

FIBER NETWORKS DONE RIGHT

BUILD & ENHANCE YOUR FIBER NETWORK
WITH HELP FROM THE PROS

2021



SaskTel 
International

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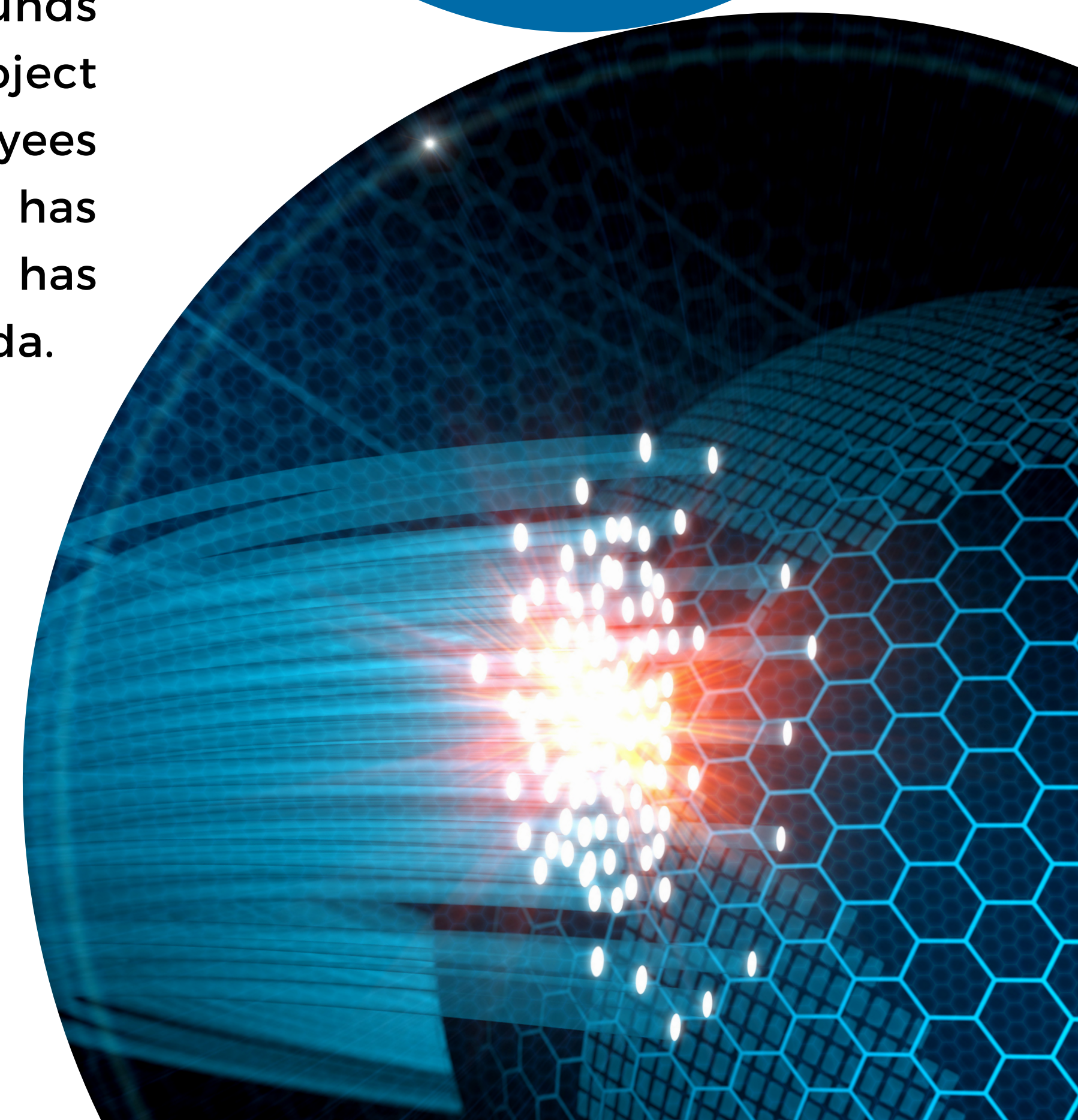
YOUR PARTNER FOR ALL THINGS FIBER

Fiber is quickly becoming an industry standard for telecommunications companies looking for fast and reliable networks. Whether you are building a fiber network from scratch or extending an existing network to serve rural areas, SaskTel International provides the tools you need to get the job done right.

With direct access to a pool of over 3,600 highly trained human resources, you will receive unparalleled expertise for your fiber project. SaskTel International's resources have diverse professional backgrounds in areas including technology, network engineering, project management, and construction management. With 400 employees dedicated to fiber to the premises (FTTP) initiatives, SaskTel has completed nearly 300,000 homes/businesses passed and has successfully connected the largest fiber community in Western Canada.

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SaskTel has over \$1.2 billion in annual revenue and approximately 1.35 million customer connections globally including nearly 300,000 FTTP homes passed, 611,000 wireless accesses, 338,000 wireline network accesses, and 283,000 internet accesses.



ABOUT OUR PARENT COMPANY

SaskTel is a Communications Service Provider (CSP) operating in the prairie province of Saskatchewan, Canada, with over 110 years of experience. SaskTel has over \$1.2 billion in annual revenue and approximately 1.35 million customer connections globally including nearly 300,000 FTTP homes passed, 611,000 wireless accesses, 338,000 wireline network accesses, and 283,000 internet accesses. SaskTel owns and operates Saskatchewan's largest network that connects 99% of the population over a vast area of 651,900 square kilometres.

SaskTel is recognized as a global leader in fiber optics, completing many large-scale and innovative projects over its many decades in business. In 1984, SaskTel completed the world's longest fiber optic system at the time, in its home province of Saskatchewan, spanning a distance of 3,268 kilometres and connecting 52 communities. SaskTel continues to lead global trends and collaborated on one of the largest construction projects of the 20th century, the English Channel Tunnel. The English Channel Tunnel is an underwater railway that spans over 50 kilometres and connects England to France. The tunnel is used by passenger trains and freight trains with average traffic of 60,000 passengers a day. SaskTel had a vital role in this project and was responsible for the design, installation, testing, and audit of the entire communications system.

\$1.2 BILLION
ANNUAL REVENUE

110+ YEARS
OF EXPERIENCE

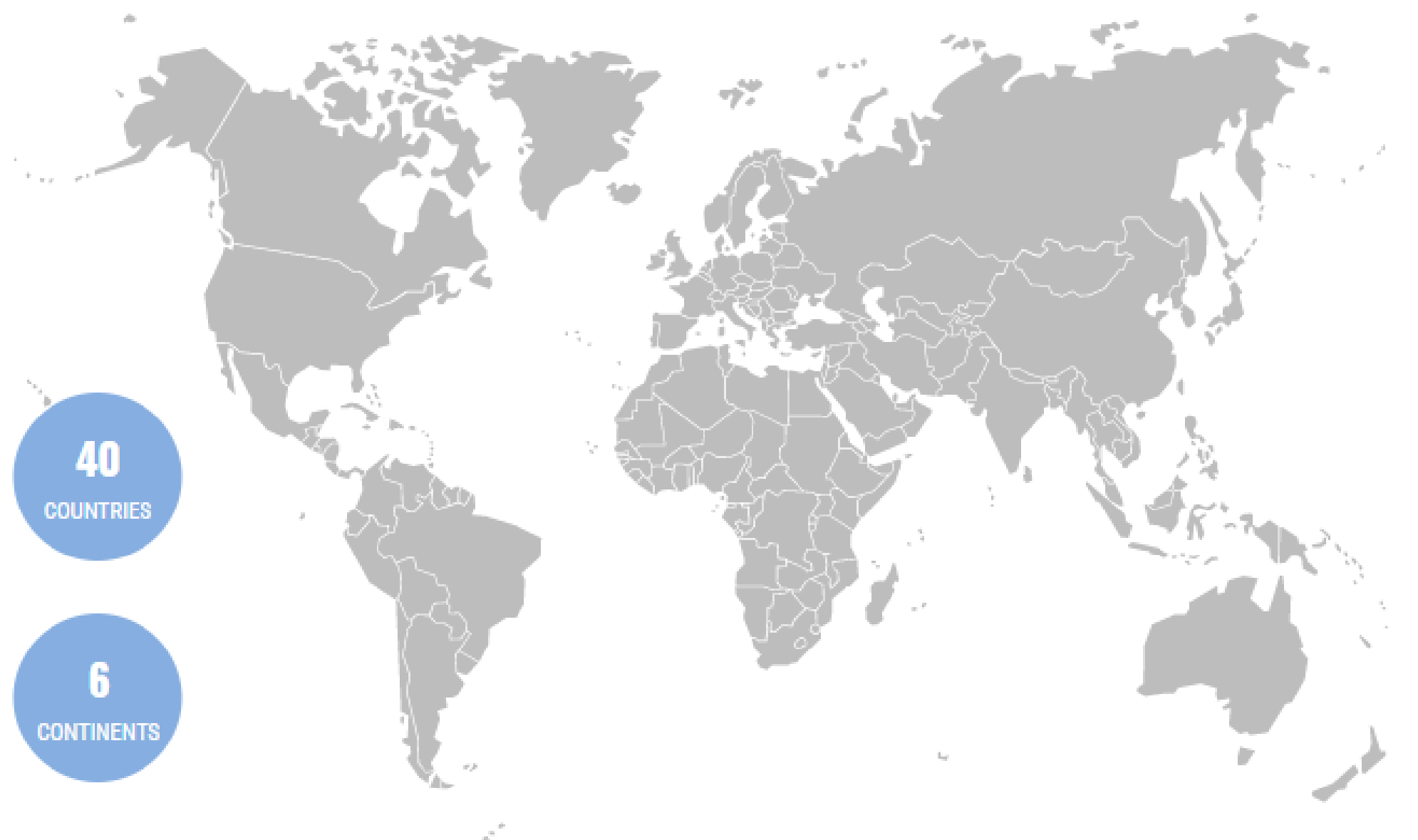
300,000
HOMES PASSED

1.35 MILLION
CONNECTIONS

ABOUT US

SaskTel International is a wholly-owned subsidiary of SaskTel. Leveraging resources from SaskTel's pool of highly skilled staff, SaskTel International collaborates with CSPs to develop custom network strategies. Unique to SaskTel International is its ability to manage fiber projects in their entirety from conception to completion. Building on SaskTel's experience, SaskTel International provides leadership for custom designs, engineering, construction, and overall management of the network.

With over 35 years of experience working with fiber, SaskTel International is proud to share this knowledge with clients around the world. In addition to its role in the English Channel Tunnel project, SaskTel International has provided fiber consulting services in several communities.



- Nassau, New Providence, Bahamas
- Port of Spain, Trinidad
- Madhyah Pradesh Province, India
- Seattle, Washington, USA
- Los Angeles, California, USA
- Salt Lake City, Utah, USA
- San Francisco, California, USA
- Atlanta, Georgia, USA
- Morogo, Dar Es Salaam, Dodoma, Tanzania
- Tete, Mozambique
- 550 communities in the Philippines

INDUSTRY FIRSTS

SaskTel is a leading-edge service provider with over 110 years of operating experience including several lessons-learned, development of best practices, successes, and industry firsts. As a consistent early adopter of new telecommunications technologies, SaskTel's history of firsts include:

The first telecom in the world to deploy an end-to-end backhaul fiber network.

The first telecom to deploy a Long Term Evolution (LTE) mobile network in North America.

One of the first in North America to offer IPTV & associated services such as Video-On-Demand & Personal Video Recorder (PVR) capabilities.

Collaboration on one of the largest construction projects of the 20th century, the English Channel Tunnel.

SaskTel has reached milestone success in many areas of its fiber network deployment. By 2023, SaskTel will have invested \$1.4 billion into fiber expansion across the province to continue providing some of the best communication and entertainment services in the world. SaskTel upgraded 350 kilometres of fiber to its backbone network in rural serving areas and in 2016 completed a residential fiber build in a city that spans 47 km² with a population of 33,600, making it the largest fiber community in Western Canada. During the same year, SaskTel partnered with Indigenous and Northern Affairs Canada, the Federation of Sovereign Indigenous Nations, and all Saskatchewan First Nations and Tribal Councils to bring fiber connectivity to 80 First Nations offices and 10 tribal council offices.

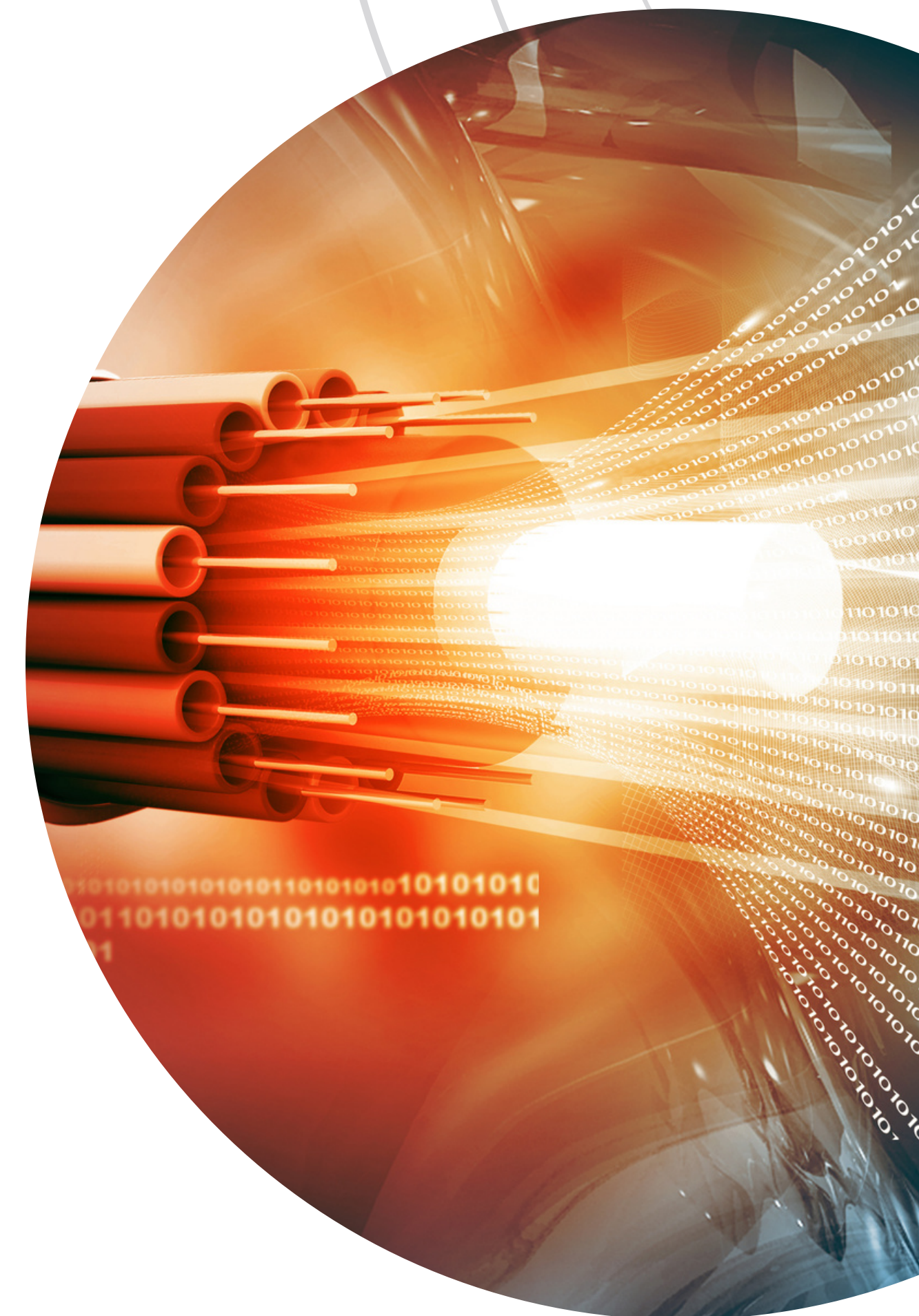
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Through its fiber build, SaskTel identified significant operational savings and continuous month-over-month revenue increases when compared to traditional copper-based networks. Operationally, trouble reports over the fiber network have decreased by approximately 15% and dispatched troubles have decreased by over 60%



BUILD A FIBER NETWORK

With constant advances in technology and connected devices, subscribers want access to high-speed internet service with increased bandwidth from the comfort of their home or business. To meet this demand, communication service providers are initiating fiber to the premises (FTTP) network builds to replace aging copper and coaxial infrastructure. Fiber networks are the new standard for telecommunications companies to deliver fast and available services to subscribers. With a fiber network, CSPs are set to provide enhanced services such as video, internet, voice, and internet protocol television (IPTV). With the potential for unlimited bandwidth and the ability to make network enhancements electronically, CSPs can stay ahead of trends and satisfy customers in a competitive market without ever having to change the physical infrastructure.



LEVERAGE SASKTEL'S EXPERIENCE

SaskTel International is your conduit to leverage SaskTel's expertise. SaskTel is a multi-play CSP that is in the midst of a large-scale fiber deployment. Through its fiber build, SaskTel identified significant operational savings and continuous month-over-month revenue increases when compared to traditional copper-based networks. Operationally, trouble reports over the fiber network have decreased by approximately 15% and dispatched troubles have decreased by over 60%. During the construction phase of the fiber build, SaskTel noted more customers were serviced in a shorter period of time due to smaller cable size, lighter construction, and superior connectors and termination material. In addition, fiber infrastructure is more resistant to water, moisture, cold, and fire which reduces post-construction repair efforts.

SaskTel's in-province FTTP program extends fiber directly to a home or business to provide increased bandwidth for feature-rich television, high speed internet, and voice services.

The following insights outline where SaskTel has enjoyed success and where lessons have been learned through the lifespan of its FTTP initiative.



Planning Insights

SaskTel invested substantial planning, labour, and effort into developing an FTTP strategy with ambitious completion targets. A critical step after beginning a new project is to re-evaluate targets and identify gaps that may not have been accounted for in the initial planning stage. Therefore, SaskTel made necessary adjustments to the project schedule to reflect the reality of the construction process.

SaskTel noted that aerial drops were moving ahead as planned but buried drops were taking significantly longer to complete than originally estimated. The slower completion time for buried drops was attributed to seasonal conditions and coordinating third-party resources for underground utility location. It is critical to validate assumptions, identify potential roadblocks, and continually re-evaluate progress to ensure your targets are achievable.

Financial Insights

To understand the financial impacts of a fiber-based network, SaskTel studied a city with a population of over 33,000 that converted to a complete fiber network. SaskTel identified significant operational savings and month-over-month revenue increases when compared to traditional copper-based networks.

SaskTel also identified an increase in the uptake of enhanced services that were previously unavailable on DSL-based access.

Further savings were identified in the construction phase. SaskTel noted savings through reduced time spent servicing customers due to superior construction materials which were more efficient to install and more resistant to damage post-construction, minimizing repair costs and time.

Subscriber Insights

Subscribers are the most valuable part of the project and are communicated with early and often. SaskTel has opted for a personal approach to communicating with subscribers, ensuring everyone receives a personally addressed letter indicating that work will be performed at their premises. Prior to work commencing on the premises, technicians distribute door-knockers to remind home and business owners that work will begin shortly.

Once work is in progress, technicians place signage, display decals on company vehicles, and wear reflective vests with company logos to provide community awareness.



Most importantly, subscribers are educated on what will transpire on their property and the associated time commitment for activities such as hydro-vac, directional drilling, trenching, and restoration. Placing an emphasis on early and consistent communication will ensure subscribers are kept informed and will reduce the level of inquiries into your call centre.

Construction Insights

Saskatchewan's construction season spans the months of May to November. During this time, the ground is thawed and receptive to dirt work. Early in the project, SaskTel assessed every subscriber's property and used a combination of hand-dig, trenching, and directional drilling methods to complete each service drop. Even though hand-digging is a low-cost option, it is critical to remember that risks are involved when placing services through private lawns, patios, and gardens. Even with a high level of professionalism and extreme care, there is a potential for damage.

To improve subscriber satisfaction levels and reduce further efforts restoring private property after manually placing a drop, SaskTel declared directional drilling and trenching the preferred construction method. Although more costly in the short-run, it is significantly faster and greatly increases satisfaction levels with minimal property invasion.



Organizational Insights

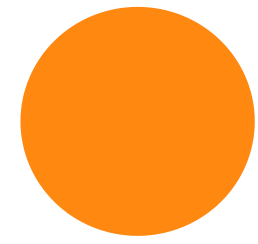
Every corporate structure is different, but a major takeaway for CSPs is to develop an organizational reporting structure that includes a dedicated leadership role. An effective reporting structure ensures there is visibility into all areas of the business, including subcontractors and employees.

In the early stages of this fiber initiative, SaskTel learned the importance of having a dedicated project team in place. Rather than senior leaders trying to perform their primary business roles plus the initiation of the FTTP program on the side, today SaskTel has an Assistant Vice President, Director of FTTP Operations, and an entire project team dedicated to the success of this project. This has improved decision-making and communication.

Communication is essential when embarking on a large-scale project such as a fiber network build. To ensure information is conveyed consistently, SaskTel uses a variety of tools for communicating with subcontractors, employees, and key stakeholders. Great importance is placed on weekly update meetings and real-time tracking spreadsheets with collaboration capabilities.

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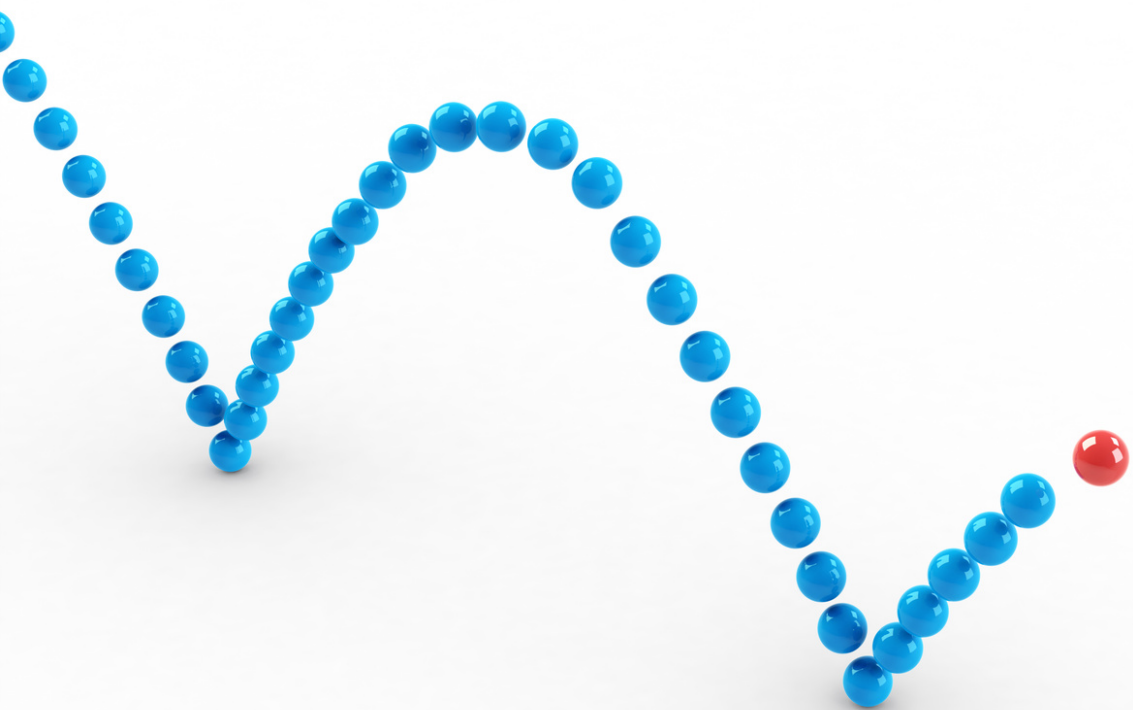
SaskTel conducts annual economic reviews to understand the per-premise cost for aerial and buried service drops, lot service, and service connection.



Procurement Insights

One of SaskTel's successes lies in the use of employees who have first-hand knowledge of what installations should look like. Without compromising quality, SaskTel uses contractors to supplement employees in times of peak demand. Contractors are held to the same standards as employees through the entire process. It is important to understand how well employees and contractors are performing so leadership can work with them to overcome obstacles and uphold the conversion schedule.

In addition to quality assurance, SaskTel conducts annual economic reviews to understand the per-premise cost for aerial and buried service drops, lot service, and service connection. The annual review is crucial for validating business case assumptions and planning future growth targets.



LET'S WORK TOGETHER

SaskTel's operating territory encompasses over 651,000 km² of land with a primarily rural and widespread population. Through innovation, investment, and hard work, SaskTel has overcome these challenges and has stayed competitive in the global economy. The unique relationship between SaskTel and SaskTel International allows information and resource-sharing across the businesses. Through partnership with SaskTel International, CSPs can plan to design and build up to 4,000 aerial homes passed per month.

SaskTel International is a qualified vendor that provides varying scopes of work and levels of service to fit every budget.

Contact us today if you:

- are looking to design and build an FTTP program from the ground up;
- are looking to extend services into rural and under-served areas;
- require project management and planning for ongoing builds; or
- require general procurement and network consulting services.

For more information **e-mail info@sasktelinternational.com** or **visit our website at www.sasktelinternational.com.**

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