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Amdocs Revenue Management

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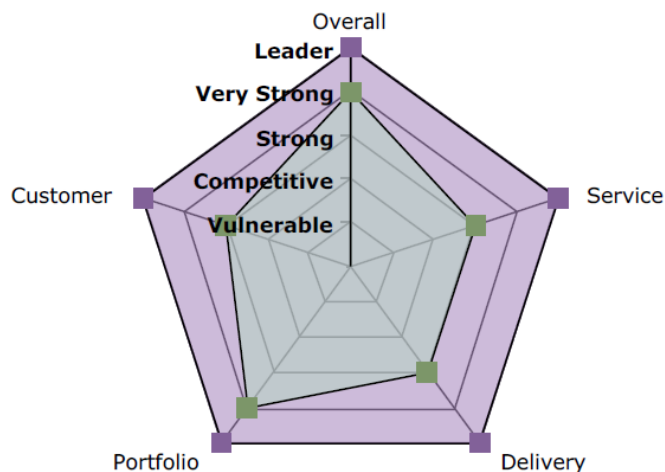## PRODUCT ASSESSMENT REPORT - REVENUE MANAGEMENT

REPORT SUMMARY:

Focused on creating more flexible billing capabilities, Amdocs launched its Freestyle Billing suite in February 2022. The company also introduced a new 'digital brands' suite in a bid to attract new business models.

SUMMARY

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Product Ratings radar chart comparing Amdocs Revenue Management against Product Class Average across Overall, Service, Delivery, Portfolio, and Customer dimensions. Scale: Leader, Very Strong, Strong, Competitive, Vulnerable.

Legend: Amdocs Revenue Management; Product Class Average

WHAT'S NEW

- **February 2022:** Amdocs introduced Freestyle Billing, which supports preferred payment and business models with intelligent billing and monetization options. The new SaaS offering enables flexible billing across multiple use cases, including over-the-top (OTT) services for B2B, B2C, and B2B2X offerings, with minimal upfront investment required.

- **February 2022:** Amdocs completed a successful implementation of its real-time online charging solution on Amazon Web Services (AWS). As part of its business support system (BSS) transformation, Amdocs and AWS demonstrated the ability to handle 12 billion complex charging transactions per day.

- **November 2021:** AT&T selected Amdocs Customer Experience Suite (CES) cloud-native platform to support its business support system evolution (BSSe) program and to enhance its customer experience.

- **October 2021:** Amdocs announced the launch of Digital Brands Suite as a Service, powered by AWS. The cloud-based SaaS suite enables digital brands to introduce streamlined care, commerce, ordering, and monetization capabilities with minimal upfront costs.

- **September 2021:** Amdocs was selected by Orange to provide the BSS for its 5G standalone (SA) experimental cloud network in France.

PRODUCT OVERVIEW

Product Name	Amdocs Customer Experience Suite
Description	The company offers a number of revenue management solutions and products within its overarching customer experience suite. Amdocs Monetization Suite addresses various facets of monetization, including: catalog across monetization; OSS; care and commerce assets; policy; charging and partner management; billing; invoicing; digital bill experience; and a growing focus on the 5G Network Exposure Function (NEF) as a means to enable new revenue opportunities. Amdocs Monetization Suite also focuses on "taking charging to the edge" by enabling operators to deploy on any cloud environments. Amdocs Monetization Suite is part of a broad range of portfolio assets that also includes Amdocs Commerce & Care Suite (C&CS), focusing on digital experience; and Amdocs Intelligent Networking Suite (INS), focusing on OSS and network. Specifically, C&CS focuses on omnichannel customer engagement, including commerce, order management, care, and configure-price-quote (CPQ) modules. The entire suite is cloud-native, open, and modular. Amdocs combines core software competencies with design and managed service resources in areas such as customer self-service, analytics-driven proactive care, real-time convergent charging, real-time billing, policy, and streamlining the introduction of new services with a unified definition framework across pricing, rating, and policy logic.

Components	• Amdocs Monetization Suite:	• Network Exposure Function (NEF)
	• Charging	• Catalog
	• Policy	• Amdocs Commerce & Care Suite:
	• Billing/Bill Experience	• Omnichannel Customer Management
	• Invoicing/Collection/Accounts Receivable	• Commerce/Care
	• Partner Management	• Order Management/CPQ
Key Customers	• A1 Telekom (Austria)	• KT (South Korea)
	• Airtel (India)	• Orange (France)
	• Altice (US)	• Safaricom (Kenya)
	• AT&T (US)	• Sky UK
	• Bell Canada	• Telefónica (Latin America)
	• BT (UK)	• Verizon (US)
	• Charter (US)	• Vodafone (Germany, Turkey)
Key Rivals	• Ericsson	• Nokia
	• Huawei	• Oracle
	• Netcracker	• Whale Cloud

ESSENTIAL ANALYSIS

STRENGTHS

- **Innovation Engine:** Amdocs has made a concerted effort to focus on internal innovation, as evidenced by the introduction of its Freestyle Billing offering in 2022. The company continues to invest in attracting and retaining software expertise to fuel 5G and cloud innovation.

- **5G Focus:** Fueled by its 2020 acquisition of Openet, Amdocs is carving out a new angle on a persistent challenge: the 5G "value plane." Amdocs' focus on the vital role of policy and charging in enabling 5G monetization is a differentiator.

- **NaaS:** Amdocs has been one of the most active vendors supporting emerging NaaS opportunities, either alongside or as a lead-up to 5G network slicing. That said, the company should keep the pedal down on clarifying NaaS, the precise definition of which remains elusive.

- **Global Services:** With approximately 28,000 employees serving over 350 operator customers (including at least 32 revenue management customers) in more than 85 countries, Amdocs wields significant global support resources in the revenue management market, particularly in managed services.

LIMITATIONS

- **B2B Competition:** Amdocs offers a number of B2B-related capabilities within its revenue management portfolio, including predictive analysis and estimation tools. However, it faces much stiffer competition in B2B, where much of the industry's 5G revenue expectations reside.

- **Down-Market Challenges:** Amdocs continues to be perceived as a vendor best suited to large operator engagements. New initiatives, like the digital brands suite, will be an important factor in diversifying and reducing Amdocs' reliance on its largest customers.

- **Internal Innovation:** Amdocs' reliance on acquisitions for innovation, while laudable in some respects, arguably points to a lack of internal development capabilities. Amdocs can do more to emphasize the value of its internal and acquired research and development (R&D) as an advantage.

CURRENT PERSPECTIVE

LEADER

Amdocs is a leader in the revenue management market. The company has done an effective job of organizing its end-to-end suite of customer and revenue management assets within C&CS, Monetization Suite, and INS, underpinned by a long and expanding focus on AI and data that increasingly focus on 5G-related capabilities, such as those enabled by the network data analytics function (NWDAF). Amdocs' packaging of policy, convergent charging, and real-time catalog solutions into an offering that serves the '5G value plane' represents a point of potential differentiation in a market, which is now replete with a host of vendors calling out their 5G monetization credentials.

Amdocs continues to focus on the cloud-native approach, underpinning the entire CES21 portfolio, including moving to a regular cadence of updates rather than a major update every year. The company offers a strong services approach, enabling operators to modernize their environments in a way that allows them to simultaneously monetize their investment in legacy platforms that will remain in place over a long transitional period.

The company has also taken recent notable steps to introduce innovation for operators. This includes the October 2021 introduction of Digital Brands Suite as a Service that utilizes AWS' public cloud, as well as its Freestyle Billing solution that enables communication service providers (CSPs) and their customers to offer more flexible billing capabilities for a variety of recurring and one-time purchase scenarios.

COMPETITIVE RECOMMENDATIONS

PROVIDER

Align 5G "Value Plane" with Evolving Capabilities: Amdocs' introduction of the 5G "value plane" concept represents a nuanced approach to the market and one that plays to Amdocs' platforms and skillsets. With major enhancements in areas like AI enabling even more sophisticated use cases in upcoming 5G standards releases, Amdocs should look to identify and demonstrate use cases that can utilize these emerging capabilities to generate incremental 5G revenue.

Diversify: Amdocs continues to rely on a handful of CSPs, primarily in North America, for the bulk of its revenue; the company generates nearly two-thirds of total revenue from just 10 customers. The company's Digital Brands Suite as a Service represents a focus on incremental opportunities by packaging revenue management products and offering them as a service to minimize upfront costs and speed time to market. Meanwhile, Amdocs Bill Experience, offered in a SaaS model, is geared toward addressing the requirements of a diverse set of use cases and potential customers.

Leverage Media Expertise: Amdocs' extensive relationships with content and media solutions providers represent a differentiator. The company should consider how best to package its content assets to help network operators monetize video content through joint solutions with content providers.

COMPETITORS

- **Geographic Flexibility:** While Amdocs continues to expand its penetration of smaller operators, competitors may point to recent revenue declines from emerging markets as evidence that Amdocs' approach is not yet resonating in all regions.

- **Vertical Expertise Uncertainties:** Competitors with established vertical billing systems experience (e.g., Nokia, Oracle, and Netcracker) can highlight Amdocs' relatively limited focus on non-CSP vertical markets.

BUYERS

- **Digital Brands:** Operators should work with Amdocs to identify the best use cases for the public cloud-based, 'as-a-service' model envisioned by its Digital Brands Suite as a Service. This concept could serve as a low-risk way to test the 'as-a-service' model and determine if or when it makes sense to adopt it more broadly in revenue management or customer service applications.

- **Quantify 5G Monetization:** Operators should press Amdocs to provide more real-life details on how Amdocs' portfolio is driving true revenue growth from 5G, both in consumer and B2B use cases.

- **Explore Ad and Media Tie-Ins:** Operators should encourage Amdocs to bring specialized advertising and media products to the table to augment its core service billing solution. Most rivals lack these capabilities.

METRICS

Portfolio Capabilities

Rating:	Leader
Mediation :	- Amdocs Mediation converts network data into business information by collecting and processing multi-source, raw network data and distributing the information in real time or batch mode. Amdocs Mediation offerings have been significantly enhanced with Amdocs Network Data Fabric (NDF), an evolution of Mediation. It is Kafka-based and enables real-time data streaming, correlation, and enrichment from multiple sources. - Amdocs NDF is a real-time stream processing platform, designed to ingest data from any source and transform it to a common format for real-time processing and distribution to downstream applications. As well as mediation and billing, NDF enables an array of business applications that depend on the real-time capture and processing of events; these include Monetization (e.g., allowing for real-time offer management, next best action, contextual marketing, and real-time customer satisfaction response) and Audit & Control (e.g., supporting revenue assurance, fraud assurance, quality of experience, quality of service [QoS], customer experience management, and customer care). Openet Data Fabric also enables network optimization and service assurance-type applications. - Amdocs demonstrated that NDF can process in excess of one trillion events in a single day on Azure, showing that a cloud-based event processing architecture is fit for network-grade volumes of activity. NDF is now part of Amdocs AI & Data Platform (it is part of the joint and wider Amdocs portfolio).

Converged Rating & Charging/5G Charging Function Support:	• Amdocs Monetization Suite offers 5G-ready online/offline convergent charging. It is a unified system for all lines of business (e.g., voice, data, broadband, value-added services, internet protocol television, mobile virtual network operator [MVNO], and 5G) and 5G scenarios (e.g., network slicing, edge resources, IoT, etc.). The solution is cloud-native and microservices-based, and it supports a distributed hub and edge architecture, in which some of the charging functions can be pushed to the edge as lightweight 'wallet' solutions, thus minimizing signaling backhaul and hardware footprint.
	• Amdocs Charging comes ready to handle new services in the 5G digital economy, from IoT and media to network slicing and edge monetization. Supporting prepaid and postpaid models for 3G, 4G, and 5G mobile, fixed, IoT, content, and any other digital service, the solution executes rating and charging actions in accordance with user-defined priorities and conditions, and ensures all balance updates are applied.
	• While an SA product, Amdocs charging is also available as part of the Amdocs Value Plane, a pre-integrated 5G monetization solution that includes catalog, policy, charging, as well as selected network functions, such as NEF and NWDAF. Amdocs Value Plane enables CSPs to easily define, deploy, and monetize any 5G solution (for both consumers and business customers) while supporting enhanced, 5G-related currencies.
Online Charging System (OCS):	• Amdocs Monetization Suite supports OCS capabilities, including real-time charging virtualization apps.
	• Amdocs OCS is cloud-native and is available on private and public cloud environments (cloud-agnostic), as well as a SaaS model on AWS.
Customer Billing Management:	• Amdocs Real-Time Billing (part of Amdocs Monetization Suite) brings a revolutionary new approach to the entire billing process, offering dynamic new ways to extract customer value. By transforming batch billing processes into real-time functions, the solution calculates charges for any transaction type in real time, shortening time to cash for the operator and empowering omni-monetization. The benefits also extend to customers and partners, who gain advanced payment flexibility and real-time transparency into their transactions.
	• Amdocs also recently announced its Freestyle Billing Solution: Amdocs Freestyle Billing is the next generation of billing software, supporting multiple billing models in a single biller, allowing CSPs (and their customers) to complete control over the bill construct across monthly bill and subscriptions. While one customer would prefer multiple products on a same bill twice a month, other customer would like to have multiple monthly subscriptions- one for each product. Amdocs freestyle billing allows that level of flexibility, down to the level of service per customer. Monetization models can be pre-defined by the service provider, configurable by the customer or recommended by dedicated AI/ML models.
	• In addition, Amdocs Digital Brands Suite as a Service is a full pre-integrated digital BSS provided in SaaS model as a multi-tenant product deployed on AWS cloud, covering care, commerce, ordering, and monetization.

Partner Billing Management:	• Amdocs Partner Management is a comprehensive partner management, settlement, and monetization solution designed to support the complete partnership lifecycle. The partner offering is designed to support partners, foreseeing the in-depth partnership models of the 5G ecosystem. Consequently, Amdocs is leveraging its expertise in the partner domain to expand into marketplace offerings.
Collections Management :	• Amdocs Collection supports manageable collection processes aimed at improving revenue assurance by preventing and detecting revenue leakage. • In addition, Amdocs Digital Brands Suite as a Service is a full pre-integrated digital BSS provided in SaaS model as a multi-tenant product deployed on AWS cloud, covering care, commerce, ordering, and monetization.
Bill Presentment :	• By delivering modern, progressive, and customer-oriented bill design, Amdocs Bill Experience (previously known as BriteBill) transforms a normally mundane document into an opportunity for more relevant user engagement, allowing customers to create an effective billing experience across all touch points, including paper, digital, and email. • With the recently announced availability of Amdocs Bill Experience as a Service, service providers can leverage Amdocs' many years of experience and best practices in producing understandable digital bills translated into pre-defined bill templates that can be easily configured to any service provider's brand, using the 'bill designer' configuration tool.
Voucher Management/ Loyalty Plan Management :	• Amdocs Monetization Suite supports voucher management and loyalty plan management. • In addition, Amdocs Digital Brands Suite as a Service is a full, pre-integrated digital BSS provided in SaaS model as a multi-tenant product deployed on AWS cloud, covering care, commerce, ordering, and monetization. This offering supports voucher management/loyalty plan management through a third-party (e.g., Evolving Systems and Perx).

Analytics Integration :	• Amdocs relates to data and analytics holistically across its entire CES suite and therefore introduced Amdocs AI & Data Platform, a cloud-native data management solution with the ability to collect, organize, manage, and provide authentic, business-ready data from any source, to feed data lakes and data warehouses at scale. Supported by the Amdocs Logical Data Model (aLDM), the solution consolidates and enriches revenue related data with both operational and analytical systems and the rest of the ecosystem to make it more contextual and usable for consumption by different stakeholders for different purposes such as reporting, application programming interface (API) layer, AI/ML, and more.
	
	• Amdocs provides a growing library of out-of-the-box AI use cases to maximize the data utilization and holistic view across care, commerce, billing, and network.
	
	• Finally, Amdocs leverages AI/ML algorithms to improve domain-specific functionality and processes. In the revenue management domain, it includes:
	
	  1. Freestyle Billing embedded ML;
	
	  2. NWDAF network data analytic function- a new product developing into trials and labs;
	
	  3. Amdocs NDF- Amdocs has many productions and is building a significant new project in a Tier 1 CSP, modernized with cloud-native technologies; and
	
	  4. Bill presentment: Bill Experience Corporate Analyzer provides bill analytics capabilities to break down charges for departments, charge type (e.g., one off or recurring charges) and monthly view.

Policy Control and Charging :	• Amdocs Policy- as the 'network brain' that manages and controls essential service characteristics of the 5G network, Policy Controller enables to control, manage, and monetize the enhanced characteristics of the 5G network as well as open up new markets. With Policy Controller's rich set of 5G capabilities, Amdocs enable customers to support differentiated QoS for every service.
Enterprise Monetization Solutions :	1. Amdocs Monetization Suite is the company's flagship cloud-native solution for monetizing 5G services, IoT and smart spaces, the digital ecosystem, and the subscription economy. Amdocs' 5G 'value plane' concept supports new business models such as NaaS, PEN (in various iterations), and B2B2X, all to enable a world of enterprise monetization possibilities. 2. Amdocs Real-Time Billing (part of Amdocs Monetization Suite) calculates charges for any transaction type in real time, shortening time to cash for the operator and empowering omni-monetization. Enterprise customers benefit from advanced financial transparency and can view bill estimates and bill predictions during the month for financial outlook. 3. Amdocs Bill Experience: enterprise customers' digital bills include breakdown to organization hierarchies, comparisons to previous bills, and predictions of future bills. Corporate Analyzer provides bill analytics capabilities to break down charges for departments, charge type (e.g., one off or recurring charges), and monthly view. 4. Amdocs Partner Management is designed to support partners, foreseeing the in-depth partnership models of the 5G ecosystem. 5. Amdocs NEF is set to help CSPs expose unique 5G NW attributes via APIs to potential enterprise customers and software developers. API-based charging is then integrated into Amdocs Charging and Billing products, providing advanced monetization capabilities based on this new model. 6. Vindicia subscription management platform is a SaaS-based subscription billing software solution that supports the entire subscription lifecycle, from customer acquisition and recurring billing to customer retention and business growth.

Delivery Model

Rating :	Leader
Managed Services Approach :	Amdocs provides a fully managed service when required as per specific project scope.
'As-a-Service' Models :	• Amdocs Monetization Suite is the company's flagship cloud-native solution for monetizing 5G services, IoT and smart spaces, the digital ecosystem, and the subscription economy. While all products within the suite are cloud-native and support any cloud configuration, Amdocs is gradually converting selected products to be available 'as-a-service model' based on market demands. To date, Bill experience and Online Charging are the two functions already available in that model. More to follow. • In addition, Amdocs Digital Brands Suite as a Service is a full pre-integrated digital BSS provided in SaaS model as a multi-tenant product deployed on AWS cloud, covering care, commerce, ordering, and monetization.
Hybrid/ Multicloud Consumption Models :	• Amdocs products are all cloud-native, cloud-agnostic, and available on hybrid and multi-cloud.

Availability/ Experience on Hyperscale Platforms :	• Amdocs has strategic partnerships and various product implementations with all major hyperscale cloud providers, including AWS, GCP, and Azure. Others include HPE and Samsung, whereby agreements could extend to NDF when needed. • Amdocs Digital Brands as a Service Suite also has current projects on public cloud and is now starting a very large and complex project on AWS. The digital brands SaaS suite is predominantly built using AWS serverless functions to optimize agility, scalability, and elasticity.
Engagement Structures :	Amdocs Monetization Suite, as part of Amdocs CES, is built on the foundation of Amdocs' cloud-agnostic Amdocs Microservices Management Platform, offering a continuous integration/continuous delivery (CI/CD) environment to ensure agility and IT velocity.
Average Delivery Cycle Length (on most recent version of BSS platform) :	• Delivery length depends heavily on project scope and specifications. As an open and modular suite of solutions, projects can be rolled out in a phased manner as per customer specifications.
Delivery Features :	• Continual delivery via DevOps and cloud-native modular, microservice-based releases across multiple BSS business domains via Amdocs Microservices Platform. • Amdocs leverages automation of processes and AI. The Amdocs Intelligent Operations Center is a cross-ops monitoring and governance platform that includes best practices from across Amdocs accounts, BizOps team and tools, business, and IT monitoring and reporting. • In addition, the digital brands SaaS suite is built with fully automated DevOps and CI/CD providing 'one-click deployment' for the entire stack.
Partners :	• Strategic partnerships with AWS, Google Cloud, Microsoft Azure, and Red Hat. • Amdocs was awarded the 2021 Global AWS Partner Network (APN) Public Sector Partner Award for Best Telco Solution (for the Vodafone Germany project). Amdocs also announced an expansion of its strategic collaboration with Microsoft to widen the availability of its portfolio on Microsoft Azure and the 'Azure for Operators' initiative, enabling service providers to migrate to the cloud with cloud-native solutions and cloud transformation services, as well as deploy 5G networks in the cloud. • In addition, Amdocs Digital Brands Suite as a Service is a full, pre-integrated digital BSS provided in SaaS model as a multi-tenant product deployed on AWS. For this offering, Amdocs also partners with B2B Soft for point-of-sale integration; In3D for innovation (3D virtual retail); and Lightico for digital sales engagement and several leading payment gateways.

Service and Support

Rating :	Leader
Workforce :	Amdocs' 28,000 employees across 85 countries around the globe help accelerate the migration of Amdocs' customers to the cloud, differentiate in the 5G era, digitalize, and automate their operations, as well as providing end users with the next-generation communication and media experiences.

Delivery Centers :	• Development and Operations Centers in Brazil, Canada, Cyprus, India, Ireland, Israel, Mexico, the Philippines, the UK, and the US.
	• Business Process Operations Center in India.
Research and Development :	• As part of Amdocs investment in the cloud, in fiscal year (FY) 2021, Amdocs acquired Sourced Group, a leading global technology consultancy specializing in large-scale cloud transformation for sophisticated, high-end enterprises in financial services, communications, and other industries across North America, Asia-Pacific, and Australia. Sourced Group's proven cloud migration platform, deployment framework, and trusted design process, alongside its deep partnerships with AWS, Microsoft Azure, and Google Cloud Platform, complement portfolio of cloud-native products and services, as well as expanding and diversifying its customer base.
	•
	• Throughout FY2021, Amdocs has increased its R&D as a percentage of revenue, extending its lead to define the 5G Value Plane. Building on its successful integration of last year's acquisition of Openet, the 5G Value Plane incorporates key capabilities such as charging, policy, and monetization, as well as multi-access computing and next-generation networks to support the upcoming rollout of 5G SA networks that will enable service providers to drive premium 5G services with innovative business models.

Customer Success and Stability

Rating :	Leader
Momentum :	Through Amdocs' relationships with over 600 content creators and 350 communications and media providers across more than 85 countries, Amdocs serve billions of consumers worldwide.
Corp Stability :	• During FY2021, Amdocs achieved record annual revenue of $4.3 billion and revenue growth of 7% while meeting profitability targets; industry-leading 5G monetization projects at top North American service providers; acquisition of Sourced Group to accelerate communications industry's migration to the cloud; product and services innovation enabling our customers to make it amazing for their end users.
SP Customers (# of SPs, # of customers served, key reference accounts) :	• Through Amdocs' relationships with over 600 content creators and 350 communications and media providers across more than 85 countries, Amdocs serve billions of consumers worldwide.
	• In 2021, Amdocs engaged in more than 25 new 5G operations and monetization projects across 15 countries, including agreements with communications service providers like AT&T, T-Mobile, Globe, and Three UK.
	• Through its work with the 5G Open Innovation Lab and collaborators like T-Mobile and Microsoft, it has invested in developing state-of-the-art 5G use cases across a range of industry verticals and consumer needs, including driverless cars, rural connectivity, and food resiliency.
	• In addition, for example, AT&T has selected Amdocs under a long-term agreement for the next-gen cloud operations of its BSSe project, using its deep set of cloud-native products. Amdocs is already in the process of modernizing AT&T's consumer mobility domain and this engagement, which will run on Microsoft Azure, further expands that activity.

Customer split (Mobile/ fixed/ converged/ cable-MSO/ MVNO/ satellite/ enterprise) :	• Amdocs revenue management solutions cover all range of customers with many cases of addressing multiple lines of business.