N-CAPIE No-Code API Ecosystem Move Fast and Don't Break Things





CORE MESSAGE

The rules of the game have changed and any organisation playing by the old rules will struggle. People, process, and platform must be aligned with a clear purpose: continuous value creation.

We have all heard the proclamation that 'every company is a software company'. However, for most companies this simply isn't true: spending large amounts of money to implement the latest technology, does not a software company make.

Aaron Levie, CEO of Box, put it well when he said "Stop talking about digital transformation as a thing. It's just modern business strategy."

The 2 core pillars of modern business strategy are:

- i) speed of innovation and delivery
- ii) a laser-like focus on value creation and delivery in all parts of your production and consumption (digital) ecosystems.

The symbiotic relationship between people, process, and platform is essential for the delivery of a modern business strategy. Organisations that understand and nurture this interdependence are best positioned to innovate, respond to change, and gain competitive advantage.



I hope you gain valuable insights from reading this Report.

Leo Cullen, Chief Product Officer

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S F Z U F Z O C

INTRODUCTION

Every digital resource, capability, and experience you encounter through your computer and mobile phone is API-driven. Given this ubiquitous role, you would be forgiven for thinking that we had already reached "Peak API" and that usage had plateaued.

API usage, however, continues to grow at pace. Two of the main driving forces behind this continued growth are AI and digital ecosystems:

- In 2024, there was an 800% increase in AI-related APIs compared to 2023
- 7 of the 10 most valuable organisations in the world are ecosystem focused



Figure 1: API Ecosystem Abstraction

APIs have traditionally been viewed as bidirectional - focused on interactions between two systems - but, in fact, they enable the omnidirectional flow of data, functionality, and services across multiple participants within a digital ecosystem.

An organisation's API Ecosystem is both a mechanism for digital value creation and delivery and a rapid response system for changing market conditions and consumer preferences.

In this report, we examine the roles that people, processes and platforms play in modern business strategy and how No-Code offers a key to aligning those roles to accelerate and amplify value creation.

INTRODUCTION

Section 1: People

First, we will look at the most important resource of any organisation, its people, and how trust, communication and team structure have such a big impact on the ability to create value.

You will also see how 'less can be more' and that small, stable, cross-functional 'Stream-Aligned Teams' can drive value creation and delivery within your organisation when given the requisite autonomy and support.

Section 2: Process

The goal of every organisation must be the continuous creation and delivery of value.

In this section, we look at the 'Enterprise in Motion', and how business and digital capabilities

can be aligned. You will see the importance of systematic innovation, optionality (a strategy for uncertain times) and how you can achieve competitive advantage through the use of interactive data,

Section 3: Platform

We will then look at how Internal Developer Platforms are accelerating software development. These platforms enable the 'self-service' of tools, environments, and infrastructure, thereby removing dependencies and bottlenecks to reduce cognitive load for developers and greatly improve time to market.

Section 4: N-CAPIE

Finally, we introduce our new service, N-CAPIE: No-Code API Ecosystem. You will see how the use of 'No-Code' enables the alignment of people, process and platform to create and deliver digital value at speed. And how N-CAPIE can be used at both enterprise and industry level to achieve results that would otherwise not be possible.



PEOPLE

A team fused by trust and purpose is much more potent. They can improvise a coordinated response to dynamic, realtime developments.

General Stanley McChrystal



THE CONFUSION OF SILOS



Traditionally, business, development and operation teams within organisations sat in their respective silos; each with their own distinct priorities and processes.

Teams were separated by function. The business teams were responsible for revenue generation. Development and IT teams supported the business teams by providing technology and product updates, as required. While the operations team ensured that environments were maintained, secure and stable.

It is now understood that such silos create constraints and bottlenecks that stifle creativity and productivity, and can also foster confusion and mistrust. The speed, frequency and diversity with which changes are needed today means that working in this type of siloed environment is no longer fit for purpose.

Teams are the fundamental unit of operation within an organisation. Empowering them to deliver change and value rapidly means:

- High trust must be explicitly valued and designed for
- Communication must be streamlined and focused where required
- Cognitive load across teams and team members must be understood and managed
- Teams must be aligned to create and deliver understood business strategy/value

In the remainder of this section, we will look at some of the key issues and most recent thinking in relation to the effective operation of people and teams within organisations.

DUNBAR'S NUMBER



There are natural restrictions on the size of effective grouping within any organisation. Well known anthropologist, Robert Dunbar, expounded that the upper limit of the number of relationships that people can manage is 150.

'Dunbar's Number', as it has become known, originated in his study of the special role that grooming plays in the social interaction of primates, but it is now most commonly cited as it relates to the business world and the implications of team size on trust, relationships and common purpose.

"The sociology of business shows that the size of the business unit can affect success. In units smaller than 150, more friendships are formed. Above 150, the sense of common purpose weakens," says Dunbar. Large organisations run the risk of infighting. Rivalries build up between departments and employees are reluctant to keep management informed about problems.

At scale, teams naturally become more distanced from each other. With smaller teams greater cohesion and flow is more easily achievable:

- c. 5 people: limit of people for close working relationships and working memory
- c. 15 people: limit of people we can experience deep trust
- c. 50 people: limit of people we can have mutual trust
- c. 150 people: limit of people whose capabilities we can remember

CONWAY'S LAW

Organisations produce system designs that mirror their communication structure



The communication structure within an organisation plays an important - but easily overlooked - role in system design. This role was first described in 1968 by Melvyn Conway and is now commonly known as Conway's Law. It states:

"Any organisation that designs systems is constrained to produce a design whose structure is a copy of the organisation's communication structure."

Conway's Law has far reaching implications. It means that communication paths (formal and informal) within an organisation effectively restrict the kind of solutions that the organisation can develop.

This understanding has given rise to what is known as the 'Reverse Conway Maneuver'; a strategy whereby you form your teams and communication structure with the specific intention of achieving a desired system design.

Team and communication structures are crucial to a modern business strategy for the creation and delivery of value. System design cannot be seen as separate from the teams themselves.

TEAM TOPOLOGIES



<u>Team topologies</u> is a leading international approach for organising business and technology teams in order to optimise communication and improve overall effectiveness.

It defines four types of team:

Stream-Aligned Team: A small, stable, long-term, multi-functional team of around 5 to 9 people that handles design, implementation and delivery of software/value.

Platform Team: Provides foundational services and automation through a platform to reduce cognitive load and increase flow in Stream-Aligned Teams. (This is seen as the evolution of DevOps and abstracts complexity in order to accelerate productivity.)

Complicated Sub-System Team: A group of specialists dealing with complicated aspects 'as a service' - like a mini-platform. Again, their purpose is to reduce cognitive load and increase flow in Stream-Aligned Teams.

Enabling Team: An often short-lived team consisting of a group of experts who offer specialised knowledge and detect missing capabilities to facilitate the Stream Aligned Teams.

As you can see, the Stream-Aligned Teams are the core team type. The other team types function to support the cognitive load, workload, effectiveness and velocity of Stream-Aligned Teams.

STREAM-ALIGNED TEAMS

Continuous Delivery of Value



Figure 6: Stream-Aligned Teams

Stream-Aligned Teams are the engine of innovation and value creation in an organisation. Moreover, the velocity of a team of teams is significantly greater than a single large team.

Given their importance, let's examine the key features of Stream-Aligned Teams:

- 1.Small (5 to 9), stable, long-term, autonomous and multi-functional
- 2. Focused on the creation, delivery and improvement of business value
- 3. Product rather than project approach: "You build it, you run it."
- 4. Hold responsibility from concept to delivery and beyond
- 5. Adapt quickly to customer requirements and feedback

Stream-Aligned Teams enable an 'architecture of participation' and promote ease of understanding and communication. The focus on business value creation facilitates clarity of action where priorities can be easily established.

The small size and long-term nature of the team fosters trust and purpose and creates an environment where process creation, innovation and customer focus can thrive. Communication, coordination and collaboration suffer at scale.

The multi-functional nature of the team means that constraints, dependencies and bottlenecks can be largely eliminated and flow and time-to-delivery of value optimised.

Process //

An organisation's ability to learn, and translate that learning into action rapidly, is the ultimate competitive advantage.

Jack Welch



FOCUS ON VALUE



<u>Gregor's Law</u> states: "Complexity is nature's punishment for organisations that can't make decisions." And a corollary of that position is that simplicity is the reward for effective decision making.

Enabling effective decision making at executive and team level is a must and is optimised by the laser-like focus on value creation and value delivery. What value does the organisation/team offer? How is it delivered? How can it be enhanced?

<u>Value Stream Mapping</u> describes the enterprise 'in motion' or how value is delivered. It aims to eliminate constraints, dependencies and bottlenecks in end-to-end business processes. The focus is on creating value, building clarity and enabling flow. The definition and delivery of value, clarity and flow is never complete: it is a continuous process (aka Value Stream Management).

Business Capabilities represent the abilities that an organisation has to achieve business outcomes. Well-defined capabilities serve as building blocks for optimizing value streams.

Business Capability Mapping illustrates what an organisation is capable of, independent of how those capabilities are currently executed. This high-level perspective is essential for strategic planning. It also facilitates the alignment of business and digital capabilities with organisational goals.

SYSTEMATIC INNOVATION



Long gone are the days when business models remained static for decades. The old saying "Change is the only constant" can certainly be updated to "Rapid change is the only constant".

Whether you wish to capture a first to market advantage or choose to moderate your risk with a fast follower strategy - agility and innovation are mandatory. Though, similar to 'quality', agility and innovation cannot be "added-on" if and when required, but must be built into business processes.

For example, Amazon's rapid transition from online bookstore to the international tech behemoth that it is today (incl. Amazon Marketplace, Amazon Web Services, Amazon Prime Video, Kindle, Echo, ...) would not have been possible without a cross-organisation dedication to innovation.

Jeff Bezos', offers clear guidance and insight: "The way to get a lot of innovation in a company is to work very, very hard to reduce the cost of doing experiments."

Without this level of commitment to systematic innovation, organisations can remain stuck in the Innovator's Dilemma: reluctant to abandon existing business processes for fear of cannibalising/losing revenue - a position that results in the inevitable decline/collapse of the existing business model.

OPTIONALITY



At its most basic level, optionality simply means having options to choose from. While we can all agree it is usually better to have options than have to none... why is optionality so important in a business setting?

The ability to hold options that have a limited and controllable downside (cost), but a large potential upside (return) means that it is possible to thrive in the uncertainty of that ever-so-hard to predict place - the future.

Keeping downside to a minimum, while optimising the chances of experiencing upside is the key to minimising the probability of missing winning options,

Well known risk analyst, trader and author, Nassim Taleb, brought optionality to the fore in his book, Antifragile. In it he opines "If you 'have optionality,' you don't have much need for what is commonly called intelligence... The key is that your assessment doesn't need to be made beforehand, only after the outcome."

When you start from the premise that we are living in an uncertain world, then optionality is the only way to outperform the average in the long run. The higher the level of uncertainty, the more important optionality becomes in enabling you to outperform the average.

INSIGHT & FORESIGHT



Figure 10: Sources of Interactive Data

While data has traditionally been used to support products, products are now being used to support the creation of data in order to gain valuable insight and foresight into the lives and activities of end users.

Traditional business models are driven by static, episodic data that is aggregated for analysis after an event has taken place.

Modern business models are shifting the emphasis from episodic to interactive data. APIs enable the flow of interactive data through apps and various types of sensors. This data provides ongoing, granular information that enables hyper-personalisation and offers insights into the creation and delivery of value to end users.

For example, a banking app that enables the analysis of spending habits and preferences can offer many benefits to the end-user in relation to budgeting, spending recommendations, and more. This offers a valuable user experience and the potential for many further lines of value creation.

Another example can be found in the insurance industry, specifically car insurance. Traditionally, insurers have relied on large pools of historical data to assess risks and underwrite policies. Now, in-car sensors enable a personalised approach. Interactive data allows a shift from restorative insurance (settlement to 'make whole' after an incident) to preventative insurance (monitoring of vehicle upkeep and safe driving). This more proactive model helps reduce claims and lower premiums while maintaining profitability.

COMPETITIVE ADVANTAGE



The way we frame competitive advantage is moving from how products work within industries to how interactive data creates value within digital ecosystems.

The key attributes that interactive data holds for the creation of value are:

- 1. the ability to develop deep insights
- 2. the amenability of the data to be quickly shared with other players, and
- 3. the capacity to enrich the user experience of end users.

While emphasis has traditionally been placed on improving operational and cost efficiencies in the production ecosystem, the focus has now shifted to optimising user experience within the consumption ecosystem.

Having a deep understanding of end user needs creates opportunities. These opportunities can be captured either by the organisation collecting the interactive data itself or by complementors - partner companies offering complementary services within the consumption ecosystem. The ecosystem acts as a value amplifier, enhancing user experience while also unlocking additional revenue-generation opportunities.

Tesla provides a strong example: its vehicles interact and share data with selected complementors in the consumption ecosystem - such as smart parking garages, maintenance shops, charging stations, gas stations, media and entertainment services, and coffee shops. This interconnected system enhances the end user experience while driving increased revenue for both Tesla and its network of complementors.

Platform

With Golden Paths in place, teams don't have to reinvent the wheel, have fewer decisions to make, and can use their productivity and creativity for higher objectives. They can get back to moving fast.

Spotify Platform Engineering



INTERNAL DEVELOPER PLATFORM



Platform engineering is redefining how organisations build, scale, and manage their software ecosystems.

Internal Developer Platforms (IDPs) enable developers to 'self-service' the tools, environments, and infrastructure they require without the need for manual assistance from operations. A key component of IDPs is the concept of "Golden Paths" that standardise and automate workflows and reduce cognitive load and complexity.

IDPs typically contain 5 main sections:

- 1. **Control Plane:** The user's primary configuration interface with the platform; ideally combining ease of use with robust functionality.
- 2. Integration and Delivery Plane: This layer automates configuration of environments and contains Continuous Integration and Continuous Delivery pipelines that allow developers to test and deploy code efficiently.
- 3. **Resource Plane:** The foundational layer that provides and manages access to the underlying infrastructure and services required for application development and deployment.
- 4. Security Plane: This layer handles secrets management (e.g. database passwords, API keys and TLS certificates), enforces security policies and enables monitoring, logging, and auditing capabilities to meet compliance requirements.
- 5. **Observation Plane:** This layer focuses on providing visibility, monitoring, and observability across the platform and the applications running on it.

PLATFORM VALUE



Figure 13: Platform Value

Platform engineering is a multiplayer game that includes business executives, business architects, developers, infrastructure and operations, security, compliance, and more. Platforms enable alignment of purpose across these players, and offer:

- S Faster time to market
- ✓ Increased speed of innovation
- ✓ Reduced cost
- ✓ Increased compliance
- ✓ Increased standardisation

- ✓ Team autonomy
- ✓ Reusable digital assets
- S Improved transparency
- Improved scalability
- Stricter governance

How do platforms help create this value? They abstract away complexity and commoditise services in order to make them more accessible and decentralise innovation. Rather than 'making things', platforms make it easier for Stream-Aligned Teams to 'make things' for themselves.

Somewhat counter-intuitively, platforms remove constraints using constraints (the ones they introduce through standardisation, automation and 'Golden Paths'). For example:

- Standardisation has traditionally been perceived as a block to innovation. The standardisation introduced by platforms allows innovation at speed and at scale.
- Fast delivery has traditionally been associated with compromising on quality and increasing cost. The Golden Paths offered by platforms enable faster delivery without compromising quality and have a net-positive impact on cost.

PLATFORM TEAM



The Platform Team plays a crucial role in modern software development by creating and managing the tools, processes, and infrastructure that empower Stream-Aligned Teams to create and deliver value.

The Platform Team must treat the platform as a product (not a project) regardless of whether it is a bespoke IDP build, a third-party Platform-as-a-Service (PaaS) or a combination of both. The Stream-Aligned Teams are the end users for the Platform Team: effective communication/feedback is vital for the success of the platform and to ensure continuous improvement.

A Platform should have a Product Owner to ensure its integrity. The Product Owner must ensure that their Platform does not become a Swiss-army knife doing all things for all people. Its value is in doing a small number of tasks well. And crucially, those tasks must reduce the cognitive load and workload of the Stream-Aligned Teams.

There should be adequate representation from each of the Stakeholder Groups (business executives, business architects, software architects, developers, infrastructure and operations, security, compliance and automation) on the Platform Team to ensure alignment of purpose, quality of delivery and effective management of expectations across the organisation.

Ease of use is fundamental to the objectives of the Platform Team and so should be treated as a priority. Each Platform team should include the expertise of a UX/DX specialist to ensure optimum user experience for end users,

N-CAPIE 7

By 2029, enterprise Low Code Platforms will be used for mission-critical application development in 80% of businesses globally, up from 15% in 2024.

Gartner



N-CAPIE: No-CODE API ECOSYSTEM



N-CAPIE is a No-Code Platform for backend development.

It combines the speed, standardisation and abstraction of a Platform with the speed, standardisation and abstraction offered by No-Code to enable a new way to accelerate and simplify API Ecosystem deployment.

What's new about it? Three key words: speed. simplicity and empowerment.

Stream-Aligned Teams are empowered to quickly and autonomously conceive, implement, deploy and maintain API Implementations (API Ecosystem) because of the simplicity offered through No-Code configuration.

- **Speed:** The key differentiator: the speed of innovation and delivery offered by N-CAPIE simply cannot be matched. Create a fully functional prototype in a day and deploy it to Production within a week (or as fast as your existing internal processes will allow).
- **Simplicity:** The abstraction of complexity means that business people and citizen developers can more effectively engage in the development process to optimise value creation and delivery.
- **Empowerment:** A small Stream-Aligned Team (5-9) can handle all aspects of configuration, delivery and maintenance: in line with the 'You built it, you run it' philosophy.

Microservices



N-CAPIE is optimised for microservice architecture. While the choice of architecture does not impact on functional requirements, it greatly impacts on important non-functional requirements such as maintainability, extensibility and scalability.

In effect, microservice architecture plays a key role in enabling team autonomy; each team can develop, deploy and scale their services independently. The key benefits of using Microservice architecture are:

- Services are small and easily maintained
- Seach service has a high degree of autonomy
- Continuous delivery and deployment is enabled
- Services are independently scalable
- Setter fault isolation

One of the most important features of N-CAPIE is that the business/digital capabilities created using the service are in the form of microservices and these granular building blocks can be mixed and matched, used and re-used, to quickly and easily create new user experiences.

In addition, N-CAPIE offers headless architecture; it can easily serve multiple frontends websites, mobile apps - ensuring a consistent experience across all channels. As frontend technologies evolve, they can be completely changed without overhauling the back-end infrastructure. This adaptability helps in keeping applications current with minimal disruption.

OPINIONATED



N-CAPIE offers an opinionated framework for the creation and optimisation of API Ecosystems.

We have a very clear vision of what our clients want - and that is to quickly create digital capabilities that offer value to end users, which can be easily re-used and amended to meet changing user and market requirements.

The N-CAPIE experience can be compared to traveling on a motorway. When a motorway passes the town you want to get to, then there is no faster or easier way to get there by car. If, however, you are unsure of your destination, or wish to visit numerous dispersed locations on your journey, then the motorway is probably not the best choice for you.

N-CAPIE offers 2 Golden Paths (opinionated and supported approaches) that offer speed and simplicity at enterprise and industry level:

i) Enterprise Level: Modernise

Modernise your systems to empower Stream-Aligned Teams to quickly create and maintain API Implementations that enable a modern business strategy.

ii) Industry Level: Standardise

A rapidly deployable 'Out-of-the-Box' solution for Open Banking, or any similar kind of industry-wide API Standards initiative.

GOLDEN PATH: ENTERPRISE



The term 'Golden Path', as used in Platform Engineering, describes a best-practice approach that has been carefully designed to streamline development and deployment processes for developers.

The No-Code approach used within N-CAPIE effectively extends the meaning of Golden Path to mean a best practice approach to enable the implementation of modern business strategy through aligning people, process and platform.

By aligning digital capabilities and business capabilities, it is possible to systematically move from a traditional, slow moving, siloed, monolithic architecture to a modern, fast moving, mircoservices architecture.

This can be achieved by incrementally extracting capabilities from the traditional system and recreating each one within N-CAPIE (aka the Strangler Fig Pattern). This provides a safe and manageable approach to modernisation. Once the capabilities are moved, they can be autonomously scaled, re-used and reimagined using the Platform and Stream-Aligned Team approach.

N-CAPIE also enables you to quickly replicate the functionality of a mainframe system (aka the Parallel Run Pattern) in order to innovate and/or test new technologies, such as AI. This capability allows you to avoid disruption to core business operations and effectively manage security and compliance risks.

GOLDEN PATH: INDUSTRY

Standardise: Industry-Wide API Implementation



Figure 18: Out-of-the-Box Industry-Wide Standardisation

The greater the requirement for speed and standardisation, the greater the value that N-CAPIE can deliver. It is ideally suited for industry-wide initiatives, such as Open Banking, that require standardisation on a grand scale, and speed to facilitate adoption.

Let's examine how ...

Once the N-CAPIE Team configures a Standard within the platform, the configuration can be deployed across the entire industry. (Configure once, use many times.)

This 'out-of-the-box solution' can provide a fully compliant, and functionally identical, Sandbox, Test and Production environment for each organisation.

The solution can be live in a matter of weeks rather than the months or years it takes for bespoke, coded builds.

Organisations can focus on innovation and value-add projects rather than on 'compliance' concerns.

All organisations, large and small, can easily and cost-effectively maintain their own infrastructure and ecosystem ... their source of future competitive advantage.

N-CAPIE can also act as a ready-made framework for Standards Bodies to govern and maintain their Standard: enabling easy updates and governance at an implementation level rather than a protocol and format level.



REFERENCES

The Future of Competitive Strategy: Unleashing the Power of Data and Digital Ecosystems, by Mohan Subramaniam

https://www.amazon.co.uk/Design-Build-Great-Web-APIs/dp/1680506803

Antifragile: Things that Gain from Disorder, by Nassim Nicholas Taleb https://www.amazon.co.uk/Antifragile-Things-that-Gain-Disorder/dp/0141038225

Unbundling the Enterprise - APIs, Optionality & the Science of Happy Accidents, by Stephen Fishman and Matt McLarty

https://www.amazon.com/API-First-Transformation-Kin-Lane/dp/BoBLRCXMQ3

Team Topologies: Organizing Business and Technology Teams for Fast Flow, by Matthew Skelton and Manuel Pais

https://itrevolution.com/product/team-topologies/

Flow Engineering: From Value Stream Mapping to Effective Action, by Steve Pereira and Andrew Davis https://itrevolution.com/product/flow-engineering/

Platform Strategy: Innovation Through Harmonisation, by Gregor Hohpe https://architectelevator.com/book/platformstrategy/

Building an API Product, by Bruno Pedro https://www.amazon.co.uk/Building-API-Product-implement-maintain/dp/1837630445

Principles of Web API Design: Delivering Value with APIs and Microservices, by James Higginbotham <u>https://a.co/d/3SIrEGc</u>

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Collaboration is at the heart of the API world. Many experts work tirelessly to share knowledge and promote the advancement of APIs and related areas of work. Some of the experts whose work has inspired us in the past year, and in the writing of this report, include James Higginbotham, Bruno Pedro, Mohan Subramaniam, Gregor Hohpe, Stephen Fishman, and Steve Pereira. Thank you! And thank you to all who are committed to sharing knowledge to enhance and expand our collective understanding of this fascinating space.

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