UNDERSTANDING SUPPLY CHAIN RISKS AND HOW TO MANAGE THEM

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WEBINAR DELIVERABLES

At the end of the webinar you should:

1. Understand the risks in supply chain
2. Be able to profile the risks
3. Know how to manage risks
4. Be able to develop an implementable supply chain risk register

What is Supply Chain?

- A supply chain is the collection of processes and resources required to make and deliver a product to the final customer.
- A supply chain is the connected network of individuals, organizations, resources, activities, and technologies involved in the manufacture and sale of a product or service.
- A supply chain starts with the sourcing of raw materials from a supplier to a manufacturer and ends with the delivery of the finished product or service to the end consumer.

Humanitarian Supply Chain Risks

- In the last decades, increase in human and natural disaster occurrence has very irreparable effects on human life.
- Hence, one of the important issues in humanitarian supply chain management is identifying and prioritizing the different risks and finding suitable solutions for encountering them at the time of disaster occurrence.

Humanitarian Supply Chain Risks

- Humanitarian Supply Chains are more sensitive and proactivity is highly critical as we are crisis responders.

Supply Chain Risk Management

- Supply chain risk management refers to the process by which businesses take strategic steps to identify, assess, and mitigate risks within their end-to-end supply chain.
- There are both internal and external risks that can disrupt the supply chain, so it's helpful to understand the difference between the two.

External Supply Chain Risks

- As the name implies, these global supply chain risks come from outside organization.
- Unfortunately, that means that they are harder to predict and typically require more resources to overcome.
- Some of the top external supply chain risks include:

Acts of God(Tsunami, Typhoons), Political risk

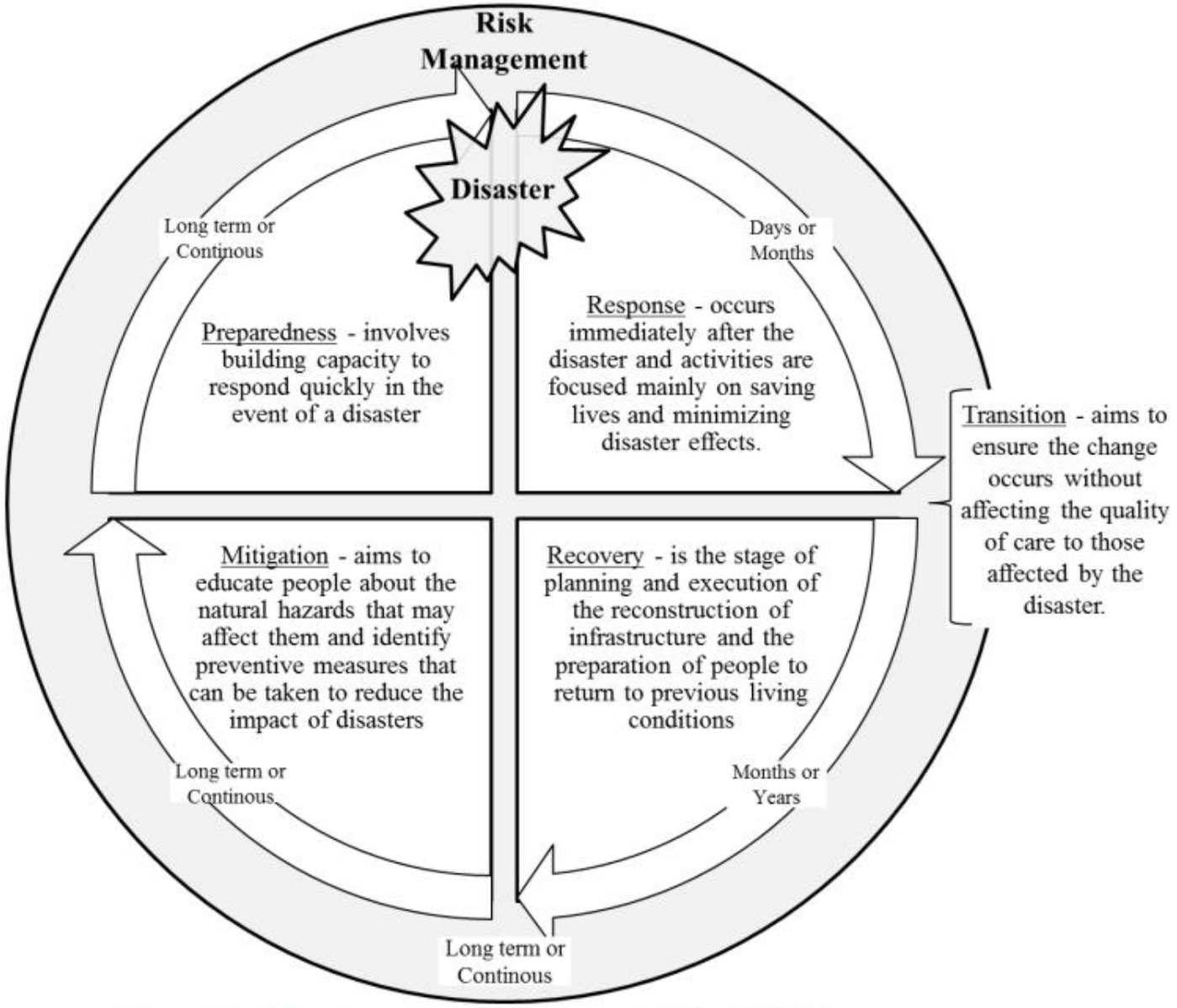
Examples of External Risks

Category	Risk	A	B	C	D	E
	External					
Nature	Natural disaster: flood, earthquake	*	*			*
	Plant fire					
	Diseases, epidemics		*			*
Political system	War, terrorism	*				*
	Labor disputes	*	*			*
	Customs and regulations	*	*	*		*
	Price fluctuation			*		
	Economic downturn		*			
	Exchange rate risk	*				
Competitor and market	Consumer demand volatility		*	*	*	
	Customer payment	*				
	New technology		*	*		
	Changes in competitive advantage			*		
	Obsolescence	*				
	Substitution alternatives					

Examples of Internal Risks

	Internal				
Available capacity	Capacity cost	*	*		
	Financial capacity/insurance		*	*	
	Ability to increase production	*		*	
	Structural capacity		*	*	
	Supplier bankruptcy				
Internal operation	Forecast inaccuracy	*	*		
	Safety (worker accidents)		*		*
	Bullwhip effect	*		*	
	Agility/flexibility		*	*	
	Holding cost/order fulfillment tradeoff	*			
	On-time delivery		*		
	Quality		*		
Information system	IS breakdown	*			
	Distorted information				*
	Integration	*			*
	Viruses/bugs/hackers		*		*

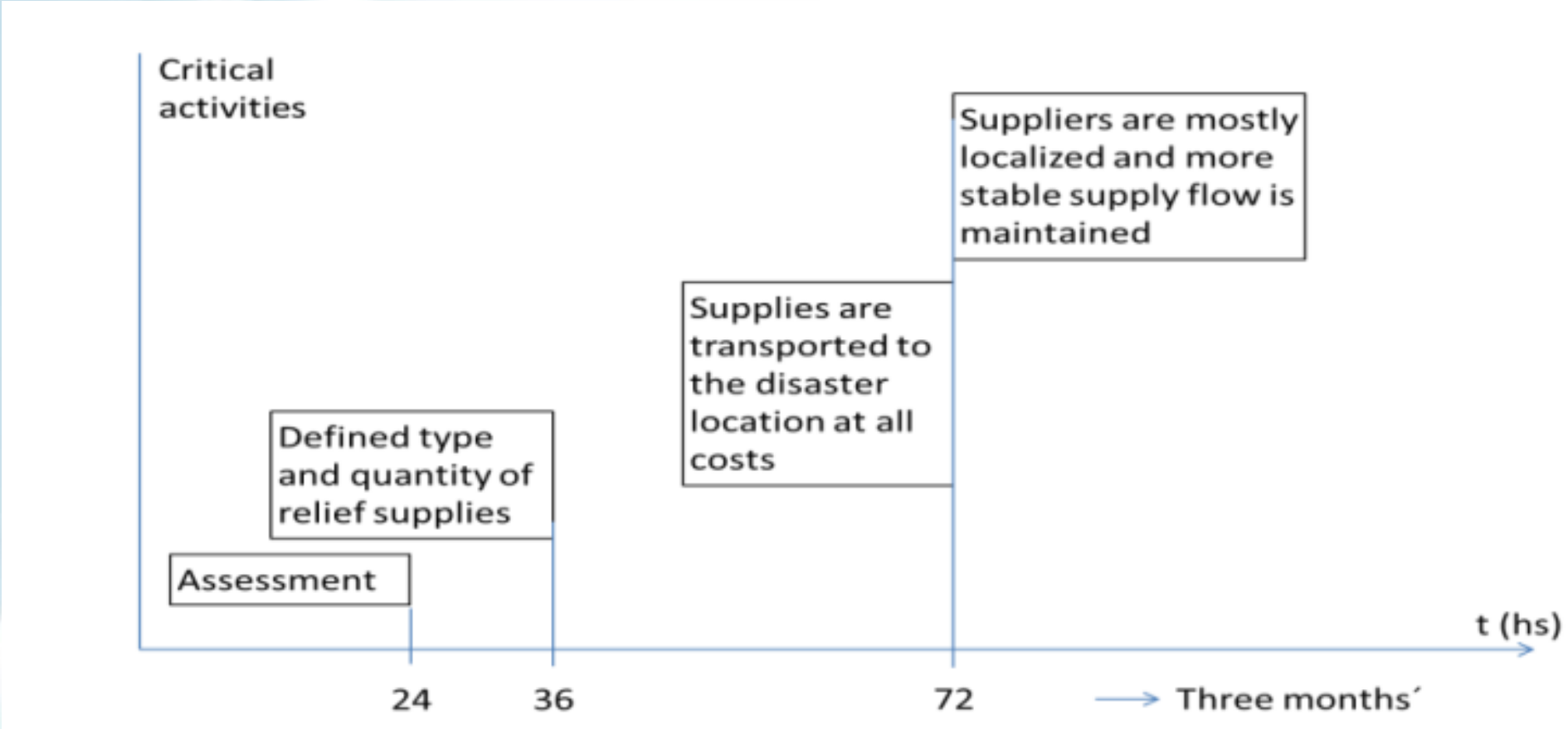
The Disaster Management Cycle



Disaster Management Cycle

Phase	*Preparedness*	*Response*	*Transition*	*Recovery*	*Mitigation*
Period	Long Term - Continuous	Days – Months	Months – Years		Long Term - Continuous
Logistics Volume	Low	High	Medium		Low
Supplies Required	Specific standard supplies pre-positioned for disaster response	Specific standard supplies: Food, medical supplies, water and sanitation equipment, shelter, household kits, etc.	Varied supplies depending on the context of the disaster: reconstruction material, livelihoods equipment		Varied supplies
Urgency	Low	High: Lead times for supplies can make the difference between life and death.	Medium: There may be government and donor pressure to complete recovery activities		Low
Procurement of Supplies	Local	International	Local-International		Local

Example: Response on time after the disaster strikes



Why are Humanitarian supply chains more vulnerable?

- Despite corporates where budgets are more clear and planning is somehow seamless

We are risk responders:

- ❑ Typhoons
- ❑ Floods
- ❑ War

Risks

- ❑ Funding
- ❑ Tight Budgets
- ❑ Time Frame

Topic	Commercial SC	Humanitarian SC
Main objective	Maximize profit	Save lives and help beneficiaries
Demand pattern	Fairly stable and can be predicted with forecasting techniques	Irregular with respect to quantity, time and place. Demand is estimated within the first hours of response
Supply pattern	Mostly predictable	Cash is donated for procurement. Unsolicited donations and in-kind donations need sorting, prioritizing to decrease bottlenecks
Flow type	Commercial products	Resources like evacuation vehicles, people, shelter, food, hygiene kits, etc.
Lead time	Mostly predetermined	Approximately zero lead time, demand is needed immediately
Delivery network structure	Established techniques to find the number and locations of warehouses, distribution centres	Ad hoc distribution facilities or demand nodes, dynamic network structure
Inventory control	Safety stocks for certain service levels can be found easily when demand and supply pattern is given	Unpredictable demand pattern makes inventory control challenging. Prepositioned inventories are usually insufficient
Technology and information systems	Highly developed technology is used with commercial software packages	Less technology is used, few software packages that can record and track logistics data. Data network is non-existent
Performance measurement method	Based on standard supply chain metrics	Time to respond the disaster, fill rate, percentage of demand supplied fully meeting donor expectation
Equipments and vehicles	Ordinary trucks, vehicles and forklifts	Robust equipment are needed to be mounted and demounted easily.
Human resources	Commercial SCM is now a respected career path (Thomas, 2003)	High employee-turnover, based on voluntary staff, harsh physical and psychological environment
Stakeholders	Shareholders, customers and suppliers	Donors, governments, military, NGOs, beneficiaries, United Nations, etc.

Impact of supply chain disruption

- The impact of unplanned and unforeseen events in supply chains can have **severe financial effects** across the network as a whole
- The North America research suggests that companies experiencing supply chain disruption saw their average **operating income drop 107 per cent**.
- It can be argued that in today's volatile business environment the **biggest risks to business continuity lie in the wider supply chain**- The networks feeding into your organizations supply chain.- (Your suppliers, Warehousing, Outsourced services)
- As a result of this heightened risk, organisations will need to develop appropriate programs to mitigate and manage that risk.

THE SUPPLY CHAIN RISK PROFILE

The purpose of risk profiling is to establish where the greatest vulnerabilities lie and what the probability of disruption is.

Supply Chain Risk = Probability of risk happening × Impact

Risk Sources:

1. Supply risk- How vulnerable is the business to disruptions in supply?

Risk may be higher due to global sourcing, reliance on key suppliers, poor supply management, etc.

2. Demand risk- How volatile is demand?

Does the 'bullwhip' effect cause demand amplification? Are there parallel interactions where the demand for another product affects the demand for ours?

Bullwhip- a supply chain phenomenon describing how small fluctuations in demand at the retail level can cause progressively larger fluctuations in demand at the wholesale, distributor, manufacturer and raw material supplier levels.

SUPPLY CHAIN RISK PROFILE

3. Process risk-How resilient are our processes?

Do we understand the sources of variability in those processes, e.g. manufacturing? Where are the bottlenecks? How much additional capacity is available if required?

4. Control risk- How likely are disturbances to be caused by our own internal control systems?

For example, order quantities, batch sizes and safety stock policies can distort real demand. Our own decision rules and policies can cause ‘chaos’ type effects.

5. Environmental risk

Where across the supply chain as a whole are we vulnerable to external forces? Whilst the type and timings of extreme external events may not be forecastable, their impact needs to be assessed.

Team Activity

From the discussed risk sources, think about your organization and share in the chat where your organization is most likely to face risks- Be as specific as possible

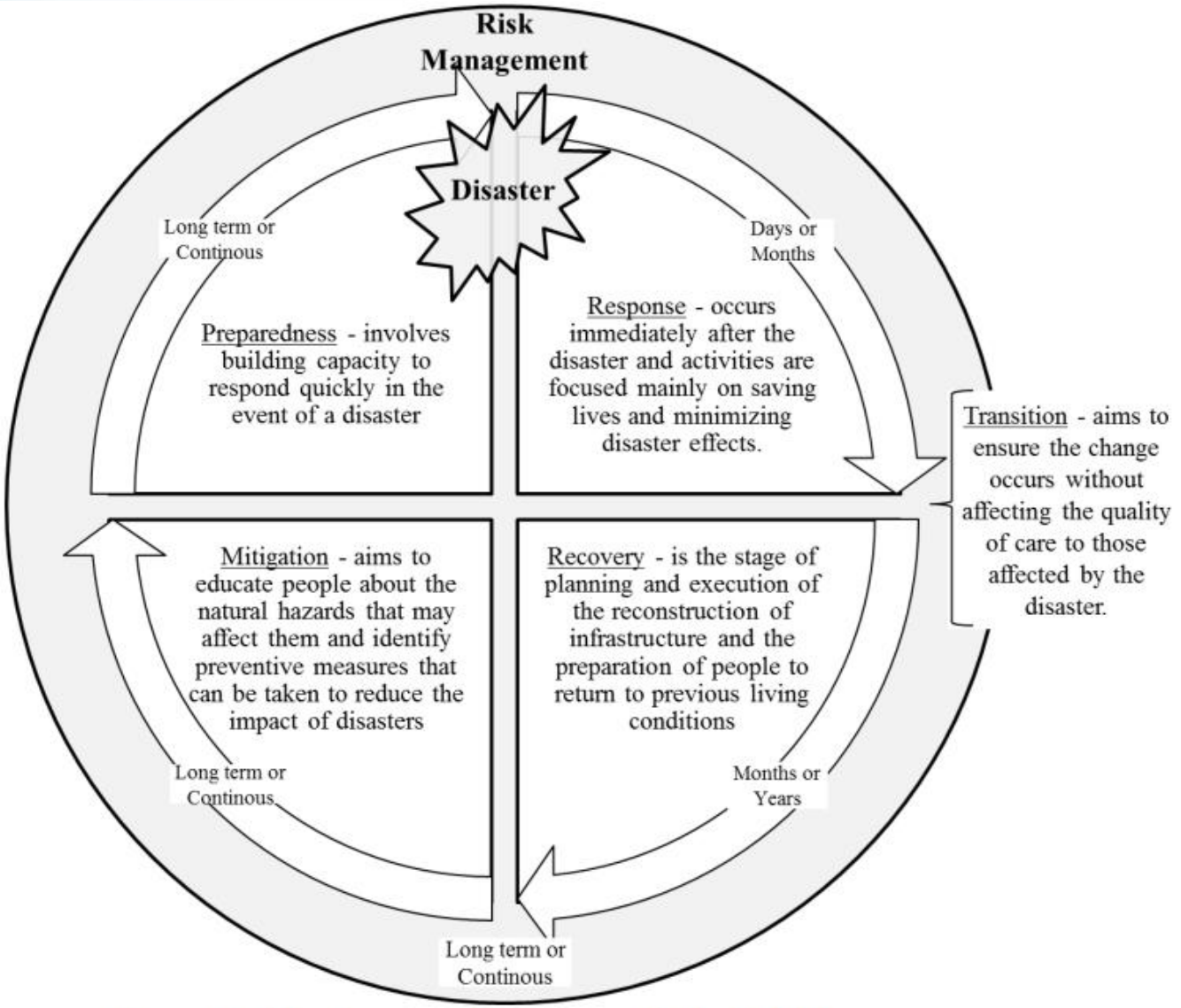
Hints:

1. *Demand risks-(urgent orders, unplanned forecasts)*
2. *Supply risks - (unreliable suppliers, outsourcing)*
3. *Process risks- (lack of infrastructure, unnecessary processes, approvals)*
4. *Control risks- order quantities, batch sizes and safety stock policies*
5. *Environmental risks- (Floods, typhoon)*

SUPPLY CHAIN RESILIENCE

- Resilience implies the **ability of a system to return to its original or desired state after being disturbed.**
- Because even the best managed supply chains will hit unexpected turbulence or be affected by events that are impossible to forecast, it is critical that resilience be built into them.
- The aim is to create a supply chain community whereby there is a **greater visibility of upstream and downstream risk profiles** and **a shared commitment to mitigate and manage those risks.**

The Disaster Management Cycle



Components of a Risk Register

1.Department
2.Category/ profile
3.Risk Description
4.Possible impact
5.Impact Score
6.Likelihood Score
7.Risk Score
8.Owner
9. Strategy
10. Mitigation / Solution
11.Priority
11.Status
12.Action

supply Chain Risk Register

Template Risk Register

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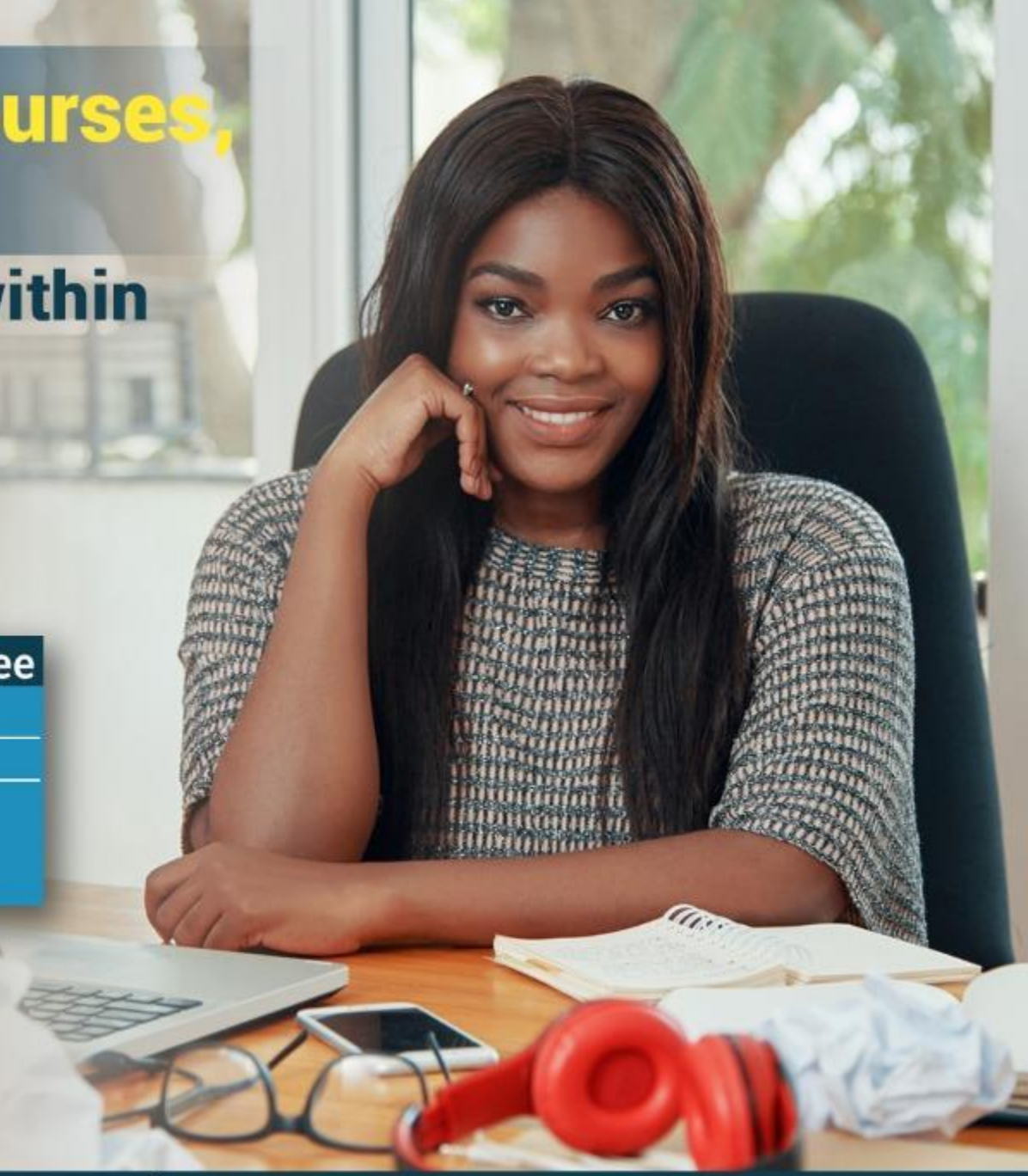

Course Structure

Level	Knowledge	Duration	Course fee
Certificate	Beginner	3 months	$500
Diploma	Intermediate	6 months	$1000
Postgraduate Diploma	Expert	12 months	$1500

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Take Away Activities

1. “What is our plan for when things go wrong?”

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END

Q&A

THANK YOU FOR LISTENING