## Contents

Pre	face				v			
Cor	itents				vii			
Lis	of fig	ures .			xi			
Syr	nbols				xvii			
I	Introd	uctio	n		1			
	I.1	Mo	Motivation and challenges					
	I.2	Ob	ojectives and focal research questions					
	I.3 Classification and organization				9			
	References							
II	Strate	gic fi	ramev	vork	15			
	II.R1	_	A theory of software reuse strategies in ideal type stable and turbulent					
				nvironments	17			
		1	Intro	oduction and objectives	18			
		2	Basi	c software reuse options	20			
			2.1	Compositional reuse – building blocks	21			
			2.2	Generative reuse – solution patterns	21			
		3	Two	ideal type market environments and their business strategy	22			
			3.1	Traditional environments – defenders				
				3.1.1 Defensive internal improvement strategies	23			
				3.1.2 Defenders' dilemma				
			3.2	Turbulent environments – prospectors				
				3.2.1 Prospective rapid adaptation strategies				
				3.2.2 Prospectors' dilemma				
		4		porting experience: projects from practice				
			4.1	Stable environment – fraud detection				
			4.2	Turbulent environment – software simulator				
			4.3	Hybrid environment – portal architecture				
		5		cluding hypotheses, limitations and further steps				
			Perences					
	II.R2		_	on assessment of an individually developed application vs. softwa				
		-	packages from the market – an experience report					
		1 Introduction and setting						
		2	-	ect approach and selected results				
			2.1	Functional comparison of available packages				
			2.2	integration scenario case studies	39			



		3	Cor	oclusion and remarks	43		
		References					
Ш	Specif	fication					
	•	The importance of requirements specifications for successful IT projects					
		1					
		2	Success factors				
			2.1	Systematic approach			
			2.2	Detailed analysis and documentation	50		
			2.3	Realistic effort estimations	51		
			2.4	Integration of missing expertise	51		
			2.5	Coordination and alignment	52		
			2.6	Joint and active organization	52		
			2.7	Efficient change management	53		
		3	Risk	cs	53		
			3.1	Disputed and incomplete scope of work	54		
			3.2	Delay	55		
			3.3	Additional costs	55		
			3.4	Legal dispute	56		
		4	Futu	re requirements	57		
		References					
	III.R4	A method to evaluate the suitability of requirements specifications for					
		offshore projects					
		1	Motivation				
		2	Background and related approaches				
			2.1	Outsourcing, offshoring, and application development based			
				on the division of labor	62		
			2.2	The importance of requirements specifications for offshoring	63		
			2.3	Evaluation approaches for requirements specifications	63		
		3	Con	ceptual basics	64		
			3.1	Specification quality	65		
			3.2	Compensation factors	66		
		4	Desi	gn of the evaluation method	68		
			4.1	Procedure for determining the specification quality			
			4.2	Procedure for determining the compensation options			
			4.3	Further refinement of the evaluation	70		
		5	Eval	uation			
			5.1	Determination of the specification quality	71		
			5.2	Determination of the compensation possibilities and options			
				for action	73		

			5.3	Reception of the results	74		
		6	Conc	clusion	75		
		References					
IV	Selecti	on			79		
		Optimal stopping for the run-time self-adaptation of software systems					
		1	Introduction 8				
		2	2 Flexible software architectures and matching schemes for self-adap				
		3	Optimal stopping in two self-adaptation scenarios				
			3.1	Limited number of run-time options			
			3.2	Limited run-time delay			
		4	Appl	lication and simulation	87		
			4.1	Limited number of run-time options	87		
			4.2	Limited run-time delay	88		
		5	Sum	mary and conclusion	90		
		References					
	IV.R6	Reducing domain level scenarios to test component-based software					
		1	Introduction				
		2	Basic assumptions and business model				
		3	Cons	structing linear scenarios	96		
			3.1	ARIval overview	96		
			3.2	Process flow transformation and blocking	98		
			3.3	Example	102		
		4	Rela	ted work	106		
		5	Sum	mary and conclusions	108		
		References					
V	Conclusions and outlook						
	V.1 Conclusions						
	V.2	Out	look.		. 116		
	References						