TRANSFORMING SNC LAVALIN DIGITALLY

Adam Smith Consulting Group:
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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

<table>
<thead>
<tr>
<th>2017</th>
<th>2018</th>
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<tbody>
<tr>
<td>Firms</td>
<td>1,000</td>
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<tr>
<td>Clusters</td>
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<tr>
<td>Investment</td>
<td>$10B</td>
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<tr>
<td>Constellations</td>
<td></td>
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<tr>
<td>Investment</td>
<td>$18B</td>
</tr>
<tr>
<td>Geo center of gravity</td>
<td>North America 70%</td>
</tr>
<tr>
<td>Geo center of gravity</td>
<td>North America 85%</td>
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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.

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

Document management, bookkeeping, and contract completion can be automated.
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
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
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
**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 will 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 Comparison

- 2,000,000.00  4,000,000.00  6,000,000.00  8,000,000.00  10,000,000.00

AI based Consultation Costs  Non AI Consultation costs
AI REVENUE

Revenue Comparison

- 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

Streamlining the building process

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

Invest in 3D printing 5D designing:

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 without 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

New job

Determine needs

Modularization

Supplies ordered

Approval

Run digital twin simulation
DIGITAL TWIN SIMULATION

Run digital twin simulation to determine best options

AI identifies best results

Produces two copies for human approval
To limit potential AI error, approval needed from project lead and from the client.
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
FUNDING FOR INFRASTRUCTURE PROJECTS:

**Traditional Funding:**
Government Bonds, bank loans, company Bonds etc.

Hard and timeconsuming

**Possible Changes:**
Possible creation of “Kickstarter” like platforms to crowsource funds.

Easy and convenient
FUNDING FOR PROJECTS

![Pie chart showing fundraising for projects with traditional and crowd sourcing categories.](image-url)
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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