finnrunner

Hydropower turbines for the world

INTRO

Technological start-up aimed at creating a high-quality product in the global hydropower industry uniting Finland quality and Russian turbine engineering experience

https://finnrunner.fi

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About us

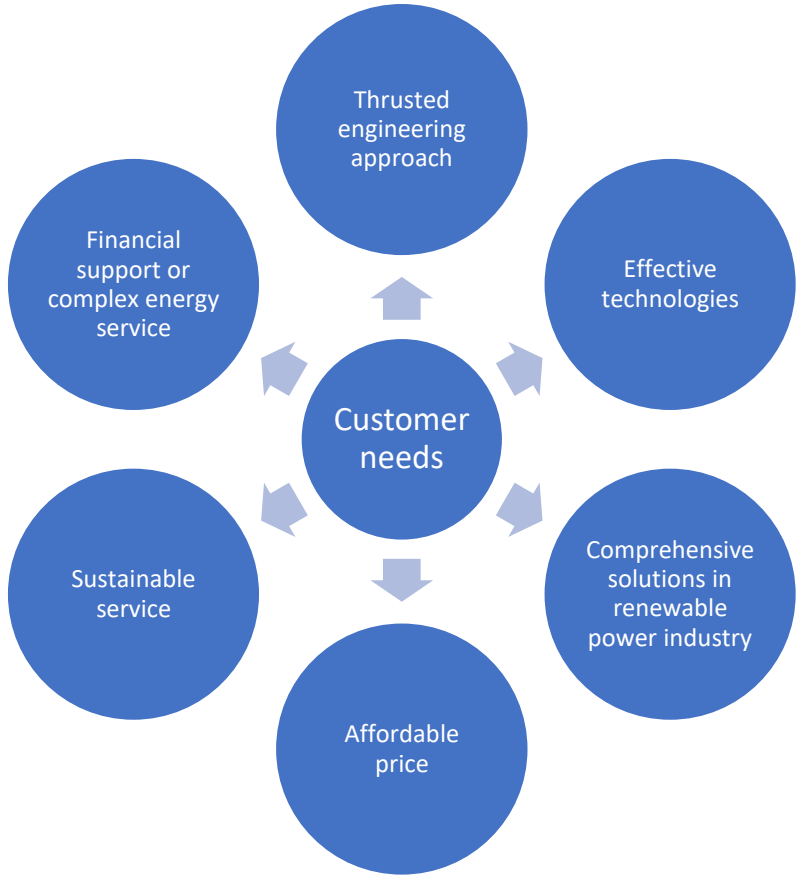
We aim to apply new modern technologies in a hydro turbine construction and equipment for small hydropower plants

Startup Brief **Concept**

From Additional value to Competitiveness

Now to be competitive is not enough to make a good product in a good price. To be competitive means meet the countries' protective requirements and adapt to them in order to make best for the Customer.

In order to do that, turbines and other equipment that is planned to be produced will be divided between interdependent companies in Finland and Russia. About 50% of **Finnrunner** product is supposed to be produced at own production facilities in Finland or for the beginning placed at third-party Finnish industries. The remaining 50% is planned to be carried out through a subsidiary of the Russian Federation, placing orders at Russian manufactures or own production facility in the special economic zone in order to reduce taxes for nearest 10 years.



Technology Bridge

Creating and manufacturing Technological and high-quality product requires involvement both experienced and fresh vision. Thus we aimed at working with Finland and Russian Universities' in creating the global hydropower industry product.

Our Engineers and Consultants are experienced professionals in the field of hydraulic, renewables and power engineering, former and existing employees of Power Machines, Sweco, ABB, GE, LUT and St. Petersburg Polytechnic University.

FIN RUS expected DOW

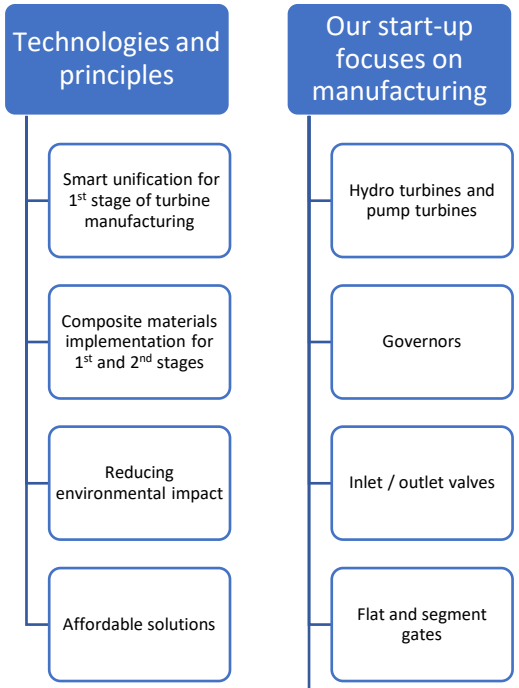
Finland office	Finland manufacturing	Russian office	Russian manufacturing
Design & Technology	1st stage – own assembly plant and outsourced turbine parts production	RU internal sales, EU sales, World sales, tender's participation	Outsourced turbine parts and other equipment production
R&D with LUT support	2nd stage – own turbine parts production facilities	R&D with Peter the Great St. Petersburg Polytechnic University	RU procurement of auxiliary equipment
Patents holder	EU procurement of auxiliary equipment	*Participation in government support programs and cost recovery tariff	Compliance with localization requirements for participation in*
EU certifications	Quality control	Services, erection, maintenance, engineering	RU manufacturing support programs
FI & EU export trade support	FI manufacturing support programs	**RU export trade support	Compliance with localization requirements for participation in**

Benefits: Finland is the synonymous of high standards, technologies, legal certainty. That allows start-up company be competitive and to take more active position in negotiations with FIN, EU and World prospective Customers.

Benefits: Russia provides good opportunities for construction small renewable power plants by cost recovery tariff. Our Russian partners for the next 5 years plans to build and reconstruct 7 SHPPs Thereby appear possibility to make good reference for new turbine start-up Company on the Russian market

Forecast products and services list

Finnrunner focuses on products, technologies, flexible solutions and services that solve Customers problems.



Our start-up is ready to become the leader supplier for HYDRO POWER PLANTS and other RENEWABLES through professional approach in design, turbine and auxiliary equipment manufacturing, implementing environmentally friendly solutions and developing future technologies.

For the 1st we finalize the full product line of Kaplan turbines up to 1MW, next up to 10MW. Kaplan turbines are most suitable for low heads and high flows found in most of Finland, European Russia, Sweden, Norway, etc.

Steps for product line development

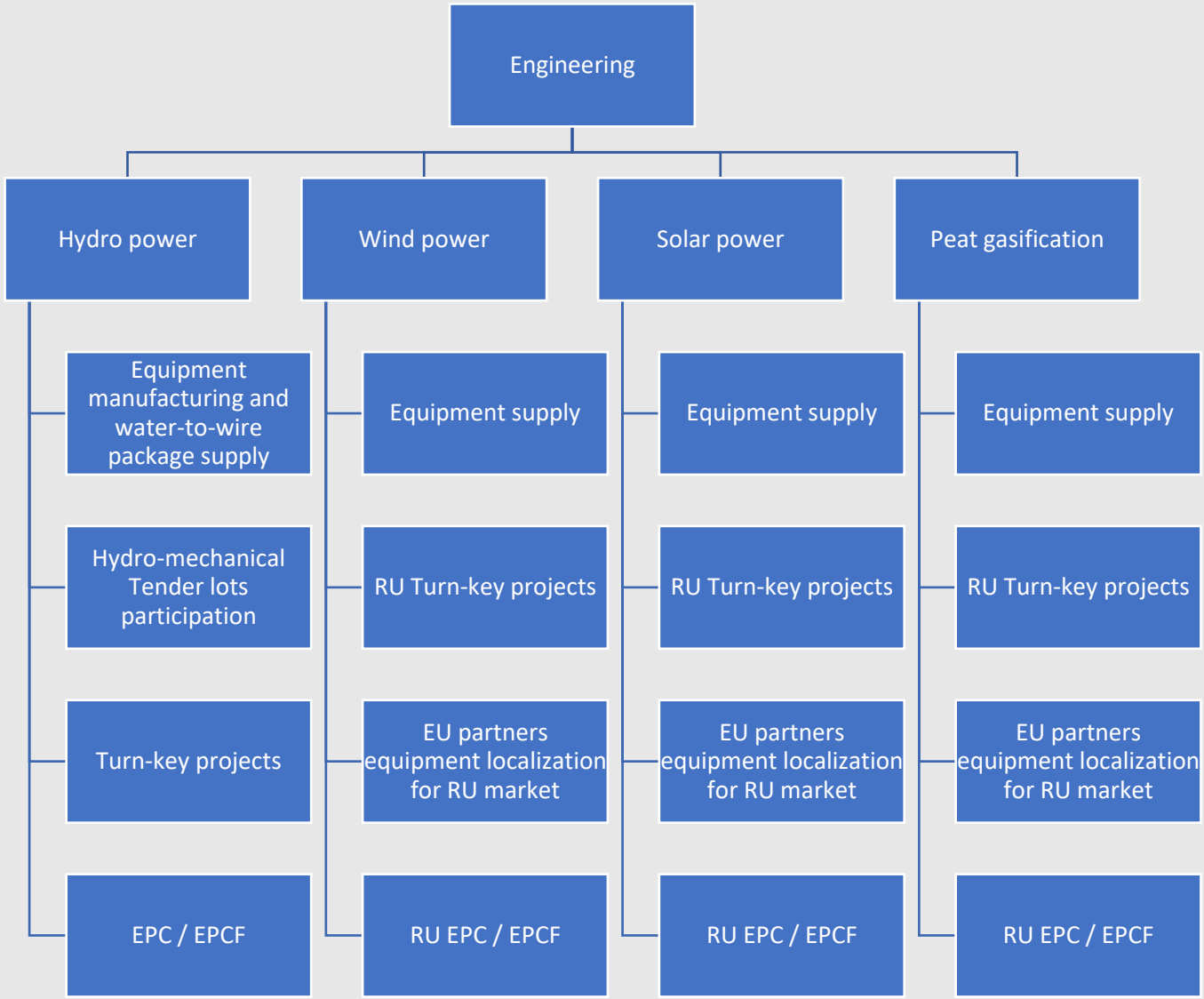
Hydro turbines manufacturing	1st stage **Up to 1MW**	2nd stage **Up to 10MW**	3rd stage **Up to 25MW**	4th stage **Up to 100MW**

Scope of add value services that are an integral part of supply manufactured equipment

Engineering	Hydropower	Wind power*	Solar power*	Peat gasification*
EPC / EPCF participation	1st stage **Up to 5M €**	2nd stage **Up to 25M €**	3rd stage **Up to 100M €**	
Services	**Energy supply services with guaranteed tariff revenue**	**Consulting**		
Turn-key solutions	**Designing and obtaining permits**	**Execution of construction works**	**Supplying equipment**	**Commissioning and putting in operation**

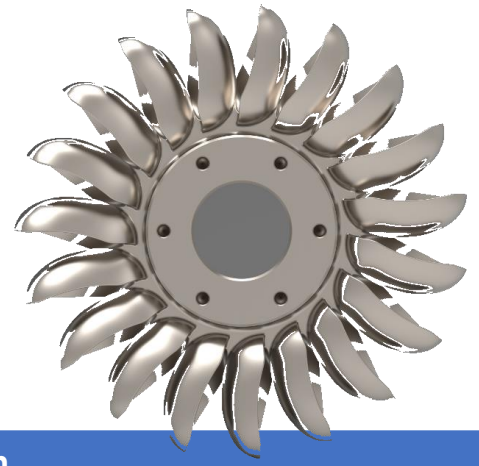
* See next page

Engineering. **Functions**



Product. **Runners**

Stainless steel or bronze Kaplan turbines have efficiency up to 89-94%. Lightening the weight of the turbine by composite materials able to increase efficiency for up to 2% and reduce price of the runner up to 30%. Our plan to organize R&D work together with Universities labs in order to reach maximal lightening of the turbine, split the turbine into unified parts for groups of turbines (i.e. 100-500kW, 501-1000kW) and typesetting parts for changeable parameters such output power, flow, heads, etc. Unification will allow to get a high-quality product, reduce costs and reduce production time up to time required for control assembly.



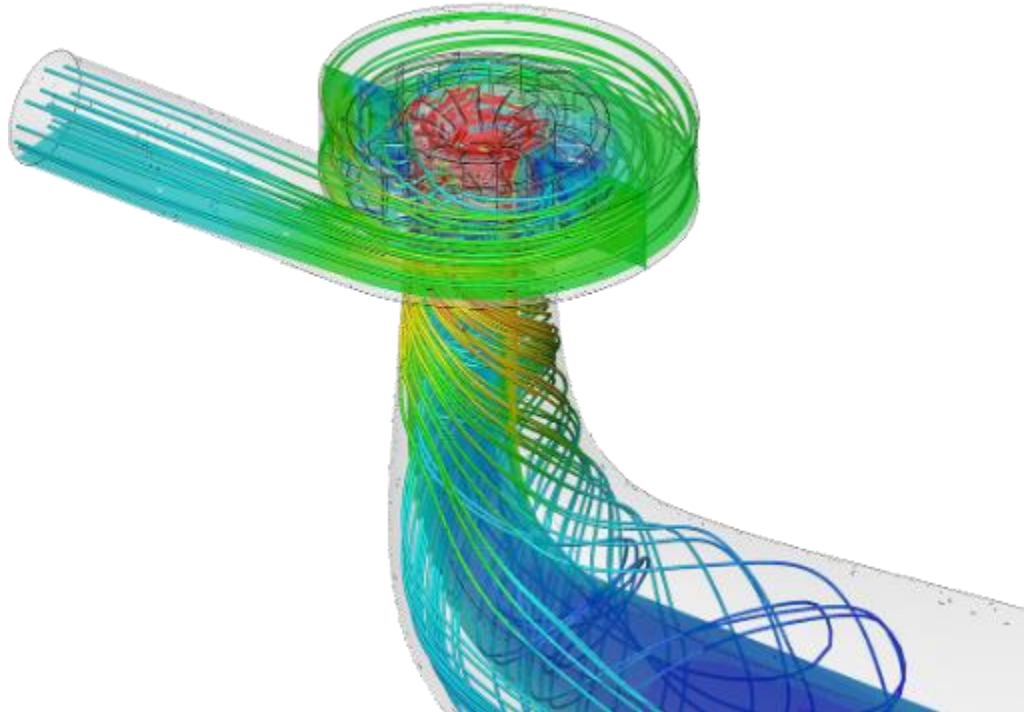
Kaplan	Francis	Pelton
Capacity of up to 10 MW	Capacity of up to 10 MW	Capacity of up to 10 MW
Pressure heads of up to 40m	Pressure heads of up to 300m	Pressure heads of up to 300m
Runner 0.5 to 3.0 m DIA	Runner 0.3 to 2.0 m DIA	Runner 0.3 to 2.0 m DIA
Types: Vertical, Bulb, Z, and S	Types: Vertical, Horizontal	Types: Vertical, Horizontal

Smart energy solutions for **Customers**

Manufacturing accounts for about half of Finland's exports and almost 30 % of the GDP so this sector is very important to Finland economy*. Continuing this thought - Finland occupies one of the leading places in the world in implementation and creation of modern high-performance and eco-friendly technologies in manufacturing industries, mechanical engineering and shipbuilding. Finnrunner focuses on more resource-efficient approach and implementing composite materials technologies to the production of small turbines. New solutions are meant to increase efficiency, productivity and environmental friendliness, and with FIN-RUS business model should increase productivity, reduce costs. Finnrunner new solutions will develop into significant export products for Finland.

Additional Value

Is achieved by dividing the supplied equipment for hydropower plants between Finnish and Russian part of Finnrunner Company on the principle of maximum economic efficiency, reducing costs for the end Consumers and comprehensive use of international trade support instruments.



*https://www.businessfinland.fi/en/for-finnish-customers/services/programs/sustainable-manufacturing-finland/

Market review

Finnrunner (Finland) competitors and the major players in the global small hydropower market are Voith(Germany), ANDRITZ(Austria), GE Renewable Energy(France), Toshiba(Japan), Siemens(Germany), BHEL(India), Gilbert Gilkes & Gordon(UK), and Flovel (India), etc., about 20 main companies.

The 1–10 MW segment is expected to be the largest market during the forecast period

The small hydropower market, by capacity, is segmented into Up to 1 MW and 1–10 MW. The 1–10 MW segment is projected to be the most abundant small hydropower, by capacity, market during the forecast period. This higher share of 1–10 MW plants can be attributed to the small-scale decentralized projects being deployed in developing nations, especially in Asia Pacific, for rural electrification. Asia Pacific dominated the 1–10 MW segment of the small hydropower. China, Vietnam, and India account for the significant share of the small hydropower installations in this region. The demand for small hydropower is driven by increasing investments for rural electrification in these countries.

The Mini Hydropower segment is expected to be the most significant contributor to the Small hydropower market, by type, during the forecast period

The small hydropower, by type, is segmented into Mini Hydropower, and Micro Hydropower segments. The Mini hydropower segment is expected to lead the small hydropower market during the forecast period. Installations in the mini-hydropower segment are largely driven rural electrification. China led the way in installing small hydropower plants for rural electrification. In developed countries such as the US and Norway, the installations are to increase the renewable energy share in the nation's energy mix.

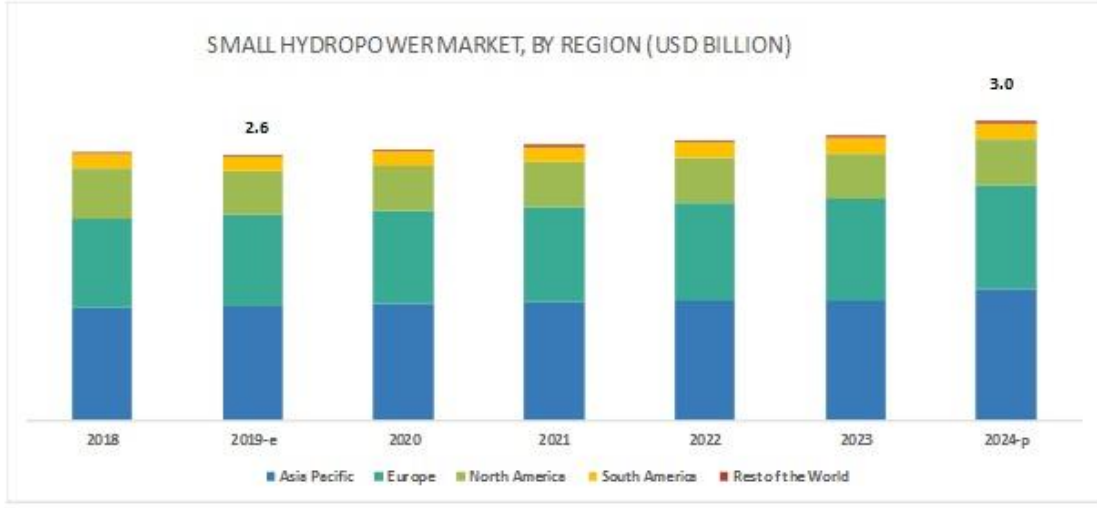
Finland

There are currently about 150 small hydropower plants operating in Finland, with a capacity ranging from 50 to 1000 kW. With a certain frequency, these stations require reconstruction, replacement of equipment, maintenance.

Russia

In the Russian Federation, there are programs to support the construction and rehabilitation of small hydroelectric power plants, subject to the use of localized equipment. There are no Companies that have strong positions in Russia and possibilities for work with new small Generation Companies due to internal procedures and possibilities to fast equipment localization.

e- Estimated; p- Projected



E- Estimated; P- Projected

https://www.marketsandmarkets.com/Market-Reports/small-hydropower-market-63387972.html

From 0 to **10%** in a nearest **5 years**

Finnrunner has an ambitious target for the next 5 years to take 10% of the small hydropower equipment market.

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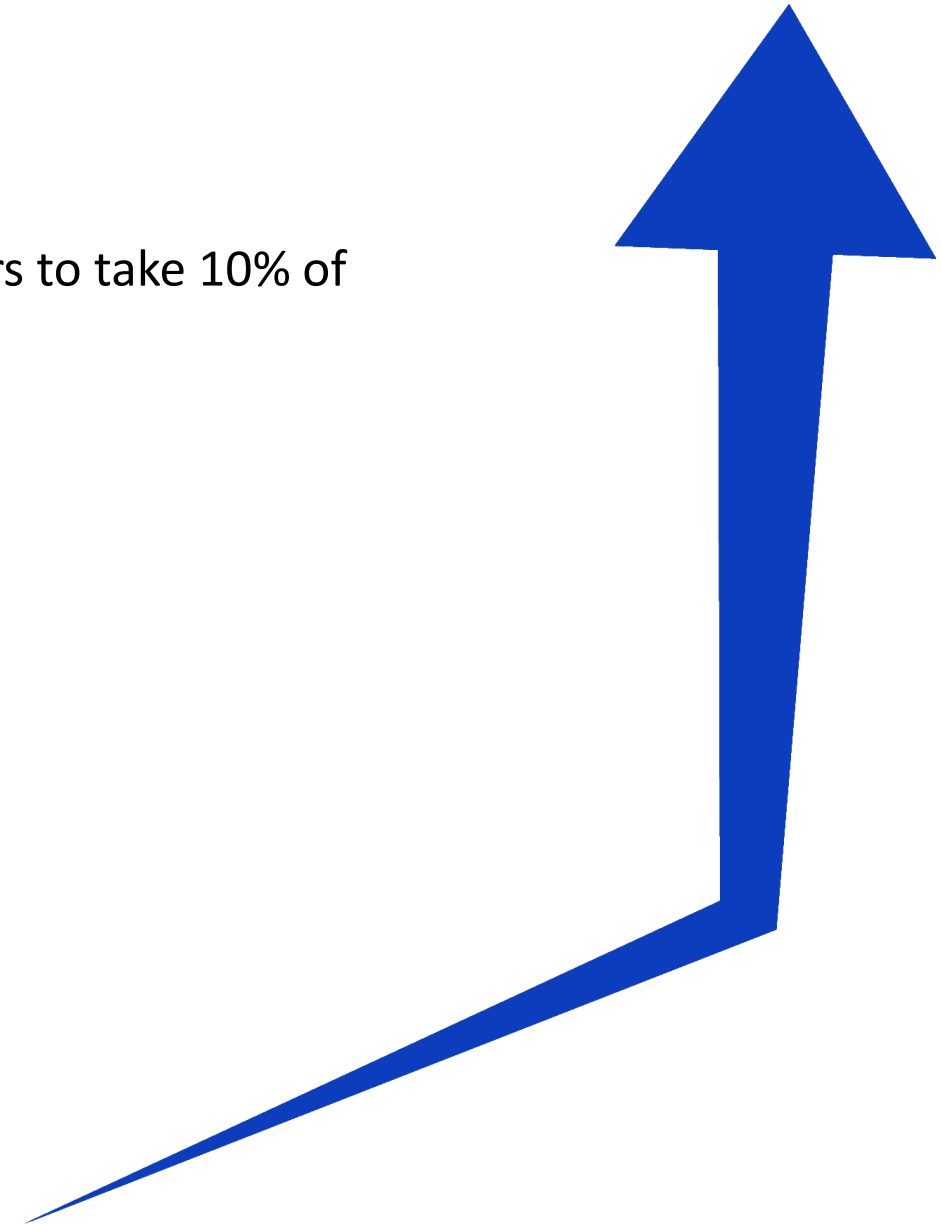

From start-up to **Bright Future**

Initial steps for funding

Step 1

- Represent concept of the project for Business Finland
- Receive feedback

Step 2

- Start work on a business plan
- Detailing the Concept
- FINNVERA export consultancies
- Getting Started work with platforms to attract investments

Step 3

- Meetings with prospective investors
- Getting started work with potential Customers
- Negotiating and specifying initial investment agreements

Step 4

- Finding international partner for applying for Tempo funding program / The Smart Energy Finland Program / Sustainable manufacturing Program / Horizon 2020
- Signing investment agreement

From start-up to Bright Future

Step 5

- Establishing Finnrunner OY
- Getting 1st financing portion for participation in programs
- Opening local design Bureau
- Getting first orders
- Placing an order for manufacturing hydro turbine parts on Finnish production facilities and shipyards

Step 6

- Getting Tempo-funding or next round of Private investments
- Opening assembly plant in Finland
- The purchase or construction of necessary facility for the assembly turbines
- Establishing Finnrunner-Rus
- Delivery of 1st ordered turbines

Step 7

- Evolution Finnrunner as an independent manufacturer.
- Procurement of necessary machinery and machine-tools for own production
- Expansion of the production line
- Work with FI, RU, SWEDEN, NORWAY Customers

Step 8

- Finnrunner like a Technology bridge
- Transfer of knowledge and technology between our countries
- World expansion
- Universities collaboration, training and practice of students

Required funding	Required funding	Required funding	Required funding
2M EURO	20M EURO	Self-financing from the received revenue	Self-financing from the received revenue

Technology **Bridge**

Thank you for your attention

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