TRANSFORMING SNC LAVALIN DIGITALLY
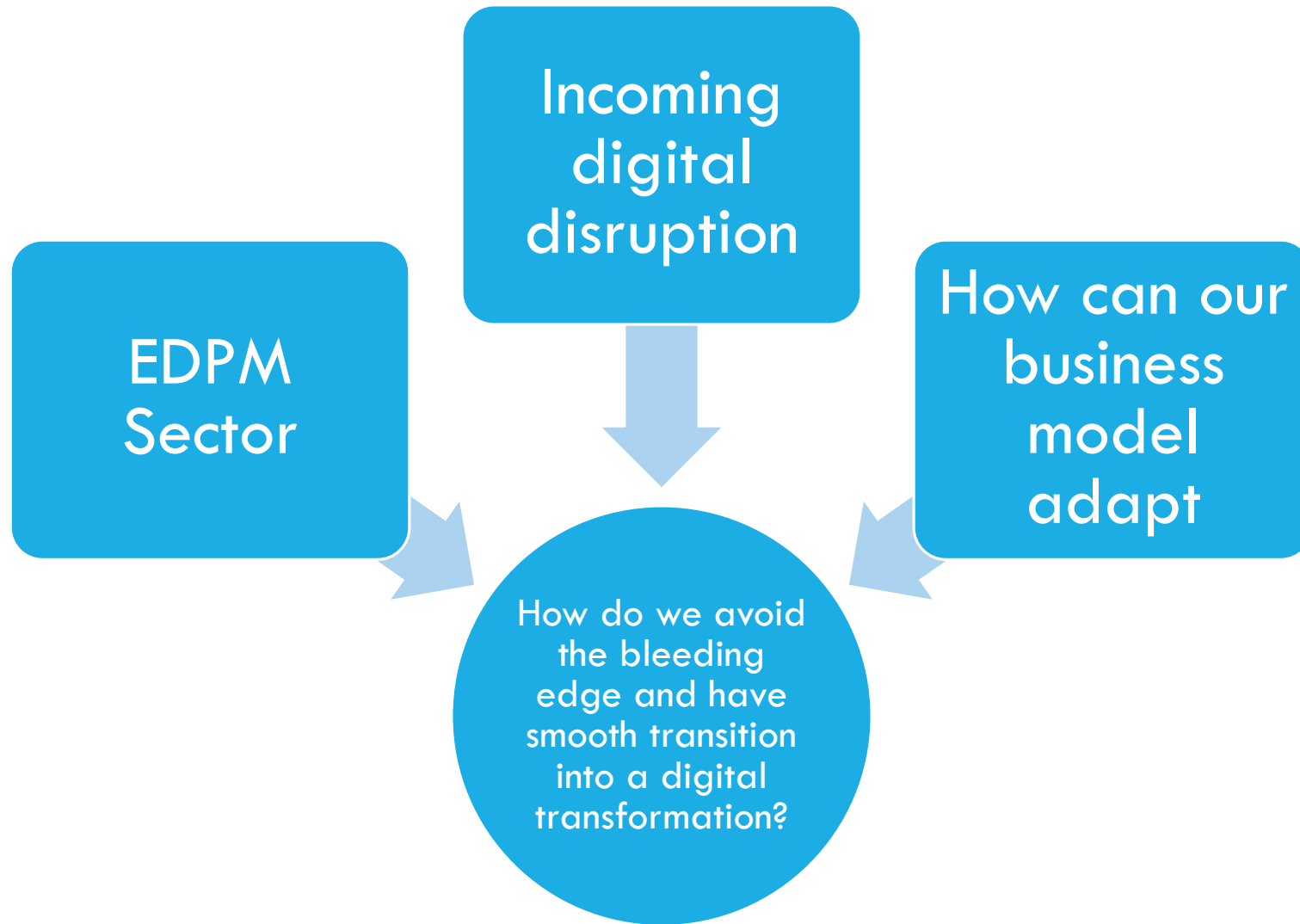
Adam Smith Consulting Group:

Wes Treiber, Sarah Henkind, Mara Hilmy, Vijay Bidnurmath

EXECUTIVE SUMMARY

Incoming digital disruption

EDPM Sector

How can our business model adapt

How do we avoid the bleeding edge and have smooth transition into a digital transformation?

AGENDA

- Introduction
- Problem statement
- How does disruption effect our business
- How is the market reacting
- Alternatives and Recommendation
- Justifications and Questions

WHAT IS IN THE STARS

	2017
Firms	1,000
Clusters	3
Investment	$10B
Geo center of gravity	North America 70%
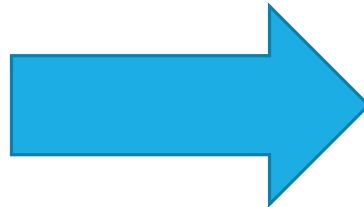
	2018
Firms	2,400
Clusters	Constellations
Investment	$18B
Geo center of gravity	North America 85%

ON SITE EXECUTION

Mainly concerned with safety, productivity, quality control

Challenge is making sure what has been plan in office takes place on site

Many non-desk workers and high employee turnover rate

SUPPLY CHAIN OPTIMIZATION

Adopt JIT approach to save time, costs and increase efficiency

Pros:

Removes/ reduces warehousing costs

Ensures right tools are available at the right time

Cons:

Any error can possibly lead to huge disruptions

Needs proper and effective monitoring

BACK-OFFICE AND ADJACENCIES

Back office operations is where most automation is expected to take place

Document management, bookkeeping, and contract completion can be automated

There are already existing technologies that are reshaping this part of the business

AI & ANALYTICS

Artificial Intelligence and big data analytics allows for better designs, monitoring and time saving

Pros:

Easy monitoring of projects

Saves time once developed

Cons:

Expensive to develop

Time consuming

Alters billing model

DIGITAL COLLABORATION

Main problem with collaboration occurs with office to on site communication

Large CAD drawings, specs, and plans need to be distributed

Locations can limit internet access

Digital collaboration will allow for instant communication

DIGITAL TWINS

Smaller copy of larger projects allows for simulations

Pros:

Reduces/ removes errors

Allows for testing of ideas cheaply

Cons:

Expensive to set-up

Costly to maintain copy

MODULARIZATION

Building blocks/ assembly line for large scale projects
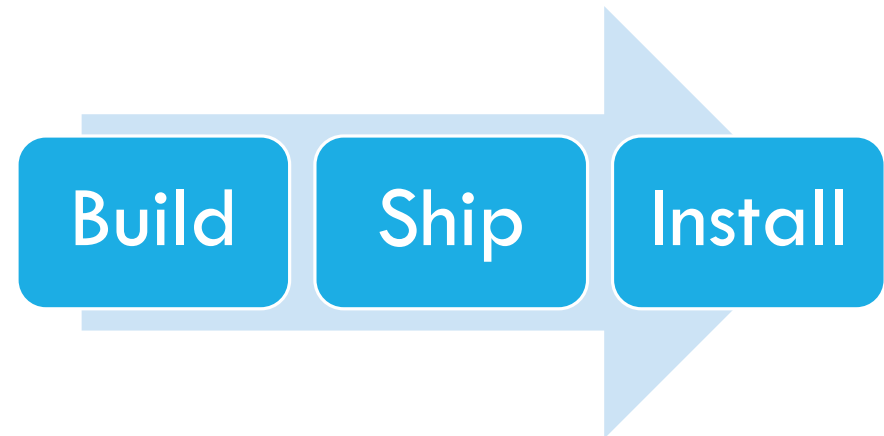
Pros

Faster/ standardized

Cheaper

Less Labor

Cons

Lacks Creativity

Hard to run Customized projects

Build Ship Install

HOW HAVE COMPETITORS RESPONDED

ARUP:

Uses 5D technology to engineer and design.

Bechtel:

Started move from industrial infrastructure to Smart Infrastructure

Autodesk:

Considering Analytics and AI for accurate costing and risks associated with construction

Black & Veatch:

Launched Atonix Digital to capitalize on emerging business opportunities

ALTERNATIVE 1

Innovating our billing model:

We believe we can maintain our current 75%/25% split of reimbursed contracts and fixed contracts

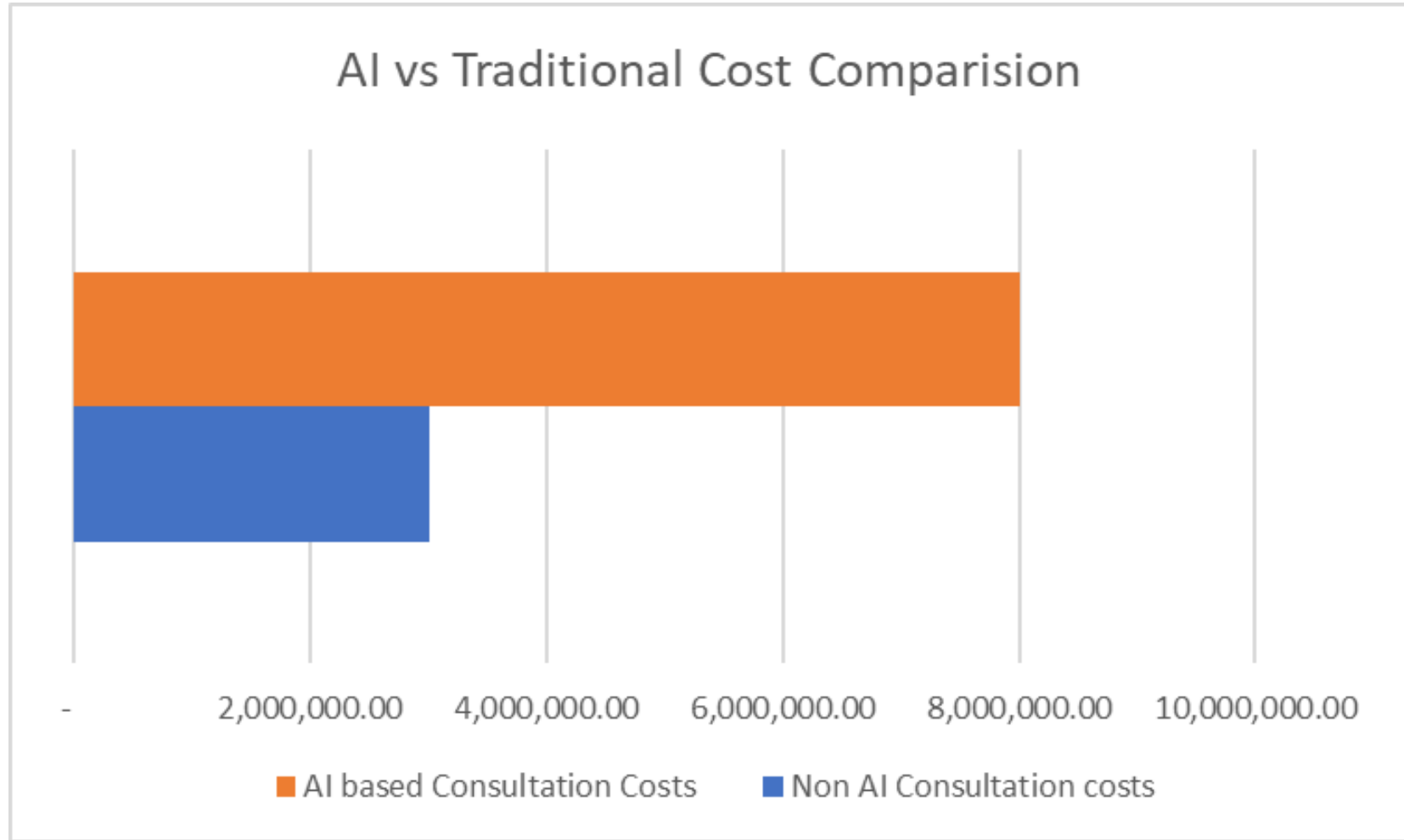As we develop our technology services we bill our exclusive technology as a consultant

Pros

- This would allow us to keep our current business model balance
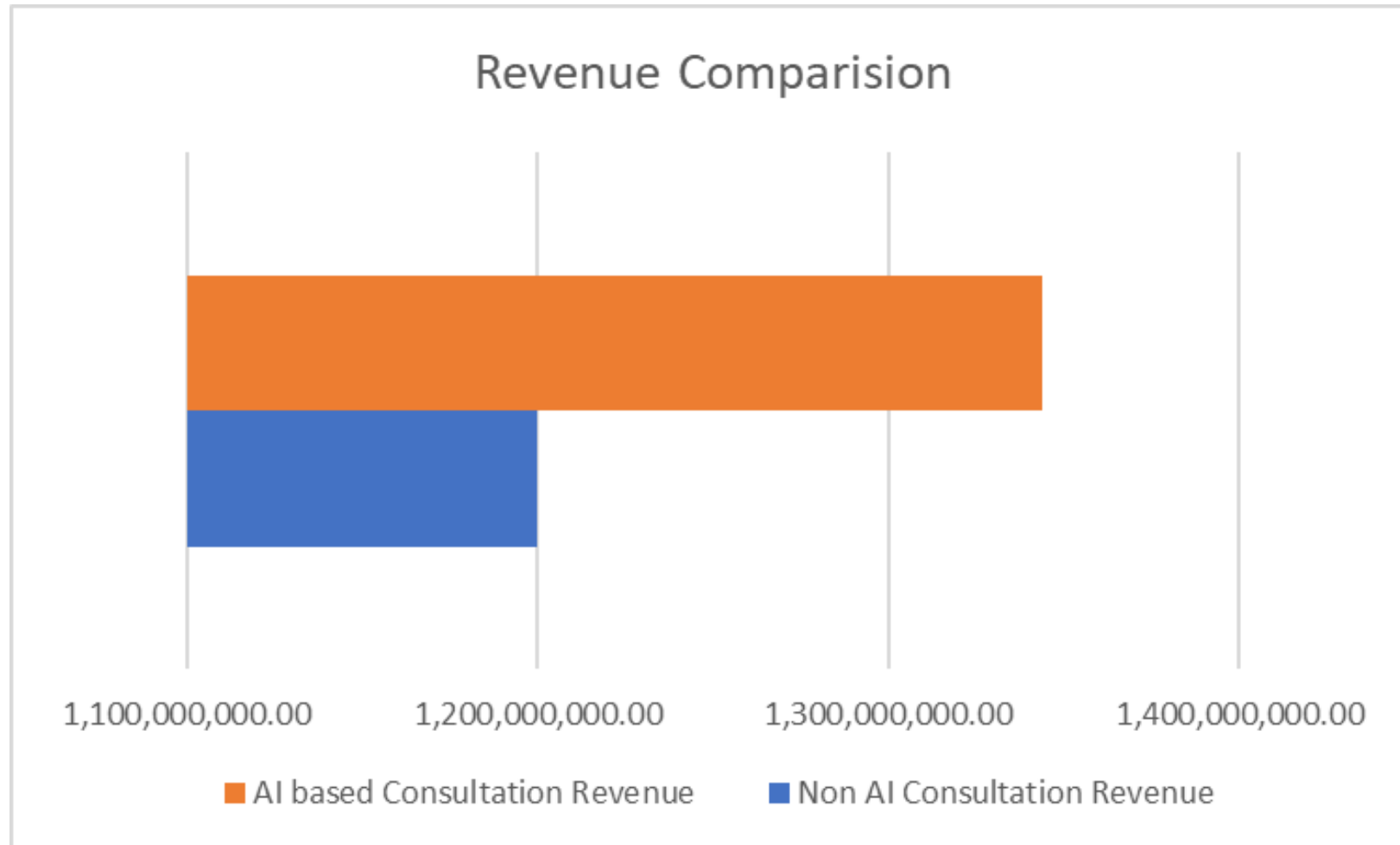- Allows us to create revenue with current exclusive software

Cons

- May confuse clients if value is not communicated properly
- Need to develop specific billing plans for each exclusive software

AI COSTS

AI vs Traditional Cost Comparision

■ AI based Consultation Costs   ■ Non AI Consultation costs

AI REVENUE

Revenue Comparision

AI based Consultation Revenue   Non AI Consultation Revenue

1,100,000,000.00   1,200,000,000.00   1,300,000,000.00   1,400,000,000.00

ALTERNATIVE 2

<u>Streamlining the building process</u>

Focus on modularization in building process.

Utilize AI into supply chain management to expedite modularization and building processes.

Pros

- Eliminates human error
- Keeps business model intact
- Exacting amounts of materials and time

Cons

- Large initial investment
- Error correction
- Potential loss of human jobs

ALTERNATIVE 3

<u>Invest in 3D printing 5D designing:</u>

Goal of this would be to visualize buildings and structure before they are built

Predicting economic and environmental impacts

Allows for faster modulization

Pros

- Less human capital
- Automate and increases the accuracy of builds
- Allows for visualization of plans with out material investment

Cons

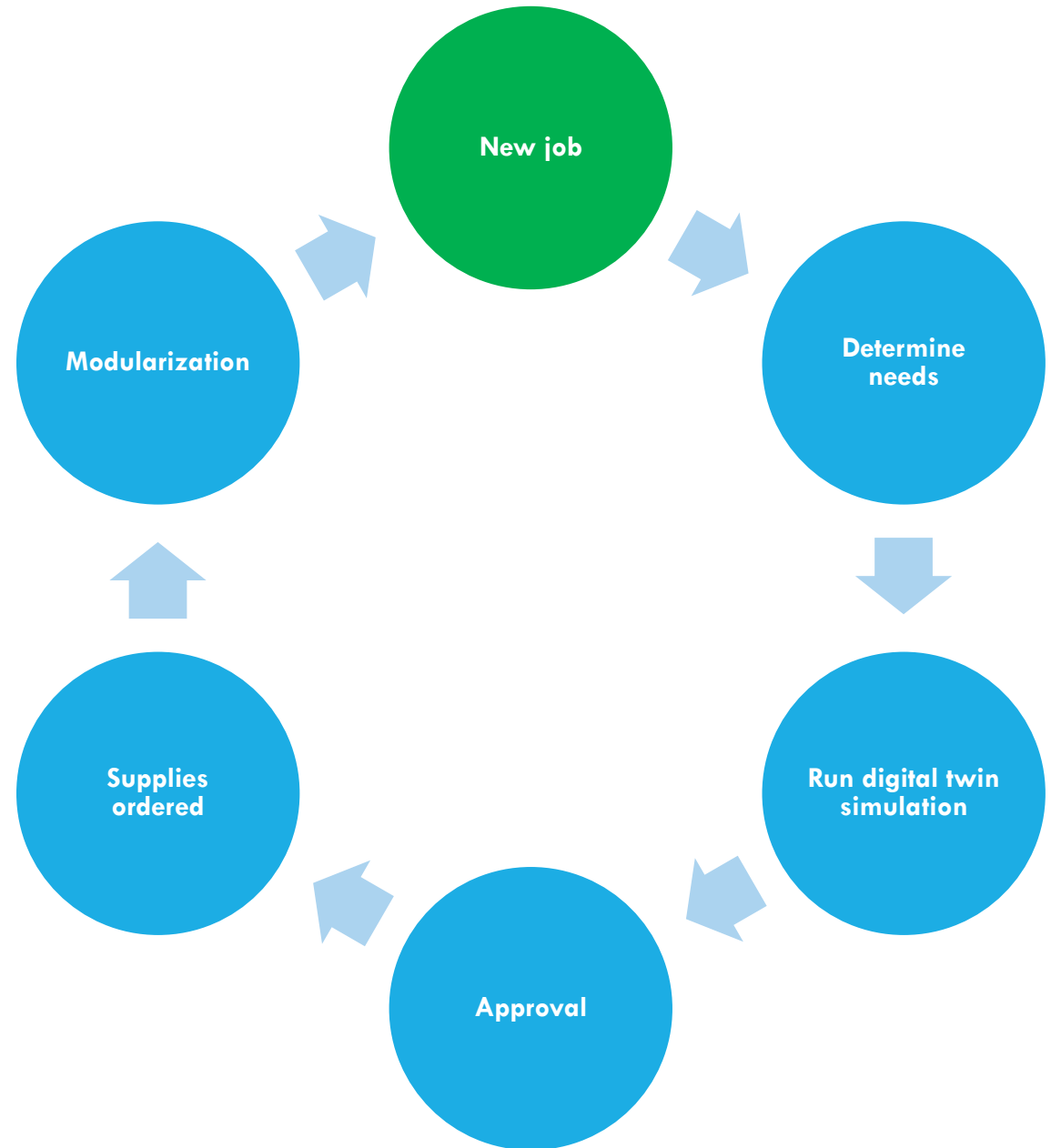- Would have to invest in the technology and human training
- Moore's theory

RECOMMENDATION

Focus on transforming SNC Lavalin's EDPM sector through their supply chain operation
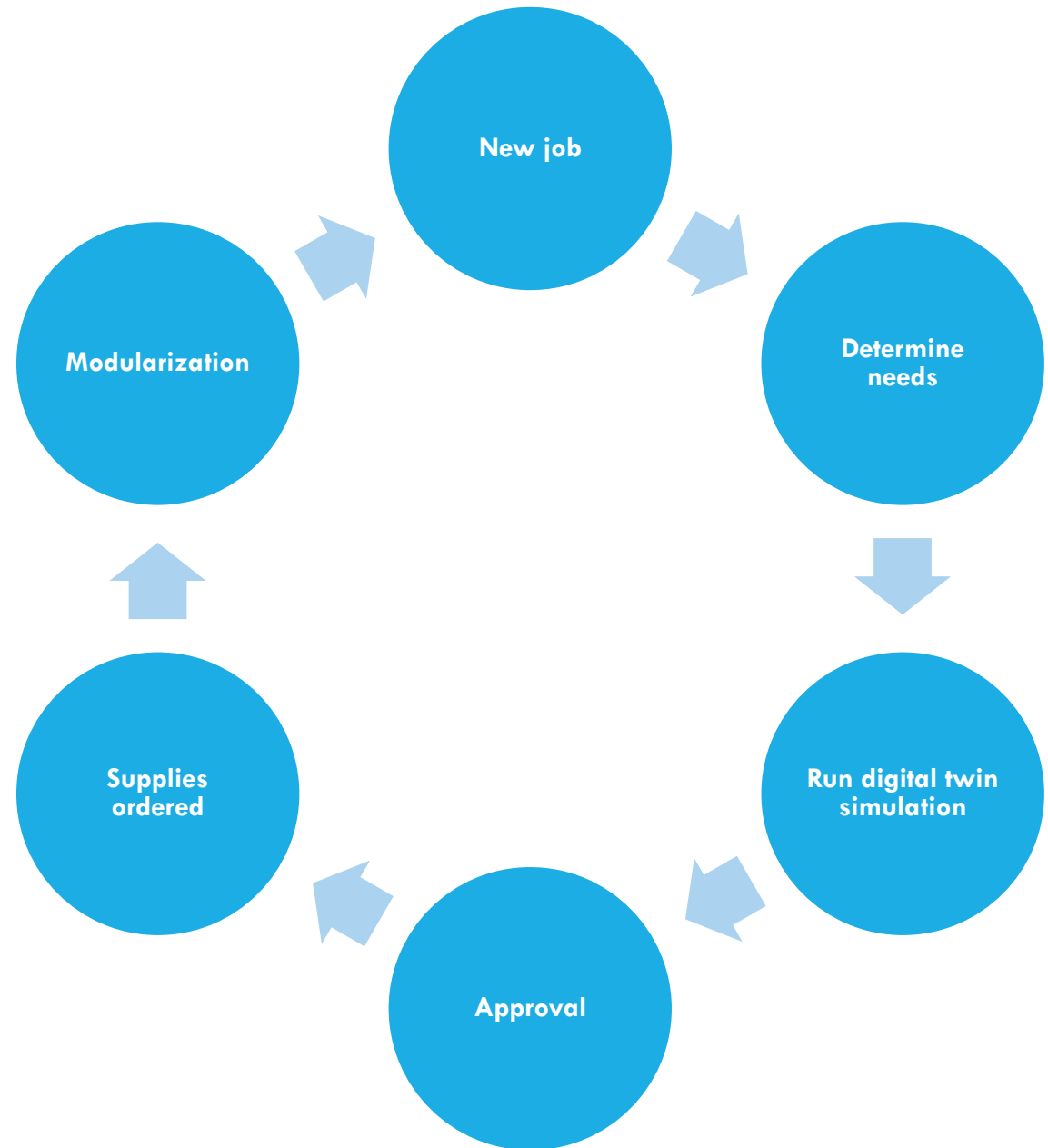
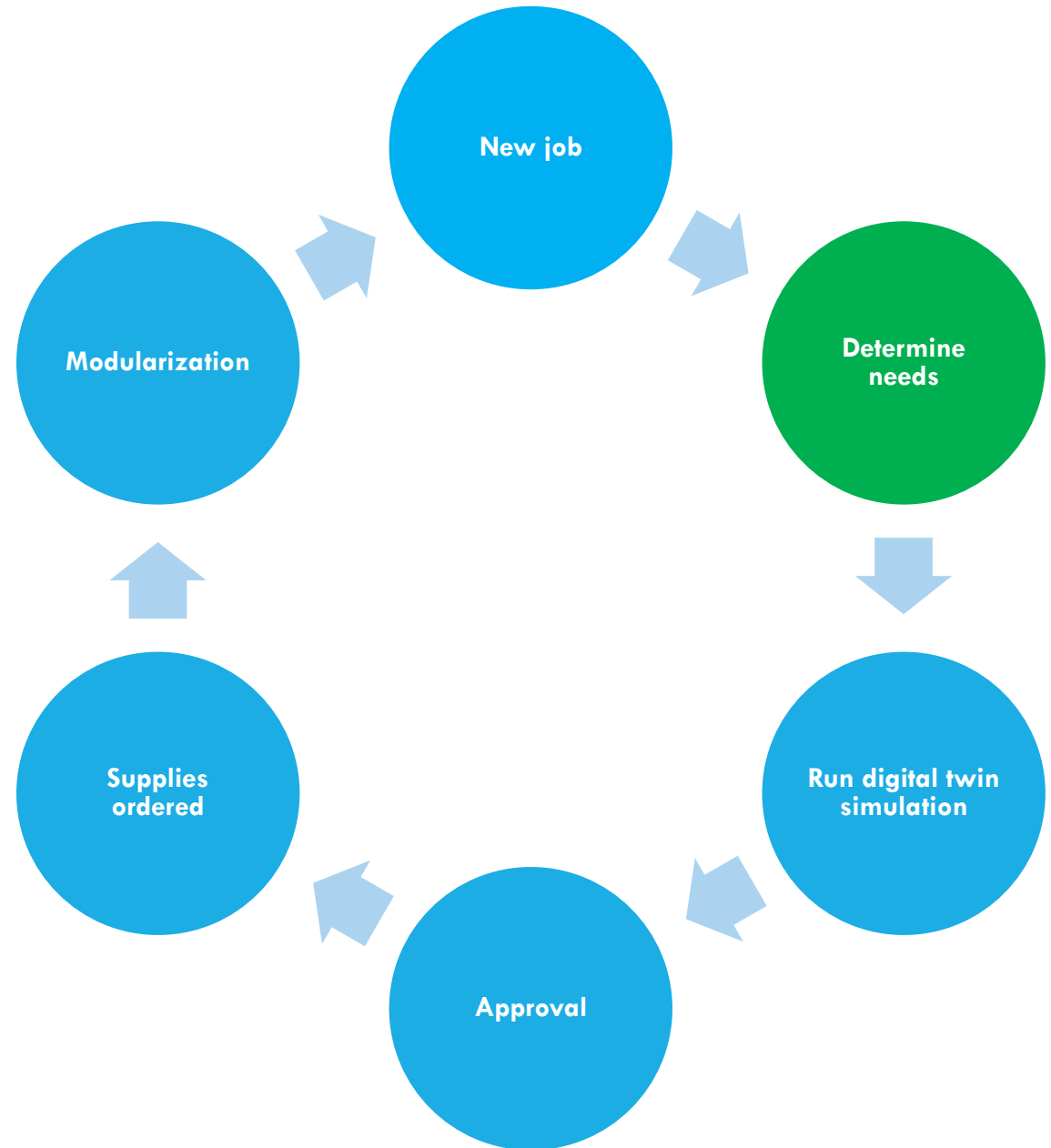# NEW JOB

Client approaches with new project

DETERMINE NEEDS
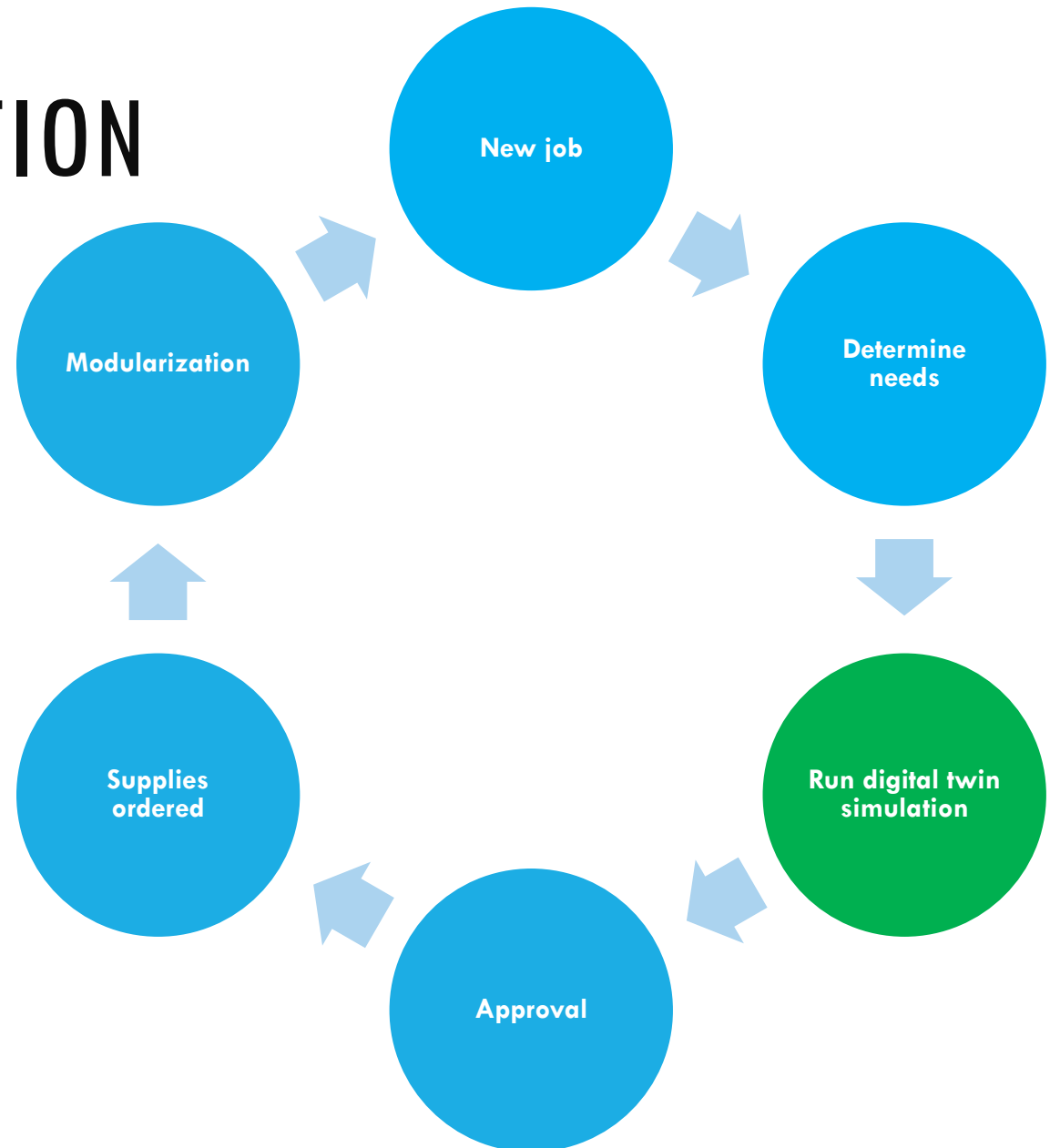
Size

Needs

Timeline

DIGITAL TWIN SIMULATION

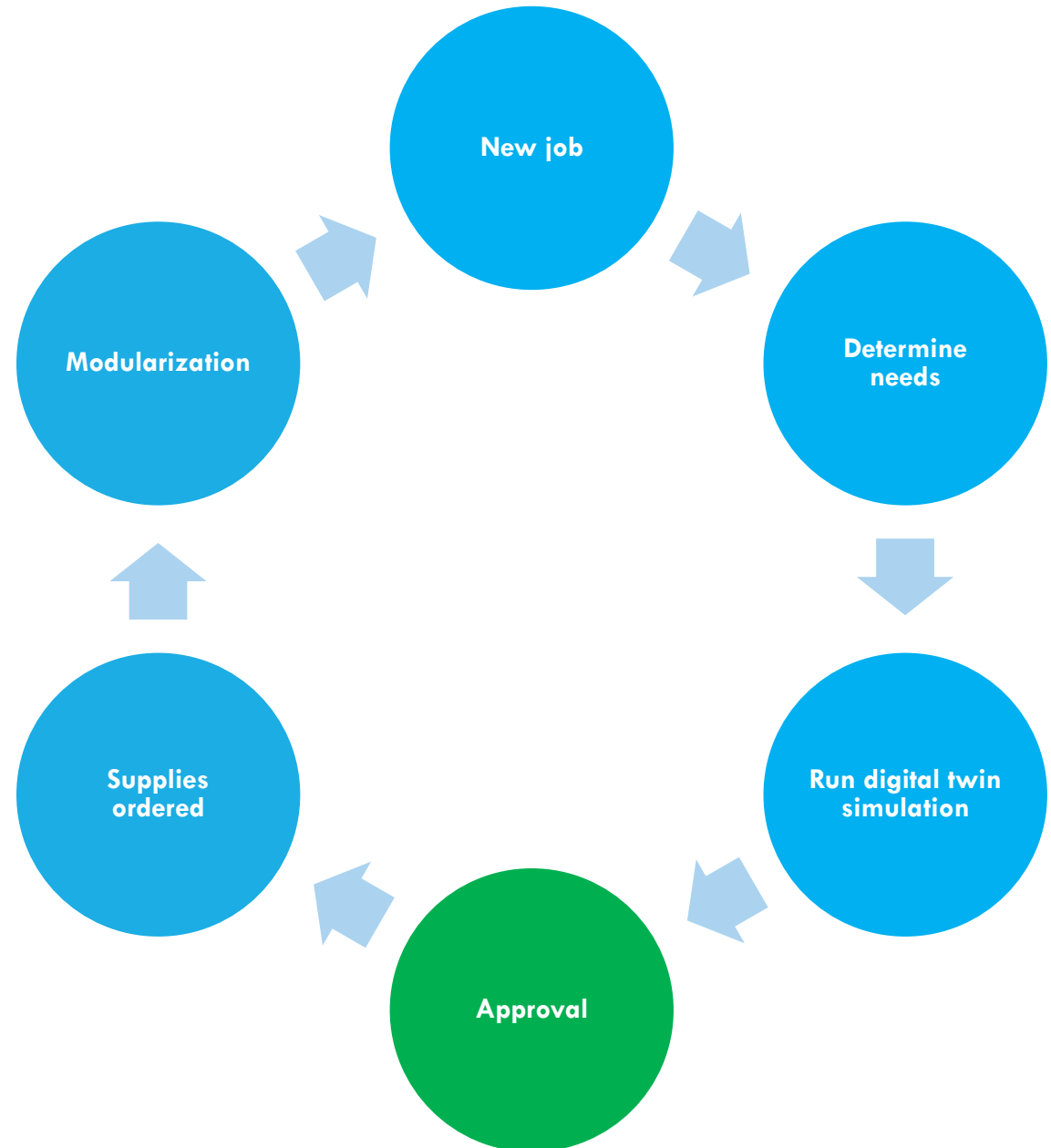Run digital twin simulation to determine best options

AI identifies best results

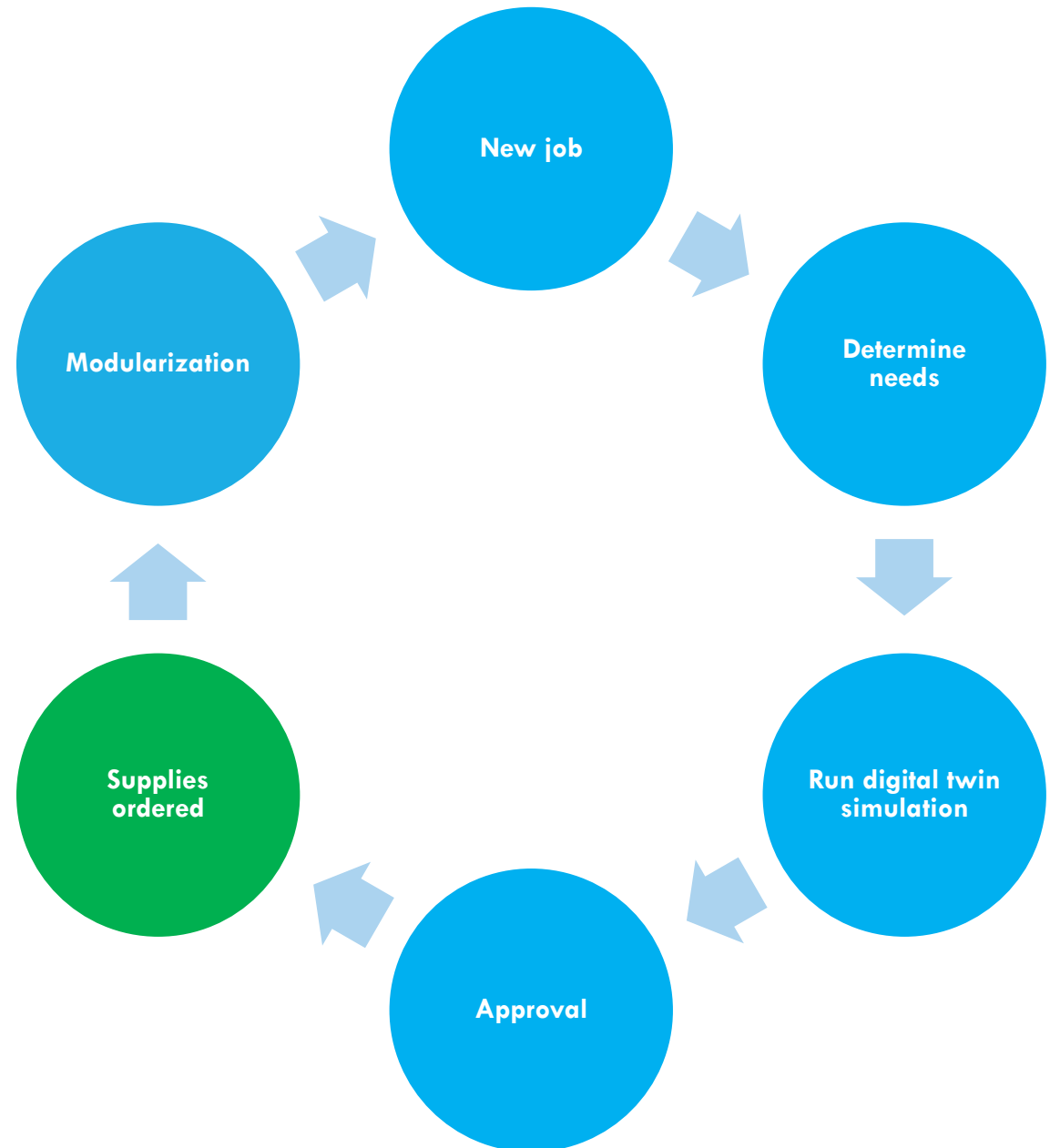Produces two copies for human approval

APPROVAL

To limit potential AI error, approval needed from project lead and from the client

SUPPLIES ORDERED

Based off simulation, this should through AI automatically create a supply chain draft for materials and labor.
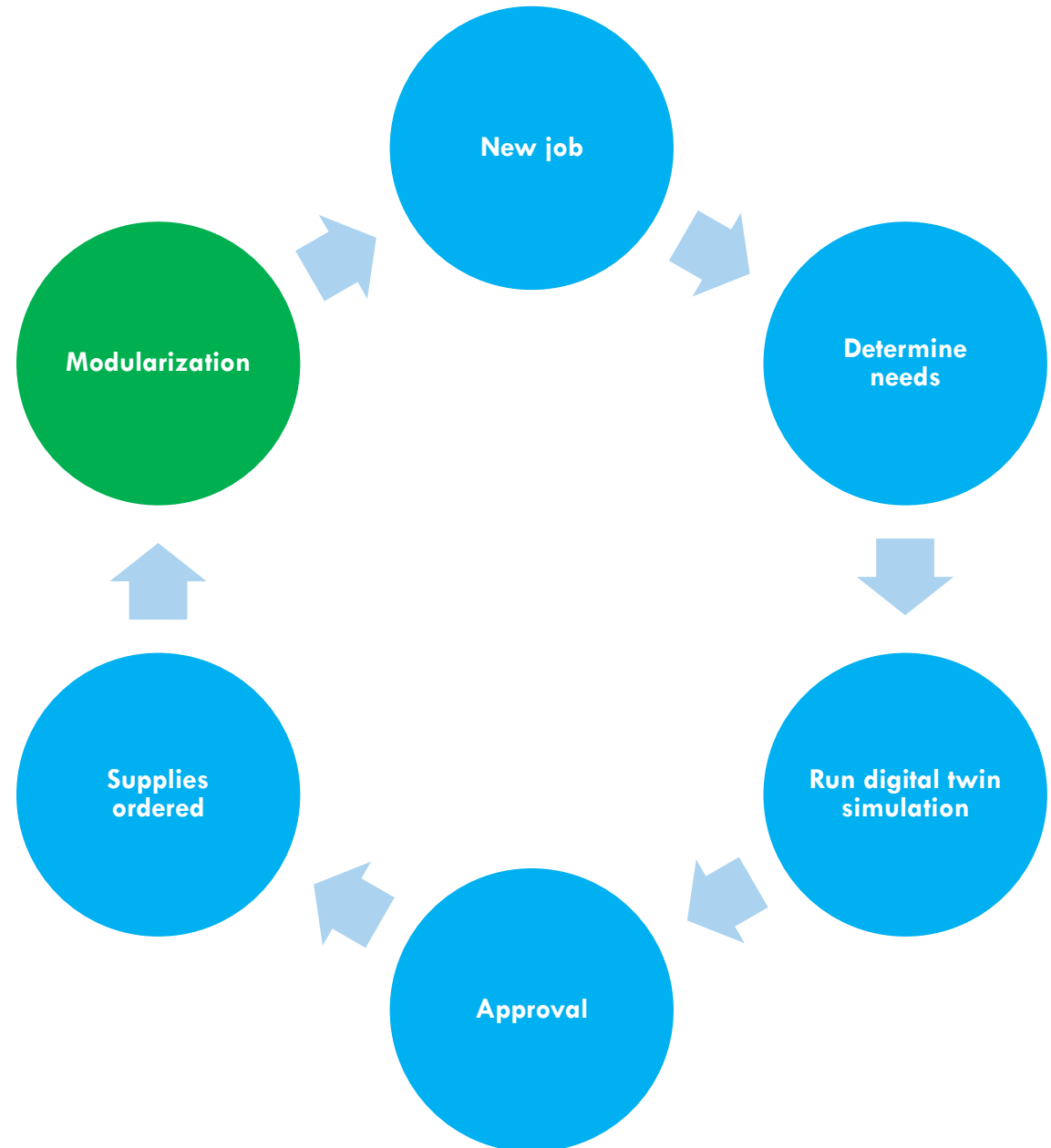
Approval kicks off order

MODULARIZATION

3D printing to show how everything fits together- can also determine potential errors

Parts of main project assembled quickly- improves speed and efficiency

New job

Determine needs

Run digital twin simulation

Approval

Supplies ordered

Modularization

FUNDING FOR INFRASTRUCTURE PROJECTS:

<u>Traditional Funding:</u>

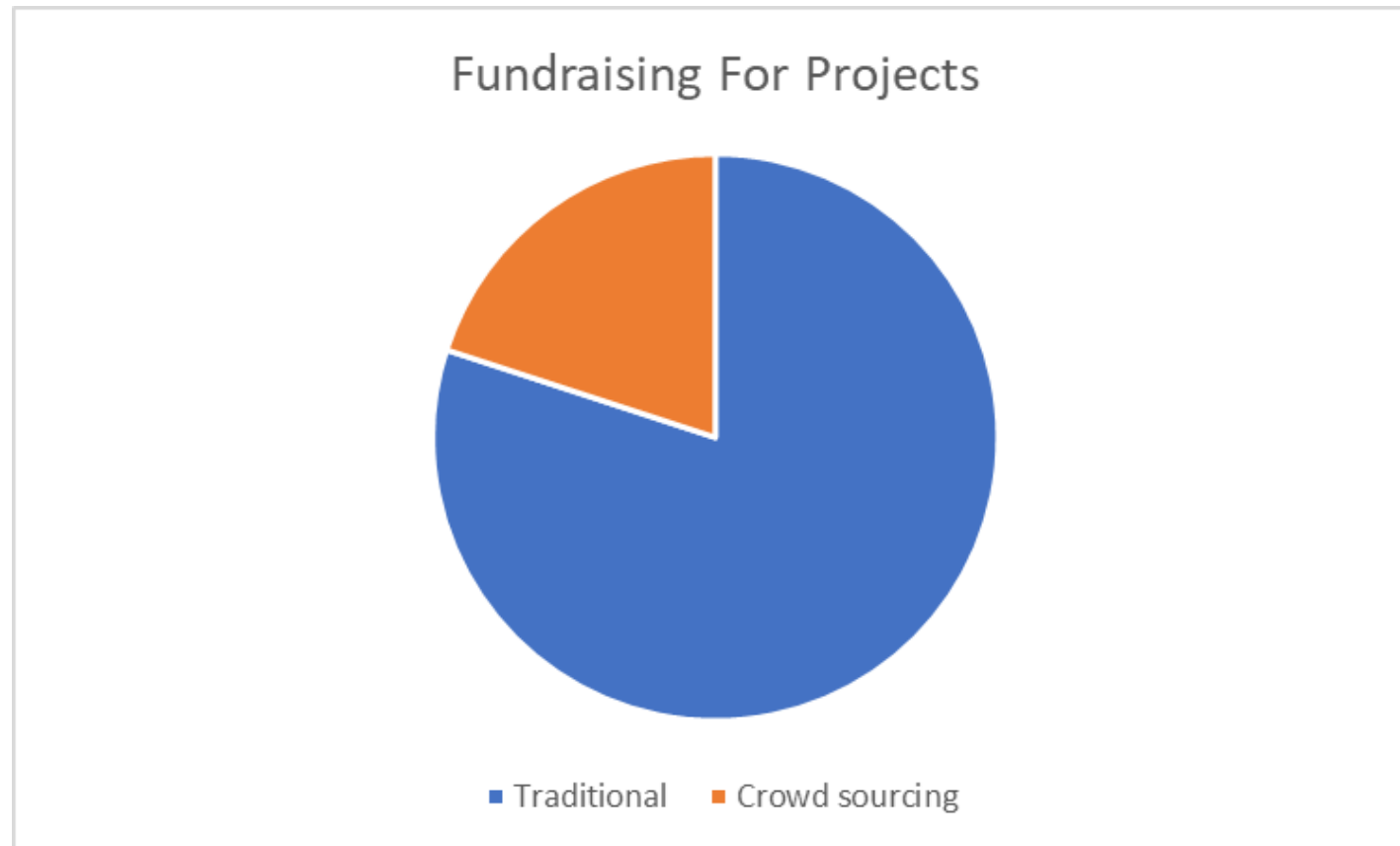Government Bonds, bank loans, company Bonds etc.

Hard and timeconsuming

<u>Possible Changes:</u>

Possible creation of "Kickstarter" like platforms to crowdsource funds.

Easy and convenient

FUNDING FOR PROJECTS
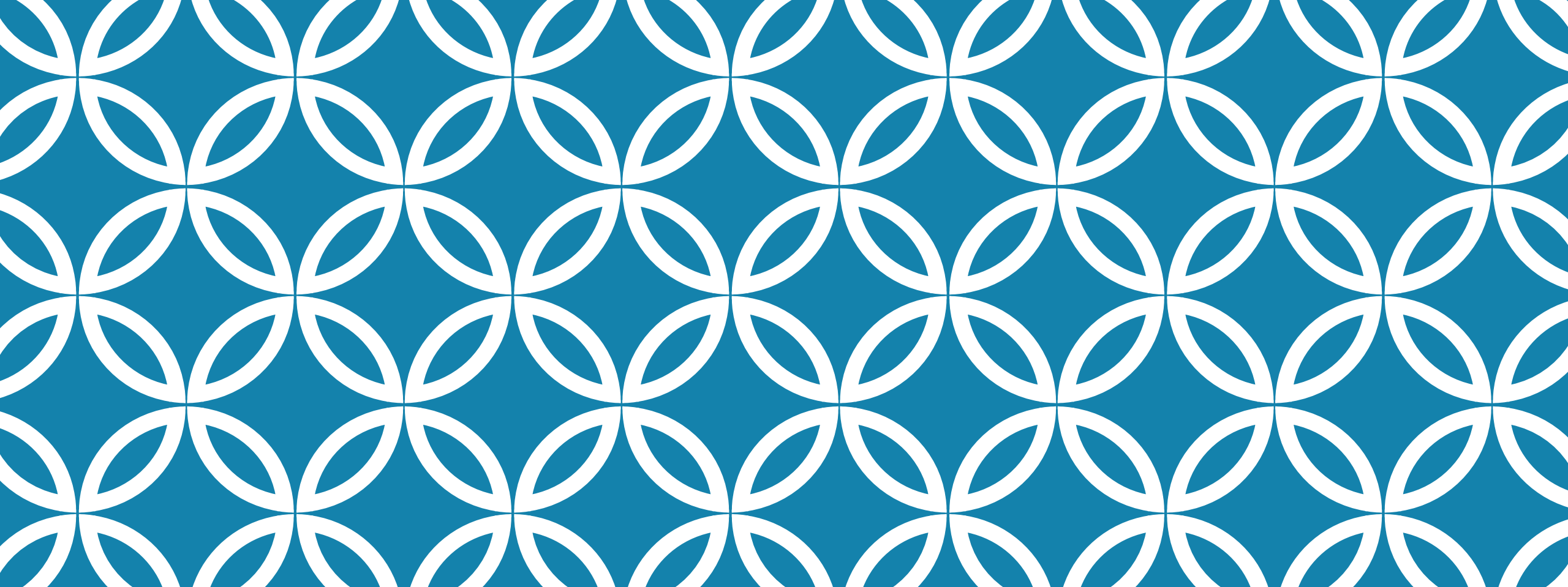
COMMUNICATE SUCCESS TO SHAREHOLDERS

Shareholders first concern is ROI and organizational policies

This recommendation showcases that implementing a digital transformation may have upfront costs but in the near future has undeniable benefits

No deviation from being an infrastructure organization first

TIME LINE

Year 1
- Start fundraising for these projects

Year 2
- Start implementing AI and modularization tactics

Year 3
- Establish AI and modularization as main platforms

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