

## CHAPTER 6

### CONCLUSION AND RECOMMENDATION

#### 6.1. Conclusions

Based on the result of research after conducted risk management process of the Teleperformance Office Project in the company, the conclusion of this research are as follows:

1. After done the risk identification process by conducting interview with the member of project team of teleperformance office project, define that the risks that cause delay on the project are : (a) Design from the owner hasn't fixed, (b) Material Cost exceeded budget cost plan , (c) Project Location still moist, (d) Change order specification, (e) Delays of material from the supplier, (f) Delays on completion of work activity and (g) Progress payment is not made in time by the owner
2. Major risks that are prioritized in the Teleperformance Office Project are the risks that categorized as High risk, are as follows : Material Cost exceeded budget cost plan with the risk score 0.72 which categorized in High Risk, Delays on completion of work activity with the risk score 0.72 which categorized in High Risk, Design from the owner hasn't fixed with the risk score 0.56 which categorized in High Risk, Material Delay from the supplier with the risk score 0.40 which categorized in High Risk, Change order specification with the risk score 0.20 which categorized in High Risk, and the last risk with the risk score 0.20 which categorized in High Risk is Progress payment are not made in time by owner.
3. After conducting the interview with the expertise person in the company using the expert judgement approach to assess the response action that fit to the solved the risk, the results define that the actions responses to anticipate and minimize the major project risks that cause project delay, which categorized as High Risk are mostly Avoid the risk and also reduce the risk.

## 6.2. Recommendation

After conducting this research, the author has few recommendations such as:

1. As the company has grown it is better to start conduct the risk management process not only to the specified project but also apply to the company's management.
2. The action plan to implement risk management process could be done by company are as follows :
  - a. Organizational equipment and risk management functions: Developing risk management unit, appointed executive officers responsible for the implementation of the risk management function and establishing a risk management committee from internal or hire professional from external.
  - b. Prepare the internal provisions containing the authority and responsibilities of the Board of Directors and Board of Committee relating to the implementation of risk management
  - c. Drafting Policies and procedures that contain risk management policy, risk management procedure of implementation and risk tolerance limit determination toward time and cost allocate to respond risk, identification process, risk assessment, monitoring and control.
3. This research conducted by considering from the contractor's point of view, for future research can be done risk assessment from the external party point of view, for instance, project owner, supplier or subcontractors.
4. As this research done by performing a qualitative risk analysis, in the future can be performed a quantitative risk analysis to calculate the potential loss caused by the risks that occur.

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## APPENDIX 1: Project Time Estimation



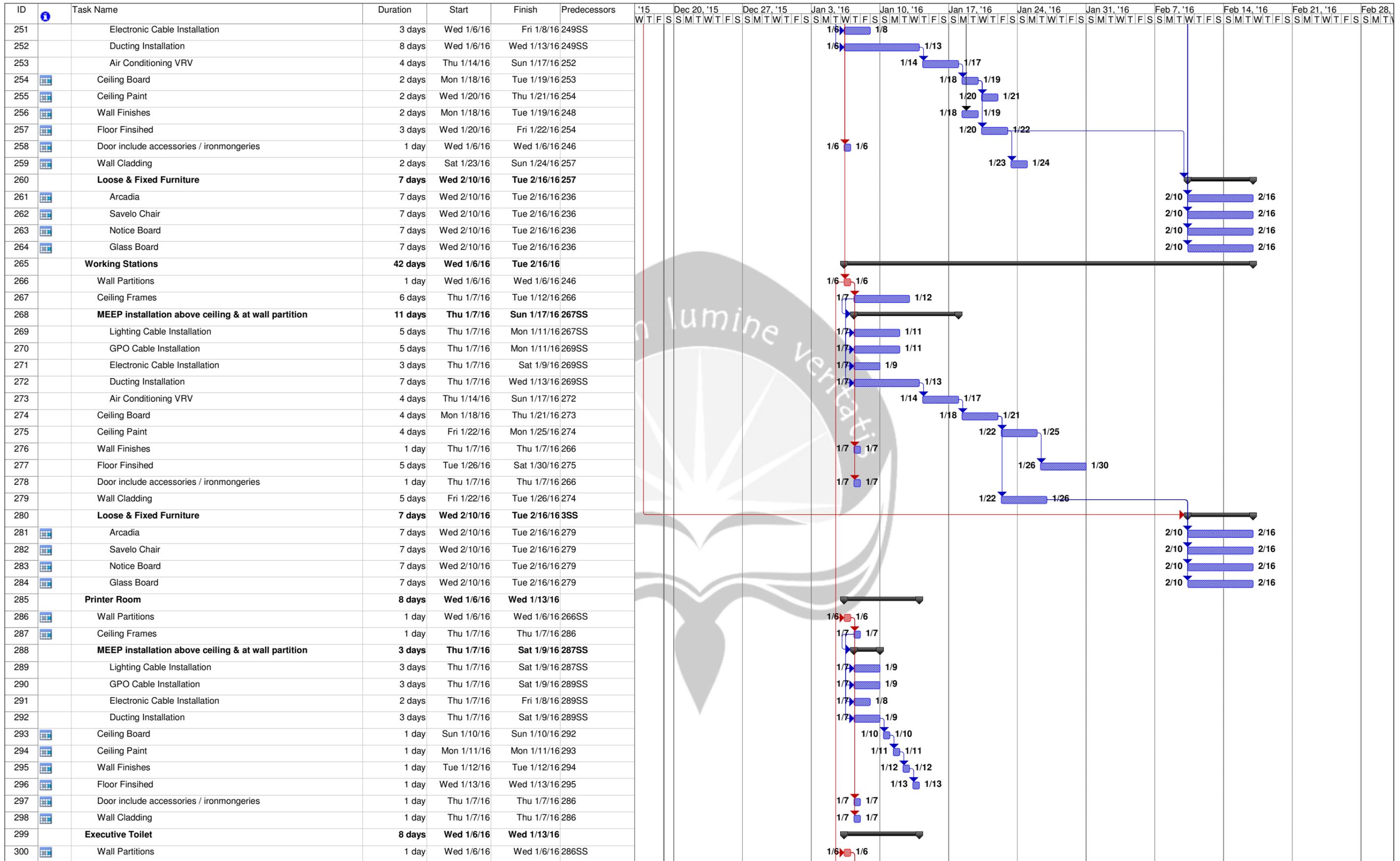












Project: Teleperformance Schedule Re Date: Sat 12/19/15	Task		Rolled Up Task		Split		Inactive Task		Manual Task		Start-only		Deadline
	Critical Task		Rolled Up Critical Task		External Tasks		Inactive Task		Duration-only		Finish-only		Deadline
	Milestone		Rolled Up Milestone		Project Summary		Inactive Milestone		Manual Summary Rollup		Progress		Deadline
	Summary		Rolled Up Progress		Group By Summary		Inactive Summary		Manual Summary		Progress		Deadline







ID	Task Name	Duration	Start	Finish	Predecessors	'15	Dec 20, '15	Dec 27, '15	Jan 3, '16	Jan 10, '16	Jan 17, '16	Jan 24, '16	Jan 31, '16	Feb 7, '16	Feb 14, '16	Feb 21, '16	Feb 28, '16						
						W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
451	GPO Cable Installation	3 days	Sat 2/13/16	Mon 2/15/16	450SS										2/13	2/15							
452	Electronic Cable Installation	2 days	Sat 2/13/16	Sun 2/14/16	450SS										2/13	2/14							
453	Ducting Installation	2 days	Sat 2/13/16	Sun 2/14/16	450SS										2/13	2/14							
454	Air Conditioning VRV	2 days	Sat 2/13/16	Sun 2/14/16	450SS										2/13	2/14							
455	Ceiling Board	2 days	Mon 2/15/16	Tue 2/16/16	454										2/15	2/16							
456	Ceiling Paint	2 days	Wed 2/17/16	Thu 2/18/16	455										2/17	2/18							
457	Wall Finishes	2 days	Fri 2/19/16	Sat 2/20/16	456										2/19	2/20							
458	Floor Finsihed	3 days	Sun 2/21/16	Tue 2/23/16	457										2/21	2/23							
459	Door include accessories / ironmongeries	1 day	Sat 2/13/16	Sat 2/13/16	447										2/13	2/13							
460	Wall Cladding	2 days	Sun 2/21/16	Mon 2/22/16	457										2/21	2/22							
461	<b>Loose &amp; Fixed Furniture</b>	<b>1 day</b>	<b>Tue 2/23/16</b>	<b>Tue 2/23/16</b>	<b>460</b>																		
462	Training Table	1 day	Tue 2/23/16	Tue 2/23/16	460																		
463	Savelo Chair	1 day	Tue 2/23/16	Tue 2/23/16	460																		
464	Glass Board	1 day	Tue 2/23/16	Tue 2/23/16	460																		
465	Projector & equipment	1 day	Tue 2/23/16	Tue 2/23/16	460																		
466	LED TV	1 day	Tue 2/23/16	Tue 2/23/16	460																		
467	<b>Pantry</b>	<b>13 days</b>	<b>Sat 2/13/16</b>	<b>Thu 2/25/16</b>																			
468	Wall Partitions	2 days	Sat 2/13/16	Sun 2/14/16	447										2/13	2/14							
469	Ceiling Frames	2 days	Mon 2/15/16	Tue 2/16/16	468										2/15	2/16							
470	<b>MEEP installation above ceiling</b>	<b>4 days</b>	<b>Mon 2/15/16</b>	<b>Thu 2/18/16</b>	<b>469SS</b>																		
471	Plumbing Installation	4 days	Mon 2/15/16	Thu 2/18/16	469SS										2/15	2/18							
472	Lighting Cable Installation	3 days	Mon 2/15/16	Wed 2/17/16	471SS										2/15	2/17							
473	GPO Cable Installation	3 days	Mon 2/15/16	Wed 2/17/16	471SS										2/15	2/17							
474	Electronic Cable Installation	2 days	Mon 2/15/16	Tue 2/16/16	471SS										2/15	2/16							
475	Ducting Installation	2 days	Mon 2/15/16	Tue 2/16/16	471SS										2/15	2/16							
476	Ceiling Board	2 days	Wed 2/17/16	Thu 2/18/16	475										2/17	2/18							
477	Ceiling Paint	2 days	Fri 2/19/16	Sat 2/20/16	476										2/19	2/20							
478	Wall Finishes	2 days	Sun 2/21/16	Mon 2/22/16	477										2/21	2/22							
479	Floor Finsihed	3 days	Tue 2/23/16	Thu 2/25/16	478										2/23	2/25							
480	Door include accessories / ironmongeries	1 day	Mon 2/15/16	Mon 2/15/16	468										2/15	2/15							
481	Wall Cladding	2 days	Tue 2/23/16	Wed 2/24/16	478										2/23	2/24							
482	<b>Loose &amp; Fixed Furniture</b>	<b>1 day</b>	<b>Thu 2/25/16</b>	<b>Thu 2/25/16</b>	<b>481</b>																		
483	Pantry Counter	1 day	Thu 2/25/16	Thu 2/25/16	481																		
484	Pantry Hanging Cabinet	1 day	Thu 2/25/16	Thu 2/25/16	481																		
485	Concessionair Table	1 day	Thu 2/25/16	Thu 2/25/16	481																		
486	Trash bin	1 day	Thu 2/25/16	Thu 2/25/16	481																		
487	Pantry kosk	1 day	Thu 2/25/16	Thu 2/25/16	481																		
488	Trash bin and microwave cabinet	1 day	Thu 2/25/16	Thu 2/25/16	481																		
489	Pantry nook	1 day	Thu 2/25/16	Thu 2/25/16	481																		
490	Panrty Internet kiosk	1 day	Thu 2/25/16	Thu 2/25/16	481																		
491	Savelo chair	1 day	Thu 2/25/16	Thu 2/25/16	481																		
492	Custom stool	1 day	Thu 2/25/16	Thu 2/25/16	481																		
493	<b>Videoke &amp; Internet</b>	<b>14 days</b>	<b>Mon 2/15/16</b>	<b>Sun 2/28/16</b>																			
494	Wall Partitions	3 days	Mon 2/15/16	Wed 2/17/16	468										2/15	2/17							
495	Ceiling Frames	2 days	Thu 2/18/16	Fri 2/19/16	494										2/18	2/19							
496	<b>MEEP installation above ceiling</b>	<b>2 days</b>	<b>Thu 2/18/16</b>	<b>Fri 2/19/16</b>	<b>495SS</b>																		
497	Lighting Cable Installation	2 days	Thu 2/18/16	Fri 2/19/16	495SS										2/18	2/19							
498	GPO Cable Installation	2 days	Thu 2/18/16	Fri 2/19/16	497SS										2/18	2/19							
499	Electronic Cable Installation	2 days	Thu 2/18/16	Fri 2/19/16	497SS										2/18	2/19							
500	Ducting Installation	2 days	Thu 2/18/16	Fri 2/19/16	497SS										2/18	2/19							



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## Appendix 2: Risk Response Strategy Template

Risk Code	Risk	Risk Rating	Response strategy				Responsible Person
			Avoid	Transfer	Reduce	Accept	
R2	Material Cost Exceed Budget Cost Plan	HIGH RISK	Looking for supplier or vendor that have competitive price or close to the budget plan.		Calculate risk coefficient for price increasing 5% when conducted the budget cost plan		Purchasing and Financial Administration
			Looking for efficiency from the other aspects, for instance Labor Wages		Add “ other costs” on budget cost plan for unexpected issues that may occur		
					Update and discuss the new cost to the supplier		
R6	Delays on completion of work activity	HIGH RISK	Always check the schedule and give code or warning on important activity that need more attention		Supervisor needs to control every work activity in the project site		Engineering
			Propose additional time to finish the work activity		Create new plan of working method		
			Create milestone and forecast the cash flow				
R1	Design From the owner has not fixed	HIGH RISK	Waiting for the fix design form the owner		Make an agreement to have variation order if there's any changes		Design Team
			Re-review the design and adjust with the project site		Prepare team design to design the drawing that has not fixed yet		

<b>R5</b>	Material Delay from the supplier	HIGH RISK	Reschedule or choose any other activity that could be done without waiting for the material for supplier		Forecast the delivery schedule so when the material's delayed it is not affected to the project		Purchasing
			Work on sequence work activities that could be done first.		Indent product or material prioritize to order first		
<b>R4</b>	Change order specification	HIGH RISK	Making new shop drawing and asking for the approval		Propose variation order if there is any changes in material price		Purchasing
			Check the material in the warehouse , if it is not available then produce or order , and make an material approval list		Adjust with the budget cost plan if there is any cost differences and request for the approval		
<b>R7</b>	Progress payment are not made in time by owner	HIGH RISK	Use reserves funds form the company		Clearly emphasize in the contract about the payment date and penalty cost would pay if the payment are not made in time		Financial Administration
			Hold work progress activities in the project site until the owner started do the payment				
<b>R3</b>	Project Location Still moist	MEDIUM RISK	Make sure the humidity of site meet the tolerance limit or hold until the project site is ready and work on other activity that could be done without waiting for the location		Prepare additional tools, for example, Hologen Lamps for lighting and minimize the moist condition		Engineering

### Appendix 3: Risk Control Template

Inherent Risk						Residual Risk					
Risk Code	Risk Event	Risk Source	P	I	RS	Response Action	P	I	RS	Responsible Person	Control Status
R1	Design from the owner hasn't fixed	An inconsistency of the owner with the design	0.70	0.80	0.56	Avoid Reduce	0.50	0.40	0.20	Design Team	Monitor
		Design Changes during the execution									
		The data specification is not fixed									
		Owner late in revise and approve the design document									
R2	Material Cost exceeded budget cost plan	The inaccuracy of estimating the work volume of each work activity	0.90	0.80	0.72	Avoid Reduce	0.70	0.40	0.28	Purchasing and Financial Administration	Monitor
		The inaccuracy of estimating the material cost in market									
		unexpected increases in material costs									
		Additional work									
R3	Project Location still moist	The project location is new, the project is located inside other building	0.30	0.40	0.12	Avoid Reduce	0.10	0.20	0.02	Engineering	Monitor
		Effect of precedence work activity that makes the location is not ready to do the next work									
R4	Change order specification	Design Changes	0.50	0.40	0.20	Avoid Reduce	0.30	0.20	0.60	Purchasing	Monitor
		Inaccurate specifications									
		Lack of material availability									

<b>R5</b>	Material Delay from the supplier	Insufficient material stock in the warehouse	0.50	0.80	0.40	Avoid Reduce	0.30	0.40	0.12	Purchasing and Design Team	Monitor
		The unexpected event happen during the delivery time									
<b>R6</b>	Delays on completion of each work activity	Additional work requested by the owner	0.90	0.80	0.72	Avoid Reduce	0.50	0.40	0.20	Engineering	Monitor
		Changes in material variety during execution									
		The inaccuracy of estimating the duration of each work activity									
		Lack of understanding of drawing by the worker									
<b>R7</b>	Progress payment is not made in time by the owner	The main office of the owner is in a different city	0.50	0.40	0.20	Avoid Reduce	0.30	0.10	0.03	Financial Administration	Monitor
		Additional work so need to recalculated/update cost									
		The complexity of company bureaucracy									

#### Appendix 4: Questionnaire for Early Identification Problem

Saya Estefania Pinto Guterres adalah mahasiswa tingkat akhir Universitas Atma Jaya Yogyakarta program studi Teknik Industri internasional. Saat ini saya sedang menempuh tugas akhir dengan topik "Manajemen Resiko di PT. DAP". Penelitian ini bertujuan untuk mengetahui resiko apa saja yang mempengaruhi keterlambatan penyelesaian proyek di perusahaan, oleh karena itu saya memohon ketersediaan anda untuk mengisi lembar kuisisioner ini.

Responden :

Nama :

Jabatan :

Menurut pengalaman dan pengetahuan anda, apa saja masalah atau resiko yang mempengaruhi keterlambatan penyelesaian Proyek di Perusahaan anda ?

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_
7. \_\_\_\_\_
8. \_\_\_\_\_
9. \_\_\_\_\_
10. \_\_\_\_\_

Terima Kasih atas waktu dan kesediaannya untuk mengisi kuestioner ini

### APPENDIX 5: Result of Interview for Risk Identification - Risk Register

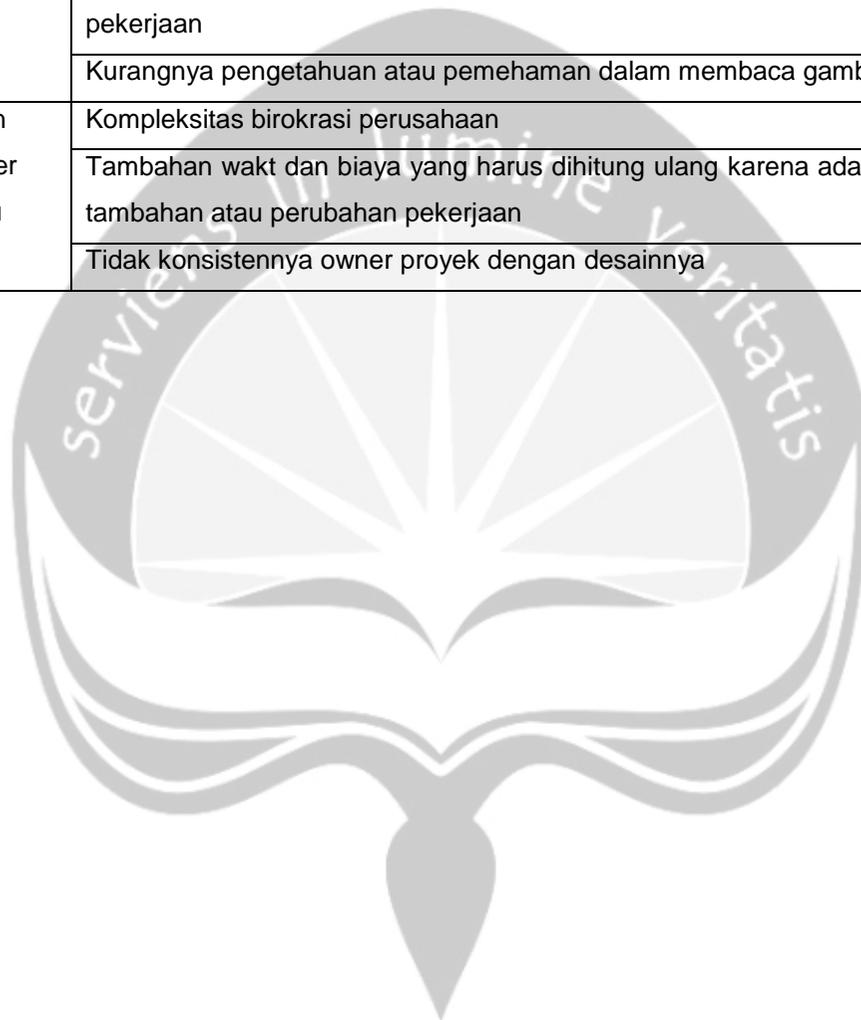
Kode Resiko	Kategori Resiko	Resiko	Sumber Resiko	Penanggung Jawab	Jenis Keterlambatan	Dampak keterlambatan
<b>R1</b>	Resiko Teknis	Desain dari owner belum siap	Tidak konsistennya owner proyek dengan desainnya	Divisi atau Team Desain	Keterlambatan yang dapat dimaafkan	Waktu
			Desain berubah saat proses konstruksi sudah berjalan			
			Spesifikasi data yang tidak tetap			
			Owner telat dalam merevisi dan menyetujui dokumen desain			
<b>R2</b>	Resiko Finansial	Biaya Material melebihi RAB ( Rencana Anggaran Biaya)	Kurang tepat mengestimasi volume pekerjaan tiap aktivitas pekerjaan	Divisi atau Team Purchasing dan Finance	Keterlambatan yang tidak dapat dimaafkan	Biaya
			Kurang tepat mengestimasi harga material di pasar			
			Harga Material yang naik secara tidak terduga			
			Tambahan Pekerjaan			
<b>R3</b>	Resiko Konstruksi	Lokasi proyek yang masih lembab	Lokasi proyek masih baru, Lokasi proyek berada dalam suatu gedung lain	Divisi atau Team Engineering	Keterlambatan yang dapat dimaafkan	Waktu
			Efek dari pengerjaan aktivitas sebelumnya yang tidak memungkinkan untuk melakukan pekerjaan lain atau selanjutnya			

<b>R4</b>	Resiko Konstruksi	Perubahan spesifikasi proyek ( material)	Perubahan Desain	Divisi atau Team Purchasing dan Desain	Keterlambatan yang dapat dimaafkan	Waktu dan Biaya
			Tidak terpatnya atau akuratnya spesifikasi barang			
			Kekurangan atau ketersediaan barang di pasar yang langkaha			
<b>R5</b>	Resiko Teknis	Keterlambatan Pengiriman barang atau material dari supplier	Barang atau material di gudang yang tidak ada atau tidak cukup	Divisi atau Team Purchasing	Keterlambatan yang dapat dimaafkan	Waktu
			Kejadian yang tidak terduga terjadi saat pengiriman barang atau			
<b>R6</b>	Resiko Konstruksi	Keterlambatan penyelesaian aktivitas pekerjaan	Permintaan tambahan pekerjaan dari owner	Divisi atau Team Engineering	Keterlambatan yang dapat dimaafkan	Waktu dan Biaya
			Perubahan jenis material saat proses konstruksi sudah berlansung			
			Ketidakkuratan dalam estimasi durasi masing-masing setiap aktivitas pekerjaan			
			Kurangnya pengetahuan atau pemahaman dalam membaca gambar			
<b>R7</b>	Resiko Finansial	Progress atau tahapan pembayaran dari owner yang tidak tepat waktu	Kompleksitas birokrasi perusahaan	Divisi atau Team Finance	Keterlambatan yang dapat dimaafkan	Biaya
			Tambahan waktu dan biaya yang harus dihitung ulang karena adanya tambahan atau perubahan pekerjaan			

### Appendix 6: Result of Interview for Risk Assessment

Kode Resiko	Kategori Resiko	Resiko	Sumber Resiko	Nilai Kemungkinan	Nilai Dampak	Penanggung Jawab
R1	Resiko Teknis	Desain dari owner belum siap	Tidak konsistennya owner proyek dengan desainnya	0.70	0.80	Divisi atau Team Desain
			Desain berubah saat proses konstruksi sudah berjalan			
			Spesifikasi data yang tidak tetap			
			Owner telat dalam merevisi dan menyetujui dokumen desain			
R2	Resiko Finansial	Biaya Material melebihi RAB ( Rencana Anggaran Biaya)	Kurang tepat mengestimasi volume pekerjaan tiap aktivitas pekerjaan	0.90	0.80	Divisi atau Team Purchasing dan Finance
			Kurang tepat mengestimasi harga material di pasar			
			Harga Material yang naik secara tidak terduga			
			Tambahan Pekerjaan			
R3	Resiko Konstruksi	Lokasi proyek yang masih lembab	Lokasi proyek masih baru, Lokasi proyek berada dalam suatu gedung lain	0.30	0.40	Divisi atau Team Engineering
			Efek dari pengerjaan aktivitas sebelumnya yang tidak memungkinkan untuk melakukan pekerjaan lain atau selanjutnya			
R4	Resiko Konstruksi	Perubahan spesifikasi proyek ( material)	Perubahan Desain	0.50	0.40	Divisi atau Team Purchasing dan Desain
			Tidak terpatnya atau akuratnya spesifikasi barang			
			Kekurangan atau ketersediaan barang di pasar yang langka			
R5	Resiko Teknis	Keterlambatan Pengiriman barang atau material dari supplier	Barang atau material di gudang yang tidak ada atau tidak cukup	0.50	0.80	Divisi atau Team Purchasing
			Kejadian yang tidak terduga terjadi saat pengiriman barang atau material			

<b>R6</b>	Resiko Konstruksi	Keterlambatan penyelesaian aktivitas pekerjaan	Permintaan tambahan pekerjaan dari owner	0.90	0.80	Divisi atau Team Engineering
			Perubahan jenis material saat proses konstruksi sudah berlangsung			
			Ketidakkuratan dalam estimasi durasi masing-masing setiap aktivitas pekerjaan			
			Kurangnya pengetahuan atau pemahaman dalam membaca gambar			
<b>R7</b>	Resiko Finansial	Progress atau tahapan pembayaran dari owner yang tidak tepat waktu	Kompleksitas birokrasi perusahaan	0.50	0.40	Divisi atau Team Finance
			Tambahan wakt dan biaya yang harus dihitung ulang karena adanya tambahan atau perubahan pekerjaan			
			Tidak konsistennya owner proyek dengan desainnya			



### APPENDIX 7: Result of Interview for Risk Response Strategy

1. **Nama** : Cahyono Prastomoadi  
**Jabatan** : Kepala Divisi Desain  
**Mulai/Lama Bekerja** : 2012  
**Mulai/Lama menanggapi proyek** : 7 Tahun

No.	Resiko	Strategi Respons				Penanggung Jawab
		Menghindari Resiko	Mengtransfer resiko	Mengurangi Resiko	Menerima Resiko	
R1	Desain dari owner belum siap	Menyediakan team desain untuk mendesain gambar yang belum siap Meriview ulang desain dan disesuaikan dengan lapangan				
R2	Biaya Material melebihi RAB (Rencana Anggaran Biaya)			Memberikan "biaya lain-lain" pada RAB ( Rencana anggaran biaya) untuk masalah tidak terduga lain yang dapat terjadi Update dan diskusi harga baru ke supplier		
R3	Lokasi proyek yang masih lembab	Memberikan tambahan alat (AC/Kipas pada area yang lembab				

<b>R4</b>	Perubahan spesifikasi proyek ( material)	Mengecek dahulu material di gudang , jika tidak tersedia maka diproduksi atau memesan, dan membuat material approval list		Penyesuaian terhadap Rencana Anggaran Biaya bila terdapat selisih biaya serta meminta approval		
<b>R5</b>	Keterlambatan Pengiriman barang atau material dari supplier	Mereschedule atau memilih pekerjaan lain yang biasa dikerjakan tanpa menunggu barang atau material datang		Membuat schedule pengiriman yang aman sehingga ketika terlambat pengiriman tidak berpengaruh terhadap proyek		
<b>R6</b>	Keterlambatan penyelesaian aktivitas pekerjaan	Selalu melihat atau mengecek jadwal dan memberikan kode atau warning terhadap aktivitas-aktivitas yang perlu diperhatikan lebih Mengajukan perpanjangan waktu untuk menyelesaikan aktivitas pekerjaan		Supervisor perlu melakukan pengawasan setiap aktivitas pekerjaan di lapangan		
<b>R7</b>	Progress atau tahapan pembayaran dari owner yang tidak tepat waktu	Menggunakan dana biaya cadangan dari kantor		Mempertegas di kontrak tentang tanggal atau jadwal pembayaran		

2. **Nama** : Magnus Bayu  
**Jabatan** : Kepala Divisi Interior  
**Mulai/Lama Bekerja** : 2012  
**Mulai/Lama menanggapi proyek** : 7 Tahun

No.	Resiko	Strategi Respons			Penanggung Jawab
		Menghindari Resiko	Mengtransfer resiko	Mengurangi Resiko	
R1	Desain dari owner belum siap	Menunggu fix desain dari owner		Membuat komitmen untuk adanya variation order apabila ada perubahan	
R2	Biaya Material melebihi RAB (Rencana Anggaran Biaya)	Mencari supplier atau vendor yang harganya paling kompetitif atau mendekati Rencana Anggaran Biaya		Diperhitungkan koefisien resiko kenaikan barang 5% sejak membuat Rencana Anggaran Biaya	
		Mencari efisiensi dari aspek lain, misalnya upah tenaga kerja.			
R3	Lokasi proyek yang masih lembab	Memastikan kelembapan lokasi kerja mencapai batas toleransi atau hold sampai lokasi kerja siap dan mengerjakan aktivitas lain yang bias diselesaikan tanpa menunggu lokasi kering		Menyiapkan alat bantu kerja, semisal lampu halogen untuk penerangan dan membantu mrngurangi kondisi lembab	

<b>R4</b>	Perubahan spesifikasi proyek ( material)	Membuat shop drawing atau gambar kerja dan dimintakan approval		Mengajukan variation order apabila harga material ada perubahan		
<b>R5</b>	Keterlambatan Pengiriman barang atau material dari supplier	Mengerjakan sequence pekerjaan yang bisa dikerjakan terlebih dahulu		Membuat forecast material atau barang yang indent untuk diprioritaskan dipesan dahulu		
<b>R6</b>	Keterlambatan penyelesaian aktivitas pekerjaan	Membuat milestone pekerjaan dan forecast cashflow		Membuat beberapa plan baru untuk metode pengerjaan		
<b>R7</b>	Progress atau tahapan pembayaran dari owner yang tidak tepat waktu	Hold progress pekerjaan lapangan sampai pembayaran terealisasi		Memperkuat di pasal kontrak apabila owner terlambat bayar dikenakan denda		

**Appendix 8: Result of interview for Risk Control - Reassessment Template**

Resiko Awal						Resiko Sisa					
Kode Resiko	Resiko	Sumber Resiko	P	I	RS	Tindakan Respon	P	I	RS	Penanggung Jawab	Kontrol Resiko
R1	Desain dari owner belum siap	Tidak konsistennya owner proyek dengan desainnya	0.70	0.80	0.56	Menghindari Mengurangi	0.50	0.40	0.20	Divisi atau Team Desain	Monitor
		Desain berubah saat proses konstruksi sudah berjalan									
		Spesifikasi data yang tidak tetap									
		Owner telat dalam merevisi dan menyetujui dokumen desain									
R2	Biaya Material melebihi RAB (Rencana Anggaran Biaya)	Kurang tepat mengestimasi volume pekerjaan tiap aktivitas pekerjaan	0.90	0.80	0.72	Menghindari Mengurangi	0.70	0.40	0.28	Divisi atau Team Purchasing dan Finance	Monitor
		Kurang tepat mengestimasi harga material di pasar									
		Harga Material yang naik secara tidak terduga									
		Tambahan Pekerjaan									
R3	Lokasi proyek yang masih lembab	Lokasi proyek masih baru, Lokasi proyek berada dalam suatu gedung lain	0.30	0.40	0.12	Menghindari Mengurangi	0.10	0.20	0.02	Divisi atau Team Engineering	Monitor
		Efek dari pengerjaan aktivitas sebelumnya yang tidak memungkinkan untuk melakukan pekerjaan lain atau selanjutnya									

<b>R4</b>	Perubahan spesifikasi proyek ( material)	Perubahan Desain	0.50	0.40	0.20	Menghindari Mengurangi	0.30	0.20	0.60	Divisi atau Team Purchasing dan Desain	Monitor
		Tidak terpatnya atau akuratnya spesifikasi barang									
		Kekurangan atau ketersediaan barang di pasar yang langka									
<b>R5</b>	Keterlambatan Pengiriman barang atau material dari supplier	Barang atau material di gudang yang tidak ada atau tidak cukup	0.50	0.80	0.40	Menghindari Mengurangi	0.30	0.40	0.12	Divisi atau Team Purchasing	Monitor
		Kejadian yang tidak terduga terjadi saat pengiriman barang atau material									
<b>R6</b>	Keterlambatan penyelesaian aktivitas pekerjaan	Permintaan tambahan pekerjaan dari owner	0.90	0.80	0.72	Menghindari Mengurangi	0.50	0.40	0.20	Divisi atau Team Engineering	Monitor
		Perubahan jenis material saat proses konstruksi sudah berlangsung									
		Ketidakakuratan dalam estimasi durasi masing-masing setiap aktivitas pekerjaan									
		Kurangnya pengetahuan atau pemahaman dalam membaca gambar									
<b>R7</b>	Progress atau tahapan pembayaran dari owner yang tidak tepat waktu	Kompleksitas birokrasi perusahaan	0.50	0.40	0.20	Menghindari Mengurangi	0.30	0.10	0.03	Divisi atau Team Finance	Monitor
		Tambahan waktu dan biaya yang harus dihitung ulang karena adanya tambahan atau perubahan pekerjaan									
		Tidak konsistennya owner proyek dengan desainnya									

## Appendix 9: Pictures of Teleperformance office

