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Consider a big bang approach for your cloud and application transformation

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Rapid change is the new normal, agility is top of the agenda, and nimble responsiveness is the key to success. Organizations must evolve from their traditional reactive mindsets, skill sets, and technology stacks to focus on experiences and business value and underpin that experience with modernized cloud applications. The future is hyperconnected, both within organizations and across touchpoints to customers and other frequent ecosystem collaborators and trading partners. The destination is clear, the question is how do you get there?
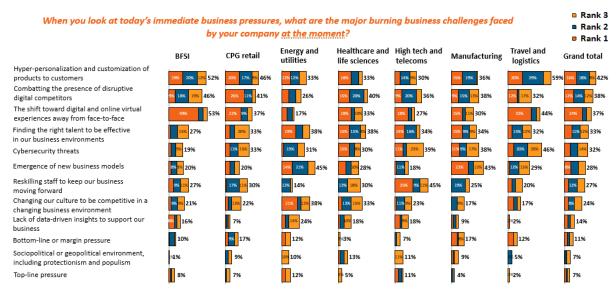
HFS is exploring cloud transformation journeys across industries and geographies. US-based Harmonic, a high-tech video routing, server, and storage products manufacturer, shared with us its progress on its journey to pivot away from its complex and heavily customized legacy environment to a new and nimble cloud-based environment. This program's vision is to transform Harmonic into a resilient Live Enterprise. According to Infosys, a Live Enterprise is one that can sense new trends and threats within and beyond its ecosystem and make decisions at the speed of data. Harmonic implemented a suite of Oracle cloud modules combined with additional third-party integrations. Rather than taking an incremental approach, Harmonic aimed for a big bang migration to quickly synchronize as many of the fast-moving parts as possible—including inventory visibility across all entities, order fulfilment across geographies, intercompany transactions in a single platform, and IT modernization using an end-to-end cloud-based platform.

Competition and disruption threaten all industries

Agility is indeed the key to maintaining relevance and defending against disruptive and competitive threats. In Exhibit 1, we can see that irrespective of which industry the enterprise leaders are in, there is agreement across sectors that hyper-personalization and disruptive competitors are of immediate concern. There is an interesting mix of responses to the remaining options that shows major burning issues vary across industry sectors. For banking, financial services and insurance (BFSI) and the travel and logistics industries the shift to online and digital is high on the agenda, but is a lower priority for the energy and utilities sector. The high tech and telecoms sector en masse reported a need to reskill to keep moving forward, cybersecurity, talent, and the presence of disruptive digital competitors as its major burning issues.

Consistent with this view, Harmonic was facing the pressures of disruption and competition before it transformed its business operations systems.

When you look at today's immediate business pressures, what are the major burning business challenges faced by your company at the moment?

Legend: Rank 3, Rank 2, Rank 1

Total percentages by industry:

Challenge	BFSI	CPG retail	Energy and utilities	Healthcare and life sciences	High tech and telecoms	Manufacturing	Travel and logistics	Grand total
Hyper-personalization and customization of products to customers	52%	46%	33%	33%	30%	36%	59%	42%
Combatting the presence of disruptive digital competitors	46%	41%	26%	40%	36%	38%	32%	38%
The shift toward digital and online virtual experiences away from face-to-face	53%	37%	17%	33%	27%	30%	44%	37%
Finding the right talent to be effective in our business environments	27%	33%	38%	38%	34%	34%	32%	33%
Cybersecurity threats	19%	33%	31%	30%	39%	38%	46%	32%
Emergence of new business models	20%	20%	45%	28%	18%	43%	29%	28%
Reskilling staff to keep our business moving forward	27%	30%	14%	30%	45%	25%	20%	27%
Changing our culture to be competitive in a changing business environment	21%	22%	38%	33%	23%	17%	17%	24%
Lack of data-driven insights to support our business	16%	7%	24%	18%	18%	9%	2%	14%
Bottom-line or margin pressure	10%	17%	12%	3%	7%	17%	12%	11%
Sociopolitical or geopolitical environment, including protectionism and populism	1%	9%	10%	13%	11%	9%	5%	7%
Top-line pressure	8%	7%	12%	5%	11%	4%	2%	7%

Sample: Global 2000 Enterprise Leaders = 355

Source: HFS Research supported by KPMG, "State of Operations and Outsourcing" 2019

Assess the "as is" state to achieve the desired "to be" state

Harmonic is an American technology company that develops and markets video routing, server, and storage products for companies that produce, process, and distribute video content for television and the internet. Its business lines span video production and processing products, cable edge products, and video server products, with operations comprising 35 entities across 26 countries and serving 5,000 customers. Notable customers include Time Warner Cable, Comcast, CenturyLink, Bell TV, Rogers, and Virgin Media.

Exhibit 2: Harmonic's need for cloud transformation had multiple drivers

Driver	Description
Industry disruption	Heavy research and development (R&D) cause regular disruptive waves across the industry; for example, 8K TV and evolution from hardware to software.
Intense competition	Margins are constantly under pressure, leading to increased pressure on internal cost management.
New business model and revenue stream	Harmonic was shifting from a pure product services revenue stream to an integrated product +SaaS revenue model.
IT infrastructure modernization	There was a perceived need to migrate the entire IT infrastructure to cloud to improve the cost and efficiency of IT operations and to utilize state-of-the-art security and authentication features that are globally compliant. The legacy environment contained +20-year-old systems, presenting challenges in risk management.
Heavily customized applications	Customizations were restricting agility, limiting Harmonic's ability to respond to market needs.

Source: Harmonic, 2020

Harmonic's systems landscape needed a radical overhaul to face the future

An old version of Oracle's on-premise eBusiness Suite and a series of customizations prevented agile responses and required a lot of expensive and time-consuming IT handholding. Changes built "organically to solve the problems of today…" were becoming more difficult to manage and maintain. For example, an

application that calculated royalties on products through a user interface (UI) needed to examine each shipment and queried each shipment to find the specific royalty to apply. The custom application handling this, despite attempts to simplify and update it, was still proving challenging and cumbersome.

Not only was technical debt an issue, there were also differences by geographical territory, intercompany management challenges, and instances of non-compliance to GDPR and IS027001. Some of the older systems were completely out of product support, having not been upgraded after 2005. It was becoming increasingly risky to apply patches. Harmonic knew for some time that it had to upgrade.

Harmonic decided it needed a new digital platform for enterprise resource planning (ERP) to support new product lines, enter new markets, and align with industry best practices. Real-time integration with suppliers and supplier portals throughout the purchase order processes was important for collaboration; the old systems lacked this capability. The company also needed better integration options, cross-functional collaboration, and any-device-access. There was an underlying need to reduce the overall cost to IT and to the business while simultaneously improving the customer experience.

Harmonic set a 10-month target for multi-country, multi-pillar cloud transformation

The key objectives for the move to the cloud were business agility, scalability, mobility (any-time and any-device access), and IT competitiveness. The business objectives included improvements in productivity and efficiency in the financial-close process; seamless order fulfilment from sales, sales operations, and channel partners; and an enhanced user experience for their teams. The IT organization sought a reliable, globally compliant, secure application with disaster recovery options. Harmonic needed a modern IT landscape to meet the changing needs of the organization. There was a need to move to a better reporting platform that met the following requirements: accessible, configurable, user friendly, and on-demand.

With an ambitious 10-month timeline in its sights, Harmonic opted for a big bang approach. Much internal debate and many conversations with Infosys led to this decision. The financials and supply chain modules were still on the legacy version. To a global company, the order management process was critical; Harmonic knew it might have to run and maintain two applications in parallel, closing books in both, but was keen to avoid this. It faced many challenges in supply chain management while trying to eliminate customizations built over the years, especially custom user interfaces and processes running on top of Oracle. It was critical that getting rid of customizations would not lead to functionality gaps.

Harmonic wanted to avoid a situation where cloud and legacy systems were in simultaneous use, requiring users to repeat efforts in both systems, this would only consolidate data and Harmonic wanted to achieve more than a simple data consolidation.
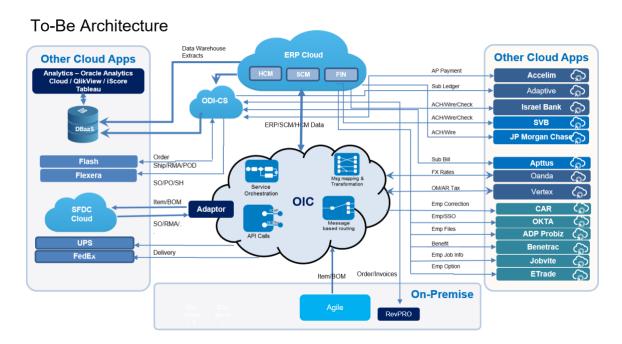
A fixed-price model and deadline commitment were key to partner selection

When IT vendors responded to Harmonic's requirement, many were unable to meet the project's timeline requirements or wouldn't undertake a fixed-price engagement model. Infosys presented a solution and a team with technical and domain experience and in-depth knowledge of Harmonic's peripheral and middleware applications. In addition, Infosys was able to meet Harmonic's aggressive timeline by using accelerators and a tailored implementation methodology. Infosys also committed to a fixed-price bid for the entire implementation program.

Infosys delivered Oracle FIN Cloud, Oracle SCM Cloud, and Oracle HCM Cloud for the finance and accounting, procurement, and human resources departments, respectively. In tandem, Infosys deployed

 Excerpt for Infosys

additional Oracle Cloud modules, trained users, modelled business flows, designed integrations, and built data extracts and reports. The "to be" architecture is displayed in Exhibit 3.

Exhibit 3: Harmonic's "to be" architecture and integration points

Infosys drew on its Accelerating Cloud Transformation (ACT) methodology to support the definition of implementation roadmaps and product development throughout the project. Agile development approaches preceded two-to-three-day test feedback cycles throughout. Rather than running each track separately in sequence, Infosys started working on multiple tracks on day one, and Harmonic is of the view that this expedited progress considerably. Some system performance challenges emerged during the project with the order management module as Harmonic has large volumes of line items in its orders, sometimes 100-200 lines; this is more than is usual in other industries. Infosys helped with the fine-tuning and was able to get Harmonic's performance issues escalated quickly at Oracle, installing product patches to alleviate the problems Harmonic initially encountered.

Removing complexity and customization resulted in a cleaner environment

HFS views technical debt as a modern-day plague on organizations; it is the price organizations pay for the cumulative effect of incremental decisions, which increase system complexity (and usually process complexity) in the long term. Harmonic set out to simplify its systems landscape and remove many of the systems and components that contributed to complexity. It certainly achieved this goal. The project eradicated most of the previous customizations. Harmonic retired four applications and removed 95% of the customized solutions around those applications. When the cloud transformation was complete, only one custom application remained—an industry-specific, serial-number-tracking and label-printing application.

 Excerpt for Infosys

Harmonic redesigned its business processes, not the system

Harmonic aligned its processes to industry best practices, minimizing customization and reducing system support requirements. The project required revamping 16 business processes end-to-end, removing any regional flavors to facilitate the interoperability of human resources. Order fulfillment, manufacturing, and costing all moved to single global processes in a follow-the-sun model from Hong Kong to the US. Rather than taking processes through to the new systems as they were, the company redesigned processes to exploit applications' inherent functionality using a supply chain operations reference-based (SCOR) process framework. And for processes with unavoidable regional flavors, such as tax or reporting requirements, sub-ledger rules replaced the old approach of customized solutions. Integration to Vertex's tax automation software helped reduce difficulties encountered with international and intercompany tax requirements. The legacy systems' capability was reverse-engineered by Infosys in some cases to minimize the time business users had to invest to specify the required functionality.

Finally, the big bang happened … with a parallel start

The approach was a big bang; Harmonic had to maintain business as usual and minimize duplication of effort throughout the transition. To support this, Infosys facilitated a parallel start for reports, integrations, and conversions to ensure continuity in these areas.

The new Oracle modules went live on time (with a big bang) in Europe and the US with all the end-to-end processes, complete with Salesforce CRM access to the configuration platform and other third-party applications. Oracle Integration Cloud (OIC), dashboards, and customer reports were all in place, with the Oracle Cloud database pushing third-party data into the systems from SAS and maintaining the product attributes that third-party applications required in a single place.

Both Harmonic and Infosys placed a strong emphasis on successful user adoption and encouraged this by establishing leadership commitment with timely decision making and strong "business champions." Early involvement of users and good communications were key to the project's success.

Once the new systems were established, the benefits were immediately apparent:

- **The cost advantages of the software as a service (SaaS) approach were visible on the bottom line**. The total cost of ownership (TCO) was reduced by the SaaS approach along with the ability to integrate with AWS for usage data and billing.
- **The cloud transformation improved Harmonic's integration with its many trading partners.** allowed the business to react to changes quickly. For example, blanket purchase orders (BPOs) are easier to handle in the new systems, compared to the series of manual processes needed in the old system.
- **Reporting is easier for business users.** Throughout the systems, Harmonic can use consolidated reporting tools with real-time reports and dashboards; reporting functions were previously disjointed and cumbersome to both use and maintain. Business users are finding it much easier and faster to build the reports they need in their daily decision making using the Oracle Finance module.

Harmonic is pleased with its progress; Santhosh Kumar, VP IT and PMO at Harmonic, says, "This was indeed a complex project completed under a very tight schedule. The decision to go end-end with a big bang approach was taken after a lot of consideration, though it was a risky undertaking. Infosys, with its longstanding partnership with Oracle and deep-rooted expertise in complex digital transformation

programs, was an ideal partner of choice to collaborate with us. They helped enable timely delivery despite all the constraints and ensured business continuity in parallel."

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The Bottom Line: For Harmonic, the big bang approach was preferable to an incremental approach, it quickly moved Harmonic's business processes into the cloud with minimal disruption to the business and on an aggressive timeframe.

Harmonic's CFO wanted to reduce the time required to close the accounts. Account closure took five days in the full first quarter run in the new system, which was better than Harmonic expected.

Reassured by the initial success of this engagement, Harmonic reports that the new system's adoption rate is very high, and the user base is happy with it. Harmonic plans to deepen the partnership with Infosys to help transform it into a resilient live enterprise by unlocking more areas of efficiencies through process improvements. And there is also further room for improvement in the performance of the order management processing function. For the future, Harmonic would like to make its many integrations run seamlessly, with automated data transfers passing to and from upstream and downstream systems. The vision for Infosys' Live Enterprise suite is based on continuous evolution with agility at the core, and Harmonic's transformation is off to a good start.

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Miriam's focus is on Integrated Automation across the Triple-A Trifecta (automation, AI, and analytics) from a people, process, and technology lens and her key areas of expertise include IT services contracts and market evaluation. Miriam also has considerable experience in systems implementation, systems integration, business analysis, technical analysis, consultancy, and strategic marketing.

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2020
DEFINING
BUSINESS
OPERATIONS
IN THE NEXT
DECADE

About HFS Research: Defining future business operations

The HFS mission is to provide visionary insight into major innovations impacting business operations, including: automation, artificial intelligence, blockchain, Internet of things, digital business models, and smart analytics.

HFS defines and visualizes the future of business operations across key industries with our Digital OneOffice™ Framework.

HFS influences the strategies of enterprise customers to help them develop OneOffice backbones to be competitive and to partner with capable services providers, technology suppliers, and third-party advisors.

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