

Strategies for Evolving into a Multisided Business

Rethink Billing to Enable Monetization of New Services



the 1990s, the number of people in the UK who are employed in the public sector has increased from 10.5 million to 13.5 million (13.5% of the population).

There are a number of reasons why the public sector has grown so rapidly. One of the main reasons is that the government has increased its spending on health, education and social services. This has led to a large increase in the number of people employed in these sectors. Another reason is that the government has created new public sector jobs in areas such as the police, fire service and the NHS.

There are also a number of reasons why the public sector has become so important in the UK. One of the main reasons is that the government has a responsibility to provide a wide range of public services. This includes health care, education, social services, and the police and fire service. The public sector is also important because it provides a large number of jobs for people in the UK.

There are a number of challenges facing the public sector in the UK. One of the main challenges is that the government has to find a way to pay for the services it provides. This is a difficult task because the government has to balance its budget and provide a wide range of services. Another challenge is that the public sector has to deal with a large number of people who are unemployed or on low wages.

There are a number of ways in which the public sector can be improved. One way is to reduce the government's spending on public services. This could be done by cutting the number of public sector jobs or by reducing the wages of public sector employees. Another way is to increase the government's revenue. This could be done by increasing taxes or by selling public assets.

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To compete effectively in the digital marketplace, telecom companies like yours must answer a new call. New multisided business models require changes in the way you collaborate with partners, price offerings, and service customers. What are the best practices and technologies that can help you take advantage of this industry transformation while supporting profitability, innovation, and differentiation?



Executive Summary

The telecommunications marketplace is changing rapidly. Yesterday's business model, where each operator provided services to a single audience of retail customers, is giving way to a multisided business model – one that some industry watchers call "Telco 2.0." In this new environment, telcos often buy, sell, or facilitate content and services from a network of collaborators and deliver or distribute these offerings to customers, including consumers and businesses. Providers like you cannot afford to sit back and let competitors take the lead.

To capitalize on the opportunities of the digital economy, you need to understand the rules of engagement as well as the advantages and limitations of operating in a multisided business environment. You must expand your value chain to accommodate key collab-

orative partners and lay the groundwork for success. Understanding customer usage of services can help you price your offerings competitively and deliver optimum customer satisfaction.

You should also evaluate the functionalities of your current business software and compare those against your needs. Doing so will help you determine how you can best support increased service innovation, create faster time to market, enable competitive differentiation, and realize incremental value from new solutions. The final step is to deploy the most powerful, effective software for your business operations. With expert implementation leveraging industry best practices, software can help you quickly monetize innovative new services and maximize your opportunity to satisfy customers.

To help you make the most of the changes reshaping the telecommunications industry, this paper explores the challenges of becoming a "multisided" provider, including the need for business software that can support this model. This document also describes the best practices you should adopt to optimize your transition. Finally, this paper discusses the SAP® services and software that can help you streamline your transformation and realize maximum customer engagement and profitability.

The telecommunications market is changing rapidly. The creation, marketing, and sale of new forms of content and applications are turning the old business model on its head.

Transforming Telecommunications

CREATING GROWTH AND REDUCING COSTS IN THE NEW MARKETPLACE

Forget the marketing hype and technology jargon. You only need to look at the marketplace to understand that the telecommunications industry is undergoing transformational change. A business that not long ago delivered “plain old telephone service,” or POTS, as its primary offering is now faced with tremendous technical, operational, and cultural challenges. These challenges are creating fundamental industry change. To survive, telcos must evolve.

The good news is that this change also offers unprecedented opportunity. By understanding the new market and its drivers, you can determine the most effective ways to adapt your business. Your evolution can become a linchpin for dramatic growth and expansion. However, to maximize the benefits of this transformation, you must simultaneously reduce costs and efficiently grow and manage the business.

EVOLVING TO A MULTISIDED BUSINESS MODEL

Today, most communications services providers (CSPs) sell traditional services only to retail customers. Providing voice, data, and Internet to this single audience creates one source of revenue and a fairly straightforward billing structure. Experts call this a “single-sided” business model.

Yet the creation, marketing, and sale of new forms of content and applications are turning the old telecom business model on its head. Consumers are looking for telcos to deliver data-intensive services, including entertainment and information, mobile banking, mobile commerce, and location-based services. And with the number of connected devices expected to soar in the next decade, the volume of machine-to-machine (M2M) communications will undoubtedly explode.

And it's not just smartphones triggering this explosion. Information will flow from smart cars, smart grids, connected televisions, appliances, machinery, buildings, and medical devices. The result will be massive amounts of data – all of which can easily traverse CSP networks. Only by leveraging this data through effective information management and analytics will telco companies find success.

Monetizing the Multisided Business Model

In the new business model, data won't flow only between providers and retail customers. As operators monetize a variety of new services and assets, the complexity of offerings and audiences will grow. The number of upstream partners and downstream customers will expand exponentially.

These radically more complex relationships – in which each participant plays multiple roles in the creation and consumption of data services – is what

many experts refer to as multisided business models, or Telco 2.0.

One organization designed to monetize the Telco 2.0 model by leveraging these increasingly complex CSP relationships is the Wholesale Applications Community (WAC), a group formed to create a unified, open platform for mobile applications. The group's mission is to allow developers to write applications that run across multiple mobile devices, operating systems, and networks. These apps, which will be sold at WAC-enabled stores, will be available to as many as three billion consumers – a market with huge revenue potential for application developers, mobile CSPs, and providers of cloud services.¹

But consumer apps are only the beginning. As enterprise software moves from the desktop to mobile devices, the market for consumer WAC-enabled apps may be quickly dwarfed by the demand for enterprise apps.

Furthermore, the simple procurement, pricing, and payment model currently used by consumer application stores will not function effectively when the business moves to enterprise applications. Currently, employees would have to pay for and download these enterprise apps individually, then submit an expense report to the employer. This is clearly an inefficient economic model. As enterprise apps become more available and essential to business, companies will want to preapprove sets of apps for employees by functional role. Businesses should also be able to negotiate pricing

and discounts at a global level – based on, say, quantified usage of the application or number of deployed “seats.”

To efficiently monetize these enterprise apps, the entire WAC marketplace – including CSPs, resellers, app developers, and the WAC organization itself – must support new billing, revenue-sharing, and payment processes. The community needs economic models and technology solutions that support fair economic distribution with limited human intervention so that systems can scale as the market grows.

In another example, savvy CSPs can benefit from the exploding market for M2M communications by turning their internal core competencies outward into highly profitable, sellable services.

Because they run some of the largest data centers in the world, telecom companies employ massively scalable, proven IT infrastructures. Thus they are well equipped to support cloud computing services, provide network connectivity to hundreds of millions of disparate end-point devices, and mass provision services to those devices. CSPs are skilled at diagnosing and fixing faults across their services and networks and remotely managing and updating the end-point devices connected to their networks. They also have experience tracking usage patterns, billing customers based on device and network utilization, sharing revenue with partners, and analyzing customer needs to stay ahead of the market.

To transform themselves into full-fledged cloud computing and M2M service providers, telcos must convert their internally focused capabilities into open platform services. These services could then be used by external developers and enterprise customers to build their own businesses. In executing this conversion, CSPs need to rethink many of their core business processes. Many processes must be redesigned to be scalable, responsive, and easy to access, with clear service-level agreements and transparent pricing schemes.

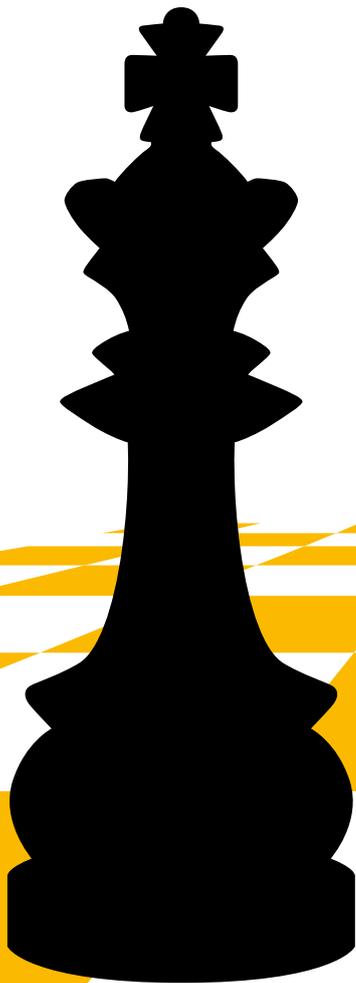
UNDERSTANDING SINGLE-SIDED AND MULTISIDED BUSINESS MODELS

Single-sided model: A supplier offers products and services to only retail customers, with no strong interdependencies with other parties.

Multisided model: To generate new economic value, two or more companies collaborate to create and bundle products and services in new and innovative ways. This shift changes business models and company roles, disaggregates the value chain, and allows the parties to work together in ways that unlock innovative new opportunities.

At SAP, we understand the competitive challenges you face as your market grows and changes. Our expertise can help you streamline your processes, meet the needs of your partners and customers, and achieve your business goals.

Many CSPs are burdened by legacy business systems that may compromise their ability to achieve the vision of Telco 2.0. Billing systems in particular tend to be inflexible, overly complex, and costly to operate and maintain



Opportunity Is Calling

For telecom companies that embrace these multisided business relationships, the future is very bright indeed. After all, expanding the prospective customer base by partnering in new ways with businesses and customers dramatically improves the opportunity for competitive success.

Yet most operators will face challenges in realizing the Telco 2.0 vision. CSPs must develop new approaches to revenue sharing and accounts payable relationships so they can effectively manage billing and payments. As software, telecommunications services, and devices converge, telco companies must address key operational pressures that may prevent them from taking full advantage of these new possibilities. Enhancing process efficiencies is key to maximizing the value of new partner and sales opportunities. To increase growth and reduce churn, operators must improve customer engagement and retention strategies. Deploying new service models – not just incremental services or features – is essential to succeeding in a complex, multisided business model.

Unfortunately, many CSPs are burdened by legacy business systems that may compromise their ability to achieve the vision of Telco 2.0. Developed to address earlier challenges, billing systems in particular tend to be inflexible, overly complex, and costly to operate and maintain. Initially considered a one-time cost, many telco companies deployed large, monolithic software installations to meet short-term needs for automated billing and payment systems. Others built homegrown systems to solve specific, limited-scope business issues.

Both types of solutions tend to lack modularity and scalability. Over the years, many companies have paid excessive fees to modify their legacy billing systems to solve specific problems. IT managers commonly hire teams of on-site consultants to maintain and upgrade their business systems – spending huge portions of their annual budget to keep the software running. In solving their short-term billing problems with these software solutions, telcos created long-term costs and inefficiencies that are unsustainable in today's hypercompetitive, Telco 2.0 market climate.

SHORTCOMINGS OF TYPICAL TELECOM BUSINESS SOFTWARE

Most current business applications, especially billing software, cannot support telco companies that seek to embrace Telco 2.0 business models. What do these applications lack?

- An innovative approach to current telecom opportunities, such as cross-industry business models that require partnerships with media, content, software, and other intellectual-property-based companies
- Flexibility to support new value-added technologies, such as cloud-based computing
- The ability to effectively track revenue streams from content- or media-services-based offerings or provide billing services for commercial transactions with customers, partners, and third-party content providers
- The functionality to bill, accept payment, and manage credit risk and collections from each member of the value chain, including content authors, application developers, distributors, wholesalers, retailers, and carriers
- The ability to enable and support new business models by helping telcos capture revenue from services, such as in-application and in-service advertisements, that pass through their infrastructure

Becoming a Services-Based Business

RULES OF ENGAGEMENT

To move ahead in a changing industry landscape, CSPs must help their business partners support a services-based business model. For many partners, providing services may be an entirely new way of doing business. Companies accustomed to a traditional product-sales business model may require assistance in transforming their business to a services-based enterprise. By enabling your partners to deliver new and innovative services, anytime and anywhere, you can help them increase profitability, customer loyalty, and market share.

In this kind of environment, however, your partners will find that the rules of engagement are different. Because customers typically pay as they consume services, switching costs are lower and service providers must work continuously to retain customers. To keep pace with the competition, providers must offer superior service or better financial terms. What's more, this model requires dynamic collaboration among companies that work together to deliver services. Players constantly shift the scope of their offering to capture more value, and you must be able to help your partners change with equal flexibility.

Lifecycles for these services are much shorter than for other products, and good ideas are quickly copied. Traditional hard goods are priced according to the cost of materials plus margin, and prices are based on demand elasticity. In con-

trast, the value of new services is based on varying usage patterns, timely delivery, popularity within a vertical segment, brand name, and other factors with no tangible measures.

More empowered customers often seek a role in service design, and smart providers engage them. To support your partners, you can help them gain understanding into their customers' daily service use. With this analytical knowledge, partners can test and refine their offerings, rolling the more popular changes into the core product and sharing them with the entire customer base.

OPPORTUNITIES AND LIMITATIONS OF MULTISIDED BUSINESS MODELS

Succeeding in a complex, fast-changing, partner-centric environment requires adjustments to how you approach the market. The makeup of your value chain and the expectations of your partners and customers are different in a multisided business model.

Because few CSPs can offer compelling, innovative services without collaborating with multiple partners, you must transform and expand your value chain. With this type of collaboration, a single usage transaction can trigger the need for multiple settlements to various partners. To execute these payments quickly and accurately, you need an automated solution that can manage this high volume of settlements in real time.

You must also help your partners to price, package, and promote their services so they can maximize opportunities in their target market. Traditional telecom billing systems support sophisticated pricing models for core telecom services. But now you need to offer your partners billing as a service, allowing them to transact with your joint customers and design their own pricing models. Your partners will create a wide variety of pricing approaches to match their distinct target markets.

For example, the pricing models of high-tech manufacturers, media companies, medical device companies, and utility providers may be quite different from traditional telecom pricing models. And since many of your partners may be building service businesses in brand new sectors, they will undoubtedly experiment with pricing and packaging models, requiring frequent billing changes. As their billing systems evolve, you must ensure that you get a fair share of the billed revenue by taking a commission for running billing on behalf of your partners. Your billing system must be able to flexibly address your partners' various aggregated pricing, packaging, and promotional requirements.

CSPs need to rethink many of their core business processes. Many processes must be redesigned to be scalable, responsive, and easy to access, with clear service-level agreements and transparent pricing schemes.



Optimizing Your Transition

STRATEGIES FOR INSIGHT AND INNOVATION

Once you have decided to compete in the multisided market and understand its new realities, the next step is to compare your current business environment with the one you need to support this goal. One key consideration should be to assess whether your business solutions can support your critical service and partnership challenges. In other words, does your business software enable innovation and profitability – or inhibit them?

In the multisided market, innovation is driven by gaining visibility into service consumption and performance. Therefore, it is critical to have a business system infrastructure that allows you to analyze performance and effectively leverage this information. Only then can you and your partners make the correct decisions on issues ranging from service-pricing optimization to partner revenue-sharing strategies.

Not all business systems offer the ability to gain essential insight into the right data – either after it has been consumed or in real or near-real time. Business software that quickly provides this insight can effectively serve as an enabler of innovation, particularly if the delivery of this information is embedded in your corporate business process.

Sophisticated commerce and billing software that is specifically designed for multisided business models can help you meet your business goals for customer service, innovation, and competitive differentiation. Specifically, you should look for software that helps you meet the following objectives.

Support Increased Service Innovation

To deliver enhanced customer value, look for a billing solution that can help you increase service innovation. The software should help you calculate the revenues and costs of sophisticated services, continuously and accurately, in real time. The right solution will simultaneously manage massive transaction volumes and give you the ability to rapidly change business models, so you can price services at just the right point to optimize revenue, costs, and profits.

Your software should also help you accurately bill and collect revenue from customers and share revenues with partners. When you choose a billing platform that can work with other financial software, you can innovate without requiring a “rip and replace” of your entire business system. For example, if you want to try out a new service or even provide combined fixed and mobile services on the same bill, your billing software should support your innovation without driving up costs.

Enable Competitive Differentiation

Look for a flexible billing platform that provides fast time to value and rapid deployment. Choose a process-oriented solution that lets you easily handle a wide variety of business models and payment schemes (such as prepaid, postpaid, and credit-limited accounts) in combination with services, applications, or content. A solution that allows you to extract and analyze large amounts of billing data to get deeper insight into the customer’s usage will help you better target services to the customer and develop flexible pricing plans.

If your solution provides rich, complete data, you can support analysis that provides visibility into financials, billing, customer retention, customer up-sell potential, back-office processes, and network operations. Such a solution also enhances customer insight and financial visibility and improves your ability to strengthen your relationship with each customer. Finally, you should partner with a vendor that has extensive experience solving complex business problems with world-class software – experience that can be applied to streamlining your billing processes.

Deliver Incremental Value

Billing solutions should deliver tangible, quantifiable, and rapid business value. With a modular solution, you can start small, address a single challenge, and expand the use of the software to meet your changing needs over time. By providing the ability to turn insight into innovative new services, software can help you grow revenue efficiently.

Even in environments where the legacy billing system is a known inhibitor of innovation and competitive differentiation, some telco executives worry that it is too risky or costly to replace it. Yet flexible deployment options that meet your current and future needs can reduce cost, mitigate risk, and begin generating value from the earliest days of the implementation. For CSPs that are ready to rethink their approach to billing, opportunities for new and lasting insight and innovation are ready for the taking.

GUIDELINES FOR CHOOSING A NEW BILLING SOLUTION

If your business goals are not being met by your existing software, it's time to consider which type of billing application would best support your current, planned, and future business models. To evolve to a Telco 2.0 model, you need to deploy a robust consume-to-cash solution that offers the functionality to support convergent charging, convergent invoicing, and customer financial management.

When choosing this software, consider a wide variety of vendors. Certain providers offer expertise in a range of industries, such as media and software, that are now becoming part of the telecom marketplace. Don't limit your options by considering just telecom-centric vendors. Furthermore, select a vendor that can help you incorporate all types of deployment models in your approach, including on-premise, on-device, and on-demand solutions. The vendor and software solutions that offer you the greatest flexibility will be best able to help you scale to meet whatever change or challenge the market presents in the future.

As you weigh your options, carefully review the total cost of ownership (TCO) for each potential billing system. Toolkit-

based solutions, which appear to have low up-front costs, can require extensive up-front and ongoing development and consulting efforts. As such, they may ultimately cost more over their lifetime than richer, fully functional, consume-to-cash applications. Ensure that the solution you choose can scale to meet your business needs and be upgraded or configured to address new industry challenges. Narrowly targeted, best-of-breed tools are typically not designed to be configurable. Therefore, when your business model changes over time, this software may make it difficult or impossible to adapt, thereby constraining your operations.

Beware of software that can only be deployed in a big-bang rollout. Instead, look for a billing solution that can be implemented step-by-step, so you can realize value along the way. Modularly deployed software can also help you mitigate project risk. By visualizing an end point for your billing solution and working toward that, you can achieve targeted value at each implementable step with the help of experts who can guide you along the path. Software providers who offer value-engineering services can help you identify areas where the software can benefit your operations and take the steps that let you realize that value sooner.

At the features level, look for a billing solution that includes sophisticated revenue management and contract accounting functionality, as well as the ability to use analytics to support your revenue assurance activities. You need an accounting solution that is specifically designed for the telecommunications industry: one that can capture and efficiently manage information about the receivables and payables generated by millions of customers and the thousands of partner accounts associated with your support of multisided business models. The software should support advanced collections and credit management strategies, minimizing write-offs and days sales outstanding. What's more, the chosen solution should help you manage related activities, such as dunning, tracking customer payments, producing data reports for customers, and building a database of raw data for archival retrieval.

Microtransactions and M2M processes generate massive amounts of data. Therefore, you need a solution with high-performance analytic appliances that help you identify usage patterns and spotlight fraud in real time. Finally, look for a solution that provides intuitive data access to business users across the enterprise and among partners, enabling better-informed decisions that can help your business thrive.



Sophisticated commerce and billing software that is specifically designed for multisided business models can help you meet your business goals for customer service, innovation, and competitive differentiation.

Executing Change with SAP Solutions and Services

THE RIGHT PARTNER FOR TODAY'S BUSINESS CHALLENGES

To help your organization compete effectively in a Telco 2.0 environment, you must reconsider your business goals and how you can achieve them. It's essential that you turn your core capabilities into service offerings for business partners. In this way, your partners can leverage your infrastructure to deliver innovative new services and products to your joint customers. You must also determine how to go to market with your partners, targeting the right bundles of services to the right segments of customers. Taking these steps can help you support a wide spectrum of market-relevant service offerings and achieve competitive advantages with accelerated time to market.

Many telco providers lack extensive experience or expertise in these areas. Coming from a traditional single-sided business model, you may wonder how to most effectively shorten the learning curve and get ahead of market demand.

Partnering with software solution providers can help you reduce your time to market and speed your company's transition to an innovative service organization. Yet not all partners are created equal. To support new commerce efforts, you need a provider who offers powerful, leading-edge technology solutions that create a framework to help meet your goals. In addition, it's important to select a provider who offers value engineering and consulting services that optimize today's best practices and technology strategies for commerce.

SAP offers a comprehensive range of software and services that help support your business transformation. Supported by two decades of expertise providing solutions for the telecommunications industry, SAP understands your challenges and can help you reach your goals.

EXPERTISE, BEST PRACTICES, AND POWERFUL SOFTWARE

SAP provides a world-class portfolio of solutions developed for telecommunications companies. More than 700 telecom companies worldwide use SAP for Telecommunications solutions to manage their business operations. SAP is viewed as a market leader in your industry, and our financial stability and reputation for excellence make our software the choice of many of your peers.

Companies use SAP for Telecommunications solutions to drive new efficiencies, expand into new markets, and boost customer engagement. For example, T-Mobile Austria, a wholly owned subsidiary of T-Mobile International AG, deployed SAP software to improve its competitive edge and meet legal requirements. One of the largest private mobile companies in Austria, T-Mobile Austria sought to reduce customer response time and streamline data integration and business processes. By deploying the SAP Revenue Management and Contract Accounting (SAP RM-CA) application, T-Mobile Austria improved productivity while reducing costs, transaction times, and errors. The company accelerated its dunning procedures, increased employee

LEARN MORE

New multisided business models require telecom companies to change the way you collaborate with partners, price offerings, and service customers. To learn more about how SAP® software and services can help you achieve your business goals by monetizing new services, contact your SAP representative or visit us at

www.sap.com/industries/telecom

productivity, and enhanced its customer service quality. T-Mobile Austria also reduced its transaction processing costs. The overall improvements in efficiency and productivity resulted in a positive return on investment as well as a positive net present value.

At SAP, we understand the competitive challenges you face as your market grows and changes. We work not only with companies in your industry but also with your partners and customers in related industries, such as media, high tech, automotive, and healthcare. We understand their challenges and which solutions work. As you partner with and serve these organizations, our expertise can help you streamline your processes, meet the needs of your partners and customers, and achieve your business goals.

We can show you how companies have embraced and optimized new multisided business models that you need to support. Our value engineering and consulting experts apply their extensive industry experience and leverage best practices to help drive your success. SAP value engineers can help you solve your business challenges with scalable, enterprise-wide solutions. SAP Consulting provides services that help you define a road map to

Telco 2.0, quickly gain value, and minimize TCO throughout the lifecycle of your SAP software. What's more, SAP offers a vibrant partner ecosystem. Our partners can provide a wide variety of software and services to help meet your specific business requirements.

Finally, SAP offers software to help you monetize new services and offerings. With the SAP Billing for Telecommunications package, you can create a single solution to meet all your billing needs and provide increased visibility for better decision support. The software's rich functionality helps you achieve enhanced billing efficiency, and it integrates with your other financial applications.

Best-of-breed functionality within a comprehensive, functionally rich solution helps you optimize the entire consume-to-cash process – from online rating and charging to convergent billing, invoicing, and collections. The software also helps you gain the power to handle high volumes of transactions and data. In addition, it enables you to optimize billing and invoicing processes, charge in real time, and manage receivables and payables in compliance with applicable regulations and with full transparency. It also helps you gain a single, complete view of customer and partner activities.

SAP offers deployment options to suit all needs. For instance, you can deploy the billing software with a centralized solution for billing and settlement of transactions across all services and products for all customers. You can also deploy this software modularly, evolving your existing system step-by-step to support new business models. By avoiding a big-bang deployment, you can create less disruption, minimize your consulting expenses, and accelerate your time to value.

FOOTNOTES

1. For more information on WAC, go to www.wacapps.net. For information on the SAP contribution to WAC, go to www.sap.com/corporate-en/press.epx?PressID=14765.

the 1990s, the number of people in the world who are illiterate has increased from 1.1 billion to 1.2 billion. The number of illiterate people in the world is expected to reach 1.5 billion by the year 2015 (UNESCO, 2003).

It is important to note that the illiterate population is not evenly distributed across the world. In fact, the majority of illiterate people live in the developing countries. In 1990, 90% of the illiterate population in the world lived in the developing countries. In 2000, 92% of the illiterate population in the world lived in the developing countries. In 2015, 95% of the illiterate population in the world is expected to live in the developing countries (UNESCO, 2003).

It is also important to note that the illiterate population is not evenly distributed across the developing countries. In fact, the majority of illiterate people live in the sub-Saharan African countries. In 1990, 50% of the illiterate population in the world lived in the sub-Saharan African countries. In 2000, 52% of the illiterate population in the world lived in the sub-Saharan African countries. In 2015, 55% of the illiterate population in the world is expected to live in the sub-Saharan African countries (UNESCO, 2003).

It is also important to note that the illiterate population is not evenly distributed across the sub-Saharan African countries. In fact, the majority of illiterate people live in the rural areas. In 1990, 70% of the illiterate population in the world lived in the rural areas. In 2000, 72% of the illiterate population in the world lived in the rural areas. In 2015, 75% of the illiterate population in the world is expected to live in the rural areas (UNESCO, 2003).

It is also important to note that the illiterate population is not evenly distributed across the rural areas. In fact, the majority of illiterate people live in the low-income households. In 1990, 80% of the illiterate population in the world lived in the low-income households. In 2000, 82% of the illiterate population in the world lived in the low-income households. In 2015, 85% of the illiterate population in the world is expected to live in the low-income households (UNESCO, 2003).

It is also important to note that the illiterate population is not evenly distributed across the low-income households. In fact, the majority of illiterate people live in the households with no access to electricity. In 1990, 90% of the illiterate population in the world lived in the households with no access to electricity. In 2000, 92% of the illiterate population in the world lived in the households with no access to electricity. In 2015, 95% of the illiterate population in the world is expected to live in the households with no access to electricity (UNESCO, 2003).

It is also important to note that the illiterate population is not evenly distributed across the households with no access to electricity. In fact, the majority of illiterate people live in the households with no access to clean water. In 1990, 95% of the illiterate population in the world lived in the households with no access to clean water. In 2000, 97% of the illiterate population in the world lived in the households with no access to clean water. In 2015, 99% of the illiterate population in the world is expected to live in the households with no access to clean water (UNESCO, 2003).

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It is also important to note that the illiterate population is not evenly distributed across the households with no access to health care. In fact, the majority of illiterate people live in the households with no access to education. In 1990, 100% of the illiterate population in the world lived in the households with no access to education. In 2000, 100% of the illiterate population in the world lived in the households with no access to education. In 2015, 100% of the illiterate population in the world is expected to live in the households with no access to education (UNESCO, 2003).

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