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Transforming Digital Transformation

Why innovation should be composable, not painful

April 2024



This report is a collaboration between Momentum Works and Sirius Technologies



Momentum Works is a **venture outfit** headquartered in Singapore. It connects and empowers the digital and new economy ecosystem in emerging markets through well-researched **insights, community, and venture-building** experience.

Sirius Technologies enables intelligent digital transformation for banks and financial institutions. It enables them to provide next-gen digital financial services at scale with lower risks, lower costs and faster time to market.

Since its inception in 2021, Bangkok-based Sirius Technologies has empowered more than 50 million users, from Southeast Asia to Latin America, across diverse financial services applications.



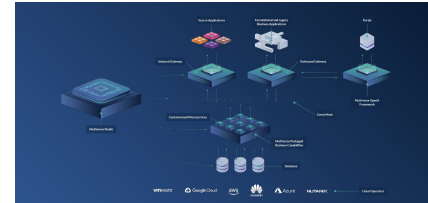
Immersions



Advisory



Ventures



Central Hub for Digital Transformation

Scalable and Flexible Cloud-Native Solution

Agile & Cost Effective Platform

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siriustech.io

1

Digital transformation is critical for today's organisations, yet it is very challenging. Despite the abundance of frameworks, transformation has not been made easier.



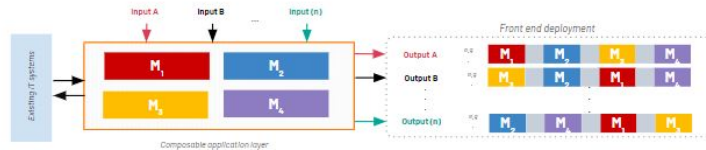
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The mismatch between expectations and transformation capabilities leads to a complex situation, akin to navigating through a tangled mess of spaghetti.



3

Composable innovation enables speed-to-market in transformation. It creates a modular, flexible and scalable method in creating new products, services, or systems.



In this report, we decode:

- Why digital transformation is complex, expensive, and prone to failure
- How can we transform transformation, including but not limited to:
 - How to leverage composable innovation
 - What to do with legacy systems, which are simple and beautiful
 - The new way to look at costs of transformation
- How banks and financial institutions across the world are leveraging composable innovation to transform their product offerings, and reaching new customer bases.



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1. Mismatch: expectations vs capabilities

Digital transformation is critical, but very challenging, for organisations



The many challenges of implementing large-scale digital transformation lie within, **and more often beyond, the technological capabilities.**

As many as:

90%

of executives pursued at least one large-scale digital transformation project in the last 2 years

86%

of leaders think their organisation will be left behind without digital transformation

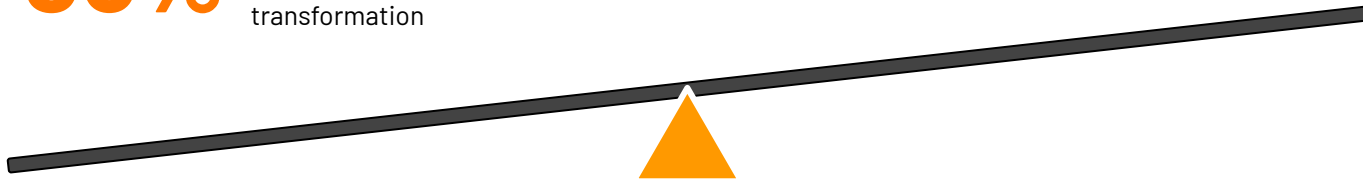
However, only:

30%

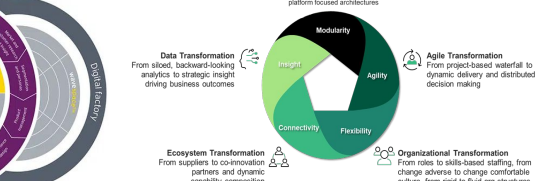
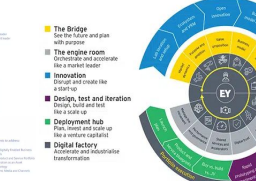
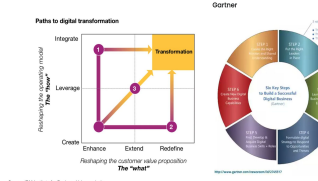
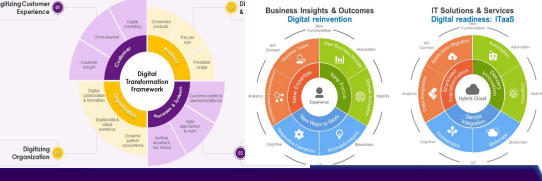
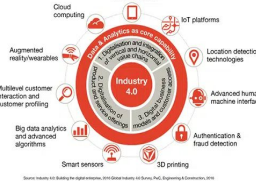
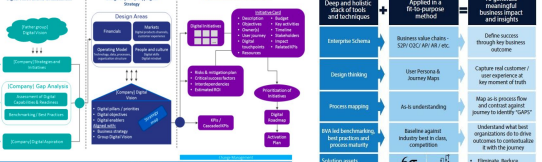
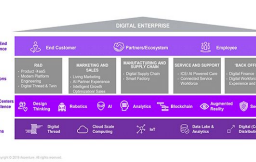
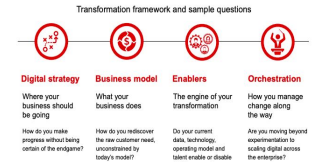
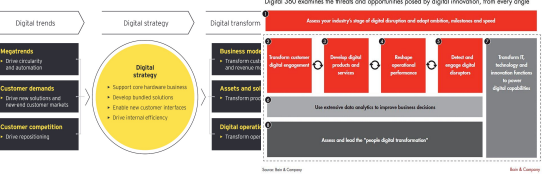
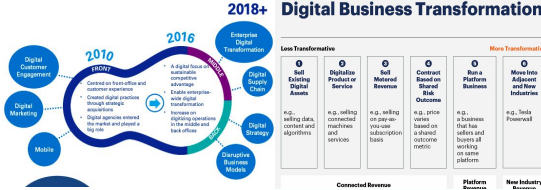
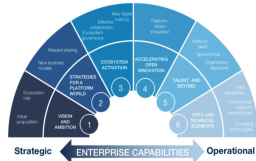
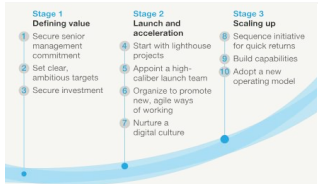
digital transformation projects are successful

16%

of employees say their company's digital transformation has improved performance and is long-term sustainable



There are so many frameworks out there ... yet transformation has not been made easier

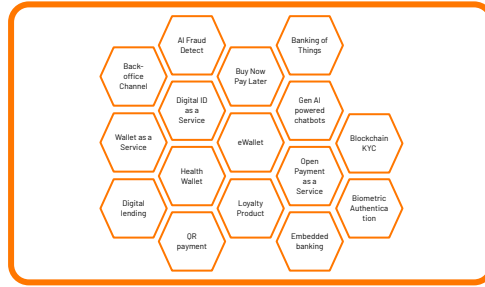


Sources: MW insights

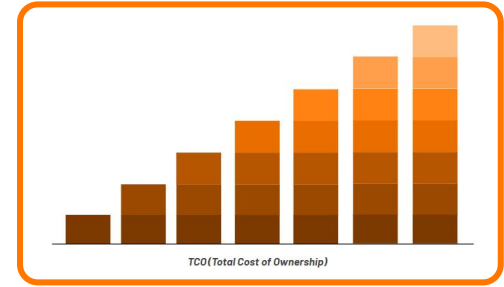
Five key reasons why digital transformation is so challenging



Customers expectations are changing



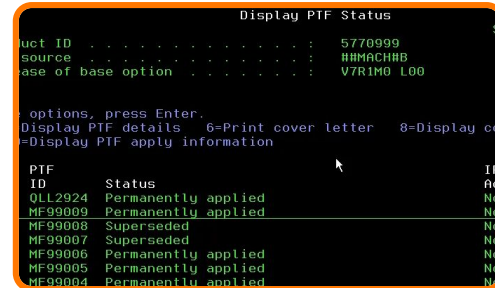
Changes happen at too many places, in too many different ways



"Hidden" costs impact what you can change

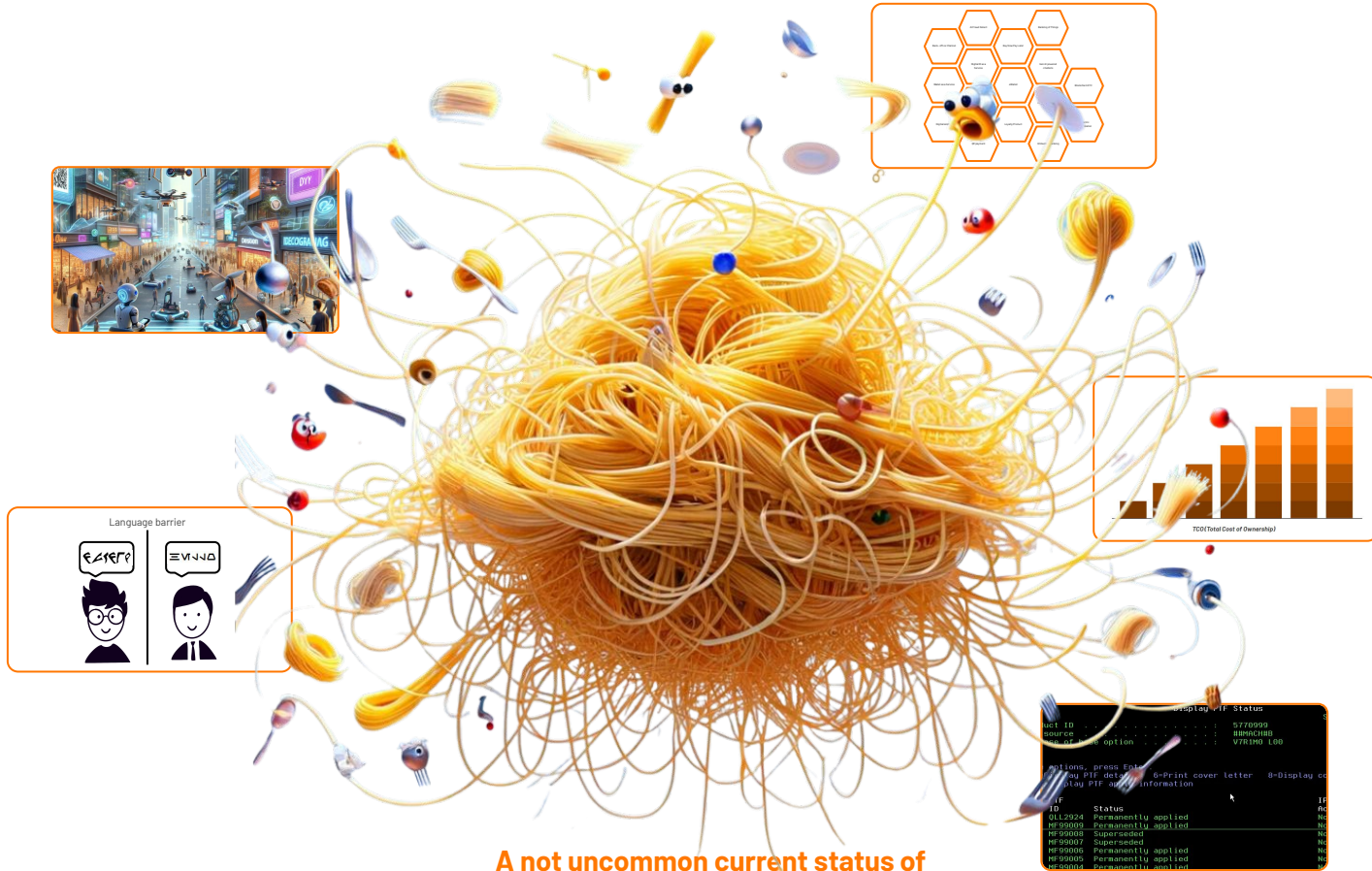


Tech and business are not speaking the same language



Fewer people are learning about legacy systems

Mismatch between expectations and transformation capabilities leads to spaghetti



A not uncommon current status of digital transformation

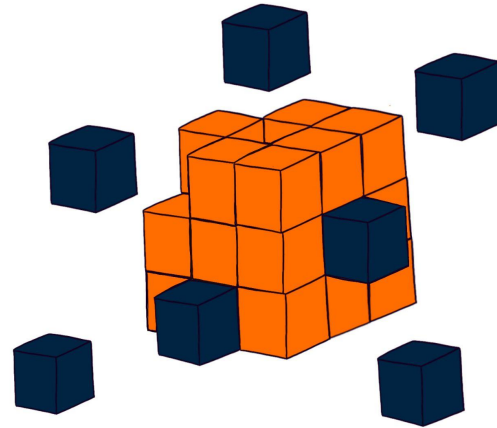
After decades of innovation and development, revolutionary products have been exhausted; yet we are left with abundance of interlinked complexities.

What's next?

Straightening the spaghetti? is not the solution



Composable innovation is the answer





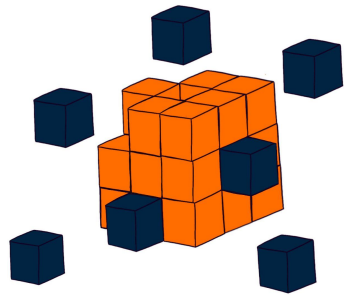
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2. Transformation is transforming

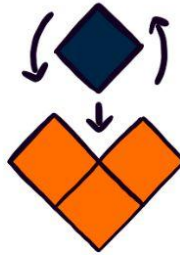
Composable Innovation: modular, flexible and scalable



Composable innovation is the approach of developing solutions by assembling modular components or building blocks that can be easily combined and reconfigured to meet diverse needs and requirements. This method allows for greater flexibility, personalisation, scalability, and efficiency in creating new products, services, or systems.



Composable innovation



Domain-driven design

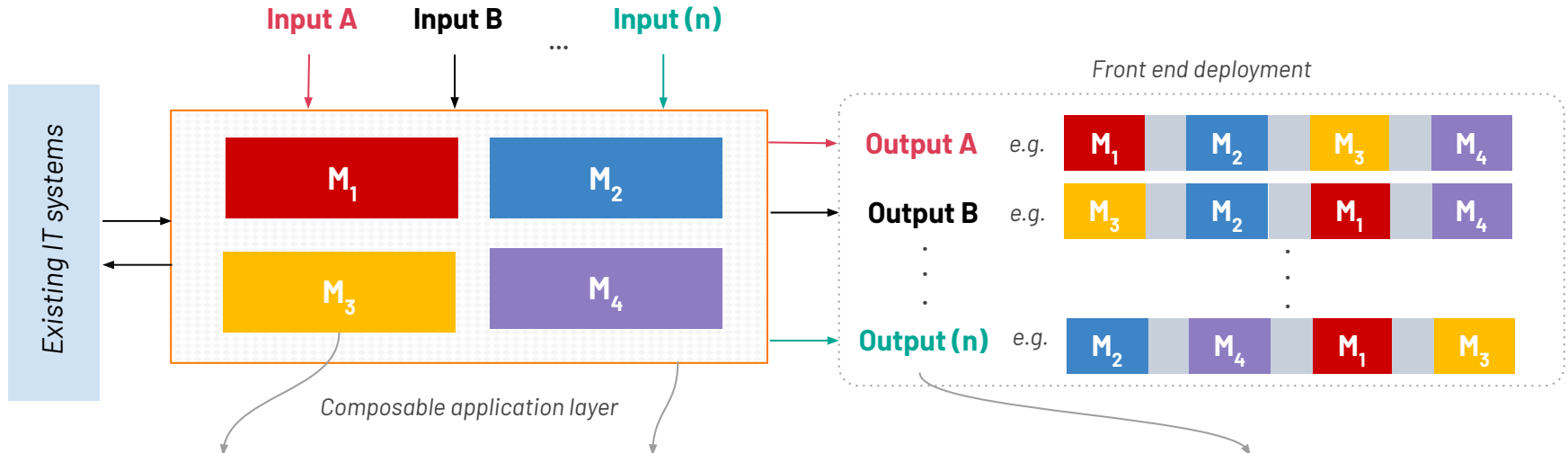


Event-driven design

The different building blocks that are aligned with business processes
(Domain-Driven)

The "highway of event signals" which enables the system to be quickly reactive
(Event-Driven)

Composable innovation enables speed-to-market in transformation



M₁ - M₄ are the modules. **Each module represents a different set of processes** and, like building blocks, each module can be **stacked and combined based on different business needs.**

Domain-driven design

The composable application layer uses event mesh as the **"highway of information"** that gives **"signals"** to modules for any new events. In this layer, each module listens in to the information highway.

Event-driven thinking

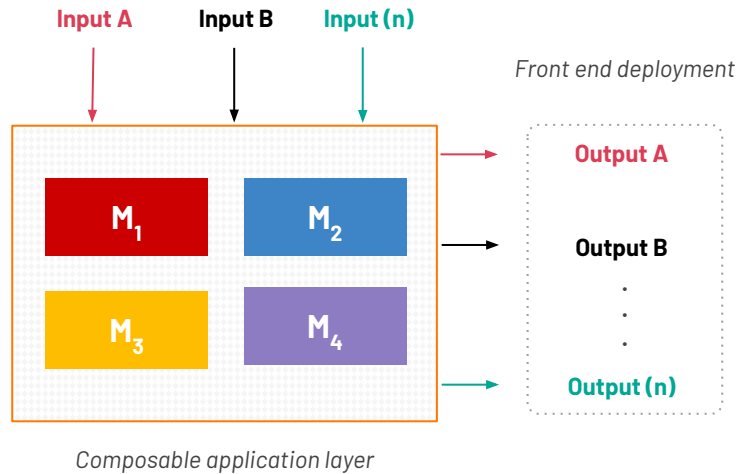
The front end deployment contains **multiple outputs of module combinations** that are **connected through the signals shared by the highway of information.** Each output reflects a different use case and set of consumer expectations.

Composable innovation

The difference between composable innovation and traditional innovation

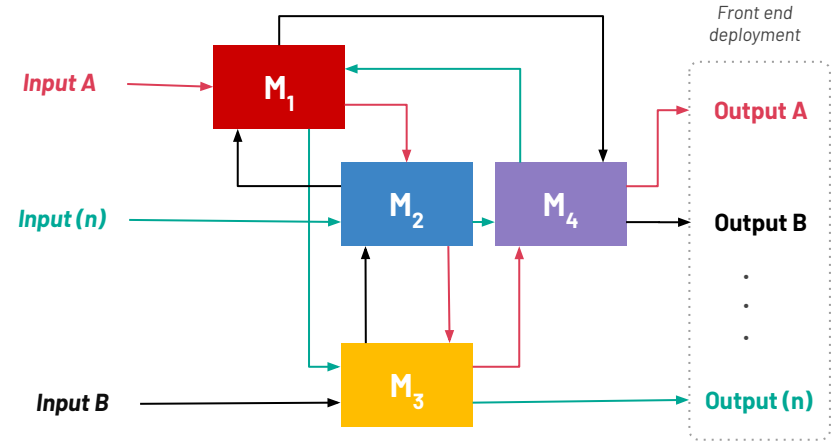


Composable:



In composable innovation, the process is based on **event-driven architecture (EDA)**, where **systems listen to each other**. This approach **enhances system responsiveness and adaptability** by enabling systems to react to events as they occur. By breaking down functions into smaller processes and functionalities, composable systems can be more easily developed, managed, and maintained, facilitating **greater flexibility and scalability** in the system.

Traditional:

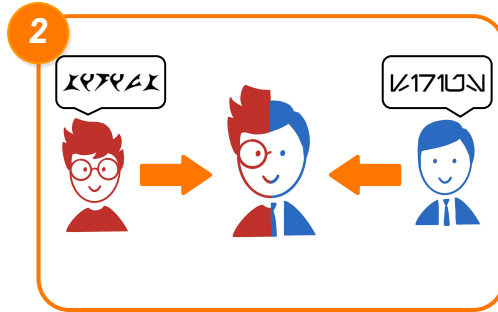


The traditional processes is based on **service-oriented architecture (SOA)** where each system operates within its own silo and interlinks with other steps. It means **processes are dependent to commands from preceding process**. As a result, many steps are duplicated across processes, **leading to redundancy and inefficiency**. When a change occurs in one step, it could **trigger a ripple effect** across multiple other processes that share the step.

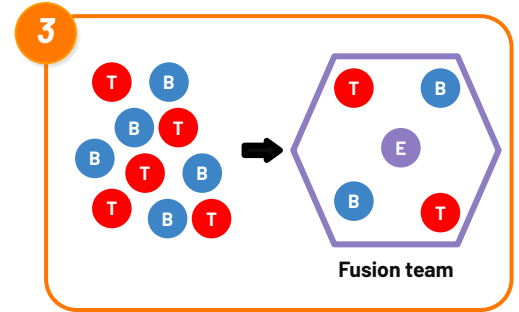
5 trends of transforming digital transformation



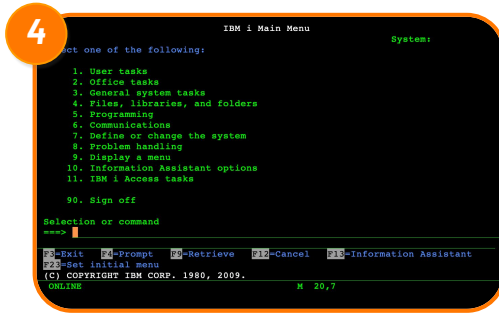
Speaking a unified language using data



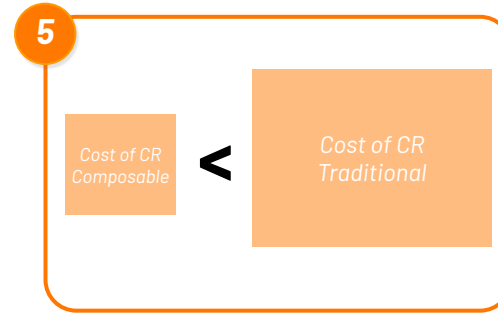
The role of enterprise architects



The rise of fusion teams



Legacy systems are here to stay



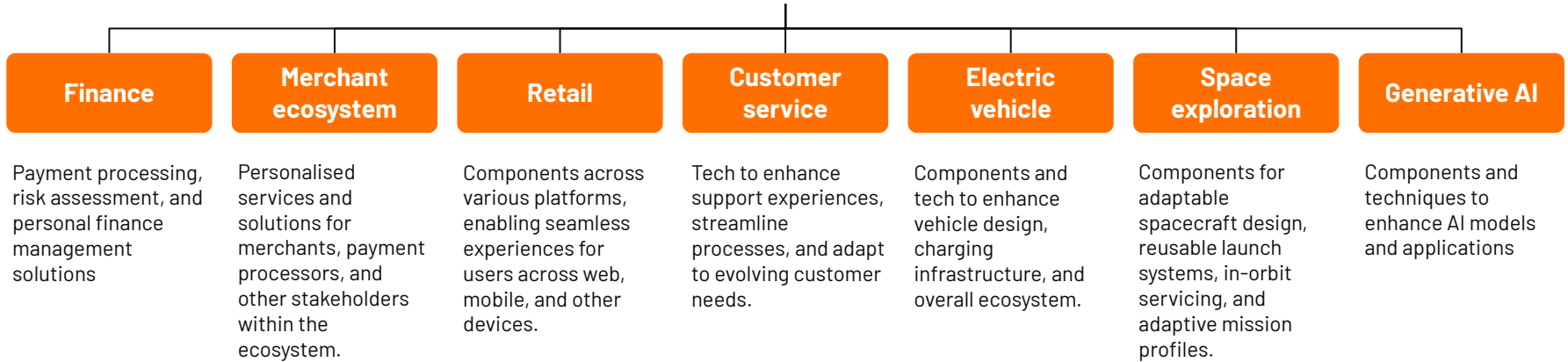
New ways of looking at costs

Composable innovation can be applied in many use cases

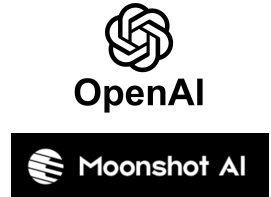


Composable innovation

a non-exhaustive list



e.g.



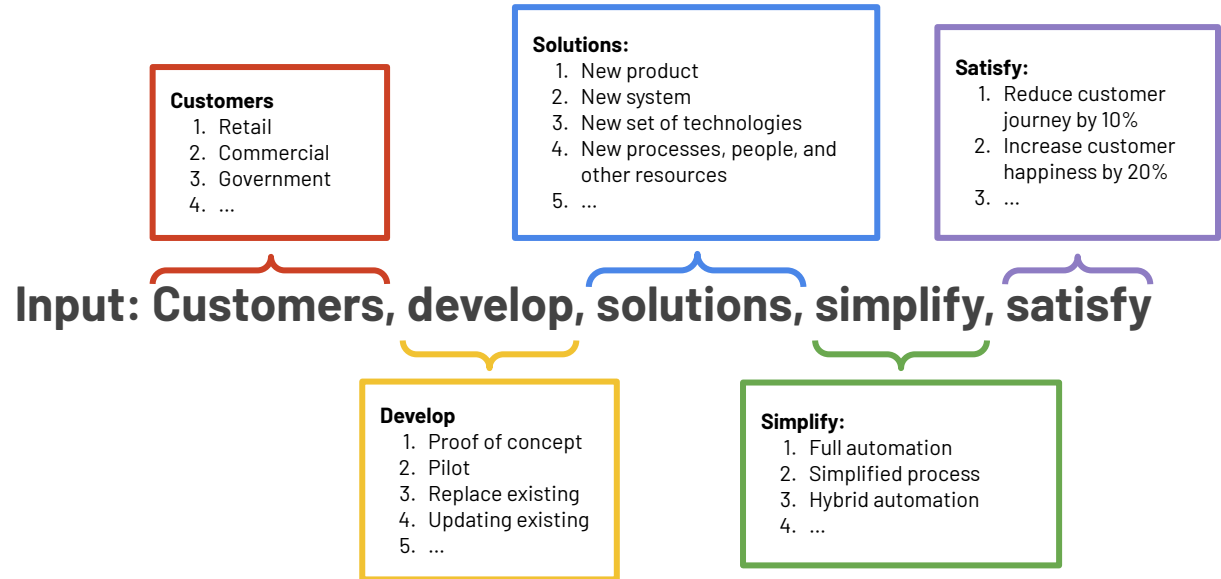
Trend #1: Speaking a unified language using data



“ We need to **develop** a **solution** for our **customers** to **simplify** their customer acquisition process and increase **customers satisfaction** ”

General comment

unified

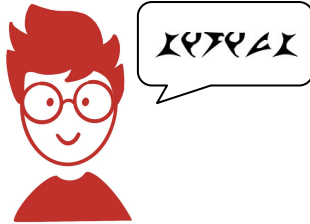


Ensuring **all stakeholders** within the organisation interpret and understand the context in a **standardised and consistent** manner. This could mean aligning goals/KPI, processes, data sources, etc.

Trend #2: The role of the enterprise architect



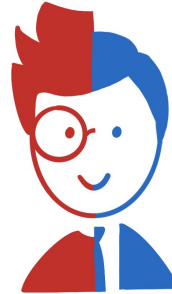
Technology professionals



e.g. Software Developers and Engineers, IT Support and System Administrators, Project Managers and Team Leads, Cybersecurity Professionals, Data Scientists and Analysts

Typical KPIs: Code Quality Metrics, Completion Rate of Planned Work, Deployment Frequency, Ticket Resolution Time, Customer Satisfaction Scores, System Downtime, First Call Resolution Rate, Project Delivery Metrics, Resource Utilisation, Team Performance and Morale, Incident Detection Time, Incident Resolution Time, Number of Security Incidents, Compliance Rate, Model Accuracy, Data Quality Metrics, Time to Insight, Business Impact...

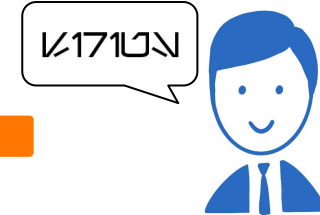
Enterprise architect



An Enterprise Architect plays a crucial role in aligning the strategies and operations of Business Professionals with the work of Technology Professionals. They work acts as a bridge to enhance the organization's business goals.

Typical responsibilities: Strategic Alignment, Governance and Standards, Communication and Collaboration, Risk Management and Optimisation, Future planning.

Business professionals



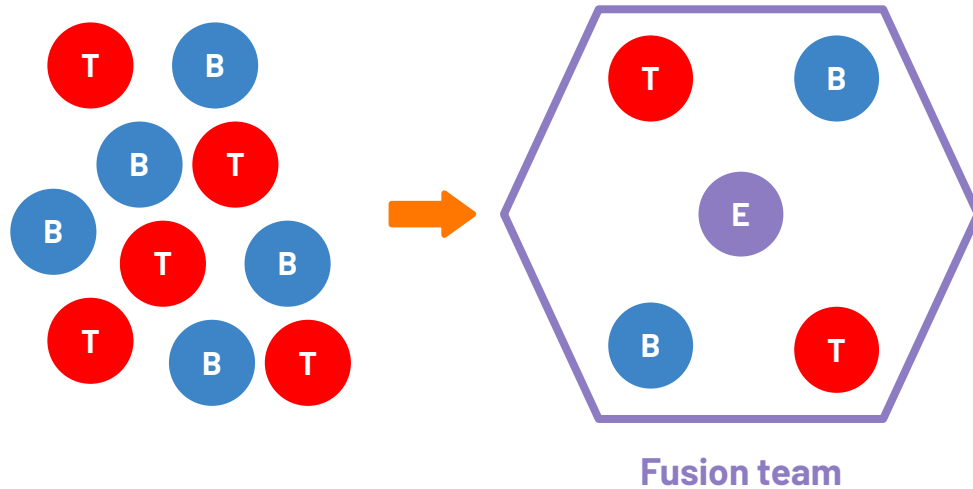
e.g. Sales, Marketing, Finance, Operations, Operations Manager, Business Analysts, Customer Services Representatives,

Typical KPIs: Sales Revenue, Conversion Rate, Average Deal Size, Sales Cycle Length, Lead Generation, Cost per Lead (CPL), Return on Marketing Investment (ROMI), Engagement Metrics: website traffic, social media engagement, and email open rates; Return on Investment (ROI), Budget Variance, Efficiency Ratio, Production Output, Quality Metrics, Supply Chain Performance, Order Fulfilment Cycle Time, Inventory Turnover, Process Improvement, Customers Satisfaction scores (CSAT), Average Resolution Time, First Contact Resolution...

Trend #3 :Rise of fusion teams



Fusion team is a cross-functional group that combines technology, analytics, and business expertise to achieve specific business goals. Unlike traditional project-based teams, fusion teams prioritise outcomes, shared ownership and accountability, and agile methodologies to break down silos and foster a more seamless collaborations.

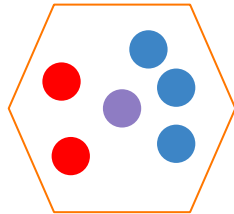


When business and IT teams are combined (work together closely)

- silos and barriers are removed,
- communication & collaboration are improved,
- common goals, needs and priorities are aligned,
- miscommunication is minimised,
- end-to-end accountability and ownership of both business & IT teams is ensured

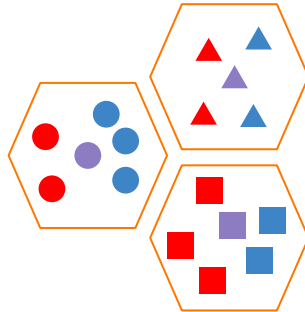
Legend ● Technology professionals ● Business professionals ● Enterprise architect

Trend #3: Rise of fusion teams: illustrative use case of a sportswear company



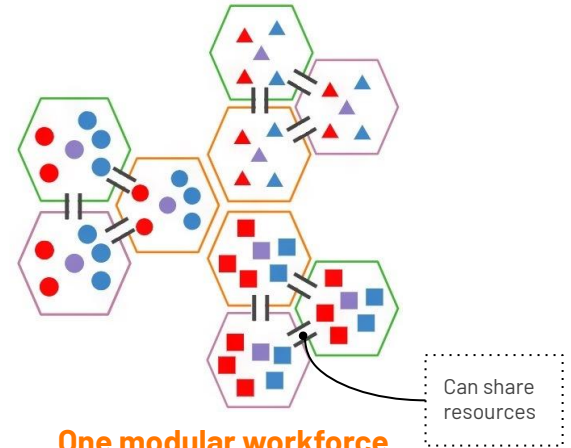
1 fusion team

e.g. *Shoe team*



Multiple fusion teams working in one domain

e.g. *Shoe team, Apparel team, and Accessory team (3 fusion teams) under 1 domain: running department.*



One modular workforce as a whole

e.g. *Shoe team from running department, tennis department, & football department can work together and share resources. Same with apparel and accessory teams.*

As each department is designed to be modular, scaling up or down based on performance, market demand, or strategic focus becomes more manageable.

● Tech professionals ● Business professionals ● Enterprise architect ● Shoe team ▲ Apparel team ■ Accessory team ○ Running dept. ○ Tennis dept. ○ Football dept.

Trend #4: Legacy systems are here to stay



```
MAIN                               IBM i Main Menu                               System:
Select one of the following:
1. User tasks
2. Office tasks
3. General system tasks
4. Files, libraries, and folders
5. Programming
6. Communications
7. Define or change the system
8. Problem handling
9. Display a menu
10. Information Assistant options
11. IBM i Access tasks
90. Sign off

Selection or command
====>

F9=Exit  F4=Prompt  F9=Retrieve  F12=Cancel  F13=Information Assis
F23=Set initial menu
(C) COPYRIGHT IBM CORP. 1980, 2009.
ONLINE                                     M 20,7
```



Currently

>100,000
companies

>16,000
banks

Use IBM iSeries & Mainframe
for their critical operations

While there are many calls to replace legacy systems. This will not happen instantly.

There are 5 factors to consider here:

- Cost,
- Risk,
- Business continuity,
- Resource constraints,
- Knowledge and expertise (skill gap).

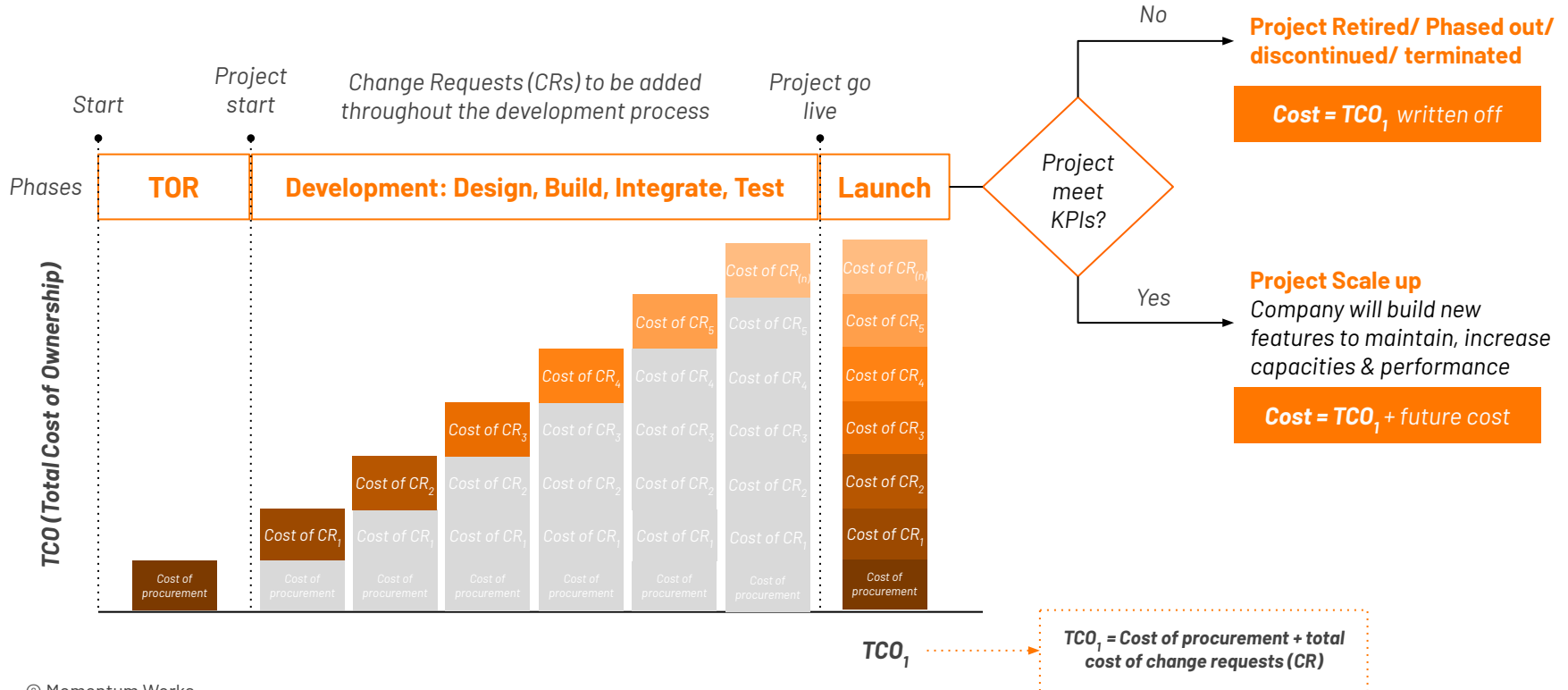
Besides, **legacy systems are simple and beautiful** - we should empower them while they are still here, by laying composable innovation on top.

Such layer could also serve as the **"bypass"** for coming replacement initiatives.

Current way of looking at cost



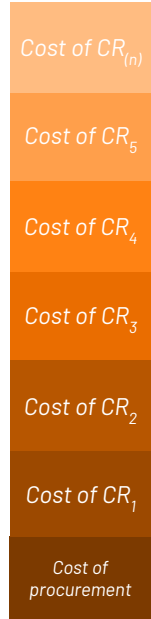
Total Cost of Ownership at launch (TCO₁) = Pre-project procurement costs + total expenses of change requests (CR) until launch. Post launch, the project is either **scaled up**, where **additional costs are needed**, or **decommissioned and the the sunk cost (TCO₁) is written-off**. The question is **“How could companies test, implement and scale whilst keeping cost under control?”**



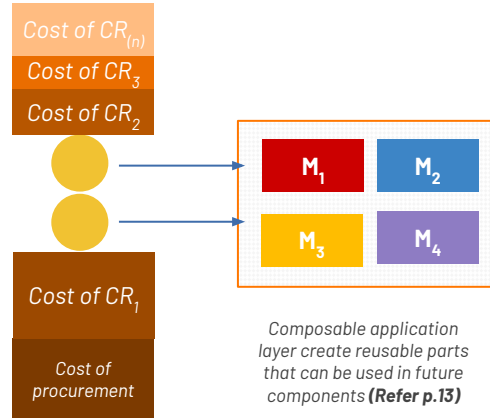
Trend #5: New ways of looking at cost: Traditional vs Composable innovation



Traditional



Composable



Composable application layer create reusable parts that can be used in future components (Refer p.13)



How can composable innovation lower the cost of project development?



Composable innovation enables businesses to **tailor their digital infrastructure with only the components they need**, eliminating expenditures on comprehensive, one-size-fits-all solutions. **Modular components are designed to be interoperable, facilitating seamless integration** with existing systems and easing the adoption of new technologies. This reduces the need for extensive custom development and simplifies the process of updating or replacing individual modules. This approach allows for more **strategic allocation of resources**, promotes **operational agility**, enabling **businesses to respond swiftly** to market changes or evolving customer needs **without the need for large-scale system overhauls**.

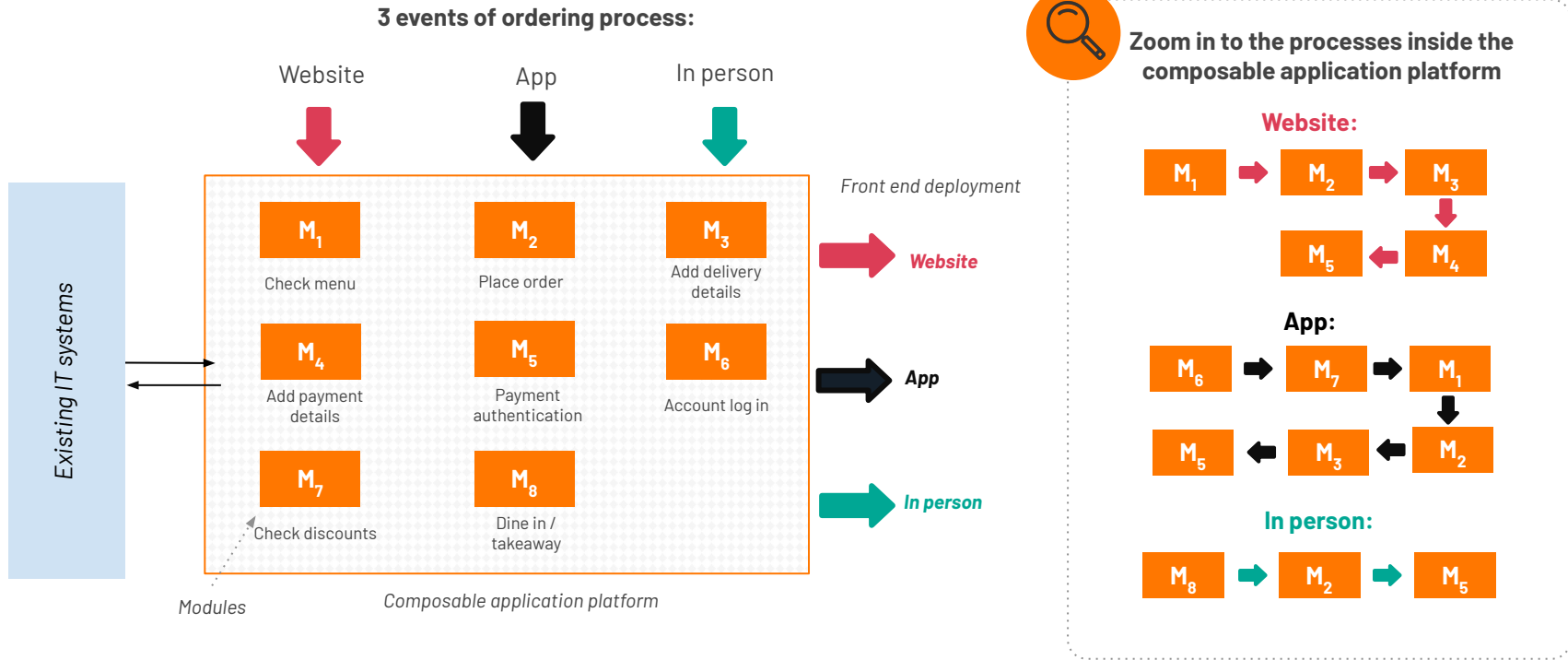
TCO (Total Cost of Ownership)

Imagine if you have 20, 50, 100 such projects ... what is the TOTAL cost you can save?

Composable innovation layer: use case without changing core legacy system



An example of the integration of a **composable application platform** in a restaurant with existing IT system, accommodating various ordering processes.





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3. Case studies

Three case studies of composable innovation in financial services



Case study 1



WeBank in China

- The world's leading digital bank and the first digital-only bank in China
- Provides financial services to 350 million individuals and 3 million SMEs



Case study 2



Credit card company in Thailand

- Top 3 credit card issuer in Thailand with > 3M customers
- Primary line of business in credit cards issuance with supplementary offerings in merchant acquisition, payment services and personal loans



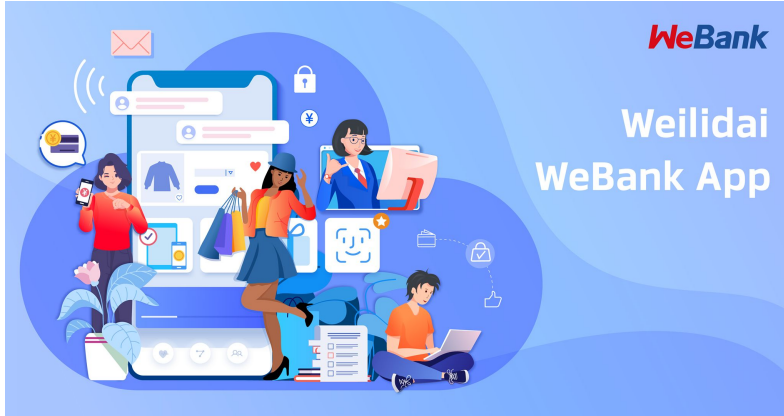
Case study 3



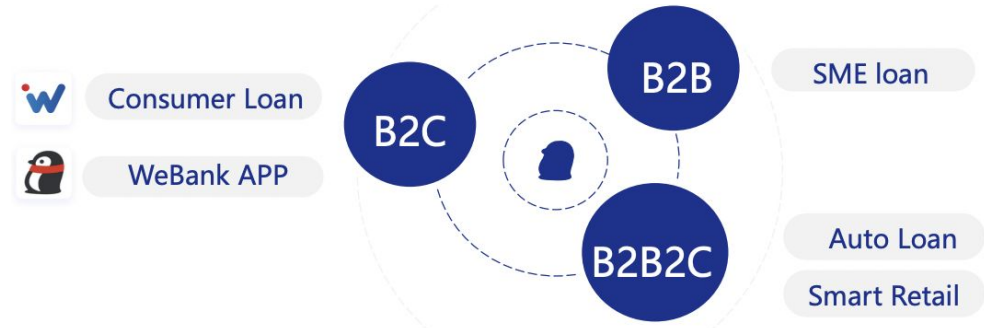
Top legacy bank in Colombia

- Top mobile wallet app in Colombia with > 13M users
- Freemium model for cross wallet transactions; supports government disbursement scheme "Familias en Acción" to 1M recipients

Case study #1: WeBank - composable innovation in action (1/2)



- Vision: **"Connect and Empower with Fintech"**
- In 2019, WeBank's estimated valuation was US\$21 billion.
- WeBank serves as a connector between traditional banks and the industry and consumers.

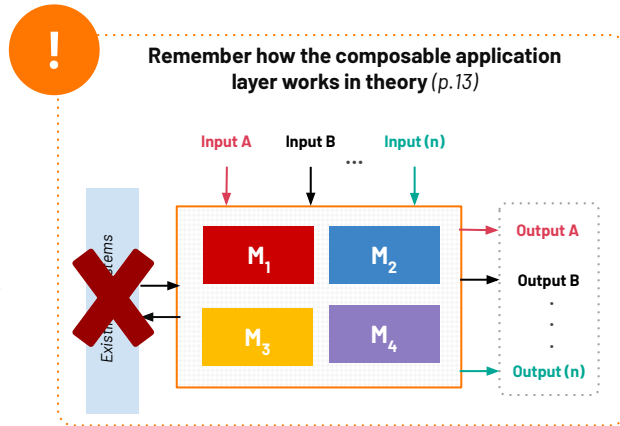


Tasked with three objectives:

- 1 Unlimited Scalability** Unique enterprise architecture designed to achieve unlimited scalability without dependency on any specific technology.
- 2 Technology Sovereignty** No commitment to any particular tech partner or provider.
- 3 Lower cost** IT costs kept under \$0.50 per account per year

What WeBank did

WeBank designed and developed modular and composable modules to offer versatile and adaptable solutions for individuals and SME customers.



WeBank started with no legacy IT infrastructure

WeBank started to opt for a composable infrastructure right from the beginning - building modules including for **Savings, Personal loans, SME Loans, Wealth Management, Payments, Car financing, Enterprise Banking**. These modules are reusable, facilitating easy integration when incorporating new product features or addressing varying customer needs to both individuals and SMEs

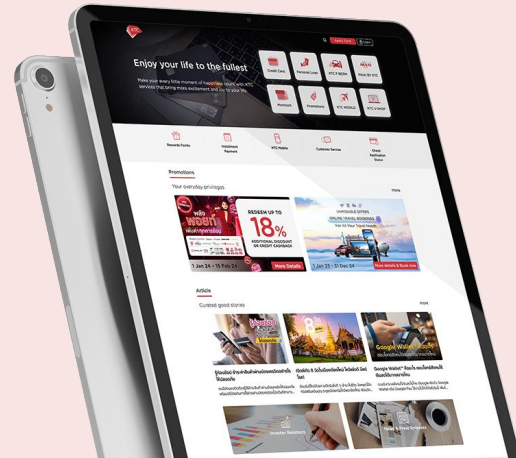
The Impact

- 1 #1** Digital bank in the world
- 2 350 mil** Individuals who use its financial services
- 3 3 mil** SME customers
- 4 <US\$0.50** IT maintenance cost per account per year



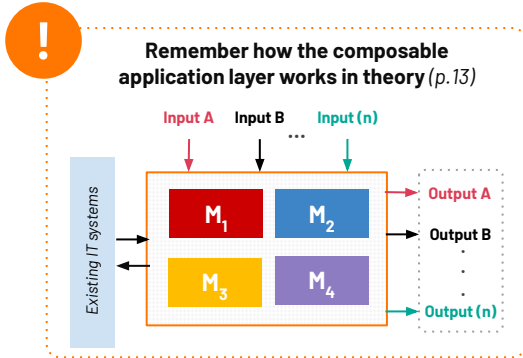


Thailand's leading credit card company with > 3 mil customers wanted to develop an ecosystem of connected digital products in less than 2 years



Challenges

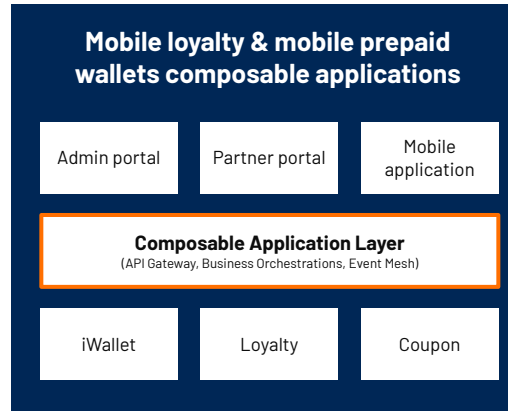
With the goal of expanding their customer base by launching new digital products and partnerships, the credit card company required an entirely new technology platform. However, it usually takes 24 months to modernise IT system with traditional transformation.



Sirius Technologies uses Multiverse platform to create a composable application layer between existing IT systems and front end deployment to cater to different business needs

What Sirius developed & implemented:

Sirius launched 6 services, including: A **mobile loyalty wallet** and a **mobile prepaid wallet** within a record time of 18 months via Sirius Multiverse Platform (p. 42).



The **mobile loyalty wallet** connects with merchant partners and loyalty program partners, providing a loyalty platform to external merchants and point spending at multiple businesses; The **mobile prepaid wallet** enables customers to make payments at credit card's acquired merchant network.

The impact:

These services allowed the merchants and loyalty partners to collect, redeem and exchange points - an important tool for merchants to engage with retail customers.



Loyalty app

- 1 **3 months**
- 2 **6 digital applications**
- 3 **1.8M stores connected**
- 4 **> 3,500**

Time taken to develop and deployed 1 digital application on legacy system without a costly rip and replace

Subsequently developed and deployed within 18 months, which usually takes 24 months

Nationwide adoption of mobile prepaid wallet with embedded loyalty program

Businesses where credit card points could be redeemed

Case study #2: Transforming Thailand leading credit card company (3/3)



Inputs



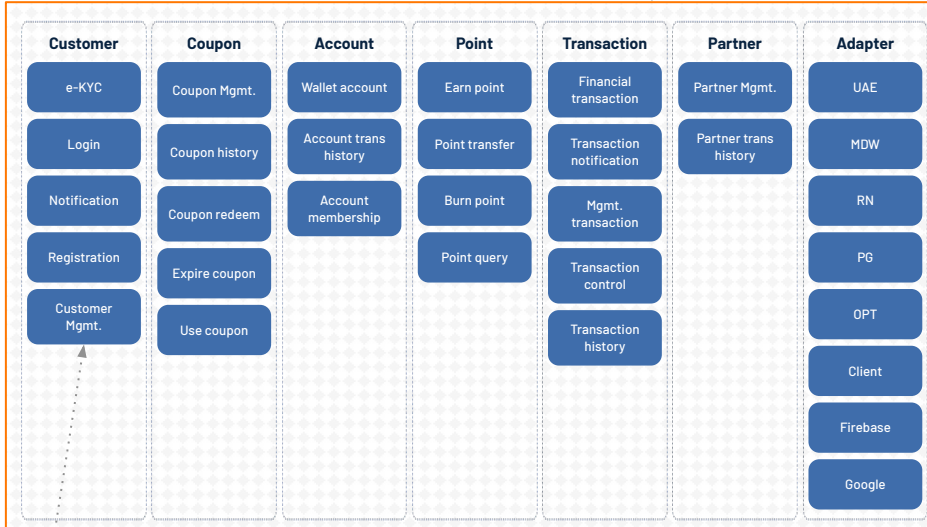
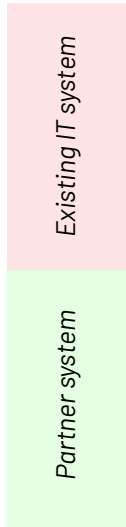
Customers-led Events:

(1) Apply for credit cards; (2) Pay with credit card; (3) Topping up wallet; (4) Add loyalty points; (5) Redeem loyalty points; (6) Applying for a loan; (7) Payment of loan; (8) Checking account balance; (9) Transferring funds between accounts; (10) Setting up automatic payments; (11) Updating personal information; (12) Viewing transaction history; (13) Applying for overdraft protection; (14) Cancelling a credit card or loan; (15) Requesting a credit limit increase; (16) Enrolling in paperless statements; (17) Reporting a lost or stolen card; (18) Initiating a dispute for a transaction; (19) Requesting a new PIN for a card; (20) Setting up account alerts, etc.

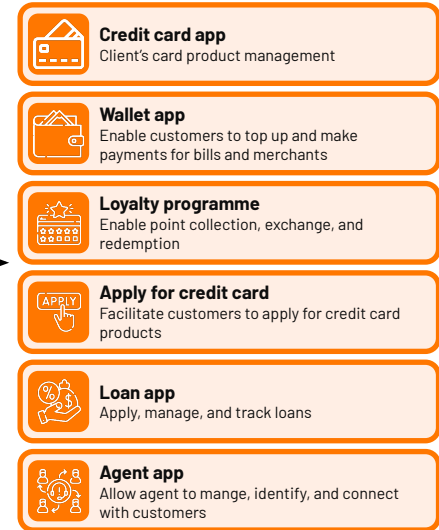


Internal-led events

(1) Check & record credit card transactions; (2) Process top-up transactions and record in the app; (3) Manage the history of loyalty points; (4) Verify customer's eligibility for credit card; (5) Evaluate customer's eligibility for a loan; (6) Monitor account activity for fraud detection; (7) Update customer credit profiles; (8) Analyze spending patterns for personalized offers; (9) Manage customer credit limits; (10) Review and update loan terms; (11) Maintain customer payment history; (12) Conduct credit risk assessments; (13) Monitor credit scores and creditworthiness; (14) Handle customer inquiries and complaints; (15) Generate statements and reports for regulatory compliance; (16) Perform account reconciliations; (17) Implement security measures for data protection; (18) Conduct internal audits for operational efficiency; (19) Monitor market trends for product development; (20) Collaborate with external partners for financial services integration



Outputs



Modules

Composable application platform powered by Sirius Multiverse

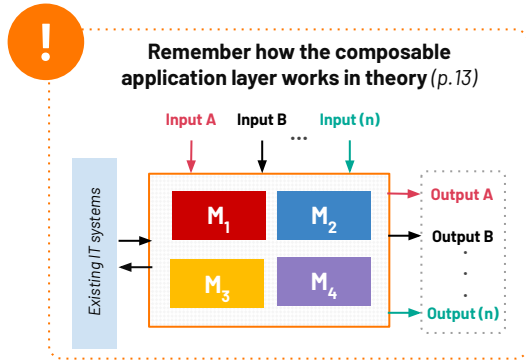


One of Colombia's top banks with >13M users wanted to expand its customer base through innovative products and services



Challenges

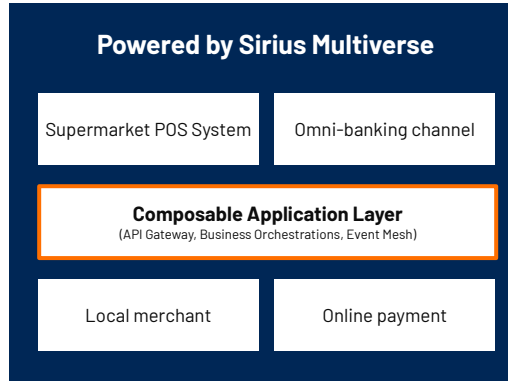
Since 2011, there had been a shift for banks in Columbia to move from proprietary systems to open systems (e.g. microservices, cloud). There had also been an increased need to explore new technologies to reduce costs, boost agility and maintain service commitment. However, many financial institutions had difficulties to integrate new e-wallet digital core with legacy core, as both needed to coexist in a hybrid cloud environment.



Sirius Technologies uses Multiverse platform to create a composable application layer between existing IT systems and front end deployment to cater to different business needs

What Sirius developed & implemented:

Sirius launched a digital hub based on an event-driven architecture on the Sirius Multiverse platform (p.42). This expedited digital transformation and integrated legacy system with new digital banking solutions.



For more details on how the composable application layer works, see next page.

The impact:

These services transformed the bank into a challenger bank with innovative digital products

- 1 Reduce 60% time to market**

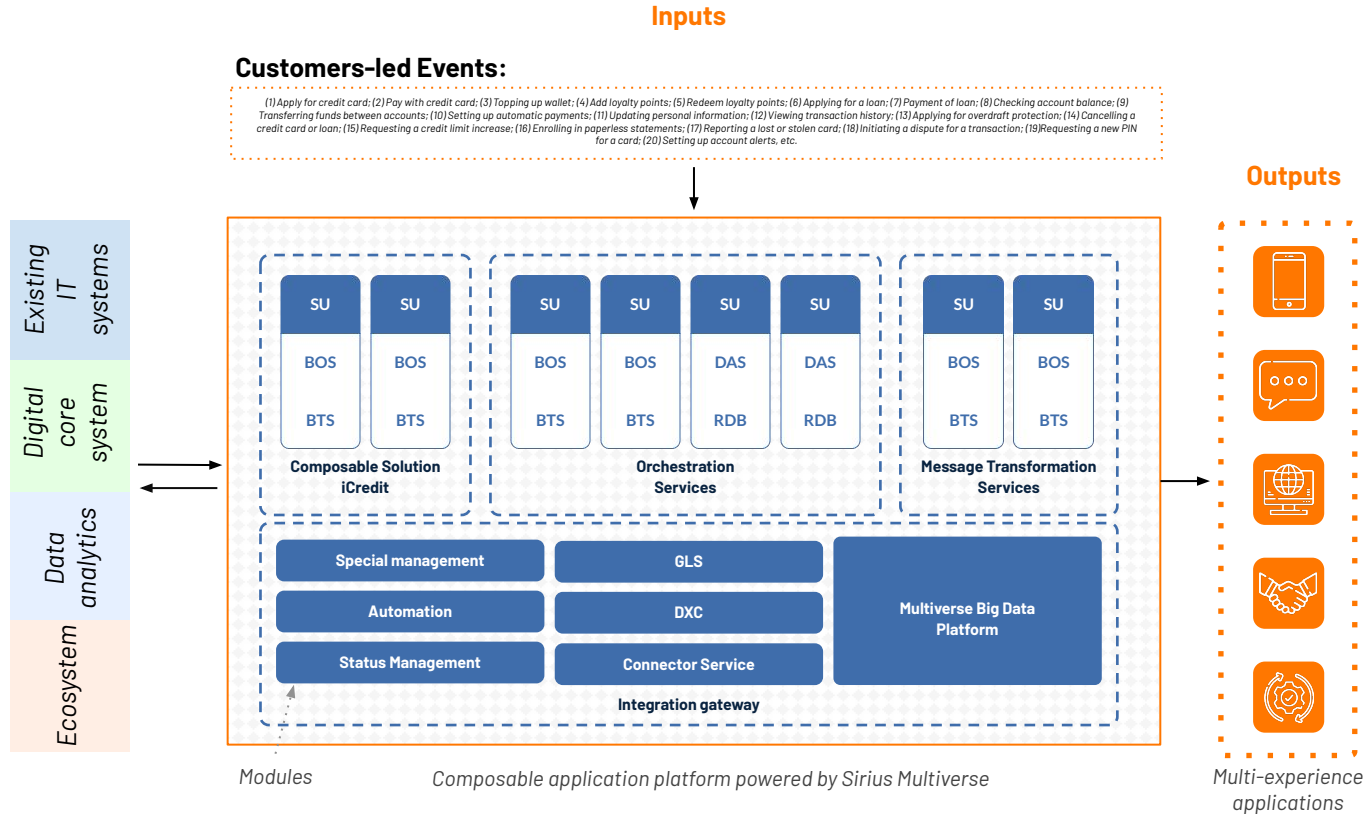
Enabled by rapid development and deployment of new products
- 2 6 weeks to real-time**

Transformation of runtime troubleshooting through a unified portal view for real-time efficiency
- 3 50% cost saving**

Compared to traditional approach
- 4 Establish a Center of Excellence with the bank**

To enhance capabilities for innovation and the development of future applications

Case study #3: Transforming one of Colombia's top three legacy banks (3/3)





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4. Conclusion & perspectives



POP-Leadership is a strategy framework created by Guoli Chen, professor of strategy at INSEAD, and Jiangan Li, CEO of Momentum Works.

The trends, methodologies and paradigms covered in this report can also be illustrated in the following key components of the **POP-Leadership** framework for easy adoption/adaptation:

Leadership: Leaders will need to drive the business-IT alignment culture, find new methods to innovate whilst balancing risks. Legacy systems are beautiful, and a “rip and replace” overhaul is not the only way to innovate.

People: Fusion teams, Enterprise Architects, and coexistence with legacy systems could be a start for people to increase the business-IT alignment. However, clarity on domains and processes will evolve with time and there needs to be room for changes.

Organisation: Organisations need to be more pragmatic and adopt multi-step innovation development. This approach allows for more strategic allocation of resources, promotes operational agility, enabling businesses to respond swiftly to market changes.

Product: Companies should leverage the composable innovation approach to development: building only components that they need, eliminating expenditures on comprehensive, one-size-fits-all solutions.

Any large incumbent organisation, regardless of the industry they might be in, became successful because of **certain capabilities that they have been really strong at**. They beat competitors and odds to become market leaders.

However, when external environment changes, your **strengths could easily become your weaknesses**. The efficiency you have invested into your organisation, system and processes might become irrelevant when the market demands shift to something else. e.g. **a strong engine becomes a single point of failure**.

Digitally transforming the organisation, however, is daunting. Complexities, risks, (hidden) costs, resource constraints, knowledge and expertise (gap), legacy systems, and the need for business continuity - to name a few top challenges. Besides, **how to measure success and ROI?**

It does not have to be so challenging, with the trends, paradigms, methodologies, and technological capabilities introduced in this report. Chief amongst them is the notion of **composable innovation**, and the ways to achieve it.

Leaders will need to drive the business-IT alignment culture, find ways to try new ways to innovate whilst balancing risks. **Legacy is beautiful**, and a “rip and replace” overhaul is not the only way to innovate. Organisations need to adopt a multi-step innovation development that allows **for more strategic allocation of resources, promotes operational agility**, enabling businesses to respond swiftly to market changes.

While we have introduced a few case studies in the banking and financial services sector, **composable innovation can really be found in many industries**, from retail and customer service to generative AI and space exploration.

We hope these will make your transformation journey easier - and we are here to help.



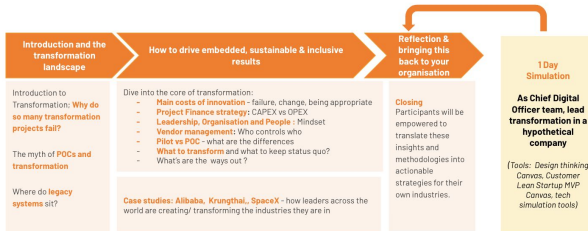
Introducing



Chief Digital Officer Simulation

An immersive experience for transformation leaders

Introducing Chief Digital Office Simulation



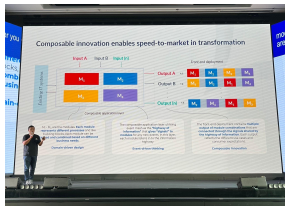
The **1-2 Day simulation** creates immersive experiences for transformation leaders.

You will be working as a **Chief Digital Officer team**, lead transformation in a hypothetical company with **real challenges** that you might find **familiar and resonating**.

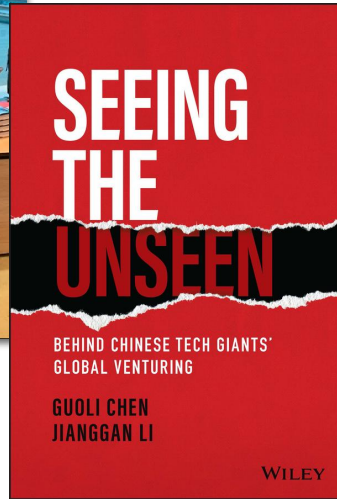
In addition to analysis frameworks such as design thinking canvas, you will also get the chance to **build/iterate your transformation in a real software system**.

The simulation aims to give decision makers **good exposure of the future of digital transformation**. It aims to equip them with the right knowledge, skills, **strategic thinking and practical experience** in the innovation space amid the ever-evolving tech landscape.

Interested? Contact hello@mworks.asia



Read Momentum Works's latest book on people, organisation and leadership



“Seeing the unseen - behind Chinese tech giants’ global venturing”

analyses experiences, learnt by Chinese & Chinese inspired tech companies and bring this back to your organisation.



The book vividly illustrates the **distinct strategies, practices and leadership** styles behind their global success. It is thought-provoking and is filled with **insightful lessons and interesting examples**. The book is **a must-read**.



- **W. Chan Kim**,
The BCG Chair Professor,
INSEAD; co-director, INSEAD
Blue Ocean Strategy Institute;
world's #1 management
thinker, Thinkers 50



This book **connects the unique experiences of Chinese entrepreneurs** from different generations and brings to life real insights and **practical lessons for explorers, investors and other stakeholders**.



- **Eddie Wu**,
Chairman,
Vision Plus Capital;
co-founder,
Alibaba Group

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About Sirius Technologies

Sirius Technologies enables intelligent digital transformation for banks and financial institutions.

Our proprietary composable application platform empowers financial institutions to scale and introduce innovative digital products for their customers and partners, while safeguarding legacy IT investments.



160+
team
members

10+
partners

4
offices

50 Million+

People empowered by apps running on our platform

Unlimited

Transactions per second at high speed

99.995%

Availability rate: an incredibly high level of reliability

The Multiverse Platform

Sirius Technologies' composable application platform



Multiverse OpenX Framework

- Inbound and outbound API gateway, Event Gateway
- API and participants management
- Data and privacy governance



Multiverse Studio

- Cloud based platform for composite technologies and process governance including cloud IDE
- Model driven and AI-assisted low-code development



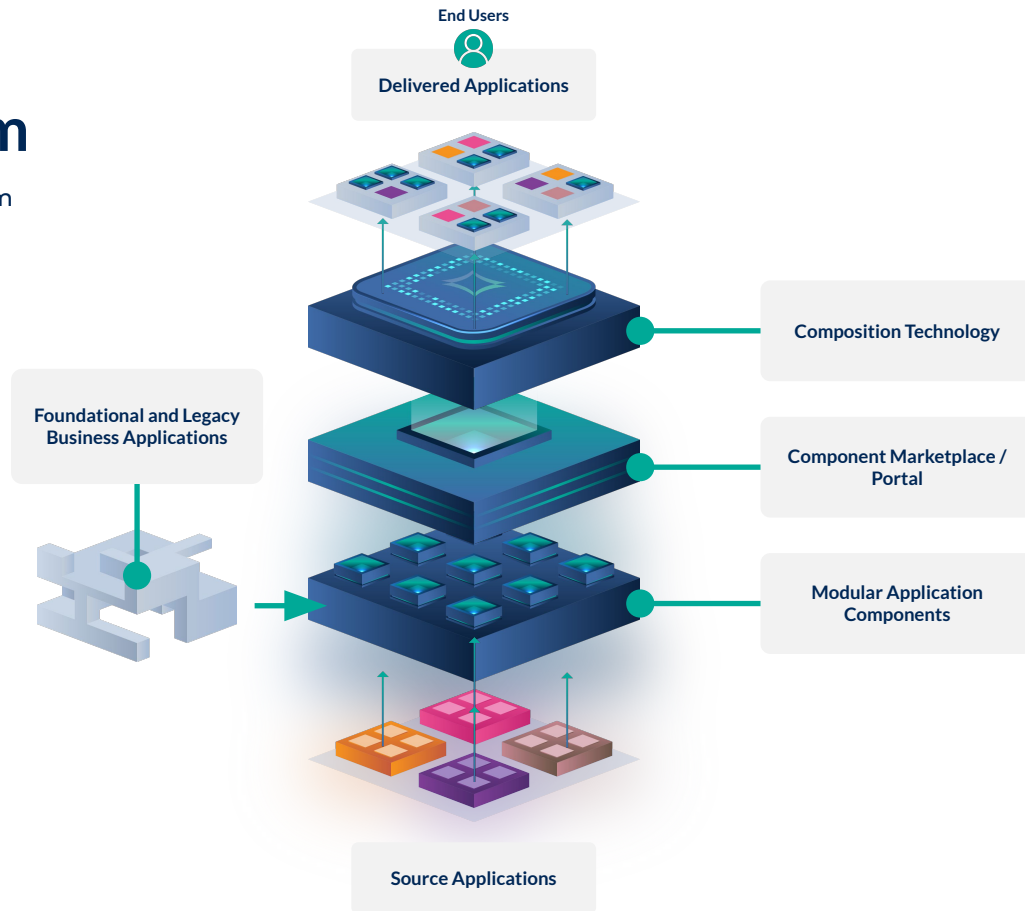
Multiverse Packaged Business Capabilities

- Digital use-case centric and business domain design oriented modular components for quick MVP release and customisation



Multiverse Distributed Cloud Runtime Management

- All in one multi-cloud runtime management platform digital applications
- State-of-the-art service framework to deliver the most efficient build with 100% control over runtime
- Governance driven operations for observabilities and cost efficiency





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