Measuring Government Innovation

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Brunelle, J. F., Frisk, D., Mayer, B., Randall, P., & Sheikh, A. (2020). Measuring the impact of innovation activities in government. *Defense Acquisition Research Journal, 27*(4), 398–435. https://doi.org/10.22594/dau.19-849.27.04

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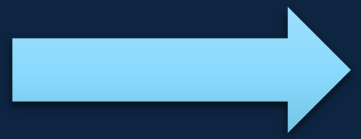
Backdrop: Government Innovation Landscape

- Government organizations increasingly recognizing the need to innovate to fulfill their missions
- Adopting innovative approaches and techniques from industry
- Creating or partnering with small offices focused on fostering innovation

Innovation Then

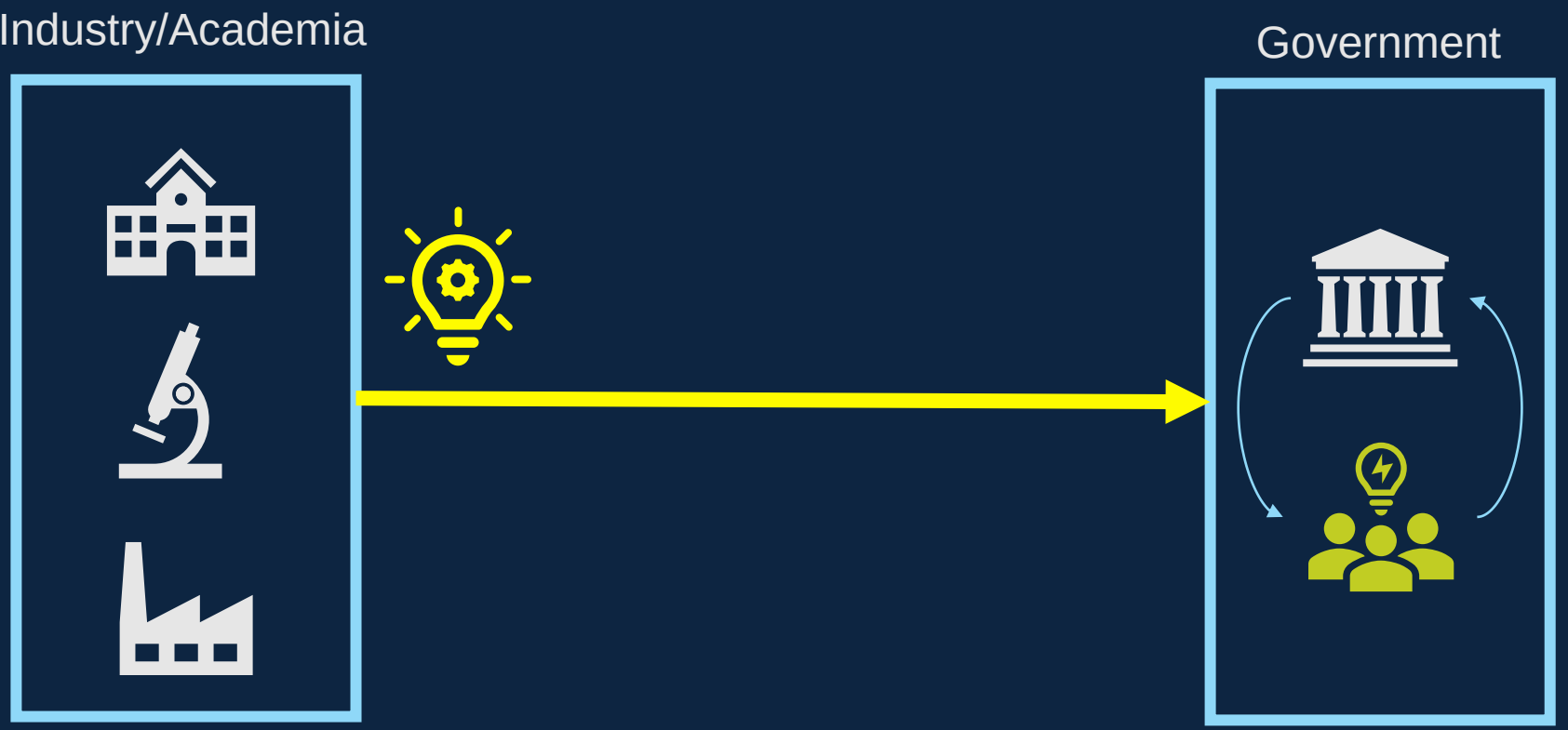
Historically, innovation in the government has come from labs, FFRDCs, and contractors



Innovation Now

Recently, government organizations are also directly promoting innovation

External Innovation is an Increasingly Valuable Resource



Innovation originating external to government ecosystems is valuable; government is beginning to focus on sourcing external innovation.

External innovation complements or even accelerates the R&D and innovation occurring within government ecosystems

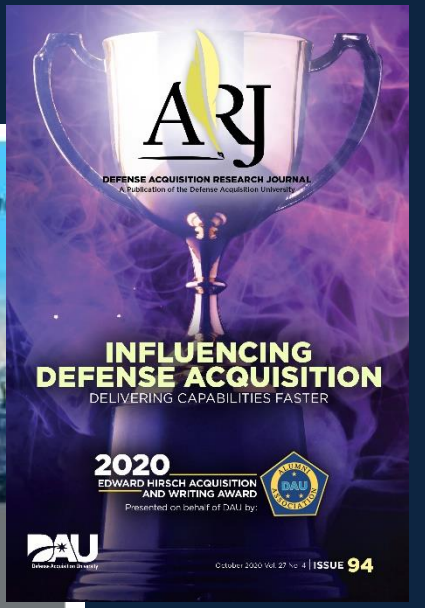
Research Questions

- What roles do government innovation organizations serve?
- What activities are innovation organizations performing to advance innovation?
- How do innovation organizations measure their results?

Research Project Path

- **Funded in FY19 through MITRE's independent R&D Program, the MITRE Innovation Program (MIP)**
  - Agile Connected Government innovation area
  - Focused on improving government agency efficacy and efficiency

- **Published report: *Measuring the Impact of Innovation Activities in Government***
  - Defense Acquisition Research Journal (October 2020) www.dau.edu/library/arj/p/ARJ-94
  - Abridged version bitly.com/measureInnovation



Methodology

- Reviewed literature on innovation metrics
- Developed and conducted survey to collect data from government innovation organizations
- Processed, analyzed, and visualized data
- Reported findings and recommendations

Targeted Survey and Resulting Data Set

- **Developed survey to collect data on government innovation organizations**
  - Addressed organizations' missions, processes, metrics, and organizational details
  - Piloted survey with MITRE staff working for target organizations

- **Data Collection**
  - Solicited participation from 68 organizations
  - 28 organizations agreed to participate
  - 19 completed surveys (either via voice or in writing)

- **Augmented data with results of a recent study conducted for Defense Intelligence Innovation Office (DI2O)**
  - Rockwood Company carried out the survey of 28 organizations (20 organizations not surveyed by MITRE)
  - Rockwood study included questions similar but not identical to MITRE's

Total Data Set = 39 Organizations

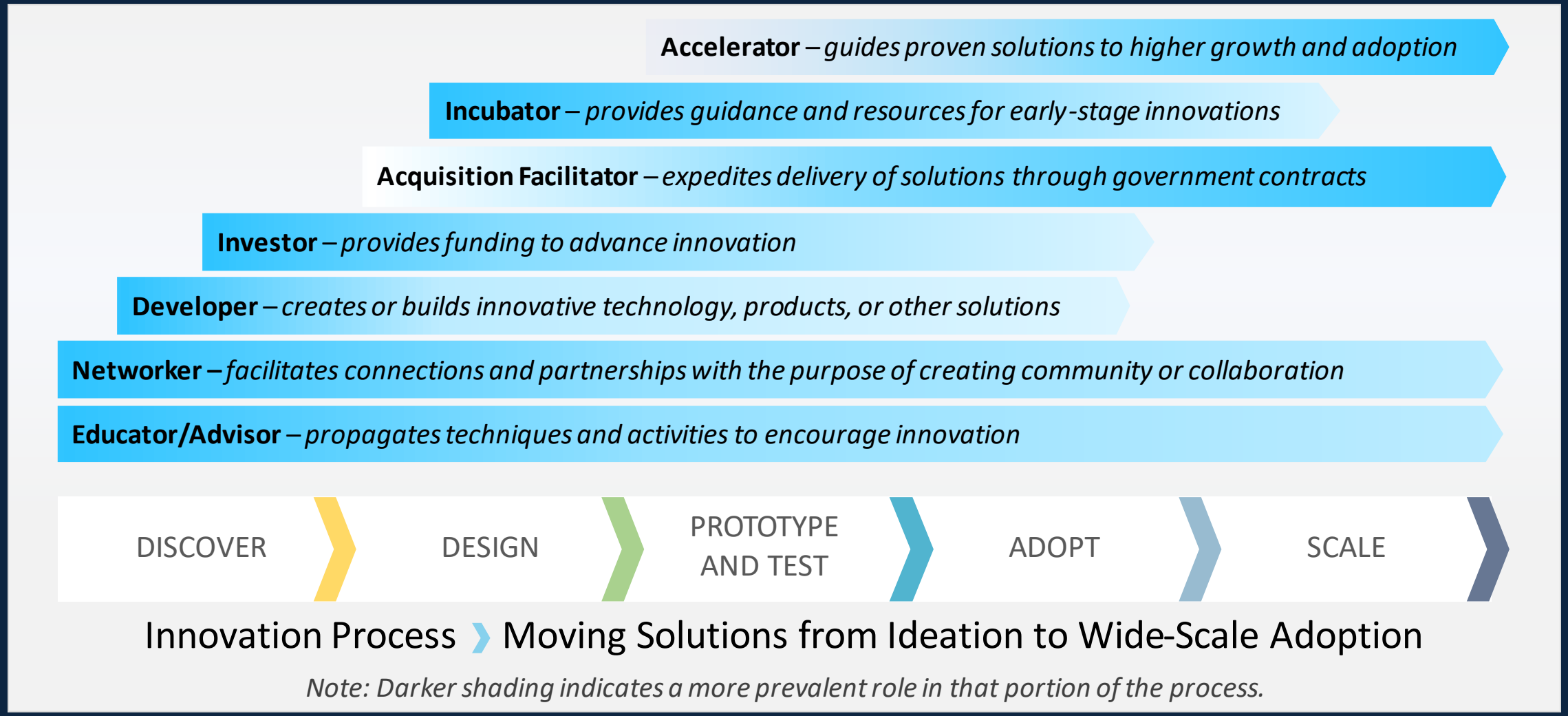
Innovation Organization and Ecosystem Characteristics

Category	Average	Median
Age of organization	5 years	3 years
Size of organization	19 FTE	12 FTE
Budget	$50 M	$14 M
Receives funding from parent organization*	88%	N/A
Partners with other innovation organizations*	79%	N/A
Types or categories of innovation provided	3	N/A

**Partial data due to incomplete survey responses*

- Primarily support parent organizations but also provide services to other agencies
- Partnerships and collaboration among innovation organizations are common
- Limited mappings and no comprehensive directory of government innovation ecosystem; none that are continuously updated
- Burden of discovery often falls on the potential customers, users, and partners of innovation organizations

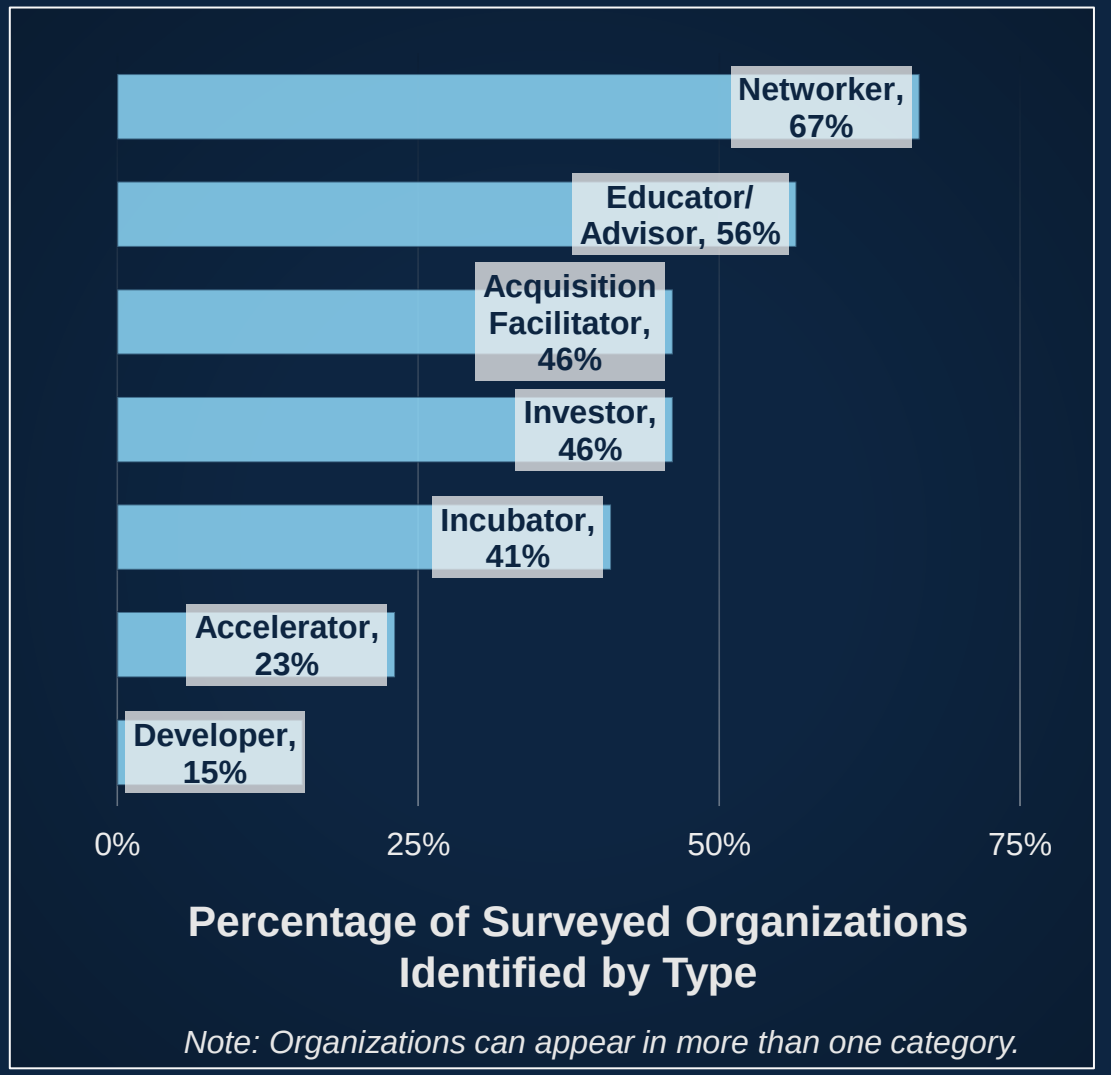
Seven Types of Government Innovation Organizations



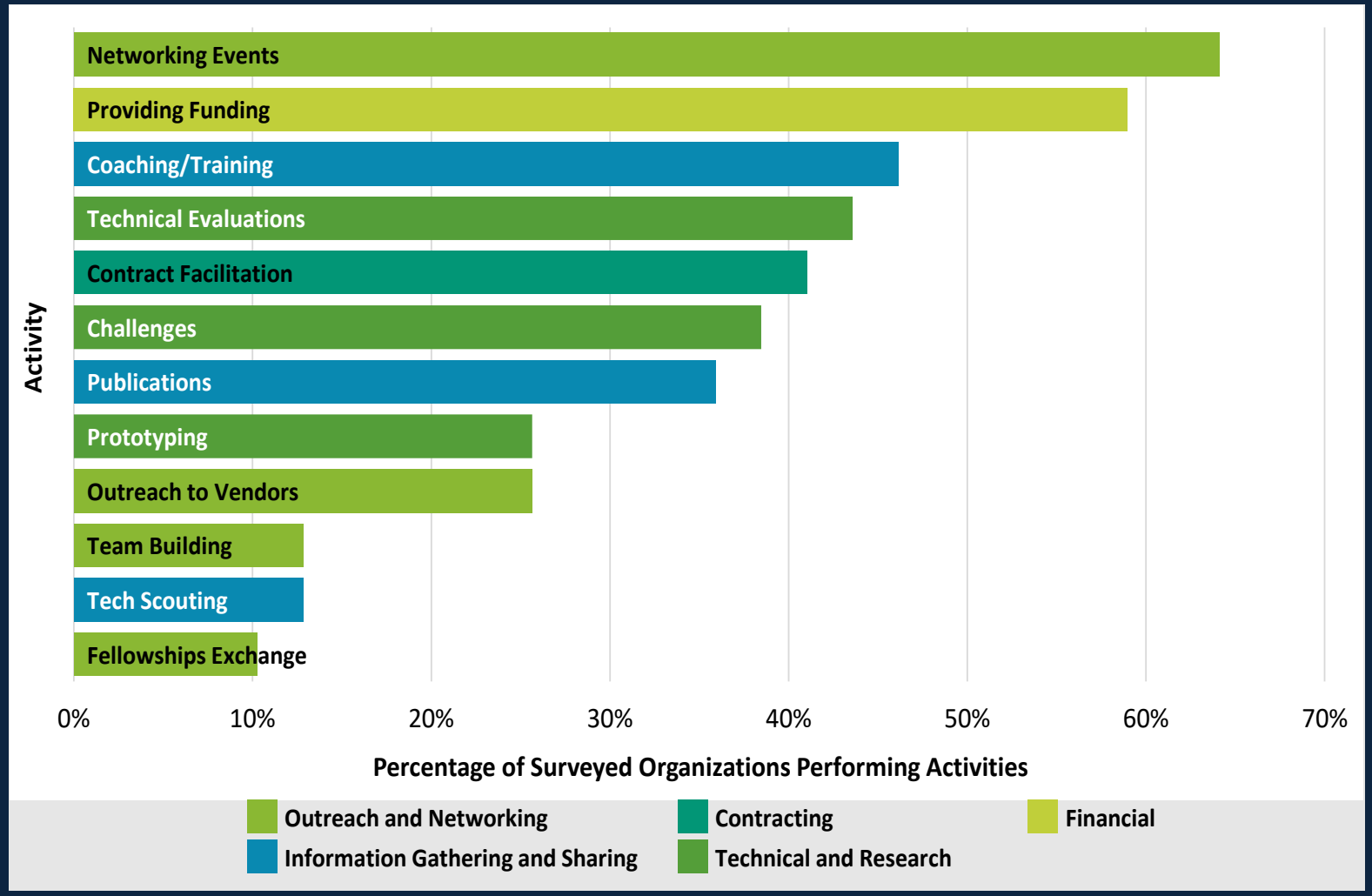
Note: Darker shading indicates a more prevalent role in that portion of the process.

Prevalence of Types of Innovation Organizations

- Organizations frequently perform multiple roles and fall under more than one type
- Certain categories are frequently paired (e.g., investors and accelerators)
- Reasons for prevalence may be based on
  - Demand for specific services
  - Resources and staff required
  - Newly forming organizations may still be discovering and refining offerings



Activities Performed by Innovation Organizations



FINANCIAL

Providing funding for any stage of the innovation process.

OUTREACH AND NETWORKING

Engaging and collaborating within and across organizations and domains.

TECHNICAL

Creating and improving innovative solutions.

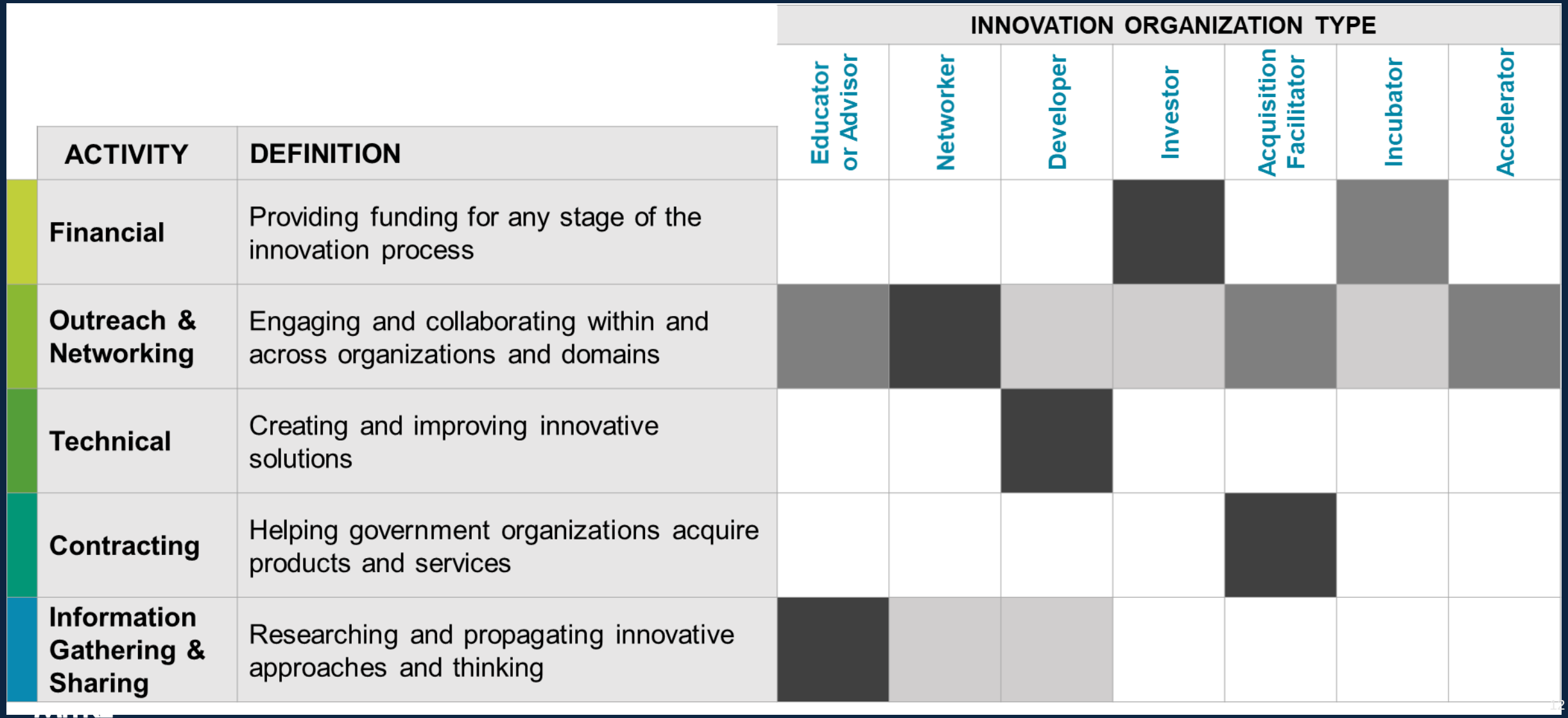
CONTRACTING

Helping organizations acquire products and services.

INFO GATHERING AND SHARING

Researching and propagating innovative approaches and thinking.

Activities Performed by Type of Innovation Organization



Categories of Innovation Metrics

Workload Metrics

- Measure incoming work and ongoing efforts, often in terms of projects, customers, or funding.

Engagement Metrics

- Measure success in generating participation, awareness, and collaboration through activities such as networking, partnering, social media outreach.

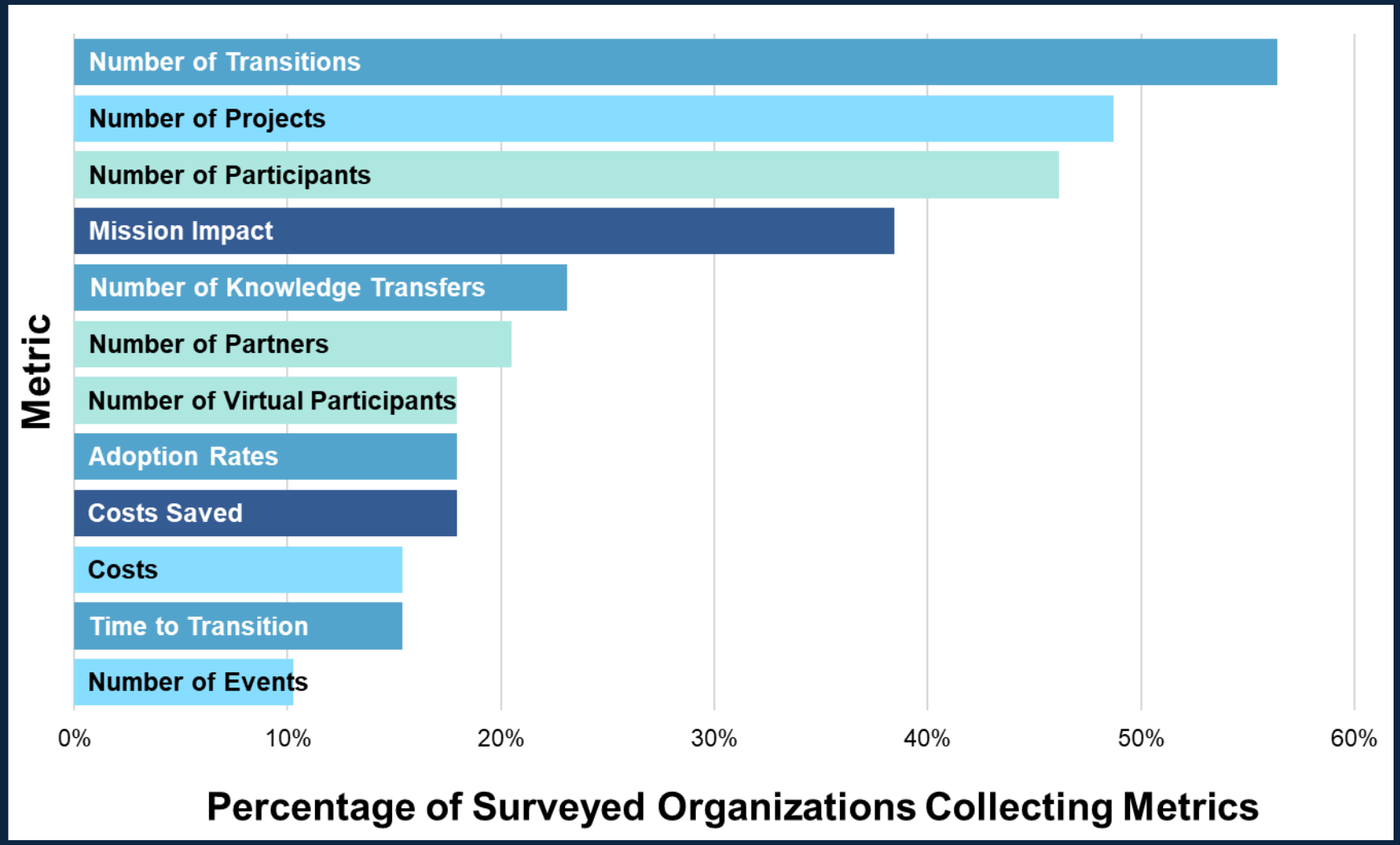
Output Metrics

- Measure success in delivering information, products, and services to users, typically through tracking the type of deliverable, frequency, and timeliness.

Outcome Metrics

- Measure the impact of solutions that are delivered to users, such as cost savings, mission effectiveness, patient health, or customer satisfaction.

Metrics Collected by Innovation Organizations



Recommendations for Innovation Organizations

- **Clearly establish your innovation role (e.g., Incubator, Educator/Advisor) and how it advances innovation**
- **Identify and collect appropriate metrics (discussed on next slide)**
- **Collect metrics as a part of regular operations**
- **Make metrics transparent**
- **Coordinate across innovation organizations to build and maintain a directory**

Be deliberate – and *quantitative* – in your innovation framing!

Workload & Engagement Metrics

WORKLOAD METRICS

Measure incoming work and ongoing efforts, often in terms of projects, customers, or funding.

- **Number of Projects** - counts programs, products, pilots, etc.
- **Costs** - measures financial obligations via budgets, costs per project, etc.
- **Number of Events** - counts networking events, hackathons, challenges, workshops, etc.
- **Number of Customers** - counts organizations or individuals employing innovation organizations

ENGAGEMENT METRICS

Measure success in generating participation, awareness, and collaboration through activities such as networking, partnering, social media outreach.

- **Number of Participants** - counts individuals or organizations participating in innovation activities
- **Number of Partners** - counts partnerships with other organizations
- **Number of Virtual Participants** - counts virtual participation, social media followers, contributors, etc.
- **Diversity of Customers or Innovators** - measures breadth based on organization, domain, etc.

Output & Outcome Metrics

OUTPUT METRICS

Measure success in delivering information, products, and services to users. Metrics typically track the type of deliverable, frequency, and timeliness.

- **Number of Transitions** - counts transitions of solutions to users, in terms of new programs of record, consignments of tools, etc.
- **Number of Knowledge Transfers** - counts transitions of new insights, ideas, or practices to users
- **Adoption Rates** - measures extent of a transition's adoption in a user community
- **Time to Transition** - measures time required to provide a solution to users
- **Number of Contracts Awarded** - counts contracts awarded as a result of efforts by innovation organizations
- **Number of Reports or Guidance Released** - counts publications for internal use or external release
- **Number of Gaps Informed** - counts instances when innovation organizations pass along information or solutions that directly addressed a user need

OUTCOME METRICS

Measure the impact of solutions that are delivered to users, such as cost savings, mission effectiveness, patient health, or customer satisfaction.

- **Mission Impact** - measures contributions of innovative solutions to user's mission success
- **Costs Saved** - measures dollars saved due to solutions
- **Success Stories** - anecdotes describing benefits of innovation organization efforts
- **Number of Startups Created** - counts number of new businesses or organizations that arose from innovation organization efforts

Recommended Metrics by Organization Type

MEASUREMENT CATEGORY	RECOMMENDED METRIC	INNOVATION ORGANIZATION TYPE						
		Educator or Advisor	Networker	Developer	Investor	Acquisition Facilitator	Incubator	Accelerator
Workload	Number of Events	■	■					
	Number of Projects	■		■	■		■	■
Engagement	Number of Participants	■	■			■	■	
	Number of Partners	■		■			■	■
	Diversity of Projects/Participants/Partners	■	■	■	■	■		■
Output	Number of Transitions	■		■	■		■	■
	Adoption Rate	■		■			■	■
	Time to Transition/Contract Award			■		■	■	■
Outcome	Participant/Customer Satisfaction	■	■	■		■	■	■
	Mission Impact	■	■	■	■	■	■	■

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Examples of Use of Innovation Study

2nd place in the 2020 Hirsch Writing Award from Defense Acquisition Research Journal

- **Documented 30+ instances of organizations using the study**

"[The study] is being used at the CTO level to guide the innovation strategy."

"I had not considered all the different categories of innovation organization before. I fear [organization] wants to do all of them."

"…this requires significant inward looking to identify how your office measures success."

The FAA's vision for the future expects to take advantage of *Innovation*

Framing Your Innovation Decisions

- **Roles – Determine the purpose of innovation and what types are needed**
  - Networking, acquisition facilitation, incubation, etc.
  - Some roles pair well with others

- **Activities – Determine the functions an innovation organization will perform to fulfill its roles**
  - Resourcing requirements
  - Process requirements

- **Measures – Determine the metrics that best evaluate an organization's success**
  - Track progress and identify most effective activities
  - Communicate results and value to customers and leadership

Applicable for standing up a new organizations, guiding existing organizations, and partnering with outside organizations

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