	Internal departments

Description and information on the work package:

This work package is responsible for the correct static-dynamic functioning of the roller coaster's mechanisms. The best in-house specialists will work on this test attempt.

Risk Assessment

* (green) = low

** (yellow) = middle

*** (red) = high

↓

Work package based on the original planning

Alternative 1					Alternative 2					Alternative 3				
Time	2	Costs	160		Time	1	Costs	200		Time	5	Costs	120	
Points	Tech.	-1	Qual.	-1	Points	Tech.	-2	Qual.	-2	Points	Tech.	+2	Qual.	+2
Acceleration through overtime and weekend work.					Consult all in-house specialists, including those from other projects.					Extend the test phase as previous test specialists have experienced problems due to the short test phase.				

Risk:

Risk:

Risk:

Risk:

Evaluation of Alternatives

Changes compared to Phase 0	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€
Potential Time (Weeks)									
Cost of Work Package (T€)									
Cost of Change (T€)									
Project Technology (Points)									
Project Quality (Points)									
Sum									
Profit Margin (T€)									
Δ Profit Margin/Weeks Accelerated (T€)									
Δ Profit Margin/Weeks Extended (T€)									

Work Package No.: 34		Designation: Function Test B													
Duration (Weeks): 4	Costs (T€): 80	Responsible: Internal departments													
Description and information on the work package: Extensive tests must be performed on all control, safety, and monitoring systems. One ground breaking development is that the sound system is dependent on the position of the roller coaster car on the track. However the IT department feels overwhelmed with this responsibility.															
<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> Risk Assessment * (green) = low ** (yellow) = middle *** (red) = high </div> <div style="text-align: center;">↓</div> <div style="border: 1px solid black; padding: 5px;"> Work package based on the original planning </div>	Alternative 1		Alternative 2		Alternative 3										
	Time	3	Costs	90	Time	2	Costs	130	Time	5	Costs	90			
	Points	Tech.	0	Qual.	0	Points	Tech.	-1	Qual.	-1	Points	Tech.	+1	Qual.	+1
	Assign more workers to the tests.				Assign more workers and allow for overtime.				Involve sound experts from an engineering company.						
Risk:				Risk:				Risk:							

Evaluation of Alternatives

Changes compared to Phase 0	+/-	Δ Costs T€	Δ Reve- nues T€	+/-	Δ Costs T€	Δ Reve- nues T€	+/-	Δ Costs T€	Δ Reve- nues T€
Potential Time (Weeks)									
Cost of Work Package (T€)									
Cost of Change (T€)									
Project Technology (Points)									
Project Quality (Points)									
Sum									
Profit Margin (T€)									
Δ Profit Margin/Weeks Accelerated (T€)									
Δ Profit Margin/Weeks Extended (T€)									

Work Package No.: 35		Designation: Production of Cars 2 to 4																								
Duration (Weeks): 5	Costs (T€): 210	Responsible: Internal departments																								
Description and information on the work package: Cars 2, 3, and 4 must be produced. The outcome of function test 1 is well documented and the requisite changes are made to the rest of the cars. Internal difficulties are not expected.																										
<div style="border: 1px solid black; padding: 5px; width: fit-content;"> Risk Assessment * (green) = low ** (yellow) = middle *** (red) = high </div> <div style="text-align: center; margin-top: 10px;">↓</div> <div style="border: 1px solid black; padding: 5px; width: fit-content;"> Work package based on the original planning </div>																										
				Alternative 1		Alternative 2		Alternative 3																		
				<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">Time</td> <td style="width: 15%;">4</td> <td style="width: 15%;">Costs</td> <td style="width: 15%;">240</td> </tr> <tr> <td>Points</td> <td>Tech. 0</td> <td>Qual. 0</td> <td></td> </tr> </table>	Time	4	Costs	240	Points	Tech. 0	Qual. 0		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">Time</td> <td style="width: 15%;">3</td> <td style="width: 15%;">Costs</td> <td style="width: 15%;">280</td> </tr> <tr> <td>Points</td> <td>Tech. 0</td> <td>Qual. 0</td> <td></td> </tr> </table>	Time	3	Costs	280	Points	Tech. 0	Qual. 0		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">Time</td> <td style="width: 15%;">6</td> <td style="width: 15%;">Costs</td> <td style="width: 15%;">220</td> </tr> <tr> <td>Points</td> <td>Tech. +2</td> <td>Qual. +1</td> <td></td> </tr> </table>	Time	6	Costs	220
Time	4	Costs	240																							
Points	Tech. 0	Qual. 0																								
Time	3	Costs	280																							
Points	Tech. 0	Qual. 0																								
Time	6	Costs	220																							
Points	Tech. +2	Qual. +1																								
Acceleration through overtime. The union agrees.		Allow shift work.		The production department requests more time and promises higher quality output as a result.																						

Risk:	Risk:	Risk:	Risk:
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Evaluation of Alternatives

Changes compared to Phase 0	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€
Potential Time (Weeks)									
Cost of Work Package (T€)									
Cost of Change (T€)									
Project Technology (Points)									
Project Quality (Points)									
Sum									
Profit Margin (T€)									
Δ Profit Margin/Weeks Accelerated (T€)									
Δ Profit Margin/Weeks Extended (T€)									

Work Package No.:	36	Designation:	Adjustment after Test A	
Duration (Weeks):	3	Costs (T€):	70	Responsible: Internal departments
Description and information on the work package: All mechanical components must be fined-tuned with a considerable emphasis on the cars must running extremely quietly. Coordinated and diligent work is necessary.				

Risk Assessment
 * (green) = low
 ** (yellow) = middle
 *** (red) = high

Alternative 1				Alternative 2				Alternative 3			
Time	2	Costs	80	Time	1	Costs	110	Time	4	Costs	70
Points	Tech. 0	Qual. -1		Points	Tech. 0	Qual. -1		Points	Tech. +1	Qual. +2	
Acceleration through overtime and external workers.				Working in two shifts is permitted.				The specialist division recommends careful fine-tuning of all interfaces.			

Work package based on the original planning

Risk:		Risk:	
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Evaluation of Alternatives

Changes compared to Phase 0	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€
Potential Time (Weeks)									
Cost of Work Package (T€)									
Cost of Change (T€)									
Project Technology (Points)									
Project Quality (Points)									
Sum									
Profit Margin (T€)									
Δ Profit Margin/Weeks Accelerated (T€)									
Δ Profit Margin/Weeks Extended (T€)									

Work Package No.:	37	Designation:	Adjustment after Test B									
Duration (Weeks):	3	Costs (T€):	50	Responsible: Internal departments								
Description and information on the work package:												
<p>Problems which were identified in test B must be remedied. Experienced in-house specialists are available for this task and they request that scheduling take place as soon as practicable.</p>												
<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> Risk Assessment * (green) = low ** (yellow) = middle *** (red) = high </div> <div style="text-align: center;">↓</div> <div style="border: 1px solid black; padding: 5px;"> Work package based on the original planning </div>	Alternative 1		Alternative 2		Alternative 3							
	Time	2	Costs	60	Time	1	Costs	100	Time	4	Costs	60
	Points	Tech. -1	Qual. 0		Points	Tech. -1	Qual. 0		Points	Tech. +1	Qual. 0	
	Overtime and weekend work.				Work in two shifts.				The experts agree on the schedule and are all available.			
Risk:				Risk:				Risk:				

Evaluation of Alternatives

Changes compared to Phase 0	+/-	Δ Costs T€	Δ Reve- nues T€	+/-	Δ Costs T€	Δ Reve- nues T€	+/-	Δ Costs T€	Δ Reve- nues T€
Potential Time (Weeks)									
Cost of Work Package (T€)									
Cost of Change (T€)									
Project Technology (Points)									
Project Quality (Points)									
Sum									
Profit Margin (T€)									
Δ Profit Margin/Weeks Accelerated (T€)									
Δ Profit Margin/Weeks Extended (T€)									

Work Package No.:	38	Designation:	Complete / Systematic Test													
Duration (Weeks):	3	Costs (T€):	90	Responsible: Internal Departments												
Description and information on the work package:																
<p>The equipment must be tested by 200 volunteers. The volunteers are paid well and accordingly participants from all desired target groups (12 to 80 years old) are available.</p>																
<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> Risk Assessment * (green) = low ** (yellow) = middle *** (red) = high </div> <div style="text-align: center;">↓</div> <div style="border: 1px solid black; padding: 5px;"> Work package based on the original planning </div>		Alternative 1		Alternative 2		Alternative 3										
		Time	2	Costs	170	Time	1	Costs	240	Time	4	Costs	100			
		Points	Tech.	0	Qual.	0	Points	Tech.	0	Qual.	0	Points	Tech.	+2	Qual.	+1
		Tests are run from 09:00 to 18:00.				With floodlights tests can be run from 06:00 to 24:00.				Tests only run from 10:00 to 15:00 to allow more time for data analysis.						
Risk:				Risk:				Risk:				Risk:				

Evaluation of Alternatives

Changes compared to Phase 0	+/-	Δ Costs T€	Δ Reve- nues T€	+/-	Δ Costs T€	Δ Reve- nues T€	+/-	Δ Costs T€	Δ Reve- nues T€
Potential Time (Weeks)									
Cost of Work Package (T€)									
Cost of Change (T€)									
Project Technology (Points)									
Project Quality (Points)									
Sum									
Profit Margin (T€)									
Δ Profit Margin/Weeks Accelerated (T€)									
Δ Profit Margin/Weeks Extended (T€)									

Work Package No.: 39		Designation: Track Adjustment																																																	
Duration (Weeks): 3	Costs (T€): 60	Responsible: Internal Departments																																																	
Description and information on the work package: The final adjustments are made to the track and sound system. In-house specialists are required for this task.																																																			
<div style="border: 1px solid black; padding: 5px; width: fit-content;"> Risk Assessment * (green) = low ** (yellow) = middle *** (red) = high </div> <div style="text-align: center; margin-top: 10px;">↓</div> <div style="border: 1px solid black; padding: 5px; width: fit-content;"> Work package based on the original planning </div>																																																			
		<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <th colspan="4" style="background-color: #c1e1c1;">Alternative 1</th> <th colspan="4" style="background-color: #ffffcc;">Alternative 2</th> <th colspan="4" style="background-color: #c1e1c1;">Alternative 3</th> </tr> <tr> <td>Time</td><td>2</td><td>Costs</td><td>90</td> <td>Time</td><td>1</td><td>Costs</td><td>160</td> <td>Time</td><td>5</td><td>Costs</td><td>90</td> </tr> <tr> <td>Points</td><td>Tech. -1</td><td>Qual. -1</td><td></td> <td>Points</td><td>Tech. -2</td><td>Qual. -2</td><td></td> <td>Points</td><td>Tech. +2</td><td>Qual. +2</td><td></td> </tr> <tr> <td colspan="4" style="background-color: #c1e1c1;">Overtime with the support of the union.</td> <td colspan="4" style="background-color: #ffffcc;">All employees are ready for shift work.</td> <td colspan="4" style="background-color: #c1e1c1;">Additional quality improvements can be made provided that time is available.</td> </tr> </table>		Alternative 1				Alternative 2				Alternative 3				Time	2	Costs	90	Time	1	Costs	160	Time	5	Costs	90	Points	Tech. -1	Qual. -1		Points	Tech. -2	Qual. -2		Points	Tech. +2	Qual. +2		Overtime with the support of the union.				All employees are ready for shift work.				Additional quality improvements can be made provided that time is available.			
Alternative 1				Alternative 2				Alternative 3																																											
Time	2	Costs	90	Time	1	Costs	160	Time	5	Costs	90																																								
Points	Tech. -1	Qual. -1		Points	Tech. -2	Qual. -2		Points	Tech. +2	Qual. +2																																									
Overtime with the support of the union.				All employees are ready for shift work.				Additional quality improvements can be made provided that time is available.																																											
Risk:		Risk:																																																	

Evaluation of Alternatives

Changes compared to Phase 0	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€
Potential Time (Weeks)									
Cost of Work Package (T€)									
Cost of Change (T€)									
Project Technology (Points)									
Project Quality (Points)									
Sum									
Profit Margin (T€)									
Δ Profit Margin/Weeks Accelerated (T€)									
Δ Profit Margin/Weeks Extended (T€)									

Work Package No.:	40	Designation:	Car Adjustment													
Duration (Weeks):	3	Costs (T€):	45	Responsible: Internal Departments												
Description and information on the work package:																
<p>Final changes are made to the body and underside of the roller coaster cars pursuant to official regulations, dynamic oscillations and load tests to 8G.</p>																
<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> Risk Assessment * (green) = low ** (yellow) = middle *** (red) = high </div> <div style="text-align: center;">↓</div> <div style="border: 1px solid black; padding: 5px;"> Work package based on the original planning </div>		Alternative 1		Alternative 2		Alternative 3										
		Time	2	Costs	60	Time	1	Costs	130	Time	4	Costs	60			
		Points	Tech.	-2	Qual.	-1	Points	Tech.	-3	Qual.	-2	Points	Tech.	+2	Qual.	+1
		Shorten time by using external experts.				Transfer the task to an engineering company.				Undertake more detailed tests to ensure Safety Standards Authority acceptance.						
Risk:				Risk:				Risk:				Risk:				

Evaluation of Alternatives

Changes compared to Phase 0	+/-	Δ Costs T€	Δ Reve- nues T€	+/-	Δ Costs T€	Δ Reve- nues T€	+/-	Δ Costs T€	Δ Reve- nues T€
Potential Time (Weeks)									
Cost of Work Package (T€)									
Cost of Change (T€)									
Project Technology (Points)									
Project Quality (Points)									
Sum									
Profit Margin (T€)									
Δ Profit Margin/Weeks Accelerated (T€)									
Δ Profit Margin/Weeks Extended (T€)									

Work Package No.: 41	Designation: Software Adjustment		
Duration (Weeks): 4	Costs (T€): 65	Responsible: Internal departments	
Description and information on the work procedure: The electronic components are integral features of the control and safety systems and must be adapted to prevent climatic interference. This occurs in conjunction with the software module and precise value of the climate parameter is a pre-set value which is integral to the control systems.			

Risk Assessment

* (green) = low

** (yellow) = middle

*** (red) = high

↓

Work package based on the original planning

Alternative 1				Alternative 2				Alternative 3			
Time	3	Costs	70	Time	2	Costs	110	Time	5	Costs	60
Points	Tech. 0	Qual. 0		Points	Tech. 0	Qual. 0		Points	Tech. +1	Qual. +1	
Acceleration through use of more personnel.				Build in automatic test routines and data analysis.				Achieve more measures than planned.			

Risk:	Risk:	Risk:	Risk:
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Evaluation of Alternatives

Changes compared to Phase 0	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€
Potential Time (Weeks)									
Cost of Work Package (T€)									
Cost of Change (T€)									
Project Technology (Points)									
Project Quality (Points)									
Sum									
Profit Margin (T€)									
Δ Profit Margin/Weeks Accelerated (T€)									
Δ Profit Margin/Weeks Extended (T€)									

Work Package No.:	42	Designation:	System Documentation				
Duration (Weeks):	3	Costs (T€):	50	Responsible: Internal Departments			
Description and information on the work package:							
<p>The system documentation comprises the software documentation, all of the documents from the hardware development, hardware manufacturing and assembly of the equipment and the test logs from the equipment testing. This information is complied and given to the client.</p>							
<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> Risk Assessment * (green) = low ** (yellow) = middle *** (red) = high </div> <div style="text-align: center;">↓</div> <div style="border: 1px solid black; padding: 5px;"> Work package based on the original planning </div>		Alternative 1		Alternative 2		Alternative 3	
Time 2 Costs 90		Time 1 Costs 120		Time 4 Costs 50			
Points Tech. 0 Qual. 0		Points Tech. 0 Qual. 0		Points Tech. 0 Qual. 0			
Reduction in time through overtime and weekend work.		Assign external documentation specialists.		An available worker addresses the task alone.			
Risk:		Risk:		Risk:		Risk:	

Evaluation of Alternatives

Changes compared to Phase 0	+/-	Δ Costs T€	Δ Reve- nues T€	+/-	Δ Costs T€	Δ Reve- nues T€	+/-	Δ Costs T€	Δ Reve- nues T€
Potential Time (Weeks)									
Cost of Work Package (T€)									
Cost of Change (T€)									
Project Technology (Points)									
Project Quality (Points)									
Sum									
Profit Margin (T€)									
Δ Profit Margin/Weeks Accelerated (T€)									
Δ Profit Margin/Weeks Extended (T€)									

Work Package No.: 43		Designation: Green areas / Pavement / Fence														
Duration (Weeks): 3	Costs (T€): 70	Responsible: Subcontractor														
Description and information on the work package: The roller coaster will be surrounded by a fence, grass and flowers will adorn the site and the pathways to and from the station building will be paved. The subcontractor for this task is Greenflower Ltd.																
<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> Risk Assessment * (green) = low ** (yellow) = middle *** (red) = high </div> <div style="border: 1px solid black; padding: 5px; text-align: center;"> Work package based on the original planning </div>		Alternative 1		Alternative 2		Alternative 3										
		Time	2	Costs	100	Time	1	Costs	140	Time	5	Costs	60			
		Points	Tech.	0	Qual.	-1	Points	Tech.	0	Qual.	-2	Points	Tech.	0	Qual.	+2
		An offer from Grasteam Ltd.				An offer from Quickgras Ltd.				An alternative offer from Greenflower Ltd.						
Risk:				Risk:				Risk:				Risk:				

Evaluation of Alternatives

Changes compared to Phase 0	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€
Potential Time (Weeks)									
Cost of Work Package (T€)									
Cost of Change (T€)									
Project Technology (Points)									
Project Quality (Points)									
Sum									
Profit Margin (T€)									
Δ Profit Margin/Weeks Accelerated (T€)									
Δ Profit Margin/Weeks Extended (T€)									

Work Package No.:	44	Designation:	Safety Standards Acceptance	
Duration (Weeks):	2	Costs (T€):	35	
		Responsible:	Consultant	
Description and information on the work package: The system documentation must be submitted to the Safety Standards Authority. Specialists from the company must be present when approval is given. If necessary, workers from the assigned engineering companies and subcontractors may be required to attend the preceding discussions.				

Risk Assessment

* (green) = low

** (yellow) = middle

*** (red) = high

↓

Work package based on the original planning

Alternative 2					Alternative 3					Alternative 1				
Time	1	Costs	70		Time		Costs			Time	3	Costs	30	
Points	Tech.	0	Qual.	0	Points	Tech.		Qual.		Points	Tech.	0	Qual.	0
The Safety Standards Authority is ready to provide additional examiners who will work overtime.										The Safety Standards Authority has a cost saving model on offer.				

Risk:		Risk:		Risk:		Risk:	
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Evaluation of Alternatives

Changes compared to Phase 0	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€
Potential Time (Weeks)									
Cost of Work Package (T€)									
Cost of Change (T€)									
Project Technology (Points)									
Project Quality (Points)									
Sum									
Profit Margin (T€)									
Δ Profit Margin/Weeks Accelerated (T€)									
Δ Profit Margin/Weeks Extended (T€)									

Work Package No.:	45	Designation:	Briefing and Training																																																
Duration (Weeks):	2	Costs (T€):	40																																																
		Responsible: Internal Departments																																																	
Description and information on the work package: This entails creating the training materials for briefing amusement park workers and the actual briefing and training. Experienced workers from sales and customer service bear this responsibility.																																																			
<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="width: 25%; border: 1px solid black; padding: 5px;"> Risk Assessment * (green) = low ** (yellow) = middle *** (red) = high ↓ Work package based on the original planning </div> <table border="1" style="width: 75%; border-collapse: collapse; text-align: center;"> <thead> <tr style="background-color: #d9ead3;"> <th colspan="4">Alternative 1</th> <th colspan="4">Alternative 2</th> <th colspan="4">Alternative 3</th> </tr> </thead> <tbody> <tr> <td>Time</td><td>1</td><td>Costs</td><td>60</td> <td>Time</td><td></td><td>Costs</td><td></td> <td>Time</td><td>3</td><td>Costs</td><td>30</td> </tr> <tr> <td>Points</td><td>Tech. 0</td><td>Qual. 0</td><td></td> <td>Points</td><td>Tech.</td><td></td><td>Qual.</td> <td>Points</td><td>Tech. 0</td><td>Qual. 0</td><td></td> </tr> <tr> <td colspan="4" style="background-color: #d9ead3;">4-5 workers will complete this task with briefing and training also occurring on weekends.</td> <td colspan="4" style="background-color: #fce5cd;"></td> <td colspan="4" style="background-color: #d9ead3;">2 workers will address the task.</td> </tr> </tbody> </table> </div>				Alternative 1				Alternative 2				Alternative 3				Time	1	Costs	60	Time		Costs		Time	3	Costs	30	Points	Tech. 0	Qual. 0		Points	Tech.		Qual.	Points	Tech. 0	Qual. 0		4-5 workers will complete this task with briefing and training also occurring on weekends.								2 workers will address the task.			
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Evaluation of Alternatives

Changes compared to Phase 0	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€
Potential Time (Weeks)									
Cost of Work Package (T€)									
Cost of Change (T€)									
Project Technology (Points)									
Project Quality (Points)									
Sum									
Profit Margin (T€)									
Δ Profit Margin/Weeks Accelerated (T€)									
Δ Profit Margin/Weeks Extended (T€)									

Work Package No.: 46		Designation: Acceptance/Delivery to the Client													
Duration (Weeks): 1	Costs (T€): 30	Responsible: Internal Departments													
Description and information on the work package: The client's employees are able to independently run the hypercoaster. The project concludes with a celebration to which all participants are invited which includes significant media coverage and fireworks.															
<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> Risk Assessment * (green) = low ** (yellow) = middle *** (red) = high </div> <div style="text-align: center;">↓</div> <div style="border: 1px solid black; padding: 5px;"> Work package based on the original planning </div>	Alternative 1		Alternative 2		Alternative 3										
	Time	0	Costs	150	Time		Costs		Time		Costs				
	Points	Tech.	0	Qual.	0	Points	Tech.		Qual.		Points	Tech.		Qual.	
	The client and employees exchange gifts. The media attend and the event is over in an hour														
Risk:				Risk:				Risk:				Risk:			

Evaluation of Alternatives

Changes compared to Phase 0	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€	+/-	Δ Costs T€	Δ Revenues T€
Potential Time (Weeks)									
Cost of Work Package (T€)									
Cost of Change (T€)									
Project Technology (Points)									
Project Quality (Points)									
Sum									
Profit Margin (T€)									
Δ Profit Margin/Weeks Accelerated (T€)									
Δ Profit Margin/Weeks Extended (T€)									