

ARTIFICIAL INTELLIGENCE IN SIMULATION-BASED TRAINING



AECT

• B & K Solutions •

NATO ACT

32 member countries

Intergovernmental

Thousands of personnel

Scalable & Adaptable

Accessible

Efficient & Effective



AI-POWERED SIMULATION-BASED TRAINING

Low Fidelity



High Fidelity



Asynchronous • Remote • Personalized • Immediate • Hands on

Text-based programming

Create **Configure**

Name
Negotiation Trainer

Description
NATO ACT

Instructions
should act like a live negotiation role play with the GPT playing an adversarial role. Continue through four stages of the negotiation scenario. After the initial stage, your output should be in the voice of the negotiator you are role playing, but you should also provide 1 or 2 hints to the user for what they should attempt to accomplish at each stage. After the fourth stage the role-play scenario will be over and the GPT will provide feedback on the user's performance in the form of strengths and weaknesses. If the user types "restart" at any point, the scenario starts again from the beginning.

Conversation starters

- Start a negotiation scenario
-

Knowledge
If you upload files under Knowledge, conversations with your GPT may include file contents. Files can be downloaded when Code Interpreter is enabled

the art of negotiation.pdf
PDF

Preview

Negotiation Trainer
NATO ACT

Start a negotiation scenario

Message Negotiation Trainer

Fine-tuning document

Simple interface



Crisis Comms Trainer

By Alexander Barrett 8

NATO ACT

Start a crisis
communication
scenario.

Give me feedback
on my crisis
communication.

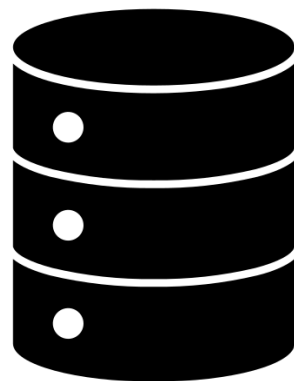
Tell me how to
communicate
in a crisis.



Message Crisis Comms Trainer

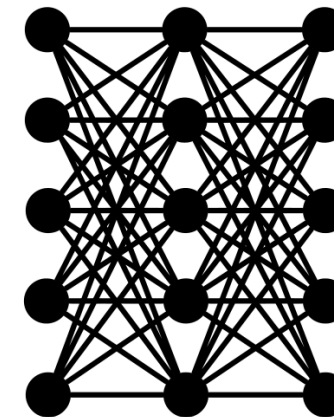


Creating Unique Virtual Agents



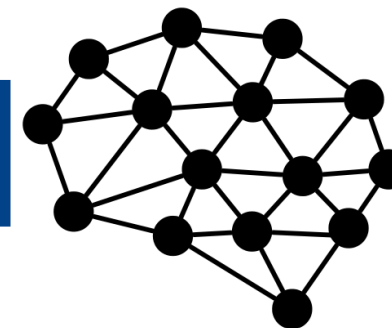
Transcribed language data from target population

Pretraining



Transformer-based Large Language Model

Fine tuning



Localized and customized language model

Communicating



Third party cloud service for communication with simulation



TRAINEE



Test User

LEARNER EVALUATION

Low Fidelity

RUBRIC	Unsatisfactory	Competent	Proficient	Distinguished
Criteria 1	Lorem ipsum dolor sit amet, consectetur adipiscing.	Duis aute irure dolor in reprehenderit.	Sunt in culpa qui officia deserunt mollit anim id est laborum.	Ut enim ad minim veniam, quis nostrud.
Criteria 2	tempor incididunt ut labore et dolore magna aliqua.	Excepteur sint occaecat cupidatat non proident.	In voluptate velit esse cillum dolore eu fugiat nulla pariatur	Duis aute irure dolor in proident.

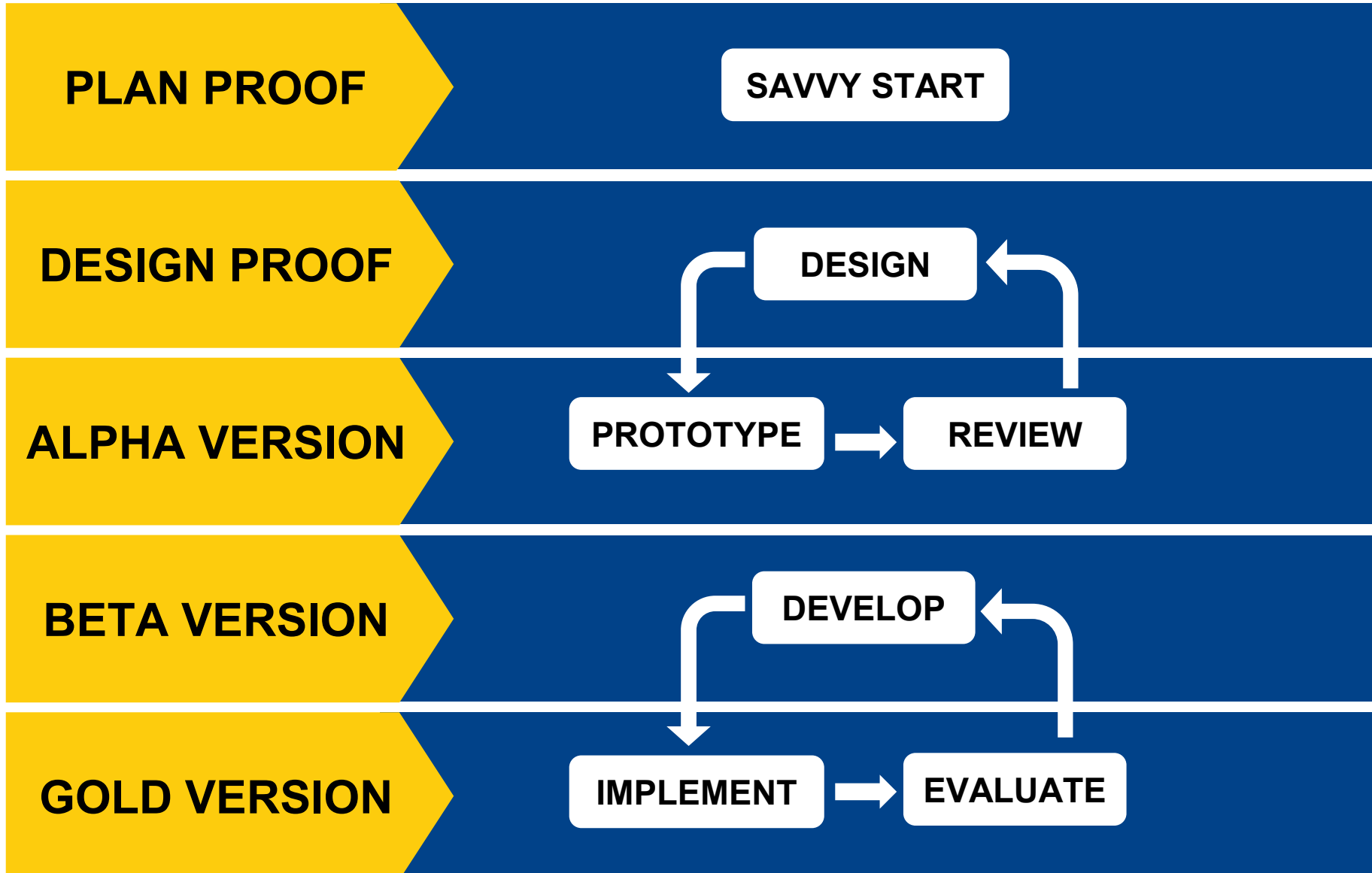
High Fidelity

Analytics

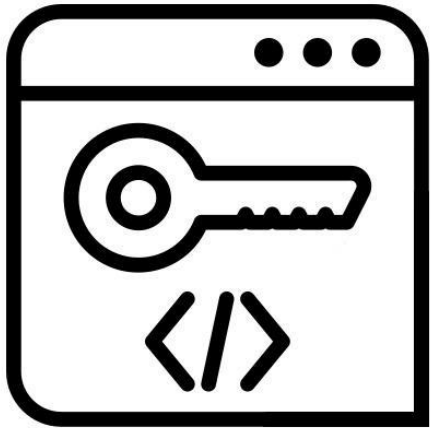
+

**Post
Test**

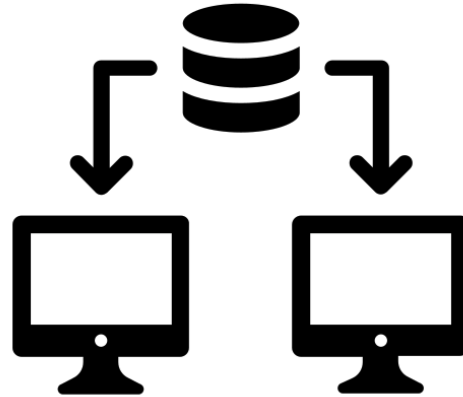
SUCCESSIVE APPROXIMATION MODEL



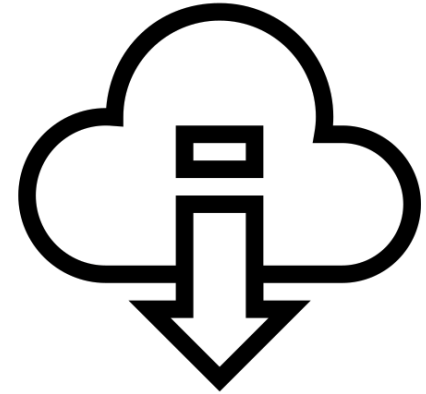
TECHNICAL RESOURCES



GPT License

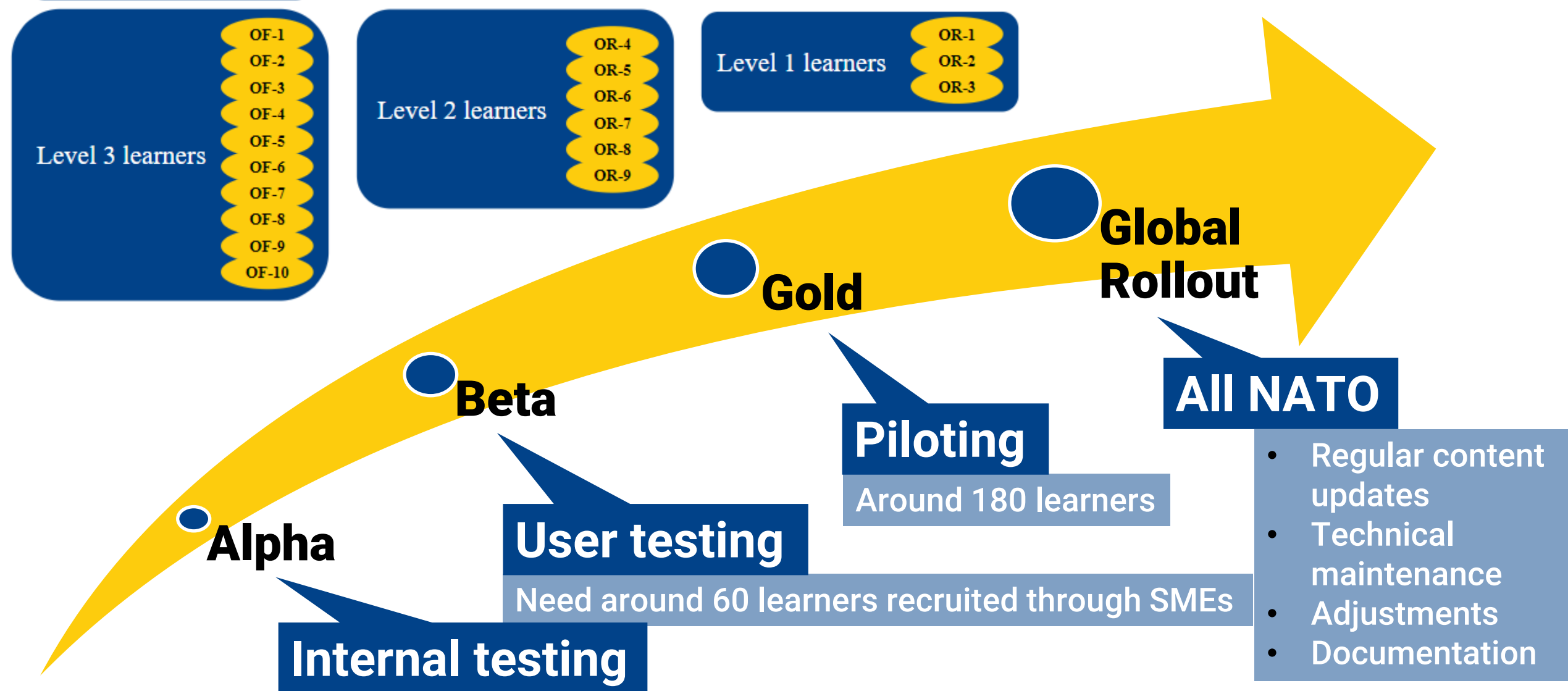


Virtual world host

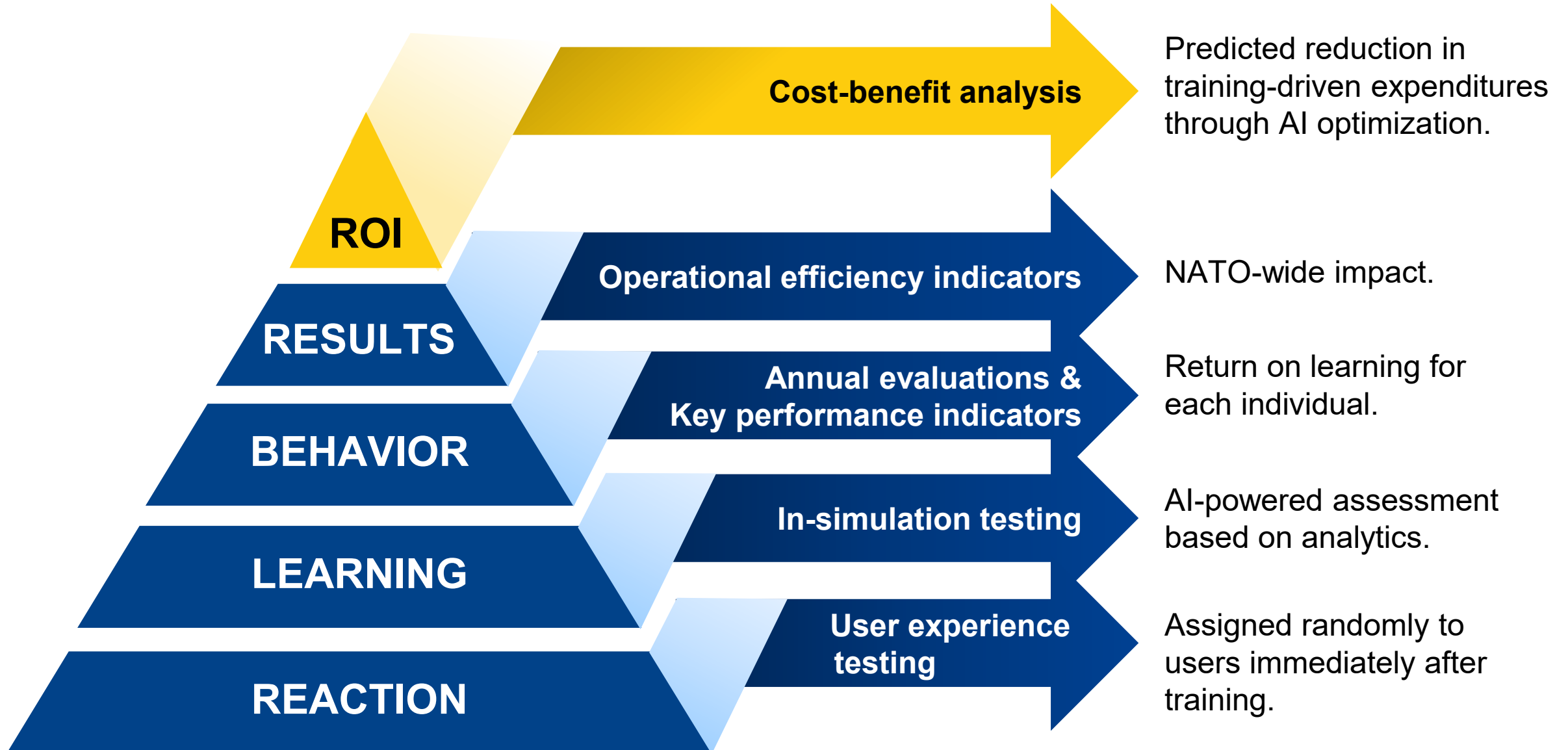


Cloud server

PROCEDURAL IMPLEMENTATION

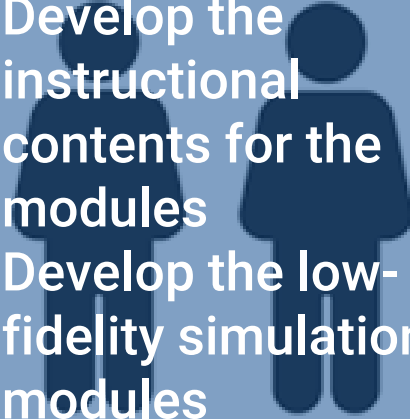


PROGRAM EVALUATION




HUMAN RESOURCES


17 team members

- Lead and manage the overall project
 - Develop the instructional contents for the modules
 - Develop the low-fidelity simulation modules
- 

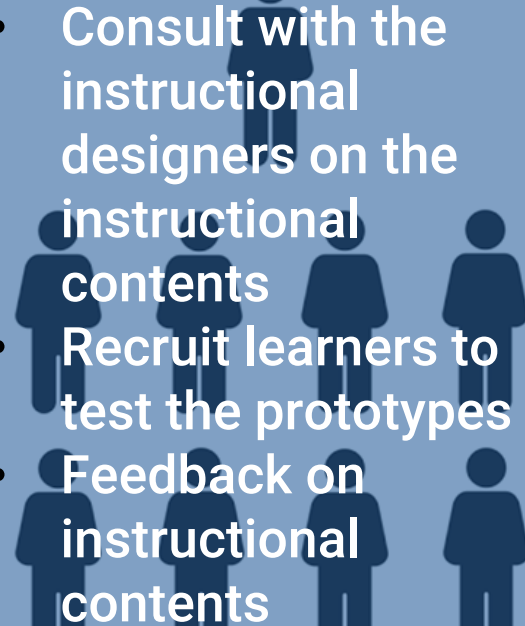
B&K Solutions
2 instructional designers

- Supervise, approve, or request revisions of the deliverables (Plan proof, design proof, Alpha, Beta, Gold prototypes)
- 

NATO ACT
1 project supervisor

- Develop the high-fidelity simulation modules
 - Optimize the low-fidelity simulation modules for NATO technical specifics
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NMSG
5 technicians

- Consult with the instructional designers on the instructional contents
 - Recruit learners to test the prototypes
 - Feedback on instructional contents
- 

JWC, CAX, CMDR, COE
9 subject matter experts

BUDGET



\$819,200



TOTAL BUDGET	\$783,200			BREAKDOWN			
Phase	Activity	Deliverables	Cost Category	Per item	Total item	Units	Total
Savvy Start	Create project spec documents on why, what, when, where, how of AISOI						\$72,000
	Align high-level project outcomes with NATO ACT	Prepare the presentation for meeting with the SMEs	Planning	\$150	62	hourly pay	\$9,300
		Finalize on the list of SMEs	Planning	\$150	4	hourly pay	\$600
	Align project specifics with the collaborators	Prepare the presentation with SMEs	Planning	\$150	62	hourly pay	\$9,300
		Write meeting reports with SMEs	Planning	\$150	62	hourly pay	\$9,300
	Reflect learner needs on the AISOI direction	Collect survey from recent learners	Research	\$150	150	hourly pay	\$22,500
		Analyze the survey results from recent learners	Research	\$150	74	hourly pay	\$11,100
Resources	Confirm the direction of AISOI	Create plan proof	Operation	\$150	62	hourly pay	\$9,300
		Get the plan proof approved from the PS	Planning	\$150	4	hourly pay	\$600
	The costs for servers and software licenses						\$60,200
	Dedicated virtual servers	Virtual servers to host and update LLM	Indirect	\$1,200	32	per year	\$38,400
Low-fidelity simulation development	Software license	User license for premier GPT	Indirect	\$2,880	10	per server	\$28,800
	Miscellaneous	Digital artifacts, subscriptions	Indirect	\$1,000	1	estimated total	\$1,000
							\$192,000
	SME consulting	Consult SMEs for the instructional contents	Research	\$200	80	hourly pay	\$16,000
High-fidelity simulation development		Accommodate feedback	Research	\$200	160	hourly pay	\$32,000
		High-stakes negotiation	Production	\$150	320	hourly pay	\$48,000
	Template development	Crisis communications	Production	\$150	320	hourly pay	\$48,000
		Cybersecurity attacks	Production	\$150	320	hourly pay	\$48,000
							\$202,000
	SME consulting	Consult SMEs for the instructional contents	Research	\$200	80	hourly pay	\$16,000
		Accommodate feedback	Research	\$200	160	hourly pay	\$32,000
		Urban template	Production	\$150	320	hourly pay	\$48,000
		Suburban template	Production	\$150	320	hourly pay	\$48,000
	Template development	Rural template	Production	\$150	320	hourly pay	\$48,000
Delivery		NPC templates (civilian)	Production	\$2,000	5	per unit	\$10,000
		NPC templates (NATO officials)	Production	\$3,000	5	per unit	\$15,000
		NPC templates (hostile figures)	Production	\$4,000	5	per unit	\$20,000
							\$141,000
Evaluation and maintenance	Instructor training	Training for low-fidelity simulation	Operation	\$150	80	hourly pay	\$12,000
		Training for high-fidelity simulation	Operation	\$150	160	hourly pay	\$24,000
	Ongoing maintenance	Update and adjust the contents as needed	Operation	\$75	600	hourly pay	\$45,000
		Review AI-powered assessment outputs	Operation	\$100	400	hourly pay	\$40,000
Evaluation and maintenance							\$108,000
	[Level 1] Reaction	Interview learners from all levels	Evaluation	\$75	240	hourly pay	\$18,000
		Collect and analyze survey responses	Research	\$75	320	hourly pay	\$24,000
	[Level 2] Learning	Collect and analyze simulation log data	Research	\$75	160	hourly pay	\$12,000
		Review AI-powered assessment outputs	Evaluation	\$75	240	hourly pay	\$18,000
		Collect and analyze delayed survey responses	Research	\$75	160	hourly pay	\$12,000
	[Level 3] Behavior	Review the longitudinal performance metrics	Evaluation	\$75	160	hourly pay	\$12,000
		Review strategic performance indicators and	Evaluation	\$75	240	hourly pay	\$18,000
	[Level 4] Results	Collect and analyze operational data	Research	\$75	160	hourly pay	\$12,000
	[Level 5] ROI	Calculate ROI based on the financial reports	Evaluation	\$75	240	hourly pay	\$18,000

Savvy Start: \$72,000

Resources: \$68,200

Low-fidelity simulation: \$192,000

Per template: \$48,000

High-fidelity simulation: \$238,000

Per environment template: \$48,000

Per NPC template: \$3,000

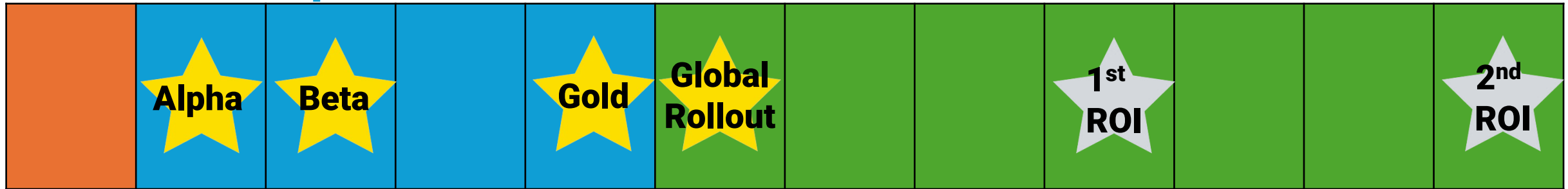
Delivery: \$141,000

Evaluation and maintenance: \$108,000

TIMELINE

12 quarters = 36 months = 3 years

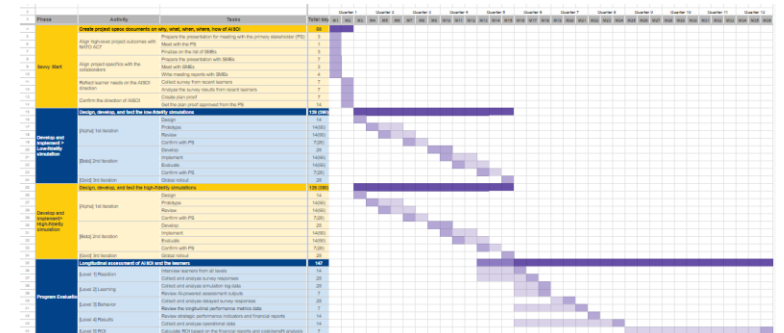
Design and Development



Savvy Start

Maintenance and Evaluation

The timeline is subject to modification based on the final agreement reached with the client. We provide detailed budget and timeline spreadsheet as a supplementary material.





Complete Budget

Thank you

Crisis Comms Trainer



Negotiation Trainer



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Extras in anticipation of questions

How will we work with SMEs?

How will we deliver the solution to those who need it in NATO?