

Example SOW for MTO Transition Accelerator, Stage 1 and Stage 2

Stage 1 Milestones A, B, and C:

Applicants should provide proposed tasks within the SOW and include associated timing and funding of each. It is expected that participation in Stage 1 of the Transition Accelerator will financially support roughly one Full Time Employee (FTE) to perform the work listed below. This employee should have the skills, experience, and availability for carrying out the activities listed above including business experience within the target industries of interest, experience commercializing technology and effectively interacting with technical and non-technical stakeholders. Performers that successfully complete Stage 1 may be considered for a Stage 2 Transition Accelerator contract.

(A) Transition Hypothesis Creation: Develop a detailed hypothesis for the technology transition which includes the following elements:

- **Application Identification:** List all potential applications and who you would expect the customers to be for these applications. List key parameters by which you will evaluate the potential of your technology to succeed in each of those markets, e.g., ROI, market size and growth rate, regulatory barriers, ease of customer acquisition, existence of entrenched players, etc.
- **Initial Competitive Analysis:** Scan the landscape of existing products as well as early stage technologies, still in the lab, that have potential to fill similar end-user needs as your technology.
- **Early Market Analysis:** Identify the top two most promising markets. Collect basic information including; market size, projected growth rate, key drivers, major and minor players, typical business models and associated margins.
- **Initial Product Hypothesis:** Describe what you would make and sell including what features, performance characteristics, and if relevant, the size and shape of the product or service.
- **Basic Cost Model:** Build a basic, system-level cost model showing early estimates of how much it would cost to produce each end unit or service. A good place to start is costing associated with an early Bill of Materials. If the system design and architecture are not yet fully defined, roughly estimate the costs of each potential design.
- **IP Securement:** Identify any road blocks in regards to access to Intellectual Property. Does the entity that will take the technology forward have access to all required pieces of the IP?
- **Hypothesis Go-to-Market Strategy:** Describe the vision for getting the technology to the end-user. Will the technology be licensed to a larger player, if so, whom? Will a startup be formed, if so, what sources of funding would it go after and at what level? Will the technology be taken to market through an in-house business unit, if so, estimate the level of funding that would be required. Describe expected partnerships that would need to be obtained for manufacturing, scale-up, IP acquisition, or to provide source funding. What is the expected time to impact?

(B) Transition Hypothesis Testing, and Refining: Test and refine the initial hypothesis by performing primary and secondary research.

- **Customer Engagement Plan:** Interview 5-8 potential customers in each market of interest. Use this forum to test the product description, its features and their value to customers. How important the product is to them, how much are they willing to pay for it, what specifications are required for adoption?

- Application Identification for Entry Market: For each potential application identified in Section A above, gather data on the associated market related to the key parameters listed. Based on this data, identify the most promising initial market(s) of entry and longer term markets of entry. See example below

	GaN power device capabilities		Market Requirements	
	2018 (projected)	2020 (projected)	Solar Inverter	Rail inverter
Blocking voltage (V)	700	2,000	>650	>1400
Drain Current (A)	50	110	>40	>100
R _{dson} (mOhm)	200	50	<250	<75
Operating frequency (kHz)	100	300	>90	>250
Cost	\$2.58	\$1.80	<\$2.75	<\$2.02

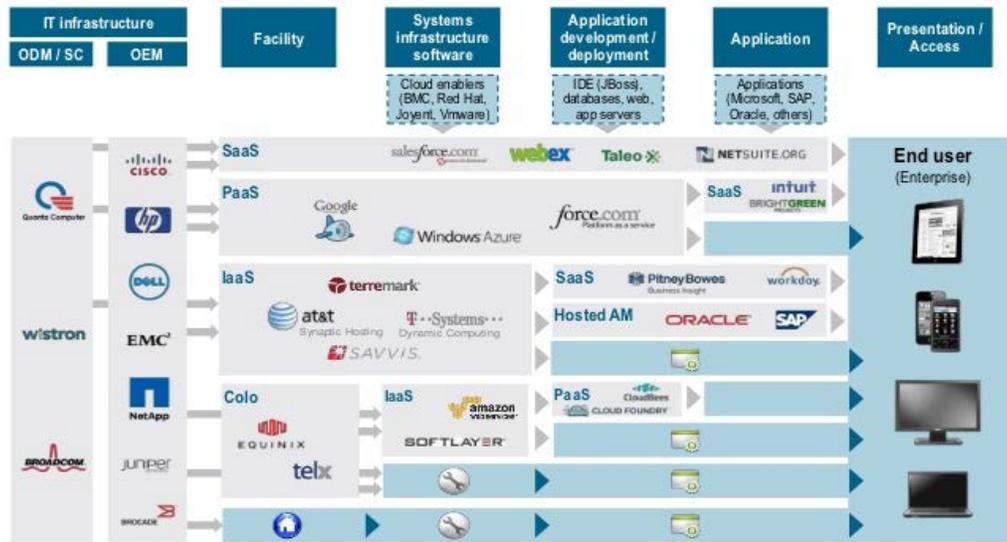
market size \$400M
market size \$1,200M
good first market
good next market

Figure 1: Simplified example of analysis for entry and longer term market applications

- Refined Competitive Analysis: Further develop an understanding of the incumbent technologies being used including strengths, weaknesses, performance characteristics, and pricing of each, as well as future competitive technologies. Utilize customer interviews to fill in this data.
- Refined Value Chain and Market Analysis: Complete this analysis for the top two most promising markets of entry. Include a map of the value chain from raw materials through end consumption. Identify the players within each segment and how they are partnered with each other.

Industry Value Chain

Complex Variety of Cloud Delivery Models



Source: Cisco IBSG 2011.
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Figure 2: An example value chain map <https://www.slideshare.net/CiscoSP360/the-cloud-value-chain-exposed-takeaways-for-network-service-providers>

Use this map to analyze where opportunities for strategic partnerships or new business models; which incumbents will be displaced, which companies would make displacement decisions, and who the decision makers are within these companies.

- Refined Product Hypothesis: Based on customer interviews and a better understanding of the market, what you would make and sell including what features, performance characteristics, and if relevant, the size and shape of the product or service.
- Refined Cost Model: Understand which elements of the manufacturing process are likely to cost the most by building a spreadsheet to calculate production costs per unit. This spreadsheet calculation should include costs associated with raw materials, purchased parts, labor, equipment, etc. Once this spreadsheet is built, use it to understand where manufacturing cost variations can come from and where opportunities exist to minimize costs. This could include cost changes with production volume, raw materials cost variation, tradeoffs in automation and labor costs for different processing methods, etc.
- Updated IP Securement Strategy: Identify any road blocks in regards to access to Intellectual Property. Does the entity that will take the technology forward have access to all required pieces of the IP?
- Updated Go-to-Market Strategy: Describe the vision for getting the technology to the end-user. Will the technology be licensed to a larger player, if so, whom? Will a startup be formed, if so,

what sources of funding would it go after and at what level? Will the technology be taken to market through an in-house business unit, if so, estimate the level of funding would be required? Describe expected partnerships that would need to be obtained for manufacturing, scale-up, IP acquisition, or to provide source funding. Describe the timeline and steps to impact.

- C. Transition Planning (Go to Market Strategy): Evaluate the results of the hypothesis testing to determine if a compelling business case exists. It is okay if the answer is “no” and therefore an alternative transition pathway to military impact must be determined. The Transition Plan should include a business model, financial plan demonstrating a viable rate of return to investors, customer acquisition plan, a scaling plan, an IP strategy with risk assessment, an operations and scale-up plan, a partnership plan and funding plan, and a timeline associated with each of the above.

Stage 2 Initiate Go to Market Strategy:

It is expected that funding for this stage will be significantly larger than Stage 1 and sufficient to bring the technology to a maturity level at which it can be manufactured at scale. DARPA is expecting significant cost share from Performers at this stage from; transition partners, early seed stage investors, or corporate partners.

- Further test and refine the transition hypotheses and plan developed in Stage 1. Continue to gather relevant customer and market data. Pivot as appropriate and provide updated hypotheses based on the evidence collected.
- Begin implementation of Go-to-Market Strategy: Sell prototypes to beachhead customers, secure follow-on purchase orders, stand up business operations and manufacturing, secure additional financing.