Put It Forward®

ORCHESTRATION
Beyond Simple Integration

What you need to know before you begin

Chapter 0
Letter from the author
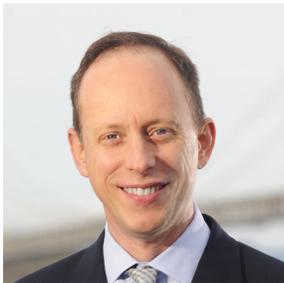
Mark Cowan
Author, "Orchestration: Beyond Simple Integration"

Mark Cowan has led the transformation within many organizations. He has also led and contributed to the definition of several patents for data management, distributed system integration, financial systems as well as worked on developing global standards for XML, SOA, Integration, the DMM and the DMBOK. Mark is a recognized expert in system design, integration and business enablement. Today he is the CDO for Put It Forward - The Data Automation Network.

Anybody can do integration if all that is needed is the simple forwarding of data. It's a no brainer and why many old school companies adopted the approach in the past because that's all the tools really offered. Today in the modern world nothing exists alone - a person, a process step or a technology are all part of something larger. How we interact with the other parts of the whole is defined as orchestration. In the connected enterprise these orchestration steps define success or failure for everyone.

"Work is a process, and any process needs to be controlled. To make work productive, therefore, requires building the appropriate controls into the process of work."

Peter F. Drucker

In this white paper - you will learn about the criticality of process design as part of the functioning whole and importantly - how to be successful at it.

Mark Cowan

What's inside this whitepaper?

Chapter 1

The Real Orchestration Challenge

REAL CHALLENGES ORGANIZATIONS ARE FACING

- *Integrating new capability efficiently and effectively into more than one point.*

- *Making the new system play well with multiple business processes*

- *Easing change as business requirements evolve.*

No system stands alone...

Organizations of every size everywhere do the same thing to grow and improve. They abosorb new capabilities in the form of technology systems. No single provider can meet every organization's needs, and no system stands alone. To achieve their full potential, systems must be able to relate to and share information with other sytems.

Traditional technology product vendors, service providers, system integrators and technology consultants do not fully address the real challenges facing organizations.

Solving these challenges requires normalizing connectivity and business processes without hard coding, but this isn't traditional. Only a non-traditional approach to data integration allows your organization to move far more easily to the next level of integration – orchestration – and maximize its benefits, including operational consistency and agility.

Read on to find out more about what you need to have true orchestration across the organization.

Chapter 2

Set the Right Foundation

Implications of Data-to-Data Thinking

Many integration conversations begin with a simple premise: "It's just moving data back and forth between systems." While the data-to-data concept is technically true at a primitive level, it applies more to a migration scenario, in which the source and target are the same. As soon as either the source or target differ, the limitations of data-to-data are revealed. True integration is much more.

Domain to Domain/Function to Function

Data integration is the foundation of subsequent integration efforts. If your chosen method limits connectivity and data flow, it also limits orchestration. That's why integration and orchestration stories begin with connectivity.

In this context, the word connected has a specific meaning – the connection of two or more complementary ways of working in an enterprise. Connecting two or more points implies connections at the data, process and technology levels among systems or groups. The starting point is mapping data (if this, then that) from one data domain to another data domain. For example, the customer model in your CRM application to the customer model in the service application. These systems are both customer-centric but provide completely different views within the organization.

After data mapping, orchestration can begin with the mapping of relationships at the function level between domains using conditional logic.

This one-to-many linkage triggers events (when this does that, then this happens). For example, "create a new customer" in a CRM system impacts "create a new customer" in service functions.

Many organizations accept the connections that traditional suppliers provide – data bounces forward through point to point via hard-coded paths. This approach hampers orchestration because it addresses discrete business data flow but not business process flow. Some organizations take the step of applying business process management (BPM) techniques using a workflow tool. Some build in redundant business logic in each system, which leads to break points and/or makes it difficult for systems to talk to each other. Additionally, code-based approaches raise information governance concerns by adding complexity because you can't see where data is going or confirm its arrival.

Connect the Process to the Data

Configure   Platform Management   Orchestration   Analytics

What more can you achieve?

Connecting data, domains and functions means connecting processes. Connections at the function level involve some type of event. Events are expressions of work to be done within a process, and it's through events that true integration among systems begins. The actual value and cost of an integration surface during the definition and understanding of linked processes.

A configuration-based approach, instead of a code-based approach, simplifies and speeds integration because it can encompass both data mapping and orchestration. Normalization can occur at the domain level, with business processes layered on top, to facilitate true orchestration, which ensures standardization and universality.

QUESTIONS TO ASK YOUR VENDOR:

DEFINED ROADMAP- *Do you have a defined roadmap for your point-to-point connectors?*

SCALABLE - What happens when the application you're connecting changes versions?

ERROR CONTROL - How do you handle errors within your custom integration?

The Outcome: Native Integration vs. Configuration

Hard-coded solutions
lead to operational
obstacles

1. **Open API** - a DIY approach, require the right tools, skilled developers and ongoing maintenance.
2. **Free Vendor-supplied** - native integrations can be very costly due to the recoding that's necessary when business rules, user requirements or data mapping requirements change.
3. **Vendor lock-** - difficult to switch vendors, preventing you from fully realizing the potential of new technology.

1. **Third Party Supplied** - ownership and maintenance of application and code lies with the third party supplier - lowering overall platform cost.
2. **Data Control** - IT can manage at platform level and better orchestrate data across the enterprise
3. **Application Independence** - pre-configured connectors allow companies to integrate any application and many applications because the platform is independent of the applications and code.

"Custom software development by a team of software engineers, on average, takes anywhere from 4-12 months" [1]

Code-based integration is point-to-point integration, like a string fixed between soup cans. Point-to-point integration allows simple data transfer in one direction with field-to-field mapping. Users can't validate or correct data because they have no visibility into the data flow. The outcome of code-based approaches? Multiple, parallel, opaque, inflexible integrations that hide and restrict data flow. While a vendor-supplied native integration is "free," it doesn't provide control. And costs can add up quickly when you consider code fixes, decisions based on bad data, and missed opportunities resulting from lack of analytics.

To learn more, read the "The Truth with Native Integration: Can You Afford It?" white paper.

Chapter 3

How Data Agility Affects Orchestration

Impact of Bad Data

According to Experian Data Quality, bad data has a direct impact on the bottom line of 88% of all American companies. The averages losses from bad data was 12% of the company's overall revenue.[2]

OUTCOMES OF CONFIGURA-TION BASED INTEGRATION:[3]

- Reduce lead qualification time by up to 175%

- Increase productivity by 10-20x

- Increase customer satisfaction by up to 6x

Stats based on actual PIF customer results

Agile Data Versus Fixed Data

The more fixed your data, the less agile your organization, and the less able you are to react rapidly to market conditions and adjust go-to-market strategies. Fixed data ignores the pace of change, which is constant.

Business users define what data they need to do their jobs, and this dictates the rate of change in an integration. The data they need to do their jobs varies every day, and no global data minimum can be defined that is sustainable over a mid- to long-term period. Further, the data in systems differs for every process. The definition of customer in your CRM is different from the definition used by finance. While there may be commonalities, context is everything.

Changes in data relate to changes in data processes. Today you connect A to B, but tomorrow you need to connect A to C and A/B to D. Change something in a fixed, point-to-point integration, and it breaks. Further, data flow is determined by the slowest integration point, leading to fluctuations in the rate at which data can be shared. Does this approach foster agility? No.

Put It Forward's configuration-based approach ensures flexible data connections. The cloud-based modular, componentized architecture is easy to use, change and manage from one platform. It provides performance in terms of real-time speed, completeness, accuracy and timeliness and supports information flow at the same velocity from system to system.

Chapter 4
Simplify the Orchestration

Connecting the Data to the Prcoess

Efficient, accurate orchestration depends on the connections established during integration, and on the thoroughness and accuracy of data mapping. Only by moving away from point-to-point integration can you achieve constructive data and process flow because processes are no longer dependent on underlying systems, integrations or technologies. Abstraction lowers switching costs, allowing you to plug and play easily and extends functionality into other areas of your business seamlessly. You can use out-of-the-box processes more easily versus building and configuring processes individually.

Rules and Triggers

Put It Forward's prebuilt foundation allows the addition of business rules, APIs, analytics and products. Rules and triggers are set up in a requirements document that captures details such as where data needs to go, under which conditions, how it needs to be transformed if necessary, and the triggers.

The business rules span your organization instead of specific systems only. An event that's supposed to happen, happens. Data shows up without the use of filters or complex business logic inside each system to manage actions. Imagine the positive implications for data flow. You can focus on what you want to do, not on what you can't do.

Connected Business Processes

Consider your customer journey and how many systems are involved. Some companies report up to 30 or 40 systems, which can be further complicated by regional or country considerations. When the systems aren't integrated or don't use standard integrations, each one presents a similar but different narrative. Behind the narratives, users are most likely working around the systems to share data, recreate data or fill in gaps with redundant work steps.

But when you have exposure to processes before and after integration, as you do with Put It Forward, the interdependencies are clear. You can have one customer journey no matter how many systems are involved. Employees have a 360-degree view and the real-time information they need.

Chapter 5

Maximize Orchestration Outcomes

Put It Forward provides integration and orchestration across firewalls so legacy and modern systems can be connected. The orchestration engine – think of it as a traffic cop – puts data where it needs to go based on context. Employees can remain in jobs and don't require retraining when a new system is dropped in. The data just goes to the right place at the right time, maximizing your business flexibility and agility when you bring in new technology and capabilities.

Error Detection and Remediation

Vendor-supplied code and developer-supplied code are not meant to be changed. Once the code is in production, you can only keep your fingers crossed and hope it's doing what it's supposed to do. Since users cannot view, control or trace data movement, an error may go undetected for a long time.

The repercussions can be significant – consider what might happen when you transfer customer data from your CRM to finance system and not all the data arrives. Running your business with hard-coded connectivity is like driving a car whose check engine light never comes on even though trouble is brewing under the hood.

Error Detection and In-Flight Correction

Unlike code-based solutions, the Put It Forward platform passively monitors data and systems. It captures data events and generates logs. If there's a failure in a record or in a field inside a record, you are notified immediately. More important, you can determine where an error occurred, even if that's upstream from the integration in another system. For example, a user might change a field definition from no to yes or change a property, without understanding the implications.

Further, users can remediate errors in flight, preserving accuracy, maintaining productivity and supporting compliance efforts. In this scenario, you're driving with a fully functional check engine light, which notifies you of any problems, so you can pull over, check the computer, and determine exactly what's needed.

Connect, Create, Control

Configure   Platform Management   Orchestration   Analytics

Connect Data, Connect Processes

Ready-toUse Data Where it's Needed

Integration isn't just system to system. It's people to systems to people. But business processes or workflows are complex and difficult to implement. Fortunately, best practices already exist inside systems in the form of default ways to create records, invoices, forms and so on. Why not leverage these defaults and be operational that much faster? And send data where it's needed, ready for use, without the use of spreadsheets or thumb drives?

Simpler, Faster Collaboration

Put It Forward's modern architecture is built for cloud or on-premise deployment to connect cloud solutions, on-premise applications and data sources – so you can take advantage of system defaults and other opportunities to improve efficiencies and minimize costs

INTEGRATION WITH PIF:

CONNECT- Point pre-built configuration based connectors to automatically integrate source and destination systems.

CREATE - Use *Platform Builder* to configure business rules and fransformations to the integration. Not just point to point connections - connect once and connect everywhere.

CONTROL - Orchestrate how data moves across the enterprise including when and where data is recieved and sent in context. Add embedded analtics for data governance, control and reporting.

Integration Maturity Model: *Getting Ready for Orchestration*

All organizations are on an integration maturity curve, with associated processes, behaviors and outcomes. Your position on the curve determines the ease with which your people and systems collaborate and your readiness for orchestration.

5 Optimization
Advanced Analytics
On-The-Fly Data Queries
Cross Dept Business
Process Flows

4 Insight
Risk & Quality Focused
Business Intelligence &
Reporting
Integrated Business
Rules

3 Competency
Repeatable/Scalable
Multi-Integration Intervals
Data Quality Management

2 Managed
Single Task Synchronization
Standardized Integrations
Basic Process Design

1 Basic
Manual, Semi Automated
No Governance
Dis-connected Processes
Data Inconsistencies

Where does your organization fit within this integration model? What do you need to do to reach the level you want? Request a data integration assessment.

Organizations in the Optimization stage exploit data across the entire information supply chain. Business functions are abstracted from the data level, enabling independent business process design

Basic Level

- Manual data integration that requires considerable data re-entry
- Data inconcsistencies caused by manual data entry and disparate technologies
- Lack of information governance, security or accountability of key information assets

Optimization Level

- Advanced Analytics that can be used to manage and measure data to support sourcing risk, profit margins, etc.
- Cross-dept business flows that optimize internal and external processes

Chapter 6

Business Agility Booster - PIF
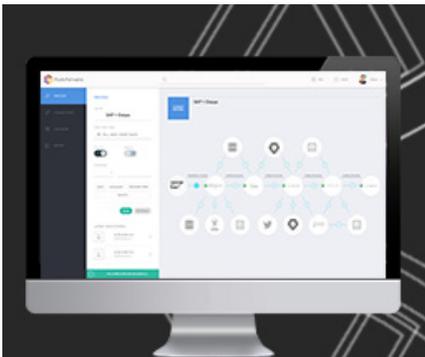
PIF provides …
Business Agility and Consistency
New technology can help your business grow and improve by increasing operational effectiveness and efficiency – but only when data flows effortlessly and accurately through systems and processes to the people who need it need to do their jobs. This can't happen with simple, hard-coded, point-to-point integration.

Put It Forward's configuration- and component-based approach abstracts business logic out of integration, enabling you to get more out of your data, applications and systems. The advantages of a modular, simplified platform-centric view include reduced costs, fewer vendor dependencies and the freedom to add technology and capabilities.

Your business is positioned to take advantage of orchestration and follow-on steps, such as adding artificial intelligence and machine learning to better understand and use data in context as it's moving through your business.

Put It Forward's configuration-based approach insulates enterprises from the churn and fallout of native integration breakdowns. The cloud-based modular, componentized architecture is easy to use, change and manage from one platform. Check out the *Platform Builder video* to see how this works.

1   How Long Does it Take to Build Custom Software for a Business, Brianspire,DJ Wardynski, 9/14/17
2   The Hidden Costs of Bad Data, insideBAGDATA, Editorial Team,5/5/17
3   Management: Tasks, Responsibilities, Practices. Peter F Drucker., 1974 ISBN 0750643897

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