Appendix 4 – Codes and Themes

Technology	Obstacles	Effects of Technology	External Effects	SCRM
Automation/robots	Attitudes	Accessibility	changes environment	Decision making (could be effects)
Criteria for system	Drawback	Accessibility&availability	changes risk environment	Demand risk
Criteria system	Focus	Accessibility/availability	Company Info	Disruption
Development process	Functionality (could be effects)	Adaptability	company information	Frequency updates (quality control)
Digital system	Human error	Benefit	Company structure	Frequency updates (risk factors; information)
Digital system/tool	Industry comparison	Benefits	Downstream supply chain	Holistic
Digital systems/tools	Insufficient	Comparative advantage	Downstream supply chain	Prioritization in risk assessment
Digital tool	Insufficient system	Competitive advantage	Environmental changes	Proactive
Digital tool (	Insufficient system/drawback system	Complexity	Market	Process evaluation
Excel	Insufficient tool	Cost reduction	product characteristics	Production/process control
Frequency updates	Insufficient tools	Customer communication	Product/service criteria	Quality checks
Information updates	Investment	Data aggregation	seasonality demand	Quality criteria
Inhouse development	Leadership involvement	Data analysis	Supply chain structure	Reactive
Machine learning	Management involvement	Data collection	upstream supply chain	Risk acceptance
Need for system/tool	Open to use and apply tools/systems	Data management		Risk analysis
Need tool/systems (effects of technology?)	Relational capital	Data quality		Risk assessment
Need tools/system	Relevance	Data source		Risk communication
Need tools/systems	Resource constraint	Data sources		Risk factor
Standardization	Resources	Data visualization		Risk factors
Switching cost (could be moderator t/e)	Responsibility	Decision making (could be SCRM)		Risk identification
System criteria	Responsible	Demand forecasts		Risk impact
System development	Responsible person	Efficiency		Risk management
System update	Simplification (could be effects)	Efficiency/effectiveness		Risk management process
System updates	Switching cost (could be technology)	Flexibility/adaptability		Risk mitigation
Technology (robots)	System integration	Focus		Risk monitoring
Tool development	Technical problems	Forecast		Risk relationships/network
	Training	Forecasting		Risk relationships/networks
	Unhelpful tool	Frequency updates (measurements and data from customers)		Risk reporting
		Functionality		Risk reports
		Information flow		SCRM process
		Information points		Supplier relations
		Information sharing		Supply risk
		Information sharing/flow		Supply risk, logistic risk
		Internal communication		Vertical integration
		Prioritization		
		SC collaboration		
		Scenario planning		
		Simplification (could be moderator t/e)		
		Simulation		
		Supplier collaboration		
		Supplier communication		
		Supplier relations		
		System alert		
		Tracking		
		Transparency		
		Trend		
		Visualization		
		Warning signal		
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