



RANPLAN GROUP AB

# Interim Report

## January – June 2021



# Recovery

## First half of 2021 (first half of 2020 in brackets)

- ◆ Total income amounted to SEK 17.4 million (11.9 million)<sup>1</sup>
- ◆ Net sales amounted to SEK 8.3 million (4.7 million)
- ◆ Operating results amounted to SEK -9.7 million (-18.9 million)
- ◆ Net results amounted to SEK -10.6 million (-20.5 million)
- ◆ Earnings per share amounted to SEK -0.44 (-1.02)
- ◆ Cash at the end of the period amounted to SEK 1.8 million\* (10.8 million)

\*On 30 June 2021, SEK 23.4 million remained undrawn on the credit line.

### Significant events in the first half of 2021

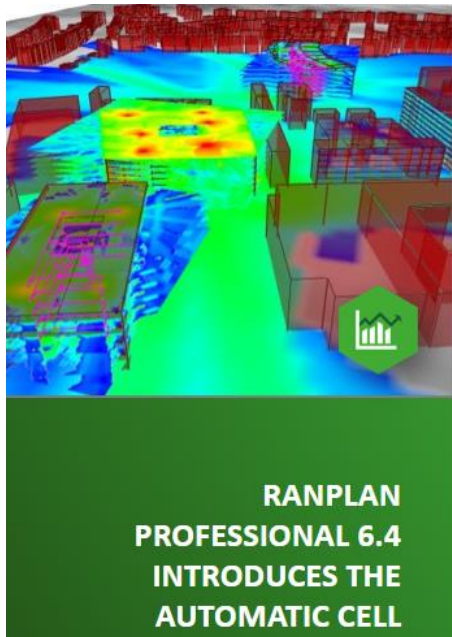
- ◆ On 21 February 2021, Ranplan signed a technology and reseller partnership with Magna Systems, a market leader in providing comprehensive and innovative RF solutions for telco customers in the Asia Pac region.
- ◆ On 17 May 2021, at the AGM in Stockholm, it was resolved that Tomas Isaksson be re-elected as chairman of the board, and that Jie Zhang, Wendy Yang and Jon Ullmark be re-elected as ordinary members of the board (Jinxing Xue and Per Lindberg declined re-election as ordinary members of the board).
- ◆ On 15 June 2021, Ranplan Wireless launched the first version of its Automatic Cell Optimiser (ACO) module.

### Significant events after 30 June 2021

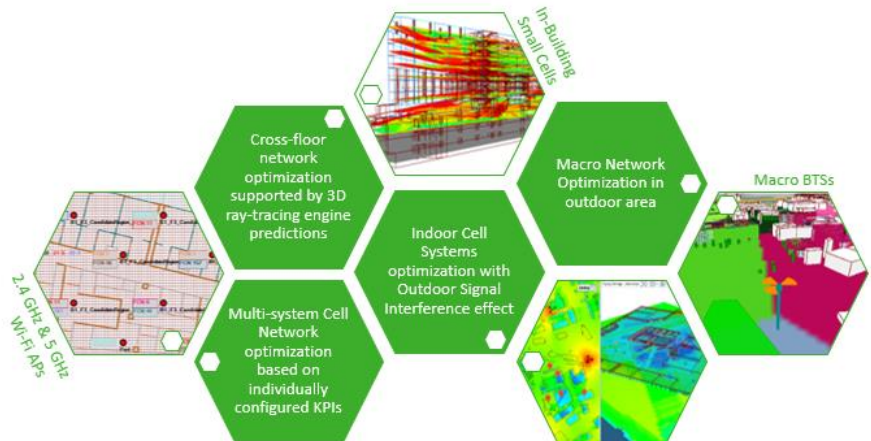
- ◆ On 18 August 2021, Ranplan announced that Chongqing College of Electronic Engineering (CQCEE) - one of the leading technical institutions in China - has awarded Ranplan Wireless a contract worth around USD 140k (SEK 1.2 million) for the provision of software licenses, training and support over a three-year period. Deliveries of the software resulting in net sales are envisaged to take place in the second half of the 2021 calendar.

*1 Total income comprises the sum of net sales (related to commercial products and services), other income (associated with research projects) and other operating income (derived from R&D tax credits).*

## The launch of the ACO module eases optimisation of wireless networks



With the help of the ACO, Ranplan 6.4 extends the optimization capabilities to new areas.



*“The ACO’s ability to evaluate multiple systems, devices, regions, scenarios and variables in one calculation will significantly reduce design time and deliver new levels of accuracy, which will result in superior network performance when deployed,” commented Anthony Sutton, Chief Commercial Officer for Ranplan Wireless. “In addition, the ACO will highlight any surplus equipment in the design which is likely to create significant savings for Operators and Systems Integrators.”*



# Words from the CEO

*Even though the COVID pandemic still restrains our market activities, the financial performance in the first half of 2021 is quite reassuring. Net sales related to commercial products and services essentially doubled as expressed in US dollars, losses from operations nearly halved as reported in Swedish krona, and the pipeline of new business prospect expanded in all major regions. Following the gradual lifting of restrictions in various parts of the world, we now discern considerably stronger demand than six-to-twelve months ago. Several projects, previously cancelled or deferred, have been re-shaped or re-started; the pace of 5G deployment has gathered steam; and additional spectrum has been or will soon be set aside for industrial applications – attracting the interest of an increasingly eclectic mix of existing and new customers: mobile network operators, internet service providers (web-scale giants), neutral hosts, system integrators, enterprise IT managers and telecom equipment manufacturers. As an independent software company with no hardware ties and the recognised pioneer of HetNet design ('indoor and outdoor radio networks operating in harmony'), we are well positioned to take advantage of salient trends and, in so doing, help our customers and partners explore three of the most powerful themes in the era of (real) 5G: (i) Open Radio Access Networks ('mixing and matching vendors'); (ii) Mobile Edge Computing ('meeting exacting requirements in terms of capacity, latency and velocity'); and not least (iii) Private Wireless Scenarios ('providing businesses and authorities with networks truly tailor-made to their specific needs').*

*In tandem with the re-opening of society, we have witnessed a pronounced rebound in demand (from the unusually depressed levels of the first and the second halves of 2020). The cause-and-effect is lucidly clear. As employees gradually return to the office, shoppers progressively get back to the malls and sport fans begin to partially fill stadia, providers of wireless services, whether in a public or private setting, have regained confidence in their ability to effectively dimension, install and operate 4G/5G networks for indoor use. Nowhere is the upswing more tangible than in the enterprise domain – a customer segment, including governments, whose needs – indoor- and HetNet-centric in nature – are ideally fulfilled by us.*

*We aim to build on the impetus in the marketplace, explore heightened interest in our expanded and enriched product portfolio, cement existing relationships and forge new mutually beneficial ones. While closely monitoring the COVID-19 situation, we intend to strengthen our go-to-market activities through better utilisation of existing resources, selective recruitment and forging additional partnerships with resellers and sales agents. True to our customer commitments, we strive to keep R&D investments at current levels (all of which expensed as incurred, made-up c. 100% of total income in the first half of 2021).*

*On a final note, I wish to extend my gratitude to our contractors, employees, customers and partners for the commitment, patience and trust that they display. We learn from each other; we inspire each other; we elevate each other. What we accomplish together, brings us together – making us stronger for longer.*

Per Lindberg  
Interim CEO  
Ranplan Group AB



## Summary of the period

After a subdued start to the year, the Company experienced a broad-based rebound in demand as restrictions related to the corona virus were progressively lifted in many parts of the world. In the first six months of 2021, net sales rebounded to pre-COVID levels, costs of operations remained contained, and losses from operations essentially halved from the corresponding period last year. In tandem, the breadth and depth of the product portfolio were strengthened, a series of new AI-inspired software modules were selectively made available, and the pipeline of business prospects was further reinforced. The Company welcomes rampant interest in private wireless (also known as enterprise cellular, local 5G or, in the USA, CBRS) - a segment whose needs match our core expertise and suite of offerings very well.

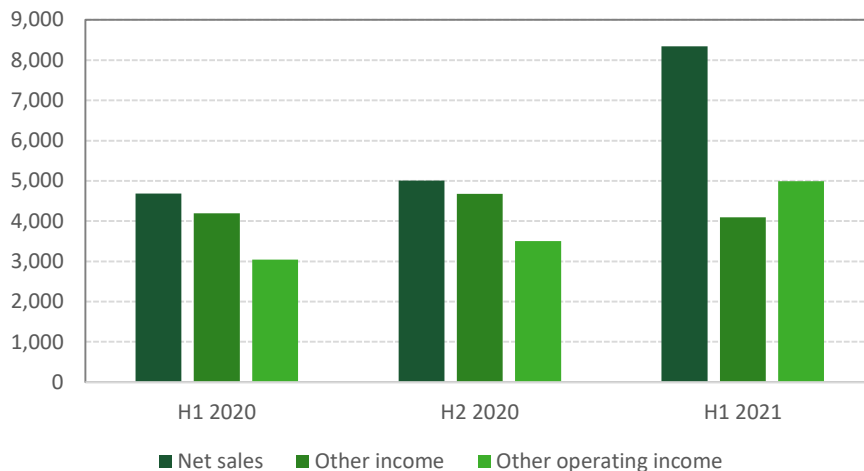
## Financials

### Profit & Loss

Total income in the first six months of 2021 (1 Jan – 30 June 2021) reached SEK 17.4 million, representing an increase of 46% and 32% in comparison with the H1 2020 and H2 2020, respectively. Net sales emanating from commercial products and services rose by 78% and 67% against the same periods of reference, respectively. Healthy growth was registered in all major regions (Americas, China and EMEA). Other income related to research projects was stable at SEK 4.1 million (4.2 million in the year-earlier period) while Other operating income, drawn from R&D tax credits, leapt by 64% on a year-on-year basis to SEK 5.0 million, of which approximately SEK 1.4 million is attributable to a one-time catch-up effect.

#### Total income by component\*

(SEK 000s)



SEK 000s	H1 2020	H2 2020	H1 2021
Net sales	4,686	5,005	8,345
Other income	4,192	4,674	4,097
Other operating income	3,044	3,501	4,993
<b>Total Income</b>	<b>11,922</b>	<b>13,180</b>	<b>17,435</b>

\*Total income is defined as the sum of net sales, other income and other operating income. Net sales relate to commercial products and services, other income to research projects, and Other operating income to R&D tax credits in the United Kingdom.

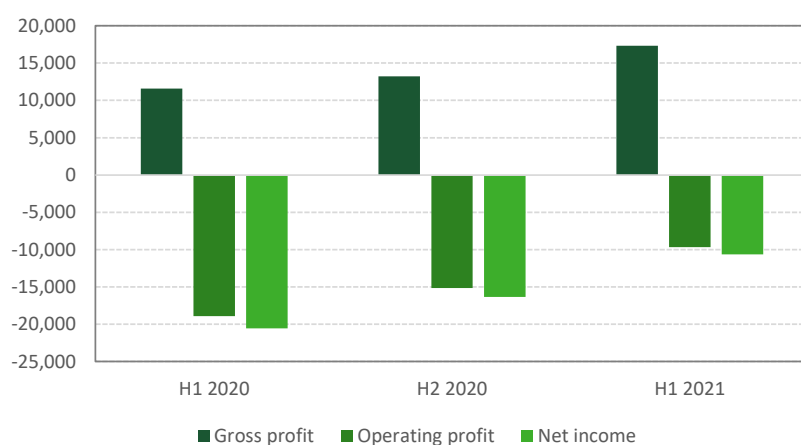
### Total income mix

SEK 000s	H1 2020	H2 2020	H1 2021
Net sales	41%	37%	48%
Other income	34%	36%	23%
Other operating income	25%	27%	29%
<b>Total Income</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

**Operating profit** in H1 2021 amounted to minus SEK 9.7 million compared with minus SEK 18.9 million in the first half and minus SEK 15.2 million in the second half of 2020, respectively. Net income amounted to minus SEK 10.6 million versus minus SEK 20.5 million and minus SEK 16.4 million in H1 and H2 2020, respectively.

### Gross and operating profit and net income

(SEK 000s)

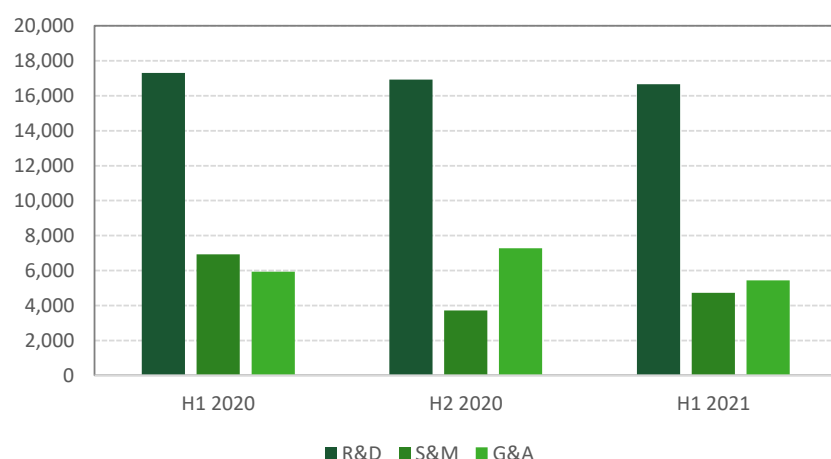


SEK 000s	H1 2020	H2 2020	H1 2021
Gross profit	11,589	13,225	17,322
Operating profit	-18,912	-15,151	-9,671
Net income	-20,546	-16,355	-10,634

**Operating expenses** attributable to research and development (“R&D”), sales and marketing (“S&M”) as well as general and administration (“G&A”) amounted to SEK 26.8 million, 11% and 4% lower than in the first and second half of 2020, respectively. It is noticeable that, in support of renewed commercial efforts, sales and marketing expenditures rose by 27% compared with the second half of 2020. Filtering out the effects of FX movements, R&D investments – all were expensed as incurred – held relatively steady at SEK 16.7 million.

## Operating expenses by component\*

(SEK 000s)



SEK 000s	H1 2020	H2 2020	H1 2021
R&D	17,305	16,928	16,668
S&M	6,923	3,723	4,725
G&A	5,942	7,280	5,432
<b>OPEX</b>	<b>30,170</b>	<b>27,931</b>	<b>26,825</b>

\*Operating expenses ("OPEX") consist of expenses associated with research and development ("R&D"), sales and marketing ("S&M") and general functions and administration ("G&A").

**Gross profit**, here defined as the difference between total income and cost of sales, increased by 45% and 32% in comparison with the first and second half of 2020, respectively. The gross margin, calculated as the ratio of gross profit and total income, remains at close to 100%, reflecting the inherent attractiveness of a business model revolving mainly around the scalability of *Net sales (software licensing)* with no inclusion of any third-party commercial software. In this context, it should be noted, though, that resale of third-party products, such as geo-data, and services may occur and that costs associated with *other income* (research projects) and *Other operating income* (R&D tax credits) are almost invariably captured by operating expenses.

**Operating cash flow (OpCF)** amounted to minus SEK 18.0 million versus minus SEK 10.5 million and minus SEK 15.0 million in the first and second half of 2020 respectively. Before movements of working capital, the pattern is reversed: minus SEK 9.7 million in the first half of 2021 (on a par with operating profit) compares favourably with minus SEK 19.6 million and minus SEK 15.6 million in the first and second half of 2020 respectively.

### Summary of results by half-year period

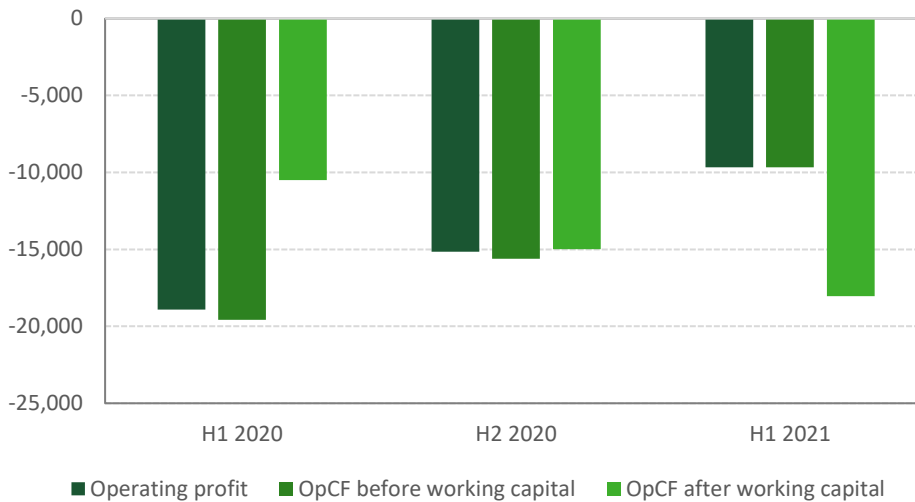
SEK 000s	H1 2020	H2 2020	H1 2021
Total income	11,922	13,180	17,435
Net sales	4,686	5,005	8,345
<i>Net sales/Total income</i>	<i>39%</i>	<i>38%</i>	<i>48%</i>
Gross profit	11,589	13,225	17,322
<i>Gross margin</i>	<i>97%</i>	<i>100%</i>	<i>99%</i>
OPEX	30,170	27,931	26,825
EBIT	-18,912	-15,151	-9,671
OpCF	-10,491	-14,984	-18,048
<i>OpCF/EBIT</i>	<i>55%</i>	<i>99%</i>	<i>187%</i>

Gross profit here comprises the difference between total income and cost of sales.

Gross margin is here defined as the ratio of gross profits and total income.

## Operating profit, cash flow (“OpCF”) before and after working capital

(SEK 000s)

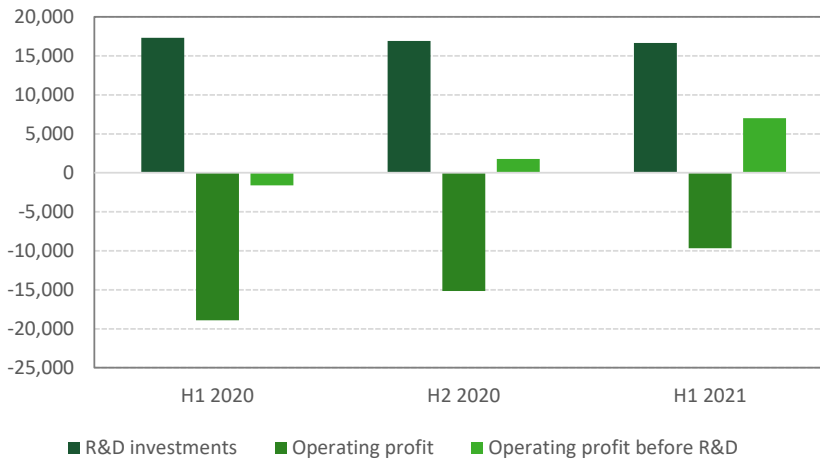


### Accounting for R&D expenses

In judging the income statement, readers may wish to observe that the Company absorbs all R&D expenses directly (no capitalisation or amortisation takes place). As an alternative measure of performance, investors may note that in the first half of 2021, the Company incurred a surplus SEK 7.0 million at the operating level before R&D expenses, equivalent to 40% of total income – these figures can be compared with an operating loss of SEK 9.7 million corresponding to a negative 55% of total income after immediately absorbing 100% of all R&D expenses incurred in the income statement.

### R&D and operating profit after and before such investments

(SEK 000s)



SEK 000s	H1 2020	H2 2020	H1 2021
Total income	11,922	13,180	17,435
R&D expenses	17,305	16,928	16,668
<i>R&amp;D/Total income</i>	145%	128%	96%
Operating profit	-18,912	-15,151	-9,671
<i>Share of Total income</i>	-159%	-115%	-55%
Operating profit before R&D	-1,607	1,777	6,997
<i>Share of Total income</i>	-13%	13%	40%

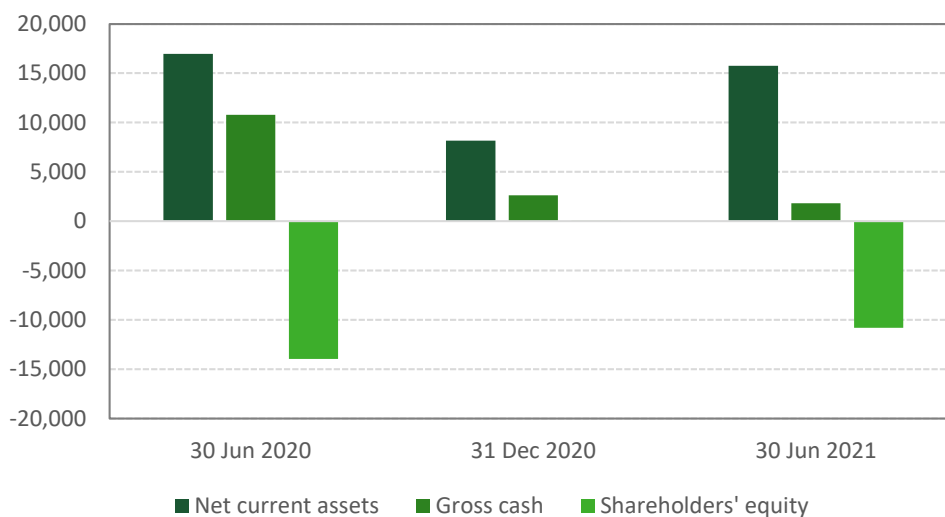


## Balance sheet

At the end of June 2021, the Company held cash and cash receivables of SEK 25.0 million before and SEK 15.8 million after deduction for current liabilities of SEK 9.3 million. Financial debt of SEK 26.6 million derives exclusively from successive drawn downs of the credit line of SEK 50 million that the current Chief Executive Officer has made available to the Company (see press releases of 17 July 2019, 31 March 2020 and 19 October 2020; the latter of which concerns the debt-for-equity conversion effected in 2020).

## Net current assets, gross cash and shareholders' equity

(SEK 000s)



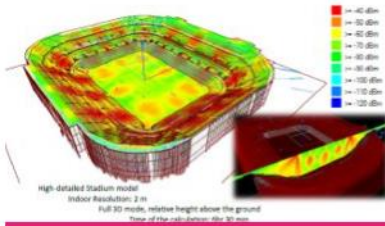
SEK 000s	30-Jun-20	31-Dec-20	30-Jun-21
Net current assets	16,959	8,163	15,763
Gross cash	10,768	2,607	1,831
Net cash	-20,147	-5,506	-24,746
Shareholders' equity	-13,956	50	-10,814
o/w fixed assets	0	0	0
o/w intangible assets	0	0	0

Shareholders' equity amounted to minus SEK 10.8 million at the end of June 2021. It should be clarified that the balance sheet contains no intangible assets, neither in the form of patents (of which more than twenty have been granted), nor in the form of capitalised R&D. Since the beginning of 2017, the Company has spent SEK 123 million on research and development and reported net sales in excess of SEK 60 million.

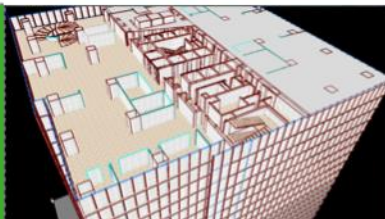
## Operations

We continue to adapt to the new 'modus operandi' evoked by the new corona virus. In response to the gradual re-opening of society, additional investments have been made in marketing and sales. Customer engagements have in many cases been expanded or at the very least re-activated. Our product portfolio has been enriched with the addition of a collection AI-inspired modules to facilitate modelling of buildings and optimisation of networks, catering to a whole suite of key performance indicators (KPIs). Our ability to model advanced antenna systems and provide high-quality training programmes has been enhanced. Since the lifting of restrictions in the middle of July, we are now in a position to re-invite our employees and contractors back to the office in the UK – though within the capacity limits imposed by authorities. On the product development front, we continue to place special emphasis on indoor and HetNet design. Particular efforts are devoted to excelling in some of the most demanding of fields, e.g., tunnel coverage.

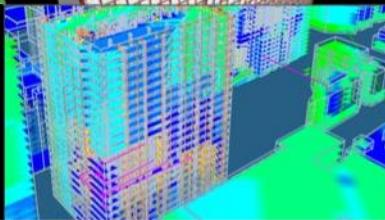
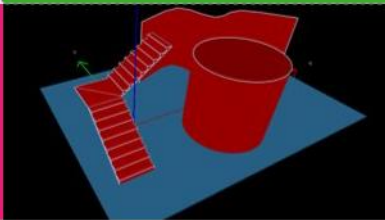
## INDOOR DESIGN



Reduce time by importing CAD files, image files to create the building model.



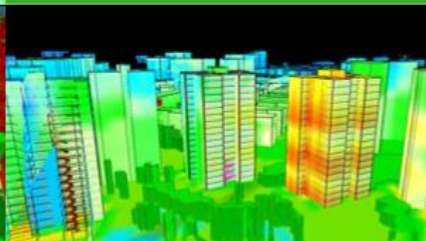
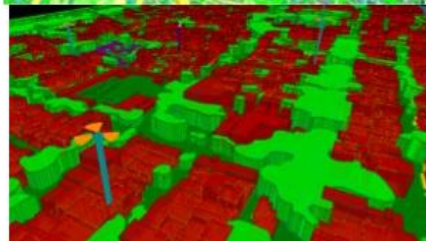
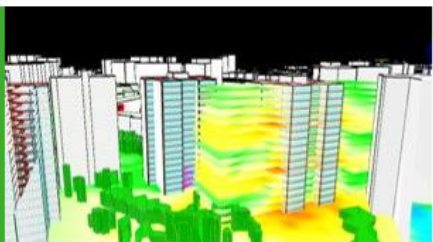
Rapidly draw inclined planes, atriums, stairwells, curved walls and tunnels.



## HETNET DESIGN

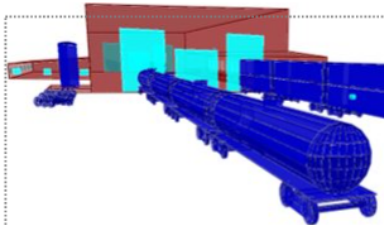


Ranplan Professional can simultaneously models both the indoor and outdoor environments.

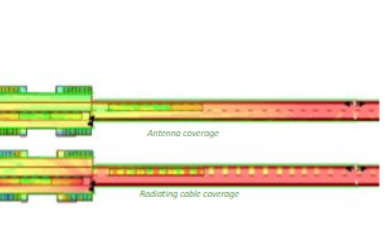


▲ Indoor Signal Leakage Analysis in 3D  
◀ Outdoor Signal Coverage Analysis in 3D

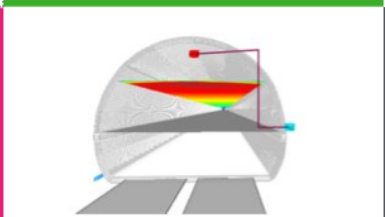
## TUNNEL COVERAGE



Full 3D modelling of tunnel



Carriage & Training Modelling



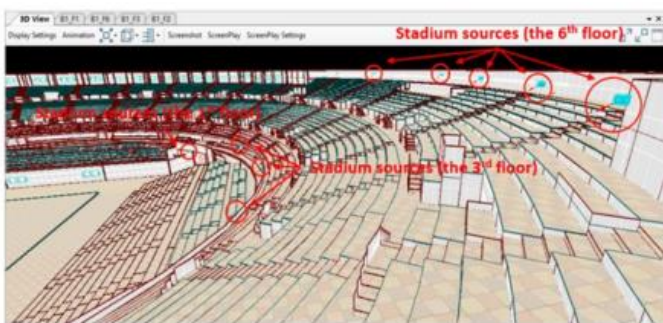
Supports antenna & leaky feeder predictions

## Private Wireless

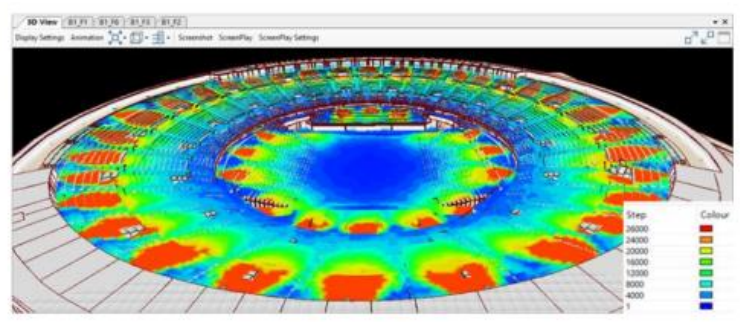
Of all facets of the 5G bandwagon, none is more buoyant than Private Wireless (also known as ‘Enterprise Cellular’, ‘Local 5G’ in Japan or ‘CBRS’ in the USA). This segment - increasingly closely associated with industrial applications and hence machine-to-machine communication to a much greater extent than before – is ideally suited to our expertise, products and services. What makes Private Wireless so special is the **tailor-made design** that it requires. A plethora of use cases serves to illustrate this point of view: (i) *Industrial Automation* requires ultra-low latency to ensure real-time control of robots and other forms of machinery; (ii) *Remote monitoring of assets in factories and warehouses* benefits noticeably from the capabilities of 5G, enabling accurate and secure transmission of huge amounts of data for actionable insights, troubleshooting of problems or refinement of processes; (iii) operations and maintenance, courtesy of the combination of 5G and sensor technologies, production managers can continually ascertain that plants are properly functioning, detect any malfunctioning parts, track any changes to yields of production, and undertake maintenance work only when necessary (as opposed to by routine).

The **ultra-high reliability** and **ultra-low latency** requirements catapult the importance of meticulous planning before networks are initially designed, or, for that matter, re-designed and re-optimised (as dictated by changes to either the external environment or to the actual use cases, or possibly both). These factors alone, we beg to infer, will compel network operators to use predictive analytics, such as our tools, to a considerably greater extent. Simply adding more antennas will no longer do: *‘with the introduction of 5G for private wireless applications, we now really need to simulate through software’*.

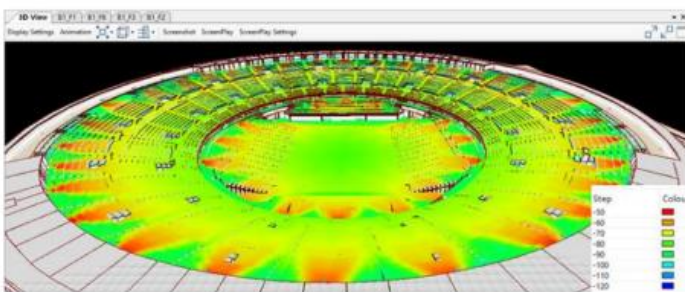
### CBRS-based private LTE small cell deployment in a stadium



(a) CBRS-based LTE small cell deployment in stadium



(b) PDSCH throughput in kbps



(c) RSRP signal in dBm



(d) CDF of RSRP signal

Source: *Whitepaper Understanding CBRS Based – Private CBRS LTE Networks 14 Aug 2020*



The **indoor-centricity** and **(dense) HetNet modality** of Private Wireless represent the precise use cases for which Ranplan’s suite of software, from Day One until Today, has been perfected and progressively tuned and refined. Macro-coverage on a regional or sometimes nationwide basis is no longer an issue. On the contrary, it is the local nature of Private Wireless, on account of a multitude of different KPIs (key performance indicators), on either side of the walls, floors and ceilings of buildings that matter the most. Our most recent launch, the ACO (Automatic Cell Optimiser), is of utmost interest in these situations.

**Intimate collaboration** between traditional providers of cellular services (mobile network operators) and **new aspirants** from the web-scale universe, seeking to cement their relationships with enterprises as they transition from fixed LANs or wireless (cellular) adds fuel to the pace of development and rate of sector growth. As spectrum becomes more freely available, courtesy of a series of initiatives from authorities in various parts of the world, new players represented by so called neutral hosts and systems integrators express a vested interest in *‘getting into the game’*. So do several of the world’s largest enterprises which view 5G technology as the lever to gain a competitive edge in terms of productivity and quality on their peers. That the likes of Rakuten Mobile of Japan, Reliance Jio of India and NTT DoCoMo of Japan position themselves as platform companies dismantles conventional barriers to entry.

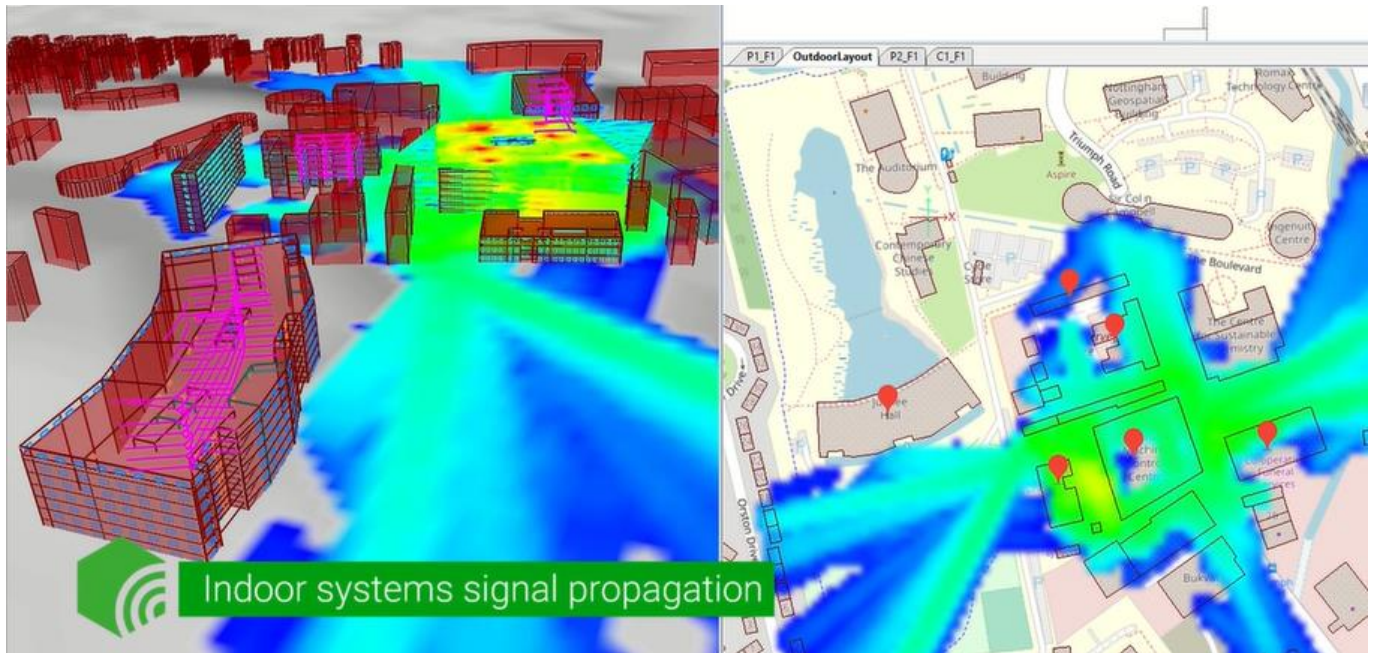
As articulated by numerous industry insiders, the potential size of the **Private Wireless market** is highly significant. Nokia, for one, suggests from a detailed analysis, that more than 14 million sites would be required to build private 4G (LTE)/5G networks to catapult the levels of automation and hence efficiency. This figure, see details in the table below, is roughly twice (2x) the number of 4G (base station) sites currently in operation on Planet Earth (and almost invariably managed and run by mobile networks as part of their provision of the public network service). The strongest impetus (close to 75%) is projected to emanate from the industrial and manufacturing space, followed by warehouses (close to 25%). Even so, material volumes are envisaged from customers in the Healthcare (Hospital & labs), Utility, Mining, Transportation, Power generation, Oil & gas and military sectors.

#### Number of potential sites for private 4G (LTE)/5G networks

Industry	Sites (k)	Share
Industrial & manufacturing	10,710	73%
Warehouses	3,300	23%
Hospitals & labs	263	2%
Water Utility	140	1%
Mining	54	0%
Transport venues & ports	50	0%
Power generation	48	0%
Military bases	10	0%
Oil & gas	8	0%
<b>Total</b>	<b>14,583</b>	<b>100%</b>

Source: Nokia; see [enterpriseiotinsights.com/20190129/channels/news/Nokia-weighs-up-industrial-targets](https://enterpriseiotinsights.com/20190129/channels/news/Nokia-weighs-up-industrial-targets)

**Campus Wireless Network Design – illustrations of results from advanced software simulations**



*Ranplan Wireless offers a unique tool capable of coordinating, harmonising and optimising indoor and outdoor wireless networks in tandem with each other*



Source: Ranplan Wireless Website, or see *Ranplan Wireless Campus Private Network Design* on Vimeo.

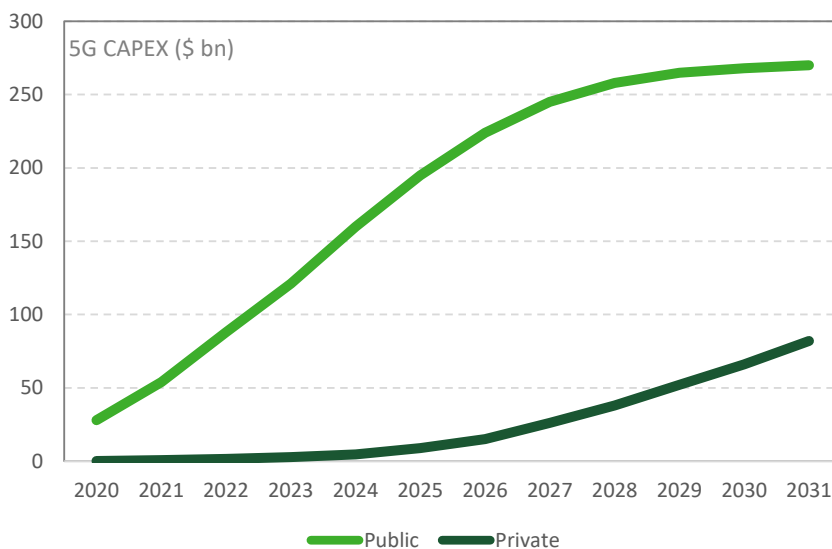
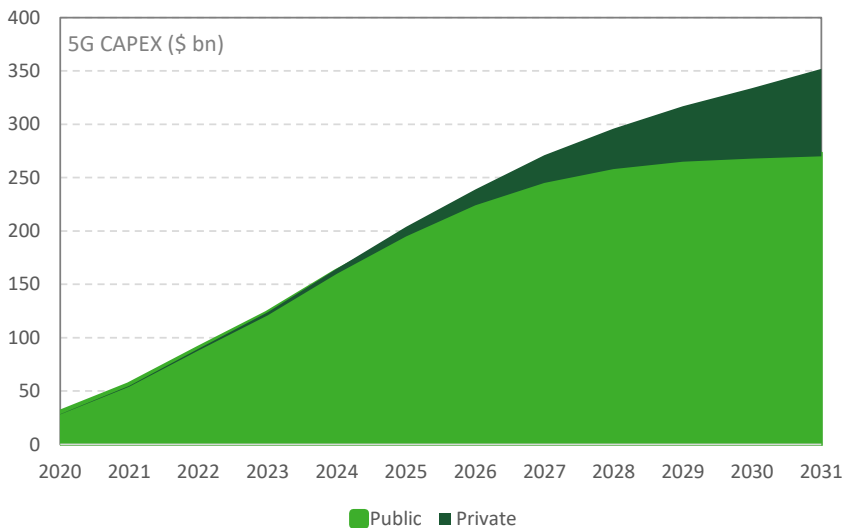


**Market size**

Whilst Private Wireless does not make up more than a few single percentage points of the 5G market at this stage, it is likely to represent a most noticeable portion of total 5G capex spend\* by the turn of the decade. As illustrated in the charts below, we anticipate that Private Wireless will surpass the USD 50bn mark by 2028/2029 and approach that of USD 100bn by 2032/2033. This means, by extension, that Private Wireless is set to add some 40% to the Public Wireless market within the next ten-twelve years. Combined, the 5G capital expenditures associated with the Public and Private segments are predicted to essentially ten-fold (10x) from an estimated USD 35bn in 2020 to c. USD 350bn in eleven years’ time. As usual, mobile network operators are likely to prioritise outdoor coverage in the first phase of 5G deployment. Thereafter, history shows, more emphasis will be placed on fulfilling capacity/throughput and latency requirements with particular focus on dense urban areas and especially the indoor space.

\*Including not only hardware equipment and software, but also civil engineering, IT systems and services.

**5G capital expenditures dedicated to Public and Private Wireless**



Source: Ranplan Wireless and third-party research reports.

## Research Projects

Ranplan continues to invest ambitiously at the absolute frontier of new innovations. It is currently involved in eight ongoing projects covering 5G, data analytics, proactive network optimisation, massive MIMO optimisation and network slicing. These activities, which contributed more than SEK 4 million to Total income in the first half of 2021, are often undertaken in partnership with leading academic institutions, such as the University of Cambridge and CNR of Italy, and/or existing/prospective commercial customers, notably Orange Labs of France and Telenor of Norway.

### List of current activities

- [is3DMIMO](#): indoor small-cell Networks with 3D MIMO Array Antennas
  
- [DAWN4IoE](#): Data Aware Wireless Networks for Internet of Everything
  
- [CORRELATION](#): Characterization and prediction of service-level traffic for future sliced mobile network
  
- [WAVECOMBE](#): Millimetre wave communications in the Built Environment
  
- [COSAFE](#): Cooperative Connected Intelligent Vehicles for Safe and Efficient Road Transport
  
- [BANYAN](#): Network Slicing - “Big dAta aNalytics for radio Access Networks”
  
- [mmChannel](#): millimeter Wave Channel Modelling Considering Environmental Factors
  
- [Massive MIMO beamforming Optimisation](#) Massive Multiple-In/Multiple-Out Beamforming Optimisation

Since 2008, Ranplan Wireless Network Design Limited has participated in **eighteen (18) R&D projects** funded by EC FP7/H2020, Eurostars and Innovate UK. To date, ten (10) of these projects, spanning automatic network planning and optimisation, data analytics/artificial intelligence/machine learning, and microservices, have been successfully completed in 2012, 2013, 2015, 2019, and 2021.

# Financial statements

In this section, data related to the consolidated Ranplan Group AB and its Parent are presented. Please note that the parent company of the Group, Ranplan Group AB, was registered on 14 March 2018. After shifting to a half year reporting cycle in September 2019, the Company does not break down the results by quarter (consecutive 3 months period).

For the sake of clarity, the term Total Income, comprising net sales (from commercial products and services), other income (from research projects) and other operating income (from R&D tax credits) is used to reflect all sources of income (and by extension receipt or expected future receipt of cash). Gross profit is measured as the absolute difference between Total Income and Cost of sales with the gross margin calculated as the ratio between gross profit and Total Income. Operating expenses (“OPEX”) consists of expenditures associated with *Research and Development* (abbreviated as “R&D”), *Sales and Marketing* (“S&M” or “Sales costs”) and *General and Administration* (“G&A” or “Administration costs”).

## Comments to the H1 2021 results

### Income Statement

In the first six months of 2021, total income amounted to SEK 17.4 million, materially higher than in corresponding period of 2020 (SEK 12.2 million). The increase is mainly attributable to net sales (commercial products and services) which, against an unusually light base of comparison, rose by c. 67% (year-on-year) to SEK 8.3 million. Other income (drawn from research projects) at SEK 4.1 million was largely flat (year-on-year) while Other operating income (related research tax credits) jumped to SEK 5.0 million (from SEK 3.0 million), in part because of a one-time catch-up effect estimated at SEK 1.4 million. Modest costs of sales at SEK 113k, reflective of the pure software licensing model related to commercial products, brought gross profit to SEK 17.3 million (SEK 11.9 million) – an increase of c. 45% year-on-year.

On an FX-adjusted basis, research and development expenditures were stable at SEK 16.7 million in the first half. On a twelve-month trailing (L12M) basis, these investments hover around SEK 33.6 million, nearly three times net sales registered over the course of the same period. As before, all R&D costs are expensed as they occur (no capitalisation takes place, freeing the balance sheet of any intangible assets).

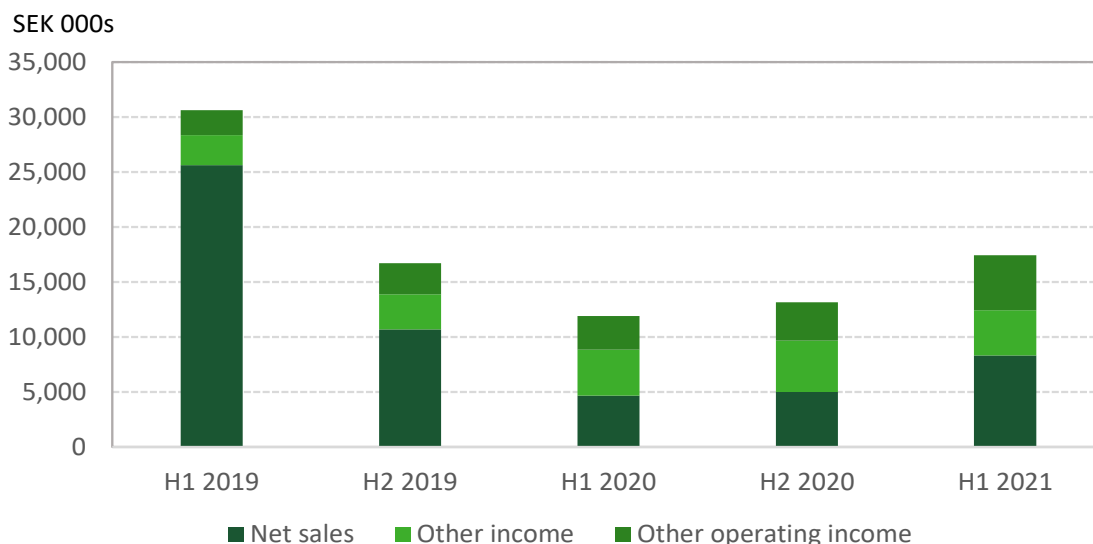
Expenses related to sales and marketing (“Sales costs”) at SEK 4.7 million (down 32% year-on-year), remains subdued. An increase can be expected in tandem with the progressive re-opening of society. Costs associated with central functions and administration fell c. 9% year-on-year to SEK 5.4 million. Other operating expenses, associated with VAT charges and other effects, remains quite immaterial.

Losses from operations at SEK 9.7 million essentially halved from SEK 18.6 million in the first six months of 2020. They were also significantly (37%) lower than those registered in the second half of last year, extending the positive trend witnessed since the end of 2019, see chart below. The noticeable improvements reflect the dual benefits of higher net sales and containment of operating costs. Net interest income and expenses, influenced by drawn-downs of funds from the credit line that was initiated in July 2019, and expanded in March 2020 and October 2020 (in conjunction with a debt-to-equity swap), amounted to a negative SEK 1.0 million versus a negative SEK 1.6 million in the first six months of 2020.

With no provision for taxes, net income – equalling pre-tax income - amounted to a negative SEK 10.6 million versus a negative SEK 22.2 million in H1 2020 and a negative SEK 16.7 million in H2 2020.

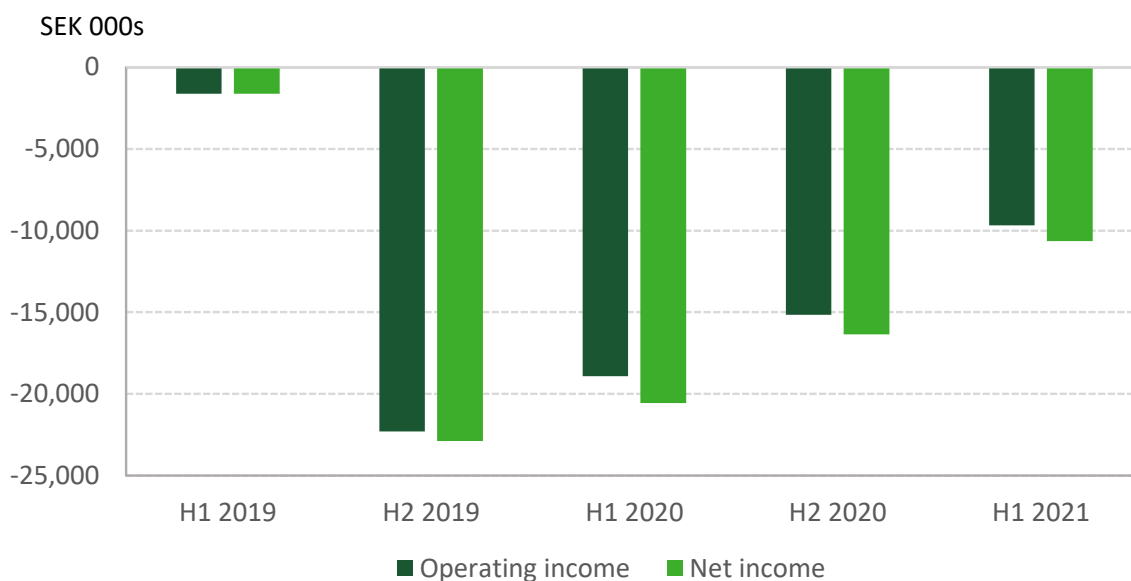
n.b. Other Operating Income represents the tax credit that is estimated to be paid by the UK government to support Ranplan Wireless’ R&D activities. These estimates are subject to judgements according to guidelines with respect to inter alia the advancement of science and technology, the degree of uncertainty and ease of deducibility by a competent professional. In the first half of 2021, no cash related to such grants were received. At the end of June 2021, Ranplan carried tax credit receivables valued at around SEK 10 million – attributable to calendar 2020 and the first half of 2021 - on its balance sheet.

**Total income by half-year period**



*“The financial performance in the last period is eclipsed only by the first half of 2019”*

**Operating and net income by half-year period**



## Balance Sheet

Shareholders' equity amounted to a negative SEK 10.8 million compared with a negative SEK 14.0 million at the end of June 2020. Its level should be evaluated on the basis that no value is attached to either the patent portfolio or the investments in research and development. Most of the Group's inherent ability to generate free cash flow is thus not captured in the balance sheet metrics as they are being portrayed. Since the beginning of 2017, the Group has invested SEK 123.3 million in research and development, equivalent to around USD 14.5 million at current exchange rates (on the premise that USD/SEK = 8.5). This figure represents nearly five times (5x) total assets on the balance sheet as of the end of June 2021.

### R&D Expenditures per annum and cumulatively since the start of 2017

SEK millions	2017	2018	2019	2020	H1 2021
R&D expenses (per annum)	18.3	23.6	30.5	34.2	16.7
Cumulative from 2017	18.3	41.9	72.4	106.6	123.3

At the end of June 2021, net cash amounted to a negative SEK 24.7 million, an increase from a negative SEK 5.5 million and a negative SEK 20.1 million six and twelve months earlier respectively. Net current assets, the difference between current assets and current liabilities, amounted to SEK 15.8 million at the end of June 2021, an increase of SEK 7.6 million since the beginning of 2021 and a slight decrease from SEK 17.0 million at the corresponding time in 2020. As before, the Group is partly financed by debt. At the end of June 2021, loans outstanding amounted to SEK 26.6 million versus SEK 8.1 million at the end of June 2020 and SEK 30.9 million at the end of December 2020. At the end of June 2021, around SEK 23.4 million was undrawn on the credit line facility (the ceiling of which stills stands at SEK 50 million).

The balance sheet remains completely free of fixed assets, even though, as documented in the income statement, ambitious investments in research and development continue to be made. As a result, no charges associated with amortisation and depreciation are expected to be incurred in the near-term.

### Balance sheet summary

SEK 000s	30-Jun-20	31-Dec-20	30-Jun-21
Net current assets	16,959	8,163	15,763
Gross cash	10,768	2,607	1,831
Net cash	-20,147	-5,506	-24,746
Shareholders' equity	-13,956	50	-10,814
o/w fixed assets	0	0	0
o/w intangible assets	0	0	0

Cash flow from operations amounted to a negative SEK 9.7 million (SEK 19.3 million in H1 2020) before and a negative SEK 18.0 million (SEK 10.2 million in H1 2020) after movements of net working capital. No investments, either of tangible or intangible nature, were made. In H1 2021, other current receivables expanded by more than SEK 5million (current receivables shrank by SEK 10.2 million in calendar 2020).



## Cash flow summary

SEK 000s	H1 2020	H2 2020	H1 2021
Cash flow before working capital	-19,578	-15,620	-9,671
Working capital	9,087	636	-8,376
Cash flow after working capital	-10,491	-14,984	-18,048
Investments	0	0	0

## Personnel

The number of full-time employees, excluding contractors, in the Group was 64 at the end of June 2021, up from 62 at the end of December 2020. With inclusion of contractors, the headcount broadly corresponding to full-time equivalents currently hovers around 75, down from 81 at the end of 2020.

## Risk factors

The Ranplan Group is exposed to several global and Group specific risks that can impact operations and the financial performance, as well as the financial position of the Group. The foreseeable risks are identified and monitored centrally on the basis of established policies. Risk management in the Group aims at positioning the Group to be able to correctly respond to events that may pose dangers and threats to its well-being. Below is a non-exhaustive list of risks, without regard to their level of significance, which the Group considers to be material.

Further details can be found in the IPO prospectus, available on the Group's website.

- Financing (through a variety of channels)
- Key personnel (experts and managers)
- Product development, quality and perception
- Competition (from existing and new contenders)
- Customers (delays, requirements, acceptance criteria etc)
- Intellectual property and business secrets
- The market price of the Company's shares

## Implications of COVID-19

Although mass vaccination appears to reduce the incidence of severe illness and hospitalisations associated with the new corona virus, we will continue to carefully monitor the situation in all markets in which we operate. Caution will be exercised when it comes to travel and face-to-face meetings. We will abide by the recommendations, restrictions and rules set by local authorities. In the event of a resurgence in infections, we shall be prepared to return to a complete 'lock-down'. Experience garnered in 2020 serves to demonstrate that our operations can handle such a change in the 'modus operandi' without any significantly debilitating effects. These remarks notwithstanding, there is no doubt, that COVID-19 has had and to a lesser extent still has a negative effect on the company's commercial activities.

# Group consolidated accounts

GROUP INCOME STATEMENT (KSEK)	H1 2020	H2 2020	H1 2021	FY 2020	L12M
<b>Operating income</b>					
Net sales (commercial products)	4,686	5,005	8,345	9,691	13,350
Other income (research)	4,192	4,674	4,097	8,866	8,771
Other operating income (tax credits)	3,044	3,501	4,993	6,545	8,494
<b>Total income</b>	<b>11,922</b>	<b>13,180</b>	<b>17,435</b>	<b>25,102</b>	<b>30,615</b>
Cost of sales	-333	45	-113	-288	-68
<b>Gross profit</b>	<b>11,589</b>	<b>13,225</b>	<b>17,322</b>	<b>24,814</b>	<b>30,547</b>
Research and development	-17,305	-16,928	-16,668	-34,233	-33,596
Sales costs	-6,923	-3,723	-4,725	-10,646	-8,448
Administration costs	-5,942	-7,280	-5,432	-13,222	-12,712
Other operating expenses	-331	-445	-168	-776	-613
<b>Operating profit</b>	<b>-18,912</b>	<b>-15,151</b>	<b>-9,671</b>	<b>-34,063</b>	<b>-24,822</b>
<b>Financial items</b>					
Net interest income and expense	-1,634	-1,204	-963	-2,838	-2,167
<b>Total financial items</b>	<b>-1,634</b>	<b>-1,204</b>	<b>-963</b>	<b>-2,838</b>	<b>-2,167</b>
<b>Income after financial items</b>					
Tax	0	0	0	0	0
<b>Net income for the period</b>	<b>-20,546</b>	<b>-16,355</b>	<b>-10,634</b>	<b>-36,902</b>	<b>-26,989</b>

<b>GROUP BALANCE SHEET (KSEK)</b>	<b>30 JUN 2020</b>	<b>31 DEC 2020</b>	<b>30 JUN 2021</b>
<b>Assets</b>			
Fixed assets			
Tangible fixed assets			
Equipment, tools, fixtures and fittings	0	0	0
<b>Total fixed assets</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Current assets</b>			
Accounts receivable - trade	9,227	7,194	5,150
Other current receivables	7,782	5,471	10,600
Prepaid expenses and accrued income	9,064	6,201	7,441
<b>Total current receivables</b>	<b>26,073</b>	<b>18,866</b>	<b>23,191</b>
Cash and bank balances			
Cash and bank	10,768	2,607	1,831
<b>Total current assets</b>	<b>36,840</b>	<b>21,473</b>	<b>25,021</b>
<b>Total assets</b>	<b>36,840</b>	<b>21,473</b>	<b>25,021</b>
<b>Equity and liabilities</b>			
<b>Equity</b>			
Share capital	805	966	1,004
Share premium reserve	51,952	83,307	83,307
<b>Other capital, translation effects, period's result</b>			
Other capital, translation effects, period's result	-66,353	-84,264	-95,125
<b>Equity attributable to owners</b>	<b>-13,956</b>	<b>50</b>	<b>-10,814</b>
<b>Total equity</b>	<b>-13,956</b>	<b>50</b>	<b>-10,814</b>
<b>Non current liabilities</b>			
<b>Long term loan</b>	<b>30,915</b>	<b>8,113</b>	<b>26,576</b>
<b>Current liabilities</b>			
Accounts payable - trade	2,019	1,714	1,495
Other current liabilities	8,863	1,834	2,451
Accrued expenses and deferred income	8,999	9,762	5,312
<b>Total current liabilities</b>	<b>19,881</b>	<b>13,310</b>	<b>9,258</b>
<b>Total equity and liabilities</b>	<b>36,840</b>	<b>21,473</b>	<b>25,021</b>

<b>GROUP CASH FLOW STATEMENT (KSEK)</b>	<b>H1 2020</b>	<b>H2 2020</b>	<b>H1 2021</b>	<b>FY 2020</b>	<b>L12M</b>
<b>Operating activities</b>					
Operating result	-18,912	-15,151	-9,671	-34,064	-24,822
Adjustment for depreciation	54	0	0	54	0
Paid interest	-720	-147	0	-867	-147
<b>Cash flow before working capital movements</b>	<b>-19,578</b>	<b>-15,298</b>	<b>-9,671</b>	<b>-34,877</b>	<b>-24,969</b>
Increase in trade receivables	4,441	2,033	2,044	6,474	4,077
Increase in current receivables, accrued income	4,909	5,174	-6,369	10,083	-1,195
Increase in trade payables	-1,437	-305	-219	-1,742	-524
Increase in current liabilities, deferred income	1,174	-6,266	-3,833	-5,092	-10,099
<b>Cash flow from operating activities</b>	<b>-10,491</b>	<b>-14,662</b>	<b>-18,048</b>	<b>-25,154</b>	<b>-32,710</b>
<b>Investing activities</b>					
Acquisition of tangible assets	0	0	0	0	0
Acquisition of subsidiaries	0	0	0	0	0
<b>Cash flow from investing activities</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Financing activities</b>					
Additional loan	10,000	8,000	17,500	18,000	25,500
Proceeds from issues of shares and warrants	2	58	38	60	96
<b>Cash flow from financing activities</b>	<b>10,002</b>	<b>8,058</b>	<b>17,538</b>	<b>18,060</b>	<b>25,596</b>
<b>Cash flow of the period</b>	<b>-489</b>	<b>-6,604</b>	<b>-510</b>	<b>-7,094</b>	<b>-7,114</b>
Cash at the beginning of the period	10,848	10,768	2,607	10,848	10,768
Exchange rate differences, other effects	409	-1,557	-267	-1,147	-1,824
<b>Cash and equivalents at period end</b>	<b>10,768</b>	<b>2,607</b>	<b>1,831</b>	<b>2,607</b>	<b>1,831</b>

<b>GROUP CHANGES IN EQUITY</b>	<b>SHARE CAPITAL</b>	<b>OTHER PAID-IN CAPITAL</b>	<b>TRANSLATION DIFFERENCES</b>	<b>RETAINED EARNINGS</b>	<b>TOTAL EQUITY</b>
<b>Starting balance 2020-12-31</b>	966	83,307	-630	-83,593	50
Result for the period				-10,634	-10,634
Issue of share warrants	38				38
Translation differences			-268		-268
<b>Ending balance 2021-06-30</b>	<b>1,004</b>	<b>83,307</b>	<b>-898</b>	<b>-94,227</b>	<b>-10,814</b>

## Notes to the consolidated financial information

### Summary of significant accounting policies.

This interim report has been prepared in accordance with the Annual Accounts Act and the Swedish Accounting Standards Board's general regulations BFAR 2012:1 Annual Report and Consolidated Financial Statements (K3).

### Important estimates and judgments regarding the accounting

Estimates and judgments are evaluated on an ongoing basis and are based on historical experience and other factors, including expectations regarding future events which are seen to be reasonable under the circumstances in place.

The Group's management deems that there is no significant information or judgment in the accounts regarding future developments or other important sources of uncertainty in the estimates undertaken at balance sheet date which would imply a significant risk of a major adjustment in the reported values of the assets and liabilities during the foreseeable future.

### Share Data

At end of period	31 Dec 2020	30 Jun 2021
Number of shares (000s)	24,138	24,138
Number of 2022 warrants (000s)*	815	815
Number of 2023 warrants (000s)*	985	985
Number of 2024 warrants (000s)*	0	990
Share price at end of period (SEK)	7.7	6.8
Full time employees	62	64

\*Strike price at SEK 20.60, exercisable in Sep-Dec 2022, Sep-Dec 2023 and Sep-Dec 2024

### Shareholder Structure

Shareholders as of 30 June 2021*	No of shares	Ownership
Jinxing Xue	8,084,887	33%
Per Lindberg	6,151,038	25%
Hongbing Li and Qimei Wu	2,624,070	11%
Jie Zhang and Joyce Yuhua Wu	2,067,996	9%
Other	5,213,109	22%
<b>Total</b>	<b>24,138,242</b>	<b>100%</b>

\*At 30 June 2021, 2,790,200 warrants, exercisable at SEK 20.60 were outstanding

\*\*Based on the current number of outstanding shares



## Comments to the Parent Company's financial statements

### Parent Company Financial Statements

The accounts set out below relate to the Group Parent Company Ranplan Group AB which was registered in March 2018 and which is the sole owner of all Ranplan operating companies, see organisational chart.

### Income Statement

The administrative expenses relate to members of the Board, the Chief Executive Officer (CEO) as well as other costs required to operate the NASDAQ First North Company in accordance with applicable rules.

### Balance Sheet

The shares in subsidiaries represent the cost of acquiring the activity of Ranplan Holdings Ltd. Group receivables represent advances made to Group subsidiaries to fund their operations.

### Changes in Equity

The reduction in equity is caused by net losses realised, net of infusion of cash where applicable.

### Parent Company income statement

<b>PARENT COMPANY INCOME STATEMENT (KSEK)</b>	<b>FY 2020</b>	<b>H1 2021</b>
<b>Operating income</b>		
Net sales	8,752	4,069
Research and development	-1,424	-719
Administration	-4,738	-2,533
<b>Operating result</b>	<b>2,590</b>	<b>817</b>
Net interest income and expense	-2,838	-963
<b>Income before taxes</b>	<b>-248</b>	<b>-146</b>
<b>Net income for the period</b>	<b>-248</b>	<b>-146</b>

## Parent Company balance sheet

<b>PARENT COMPANY BALANCE SHEET (KSEK)</b>	<b>31 DEC 2020</b>	<b>30 JUN 2021</b>
<b>Assets</b>		
<b>Investments</b>		
Financial assets		
Shares in subsidiaries	3,396	3,396
<b>Total investments</b>	<b>3,396</b>	<b>3,396</b>
<b>Current assets</b>		
Receivables from Group Companies	88,296	107,052
Other receivables and prepayments	71	140
Cash and bank balances	416	246
<b>Total current assets</b>	<b>88,783</b>	<b>107,438</b>
<b>Total assets</b>	<b>92,179</b>	<b>110,834</b>
<b>Equity and liabilities</b>		
<b>Restricted equity</b>		
Share capital	966	1,004
<b>Non-restricted equity</b>		
Share premium reserve	82,452	82,452
Retained earnings	-3,756	-1,653
Loss for the period	2,103	-146
	<b>80,799</b>	<b>80,653</b>
<b>Total equity</b>	<b>81,765</b>	<b>81,656</b>
<b>Current liabilities</b>		
Accounts payable - trade	3	3
Other payables	752	770
Accrued expenses	1,546	1,828
<b>Total current liabilities</b>	<b>2,301</b>	<b>2,601</b>
Loan	8,113	26,576
<b>Total liabilities</b>	<b>10,415</b>	<b>29,177</b>
<b>Total equity and liabilities</b>	<b>92,719</b>	<b>110,834</b>

## Parent Company Cash flow statement

<b>PARENT COMPANY CASH FLOW STATEMENT (KSEK)</b>	<b>FY 2020</b>	<b>H1 2021</b>
<b>Operating activities</b>		
Operating result	-58	817
Interest received	0	0
Interest paid	-600	0
<b>Cash flow before working capital movements</b>	<b>-658</b>	<b>817</b>
Increase/decrease in current assets	-39,505	-18,844
Increase/decrease in current liabilities	1,896	300
Increase/decrease in other liabilities	0	0
<b>Cash flow after working capital movements</b>	<b>-38,267</b>	<b>-17,727</b>
<b>Financing activities</b>		
Proceeds from issue of warrants	0	6
Proceeds from loan	20,000	17,500
<b>Cash flow from financing activities</b>	<b>20,000</b>	<b>17,506</b>
<b>Cash flow of the period</b>	<b>-18,267</b>	<b>-221</b>
Brought forward	19,272	416
Foreign exchange differences	40	51
<b>Cash and equivalents at period end</b>	<b>1,045</b>	<b>246</b>

## Parent Company change in equity

<b>PARENT COMPANY CHANGES IN EQUITY KSEK</b>	<b>SHARE CAPITAL</b>	<b>OTHER PAID-IN CAPITAL</b>	<b>OTHER EQUITY</b>	<b>TOTAL EQUITY</b>
<b>Starting balance 2020-12-31</b>	966	82,452	-1,652	<b>81,765</b>
Result for the period			-146	<b>-146</b>
Issue of share warrants	38			<b>38</b>
Share conversion + other				<b>-1</b>
<b>Ending balance 2021-06-30</b>	<b>1,004</b>	<b>82,452</b>	<b>-1,798</b>	<b>81,656</b>

## Abbreviations, Definitions and Terminologies

**Total Income** comprises the sum of

**Net sales** (related to commercial products and services),  
**Other income** (emanating from research projects) and  
**Other operating income** (drawn from R&D tax credits)

**Gross profit** is here defined as the difference between Total income and cost of sales.

**Gross margin** is here defined as the ratio between gross profit and Total Income.

**Other operating income** emanates from R&D qualified tax credits offered by the UK government in support of advances of science and technology.

**Depreciation:** Ranplan does not capitalise its own, or, for that matter, 3<sup>rd</sup> party software or hardware (such as laptops, desktops, servers). The only fixed assets on the balance sheet relate to office equipment which are written off over 24 months.

**Amortisation:** As no R&D expenditures are capitalised, there are no intangible assets held on the balance sheet. Consequently, no amortisation of intangible assets is being made.

**Income tax:** Ranplan does not incur income tax at this juncture. On sales to certain countries, the buyer deducts a withholding passed to its local government. These withholdings may be recovered in future (in the case of which reversals occur). The withholding tax is part of other expenses in the income statement.

**EBITDA:** Operating income (often abbreviated EBIT – earnings before interest and tax) in the income statement is almost identical to EBITDA, earnings before interest, tax, depreciation and amortisation.

### Abbreviations

**R&D:** Research and Development

**S&M:** Sales and Marketing

**G&A:** General and Administration

**OPEX:** Operating Expenditures

**D&A:** Depreciation and Amortisation

**Gross profit:** gross margin x total income

**EPS:** Earnings per share

**AI:** Artificial Intelligence

**IPR:** Intellectual Property Rights

**OSS:** Operations Support Systems

## Company Description

Ranplan is a software company that develops and markets a suite of solutions that allow mobile operators, telecommunication equipment vendors and system integrators to cost effectively and accurately plan, design and optimise 4G (LTE), 5G and Wi-Fi wireless networks inside the walls of buildings and in outdoor urban environments.

The purpose of an in-building wireless network is to provide enhanced network coverage and/or capacity when the existing outdoor network is not able to adequately satisfy the exacting requirements. Coverage may be poor due either to high penetration losses caused by the building structure or the latest materials used that are designed to improve thermal performance of the building. In dense urban environments, adjacent buildings may create an RF barrier that blocks coverage from nearby outdoor networks. Tall buildings typically have poor coverage on upper floors since outdoor antennas, many floors below, are specifically designed to suppress energy radiating above the horizon. Capacity may be an issue in venues such as stadia and convention centres where many thousands of users may be trying to simultaneously access the network, causing severe congestions.

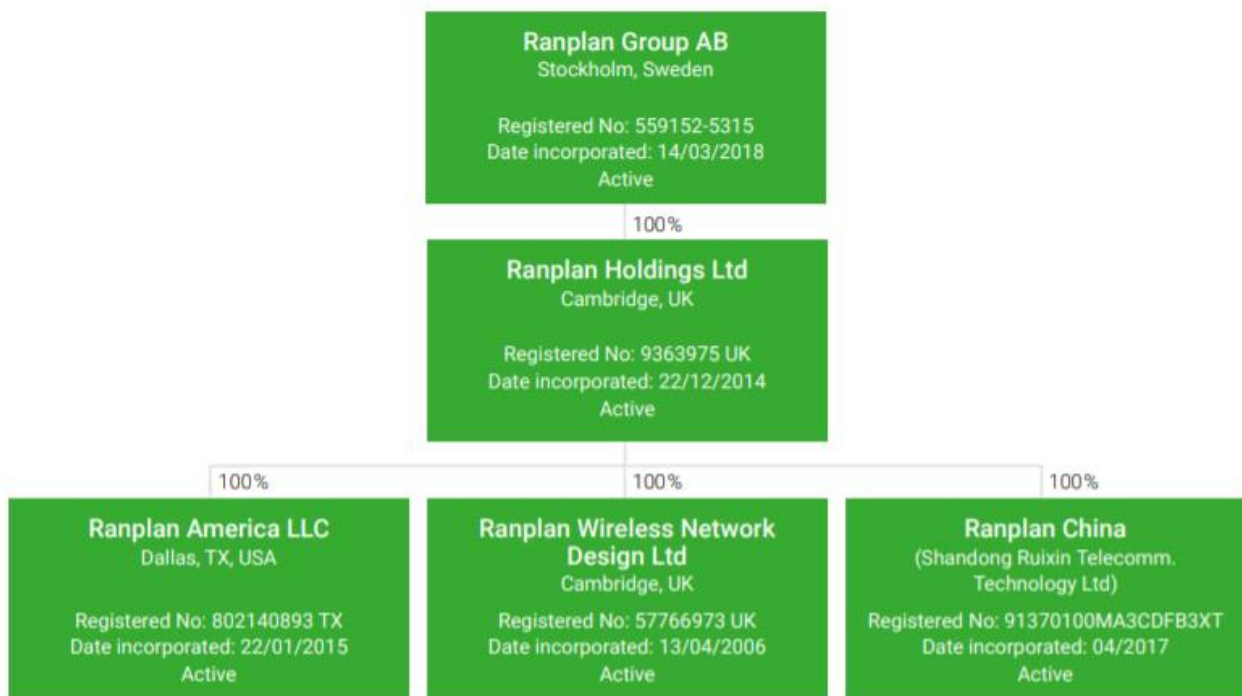
Today, over 80% of mobile data traffic is generated in buildings with only approximately 2% of commercial buildings having a dedicated in-building (cellular) wireless network. Research also shows that in-building wireless networks could increase the value of the property by 28 % on average. With the roll out of 4G (LTE) and 5G technologies, the need to construct in-building wireless networks has increased and will continue to increase.

Ranplan's operational ambition is to increase its position in the fast-emerging wireless market by providing quality software to enable mobile operators and telecommunications equipment vendors to plan wireless networks more accurately and cost effectively. While the nature of the company's operations entail that its results are likely to vary markedly between reporting periods, Senior Management will continue to prioritise the creation of lasting industrial value.

Ranplan Group AB has been listed on Nasdaq First North Stockholm since June 2018, trading with the ticker RPLAN, ISIN: SE0011178201. It is the parent company of the Group with the following wholly owned subsidiaries: (i) Ranplan Holdings Ltd (UK), (ii) Ranplan Wireless Network Design Ltd (UK), (iii) Ranplan China (Shandong, Ruixin Telecomm. Technology Ltd, China), and (iv) Ranplan America LLC (Dallas, Texas, USA). All votes and shares in the subsidiaries are held by companies within the Group.



## Organisational Chart



The Board of Directors and CEO hereby assures that this interim Report for the first half of 2021 provides a true and fair overview of the performance of the parent company’s and the Group’s operations, financial position and earnings, and that it describes the significant risks and factors of uncertainty to which the Parent Company and the companies included in the Group are exposed.

The English version of this report takes precedence over any other representation, should any differences be found.

Stockholm 31 August 2021

Tomas Isaksson, Chairman of the Board

Jie Zhang, Board member

Wendy Yang, Board member

Jon Ullmark, Board member

## Other information

### Auditor's review

This interim report has not been reviewed by the company's auditors.

### 2020 Annual General Meeting

The Annual General Meeting was held on 17 May 2021 in Stockholm, Sweden.

### Certified Adviser

FNCA Sweden AB

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### Questions regarding this interim report are answered by:

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### Financial calendar – provisional dates in 2021

2 Sept: Presentation at Erik Penser Temadag - 5G

### Contact

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