

# Capability building for data analytics and artificial intelligence

Intergovernmental Group of Experts (IGE)  
on E-Commerce and the Digital Economy  
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# The Digital Skills Gap: By the numbers

Only 42% of business leaders in Asia surveyed by Microsoft feel their employees possess the relevant skills to use data effectively to produce better business outcomes

2018 McKinsey Global Institute research highlights that up to 14% of workers might need to change occupations and in 60 percent of occupations, at least 1/3 of activities could be automated

Accenture found that in the US more than 90% of clients planned to hire workers with data science analytics (DSA) expertise, but 40% were confronted by a lack of available talent

Source: [The Data Science and Analytics Skills Shortage: The Case for Action to Equip the APEC Workforce with the Competencies Demanded by Employers to Support Sustainable Economic Growth and Prosperity](#)

# **Our approach to building the data analytics capability**

- 1** Data Science and Analytics (DSA) sits at the top of the skills shortage
- 2** DSA Competencies and DSA Professional Profiles
- 3** Case: UA&P's Master in Applied Business Analytics

# The **shortage of Data Science and Analytics skills** is a critical concern for economies and companies.

- 1** Data Science and Analytics (DSA) sits at the top of the skills shortage
- 2** The skills shortage is impacting economies negatively
- 3** DSA skills shortages constrain growth across a range of sectors

## The projections for DSA workforce demand in select APEC economies.

Economy	Current DSA Workers	Projected DSA Workers Needed	Percent Change
Malaysia <sup>7</sup>	<b>4,000</b> (Year 2016)	<b>20,000</b> (Year 2020)	400%
The Philippines <sup>8</sup>	<b>147,420</b> (Year 2016)	<b>340,880</b> (Year 2022)	131%
Singapore <sup>9</sup>	<b>9,300</b> (Year 2015)	<b>15,000</b> (Year 2018)	61%
United States <sup>10</sup>	<b>2,350,000</b> (Year 2015)	<b>2,720,000</b> (Year 2020)	16%

# APEC Project DARE – Data Analytics Raising Employment

A 50-person advisory group of business and academic leaders, and government officials from the 14 APEC member economies



# APEC Recommended **Data Science and Analytics Competencies**

A resource to align academic institutions and training providers the skills demanded by employers.



Domain Knowledge & Application



Data Engineering Principles



Data Management & Governance



Statistical Techniques



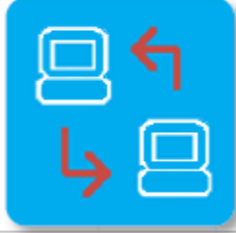
Operational Analytics



Data Analytics Methods & Algorithms



Data Visualization & Presentation



Computing



Research Methods



21<sup>st</sup> Century Skills

# EDISON Data Science Framework

Europe's resource to accelerate the education of Data Science Professionals.

## Data Science Professional Profiles: competence groups

		<b>Data Science Professional Profiles</b>				
<b>Data Science Competence groups</b>		Managers : DSP01-DS03	Professionals: DSP04-DS09	Professionals (data handling/management: DSP10-13	Professionals (database): DSP14-DS16	Technician and associate profession: DSP17-DS19
	Data analytics					
	Data Science Engineering					
	Data Management					
	Scientific research & method					
	Business process					
	Domain Knowledge					



# APEC Project DARE's proposed **initiatives to close the digital skills gap at scale**

Set and pursue an **ambitious APEC target**

to close the digital skills gap by 2025

Share insights and approaches to **equipping workers to ethically work with data**

**APEC Compendium of digital skills definitions** to promote increased coordination

Share research on **high impact investments** in digital upskilling and reskilling

Share how **demand in digital skills** are evolving in real time

Capacity building, networks, and tools to **support/increase digitally enabled faculty**

Share **digital skills supply/demand data** and insights to build understanding

Share **government statistical methodologies** that can help close the digital skills gap



“

**Develop the **ecosystem** that makes the Philippines a data-driven country, globally competitive in analytics, and a leading source of analytics talent, for the good of society.**

”



Brenda



Colin



Sherwin



Michelle



Rex

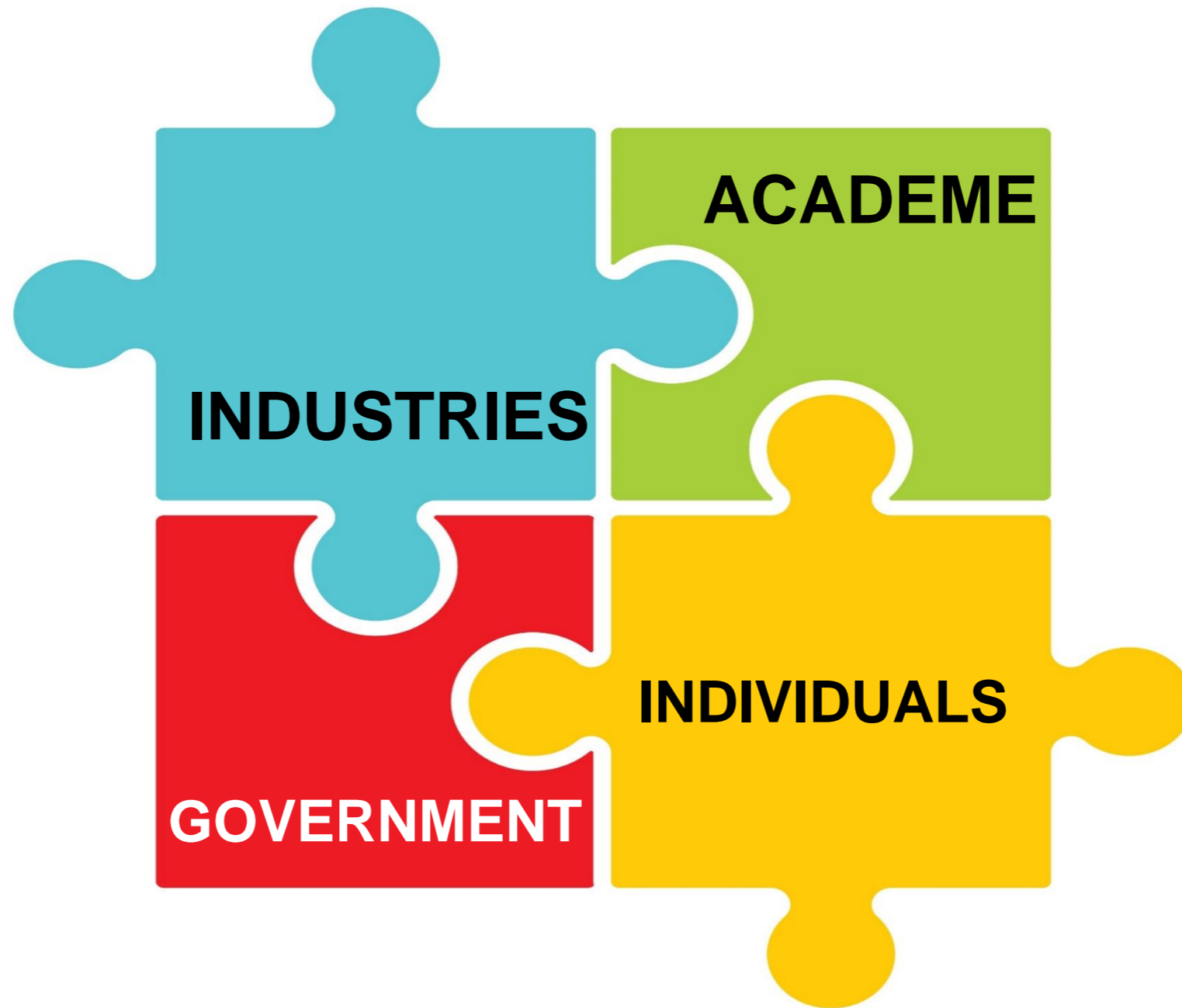


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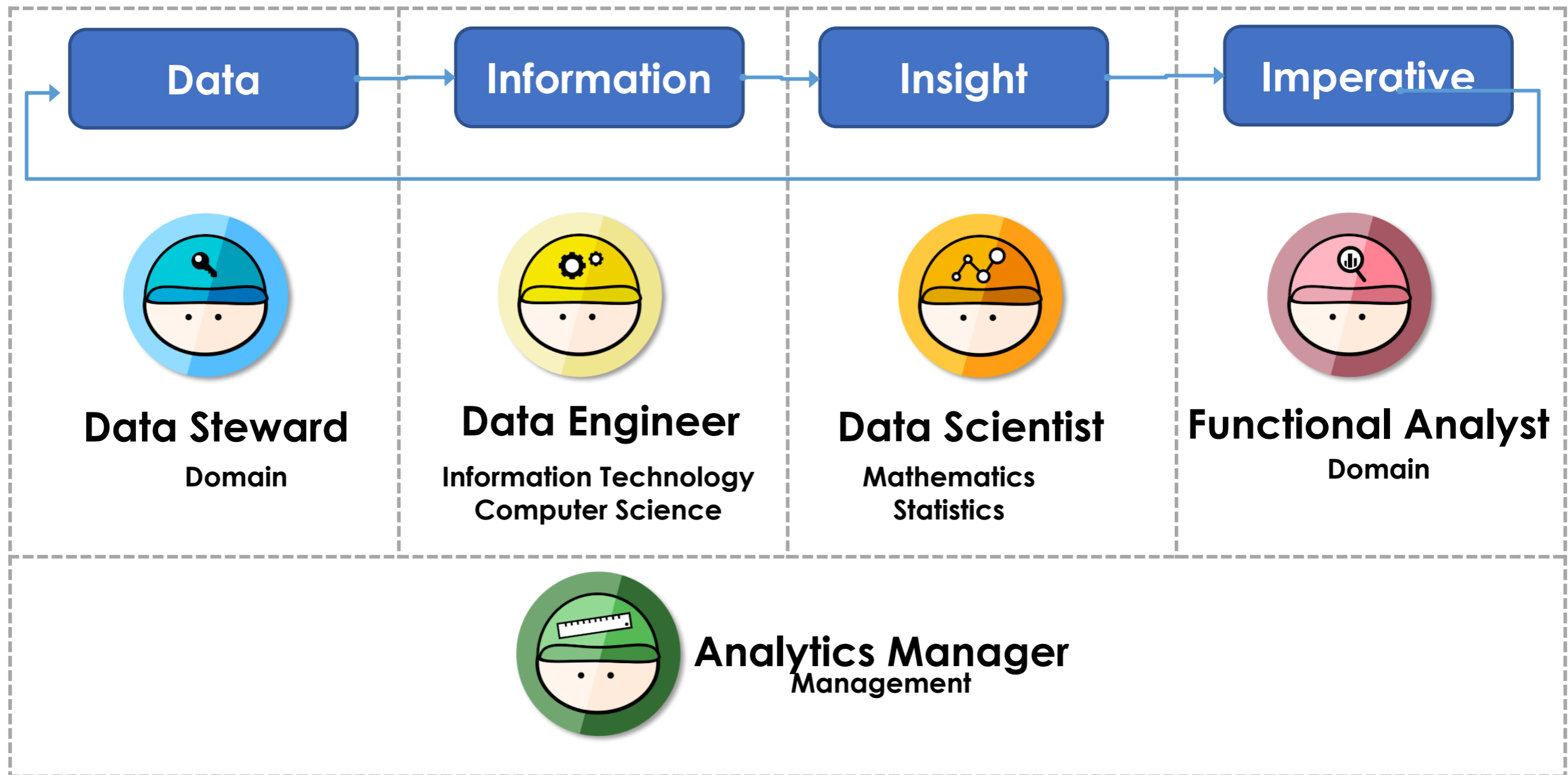


Karlo












**Connects all stakeholders to work together for one cause.**



# AAP's Four analytics job roles.



# AAP's Professional Maturity Model

	 Steward	 Engineer	 Scientist	 Analyst	 Manager
 Domain Knowledge	3 ★★★	1 ★	2 ★★	3 ★★★	3 ★★★
 Data Governance	3 ★★★	2 ★★	2 ★★	2 ★★	3 ★★★
 Operational Analytics	3 ★★★	3 ★★★	3 ★★★	3 ★★★	3 ★★★
 Data Visualization	2 ★★	1 ★	2 ★★	3 ★★★	3 ★★★
 Research Methods	1 ★	1 ★	3 ★★★	1 ★	1 ★
 Data Engineering	-	3 ★★★	1 ★	-	1 ★
 Statistical Techniques	-	1 ★	3 ★★★	-	1 ★
 Methods & Algorithms	-	1 ★	3 ★★★	-	1 ★
 Computing	1 ★	2 ★★	3 ★★★	1 ★	1 ★
 21 <sup>st</sup> Century Skills	3 ★★★	3 ★★★	3 ★★★	3 ★★★	3 ★★★

# We keep AAP's Professional Maturity Model relevant.

- 1** **Research:** Assessing the Alignment of Philippine Higher Education with the Demands for Analytics Workforce
- 2** **Incubation** in Pointwest Technologies Corporation as employer of analytics professionals
- 3** **Incubation** in UA&P's Master in Applied Business Analytics as source of Analytics professionals.



**UA&P**  
PROFESSIONAL  
SCHOOLS

# Master in Applied Business Analytics

*We make data serve people.*

**APPLY NOW**

(+632) 637.09.12 local 237  
businessanalytics@uap.asia

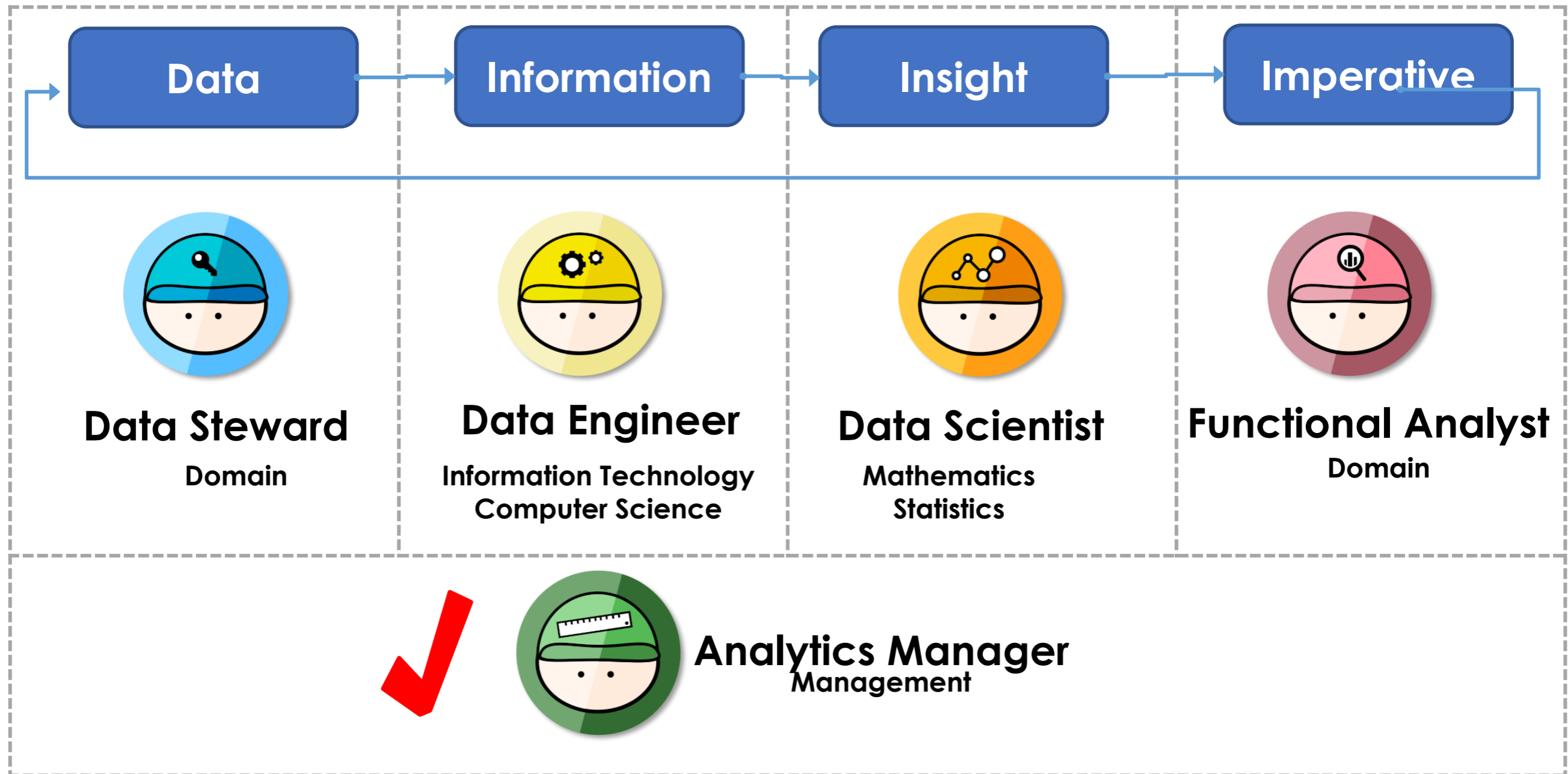


A MABA from UA&P is for those who may have varying involvement and experience in analytics initiatives seek career-growth advancement opportunities.





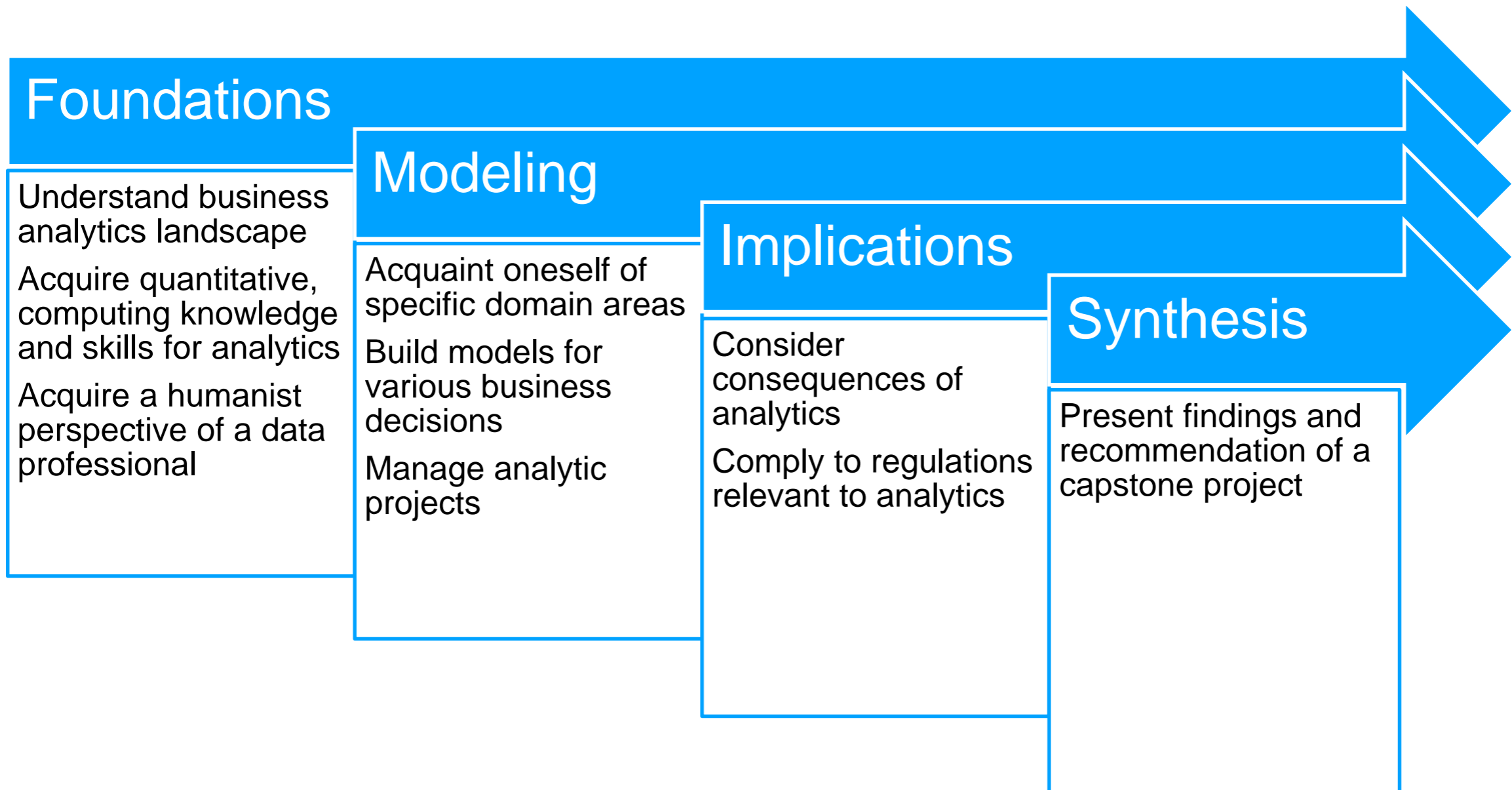
# It's **graduate profile** is the Analytics Manager



It has a **multi-disciplinary** curriculum.

Year 1		
Term 1	Term 2	Term 3
<ul style="list-style-type: none"> <li>▪ Mathematics for Analytics (2units)</li> <li>▪ Computing for Analytics 1 (2units)</li> <li>▪ Business Strategy and Analytics (2 units)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Statistics for Analytics (2 units)</li> <li>▪ Computing for Analytics 2 (2 units)</li> <li>▪ Descriptive Analytics, Visualization and Storytelling (2 units)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Data Management (2 units)</li> <li>▪ Business Domain 1 (2 units)</li> <li>▪ Human Perspective in Analytics (2 units)</li> </ul>
Year 2		
Term 4	Term 5	Term 6
<ul style="list-style-type: none"> <li>▪ Management of Analytics Projects (2 units)</li> <li>▪ Predictive Analytics (2 units)</li> <li>▪ Data Engineering (2 units)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Ethics and Law in Data and Analytics (2 units)</li> <li>▪ Prescriptive Analytics (2 units)</li> <li>▪ Business Domain 2 (2 units)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Capstone (6 units)</li> </ul>

# Our students go through a **learning journey**.



# Our **brand of analytics** professionals

*We make data serve people.*

*MABA's Tagline*



**Collaboration** is at the core of the program.

PROFESSORS

Administrators

Analytics  
Professionals

STUDENT

Employers

DOMAIN  
EXPERTS

# Pioneering is our **major challenge**.

- 1** Designing and delivering a new and unique program
- 2** Targeting the right administrators, professors, students
- 3** Designing and/or acquiring the right teaching materials

## Our **best practices** have been....

- 1** Clarity of purpose i.e., graduate profile
- 2** Spirit of collaboration e.g. openness and engagement
- 3** Fearless in trying new approaches, making and learning from mistakes, and becoming better

**Our experience** may be summarized into ....

Think **B I G**, start small, grow manageably *fast*.

- 1 Think **B I G**: Build an ecosystem for Analytics
- 2 Start small: Define the data profession
- 3 Grow manageably *fast*: Rollout through collaboration



# Thank you

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