

# Interim report January – June 2020

## Responsiveness

### First half of 2020 (first half of 2019 in bracket)

- Total income amounted to SEK 12.2 million (30.6 million) <sup>1</sup>
- Operating results amounted to SEK -18.6 million (-1.6 million) <sup>1</sup>
- Net results amounted to SEK -20.2 million (-1.6 million) <sup>1</sup>
- Earnings per share amounted to SEK -1.01 (-0.08) <sup>1</sup>
- Cash at the end of the period amounted to SEK 10.8 million (5.1 million) <sup>1</sup>

### Significant events in the first half of 2020

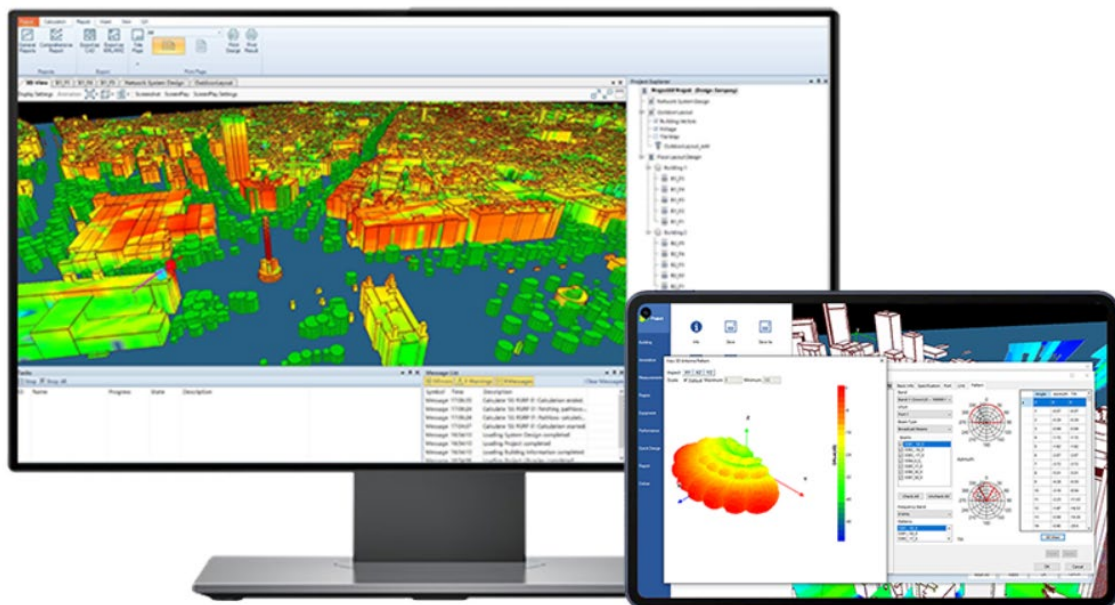
- On 6 January 2020, Ranplan press released a partnership with the Network Technology Research Institute of China Unicom, resulting in an initial purchase order of around USD 400k, which is expected to be revenue recognised before the end of calendar 2020.
- On 29 January 2020, Ranplan Group AB resolved to appoint George Wells, the Group Chief Accountant since August 2018 – as Chief Financial Officer (CFO), effective 26 February 2020.
- On 3 March 2020, Ranplan declared that it has been awarded an EU sponsored research project worth EUR 225k into how AI-based data analytics can help optimise network slicing.
- At the end of March 2020, it was announced that Per Lindberg, interim CEO, has expanded the size of the credit line to SEK 50 million (from SEK 30 million) on the same terms and conditions. Access to the credit line is free of charge and will be available until 17 July 2024. In the event of draw-downs on this facility, interest will be charged at a rate of 1% per month.
- At the AGM in Stockholm, Sweden on 15 June 2020, it was resolved that Tomas Isaksson be elected chairman of the board, that Jie Zhang, Wendy Yang and Per Lindberg be re-elected and that Jinxing Xue and Jon Ullmark be newly elected as ordinary members of the board.
- On 29 June 2020 Ranplan Wireless announced the launch of PRO 6.1 – a landmark release that brings 5G NR enhancements, a novel network device database, a full array of eye-opening features and improved user experience to the marketplace.

<sup>1</sup> All comparisons are made to the first half of 2019, the numbers of which have been subject to adjustments as detailed in the Annual Report for 2019. Total income comprises the sum of net sales (related to commercial products and services), other income (from research projects) and other operating income (R&D tax credits).

## Significant events after 30 June 2020

- On 1 July 2020, Ranplan Wireless communicated that it is the proud recipient of the prestigious SCF Small Cell Awards 2020, representing outstanding achievement and contribution in the field of automated cloud-based network planning and optimisation.
- On 17 July 2020, Ranplan Wireless announced that it has been recognised by the European Commission as ‘key innovator’ and selected for entry onto its Innovation Radar platform.
- On 3 August 2020, Ranplan Wireless declared that it has been selected by Engineering Wireless Services (“EWS”) as Preferred Software Partner for all HetNet deployments.

## The launch of PRO 6.1 elevates the experience of Ranplan Professional



*“We are confident that the latest editions of our suite of software will provide tangible benefits to all categories of users, whether involved in network densification, digital DAS, small cell deployment, public safety or preparations for massive MIMO, beamforming or network slicing architectures at scale. The breadth and depth of functions contained in this release reflects the strength of our world-class R&D team and are the result of a close collaboration with our customers as we seek to develop future proof solutions to meet their constantly evolving needs,”* said Dr Hui Song, CTO of Ranplan Group AB. *“Ranplan 6.1 gives users access to a comprehensive, open-ended portfolio of network planning, optimisation, management and visualisation solutions that will enable them to rapidly design, simulate and analyse complex network scenarios faster and more accurately than ever before,”* Dr Song continued.

# Words from the CEO

*The financial results registered in the first six months of 2020 reflect in no small part the effects of disruptions and restrictions associated with the outbreak of the COVID-19 pandemic. Net sales related to commercial products fell noticeably as a number of go-to-market activities and planned customer projects were cancelled, delayed or, for the time being, put on hold. Even so, there are no signs of any negative repercussions to underlying demand. On the contrary, there are strong reasons to believe that the experience of late will spur greater investments in wireless connectivity, particularly where it matters most in the era of 5G: inside and in close proximity to buildings. Thanks to strict cost control and solid income from research projects and tax credits, losses from operations were contained to less than SEK 20 million, an improvement compared with the second half of 2019. Robust collection of receivables helped the Company maintain gross cash on hand at SEK 11 million.*

*“In spite of the cumbersome conditions experienced of late, we are encouraged by recent advancements and enhancements to our product portfolio, a conspicuous surge in customer interest since the easing of lockdowns, a steady inflow of new research projects and, not least, the competence, diligence, and resilience displayed by our global workforce: we have responded well to the challenges”.*

**While net sales** were hampered by the new corona virus, income related to research projects and tax credits extended their upward trajectories. Investments in research and development continued to rise in line with a well-defined strategy aimed at reinforcing technology leadership. To this end, special emphasis is directed at the utilisation of Artificial Intelligence, Machine Learning and Containerised Services which pave the way for leaps in performance. Significant efficiency gains can be discerned across the organisation at large, as evidenced by improved R&D output and steep reductions in expenditures related to go-to-market activities.

**We remain buoyant** on our ability to compete in a marketplace fuelled by a growing number of commercial opportunities, in turn sparked by several thematic forces of demand, notably an accelerating pace of 5G deployment, a wave of industrial applications, a proliferation of private networks, growing attention attached to public safety, and an embrace of open-RANs in multi-vendor settings, spurring automation and innovation at the heart of our expertise.

**Our financial results** will be strongly influenced by variations in net sales, in effect the pattern of revenue recognition, which by its very nature, is likely to fluctuate between reporting periods. Considering our operating leverage – the result of gross margins in the mid-to-high-90s combined with exceptionally ambitious R&D investments, all of which expensed as incurred – we abstain from providing financial guidance for 2020. Barring any unforeseen events, however, we look forward to resurrecting commercial activities in the months ahead.

**Per Lindberg**  
Interim CEO  
Ranplan Group AB



## Summary of the period

As restrictions induced by the new corona virus swept across the globe in the beginning of March, commercial activities were negatively affected. Customer meetings were cancelled; decisions were deferred; and many important projects came to a standstill. Net sales in the first half, accordingly, fell well short of expectations. Income associated with research (projects and tax credits), however, continued to build – once again demonstrating the inherent values of the heart of Ranplan Group. Thanks to robust conversion of receivables, net cash outflow from operations was contained at SEK 10 million, representing a marked improvement on the performance in preceding half-year periods. The competitiveness and comprehensiveness of the product portfolio strengthened, evidenced by a surge in customer interest following the launch of the latest iteration of Ranplan Professional in the beginning of June. In spite of the lockdowns, relationships were cemented with several accounts. As the 5G bandwagon gathers steam, a healthy stream of business opportunities may well emerge.

## Financials

### Profit & Loss

**Total income** in H1 2020 (1 Jan – 30 June 2020) reached SEK 12.2 million, down by 60% and 27% in comparison with the levels of H1 2019 and H2 2019, respectively. Net sales emanating from commercial products and services fell by 80% and 53% against the same periods of reference, respectively. Excluding Japan, however, a much higher degree of stability can be discerned. Robust growth was registered in China, whereas the Americas and EMEA, both afflicted by extended lockdowns, were materially weaker than anticipated (prior to the outbreak of the virus pandemic, Other income related to research projects contributed SEK 4.2 million (2.9 million), up 55% and 32% on the two preceding half-year periods, respectively. Other operating income, drawn from R&D tax credits, added SEK 3.2 million, up 32% and 8% respectively to income in the last period.

#### Total income\* by half-year period

SEK 000s	H1 2019	H2 2019	H1 2020
Net sales (commercial products)	25 649	10 719	5 005
Other income (research projects)	2 699	3 179	4 192
Other operating income (tax credits)	2 299	2 827	3 044
<b>Total income</b>	<b>30 647</b>	<b>16 725</b>	<b>12 242</b>

\*Total income is defined as the sum of net sales, other income and other operating income.

#### Total income mix by half-year period

Total income mix	H1 2019	H2 2019	H1 2020
Net sales (commercial products)	84%	64%	41%
Other income (research projects)	9%	19%	34%
Other operating income (tax credits)	8%	17%	25%
<b>Total income</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

**Operating income** in the first half of 2020 amounted to minus SEK 18.6 million compared with minus SEK 1.6 million in the first half and minus SEK 22.3 million in the second half of 2019.

**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 30.2 million, down 3%

and 22% on the first and second half of 2019, respectively. Using the same base of comparison, R&D expenses rose by 31% and 1%, while S&M expenses fell 45% and 52%, respectively.

#### Operating expenses\* by half-year period

SEK 000s	H1 2019	H2 2019	H1 2020
R&D	13 233	17 217	17 305
S&M	12 594	14 420	6 923
G&A	5 351	7 016	5 942
<b>OPEX</b>	<b>31 178</b>	<b>38 653</b>	<b>30 170</b>

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

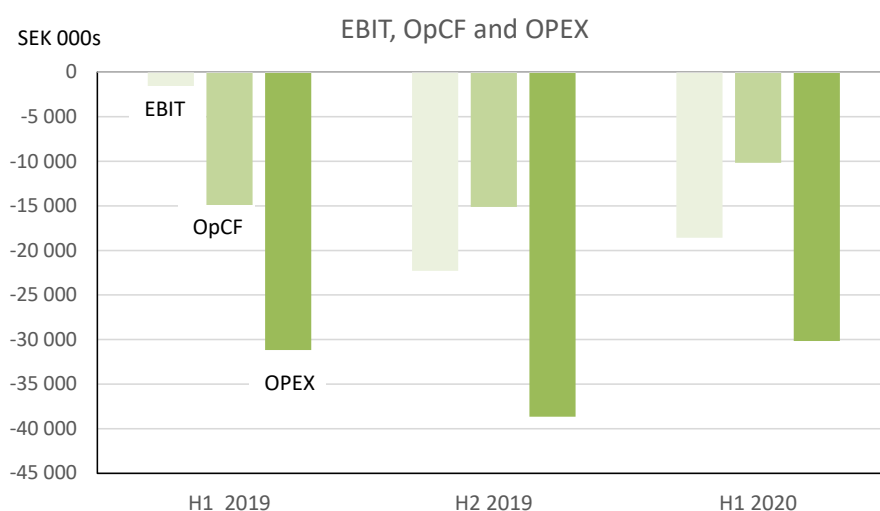
While gross profit fell markedly, in tandem with the total income, the gross margin held steady around the 97% mark, reflecting the inherent attractiveness of a business model revolving mainly around software licensing with no inclusion of any third-party commercial software. It should be noted, though, that resale of other third-party product, such as geo-data, and services may occur.

#### Summary of results by half-year period

SEK 000s	H1 2019	H2 2019	H1 2020
Total income	30 647	16 725	12 242
o/w net sales	25 649	10 719	5 005
<i>Net sales/Total income</i>	<i>84%</i>		
Gross profit	29 735	16 150	11 909
<i>Gross margin</i>	<i>97%</i>	<i>97%</i>	<i>97%</i>
OPEX	-31 178	-38 653	-30 170
EBIT	-1 615	-22 289	-18 591
OpCF	-16 153	-15 125	-10 170
<i>OpCF/EBIT</i>	<i>1000%</i>	<i>68%</i>	<i>55%</i>

Gross profits comprise the difference between total income and cost of sales. Gross margin is here defined as the ratio of gross profits and total income.

#### Income ("EBIT"), cash flow ("OpCF") and expenses ("OPEX") from operations



## 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 2020, the Company incurred a loss of SEK 1.3 million at the operating level before R&D expenses, equivalent to 11% of total income – these figures can be compared with an operating loss of SEK 18.6 million corresponding to a negative 152% of total income after directly absorbing 100% of all R&D expenses in the income statement.

### Operating income after and before R&D expenditures

SEK 000s	H1 2019	H2 2019	H1 2020
Total income	30 647	16 725	12 242
R&D expenses	-13 233	-17 217	-17 305
<i>R&amp;D/Total income</i>	-43%	-103%	-141%
Operating income	-1 615	-22 289	-18 591
<i>Share of Total income</i>	-5%	-133%	-152%
Operating income before R&D	11 618	-5 072	-1 287
<i>Share of Total income</i>	38%	-30%	-11%

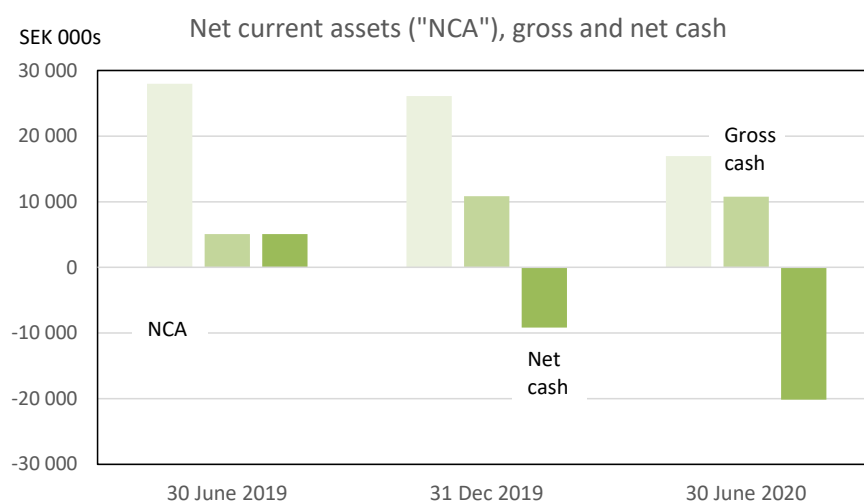
## Balance sheet

At the end of June 2020, the Company held cash and cash receivables of SEK 36.8 million before and SEK 17.0 million after deduction for current liabilities of SEK 19.9 million. Financial debt of SEK 31 million derive from successive drawn downs of the credit line of SEK 50 million that the current CEO/Board member has made available to the Company (see press releases of 17 July 2019 and 31 March 2020).

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

SEK 000s	30 June 2019	31 Dec 2019	30 June 2020
Net current assets	27 982	26 128	16 959
Gross cash	5 078	10 848	10 768
Net cash	5 078	-9 152	-20 147
Shareholders' equity	28 173	6 180	-13 956
o/w fixed assets	191	52	0
o/w intangible assets	0	0	0

### Net current assets, gross and net cash by end of half-year period



**Shareholders' equity** amounted to minus SEK 14.0 million at the end of June 2020. It should be noted, though, 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. Had the Company elected to assign values to these elements, then the balance sheet would have been much reinforced. In the space of the last 42 months, cumulative R&D spending approached SEK 90 million (ca. USD 10 million).

## Operations

**In spite of the convulsions and restrictions to normalcy** prompted by global transmission of the new corona virus, senior management is satisfied with the operational achievements in the first half of 2020. After initial disruptions to our *'modus operandi'*, which inevitably caused some frictional losses in effectiveness (all employees and contractors have worked from home since the beginning of March, before the UK government mandated its nationwide policy), the efficiency, quality and productivity of our workforce has been fully restored, or, if anything, more than fully restored. As a matter of fact, the work-from-home-policy has in many cases engendered positive reverberations in terms of team spirit and work ethics. In this respect, Ranplan Group AB is fortunate to not depend on the provision of third-party supply chains.

Our product portfolio, encompassing not only radio propagation and optimisation tools, but also AI-powered modules and software for the perfection of workflow processes and the management of equipment vendors' devices, is more competitive and comprehensive than ever before. Our market reach has been expanded and extended via our series of very well attended and well received webinars. Our relationships with customers and partners have been strengthened through active use of electronic communication facilities. Our capacity to offer value-added support and training, including certification, continues to build worldwide.

The way in which our people have responded to the exogenous shock of the first half of 2020 fills us with great confidence in the future. The competence and diligence displayed are central to our resilience in times as difficult as these (for us and the worldwide community at large).

### *“Competence and diligence foster resilience”*

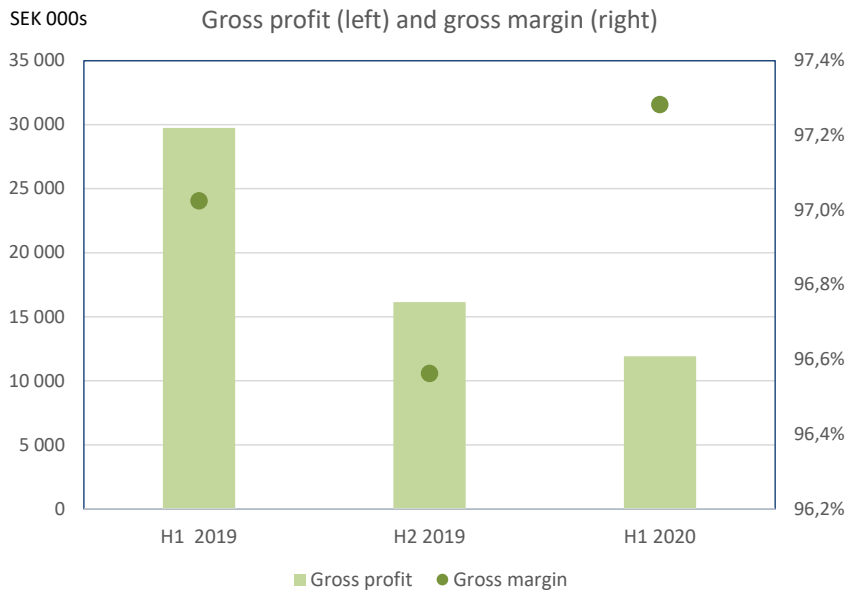
Towards the end of the period, the latest and most sophisticated incarnation of Ranplan Professional, **PRO 6.1** was introduced on a commercial basis. Its launch was accompanied by a number of well-received webinars for an eclectic, global audience of customer and partners.

In the beginning of July 2020, Ranplan Wireless Network Design Limited in the UK was honoured as the winner of another prestigious Small Cell Prize for its outstanding achievement and contribution in the field of **automated cloud-based network planning and optimisation**.

In the middle of July 2020, Ranplan Wireless Network Design Limited in the UK was named by the **European Commission** as a **“key innovator”** for advanced 4G/5G joint indoor-outdoor HetNet planning and optimisation, selecting it for entry onto the European Commission's Innovation Radar platform (which includes a panel of highly regarded independent experts).



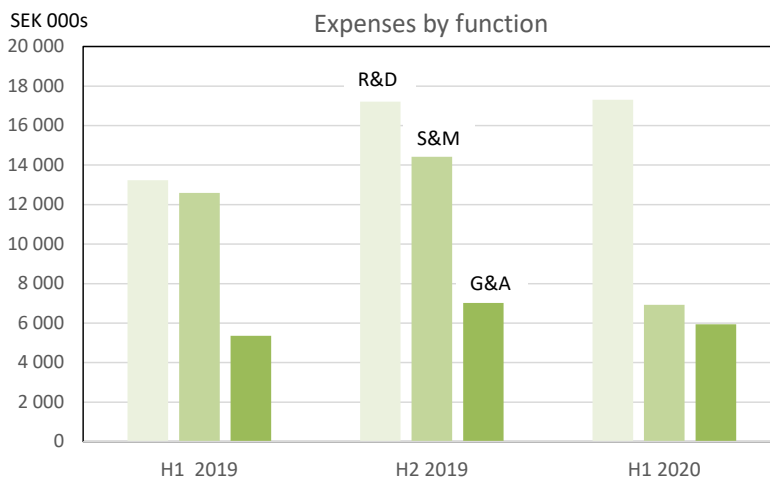
### Gross profit and gross margin in the last three half-year period



### R&D expenditures in absolute and relative terms by half-year period



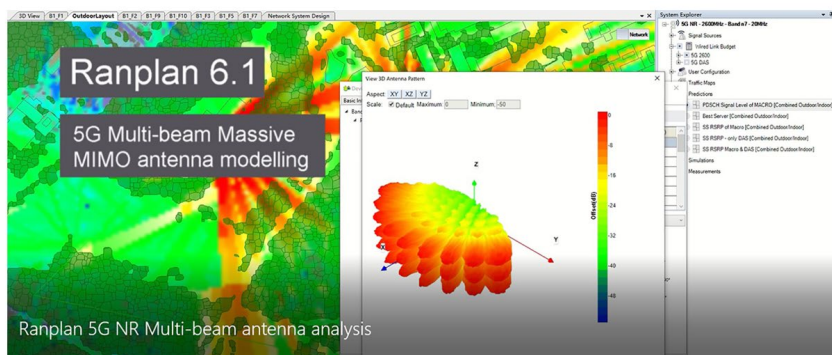
### Expenditures by function (R&D, S&M, G&A) by half-year period





# Product Release: “PRO 6.1”

The latest version of Ranplan Professional, officially launched in June 2020, comes packed with a number of new features designed to provide tangible user benefits. Key functional enhancements include 5G system modelling with special emphasis on massive MIMO antennas with beamforming patterns visualisable in three dimensions. Another major uplift emanates from the ability to calculate throughput in the uplink (from the user equipment to the network antennas) – a central importance to meet the exacting requirements of public safety professionals, amongst others. By taking advantage of clusters of computers operating in parallel, Ranplan’s vector-based 3D ray propagation engine unleashes unprecedented performance gains. Along its side, PRO 6.1 is reinforced by Ranplan’s novel collaboration and device management tools.



Ranplan PRO 6.1 caters to a whole spectre of diverse customer needs and wants, notably:

## 5G NR Modelling

- New features advancing massive MIMO beamforming have also been added giving users the advantage of being able to conveniently model massive MIMO antennas and visualise massive MIMO beamforming patterns in 3D. Beamforming interference modelling has been incorporated to help users calculate inter-beam interference so that neighbouring beams can be optimised and managed for maximal (Signal-to-Noise Ratio) performance.

## Lightning speed predictions

- High-Performance Computing (HPC) boosts performance of Ranplan Maxwell, Ranplan’s vector-based 3D ray-tracing / launching propagation engine, by one (10x) or possibly two (100x) orders of magnitude, depending on available computing resources.
- **Public Safety**  
RF Engineers can model uplink and downlink path signals separately to ensure that signals meet minimum reliable two-way communication criteria set by local authorities
- **Digital DAS capability**  
PRO 6.1 helps users exploit all functionality enabled by modern digital DAS platforms
- **Network Device Database Management**  
With the assistance of Ranplan’s D-Hub, equipment vendors can easily control data, monitor usage through a customisable dashboard, and, importantly, manage network devices through their lifecycles, resulting in material savings on both CAPEX and OPEX

# Research Projects

Ranplan continues to excel in the field of research at the frontier of its domain of expertise. Through these activities, spanning a number of areas of pivotal importance, such as advanced antenna technologies (massive MIMO and beamforming), data analytics, artificial intelligence and machine learning to automation and network slicing, the company helps its customers and partners stay ahead of the curve of future developments. In the first half of 2020, research projects contributed SEK 4.1 million to total income, for an increase of 20% on the corresponding period last year.

As press released in the middle of July 2020, Ranplan Wireless Network Design Limited, headquartered outside Cambridge, the UK, and wholly owned by Ranplan Group AB, the parent, has been recognised by the **European Commission** as a **‘key innovator’** and selected for entry onto its **Innovation Radar platform**. The European Commission’s Innovation Radar includes a panel of highly regarded independent experts who analyse project innovations and their research outcomes according to clearly defined methodologies developed by the Joint Research Centre. The panel concluded that Ranplan was a ‘key innovator’ and its innovation was particularly ‘noteworthy’ in the light of the market readiness and potential.



**‘KEY INNOVATOR’**

**Project DECADE**

*Innovations in Advanced Joint Indoor-Outdoor  
HetNet Planning / Optimisation for 4G / 5G  
Panel of judges on The Innovation Radar*

**The Innovation Radar**



Since 2008, Ranplan Wireless Network Design Limited has participated in **fourteen (14) R&D projects** funded by EC FP7/H2020, Eurostars and Innovate UK. It is currently involved in **seven (7)** projects on data analytics, 5G, network slicing, and proactive network optimisation:

- [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
- Millimetre wave communications in the Built Environment ([WAVECOMBE](#))
- Powering Smart mobility with Data Analytics ([PUBLIC](#)):
- [COSAFE](#): Cooperative Connected Intelligent Vehicles for Safe and Efficient Road Transport
- ([BANYAN](#)): Network Slicing - “Big dAta aNalYtics for radio Access Networks”

# Technology Leadership

*At the epicentre of Ranplan’s contribution to the industry it serves lies its technology leadership. It offers customers and partners a competitive edge, a time-to-market advantage and precious learning curve experience. From a shareholder perspective, it lends the Company a key point of differentiation at a critical juncture in the transition to the 5G era – one characterised by a sea-change in the spectral resources made available, immense densification of the cellular grid, mass-scale deployment of beamforming antennas, open system architectures in multi-vendor settings, a whole swathe of entirely new industrial applications, ultra-high performance requirements, and an intense focus on CAPEX and OPEX reductions through relentless automation of labour intense tasks by exploring the power of artificial intelligence, machine learning, advanced sensor technology, and microservices architectures (containerised services).*

Ranplan Wireless Network Design Limited is renowned for its innovation prowess. Its track record of excellence in this respect was further augmented in the beginning of July 2020 when it won the prestigious **SCF Small Cell Awards 2020**, representing outstanding achievement and contribution in the field of **automated cloud-based network planning and optimisation**.

*“Automation of small cell networks is critical to the business case and Ranplan’s offering stood out for its versatility and the flexibility of its cloud-based platform,”* said Caroline Gabriel, Chair of the SCF Small Cell Awards judging panel, and director of Rethink Research.

*“We are extremely delighted to receive this award as it celebrates the achievements of our R&D and engineering team. The award also recognises the growing value for a comprehensive and open-ended solution powered by artificial intelligence to enable networks to self-regulate and so dynamically respond to on-demand consumer needs in the 5G era,”* said Dr Hui Song, CTO of Ranplan Group AB.



**Winner**

Software and Services –  
Management, Automation and Orchestration

**Ranplan R&D:**

- (1) Automation
- (2) Cloud-Native
- (3) Small Cells
- (4) Intelligence\*

\*AI, ML, Microservices

# 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 periods).

For the sake of clarity, it should be mentioned that 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 (“R&D”), Sales and Marketing (“S&M” or “Sales costs”) and General and Administration (“G&A” or “Administrative costs”).

## Comments to the H1 2020 results

### Income Statement

In the first six months of 2020, total income amounted to SEK 12.2 million, noticeably less than in corresponding period of 2019 (SEK 30.6 million). The decline is solely attributable to net sales (commercial products) which, against a particularly strong base of comparison (courtesy of the landmark contract in Japan which catapulted revenue recognition in the first two quarters of 2019), which contracted by more than 80% (year-on-year). Excluding Japan, however, net sales (commercial products) held up quite resiliently versus both H1 2019 and H2 2019. Other income (drawn from research projects) and Other operating income (research tax credits), by contrast, continued to increase on the two consecutively preceding half-year reporting periods. Negligible cost of sales at SEK 333k, reflective of the software licensing model, entails that the closely monitored gross margin at 97.2% remains exceptionally high.

Aligned with the Company’s ambition to extend its technology leadership, research and development expenditures rose by 31% on H1 2019. On a twelve-month trailing (L12M) basis, these investments hover around SEK 34.5 million on an absolute scale, more than twice net sales registered over the course of the same period. As before, all R&D is expensed as it occurs (no capitalisation of intangible assets has taken place, making the balance sheet highly light).

Expenses related to sales and marketing (“sales costs”), by contrast, almost halved in comparison with the first six months of 2019. The reduction is a consequence of streamlining efforts, much less travel and certain furloughing programmes (at the operational HQ in the UK). An increase in sales and marketing expenditures can be expected as soon as (and if) a degree of normalcy (to meeting and travel restrictions) returns. Costs associated with central functions and administration increased by 11% on H1 2019 but decreased by 15% on H2 2019. Other operating expenses, tied to movements of VAT, increased mainly due to a single order.

Losses from operations at SEK 18.6 million were considerably steeper than the shallow one at SEK 1.6 million recorded in H1 2019, but also noticeably mitigated in comparison with H2 2019. The sequential (consecutive half-year period) improvement is the direct result of cost savings related to sales and marketing in particular, and general and administration to a lesser extent, more than offsetting the effects of diminishing total income on gross profit. Net interest income and expenses, reflecting progressive drawn-downs of funds from the credit

line that was initiated in July 2019 and expanded in March 2020, worsened to a negative SEK 1.6 million versus nil and a negative SEK 0.6 million in H1 2019 and H2 2019, respectively.

With no provision for taxes (either positive or negative), net income – equalling pre-tax income - amounted to a negative SEK 20.2 million versus close to break-even (a negative SEK 1.6 million) in H1 2019 and a negative SEK 22.9 million in H2 2019.

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 deductibility by a competent professional. In calendar 2019, no cash related to such grants were received. At the end of 2019, Ranplan carried tax credit receivables valued at around SEK 9 million – attributable to calendar 2018 and 2019 - on its balance sheet (which partly accounts for the increase in other receivables). Other expenses include inter alia withholding taxes on revenue (that may be recovered).

### Balance Sheet

The asset base shrank noticeably in the first six months of 2020. Current assets, encompassing cash on hand at SEK 10.8 million and receivables in the value of SEK 26.8 million, compressed to SEK 36.8 million compared with SEK 46.3 million and SEK 42.3 million at the end of December 2019 and the end of June 2019, respectively. The decrease is attributable to good cash collection from both commercial customers and government agencies. The stable holding of cash on hand in the period is partly due to a further draw-down of SEK 10 million from the credit line that was made available in July 2019 and expanded to SEK 50 million in March 2020 (SEK 30.9 million had been effectively utilised by the end of June 2020). Fixed assets fell to nil at the end of 2020 as depreciation charges neutralised any residual book value. As a result, the Company expects to incur negligible or no depreciation at all in the near-term.

Shareholder’ equity amounted to 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 Company’s inherent ability to generate free cash flow is thus not captured in the balance sheet metrics as they are being portrayed. In this context, it should be stressed that the Company has invested SEK 90 million, equivalent to around USD 10 million at current exchange rates, on R&D since the beginning of 2017.

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

SEK 000s	2017	2018	2019	2020 H1
R&D expenses	18,3	23,6	30,5	17,3
R&D expenses, cumulative 2017-	18,3	41,9	72,4	89,7

Current liabilities ended December 2019 at SEK 19.5 million. Whilst this level marks almost a doubling in the last six months, it should be viewed against the backdrop of a similarly sharp increase in current assets (in absolute terms): net current assets, the difference between current assets and current liabilities, remains relatively steady at SEK 27 – 30 million. As displayed in the cash flow statement, the Company is partly financed by debt. At the end of December 2019, SEK 10 million could still to be drawn from the existing credit line facility.

### Balance sheet summary

SEK 000s	30 June 2019	31 Dec 2019	30 June 2020
Net current assets	27 982	26 128	16 959
Gross cash	5 078	10 848	10 768
Net cash	5 078	-9 152	-20 147
Shareholders' equity	28 173	6 180	-13 956
o/w fixed assets	191	52	0
o/w intangible assets	0	0	0

Cash flow from operations amounted to a negative SEK 10.2 million after and a negative SEK 19.3 million before movements of net working capital. No R&D investments were capitalised. In H1 2020, the company managed to materially reduce the current receivables outstanding.

### Cash flow summary

SEK 000s	H1 2019	H2 2019	H1 2020
<b>Operations</b>	-1 476	-22 750	-19 257
Working capital	-14 677	7 625	9 087
Investments	0	0	0
<b>Cash flow after working capital</b>	-16 153	-15 125	-10 170
Cash flow before working capital	-1 476	-22 750	-19 257

### Personnel

The number of full-time employees, excluding contractors, in the Group was 67 at the end of June 2020, down from 72 at the end of December 2019. With inclusion of contractors, the headcount broadly corresponding to full-time equivalents currently hovers around 81 versus 98 at the end of December 2019.

### 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 consider to be material.

Further details can be found in the IPO prospectus, available on the company'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

As a result of the global pandemic as well as local epidemics caused by COVID-19, the importance of wireless connectivity for the proper functioning of society, its preparedness to coping with major shocks, and well-being of people at large has never been more paramount.

Thanks to its deep telecom expertise and software development proficiency, Ranplan is committed to assisting and enabling telecom operators, enterprises and authorities to keep vital communications networks running, accommodate unexpected spikes in demand, and flexibly reconfigure network resources in expedient response to variations in traffic patterns.

*‘Ranplan plays a vital role in helping society cope with lockdowns on the scale recently seen’*

Recent experiences demonstrate most acutely that the outbreak of COVID-19 accentuates the need to automate network operations, notably the commissioning, planning and optimisation of networks, so that the number of physical site visits, not least indoors, can be minimised. They also illustrate most poignantly that the cellular networks of the future must be adaptive.

As articulated by several leading service providers, internet streaming companies and equipment vendors, COVID-19 has had a profound impact on their operations: (i) network loads have surged, (ii) transmission speeds have had to be capped, (iii) traffic has shifted from business centres to residential homes, (iv) projects have been deferred or for the time being frozen due to enforced restriction on access to network sites, particularly so within the indoor.

As a corollary, an increase in the energy consumption of telecom networks has been observed. All these factors make it even more compelling to incite the architects of the wireless networks of the future to employ intelligent software tools, powered by Artificial Intelligence (AI) and Machine Learning (ML) to automate and optimise deployments and day-to-day operations.

These remarks notwithstanding, worries and anxieties associated with COVID-19 which accentuated at the end of February 2020 have restrained and continue to a lesser extent to restrain the Company’s ability to travel and meet with customers, authorities, partners and investors. A poignant example concerns tradeshow, such as the Mobile World Congress 2020 in Barcelona, which was cancelled within just a few days of its scheduled opening ceremony.

To the extent possible, electronic equipment, such as video conferencing facilities, has been used to counteract the negative effects. This applies also to the Company’s operations. Essentially all employees are working from home since the beginning of March. Although these changes caused a need for certain temporary adjustments, the Company – which develops software – has responded well. If anything, improvements to the efficiency, quality and productivity of the software development organisation has been discerned since the lockdowns were mandated. No problems with our supply have been observed in the first half.

Once the situation stabilises and a degree of normalcy is restored, demand is envisaged to recover, as decision-makers recognise the importance of well-functioning wireless networks for both human and machine-style communication. Interest in accurate radio planning and optimisation before and after the roll-out of wireless networks ought to accelerate as a direct consequence of what has been learnt in the past months. This conclusion applies in particular inside the walls of buildings – often a prerequisite to be able to work effectively from the home. Already today, one can detect that China is intensifying the pace of 5G investments.



# Group consolidated accounts

GROUP INCOME STATEMENT (KSEK)	H1 2019	H2 2019	H1 2020	FY2019	L12M
<b>Operating income</b>					
Net sales (commercial products)	25,649	10,719	5,005	36,368	15,724
Other income (research)	2,699	3,179	4,192	5,878	7,371
Other operating income (tax credits)	2,299	2,827	3,044	5,126	5,871
<b>Total income</b>	<b>30,647</b>	<b>16,725</b>	<b>12,242</b>	<b>47,372</b>	<b>28,967</b>
Cost of sales	-912	-575	-333	-1,487	-908
<b>Gross profit</b>	<b>29,735</b>	<b>16,150</b>	<b>11,909</b>	<b>45,885</b>	<b>28,059</b>
Research and development	-13,233	-17,217	-17,305	-30,450	-34,522
Sales costs	-12,594	-14,420	-6,923	-27,014	-21,343
Administration costs	-5,351	-7,016	-5,942	-12,367	-12,958
Other operating expenses	-172	214	-331	42	-117
<b>Operating profit</b>	<b>-1,615</b>	<b>-22,289</b>	<b>-18,591</b>	<b>-23,904</b>	<b>-40,880</b>
<b>Financial items</b>					
Net interest income and expense	0	-600	-1,634	-600	-2,234
<b>Total financial items</b>	<b>0</b>	<b>-600</b>	<b>-1,634</b>	<b>-600</b>	<b>-2,234</b>
<b>Income after financial items</b>					
Tax	0	0	0	0	0
<b>Net income for the period</b>	<b>-1,615</b>	<b>-22,889</b>	<b>-20,226</b>	<b>-24,504</b>	<b>-43,115</b>

L12M = last 12 months

GROUP CASH FLOW STATEMENT (KSEK)	H1 2019	H2 2019	H1 2020	FY2019	L12M
<b>Operating activities</b>					
Operating result	-1,615	-22,289	-18,591	-23,904	-40,880
Adjustment for depreciation	139	139	54	278	193
Paid interest		-600	-720	-600	-1,320
	<b>-1,476</b>	<b>-22,750</b>	<b>-19,257</b>	<b>-24,226</b>	<b>-42,007</b>
Change in trade receivables	-10,441	6,755	4,441	-3,686	11,196
Change in current receivables, accrued income	-11,392	-5,113	4,909	-16,505	-204
Change in trade payables	503	983	-1,437	1,486	-454
Change in current liabilities, deferred income	6,653	5,000	1,174	11,653	6,174
<b>Cash flow from operating activities</b>	<b>-16,153</b>	<b>-15,125</b>	<b>-10,170</b>	<b>-31,279</b>	<b>-25,295</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>					
Long term loan	0	20,000	10,000	20,000	30,000
Proceeds from issues of shares and warrants	0	856	2	856	858
<b>Cash flow from financing activities</b>	<b>0</b>	<b>20,856</b>	<b>10,002</b>	<b>20,856</b>	<b>30,858</b>
<b>Cash flow of the period</b>	<b>-16,153</b>	<b>5,731</b>	<b>-168</b>	<b>-10,423</b>	<b>5,563</b>
Cash at the beginning of the period	21,263	5,078	10,848	21,263	5,078
Exchange rate differences on cash	-32	39	88	8	127
<b>Cash and equivalents at period end</b>	<b>5,078</b>	<b>10,848</b>	<b>10,768</b>	<b>10,848</b>	<b>10,768</b>

L12M = last 12 months

	30 JUN 2019	31 DEC 2019	30 JUN 2020
<b>GROUP BALANCE SHEET (KSEK)</b>			
<b>Assets</b>			
Fixed assets			
Tangible fixed assets			
Equipment, tools, fixtures and fittings	191	52	0
<b>Total fixed assets</b>	<b>191</b>	<b>52</b>	<b>0</b>
<b>Current assets</b>			
Accounts receivable - trade	20,423	13,668	9,227
Other current receivables	12,501	10,158	7,782
Prepaid expenses and accrued income	4,141	11,597	9,064
<b>Total current receivables</b>	<b>37,065</b>	<b>35,423</b>	<b>26,073</b>
Cash and bank balances			
Cash and bank	5,078	10,848	10,768
<b>Total current assets</b>	<b>42,143</b>	<b>46,272</b>	<b>36,840</b>
<b>Total assets</b>	<b>42,334</b>	<b>46,324</b>	<b>36,840</b>
<b>Equity and liabilities</b>			
<b>Equity</b>			
Share capital	805	805	805
Share premium reserve	50,656	51,552	51,592
<b>Other capital, translation differences and result for the period</b>			
Other capital, translation differences and period result	-23,288	-46,177	-66,353
<b>Equity attributable to owners</b>	<b>28,173</b>	<b>6,180</b>	<b>-13,956</b>
<b>Total equity</b>	<b>28,173</b>	<b>6,180</b>	<b>-13,956</b>
<b>Non current liabilities</b>			
<b>Long term loan</b>	<b>0</b>	<b>20,000</b>	<b>30,915</b>
<b>Current liabilities</b>			
Accounts payable - trade	2,473	3,456	2,019
Other current liabilities	4,346	5,235	8,863
Accrued expenses and deferred income	7,342	11,453	8,999
<b>Total current liabilities</b>	<b>14,161</b>	<b>20,144</b>	<b>19,881</b>
<b>Total equity and liabilities</b>	<b>42,334</b>	<b>46,324</b>	<b>36,840</b>

N.B. Separation between current and non-current other liabilities commenced in H2 2019.

GROUP CHANGES IN EQUITY KSEK	SHARE CAPITAL	OTHER PAID-IN CAPITAL	TRANSLATION DIFFERENCES	RETAINED EARNINGS	TOTAL EQUITY
Starting balance 2019-12-31	805	51,512	554	-46,691	6,180
Result for the period				-20,226	-20,226
Issue of share warrants					0
Translation differences					90
Ending balance 2020-06-30	805	51,512	554	-66,917	-13,956

## 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 BFNAR 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.

Company 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

Shares	31 DEC 2019	30 JUN 2020
Number of shares (000s)	20 116	20 116
Number of warrants (000s)*	625	815
Share price at end of period (SEK)	10,8	10,2
Earnings per share (SEK)**	-1,22	-1,01

\*Strike price at SEK 20.60, exercisable in Sep-Dec 2022.

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

Shareholders as of 30 June 2020*	No of shares	Ownership
Jinxing Xue	8 084 887	40%
Hongbing Lu and Qimei Wu	2 624 070	13%
Per Lindberg	2 125 750	11%
Jie Zhang and Joyce Yuhau Wu	2 067 996	10%
Other	5 213 109	26%
<b>Total</b>	<b>20 115 812</b>	<b>100%</b>

\*At 30 June 2020, 815 200 warrants, exercisable at SEK 20.60 were outstanding

## 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.

### Income Statement

The administrative expenses in 2019 relate to members of the Board, the interim CEO and the Chief Strategy Officer as well as other costs required to operate the NASDAQ listed Company.

### 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 in calendar 2019.

### Parent Company income statement

PARENT COMPANY INCOME STATEMENT (KSEK)	FY 2019	H1 2020
<b>Operating income</b>		
Income	5,365	2,328
Marketing costs	-318	0
Administration	-5,105	-3,044
<b>Operating result</b>	<b>-58</b>	<b>-716</b>
Net interest income and expense	-600	-1,635
<b>Loss before taxes</b>	<b>-658</b>	<b>-2,352</b>
<b>Net loss for the period</b>	<b>-658</b>	<b>-2,352</b>

### Parent Company Cash flow statement

PARENT COMPANY CASH FLOW STATEMENT (KSEK)	FY 2019	H1 2020
<b>Operating activities</b>		
Operating result	-58	-716
Interest received	0	0
Interest paid	-600	-720
	-658	-1 436
Increase/decrease in current assets	-39 505	-9 196
Increase/decrease in current liabilities	1 896	-353
Increase/decrease in other liabilities	0	0
<b>Cash flow from financing activities</b>	<b>-38 267</b>	<b>-10 986</b>
<b>Financing activities</b>		
Proceeds from issue of shares	0	0
Proceeds from loan	20 000	10 000
<b>Cash flow from financing activities</b>	<b>20 000</b>	<b>10 000</b>
<b>Cash flow of the period</b>	<b>-18 267</b>	<b>-986</b>
Brought forward	19 272	1 045
Foreign exchange differences	40	-1
<b>Cash and equivalents at period end</b>	<b>1 045</b>	<b>58</b>

## Parent Company balance sheet

PARENT COMPANY BALANCE SHEET (KSEK)	31 DEC 2019	30 JUN 2020
<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	67 535	76 727
Other receivables and prepayments	573	577
Cash and bank balances	1 045	58
<b>Total current assets</b>	<b>69 153</b>	<b>77 362</b>
<b>Total assets</b>	<b>72 549</b>	<b>80 759</b>
<b>Equity and liabilities</b>		
<b>Restricted equity</b>		
Share capital	805	805
<b>Non-restricted equity</b>		
Share premium reserve	50 696	50 696
Retained earnings	-746	-1 404
Loss for the period	-658	-2 352
	49 292	46 940
<b>Total equity</b>	<b>50 097</b>	<b>47 745</b>
<b>Current liabilities</b>		
Accounts payable - trade	659	84
Other payables	0	1 000
Accrued expenses	1 793	1 015
<b>Total current liabilities</b>	<b>2 452</b>	<b>2 099</b>
Loan	20 000	30 915
<b>Total liabilities</b>	<b>20 000</b>	<b>33 014</b>
<b>Total equity and liabilities</b>	<b>72 549</b>	<b>80 759</b>

## Parent Company change in equity

PARENT COMPANY CHANGES IN EQUITY	SHARE CAPITAL	OTHER PAID-IN CAPITAL	OTHER EQUITY	TOTAL EQUITY
KSEK				
Starting balance 2019-12-31	805	50,696	-1,404	50,097
Result for the period			-2,352	-2,352
Issue of share warrants				0
Ending balance 2020-06-30	805	50,696	-3,756	47,745

## Abbreviations, Definitions and Terminologies

**Total Income** comprises the sum of

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

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

**Gross margin** is 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 the advances of science and technology.

**Depreciation:** Ranplan does not capitalise its own, or, for that matter, 3<sup>rd</sup> party software or hardware (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 is 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 the future (in the case of which a reversal occurs). The withholding tax is part of other expenses in the income statement.

**EBITDA:** Operating income (aka EBIT) 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.

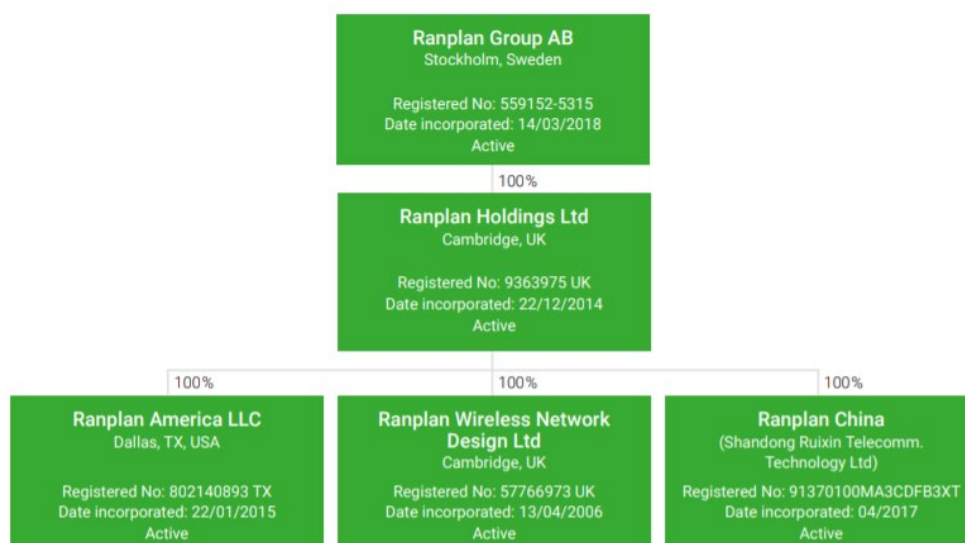
The purpose of an in-building wireless network is to provide enhanced network coverage and/or capacity when the existing outdoor network is not able to adequately satisfy the exacting requirements. Coverage may be poor due either to high penetration losses caused by the building structure or the latest 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 (China), and (iv) Ranplan US (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 assure that this interim Report for the first half of 2020 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, 20 August 2020

Stockholm 20 August 2020

Tomas Isaksson, Chairman of the Board

Jie Zhang, Board member

Wendy Yang, Board member

Jinxing Xue, Board member

Jon Ullmark, Board member

Per Lindberg, Board member

## Other information

### Auditor's review

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

### 2019 Annual General Meeting

The Annual General Meeting was held on 15 June 2020 in Stockholm, Sweden.

### Certified Adviser

FNCA Sweden AB

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Telephone: +46 8 528 00 399

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

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## Financial calendar – provisional dates in 2020

20 Aug: Interim Report for the first six months of 2020

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Date: 20 Aug 2020