



# CFA Institute

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## **CFA Institute Research Challenge**

hosted by

**CFA Society Switzerland**

**University of Lausanne**

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## Investment Summary

We issue a **BUY** recommendation on Landis+Gyr (hereafter L+G) with a 12-month target price per share of CHF 84.5, representing a 36% upside from closing price of CHF 62.05 of November 30th, 2018. Our target price is calculated with a 30%-70% mix of EV/2018E Forward EBITDA multiple and Discounted Free Cash Flow to the Firm valuations. Our recommendation is founded on the following three key pillars: **1) Global environmental awareness and transition to renewable energies. 2) Strong competitive position with customer centric business model. 3) Volume effect as main component of revenue growth.**

**1) Global environmental awareness and transition to renewable energies** will lead to the decentralization of the energy production, increasing the number of nodes in the electrical grid and its complexity. More connected endpoints imply more data transfers between them, and this will create interesting opportunities for L+G in the foreseeable future. In line with the climate concerns, **worldwide regulations are evolving in favor of the implementation of smart metering solutions** and the company will profit from this trend by offering one of the most reliable integrated solutions in the market. On top of that, the positive costs and benefits analysis conducted recently in Europe are a favorable economic assessment for the potential long-term benefits of intelligent metering.

**2) With strong competitive position and customer centric business model**, L+G is the global leader in smart metering solutions of a highly **fragmented market** with an 18% market share. Conservative customers and good relations with top suppliers have allowed them to adapt and prosper for over 120 years, and we see them leveraging those today. We forecast that outsourcing production of non-differentiating parts will allow L+G to **decrease their PPE by 15%** in the next ten years while keeping flexibility in response to demand. With high dedication to **R&D, investing 10% of their annual sales and having 1300+ patents** granted and pending, L+G is well positioned to strive in a competitive and evolving market.

**3) Volume effect will be the major component of revenue growth**, as new markets such as Germany and India start their rollouts, and more advanced ones in AMI, such as the United States, continue with their second-wave rollouts, we believe in L+G ability to capture new contracts. Despite the commodification of smart meters, L+G **revenue will grow at 3.2% CAGR** in the next ten years, pushed not only by the volume effect, but also by the ability to maintain higher prices through integrated solutions and leaning their revenue mix towards software & services. **EBIT is expected to increase by 370 basis points in the next five years** through first a decrease in costs of goods sold explained by the transition to software, and second a decrease in back office costs through successfully implementing cost saving programs such as Project Phoenix. Through production outsourcing, L+G will also see their **return on assets increase by 6.3%** and an increase in their total asset turnover in the next ten years. We expect L+G to decrease their cash conversion cycle compared to peers even more (Figure 17 & Appendix 18). With higher efficiency and profitability, this leads to L+G being able to generate high free cash flows and results in them distributing much higher dividends than competitors, at 75% of FCF (Figure 20).

Key Financials	2017	2018E	2019E	2020E	2021E
EBITDA (%)	9.3%	9.7%	9.6%	10.1%	10.8%
Net profit (%)	2.7%	3.5%	3.6%	4.0%	4.9%
EPS	1.6	2.1	2.2	2.6	3.2
DPS	0	2.3	2.9	2.9	3
Revenue growth	4.7%	1.8%	2.2%	2.7%	3.3%
R&D/Revenues	9.4%	10%	10%	10%	10%
Total asset turnover	67.7%	69.4%	71.1%	73.2%	75.4%
ROA	1.8%	2.4%	2.5%	3.0%	3.8%

## Recommendation

# BUY

Share price (30.11.2018)	CHF 62.05
Target price	CHF 84.50
Upside	+36%

## Key Figures

Closing Price (30.11.2018)	CHF 62.05
52 Weeks Low	CHF 52.05
52 Weeks High	CHF 78.64
Avg. Daily Volume	36'655
Market cap (mios CHF)	1830.5
Number of shares (mios)	29.5
Trailing P/E	16.96
Beta	1.24
Dividend yield	3.44%
Free float	77.1%

## Revenue growth

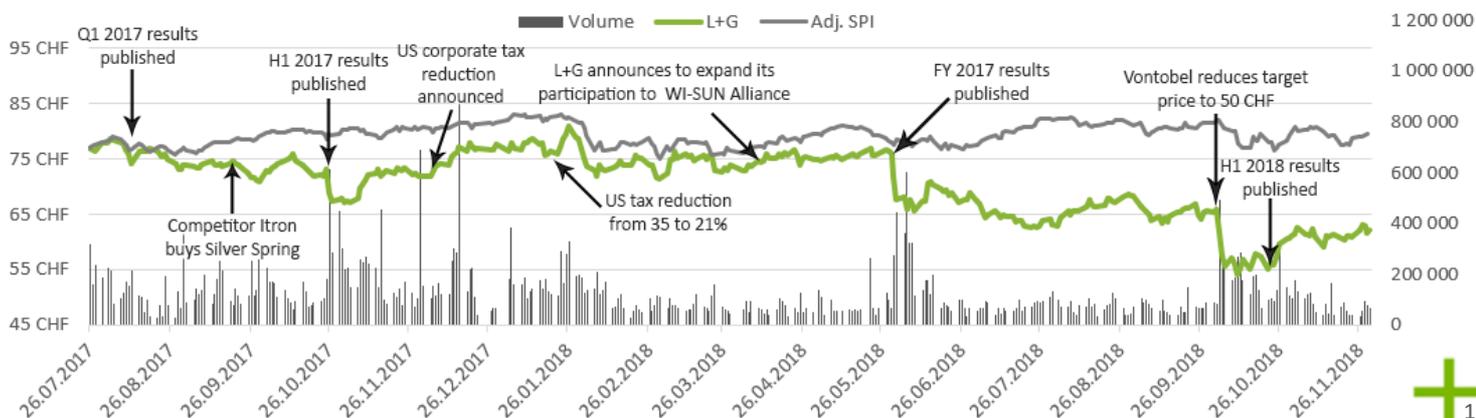


## Major Shareholders

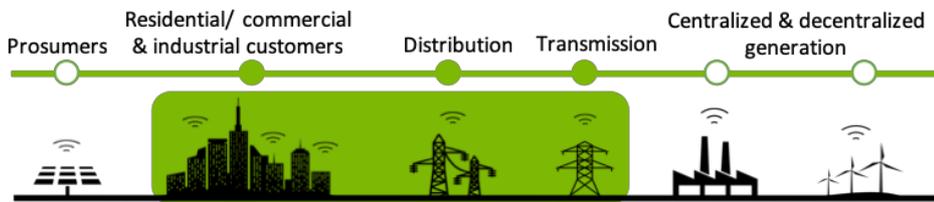
Kirkbi AG	11%
Maag, Rudolf	10%
Franklin Resources, Inc	6%
Fir Tree Partners	4%
Credit Suisse	3%

## Valuation – 30.11.2018

DCF target price (70%)	CHF 89
Multiple target price (30%)	CHF 79.3
12-months final target price	CHF 84.5
2018E Dividend	2.3
LTM total return %	-14%



# Business Description



## Leading global provider of smart metering solutions.

Headquartered in Zug, Switzerland and with offices in more than 30 countries, L+G has a 120-year history of serving utilities across the world. L+G was previously held by Toshiba Corporation, has gone through an IPO on July 21st, 2017 and is listed on the SIX Swiss exchange. The Company employs 5'915 people worldwide, 23% of them working in R&D and operates 11 manufacturing sites.

## Presence on global markets.

The Landis+Gyr Group has regional headquarters in each of its reportable segments, namely **the Americas, EMEA, and Asia Pacific representing respectively 56%, 36% and 8% of their revenue (Figure 1)**. Their largest markets within these regions are the US, the UK and Australia, which account for 90.9%, 30.7% and 40.5% of their respective segments. L+G's operations in the **Americas** (which includes Japan) serve customers in countries which have adopted the United States' ANSI metering standard and focuses on smart metering communications networks and solutions and connected intelligent devices. The **EMEA** and **APAC** segments mainly focus on connected intelligent devices. Landis+Gyr Group AG is the parent company of the Group. Their sole shareholding is in L+G AG, which directly or indirectly owns material subsidiaries in Brazil, Finland, France, Germany, Greece, Netherlands, China, India, USA, Mexico (Appendix 1).

## Diversified product offering.

Their main business relies on **connected intelligent devices (71%)**, such as electric smart meters and related infrastructure, offering **software and services** to support those (18%). L+G also offer **standalone devices (11%)** that are expected to phase out in the future as the utility industry demands changes (Figure 2). L+G's **communication & control** modules transform meters into data centers that read metrics remotely and enable two-way communication between metering points and utilities. To top things off, L+G's **solutions, services, and software upgrades**, include the *Gridstream software suites* for automated and near real-time reading, data management, as well as other smart grid managed services (Appendix 2). The company boasts the largest installed base of devices on the market, amounting to over 300 million, 80 million of which are smart grid connected devices.

## Customers are predominantly utilities.

Among L+G's 3'500 clients are firms like ENEDIS, British Gas, Tata Power DDL and Seattle City Light. Because of their long history and the structure of the utility industry where business cycles are long by nature, L+G acquired and has privileged relationships with its customers where reputation and trust are paramount.

## L+G outlines its strategy through three pillars.

First, they look to **strengthen their core business** in smart metering and smart grid solutions, capitalizing on their long-lasting relations, and using past successful implementations of their solutions as a leverage to acquire new market shares. Second, they seek to **create an ecosystem of connected intelligent devices in the context of the utility Internet of Things (IoT)**, and third by **maximizing the value of this connected space for their customers**, creating a truly interactive grid that can be optimized and being at the pole position of innovation, investing \$160M in FY 2017. Through all of this, they seek to **leverage organic growth**, while opportunistically exploring acquisitions opportunities wherever they arise. L+G also pursues **cost and operational optimizing programs**, such as Project Phoenix and Project Lightfoot.

# Industry Overview

## A potential tipping point for the industry.

The way electricity is produced and delivered is drastically changing. **We expect utilities to undergo more changes in the next 5 to 10 years than they have experienced in the past 100.** As history would have it, some utilities and regulators are naturally and swiftly adapting, while others are slower. Numerous factors are changing the way utilities operate and lead to new investments into the smart grid.



**Decentralization of energy production**



**Efficient grid operations**



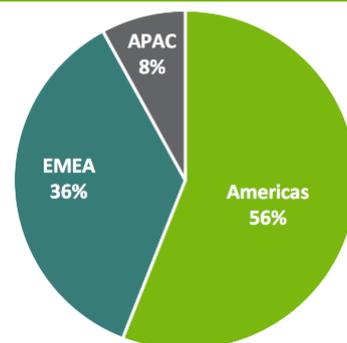
**Favourable regulations**



**Positive costs & benefits analysis**

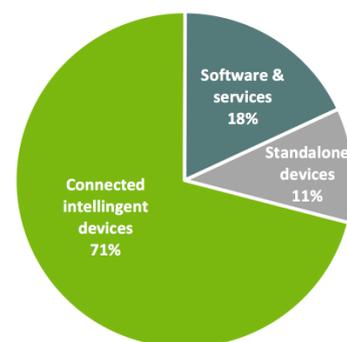
A powerful **combination of both supply and demand trends in the energy market** is pushing renewable energies like solar and wind to increase by a CAGR of 12% and 16.6% in the next decade according to Bloomberg New Energy Finance (BNEF) (Figure 3). According to Deloitte, this evolution is mainly motivated by the reach of price and performance parity leading to the increase of green energy competitiveness compared to fossil fuels. Based on BNEF and IEA information, we forecast that **renewables will match the power generation from fossil fuels by 2030 (Figure 4) (Appendix 3)**.

**Figure 1**  
Revenue by regional segment



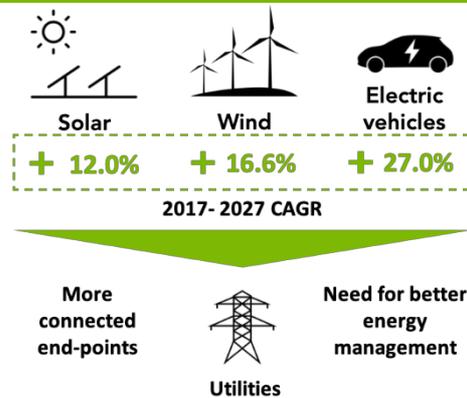
Source: L+G

**Figure 2**  
Revenue by product type



Source: L+G

**Figure 3**  
Key drivers



Source: Statista, BNEF

On the demand side, **renewable integration and electric vehicle penetration are beginning to complexify the grid.** Statista anticipates a 27% CAGR for the electric vehicles market over the next 10 years as they are gaining momentum thanks to their low carbon emissions. The decentralization of energy production, as is the case when producing electricity from renewables, requires a lot more surface to obtain a similar power than with fossil fuels. Considering that a nuclear reactor produces over 40'000 times the power of an equivalent surface of PV at midday in august, there is a clear need for an increased number of connected endpoints.

In fact, BNEF states that to date, around **815 million smart meters have been deployed globally** (including China) and are **expected to reach 2.1 billion meters** that will all be, by definition, interconnected (Appendix 4). This will **encourage utilities** to use the colossal amounts of data and two-way communications **to make their connectivity homogenous across cities and countries.**

With that in mind, L+G are especially well positioned with their **service-oriented business**, focused on software analytics in the long haul. This **allows for new revenue streams for L+G** especially with their IP based platforms, that enables interoperability between systems and networks. The fact that each smart meter has a unique IPv6 address could allow for additional IoT functionality by leveraging the IPv6 network to determine the optimal data pathway (i.e. RF mesh, Power Line Communication (PLC), LTE and 5G). With millions of connected devices in the utility network, the smart grid will be better integrated and will provide more actionable intelligence. Although we are bullish on the long-term prospects for the smart grid industry, in our opinion, the evolution of the smart grid will not happen overnight.

**The industry-wide supply chain issues will last up to 5 years.**

They are due to a **recent surge in use of passive components combined with a shortage of parts** (Appendix 5). Capacitors and their counterparts, resistors, are experiencing an unprecedented value growth worldwide in 2018. According to the Electronic Components Industry Association, several **suppliers are quoting lead times of 12 months at best.** Suppliers are shifting their capacity to technologies that mainly support the automotive, smart phone and Internet of Things (IoT) markets, which brings headwinds to the smart metering business. We anticipate that **it will take a long time for passive components suppliers to achieve breakthroughs** to replace Multilayer Ceramic Capacitors (MLCCs), the most sought-after components. Meanwhile, OEMs that don't transition to modern components further up the technology curve must be prepared to fight for components every single day. In order to survive the component supply shortage, L+G is capitalizing on their relationships with suppliers, the continuous evolution of their product design to align with supplier's technology and finally procurement and supply chain organizations.

Bearing in mind that the smart meter installations will grow at a 3.8% CAGR in the next decade and the increasing pressure on prices, **smart meter deployments will be a source of revenue for L+G** (Appendix 3). Given the heterogeneity of countries and their strict regulations, **we evaluate the evolution of L+G's business through a breakdown of the market into its main geographical segments: (Figures 5 & 6) (Appendix 6)**

**The Americas, a stable and mature market.**

The fast adoption of L+G's data metering products to advanced analytical solutions can be explained by two factors. First, **Obama's administration stimulus package, the American Recovery and Reinvestment Act of 2009,** kick-started the transition to smart metering, turning the US into the most mature market to date. Second, the market is also the **most homogeneous in terms of regulations and device specifications,** which allows L+G to profit from larger economies of scale and second wave rollouts related to replacement and upgrade of the installed base.

In **Japan, utilities are traditionalists** and tend to impose their will on smart meter vendors. Along with TEPCO (Tokyo Electric Power Company), L+G has engaged in the world's largest AMI roll-out project with 27 million devices – which is set out to be completed 3 years ahead of the initial deadline. This successful alliance will sustain L+G's presence on the Japanese market, even though they are no longer under Toshiba's umbrella. In fact, the two parties signed a new agreement, in late 2017, to start leveraging the Japanese grid by developing a project on IoT and Analytics.

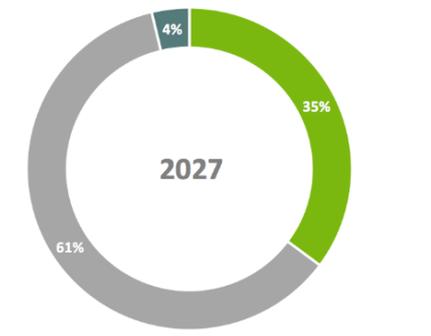
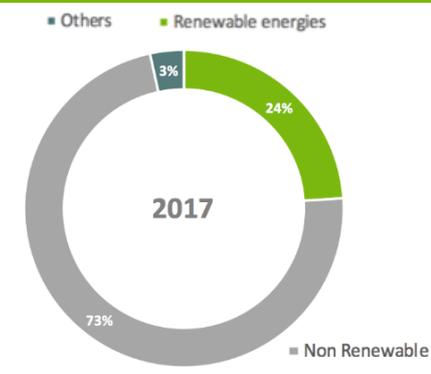
In **South-America, political instabilities will bring headwinds** for smart meter penetration in the future. Jair Bolsonaro's recent election, will slow down smart grid expansions in Brazil, Latin America's largest electricity market, due to his firm stand on climate concerns.

**EMEA, the fastest growing market in the next decade.**

**Germany and other European markets are expected to launch an important wave of rollouts starting 2020.** The "Clean Energy for all Europeans Package", adopted in November 2016, sets the new legislative framework for a European sustainable energy transition and incentivizes countries to review their Cost Benefit Analysis (CBA) and steer their decision positively. We believe that **the European Commission's initial "80% global rollout" target for 2020** will be delayed but is an **achievable goal in most of the member states in the coming decade,** except for Germany, for which we anticipate a penetration of 50% by 2027.

Focusing on **Germany,** a legislation has passed in 2016 that favors smart meter activity in the country by legally requiring that large consumers, with average consumption higher than 10'000 kWh, install smart meters. The German regulations plan a decrease in this threshold to 6'000 kWh in 2020 which brings **tailwinds to the deployment.**

**Figure 4**  
Energy production mix



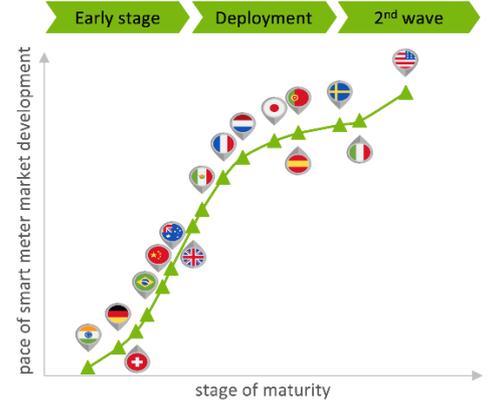
Source: BNEF

**Figure 5**  
SWOT

<ul style="list-style-type: none"> <li>✓ Global leader in smart metering solutions</li> <li>✓ Long standing relations with clients &amp; suppliers</li> <li>✓ Agility through asset light model</li> <li>✓ Experienced &amp; diverse BoD</li> </ul> <p>Strengths</p>	<ul style="list-style-type: none"> <li>✓ Strong dependence to regulatory bodies</li> <li>✓ Overall highly fragmented market environment</li> <li>✓ Commoditization of smart meter hardware</li> </ul> <p>Weaknesses</p>
<ul style="list-style-type: none"> <li>✓ Decentralization &amp; decarbonization require a reinforced grid</li> <li>✓ Utilities opt for software-defined networking standards</li> <li>✓ Improving profitability via efficiency programs</li> <li>✓ New GEM members offer skillset in line with market needs</li> </ul> <p>Opportunities</p>	<ul style="list-style-type: none"> <li>✓ Macro risks could delay transitioning to smarter grid</li> <li>✓ Strong dependence to limited number of suppliers</li> <li>✓ Lengthy &amp; complex sales cycle and pilot projects</li> </ul> <p>Threats</p>

Source: Team assessment

**Figure 6**  
Market maturity



Source: HIS Markit, Berg Insight, L+G

The UK will persevere to achieve its rollout in the coming years to optimize its grid management. **Since the country is an island**, it has very few electrical tie lines with European mainland compared to other countries and **it is therefore technically crucial for this state to have a more self-balanced system**. The rollout started in 2011 with SMETS1 meters (Smart Metering Equipment Technical Specifications) which essentially discouraged consumers to switch to another energy supplier. In 2015, the planned transition to second generation SMETS2 meters would integrate more control functions and resolve the interoperability constraint from first generation devices. However, SMETS2 meter deployments was delayed until early 2018, pending the required license approval for new communication network needed for these new devices. **We thus expect SMETS2 meters to bring growth in the coming years**. We find it relevant to mention that **the doubling of the number of SMETS2 accreditations to smart meters vendors in the last year, does not pose a threat for L+G**: not only are those fairly easy to obtain and only certify that the device is compliant with strict specifications, but also do not compensate for technical add-ons and a strong and broad customer base. L+G reaches breakeven in EMEA in Q1 2018 and we see it as a good signal for the future profitability of the segment.

**We expect the APAC market to grow in the short to mid-term.**

L+G will capture growth mainly through their recent “IntelliHUB” joint venture in **Australia**. Another interesting market would be **India**, which endured back in 2012, the largest power outage in history with 300 million people affected. The country has therefore **launched an important modernization of its energy transmission & distribution system**. This offers **attractive growth prospects compared to developed countries** who have a more mature infrastructure, and we see revenue growth to be driven by sales of large volumes of smart meters in the coming decade. In fact, in late 2017, L+G signed a contract with TATA power for deployment of “thin” meters in New Delhi, whose hardware capabilities are reduced to the core function of measurement. However, the disproportionate number of competitors on this market will exert a lot of pressure on the selling price and margins.

In **China**, entering significantly this market will prove difficult for L+G. According to the president of State Grid Corporation of China, the current goal of Chinese smart metering companies is to provide the most reliable and cheapest kWh to each single customer. The ideology is the equivalent mandate that Europeans had adopted in the post-World War II era. It is thus clear that **China has no interest to unbundle the system by opening the market to foreign companies**. All things considered, the **APAC market is expected to grow in volume** but will stay L+G’s smallest market, accounting for 10% of total revenue in 2027.

## Competitive Positioning

L+G is the **global leader of a highly fragmented market**. With an overall 18% market share (excl. China) by 2016, L+G places itself at the top of nine major competitors, led by Itron, Sagemcom and Osaki. **We expect L+G to maintain its leading position**, given its current market dominance, its innovation advantage and as the market grows at a 3.8% CAGR over the next decade.

**Agility through an asset light model.**

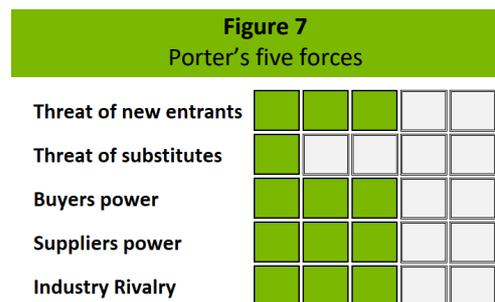
L+G’s asset light model allows them to focus on assets that are integral to their competitive position, such as research. First, they use a **platform that procures components quickly, effectively and at competitive prices via online tendering**. L+G estimates that they have realized approx. 4–5% per annum direct cost of revenue savings and ~6–7% per annum in indirect cost of revenue savings through this method; Second, they implement a **lean manufacturing process, that outsources the production of parts that are not a source of differentiation**, thus limiting their role to (i) calibration and certification, (ii) customization, (iii) sealing and (iv) final packaging and shipping. **This model will drive L+G’s PPE down by 15% over the next 10 years**, given that their respective capital expenditures will decrease as a percentage of sales. With a **lower level of asset ownership offering greater flexibility and reduced fixed costs**, the **ROA will increase by 6.3%** in the next 10 years. L+G will also be able to **respond faster to changing demand**, technology advancements, new market opportunities, and supply chain disruptions.

**Reliable suppliers.**

**The current threat of an industry-wide shortage of specific electronic components is in part alleviated** thanks to longstanding relationships L+G have with their suppliers, as well as their procurement and supply chain processes. Some of said critical components can only be sourced from specific suppliers due to their underlying technical complexity or financial considerations, which makes L+G unwillingly dependent of a restricted number of suppliers. However, **L+G’s tools** for capacity planning and defining KPIs, not only **naturally hedge them against the strong reliance to suppliers**, but also allows them to **realize economies of scale**. Indeed, on one hand, **L+G deals with the world’s biggest contract manufacturers**, namely Foxconn, Flextronics, Sanmina-SCI, Celestica and Jabil, accounting for 59% of material expenditures. Foxconn alone, accounted for 32% of total material expenditures in FY 2017. For other major parts and components, top 5 suppliers represent 13% of material expenditure. We find it relevant to mention that **supply chain management is among Tier 1 suppliers’ most powerful competitive weapons**, since they aggressively offer to dissect client operations to identify bottlenecks. On the other hand, **L+G has developed**, in collaboration with those partners, a **Global Safety Stock Program** that ensures continuous supply of strategic components. These partners keep, manage and own an agreed-upon excess volume of key components until it is paid for.

**Conservative & sticky customers.**

L+G has over 3’500 clients worldwide, with the top 10 accounting for 31.4% and 30.5% of sales for FY 2016, 2015 and 2014 respectively. In our view, **utilities are generally conservative**. While some are keen on adopting more cost-effective renewable generation, a lot are still reluctant to embrace the lower carbon economy and tend to wait for regulations to impose new standards to change their way of doing things. **Utilities are also sticky**, which translates into a **high client retention rate** for L+G. One explanation is that utilities’ purchase decisions are made on assets with a 30-50-year life (Figure 7). Another explanation accounts for regional differences: in the US, utilities are much more committed to the network providers and as such, exiting from the relationship with L+G between one generation of smart meter and the next is difficult. In EMEA, utilities are less committed to the network side, however we believe they tend to favor domestic vendors, such as L+G, with whom they have established solid foundations and that have achieved the desired performance. Finally, **L+G’s customers are diversified**: no two utilities are alike. **There really is not a one size fits all solution for software and services**, which means that L+G has to provide tailor-made integrated solutions that offer both speed and affordability of computing and communication.



Source: Team assessment

**Fragmented market & hardware commodification.**

L+G has acknowledged this, as well as the growing importance of connectivity between intelligent devices as an added layer to the meters - who are starting to play a secondary role. The utility landscape is currently different across the globe (Figure 8). **North America** has a large and mature AMI base and utilities often purchase the **fully integrated solutions** from the get-go. **EMEA** shows a **disaggregated buying pattern and a much more heterogeneous market**. Indeed, contracts for every part of the smart meter stack, (i.e. software, hardware and networking services), tend to be written out separately, with meter vendors having to manufacture meters to strict specifications. **We anticipate EMEA's utility landscape to become more homogeneous across regions**, driven by a more cohesive energy policy, which would require the entire smart meter stack to be sold as a whole, and by the rapid growth in smart metering, stimulated either by second wave rollouts, or by capturing market shares in new-adopting countries. In **Latin America**, the **AMI base is relatively precarious**, and though some interest has been manifested in increasing the communications and networks infrastructure, we expect the growth to be solely revolved around hardware deployments. The **APAC** market has **wide needs** ranging from basic light meters - as is the case in India, to fully integrated solutions as is the situation in Australia - where there is a lot of interest for implementing smart city initiatives. **L+G will find it more challenging to rebalance their revenue mix depending on the region** (Appendix 7).

**Focusing on innovation.**

L+G has an R&D-to-sales ratios of 9.4%, 9.8% and 9.9% over the last three years, and are **committed to reinvesting 10% of sales** on a yearly basis. In contrast, their competitors have a median of 3.33% R&D-to-sales (Appendix 8). L+G pours over 73% of their R&D budget into new product introductions and have an **innovation cycle of 6 months**. Their commitment to R&D is also visible through their **strong patent portfolio of 1357 patents**, of which 873 are granted and 484 are pending approval. Those patent filings are enforced in the principal jurisdictions in which L+G operates (Figures 9 & 10). Furthermore, L+G employs **23% of engineers and researchers** to develop software solutions that **allow utilities to switch from managing energy generation and distribution**, to swiftly transmitting data from different nodes within the grid back to the utility, and from the end user to the utility. They also **give them the means to store this data properly and provide predictive analysis software to prevent future faults and more accurately assess the health of the infrastructure**. The majority of their costs related to R&D are actually personnel expenses driven by increased headcount.

**L+G is coping well with the evolution of the product mix.**

In **North America**, as previously mentioned, the rollouts are well underway, and so is the integration of layered intelligence. Thus, **we expect L+G to seamlessly continue to provide all-inclusive solutions to their customers**. In **Japan**, based on the high satisfaction with over 600 million daily reads from 13,5 million endpoints, **TEPCO has signed an agreement with L+G to explore future projects that leverage IoT capabilities of their intelligent grid network**. This represents a massive opportunity for L+G since **this AMI project represents the world's largest smart grid deployment**.

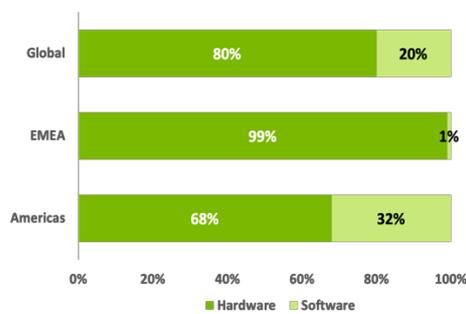
**EMEA will be the most impacted by the forthcoming product mix evolution**, keeping in mind the European Commission's delayed "2020 rollout target" of 80% that will be achieved later in the decade. Naturally, **the closer the rollout completion gets to the target, the denser the grid will be and from this follows the need for real-time monitoring and management**. We believe this transition to a fully integrated set of solutions, accelerated by R&D plays a big role towards **improving L+G' time-to-market** and anchoring them as utilities envision the next phase of the smart grid.

## Financial Analysis

**L+G shows steady growth in its revenue.**

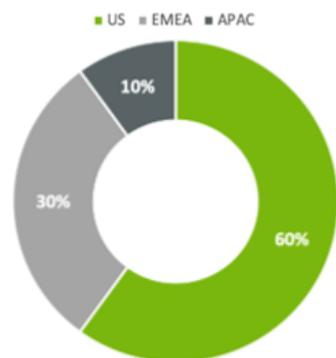
We expect that in the next 10 years, **L+G will be able to generate a revenue CAGR of 3.2%** that is well in line with the increase in smart meter installations forecast, despite the increasing pressure on prices. **We establish our revenue forecast by separating the global market in three main regions** (Appendix 6). We observe a large decrease in revenue in **APAC** in 2015, caused by lower tender volumes mainly resulting from delays in regulations, which increased the uncertainty in the region, especially in India. Moreover, Australia witnessed a lower demand in 2015. In 2016, we observe a strong increase in revenue thanks to the AMI deployments in the Netherlands, the UK and France. **The Americas continue to have a resilient growth mainly due to contracts with Canadian and US utilities**. This growth is also explained by the TEPCO AMI Project entering a phase of maximum deployment speed. In the **UK, L+G faced a temporary slowdown in demand, caused by the transition to SMETS2**. Starting 2018, the British government will implement this transition, allowing L+G to recover from difficulties in the first half year. **The revenue in the future will then be ensured by a large backlog generated by the UK market**. In the future, **France** will still be an important deployment thanks to Enedis contracts. In the same region, in **Sweden**, the entire first-generation smart meter infrastructure is set to be renewed by 2024, which confirms **EMEA as a key market for the future of L+G**.

**Figure 8**  
Hardware vs Software (in sales)



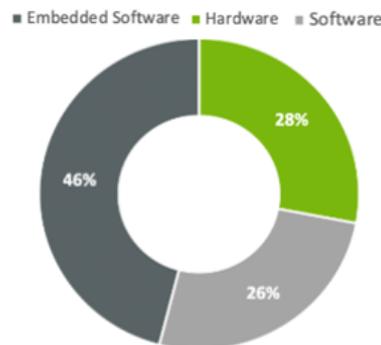
Source: Reuters

**Figure 9**  
Regional patent filings



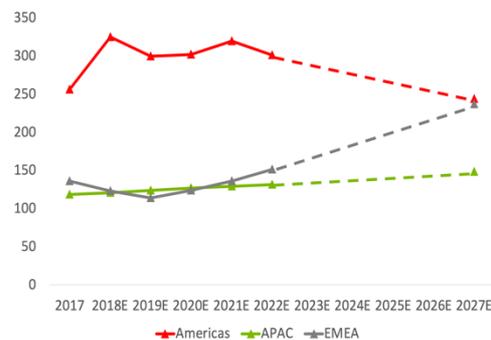
Source: L+G

**Figure 10**  
R&D budget repartition



Source: L+G

**Figure 11**  
Avg. price integrated solution per meter



Source: BNEF, Team assessment

### Revenue growth driven by 4 main factors.

The **volume effect** will drive most of the growth through emerging smart meters market and second wave roll-outs in advanced countries (Appendix 4). The second is the **price effect**. Despite commodification of smart meters, L+G can maintain a high selling price thanks to their complete integrated solution (hardware, software and services). The third one is the **ability of L+G to respond to their customers' demands**. They are strongly customer-product-oriented which helps them retain their clients and renew contracts (of second roll-outs, for instance). The fourth and last point is the **Company's extensive know-how in the smart metering business** that is paramount to improving the efficiency of the grid (Appendix 6).

### Projecting revenues using a bottom-up approach.

For each geographical segment, we start off by forecasting an average aggregate price per device, which comprises hardware, software and related services (Figure 11). As for predicted quantities, we rely on BNEF's smart meter penetration forecasts to anticipate the volume. The evolution of the prices is explained by the confrontation of the **pressure on hardware prices** and the **change in the revenue mix**.

In the **Americas**, where a significant portion of the revenue is already generated by software and services, the **aggregate price will decrease because the commoditization of hardware** will take over the change in revenue mix.

On the contrary, in **EMEA** we forecast a **significant increase in the portion of revenues generated by software and services** with a resulting **increase in the aggregate price** up to the level of the Americas region at the end of the decade.

Finally, in **APAC**, we expect a **slight increase in the aggregate price** driven by the change in revenue mix and the development of new projects and offset by the progressive penetration of India, where prices will be much lower (Appendix 9).

### Pursuing operational excellence programs.

Half of the COGS are constituted by variables costs, 94% of which are outsourcing expenses (Appendix 10). In FY 2017, the EBIT margin is 2.7% and we expect the **profitability to increase by 370 basis points** in the coming 5 years. The increase in the **EBIT is driven by three main factors** (Figure 12). First, the **manufacturing optimization initiatives**, which aim to bundle manufacturing activities to enhance production efficiencies, including the management of supply chain costs, and maximize the utilization of L+G's existing capacity. One example of a successful initiative, **Project Lightfoot**, will **decrease the COGS by 160 basis points**, as cost savings are expected to reach 25 million per annum worldwide. This in turn will increase the gross profit margin from 29.4% to 33% in 10 years, which shows higher profitability than their comparables (Figure 13).

Second, the R&D expenses are expected to remain constant at a target of 10% of the revenue. Lastly, the increase in the operating profit is explained by the **decrease in back-office costs** through the cost-saving measures, such as **Phoenix project**, set to finish by 2022. This project aims to unify various back-office functions across small markets in EMEA and involves additional cost savings through the improvement of manufacturing processes in certain markets. Said savings are expected to amount to roughly 20 million per annum. **We see L+G implementing this project on a global scale to increase their cost saving measures worldwide.**

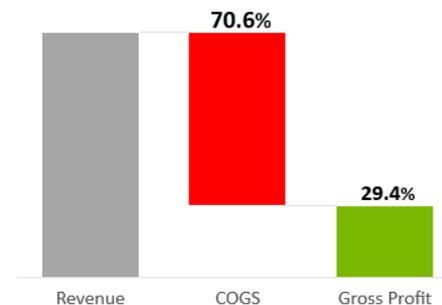
Therefore, we expect that the **EBIT will increase by 260 basis point** in line with our view on these cost saving initiatives (Figures 14 & 15). These strategies will show competitive standards in these profitability measures and lead L+G to converge quickly to their comparables. We conclude that **the firm's cost structure is well-controlled and shows a strong level of resilience.**

### Resilient capital structure.

The **level of debt has seen a large decrease from 2016 to 2017 and we expect it to remain constant for the next 10 years.** The debt is issued mainly to finance operations and fund the company's working capital requirements. In 2018, L+G signed a new 5-year revolving credit facility for USD 240 million. The **debt ratio is 5.6% in 2017 and will decrease to 5.0% in 10 years** (Figure 16). The **capital structure of the company is resilient to large stresses or economic downturns.** L+G shows a debt ratio of 5.58% in 2017 that is much lower than its peers' 18% median (Appendix 11). Thanks to strong cash flow generation, **we forecast a deleveraging of the capital structure** and therefore the level of net debt-to-EBITDA will decrease over the years. We can infer that the credit rating (through either net-debt-to-EBITDA or interest coverage ratio) will be high and therefore **the cost of debt will be relatively low.** We deem the **adjustments made on the adjusted EBITDA by L+G quite unjustified**, and thus **computed our own**, that considers restructuring costs and exceptional warranties – leaving special items and normalized warranties out (Appendix 12).

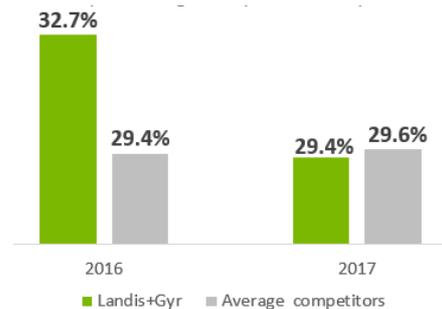
The **probability of bankruptcy is minimal** and is reflected in the liquidity and solvency ratios: The Z-score will increase through the years and become larger than 2.99, which reflects a reduced risk of bankruptcy. The current ratio is increasing from 2017 to 2027. We conclude that there is **no liquidity concern**, as the level of the current ratio is still above 1 for now and in the future (Appendices 13 & 19 & 23).

Figure 12  
Revenue bridge 2017



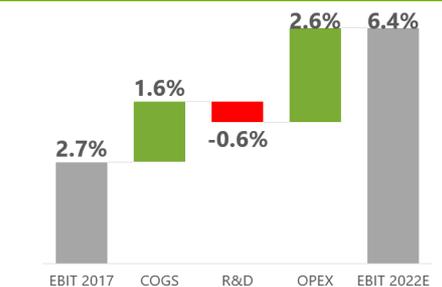
Source: L+G

Figure 13  
Gross profit vs. competitors



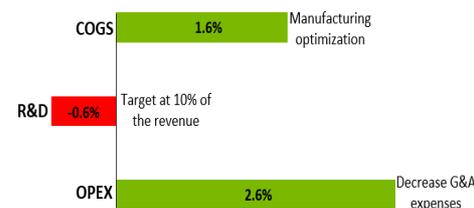
Source: Team assessment

Figure 14  
EBIT bridge from 2017 to 2022E



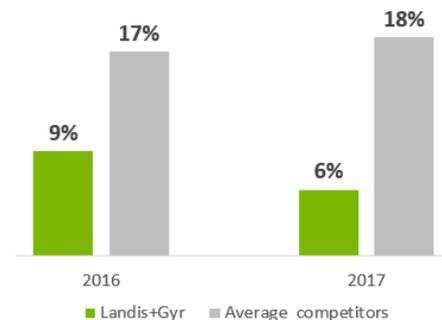
Source: Team assessment

Figure 15  
Drivers of EBIT bridge from 2017 to 2022E



Source: Team assessment

Figure 16  
Debt ratio compared to competitors



Source: Reuters, Team assessment

**We believe that L+G will increase their efficiency for the next 10 years.**

L+G will **successfully implement the asset light model** (and underlying outsourcing strategies) that will **reduce their capital intensity**. The strategy allows the Company to increase the variable portion of the cost structure and allows L+G to profit from the economies of scale as well as the purchasing power of manufacturing partners.

Moreover, this model **increases the flexibility of the Company**, as they can easily respond to changing market dynamics. It is represented by a lower growth in the inventory in comparison to the revenue growth. Therefore, the **days inventory outstanding (DIO) will be reduced** from 35 days in 2017 to 33 in 2027. It will directly decrease the cash conversion cycle (in days) and reflects a higher efficiency in managing their operational activities.

**L+G shows higher efficiency in contrast to comparable companies:** in 2017, L+G has a cash conversion cycle of 56 days, compared to the average of comparables of 101 days. This is also reflected by the **linear increase in the asset turnover** in the following 10 years. As we do not see major changes in their client relationships, their account receivables and payables will be treated as a constant of the revenue, based on historical Company data (Figure 17 & Appendix 18).

**Backlogs as a safeguard for future headwinds.**

They can offset negative revenue growth, caused by a decrease in demand of the utilities. The business cycle of these customers is closely linked to the economic cycle. **L+G can offset a recession in the global economy thanks to long sales cycle and its backlog.** We observe that the order intakes, which are the sales that L+G has yet to deliver, have increased from 2016 to 2017 by 18.8%. Moreover, thanks to their **numerous production sites over the world**, especially in India, they will be able to **increase their production capacity** (Figure 18).

**Strong positive trends in L+G’s measures of profitability.**

Through the Dupont analysis, we see that the ROE is mainly driven by the net profit margin and the asset turnover. Due to the asset light model, the **need in fixed asset is reduced** (Appendix 20), therefore making the Company more efficient. The **high operational efficiency** achieved with manufacturing optimization initiatives coupled with the **high profitability** with cost saving measures will enable L+G to generate strong steady growth in their free cash flow in the next decade. (Figure 19) This element is crucial for the shareholders given the firm’s **dividend policy**: L+G will distribute 75% of their free cash flow to them, a **much more attractive prospect than that of competitors** (Figure 20).

## Valuation

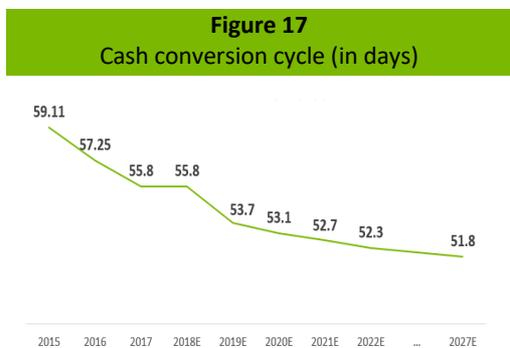
**BUY recommendation with a 12-month target price of CHF 84.5 per share.**

This 36% upside from the closing price on the 30th of November per share is obtained by weighting the **Discounted Free Cash Flow to the firm (FCFF)** method and a **multiple valuation by 70/30**. The **DCF considers forward looking features** regarding the future evolution of the growth and risks of L+G’s business. The model also uses **FCFF**, which **reduces the influence of subjective accounting adjustments**. The **multiples valuation method diminishes the impact of the recent IPO** since it shows the market’s perspective on the price of similar assets. However, a significant part of smart metering companies is privately held, and as our comparable group does not include enough publicly listed and highly similar companies, we decide to **underweight the relative valuation**. It is worth to add that a Dividend Discount Model (DDM) has also been used to value the share price of the company but we deemed it irrelevant since only one dividend has been paid-out since L+G’s IPO.

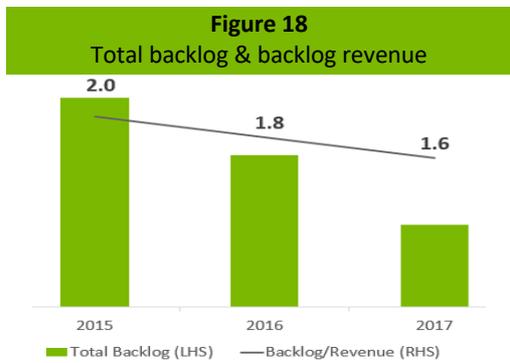
**Intrinsic valuation based on FCFF.**

It requires to forecast the drivers of revenue growth in the future. We use a **two-stage revenue growth model**. This allows us to model the current and future drivers over the next decade with a year-to-year forecast as well as the long-term constant sales growth. **Based on our DCF analysis, we obtain an intrinsic value of CHF 89 per share.** Our forecasts are based on historical performance, industry outlook and a strong competitive positioning in the global market.

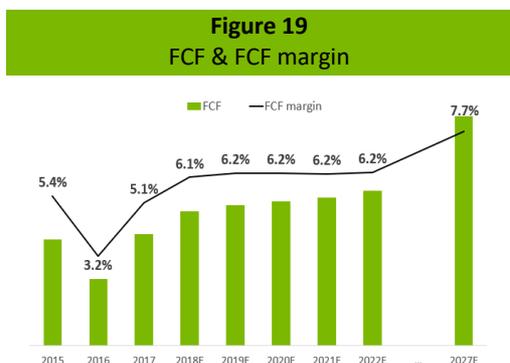
**The Weighted Average Cost of Capital (WACC)** is used as the discount rate in our DCF calculation. The **cost of equity** is derived from the CAPM with a 1% **risk free** rate given by the 10-year average on the 10Y Swiss government bond. This allows us to consider that the current low level of interest rate is not sustainable in the long run. We have chosen to base our cost of capital computation on the Swiss market because the larger shareholders of L+G are Swiss investors. The **Swiss market premium** of 6.3% is computed using the Swiss Performance Index (SPI) and the 10Y Swiss government bond over a 30-year period. Hence, we assume that events like the tech bubble or the financial crisis have non-zero probability of reoccurring in the future. Using comparable companies to compute a **bottom-up re-levered beta** of L+G of 1,24 and applying the CAPM we obtain an 8.8% cost of equity. The 3,4% **cost of debt** is calculated from the US LIBOR and an additional average spread of 0.9% in line with the company’s credit facility features. We expect L+G to keep its current low leverage ratio in the future and using a **20% tax rate** in line with management guidance, we come up with a **WACC of 8.4%** (Figure 21).



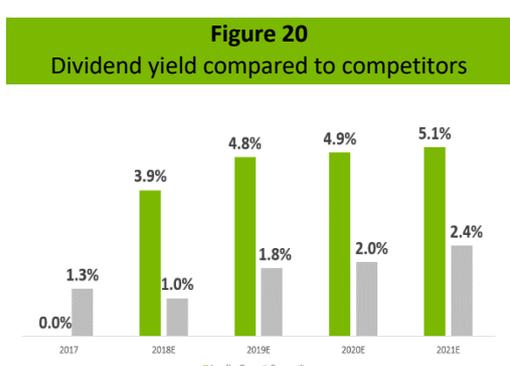
Source: Team assessment



Source: Team assessment



Source: Team assessment



Source : Reuters, Team assessment

Risk free rate (10Y Swiss gov. Bond)	1,0%
Market premium	6,3%
Beta	1,24
<b>Cost of equity</b>	<b>8,8%</b>
Tax rate	20%
Pretax cost of debt	3,4%
<b>After tax cost of debt</b>	<b>2,7%</b>
<b>Market cap (USD mns)</b>	<b>1795,1</b>
<b>Total debt</b>	<b>142,3</b>
EV (USD mns)	1937,4
<b>Mcap/EV</b>	<b>0,93</b>
<b>Debt/EV</b>	<b>0,07</b>
<b>WACC</b>	<b>8,4%</b>

The **perpetual growth rate** is based on the average of long-term real GDP growth forecasts by geographical segments weighted by the current revenue segmentation, and to which we add a 2% inflation forecast. Using this approach, we establish a long-term GDP real growth rate at the level of 1.4% for L+G's main markets. Consequently, we obtain a **nominal perpetual growth rate of 3.4%** for the revenues (Appendices 21 & 22).

**Sensitivity analysis** highlights the impact of the two of the main variables of our DCF valuation mentioned above. Indeed, the terminal value accounts for 64.4% of the total enterprise value, thus we find it interesting to evaluate its influence on the DCF target price. As it can be seen in the sensitivity matrix (Figure 22), our buy recommendation issued from the model is robust to variations on the perpetual growth and the WACC. This analysis shows that the WACC must increase by 150 basis points and the long-term nominal growth rate must drop by 100 basis points at the same time for our model to a target price below the spot.

**L+G is an undervalued company.**

To render the valuation more robust, we use a market-based approach in addition to the DCF. We use the **multiple valuation based on enterprise value over 2018E forward EBITDA**. The main reason for this choice is because L+G have a significantly lower leverage than their peers. Other multiples are not as appropriate in this case because they would ignore the effect of debt, tax regime and therefore, would make the comparison less comprehensive. The **peers are selected** based on several criteria, **mainly through their line of business**. With the screening (Figure 23), we end up with 9 comparables. Itron and Osaki are present on electricity, gas and water smart meters while Badger Meter sells water smart meters. LSIS, Smart Metering Systems and Wasion sell smart electricity meters. Honeywell, Hubbell and Xylem are present on the market through their subsidiaries respectively Elster, Aclara and Sensus. We observe, based on the median, that **the market trades L+G at a discount**. This approach yields a target stock price of CHF 73.9 (Appendix 24).

**Monte Carlo simulation shows a resilient target price.**

The **resilience of our target price is assessed performing a Monte Carlo with 10'000 simulations**. The purpose of this statistical analysis is to allow for randomness in the model in order to evaluate its sensitivity to our assumptions. To do so, we consider essential figures like **revenue growth** or **gross margins**. We also consider the main important **balance sheet elements** that are strongly affected by our views about the future evolution of L+G business like **inventories** or **PPE**. Finally, we also include the **influence of the G&A expenses** in our analysis because we have strong views on the ability of the company to lead efficiently cost cutting projects in the projects. We attribute a **Gaussian distribution** to those variables to avoid too frequent outliers that would reflect unrealistic events. The results show that in 70% of the time, L+G is above a 10% upside and only in 20% the company faces a downside compared to the current stock price. The most sensitive variable in our model is the gross margin. We conclude that a close attention is taken on revenues and gross margins and that our DCF model is robust (Figures 24 & 25).

## Investment Risk

**Market risk** (Appendix 25)

**Uncertain sale cycle:** Contracts with utilities are quite complex and long, as the overall sale cycle can take between three to four years. Contracts are not a guarantee that the committed backlog will be fully rolled out, and regulations can sometimes cause delays in the implementation of the solutions.

**Operational risk**

**Management risk:** With the departure of both heads of the EMEA and APAC regions, and recent appointments of their replacements, L+G could face some disruptions in their day to day operations, and some adaptation time of the newly appointed executives to their new role is to be expected.

**Supply chain risk:** L+G is currently experiencing problems with its supply of passive components, which are key components in the production of its hardware, who cannot be delivered without them. Problems are expected to continue in the near future, but if the shortage continues, costs for those parts could increase and production and sales could slow down affecting its long-term profitability.

**Warranty and product liability risk:** L+G have been subject to warranty claims in the past, of \$27M, \$32M and \$49M for the last three years. Future claims based on contractual provisions with customers could affect L+G performance.

**Financial risk**

**Foreign exchange risk:** L+G reports in US dollars and does not have an aggressive hedging policy. Fluctuations in currency rates could pose a threat to revenues and be a possible source of increase in costs such wages. The main exposures are the US dollar against the euro, pound sterling and the Swiss franc (Figure 26).

**Impairment of goodwill:** L+G has a high amount of intangible assets on their balance sheet acquired through passed acquisitions. They amount to 53% of the total assets. If these assets do not prove to generate revenue according to their carrying amount, an impairment of goodwill would be required, affecting negatively shareholders' equity.

**Figure 22**  
Sensitivity analysis



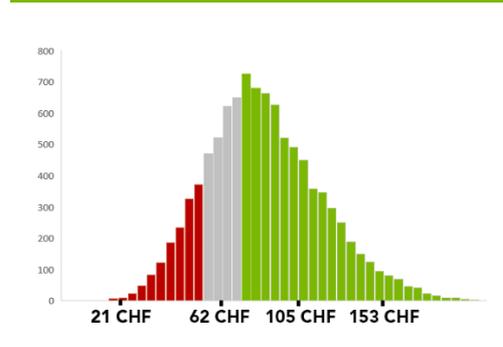
Source: Team assessment

**Figure 23**  
Peers assessment

	LOB	Size	Markets	Profitability	Growth	Credit Profile
Badger Meter	✓	✓	✓		✓	✓
Honeywell	✓		✓	✓		
HUBBELL	✓	✓	✓		✓	
Itron	✓	✓	✓	✓	✓	
LSIS	✓	✓		✓		
OSAKI	✓	✓		✓		✓
smsplc	✓	✓	✓	✓		
WASION	✓	✓		✓	✓	
xylem	✓		✓	✓	✓	

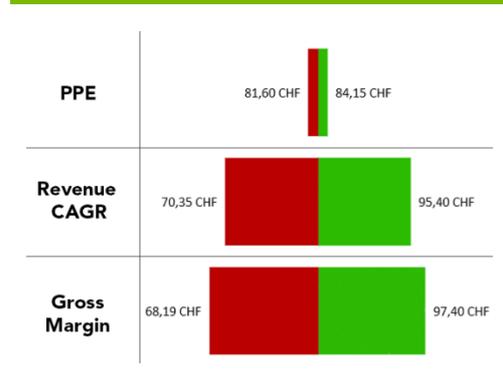
Source: Capital IQ, Reuters, Team assessment

**Figure 24**  
Monte Carlo simulation



Source: Team assessment

**Figure 25**  
Monte Carlo sensitivities



Source: Team assessment

## Strategic risk

**Disruptive technologies:** New technologies and solutions that could monitor the electrical grid in real time and manage energy in a more efficient and cheaper way can pose a threat to L+G businesses.

**New and increasing competition:** We believe that telecoms pose a threat for software products of L+G. These companies could, and have in the past such as Verizon Wireless, leverage their network capabilities to better penetrate the market. Chinese manufacturers are trying to enter the market in EMEA with cheaper products and may negatively affect L+G market share and profitability.

**M&A risk:** Since L+G is a big multinational, the integration of acquired early stage companies can prove quite challenging. Those usually tend to be managed by founding entrepreneurs, and so, retaining top talent and culturally integrating them into a larger organization where they give up control of executive aspects is difficult. Having a clear integration plan is thus crucial for a successful M&A transaction, otherwise it could lead to negative synergies and potentially destroy shareholder value.

## Legal, regulatory and political risk

**Brexit:** Brexit could be a high source of risk for L+G, as the UK is their largest market in EMEA, generating 30% of the sales in the region. A further appreciation of the US dollar against the British Pound would mean a decrease of revenue. L+G also has four of their largest research centers in the UK, and stricter immigration laws could impair the retention and recruitment of highly skilled employees related to research and development.

**Political risk:** Politicians and governments that are climate change sceptics could slow down the push towards renewable energies, impacting indirectly L+G's business. Tariff wars between China and the United States and potential imposed tariffs against Mexico could make the supply of components, the distribution and production more expensive.

**Data privacy risk:** L+G collects large amounts of data through their smart meters. Concerns from end-users and policymakers about the usage of this data could lead to increased regulation and increased costs for L+G. Also breaches in those laws could be costly.

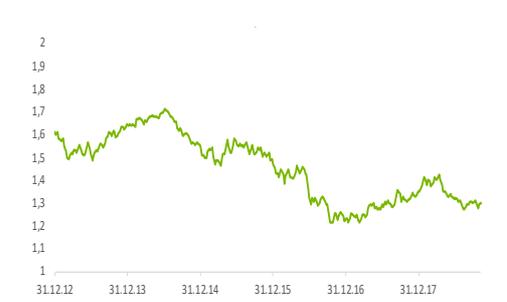
**Patent breaches:** L+G relies heavily on patents, owning 1357 patents and 484 applications pending. They have in the past had to pay fines to settle disputes. In their FY 2016, L+G had to pay out \$15.6M to settle a patent breach. Likewise, a breach of their patents could affect them adversely.

## No large threats on the horizon and clear skies ahead.

In order to concretize the influence of the main risks on L+G's business, we perform a **blue-grey sky analysis** that allows us to compare the outcome of both a very favorable and a catastrophic scenario. Our **blue-sky assumptions** rely on a **quicker adoption of the integrated solution** in the European market which enable the company to enjoy higher sales growth in the next 5 years as well as **increase in the gross margins**. The **impact of the Brexit would be very light**, and the current **supply chain constraint would resolve in the next 2 years**, faster than the base case scenario, **leading to an extreme positive price of CHF 104**.

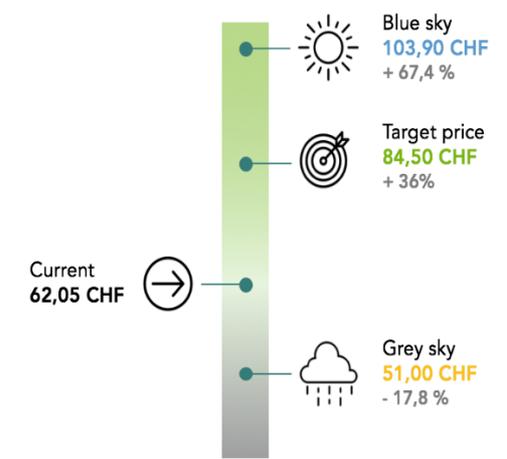
Regarding the **grey-sky hypothesis**, L+G would harshly **suffer from the Brexit** with a significant depreciation of the British pound. Asian manufacturers would capture a larger part of the European new market share and would put more **pressure on the margins** through a price competition. The **bottleneck on the supply chain** would hurt stronger L+G causing significant delays in the production that would lead to lose some customers. Finally, a failed implementation of the asset light model would lead to lower increase in profitability. This **worse-case scenario delivers a price of CHF 51**. However, we believe the probability of occurrence of these negative assumptions to be very low and therefore, is in line with our buy recommendation (Figure 27).

**Figure 26**  
GBP/USD



Source: Reuters

**Figure 27**  
Blue-Grey sky analysis



Source: Team assessment

## Corporate Governance

L+G's current Group Executive Management (GEM) comprises of CEO (Richard Mora), CFO (Jonathan Elmer) and Regional EVPs (Appendices 26 & 27).

## L+G tackles growth with new executive positions.

In the past year alone, the company announced the **replacement of three executives from the management**: Roger Amhof, Executive Vice President & Chief Strategy Officer resigned from the company but will remain in his current position for a period to assist in the transition. Oliver Iltisberger, Executive Vice President EMEA will be replaced by Susanne Seitz starting November 2018. Prior to her appointment, Suzanne worked at Siemens Building Technologies for over 12 years and drove the company's significant growth as its SVP Europe Zone North. Finally, the Executive Vice President of APAC, Ellie Doyle, announced its departure from L+G and will be replaced by Steve Jeston as the new interim EVP APAC. Steve's previous positions at L+G such as COO Asia Pacific; CEO Australia, New Zealand & South East Asia make him a solid candidate to take over Ellie's responsibilities during the transition.

**The average tenure for L+G's Group Executive Management (GEM) is over 5 years**, which suggests they are a seasoned and experienced team. Though the GEM's long tenures also indicate a tendency to have a conservative guidance of the company, L+G is trying to influence the market with disruptive products either developed in-house or acquired. We believe these changes bring along opportunities to introduce fresh eyes and unformatted views on how to manage the company.

## Achieving the right degree of commitment with the right BoD.

We believe L+G set up a **forward-looking BoD** that is very much **in line with the current needs on the market** and will help ease the evolution of the product mix from hardware to end-to-end integrated solutions. All 6 non-executive members, including the chairman, the lead independent director and 4 independent members, have been appointed on July 19th, 2017 in connection with the IPO.

Based on L+G's development stage, the heavy competition and their strategic positioning, the members of the BoD bring integrity, knowledge and experience for the specific role they will play on the Board, were it on the Audit & Finance Committee (AFC) or the Remuneration Committee (RemCo). The BoD's **academic backgrounds are complementary** and equally split between engineering on one hand, and finance, economics and law on the other. They also all have remarkable previous work experience in renowned companies in the industry. **The members do not hold more than 3 mandates outside L+G**, which proves they have enough time to allocate to their assigned tasks.

The chairman, Andreas Umbach, served as CEO of the Group from 2012 to March 31st, 2017 and was thereafter elected as Chairman of L+G. It appears Mr Umbach is connected to, via his various current and prior positions inside and outside L+G, over 41 other board members of peer companies, ranging from Siemens, ABB and European Smart Metering Group to Iskraemesto and Ascom. Having unfettered access to this network combined with unquestionable loyalty to L+G, makes for an **advantageous entryway of information about any new trends and movements occurring in L+G's environment**.

#### Incentivizing top management through remuneration.

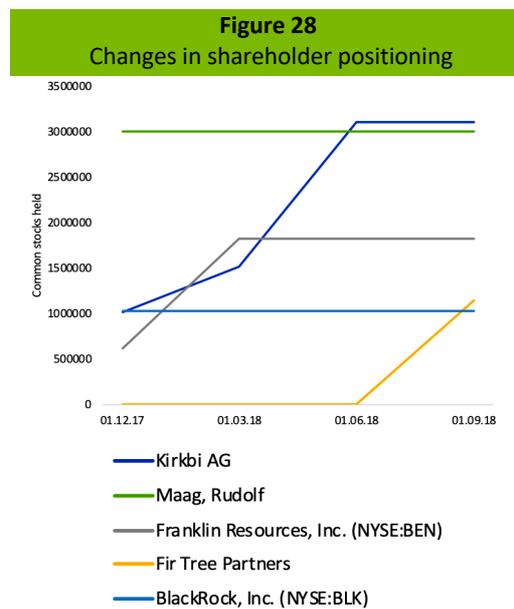
L+G's RemCo applies a best practice system designed along the principles of performance, shareholder value and talent management, to incentivize focus on long-term profitability and growth, agile entrepreneurial thinking and retention of world-class employees, respectively. The **remuneration of the Board is fixed**, does not contain any variable component and its aggregate amount is CHF 2 million (including social security costs etc.). The **GEM's remuneration system, that is a mix of fixed remuneration coupled with short/long term incentive plans (STIP/LTIP)**, has witnessed a change that will be introduced in FY 2018. The RemCo revised the weights of the KPIs affecting both STIP and LTIP, in order to strengthen the link between personal compensation and profitable growth as well as act in the best interests of shareholders. This has been done in such a way that each member gets remunerated according to his input in concreto and not in abstracto. The total amount of aggregated remuneration for the existing members of the GEM is CHF 12.5 million for FY 2018 and FY 2019.

#### Shareholder information.

The company has 29.51 million shares outstanding. In March 2018 it has distributed its first cash dividend of CHF 2.3 per share. The company has a single class of shares that entitles each shareholder to a vote per share. Currently, the biggest shareholders of Landis+Gyr Group AG are Kirkbi AG, holding a stake of 10.5% and private Swiss investor and MedTech pioneer Rudolf Maag, holding a stake of 10.17%. We believe that the high current level of free-float of 77% has positively affected the liquidity of company's stock, making the stock price less sensitive to market transactions. Moreover, we observe that in the last 12 months, three main shareholders have increased their capital ownership in the company. Indeed, for instance Franklin Resources have tripled their number of shares in the last 6 months (Figure 28). **We believe that this large buyout is seen as a good signal of undervalued stock price** and is in line with the vision of the top management (Appendix 28).

#### High standards in environmental sustainability & social responsibility across value chain.

L+G routinely monitors the performance of its waste treatment and emission control systems in order to ensure their effectiveness and is devoted to reducing carbon emissions related to its R&D and manufacturing processes. The company tries to mitigate its environmental impact by implementing a strong set of internal control measures that include declarations of compliance, self and third-party assessments and auditing. As for external measures, **L+G holds certificates in quality management ISO 9001, environmental management ISO 14001 and Occupational Health and Safety Assessment Series OHSAS 18001**.



Source: Capital IQ

## An insight on external growth

Both utilities and policy makers are acknowledging the importance of delivering safe, reliable, affordable and green energy to customers. **L+G combines characteristics propitious to acquiring startups**, that are: **strategic focus on fully integrated solutions**, **CHF 6M allocated to conducting due diligences** for external acquisitions in 2017 and a **low debt ratio** of 5.6% in 2017 (compared to an average peer debt ratio of 18.4% in 2017) (Figure 20) and that we expect to decrease to 5.0% in 10 years. We would expect L+G's transactions to be oriented towards **margin-enhancing acquisitions of startups that offer disruptive technologies**.

One example of a strategic acquisition would be that of **Zaphiro**, a swiss-based company that manufactures low-cost Phasor Measurement Units (PMUs) that control and centralize the visualization of the grid state in real time. Among the different power system monitoring devices, PMUs are the most promising because they offer very high reporting rates and reduced measurement reporting latency. However, their application has been mainly limited to high-voltage transmission grids because of their cost and technical limitations: according to the US Department of Energy, the average cost of a PMU in transmission network (cost for procurement, installation and commissioning) ranges from USD 40'000 to USD 180'000, and hardware only contributes to 5% of this. Zaphiro's prototype designed for low-voltage applications would cost less than \$1'000 and could drop drastically if produced in high volumes. The low-cost PMUs would measure quantities in the grid, quickly and cheaply and would then use those to model the system using steady state estimation. Adding this technology to L+G's arsenal would strengthen their offering of a fully integrated solution.

Alternatively, **L+G could constitute an interesting acquisition target**, as it has a **negative net debt**, enjoys the **largest installed base of devices**. We could envision software & IT heavy-weights such as IBM, Oracle, Google and Cisco to profit from the colossal amount of data generated to help utilities implement smart grid capabilities from generation to end user, including demand response management, distribution automation management and communications networking software.

**M&A activity could be an important lever** in balancing the interests of customers and shareholders and support our buy recommendation.

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## Appendix 1: L+G subsidiaries

Company name / location	Registered office	Country	Interest %	Share capital in thousands	Currency
Landis+Gyr Pty Ltd.	Mascot, NSW	Australia	100	5'000	AUD
Landis+Gyr E.d.M. Ltd.	Curitiba	Brazil	99,99	31'553	BRL
Landis+Gyr Meters & Syst. (Zhuhai) Co Ltd.	Zhuhai	China	100	65'000	HKD
Landis+Gyr OY	Jyskä	Finland	100	16'818	EUR
Landis+Gyr SAS	Montluçon	France	100	2'460	EUR
Landis+Gyr Ltd.	Peterborough	Great Britain	100	2'800	GBP
Landis+Gyr GmbH	Nuremberg	Germany	100	1'023	EUR
Landis+Gyr A.E	Corinth	Greece	100	7'950	EUR
Landis+Gyr Ltd.	Kolkata	India	100	457'400	INR
Landis+Gyr S.A. de C.V.	Reynosa	Mexico	99,99	10	MXN
Landis+Gyr BV	Gouda	Netherlands	100	90	EUR
Landis+Gyr (Pty) Ltd.	Kosmosdal	South Africa	69,09	2'000	ZAR
Landis+Gyr AG	Zug	Switzerland	100	29'700	CHF
Landis+Gyr LLC	Lafayette, IN	USA	100	0,002	USD
Landis+Gyr Technology Inc.	Alpharetta, GA	USA	99,99	10'001	USD

Source : Landis+Gyr

## Appendix 2: L+G products

**Standalone Devices**

- Non-AMI electricity meters
- Heat/cold meters
- Standalone gas

**Connected Intelligent Devices**

- Residential AMI
- Industrial, commercial & grid metering
- Smart gas
- Advanced load mgmt (ALM)
- Other devices

**Software & Services**

- Services
- Software
- Other

**Key products**

- Non-AMI
- Diaphragm gas meters<sup>1</sup>
- Residential heat and cold meters
- India non-AMI
- Regulators<sup>1</sup>
- District meters
- Flow meters

- EMEA AMI meters
- Ultrasonic smart gas meters
- In-home display units
- EMEA ICG meters
- Load management receivers and systems
- Americas AMI meters
- Comm modules for gas and water
- Americas ICG meters
- Gateways, routers and collectors
- ANZ and India AMI meters
- DA products
- South Africa Prepay meter
- APAC ICG meters
- Advanced load management devices

**intelliHUB**

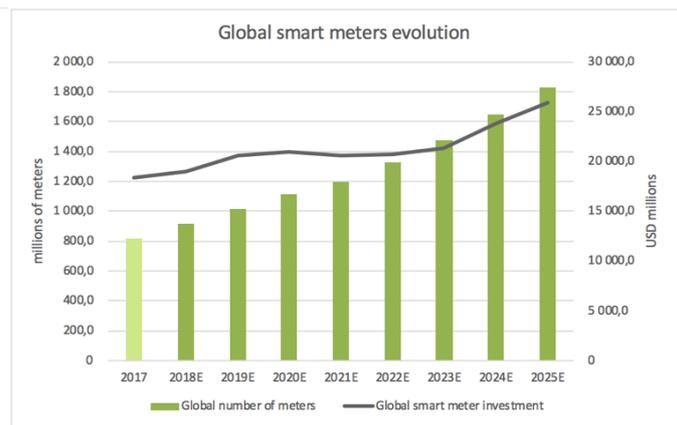
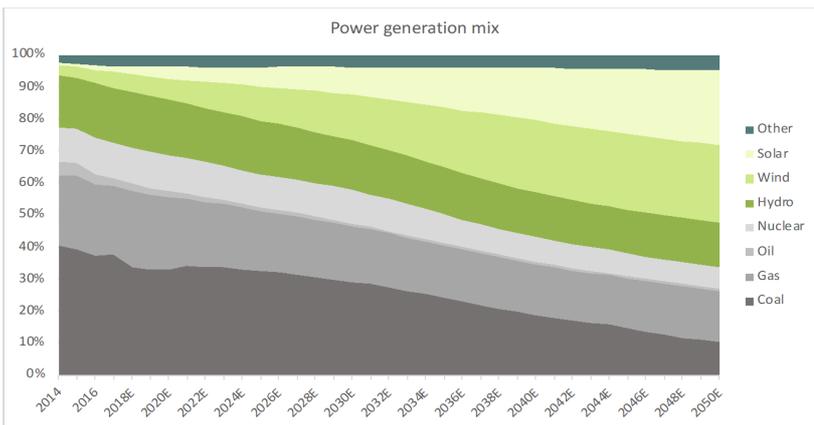
- AEMO accredited BPO\* hub
- Accredited Network operation centers
- Head-end systems
- Command Center
- Meter data management
- PowerCenter VPP
- Advanced grid analytics
- Managed services
- SaaS
- Load management systems

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\* BPO – Business Process Outsourcing

Source : Landis+Gyr

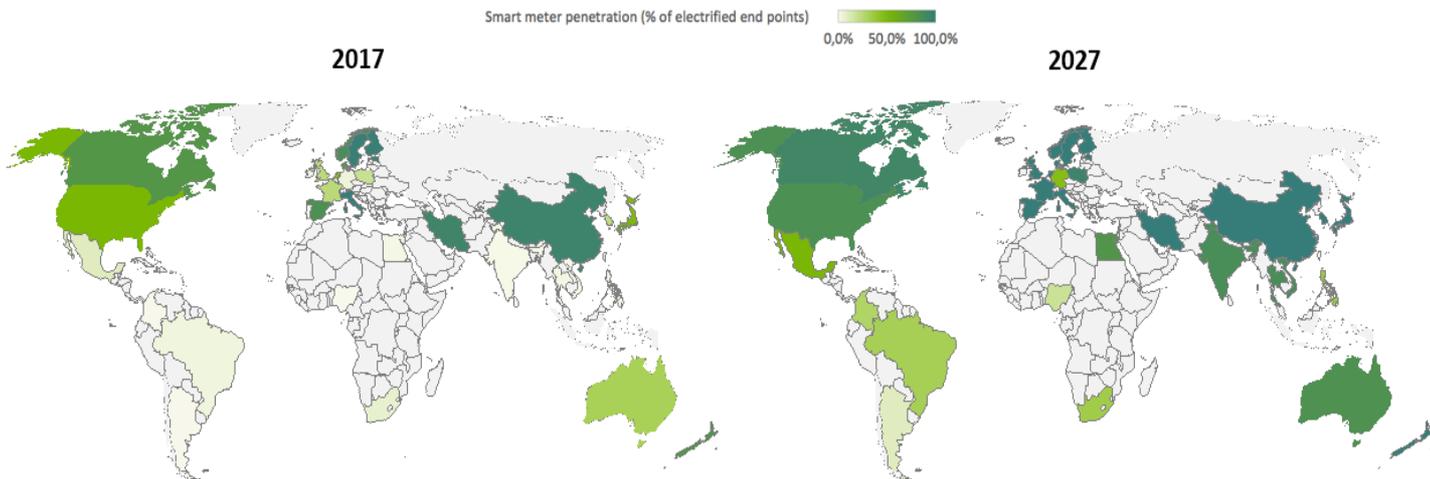
## Appendix 3: Power generation mix & smart meters installation



Source : BNEF



## Appendix 4: Smart meters penetration



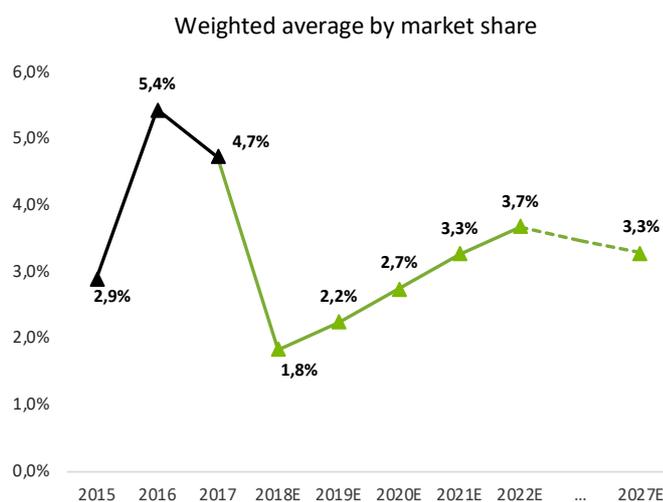
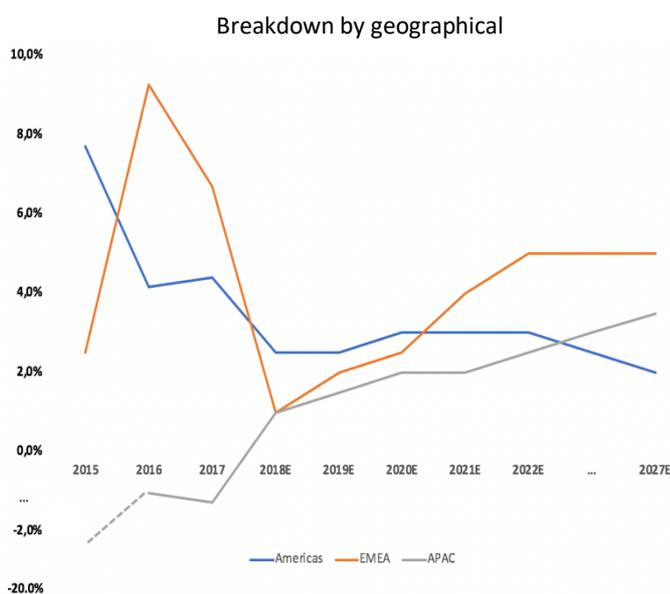
Source : BNEF, Team assessment

## Appendix 5: Critical passive components

The most commonly affected components are:	
Multilayer ceramic capacitors (MLCCs)	Now is short supply
Resistors	Now is short supply
Tantalum Capacitors	Now in Short Supply
Aluminum Electrolytic Capacitors	Some parts in short supply
Paper & Plastic Capacitors	Some parts in short supply
Transistors	Some parts in short supply
Integrated circuits	Some parts in short supply

Source : Passive component industry magazine LLC

## Appendix 6: Revenue growth forecast by region



For the Fiscal Period USD millions	2014	2015	2016	2017	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E
Americas	829,9	893,9	931,2	972,2	996,5	1 021,4	1 052,1	1 083,6	1 116,1	1 149,6	1 184,1	1 207,8	1 231,9	1 256,6
% growth		7,7%	4,2%	4,4%	2,5%	2,5%	3,0%	3,0%	3,0%	3,0%	3,0%	2,0%	2,0%	2,0%
EMEA	524,7	537,9	587,8	627,2	633,5	646,1	662,3	688,8	723,2	766,6	812,6	861,4	904,4	949,7
% growth		2,5%	9,3%	6,7%	1,0%	2,0%	2,5%	4,0%	5,0%	6,0%	6,0%	6,0%	5,0%	5,0%
APAC	174,5	141,7	140,2	138,4	139,8	141,9	144,7	147,6	151,3	155,1	159,7	164,5	170,3	176,2
% growth		-18,8%	-1,1%	-1,3%	1,0%	1,5%	2,0%	2,0%	2,5%	2,5%	3,0%	3,0%	3,5%	3,5%
Total Revenue	1 529,1	1 573,4	1 659,3	1 737,9	1 769,8	1 809,5	1 859,1	1 920,1	1 990,8	2 071,4	2 156,6	2 233,8	2 306,8	2 382,6
% growth					1,8%	2,2%	2,7%	3,3%	3,7%	4,1%	4,1%	3,6%	3,3%	3,3%

Source : Landis+Gyr, Team assessment



## Appendix 7: Market tendencies

	North America	EMEA	APAC	Latin America
Electricity	Solution Oriented	Disaggregated Buying Pattern	Wide Ranging Needs (Basic to Full solution)	Increase in Comms and Networking
	Large Mature AMI Base	Rapid Growth in Smart Metering	Interest In Smart City Initiatives	Interest In Smart City Initiatives
Gas	Solution Oriented	Disaggregated Buying Pattern	Basic Metering Oriented	Basic Metering Oriented
	Increased Combo Utility	Rapid Growth in Smart Metering		
Water	Increase in Comms and Networking	Strong Growth in Non-Revenue Water		Basic Metering Oriented
	Rapid Increase in Smart City Initiatives	Heat and Allocation Growth	Basic Metering Oriented	Strong Growth in Non-Revenue Water Heat and Allocation Growth

Source : Team assessment

## Appendix 8: R&amp;D compared to competitors

Company Name	2017 R&D/Revenue
Itron, Inc.	7,1%
Badger Meter, Inc.	2,4%
Osaki Electric Co., Ltd.	4,2%
LSIS Co., Ltd.	1,7%
Landis+Gyr Group AG	9,7%
<b>Peers Average</b>	<b>3,9%</b>
<b>Peers Median</b>	<b>3,3%</b>

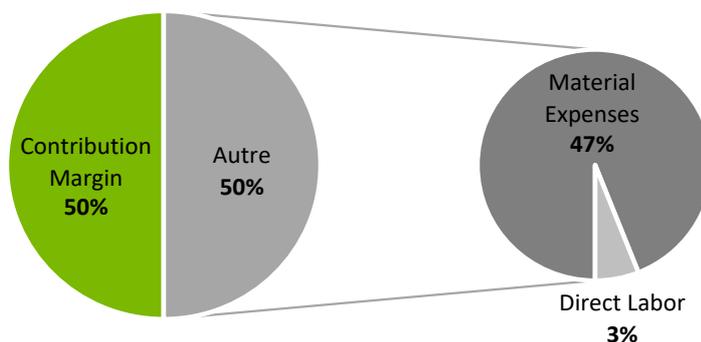
Source : Reuters, Capital IQ, Team assessment

## Appendix 9: Bottom-up revenue forecast

For the Fiscal Period Starting USD millions / million of meters	2016	2017	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E
price per meter including Software Americas	-	256	325	300	302	320	301	295	289	263	251	244
price per meter including Software APAC	-	119	121	124	127	129	132	135	138	141	144	148
price per meter including Software EMEA	-	136	123	114	124	137	152	151	157	173	199	237
Cumulative # meters installed in Americas	82,3	91,8	99,4	107,9	116,5	124,9	134,1	144,0	154,4	166,3	179,2	192,8
Cumulative # meters installed in APAC	35	58,4	81,8	105,1	128,5	152,2	176,4	200,9	225,8	251,1	276,8	302,5
Cumulative # meters installed in EMEA	105,7	129,9	157,1	187,1	215,5	242,1	267,0	292,9	319,0	343,5	365,4	384,5
Penetration Americas	25%	27%	29%	32%	34%	37%	40%	42%	46%	49%	53%	57%
Penetration APAC	13%	15%	21%	27%	33%	39%	45%	52%	58%	65%	71%	78%
Penetration EMEA	18%	23%	28%	33%	38%	43%	47%	52%	56%	61%	65%	68%
# meters installed in Americas per year	-	9,5	7,6	8,5	8,6	8,4	9,3	9,8	10,4	11,9	12,9	13,7
# meters installed in APAC per year	-	23,4	23,4	23,4	23,4	23,7	24,1	24,5	24,9	25,3	25,7	25,7
# meters installed in EMEA per year	-	24,2	27,2	30,0	28,4	26,6	24,9	26,0	26,1	24,5	21,9	19,1
market share L+G Americas	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%
market share L+G APAC	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
market share L+G EMEA	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%
#meters installed per year by L+G in Americas	-	3,8	3,0	3,4	3,4	3,4	3,7	3,9	4,2	4,8	5,1	5,5
#meters installed per year by L+G in APAC	-	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,3	1,3	1,3
#meters installed per year by L+G in EMEA	-	4,6	5,2	5,7	5,4	5,1	4,7	4,9	5,0	4,6	4,2	3,6
revenue Americas	929,2	973,2	991,0	1013,3	1041,1	1075,2	1114,8	1159,9	1207,6	1250,9	1291,7	1334,2
% sales	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%
revenue APAC	132,7	139,0	141,6	144,8	148,7	153,6	159,3	165,7	172,5	178,7	184,5	190,6
% sales	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%
revenue EMEA	597,3	625,6	637,1	651,4	669,3	691,2	716,6	745,7	776,3	804,1	830,4	857,7
% sales	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%
revenue total L+G	1 659,2	1 737,8	1 769,7	1 809,4	1 859,1	1 920,0	1 990,7	2 071,3	2 156,5	2 233,7	2 306,7	2 382,5

Source : BNEF, Team assessment

## Appendix 10: Cost structure FY 2017



Source : Landis+Gyr



Accounting Ratio	Debt ratio		Accounting Ratio	FCF margin	
	2016	2017		2016	2017
Landis+Gyr	8,8%	5,6%	Landis+Gyr	3,2%	5,0%
Itron	19,4%	29,2%	Itron	4,7%	7,2%
Osaki	8,4%	4,4%	Osaki	5,0%	1,5%
LSIS	30,2%	28,7%	LSIS	8,9%	3,7%
Badger Meter	10,9%	11,4%	Badger Meter	12,3%	13,3%
Average	17,2%	18,4%	Average	7,7%	6,4%
Median	15,1%	20,1%	Median	7,0%	5,5%

Accounting Ratio	Current		Quick		Cash	
	2016	2017	2016	2017	2016	2017
Landis+Gyr	0,9	1,1	0,4	0,4	0,2	0,2
Itron	1,8	1,7	1,2	1,1	0,3	0,3
Osaki	1,9	2,2	1,2	1,5	0,6	0,7
LSIS	2,1	2,2	1,7	1,8	0,5	0,6
Badger Meter	2,0	1,7	0,9	0,7	0,1	0,1
Average	1,9	1,9	1,2	1,3	0,4	0,4
Median	1,9	1,9	1,2	1,3	0,4	0,5

Accounting Ratio	Gross profit margin		EBIT margin		Net profit margin	
	2016	2017	2016	2017	2016	2017
Landis+Gyr	32,7%	29,4%	-0,3%	2,7%	-3,8%	2,7%
Itron	32,8%	33,1%	7,2%	7,9%	1,6%	2,8%
Osaki	28,1%	27,9%	8,9%	7,0%	4,4%	3,4%
LSIS	18,7%	18,6%	5,4%	6,7%	3,6%	4,5%
Badger Meter	38,2%	38,7%	13,3%	14,0%	8,2%	8,6%
Average	29,4%	29,6%	8,7%	8,9%	4,5%	4,8%
Median	30,4%	30,5%	8,1%	7,5%	4,0%	3,9%

Accounting Ratio	Days' Inventory outstanding		Days' sales outstanding		Days' payable outstanding		Cash conversion cycle	
	2016	2017	2016	2017	2016	2017	2016	2017
Landis+Gyr	38,0	35,2	67,9	64,8	48,7	44,3	57,2	55,8
Itron	47,8	48,6	62,0	68,0	48,5	59,3	61,4	57,3
Osaki	79,3	87,0	76,7	82,4	67,8	76,8	88,2	92,7
LSIS	31,3	30,1	141,1	125,5	42,9	39,9	129,5	115,8
Badger Meter	117,6	120,8	54,1	53,7	28,2	34,8	143,5	139,7
Average	69,0	71,6	83,5	82,4	46,9	52,7	105,6	101,4
Median	63,5	67,8	69,4	75,2	45,7	49,6	108,8	104,2

Source: Landis+Gyr, Team assessment

## Appendix 12: Adjusted EBITDA

For the Fiscal Period Starting USD millions	2017	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E
EBIT	47,8	81,0	84,9	98,2	121,6	127,4	153,3	170,4	187,6	205,3	224,0
+ Amortization of intangible assets	49,8	48,7	47,0	45,9	44,7	44,4	46,2	48,1	49,9	51,5	53,2
+ Depreciation	47,5	41,4	42,1	42,9	41,4	40,7	38,0	36,2	35,2	34,8	34,8
+ Impairment of intangible assets	-	-	-	-	-	-	-	-	-	-	-
<b>EBITDA</b>	<b>145,1</b>	<b>171,1</b>	<b>173,9</b>	<b>187,0</b>	<b>207,7</b>	<b>212,5</b>	<b>237,5</b>	<b>254,7</b>	<b>272,7</b>	<b>291,6</b>	<b>311,9</b>
+ Restructuring charger	14,7	-	-	-	-	-	-	-	-	-	-
+ Exceptional warranty related expenses	2,4	-	-	-	-	-	-	-	-	-	-
<b>Adjusted EBITDA</b>	<b>162,2</b>	<b>171,1</b>	<b>173,9</b>	<b>187,0</b>	<b>207,7</b>	<b>212,5</b>	<b>237,5</b>	<b>254,7</b>	<b>272,7</b>	<b>291,6</b>	<b>311,9</b>

Source: Landis+Gyr, Team assessment

## Appendix 13: Solvency analysis

For the Fiscal Period Starting USD millions	2015	2016	2017	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E
Debt	328,8	227,9	142,3	142,3	142,3	142,3	142,3	142,3	142,3	142,3	142,3	142,3	142,3
Debt ratio	12,0%	8,8%	5,6%	5,6%	5,6%	5,6%	5,6%	5,5%	5,5%	5,4%	5,3%	5,2%	5,1%
Debt/Equity ratio	19,0%	13,2%	7,9%	7,9%	8,0%	8,1%	8,0%	8,0%	7,9%	7,8%	7,7%	7,6%	7,4%
Net debt/EBITDA	1,5	0,8	0,2	0,0	-0,1	-0,3	-0,4	-0,5	-0,6	-0,7	-0,8	-0,8	-0,9
Asset/Equity	1,6	1,5	1,4	1,4	1,4	1,4	1,4	1,4	1,5	1,5	1,5	1,5	1,5
Interest coverage	1,5	-0,5	7,8	23,8	25,0	28,9	35,7	37,5	45,1	50,1	55,2	60,4	65,8

Source : Landis+Gyr, Team assessment

## Appendix 14: Liquidity analysis

For the Fiscal Period Starting USD millions	2015	2016	2017	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E
Current ratio	1,2	0,9	1,1	1,2	1,3	1,3	1,4	1,4	1,5	1,5	1,6	1,7	1,7
Quick ratio	0,3	0,4	0,4	0,5	0,6	0,6	0,6	0,7	0,7	0,8	0,8	0,9	0,9
Cash ratio	0,0	0,2	0,2	0,3	0,3	0,4	0,4	0,4	0,5	0,5	0,6	0,6	0,7

Source : Landis+Gyr, Team assessment

## Appendix 15: Operating analysis

For the Fiscal Period Starting USD millions	2015	2016	2017	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E
COGS	1 087,7	1 117,0	1 227,7	1 238,8	1 266,6	1 292,0	1 324,8	1 373,6	1 408,5	1 466,4	1 507,7	1 545,5	1 596,3
Average inventory	115,4	116,4	118,5	121,8	122,8	123,2	124,9	127,9	130,0	134,6	138,0	141,0	145,2
Inventory turnover	9,4	9,6	10,4	10,2	10,3	10,5	10,6	10,7	10,8	10,9	10,9	11,0	11,0
Days' Inventory outstanding	38,7	38,0	35,2	35,9	35,4	34,8	34,4	34,0	33,7	33,5	33,4	33,3	33,2
Net revenue	1 573,5	1 659,2	1 737,8	1 769,7	1 809,4	1 859,1	1 920,0	1 990,7	2 071,3	2 156,5	2 233,7	2 306,7	2 382,5
Average receivable	301,9	308,6	308,6	319,0	324,6	333,4	345,9	358,7	373,8	390,1	404,2	416,5	429,6
Days' sales outstanding	70,0	67,9	64,8	66,4	64,8	64,8	64,8	64,8	64,8	64,8	64,8	64,8	64,8
COGS	1 087,7	1 117,0	1 227,7	1 238,8	1 266,6	1 292,0	1 324,8	1 373,6	1 408,5	1 466,4	1 507,7	1 545,5	1 596,3
Average accounts payable	147,9	148,9	149,0	155,8	159,5	162,9	166,6	171,8	177,1	183,0	189,3	194,4	200,0
Account payable turnover	7,4	7,5	8,2	8,0	7,9	7,9	8,0	8,0	8,0	8,0	8,0	8,0	8,0
Days' payable outstanding	49,6	48,7	44,3	46,5	46,5	46,5	46,5	46,5	46,5	46,5	46,5	46,5	46,5
Cash conversion cycle	59,1	57,2	55,8	55,8	53,7	53,1	52,7	52,3	52,0	51,8	51,7	51,6	51,5

Source : Landis+Gyr, Team assessment

## Appendix 16: Profitability analysis

For the Fiscal Period Starting USD millions	2015	2016	2017	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E
Gross profit margin	0,0%	32,7%	29,4%	30,0%	30,0%	32,0%	33,0%	34,0%	35,0%	35,0%	35,0%	35,0%	35,0%
EBITDA margin	13,4%	9,7%	9,3%	9,7%	9,6%	10,1%	10,8%	10,7%	11,5%	11,8%	12,2%	12,6%	13,1%
EBIT margin	1,0%	-0,3%	2,7%	4,6%	4,7%	5,3%	6,3%	6,4%	7,4%	7,9%	8,4%	8,9%	9,4%
Pre-tax profit margin	-0,1%	-1,8%	2,8%	4,4%	4,5%	5,1%	6,2%	6,2%	7,2%	7,7%	8,2%	8,8%	9,3%
Effective tax rate	NaN	NaN	4,5%	20,0%	20,0%	20,0%	20,0%	20,0%	20,0%	20,0%	20,0%	20,0%	20,0%
Net profit margin	-0,9%	-3,8%	2,7%	3,5%	3,6%	4,0%	4,9%	5,0%	5,8%	6,2%	6,6%	7,0%	7,4%

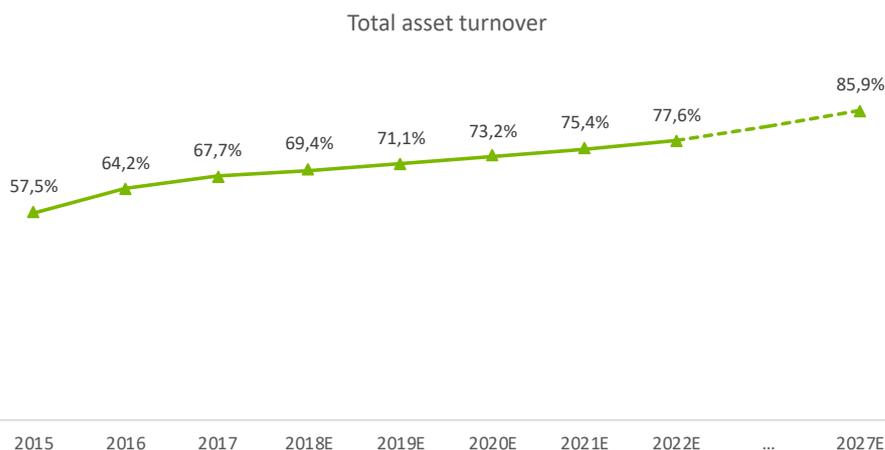
Source : Landis+Gyr, Team assessment

## Appendix 17: Dupont decomposition

For the Fiscal Period Starting USD millions	2015	2016	2017	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E
Net income	-62,6	-62,6	46,4	61,6	64,6	75,3	94,0	98,6	119,3	132,9	146,7	160,8	175,7
Net sales	1 573,5	1 659,2	1 737,8	1 769,7	1 809,4	1 859,1	1 920,0	1 990,7	2 071,3	2 156,5	2 233,7	2 306,7	2 382,5
Net profit margin	-4,0%	-3,8%	2,7%	3,5%	3,6%	4,0%	4,9%	5,0%	5,8%	6,2%	6,6%	7,0%	7,4%
Net sales	1 573,5	1 659,2	1 737,8	1 769,7	1 809,4	1 859,1	1 920,0	1 990,7	2 071,3	2 156,5	2 233,7	2 306,7	2 382,5
Average total assets	2 736,7	2 585,1	2 567,9	2 550,0	2 544,1	2 538,0	2 546,0	2 565,3	2 591,2	2 629,6	2 673,2	2 719,9	2 773,6
Total asset turnover	57,5%	64,2%	67,7%	69,4%	71,1%	73,2%	75,4%	77,6%	79,9%	82,0%	83,6%	84,8%	85,9%
Average total assets	2 736,7	2 585,1	2 567,9	2 550,0	2 544,1	2 538,0	2 546,0	2 565,3	2 591,2	2 629,6	2 673,2	2 719,9	2 773,6
Average stockholders' equity	1 728,0	1 729,1	1 767,3	1 801,0	1 787,7	1 772,3	1 769,2	1 774,5	1 784,9	1 806,3	1 832,8	1 864,5	1 902,5
Leverage ratio	158,4%	149,5%	145,3%	141,6%	142,3%	143,2%	143,9%	144,6%	145,2%	145,6%	145,9%	145,9%	145,8%
ROE	-3,6%	-3,6%	2,6%	3,4%	3,6%	4,2%	5,3%	5,6%	6,7%	7,4%	8,0%	8,6%	9,2%
Net profit margin	-4,0%	-3,8%	2,7%	3,5%	3,6%	4,0%	4,9%	5,0%	5,8%	6,2%	6,6%	7,0%	7,4%
Total asset turnover	57,5%	64,2%	67,7%	69,4%	71,1%	73,2%	75,4%	77,6%	79,9%	82,0%	83,6%	84,8%	85,9%
ROA	-2,3%	-2,4%	1,8%	2,4%	2,5%	3,0%	3,7%	3,8%	4,6%	5,1%	5,5%	5,9%	6,3%
EBIT*(1-t)	12,7	-4,2	38,2	64,8	67,9	78,5	97,3	101,9	122,6	136,3	150,1	164,2	179,2
Invested Capital	2 034,7	1 856,9	1 840,2	1 797,4	1 752,5	1 715,2	1 693,3	1 670,7	1 653,8	1 649,1	1 636,6	1 636,6	1 631,4
ROIC	0,6%	-0,2%	2,1%	3,6%	3,9%	4,6%	5,7%	6,1%	7,4%	8,3%	9,2%	10,0%	11,0%

Source : Landis+Gyr, Team assessment

## Appendix 18: Total asset turnover



Source : Landis+Gyr, Team assessment



## Appendix 19: Altman Z-Score

$$Z\_Score = 1.2A + 1.4B + 3.3C + 0.6D + 1.0E$$

A	Measures the relative of liquid asset
B	Determines cumulative profitability
C	measures earnings away from the effects of taxes and leverage
D	incorporates the effects of a decline in market value of a company's shares
E	measures asset turnover

A Measures the relative of liquid asset	
Working Capital	283,4
Total Assets	2550,7
<b>Ratio A</b>	<b>0,111</b>
B Determines cumulative profitability	
Retained earnings	55,7
Total Assets	2550,7
<b>Ratio B</b>	<b>0,022</b>
C measures earnings away from the effects of taxes and leverage	
Earning before interest and taxes	47,8
Total Assets	2550,7
<b>Ratio C</b>	<b>0,019</b>
D incorporates the effects of a decline in market value of a company's shares	
Market value of equity	1804,6
Book value of total liability	742,6
<b>Ratio D</b>	<b>2,430</b>
E measures asset turnover	
Sales	1737,8
Total Assets	2550,7
<b>Ratio E</b>	<b>0,681</b>
<b>Z_Score</b>	<b>2,365</b>

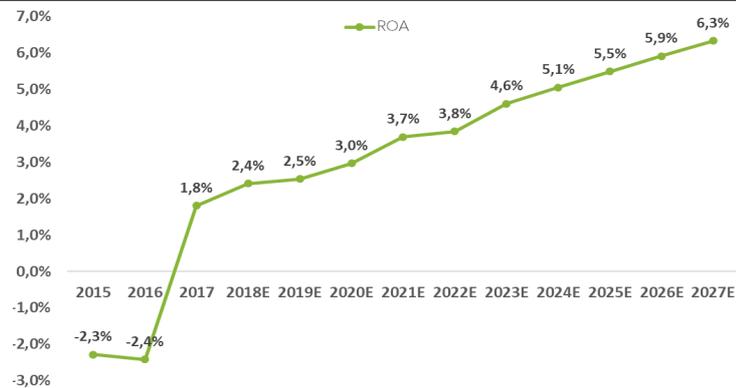
## Z-score Intuition :

A Z score of greater than 2.99 means that the entity being measured is safe from bankruptcy.

A score of less than 1.81 means that a business is at considerable risk of going into bankruptcy, while scores in between should be considered a red flag for possible problems.

Source : Landis+Gyr, Team assessment

## Appendix 20: L+G's ROA



Source : Team assessment

## Appendix 21: Bottom-up beta

Comparable firm	Levered beta	Net debt / Equity	Tax rate	Unlevered beta
Itron	1,17	0,17	34%	1,05
Hubbell	1,30	0,10	33%	1,22
Osaki	1,20	-0,20	35%	1,38
Badger	0,91	0,02	35%	0,90
Xylem	1,24	0,14	19%	1,11
Wasion	1,25	-0,15	14%	1,44
Average				1,18
Median				1,17
				Re-levered beta
Landis & Gyr		0,08	20%	1,24

Source: Thomson Reuters, Capital IQ, Team assessment

## Appendix 22: Terminal growth assessment

Geographical segment	Weight	LT GDP	Weighted
EMEA	36%	1,3%	0,5%
Americas	56%	1,3%	0,7%
APAC	8%	2,2%	0,2%
<b>Weighted average terminal real growth rate for L+G</b>			<b>1,4%</b>

Source: IMF, OECD, Team assessment



$$M\text{-Score} = -4.84 + 0.92*DSRI + 0.528*GMI + 0.404*AQI + 0.892*SGI + 0.115*DEPI - 0.172*SGAI + 4.679*TATA - 0.327*LVGI$$

1	Days' Sales in Receivables Index	
2	Gross Margin Index	
3	Asset Quality Index	
4	Sales Growth Index	
5	Depreciation	
6	Sales , General and Administrative Expenses	
7	Leverage Index	
8	Total Accruals to Total Assets	
<b>1 Days' Sales in Receivables Index</b>		
Sales t		1737,8
Sales t-1		1659,2
Net receivable t		315,8
Net receivable t-1		301,4
<b>Ratio DSRI</b>		<b>1,000</b>
<b>2 Gross Margin Index</b>		
Sales t		1737,8
Sales t-1		1659,2
COGS t		1227,7
COGS t-1		1117,0
<b>Ratio GMI</b>		<b>1,113</b>
<b>3 Asset Quality Index</b>		
Current Asset t		589,3
PP&E t		164,4
Securities t		-
Total Asset t		2550,7
Current Asset t-1		562,5
PP&E t-1		188,8
Securities t-1		-
Total Asset t-1		2585,1
<b>Ratio AQI</b>		<b>0,993</b>
<b>4 Sales Growth Index</b>		
Sales t		1737,81
Sales t-1		1659,24
<b>Ratio SGI</b>		<b>1,047</b>
<b>5 Depreciation</b>		
Depreciation t		39,5
PP&E t		164,4
Depreciation t-1		39,2
PP&E t-1		188,8
<b>Ratio DEPI</b>		<b>0,887</b>
<b>6 Sales , General and Administrative Expenses</b>		
Adjusted Sales, General and Administrative t		227,3
Adjusted Sales, General and Administrative t-1		249,6
Sales t		1737,8
Sales t-1		1659,2
<b>Ratio SGAI</b>		<b>0,869</b>
<b>7 Leverage Index</b>		
Net Debt t		40,5
Net Debt t-1		126,8
Cash t		101,8
Cash t-1		101
Total Debt t		142,3
Total Debt t-1		227,8
Total Asset t		2550,7
Total Asset t-1		2585,1
<b>Ratio LVGI</b>		<b>0,633</b>
<b>8 Total Accruals to Total Assets</b>		
Net income without extraordinary account t		46,4
Cash flow from operation t		124,7
Total asset t		2550,7
<b>Ratio TATA</b>		<b>-0,031</b>
<b>Beneish M-Score</b>		<b>-2,395</b>

#### M-score intuition :

If the M-score is higher than -2.22, the firm is likely to be a manipulator. The result shows that the likelihood that Landis+Gyr manipulates its earning results is low.

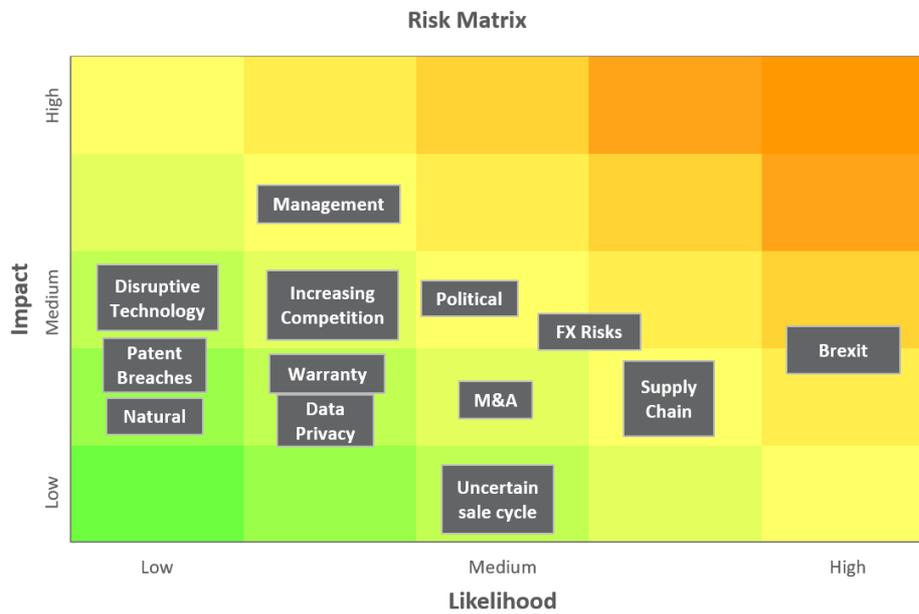


## Appendix 24: Multiple valuation

Multiple Valuation		2018E
		TEV/Forward EBITDA
Badger Meter, Inc.		18,41x
Honeywell International Inc.		13,14x
Hubbell Incorporated		10,38x
Itron, Inc.		12,74x
LSIS Co., Ltd.		5,38x
Osaki Electric Co., Ltd.		4,35x
Smart Metering Systems plc		15,78x
Wasion Holdings Limited		7,46x
Xylem Inc.		14,56x
Implied EV/Forward EBITDA - MEDIAN		12,74x
2018E EBITDA		171,1
Implied TEV		2179,814
Minority Interest		-
Net Debt		(0,1)
Shares Out.		29,5
Exchange rate USD to CHF (as of 30th Nov 2018)		0,997
Implied Stock Price		73,90

Source: Landis+Gyr, Team assessment

## Appendix 25: Risk matrix



Source: Thomson Reuters, Capital IQ, Team assessment

## Appendix 26: Corporate governance score

I. Shareholders and AGM			
Weighting:	10%	max.	7,00
Score:	<i>raw</i>	<i>in %</i>	
Standard:	<b>7,00</b>	<b>7,00</b>	
E-questions:	100%	P-questions:	100%

II. Management Board			
Weighting:	20%	max.	14,00
Score:	<i>raw</i>	<i>in %</i>	
Standard:	<b>9,25</b>	<b>9,25</b>	
E-questions:	47%	P-questions:	68%

III. Supervisory Board			
Weighting:	40%	max.	28,00
Score:	<i>raw</i>	<i>in %</i>	
Standard:	<b>21,50</b>	<b>21,50</b>	
E-questions:	82%	P-questions:	71%

IV. Transparency & Governance			
Weighting:	15%	max.	10,50
Score:	<i>raw</i>	<i>in %</i>	
Standard:	<b>10,50</b>	<b>10,50</b>	
E-questions:	100%	P-questions:	100%

V. Reporting & Audit			
Weighting:	15%	max.	10,50
Score:	<i>raw</i>	<i>in %</i>	
Standard:	<b>8,00</b>	<b>8,00</b>	
E-questions:	100%	P-questions:	50%

Total Corporate Governance Score			
Score:	<i>raw</i>	<i>in %</i>	
Standard:	<b>56,25</b>	<b>0,80</b>	
E-questions:	84%	P-questions:	75%

L+G Corporate Governance Score	Points	Max Points	Rating Level
I. Shareholders and the General Meeting	7,00	7,00	100%
II. Management Board	9,25	14,00	66%
III. Supervisory Board	21,50	28,00	77%
IV. Transparency & Governance	10,50	10,50	100%
V. Reporting & Audit	8,00	10,50	76%
<b>Total Score assessment</b>	<b>56,25</b>	<b>70,00</b>	<b>80%</b>

Source: www.dvfa.de, Team assessment



# Appendix 27: General executive management & Board of directors

Position	Name	Prior Positions at L+G	Current Positions outside L+G	Prior Other Positions	Academic Background
<b>CEO (since 2017)</b>	Richard Mora	2013-2017 COO; EVP and Head of Americas	Enphase Energy, Inc. (Board Member)	Various management positions within the Siemens Group, including CEO of Siemens Metering, Inc.; Director of Quality for Siemens Power Transmission & Distribution; positions at GE Capital, including as a Merger & Acquisitions Manager.	Bachelor of Arts degree in Economics, Stanford University, USA.
<b>CFO (since 2012)</b>	Jonathan Elmer	CFO, EMEA; EVP and CEO, UK/Prepayment region; Finance Manager and then CEO, Ampy Metering Ltd. (part of Landis+Gyr Group since 2004).	None	None	Degree in Economics and Politics, University of Exeter, UK; member of the Institute of Chartered Accountants, England and Wales, UK.
<b>EVP and CSO (since 2014)</b>	Roger Amhof	None	None	Manager in Risk Advisory Practice, Arthur Andersen; Various at Ernst & Young, including as Senior Manager, Head Enterprise Risk Management Services, Senior Partner, Head Risk Advisory, and Global Client Service Partner; Economic Advisory Board of the Innovation Park Zurich, Switzerland.	MBA, University of Fribourg, Switzerland; International Directors Programme, INSEAD
<b>EVP Americas (since 2014)</b>	Prasanna Venkatesan	SVP & General Manager Systems & Services, L+G North America; VP R&D, L+G.	Advanced Energy Economy (Board member of not for profit organisation).	Several senior level engineering and operations management positions (including as Technology Center Manager), Schlumberger.	Master of Science degree in Industrial Engineering, University of Oklahoma, USA.
<b>EVP EMEA (since 2014)</b>	Oliver Iltisberger	EVP and Head of Asia Pacific; SVP & COO EMEA; VP & Head of Energy Measurement Products EMEA; Head of Global Portfolio Management; VP Product Management and Marketing EMEA.	None	Various management positions within Siemens Automation & Drives in Germany and Singapore, including Head Product Management & Marketing Power Distribution Solutions; Co-founder and president Interoperable Device Interface Specifications (IDIS) Industry Association.	Joint Master's degree in Mechanical Engineering and Business Administration, Technical University of Darmstadt, Germany.
<b>EVP EMEA (since November 2018)</b>	Susanne Seitz	None	None	20 years of business experience in companies such as Ernst Basler + Partner AG, BT&T Asset Management and Siemens Building Technologies.	MSc in Environmental Engineering Technology from ETH Zurich and an Executive MBA from the University of St Gallen
<b>Interim EVP Asia Pacific (since 2018)</b>	Steve Jeston	COO Asia Pacific; CEO Australia, New Zealand & South East Asia	None	VP Loan Management Business, Enermet AG Switzerland. VP Metering Business, Enermet Oy Finland.	Bachelor of Electrical Engineering, Electronics & Communications and MBA, University of Queensland

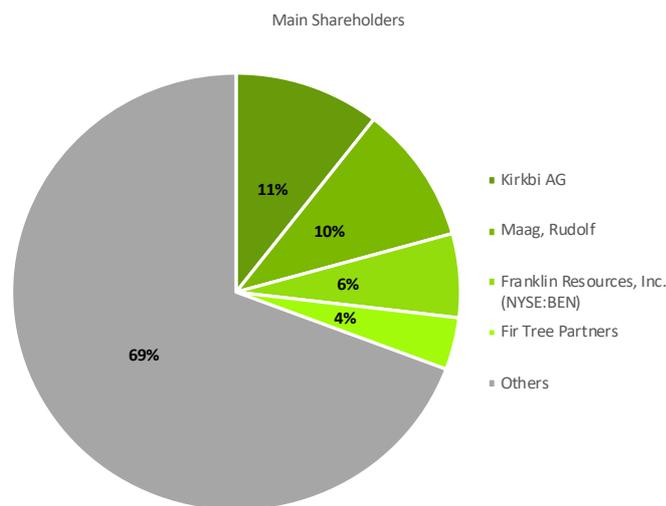
All members of the BoD have been appointed on July 19th 2017

Position	Name	Prior Positions at L+G	Current Positions outside L+G	Prior Other Positions	Academic Background
<b>Chairman of the BoD</b>	Andreas Umbach	2002 – 2017 CEO/COO at Landis+Gyr Group	Ascom Holding AG (Chairman since 2010), WWZ AG (Board member), Zug Chamber of Commerce (President since 2016)	President of Siemens Metering Division within the Power Transmission and Distribution Group. Lichtblick AG (Board Member from 2012-2016),	MBA, University of Texas at Austin, USA ; Diplom-Ingenieur in Mechanical Engineering, Technical University of Berlin, Germany.
<b>Lead Independent Director; AFC &amp; Chairman of RemCo</b>	Erik Elzvik	None	AB Volvo (Board Member), LM Ericsson Telephone Company (Board Member and Chairman of audit committee) and Global Gateway South (Board member).	CFO and Group Executive Committee Member, ABB Ltd and other senior and C-level positions at ABB. Swiss Swedish Chamber of Commerce (Board member).	MBA, Stockholm School of Economics, Sweden.
<b>Independent Member; Chairman of AFC</b>	Andreas Stanley Spreiter	Group CFO (until 2012); Business Unit Controller/Head of Finance & Controlling	Reichle & De-Massari Holding AG (Board member and Chairman of audit committee)	Business Unit Controller/Head of Finance & Controlling and Business Unit Head Digital Meters/Head of Center of Competence Electronic Meters, Siemens Metering AG.	Master's in Industrial Engineering, Swiss Federal Institute of Technology (ETH), Switzerland.
<b>Independent Member; RemCo</b>	Pierre-Alain Graf	None	Leclanché SA (Board member), Broadband Networks AG (Board member), and ABB Ltd. (Senior Vice President).	CEO, Swissgrid; Chairman of the TSC-TSO Security Cooperation; General Manager, Cisco Systems Switzerland.	Master's in Law, University of Basel; MBA, University of St. Gallen, Switzerland.
<b>Independent Member; AFC</b>	Christina Stercken	None	Ascom Holding AG (Board member) and Ansell Ltd. (Board member).	Partner at Euro Asia Consulting PartG (EAC). Various positions at Siemens AG, including Lead of the Siemens Task Force China. Earlier positions with BMW Pvt. Ltd., South Africa.	Diploma, Economics and Business Administration, University of Bonn and Technical University of Berlin, Germany; Executive MBA, Duke University, N.C., USA.
<b>Independent Member; RemCo</b>	Dave Geary	None	DJGeary Consulting, LLC (Founder).	Executive Vice President Business Integration at Nokia Networks, President of the Wireless Networks business, Alcatel-Lucent; President of Wireline Networks; other senior positions within Lucent Technologies and AT&T Network Systems.	Bachelor of Science in Electrical Engineering, Bradley University, USA; MBA in Finance, Kellogg School of Management, Northwestern University, USA.

All members of the BoD have been appointed on July 19th 2017; AFC = Audit and Finance Committee; RemCo = Remuneration Committee

Source: Landis+Gyr, Team assessment

# Appendix 28: Shareholder structure



Source: Landis+Gyr



## Appendix 29: P&amp;L

For the Fiscal Period Starting USD millions	2016	2017	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E
Revenue	1 659,2	1 737,8	1 769,7	1 809,4	1 859,1	1 920,0	1 990,7	2 071,3	2 156,5	2 233,7	2 306,7	2 382,5
Cost of sales	(1 117,0)	(1 227,7)	(1 238,8)	(1 266,6)	(1 292,0)	(1 324,8)	(1 373,6)	(1 408,5)	(1 466,4)	(1 507,7)	(1 545,5)	(1 596,3)
<b>Gross profit</b>	<b>542,2</b>	<b>510,1</b>	<b>530,9</b>	<b>542,8</b>	<b>567,0</b>	<b>595,2</b>	<b>617,1</b>	<b>662,8</b>	<b>690,1</b>	<b>725,9</b>	<b>761,2</b>	<b>786,2</b>
Gross margin (% sales)	32,7%	29,4%	30,0%	30,0%	30,5%	31,0%	31,0%	32,0%	32,0%	32,5%	33,0%	33,0%
R&D	(162,8)	(163,8)	(177,0)	(180,9)	(185,9)	(192,0)	(199,1)	(207,1)	(215,6)	(223,4)	(230,7)	(238,2)
Sales & marketing	(104,7)	(104,9)	(106,2)	(108,6)	(111,5)	(115,2)	(119,4)	(124,3)	(129,4)	(134,0)	(138,4)	(142,9)
General & administrative	(184,8)	(157,8)	(131,8)	(134,8)	(138,5)	(134,4)	(139,3)	(145,0)	(140,2)	(145,2)	(149,9)	(142,9)
Amortization of intangibles	(35,1)	(35,7)	(34,9)	(33,7)	(32,9)	(32,0)	(31,9)	(33,1)	(34,5)	(35,7)	(36,9)	(38,1)
Impairment of intangibles	(60,0)	-	-	-	-	-	-	-	-	-	-	-
<b>EBIT</b>	<b>(5,3)</b>	<b>47,8</b>	<b>81,0</b>	<b>84,9</b>	<b>98,2</b>	<b>121,6</b>	<b>127,4</b>	<b>153,3</b>	<b>170,4</b>	<b>187,6</b>	<b>205,3</b>	<b>224,0</b>
Net interest	(10,7)	(6,1)	(3,4)	(3,4)	(3,4)	(3,4)	(3,4)	(3,4)	(3,4)	(3,4)	(3,4)	(3,4)
Currency exchange gain (loss)	(14,3)	7,3	-	-	-	-	-	-	-	-	-	-
<b>EBT</b>	<b>(30,3)</b>	<b>49,0</b>	<b>77,6</b>	<b>81,5</b>	<b>94,8</b>	<b>118,2</b>	<b>124,0</b>	<b>149,9</b>	<b>167,0</b>	<b>184,2</b>	<b>201,9</b>	<b>220,6</b>
Income taxes	(31,8)	(2,2)	(15,5)	(16,3)	(19,0)	(23,6)	(24,8)	(30,0)	(33,4)	(36,8)	(40,4)	(44,1)
<b>Net Income before minority interests</b>	<b>(62,1)</b>	<b>46,8</b>	<b>62,1</b>	<b>65,2</b>	<b>75,8</b>	<b>94,5</b>	<b>99,2</b>	<b>119,9</b>	<b>133,6</b>	<b>147,4</b>	<b>161,5</b>	<b>176,4</b>
Net income attributable to minority	(0,5)	(0,4)	(0,5)	(0,5)	(0,6)	(0,6)	(0,6)	(0,6)	(0,6)	(0,7)	(0,7)	(0,7)
<b>Net Income L+G shareholders</b>	<b>(62,6)</b>	<b>46,4</b>	<b>61,6</b>	<b>64,6</b>	<b>75,3</b>	<b>94,0</b>	<b>98,6</b>	<b>119,3</b>	<b>132,9</b>	<b>146,7</b>	<b>160,8</b>	<b>175,7</b>

Source: Landis+Gyr, Team assessment

## Appendix 30: Cash flow statement

For the Fiscal Period Starting USD millions	2017	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E
<b>Net Income</b>	<b>46,4</b>	<b>61,6</b>	<b>64,6</b>	<b>75,3</b>	<b>94,0</b>	<b>98,6</b>	<b>119,3</b>	<b>132,9</b>	<b>146,7</b>	<b>160,8</b>	<b>175,7</b>
+ After-tax interest expenses	5,8	2,7	2,7	2,7	2,7	2,7	2,7	2,7	2,7	2,7	2,7
<b>NOPLAT</b>	<b>52,2</b>	<b>64,3</b>	<b>67,4</b>	<b>78,0</b>	<b>96,7</b>	<b>101,3</b>	<b>122,0</b>	<b>135,6</b>	<b>149,4</b>	<b>163,5</b>	<b>178,4</b>
+ Depreciation and amortization	97,3	90,1	89,1	88,8	86,1	85,1	84,2	84,4	85,1	86,3	87,9
- Increase in operating assets	21,1	8,1	6,9	13,7	17,5	17,7	20,7	25,2	14,0	20,5	18,0
+ Increase in operating liabilities	(3,2)	5,9	8,8	9,9	12,3	15,6	15,2	18,7	15,6	14,6	16,6
<b>Operating cash flow</b>	<b>125,2</b>	<b>152,2</b>	<b>158,3</b>	<b>163,0</b>	<b>177,6</b>	<b>184,4</b>	<b>200,7</b>	<b>213,5</b>	<b>236,1</b>	<b>243,9</b>	<b>265,0</b>
- Net investments	36,1	45,1	46,1	47,6	59,0	60,5	61,8	73,1	74,2	80,3	81,4
<b>FCF</b>	<b>89,1</b>	<b>107,1</b>	<b>112,2</b>	<b>115,3</b>	<b>118,6</b>	<b>123,9</b>	<b>138,9</b>	<b>140,4</b>	<b>161,9</b>	<b>163,6</b>	<b>183,6</b>
- After-tax interest expenses	5,8	2,7	2,7	2,7	2,7	2,7	2,7	2,7	2,7	2,7	2,7
+ Increase in short-term debt	(85,6)	-	-	-	-	-	-	-	-	-	-
+ Increase in long-term debt	-	-	-	-	-	-	-	-	-	-	-
<b>RCF</b>	<b>(2,3)</b>	<b>104,4</b>	<b>109,5</b>	<b>112,6</b>	<b>115,9</b>	<b>121,2</b>	<b>136,2</b>	<b>137,7</b>	<b>159,2</b>	<b>160,9</b>	<b>180,9</b>
- Dividends	0	68,8	84,2	86,5	89,0	92,9	104,2	105,3	121,4	122,7	137,7
+ Gain on FX in cash	1,8	-	-	-	-	-	-	-	-	-	-
+ Equity Offerings	9,8	-	-	-	-	-	-	-	-	-	-
<b>Change in cash</b>	<b>5,7</b>	<b>35,6</b>	<b>25,3</b>	<b>26,1</b>	<b>26,9</b>	<b>28,2</b>	<b>32,0</b>	<b>32,4</b>	<b>37,8</b>	<b>38,2</b>	<b>43,2</b>
Cash at the beginning of the period	101,0	106,8	142,4	167,7	193,8	220,7	249,0	281,0	313,3	351,1	389,3
<b>Net Cash Available at EOY</b>	<b>106,8</b>	<b>142,4</b>	<b>167,7</b>	<b>193,8</b>	<b>220,7</b>	<b>249,0</b>	<b>281,0</b>	<b>313,3</b>	<b>351,1</b>	<b>389,3</b>	<b>432,5</b>

Source: Landis+Gyr, Team assessment

## Appendix 31: Balance Sheet

For the Fiscal Period Starting USD millions	2016	2017	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E
<b>ASSETS</b>												
Cash & cash equivalents	101,0	101,0	101,0	101,0	101,0	101,0	101,0	101,0	101,0	101,0	101,0	101,0
Inventories	115,7	121,4	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Accounts receivable	301,4	315,8	322,3	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Other current assets	44,4	45,4	(44,4)	(45,2)	(46,4)	(48,1)	(49,3)	(51,3)	(52,8)	(54,1)	(55,9)	0
<b>Total Current Assets</b>	<b>562,5</b>	<b>583,6</b>	<b>379,0</b>	<b>55,8</b>	<b>54,6</b>	<b>52,9</b>	<b>51,7</b>	<b>49,7</b>	<b>48,2</b>	<b>46,9</b>	<b>45,1</b>	<b>101,0</b>
PPE net	188,8	164,4	164,4	164,4	164,5	164,5	164,5	164,5	164,5	164,5	164,6	164,6
Intangible assets	425,5	381,7	339,6	296,7	255,3	214,6	176,6	140,4	105,2	70,4	35,6	35,6
Goodwill	1 361,2	1 361,6	1 361,6	1 361,6	1 361,6	1 361,6	1 361,6	1 361,6	1 361,6	1 361,6	1 361,6	1 361,6
Deferred tax assets	12,9	16,0	-126,7	-129,2	-132,5	-137,4	-140,9	-146,6	-150,8	-154,5	-159,6	0,0
Other long term assets	34,2	37,7	37,7	37,7	37,7	37,7	37,7	37,7	37,7	37,7	37,7	37,7
<b>Total Non-Current Assets</b>	<b>2 022,6</b>	<b>1 961,4</b>	<b>1 776,7</b>	<b>1 731,3</b>	<b>1 686,6</b>	<b>1 641,0</b>	<b>1 599,6</b>	<b>1 557,6</b>	<b>1 518,2</b>	<b>1 479,6</b>	<b>1 439,8</b>	<b>1 599,5</b>
<b>Total Assets</b>	<b>2 585,1</b>	<b>2 545,0</b>	<b>2 155,6</b>	<b>1 787,0</b>	<b>1 741,2</b>	<b>1 694,0</b>	<b>1 651,3</b>	<b>1 607,3</b>	<b>1 566,5</b>	<b>1 526,6</b>	<b>1 485,0</b>	<b>1 700,5</b>
<b>LIABILITIES</b>												
Trade account payable	144,2	153,8	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Warranty provision	43,8	47,9	(31,7)	(25,8)	(26,5)	(20,6)	(21,1)	(22,0)	(22,6)	(23,2)	(23,9)	0,0
Short term borrowings	12,9	142,3	142,3	142,3	142,3	142,3	142,3	142,3	142,3	142,3	142,3	142,3
Accrued liabilities	37,0	40,0	0	0	0	0	0	0	0	0	0	0
Tax Payable	16,2	5,2	5,2	5,2	5,2	5,2	5,2	5,2	5,2	5,2	5,2	5,2
Payroll and benefits payable	76,6	65,2	0	0	0	0	0	0	0	0	0	0
Current portion of shareholder loans	215	-	-	-	-	-	-	-	-	-	-	-
Other current liabilities	66,5	60,9	60,9	60,9	60,9	60,9	60,9	60,9	60,9	60,9	60,9	60,9
<b>Total Current Liabilities</b>	<b>612,2</b>	<b>515,2</b>	<b>176,7</b>	<b>182,5</b>	<b>181,9</b>	<b>187,8</b>	<b>187,3</b>	<b>186,4</b>	<b>185,8</b>	<b>185,2</b>	<b>184,4</b>	<b>208,4</b>
Warranty provision non-current	8,0	25,6	16,8	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Pension and employee liabilities	65,2	55,7	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Long term debt	-	-	-	-	-	-	-	-	-	-	-	-
Other long-term liabilities	167,1	146,115	146,1	146,1	146,1	146,1	146,1	146,1	146,1	146,1	146,1	146,1
<b>Total Non-Current Liabilities</b>	<b>240,3</b>	<b>227,4</b>	<b>162,9</b>	<b>146,1</b>								
<b>Total Liabilities</b>	<b>852,5</b>	<b>742,7</b>	<b>339,6</b>	<b>328,6</b>	<b>328,0</b>	<b>333,9</b>	<b>333,4</b>	<b>332,5</b>	<b>331,9</b>	<b>331,3</b>	<b>330,5</b>	<b>354,5</b>
<b>EQUITY</b>												
Common stock	309,1	309,1	309,1	309,1	309,1	309,1	309,1	309,1	309,1	309,1	309,1	309,1
Additional paid in capital	1 465,6	1 475,4	1 475,4	1 475,4	1 475,4	1 475,4	1 475,4	1 475,4	1 475,4	1 475,4	1 475,4	1 475,4
Retained earnings	9,4	55,7	55,7	55,7	55,7	55,7	55,7	55,7	55,7	55,7	55,7	55,7
Other comprehensive income (loss)	(53,9)	(35,6)	(35,6)	(35,6)	(35,6)	(35,6)	(35,6)	(35,6)	(35,6)	(35,6)	(35,6)	(35,6)
<b>Total Equity</b>	<b>1 730,1</b>	<b>1 804,6</b>										
Minority interests	2,6	3,4	43,1	43,1	43,1	43,1	43,1	43,1	43,1	43,1	43,1	0,0
<b>Total Liabilities &amp; Equity</b>	<b>2 585,1</b>	<b>2 545,0</b>	<b>2 155,6</b>	<b>1 787,0</b>	<b>1 741,2</b>	<b>1 694,0</b>	<b>1 651,3</b>	<b>1 607,3</b>	<b>1 566,5</b>	<b>1 526,6</b>	<b>1 485,0</b>	<b>1 700,5</b>

Source: Landis+Gyr, Team assessment

## Appendix 32: Forecast assumptions

		2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E
Sales	% growth	1,8%	2,2%	2,7%	3,3%	3,7%	4,1%	4,1%	3,6%	3,3%	3,3%
COGS / Gross margin	% sales	30,0%	30,0%	30,5%	31,0%	32,0%	32,5%	33,0%	33,5%	34,0%	34,0%
Depreciation	% (non-current asset <sub>t-1</sub> + Capex)	25,2%	25,2%	25,2%	25,2%	25,2%	25,2%	25,2%	25,2%	25,2%	25,2%
Amortization	% sales	2,0%	1,9%	1,8%	1,7%	1,6%	1,6%	1,6%	1,6%	1,6%	1,6%
R&D	% sales	10,0%	10,0%	10,0%	10,0%	10,0%	10,0%	10,0%	10,0%	10,0%	10,0%
Sales & Marketing expenses	% sales	6,0%	6,0%	6,0%	6,0%	6,0%	6,0%	6,0%	6,0%	6,0%	6,0%
Warranties provision current	% sales	2,8%	2,8%	2,8%	2,8%	2,8%	2,8%	2,8%	2,8%	2,8%	2,8%
Warranties provision non-current	% sales	0,9%	0,9%	0,9%	0,9%	0,9%	0,9%	0,9%	0,9%	0,9%	0,9%
Dividend	% free cash flow	NaN	75,0%	75,0%	75,0%	75,0%	75,0%	75,0%	75,0%	75,0%	75,0%
CapEx	% sales	2,5%	2,5%	2,0%	2,0%	1,5%	1,5%	1,5%	1,5%	1,5%	1,5%
Pension and employees liabilities	% sales	3,6%	3,6%	3,6%	3,6%	3,6%	3,6%	3,6%	3,6%	3,6%	3,6%
Other current assets	% sales	2,6%	2,6%	2,6%	2,6%	2,6%	2,6%	2,6%	2,6%	2,6%	2,6%
Net interest		3,4%	3,4%	3,4%	3,4%	3,4%	3,4%	3,4%	3,4%	3,4%	3,4%
Tax rate		20,0%	20,0%	20,0%	20,0%	20,0%	20,0%	20,0%	20,0%	20,0%	20,0%

Source: Team assessment

## Appendix 33: Discounted cash flows valuation

For the Fiscal Period Starting USD millions	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E
FCF	107,1	112,2	115,3	118,6	123,9	138,9	140,4	161,9	163,6	183,6
Discounted period	0,5	1,5	2,5	3,5	4,5	5,5	6,5	7,5	8,5	9,5
Discount factor	0,96	0,89	0,82	0,75	0,70	0,64	0,59	0,55	0,50	0,46
Present value of FCF	102,9	99,4	94,3	89,4	86,2	89,1	83,1	88,4	82,4	85,3
Sum of discounted FCF	900,6									
Perpetual growth rate										3,4%
Undiscounted terminal value										3796,6
Present value of terminal value	1764,5									
Value of the firm	2 665,0									
% of the firm value from Terminal value	66,2%									
- Net debt	35,6									
Equity value	2 629,5									
Number of shares outstanding (millions)	29,43									
Share price (USD)	89,4									
Exchange rate USD to CHF (as of 30th Nov 2018)	0,997									
Share price (CHF)	89,1									

Source: Team assessment

## Appendix 34: Profitability against competitors

	LANDIS+GYR USD millions		ITRON USD millions		BADGER USD millions		OSAKI JPY millions		LSIS KRW millions	
	2016	2017	2016	2017	2016	2017	2016	2017	2016	2017
Revenue	1 659,2	1 737,8	2 013,2	2 018,2	393,8	402,4	86 159,0	78 780,0	2 213 616,1	2 343 745,3
Growth		4,7%		0,2%		2,2%		-8,6%		5,9%
Gross Profit	542,2	510,1	660,3	667,2	150,6	155,7	24 187,0	21 980,0	412 886,4	436 217,7
Gross Profit margin	32,7%	29,4%	32,8%	33,1%	38,2%	38,7%	28,1%	27,9%	18,7%	18,6%
EBITDA	161,1	162,2	213,4	223,3	74,7	80,6	10 395,0	8 565,0	209 728,0	244 646,3
Growth		0,6%		4,6%		7,9%		-17,6%		16,6%
EBITDA margin	9,7%	9,3%	10,6%	11,1%	19,0%	20,0%	12,1%	10,9%	9,5%	10,4%
EBIT	-5,3	47,8	145,1	160,1	52,3	56,2	7 693,0	5 545,0	120 456,9	156 788,3
Growth		NaN		10,3%		7,6%		-27,9%		30,2%
EBIT margin	-0,3%	2,7%	7,2%	7,9%	13,3%	14,0%	8,9%	7,0%	5,4%	6,7%
EBT	-30,3	49,0	133,5	143,3	49,8	54,8	7 425,0	5 566,0	110 388,0	153 423,7
Growth		NaN		7,3%		10,0%		-25,0%		39,0%
EBT margin	-1,8%	2,8%	6,6%	7,1%	12,7%	13,6%	8,6%	7,1%	5,0%	6,5%
Net income	-62,6	46,4	31,8	57,3	32,3	34,6	3 803,0	2 666,0	80 712,0	105 096,2
Growth		n.a		80,4%		7,0%		-29,9%		30,2%
Net income margin	-3,8%	2,7%	1,6%	2,8%	8,2%	8,6%	4,4%	3,4%	3,6%	4,5%

Source: Thomson Reuters, Capital IQ, Team assessment

## Appendix 35: Dupont against competitors

Name	Asset Turnover	Pretax Margin (%)	Pretax ROA (%)	Tot Assets/Comm Eqty	Pretax ROE Total Equity %	ROE %
BADGER METER	1,09	13,63	14,79	1,41	20,55	13,26
ITRON INC	1,10	6,67	7,31	2,68	18,98	12,37
LS IND SYSTEM	1,04	5,91	6,13	1,97	12,53	9,65
OSAKI ELECTRIC	0,89	7,07	6,26	1,81	12,07	5,78
LANDIS GYR	0,68	2,82	1,91	1,41	2,77	2,62
PEERS MEDIAN	1,06	6,87	6,78	1,89	15,76	11,01
PEERS AVERAGE	1,03	8,32	8,62	1,97	16,03	10,27

Source: Thomson Reuters, Capital IQ, Team assessment

## Appendix 36: Solvency against competitors

Name	Tot Assets/Comm Eqty	Total Debt to Total Equity (%)	Long Term Debt to Total Capital (%)	Long Term Debt to Total Equity (%)	Forward Total Debt To EBITDA
BADGER METER	1,41	16,06	0,00	0,00	0,40
ITRON INC	2,68	77,98	41,83	75,48	3,24
LS IND SYSTEM	1,97	56,59	24,99	39,19	1,91
OSAKI ELECTRIC	1,81	6,65	2,55	3,30	0,47
LANDIS GYR	1,41	7,89	0,00	0,00	0,60
PEERS MEDIAN	1,89	36,32	13,77	21,24	1,19
PEERS AVERAGE	1,97	39,32	17,35	29,49	1,51

Source: Thomson Reuters, Capital IQ, Team assessment

## Appendix 37: Efficiency against competitors

Name	A/R Turnover	Inventory Turnover	Average Inventory Days	Fixed Asset Turnover	Return on Capital, Total LT Capital (%)
BADGER METER	6,82	3,03	120,82	4,38	12,36
ITRON INC	5,39	7,53	48,63	10,70	6,65
LS IND SYSTEM	2,92	12,16	30,10	3,95	6,76
OSAKI ELECTRIC	4,44	4,21	86,97	2,71	6,57
LANDIS GYR	5,47	10,36	35,34	9,84	2,34
PEERS MEDIAN	4,91	5,87	67,80	4,16	6,71
PEERS AVERAGE	4,89	6,73	71,63	5,43	8,09

Source: Thomson Reuters, Capital IQ, Team assessment

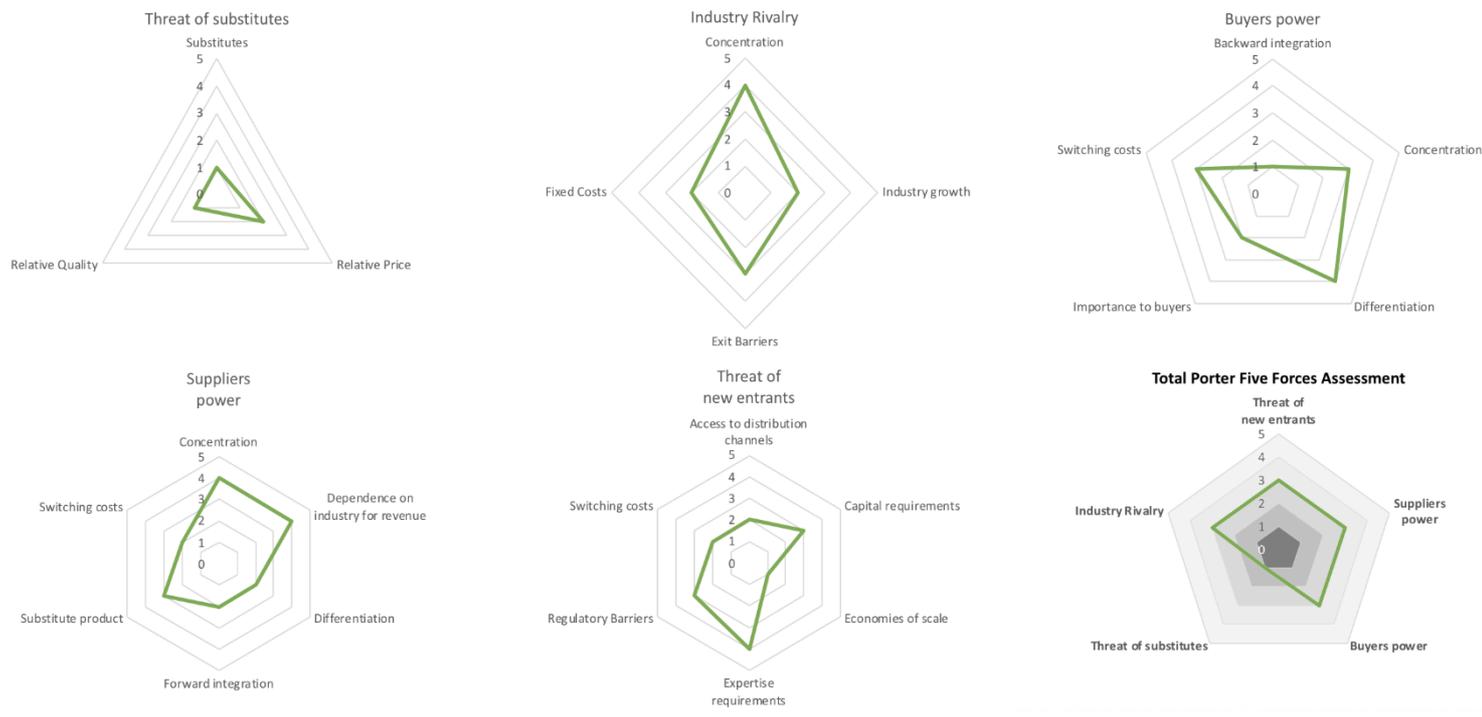
## Appendix 38: Profitability against competitors

Name	Gross Margin (%)	EBITDA Margin (%)	Operating Margin (%)	Pretax Margin (%)	Income Tax Rate (%)	Net Profit Margin (%)
BADGER METER	38,70	19,88	13,82	13,63	35,49	8,79
ITRON INC	33,45	10,95	7,50	6,67	32,62	4,35
LS IND SYSTEM	18,61	10,51	6,03	5,91	22,32	4,55
OSAKI ELECTRIC	27,90	10,87	6,90	7,07	35,65	3,38
LANDIS GYR	29,35	9,19	2,75	2,82	4,44	2,67
PEERS MEDIAN	30,68	10,91	7,20	6,87	34,06	4,45
PEERS AVERAGE	29,67	13,05	8,56	8,32	31,52	5,27

Source: Thomson Reuters, Capital IQ, Team assessment



# Appendix 39: Porter's five forces (1)



Main Forces	Sub-Forces	Assessment
Threat of new entrants	<b>Access to distribution channels</b>	Landis+Gyr has a privileged position as world leader for AMIs, and having a long lasting relationship with sticky and conservative customers. For newer markets like India, competition for market shares will be stronger.
	<b>Capital requirements</b>	Landis+Gyr has a privileged position as world leader for AMIs, and having a long lasting relationship with sticky and conservative customers. For newer markets like India, competition for market shares will be stronger.
	<b>Economies of scale</b>	Asset light model mean higher scale-driven cost savings, ie. volume effect.
	<b>Expertise requirements</b>	The fact that some products are regulated and standardized, such as Linky and SMETS2, make it easier for low-cost producers to enter the market as these standards reduce differentiation possibilities and their products need only to obtain the certification. For example, SMETS2 certified producers nearly doubled in the last year. Software and data analytics however require extensive research and technical know-how. Close to a quarter of their workforce operates in R&D.
	<b>Regulatory Barriers</b>	Utilities operate in a highly regulated sector and AMIs require certification to operate in certain countries. Data privacy protection laws have been updated in the EU making for stricter regulations.
	<b>Switching costs</b>	While products require standardized elements, communication protocols and embedded software within the meters are unique to Landis+Gyr. For software solutions, users gain expertise while using it. Switching costs on software & services are by nature higher.

Source: Landis+Gyr, Team assessment



Main Forces	Sub-Forces	Assessment
Suppliers power	<b>Concentration</b>	Top electronic supplier Foxconn represents 32% of Landis+Gyr's material expenditure, and the top 5 represents 59%. For other major parts and components, top five suppliers represents 13%. While there are many suppliers for generic electronic components, some strategic components can only be provided by certain suppliers that meet Landis+Gyr and its customers standards of quality, safety and security requirements.
	<b>Dependence on industry for revenue</b>	Most suppliers are large conglomerates, such as Foxconn, who Landis+Gyr represent less than 1% of their revenue. Suppliers have the choice to select the most attractive industries to enhance their profit margins. Hence, they do not depend critically on Landis+Gyr to generate most of their revenue.
	<b>Differentiation</b>	Many products Landis+Gyr need are commodified. However, some strategic components to build their AMI require certain quality standards limiting substitutes and/or produced only by a limited number of suppliers.
	<b>Forward integration</b>	Suppliers are companies like Foxconn, who have a very large portfolio of products and buyers, and smart grid industry is somewhat of a niche market, making forward integration unlikely.
	<b>Substitute product</b>	Many products Landis+Gyr need are commodified. However, some strategic components to build AMI have no substitutes.
	<b>Switching costs</b>	Switching suppliers for Landis+Gyr for simple components should prove not to be costly, however dependence on critical parts makes it complicated to change certain suppliers.
Buyers power	<b>Backward integration</b>	Customers are primarily utilities that are government or partially government owned, making it highly unlikely that they will backward integrate.
	<b>Concentration</b>	Customers are large utility companies, that can be government owned, especially in Europe. No single customer accounts for more than 10% of their sales, and their top 10 customers represent 34.6%, 31.4% and 30.5 % of their sales for fiscal years 2016, 2015 and 2014. They serve over 3500 utilities worldwide.
	<b>Differentiation</b>	The main differentiation capability of AMI providers are mostly in software, as the hardware is becoming increasingly commodified.
	<b>Importance to buyers</b>	Smart grids solutions give high control and visibility for utilities over the distribution, quality and health of their network which is mission critical to them.
	<b>Switching costs</b>	Switching costs are low for customers as hardware products are standardized for implementation in the USA and Europe, and smart meters tend to become more commoditized. Software can prove to be more difficult to change.
Threat of substitutes	<b>Substitutes</b>	AMRs are the only substitute products today, and are currently being phased out as they capabilities are limited. Software and services are often tailored made for specific situations.
	<b>Relative Price</b>	AMRs are cheaper standalone devices, but are much simpler and do not quite compare
	<b>Relative Quality</b>	Utilities have very high standards and require high quality. AMRs get the basic function of meters done, but cannot integrate in the smart grid and have no communications capabilities.
Industry Rivalry	<b>Concentration</b>	Landis+Gyr is the market leader, however there are a few large global competitors, such as Itron and Elster Honeywell, and many local players that can be disruptive.
	<b>Industry growth</b>	With expected CAGR of respectively 8%, 13% and 30% in the Americas, EMEA and APAC regions from December 2017 to December 2021, we expect the industry to fight strongly to acquire the growth potential, especially in markets like Germany and India.
	<b>Exit Barriers</b>	Because of asset light capabilities in the industry, and a shift towards software, exit barriers have been reduced in recent years.
	<b>Fixed Costs</b>	"Asset light" models and outsourcing have reduced fixed costs needed to operate within the industry.

Source: Landis+Gyr, Team assessment



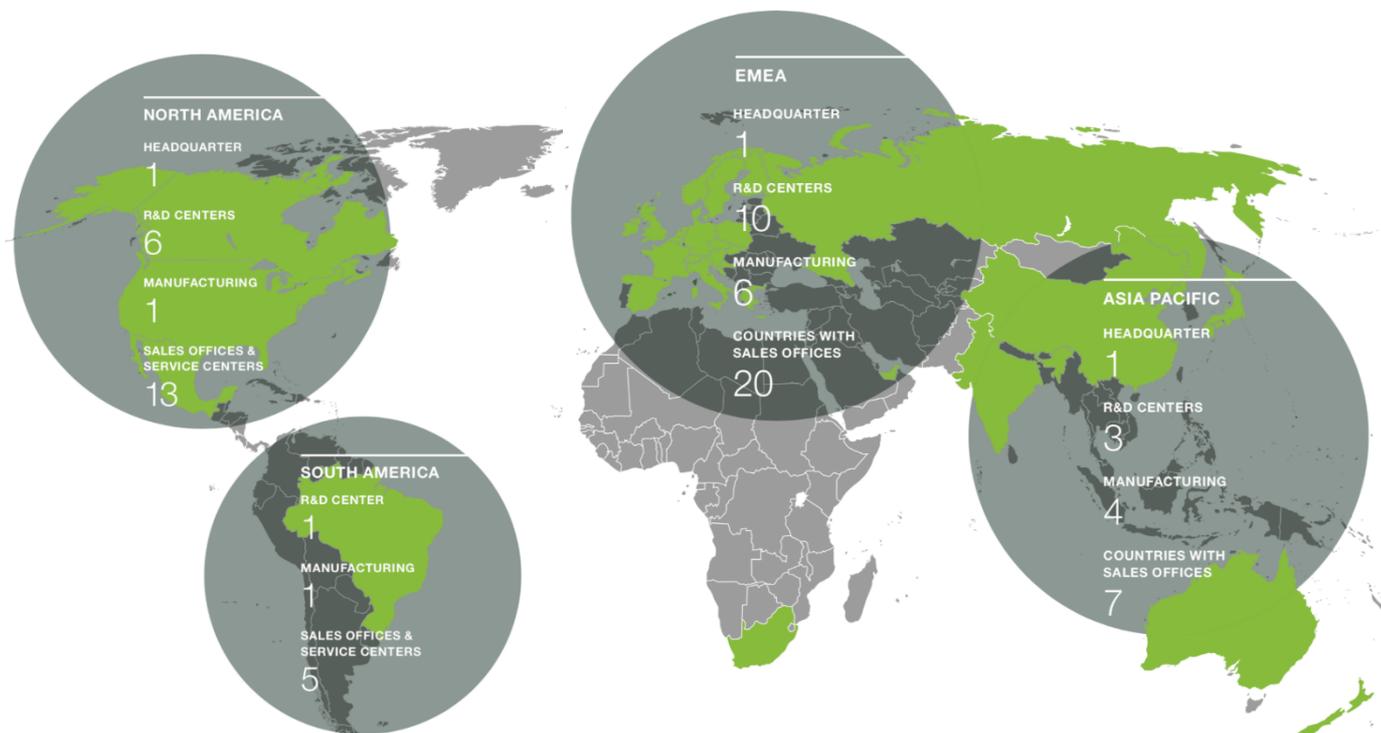
# Appendix 40: SWOT

Strengths	Opportunities
Recognized brandname in the industry	UK Rollout estimated to 2023 represents a significant ramp up and regardless of new entrants, L+G will manage to maintain its competitive positioning
Presence in global markets	Accelerating rollouts in Asia, EMEA and APAC
Experienced, Internationally diverse Board of Directors	Previously negative Cost Benefit Analysis in EMEA might be inclined to change under New Clean Energy Package
Operational Improvement and Cost Optimization initiatives	Improving profitability on the back of efficiency programs
Increased R&D efforts with a focus on software-enabled solutions	AMI, solutions and services business could see accelerated demand once rollouts are complete
Stable business in North America with sustained high margins	Asset Light Model could provide higher flexibility and Higher Scale-Driven cost savings in light of industry-wide supplychain issues
Proven track record of delivering profitable growth	Regulatory bodies are pushing towards interoperability standards and utilities opt for a software defined networking architecture.
Access to an attractive set of end markets and regions with different maturities	External growth through margin-enhancing acquisitions

Weaknesses	Threats
Smart meter rollouts largely dependent on regulatory push	Macroeconomic risks causing a delayed transitioning to smart metering and Smart-Grid
Overall highly fragmented market environment	Industry is shifting towards vendor-neutral ecosystem, and uptake amongst utilities beyond managed services is very slow.
Margin pressure and ASP erosion is likely to increase in EMEA because of supply chain bottlenecks, and massive amount of new entrants in remaining rollout projects	Lengthy and complex sales cycle/pilot projects
Smart Meter Hardware have become commoditized	Highly competitive markets: Unable to penetrate markets that are dominated by local competitors & localized portfolio of products which local Utilities prefer.
Group Executive Management less prone to implementing innovative solutions	Strong dependence to limited number of customers and Large volume projects
	IP infringement claims
	Supply chain hit: Dependence to price fluctuations of the components, sub-assemblies, commodities and materials
	Rollout Scale and resulting pricing power of customer utilities will continue to deteriorate gross margin.
	Strong dependence to limited number of suppliers and manufacturers

Source: Landis+Gyr, Team assessment

# Appendix 41: L+G's locations



Source: Landis+Gyr



# Appendix 42: Business model canvas

<p><b>Key Partners</b> </p> <ul style="list-style-type: none"> <li>✓ Utilities</li> <li>✓ Regulatory bodies and governments</li> <li>✓ Tier 1 contract manufacturers and suppliers</li> <li>✓ Other smart metering companies</li> </ul>	<p><b>Key Activities</b> </p> <ul style="list-style-type: none"> <li>✓ Hardware installations, replacements &amp; upgrades</li> <li>✓ Data collection and analysis</li> <li>✓ Forecasting &amp; simulations</li> <li>✓ Network &amp; grid performance analysis</li> <li>✓ Consumer connection &amp; tariff management</li> <li>✓ Development of embedded or application software</li> </ul> <p><b>Key Resources</b> </p> <ul style="list-style-type: none"> <li><b>20</b> R&amp;D centers worldwide</li> <li><b>12</b> manufacturing sites</li> <li><b>1.3+</b> billion data reads daily</li> <li><b>45</b> sales offices &amp; service centers</li> <li><b>~6'000</b> employees ( of which 23% are engineers)</li> </ul>	<p><b>Value Propositions</b> </p> <p><b>Measure</b></p> <ul style="list-style-type: none"> <li>✓ Electricity, gas, heat/cold</li> </ul> <p><b>Communicate</b></p> <ul style="list-style-type: none"> <li>✓ Network, gateways, modules</li> </ul> <p><b>Monitor, control &amp; automate</b></p> <ul style="list-style-type: none"> <li>✓ AMI system performance</li> <li>✓ Demand response</li> <li>✓ Asset management</li> <li>✓ DER management</li> <li>✓ Outage management &amp; restoration</li> <li>✓ Grid and data analytics</li> </ul> <p><b>Operate</b></p> <ul style="list-style-type: none"> <li>✓ Data center hosting</li> <li>✓ Managed services</li> <li>✓ Software as a service</li> </ul>	<p><b>Customer Relationships</b> </p> <ul style="list-style-type: none"> <li>✓ Customer support</li> <li>✓ Secure web portals</li> <li>✓ Mobile applications</li> </ul> <p><b>Channels</b> </p> <ul style="list-style-type: none"> <li>✓ Direct sales</li> <li>✓ Sales through distributors</li> <li>✓ L+G website</li> </ul>	<p><b>Customer Segments</b> </p> <p><b>3'500+</b> customers worldwide</p> <ul style="list-style-type: none"> <li>✓ Energy utilities</li> <li>✓ Big buildings</li> <li>✓ Centralized large-scale generation</li> <li>✓ Commercial energy consumers</li> <li>✓ Distributed generation from renewables</li> <li>✓ Large industrial customers</li> <li>✓ Microgrid &amp; microgeneration from renewables</li> <li>✓ Peak generation</li> <li>✓ Plug-in electric vehicles</li> <li>✓ Residential energy consumers</li> <li>✓ Street lighting</li> <li>✓ Transmission and distribution networks</li> </ul>
<p><b>Cost Structure</b> </p> <ul style="list-style-type: none"> <li>✓ Direct labor costs</li> <li>✓ Cost of all material used in production</li> <li>✓ Research &amp; development</li> <li>✓ Sales &amp; marketing</li> <li>✓ General &amp; administrative</li> <li>✓ Amortization &amp; impairment of intangibles</li> <li>✓ Impairment of long-lived assets</li> </ul>		<p><b>Revenue Streams</b> </p> <p><b>Hardware</b></p> <ul style="list-style-type: none"> <li>✓ Meter sale</li> <li>✓ Leasing</li> <li>✓ Meter installation</li> </ul> <p><b>Software &amp; managed services</b></p> <ul style="list-style-type: none"> <li>✓ Software license fees</li> <li>✓ Outsourced managed services contracts</li> <li>✓ Training fees</li> <li>✓ Post customer support services</li> </ul>		

Source: Landis+Gyr, Team assessment



Some useful definitions	
<b>5G</b>	Fifth generation of cellular mobile communication and to be the fastest one, as it is only being deployed commercially as of March 2019. 5G is targeting to reach high speed, low power and low latency, for massive IoT, tactile internet and robotics.
<b>AMI (Advanced Metering Infrastructure)</b>	Advanced metering infrastructure (AMI) is an integrated system of smart meters, communications networks, and data management systems that enables two-way communication between utilities and customers.
<b>ANSI Metering Standard</b>	American National Standard for Electricity Meters (ANSI) - accuracy and performance. The standard established the physical aspects and performance criteria for a meter's accuracy class.
<b>Intelligent metering / smart metering</b>	Systems that measure, collect, and analyze energy usage, and communicate with metering devices such as electricity meters, gas meters, heat meters, and water meters, either on request or on a schedule.
<b>Internet of Things (IoT)</b>	The interconnection via the Internet of computing devices embedded in everyday objects, enabling them to send and receive data.
<b>Internet Protocol (IP)</b>	The Internet Protocol (IP) is the principal communications protocol in the Internet protocol suite for relaying information across network boundaries. Its routing function enables internetworking, and essentially establishes the Internet.
<b>Long-Term Evolution (LTE)</b>	Fourth generation of cellular mobile.
<b>Power Line Communication (PLC)</b>	Power Line Communication (PLC) is a communication technology that enables sending data over existing power cables. With just power cables running to an electronic device, one can both power it up and at the same time control/retrieve data from it. In Europe, since most meters are indoors, PLC technology is prevalent.
<b>Radio Frequency (RF) mesh network</b>	A mesh network allows nodes to talk to each other before reaching an access point or repeater. An RF mesh network uses radio frequencies as its medium of communication.
<b>Smart Metering Equipment Technical Specifications (SMETS)</b>	The United Kingdom's industry standard that specifies how smart meters work, and in particular how the meter connects to, and communicates with the supplier.
<b>Two-way communication</b>	Two-way communication is a form of transmission in which both parties involved transmit and receive information.

Some useful formulas	
<b>Adjusted EBITDA</b>	EBITDA + Restructuring charges + Exceptional warranty related expenses
<b>Debt ratio</b>	(Short-term borrowing + Current portion of long-term debt + Long-term debt) / Total asset
<b>Net debt</b>	Total debt – Total cash



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