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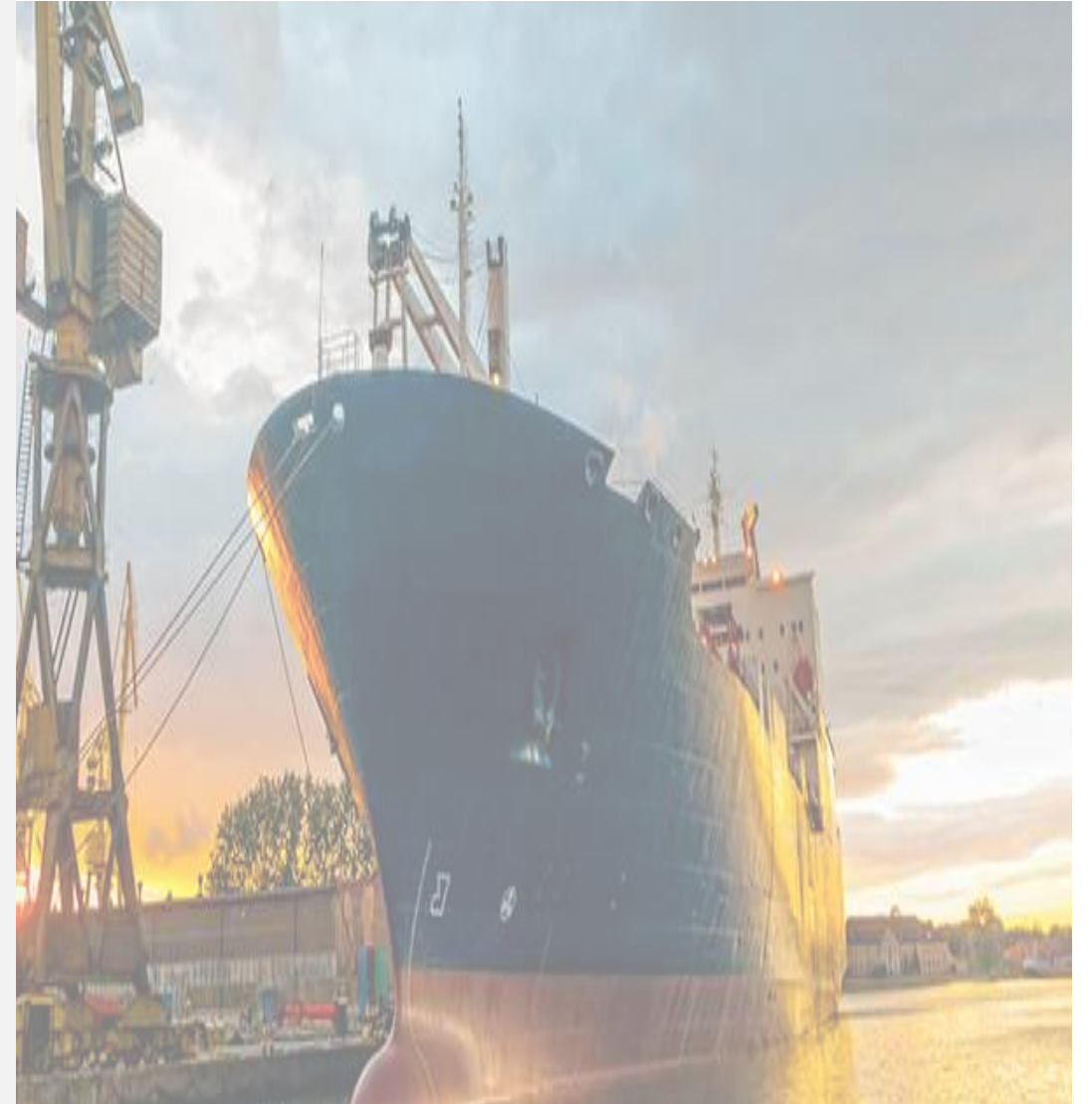
**Innovations to Mitigate Climate Change in
Waterways Transport**

Introduction

The study gives an insight into the family of patents that relates to mitigation of climate change in Waterways Transport, published worldwide after Paris Agreement- an agreement within the United Nations Framework Convention on Climate Change, on climate change mitigation, adaptation, and finance, signed in 2016. Though majority of the patent in the domain are held by big players like Daewoo, Samsung, Mitsubishi and the like, few small players, specifically from China has relay intriguing technologies related to efficient management of fuel in waterways transport.

Our research team at IIPRD analyzed data pertaining to patents that were published after Paris Agreement and tracked patent activities related to these publications and came out with some eye-catching insights.

Our team has summarized the key findings in the coming slides. For a copy of the detailed technology-wise analysis, write to us at sanjay@iiprd.com



Innovating to Combat Climate Change

60%

Korean Dominance

More than 60% of patents published in the year 2020 are held by Korean and Chinese companies. Among them Daewoo, Hyundai and Samsung are frontrunners.

25%

Decline in Innovation

Companies showed interest in fight against climate change and filed patents that aim to mitigate climate change. However, the filings declined in 2018 and following years.

85%

Tech Focus

The industry in general is focusing more on power plant and fuel management segment of technology.

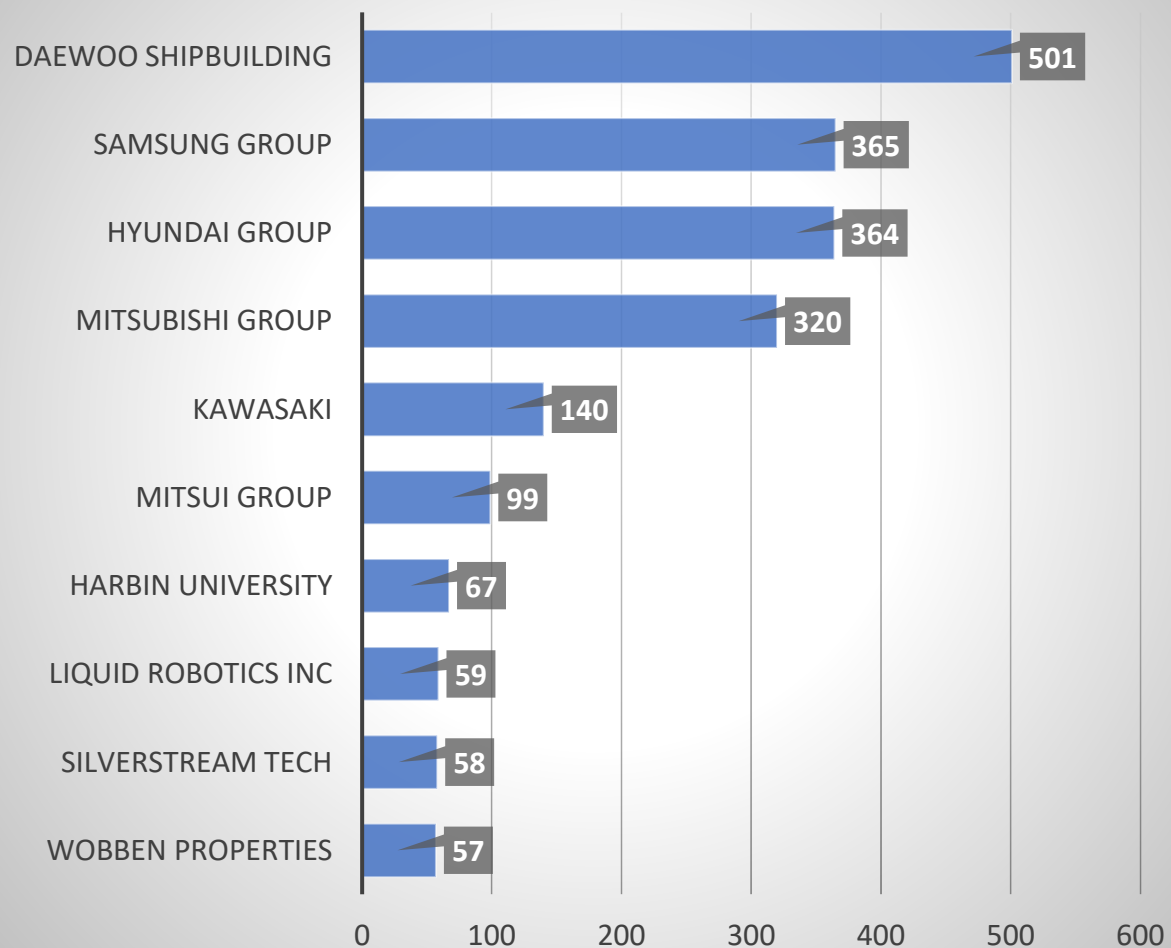
2.5 Years

Wait Time

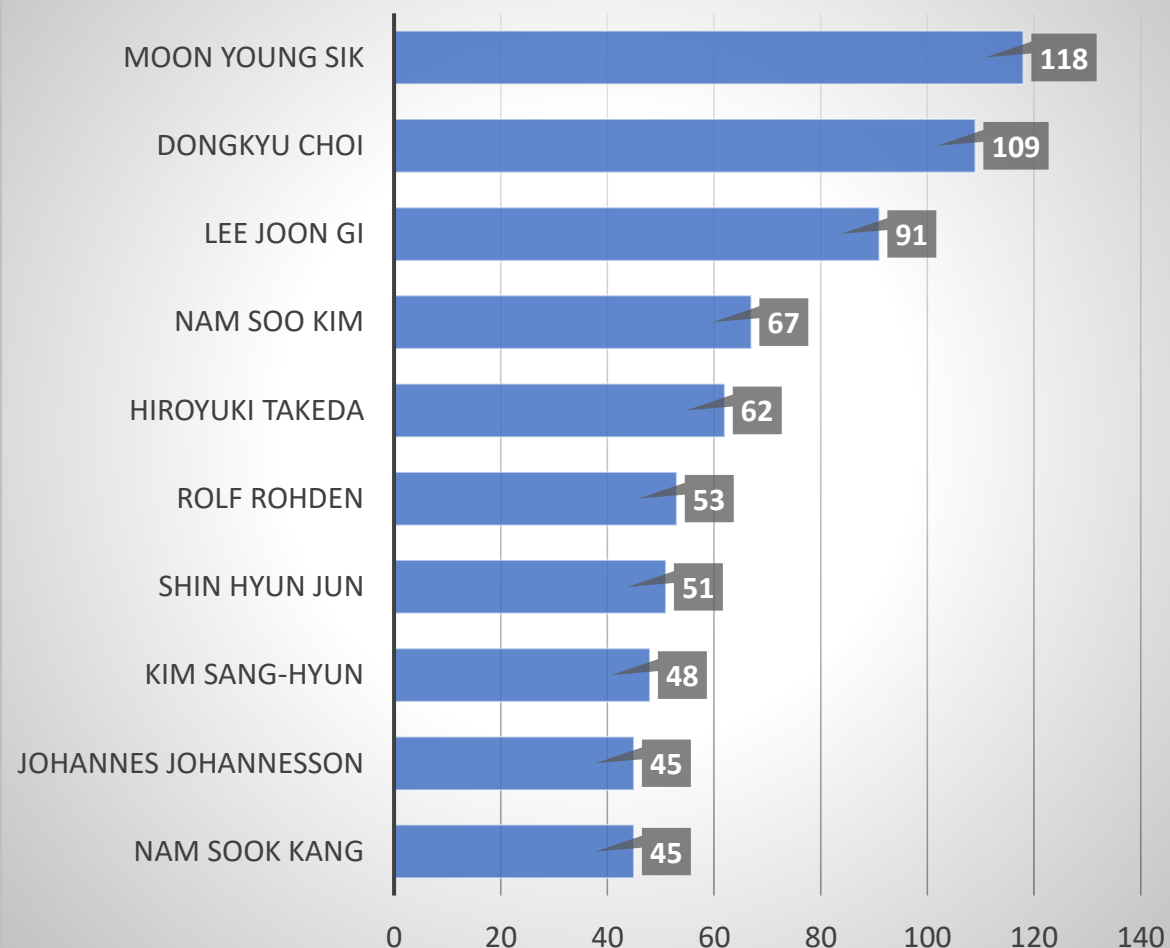
Pendency period in all major hotspot like South Korea, China, USA and others is nearly between 2.5-3 years.

Top Patent Assignee in 2020

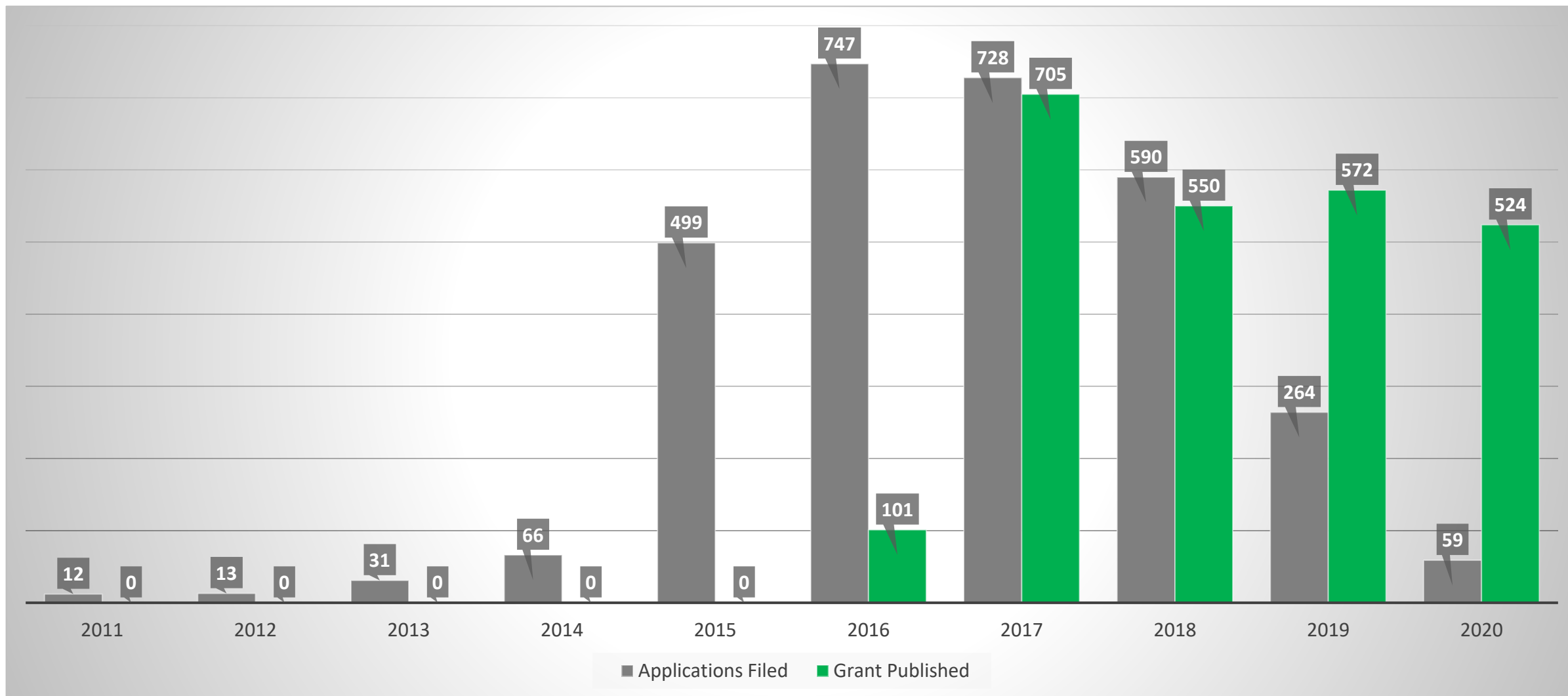
Assignees



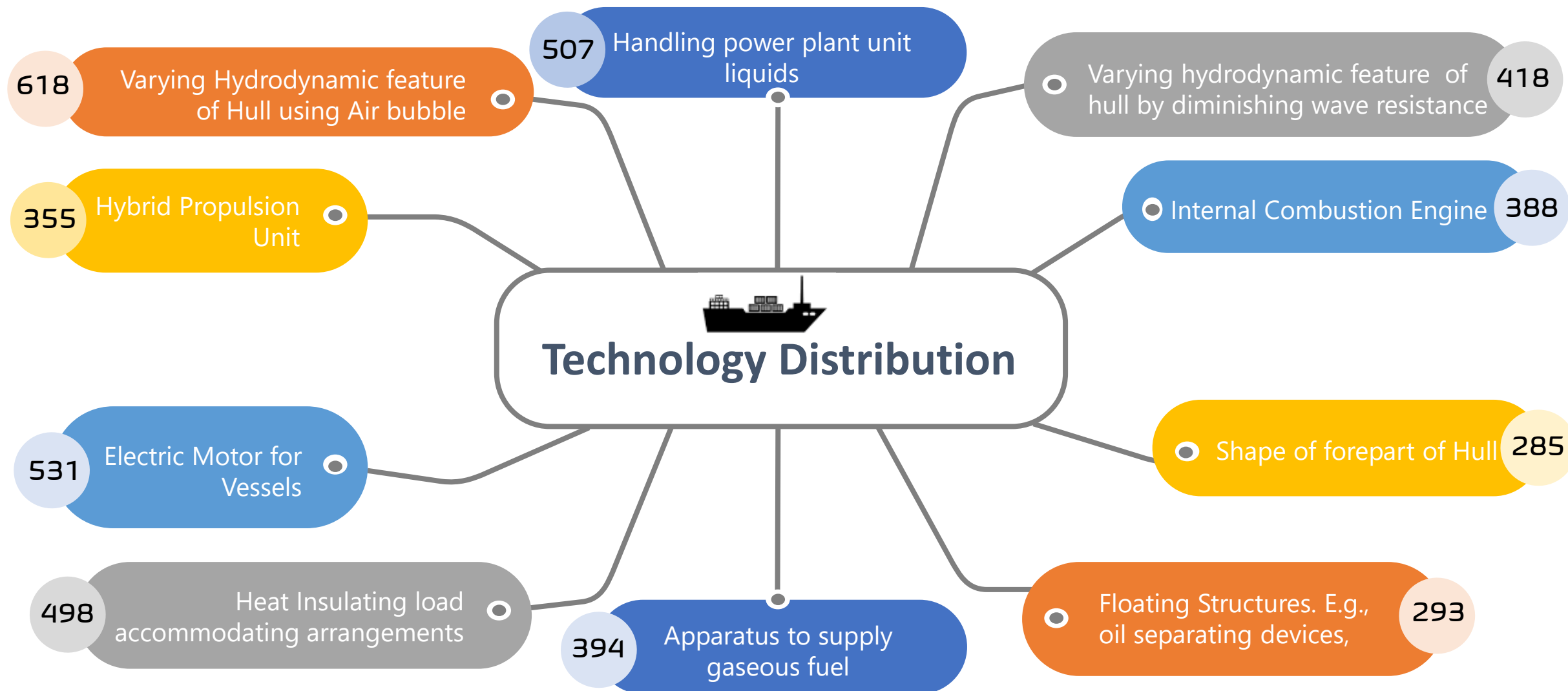
Inventors



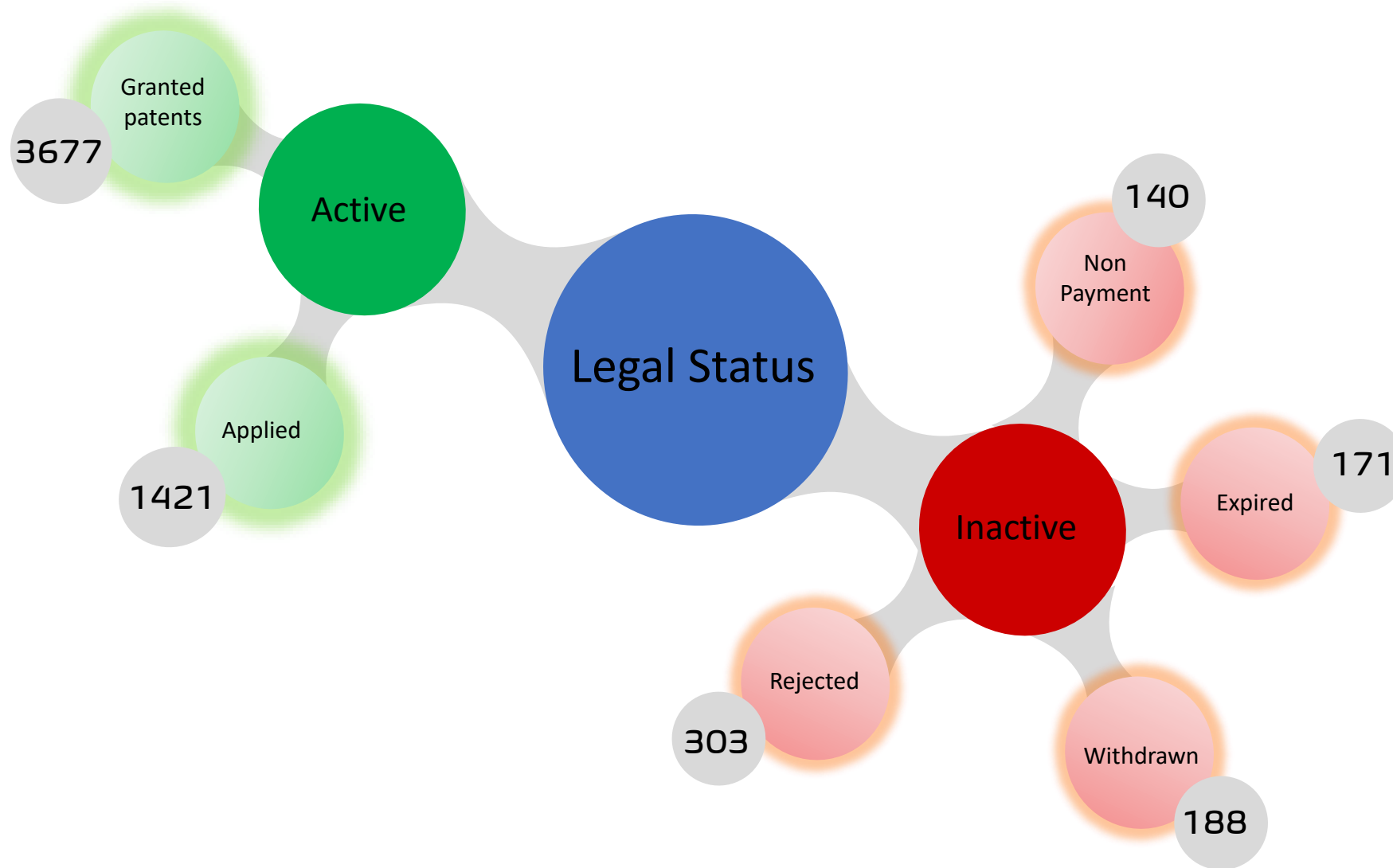
Patenting Trend



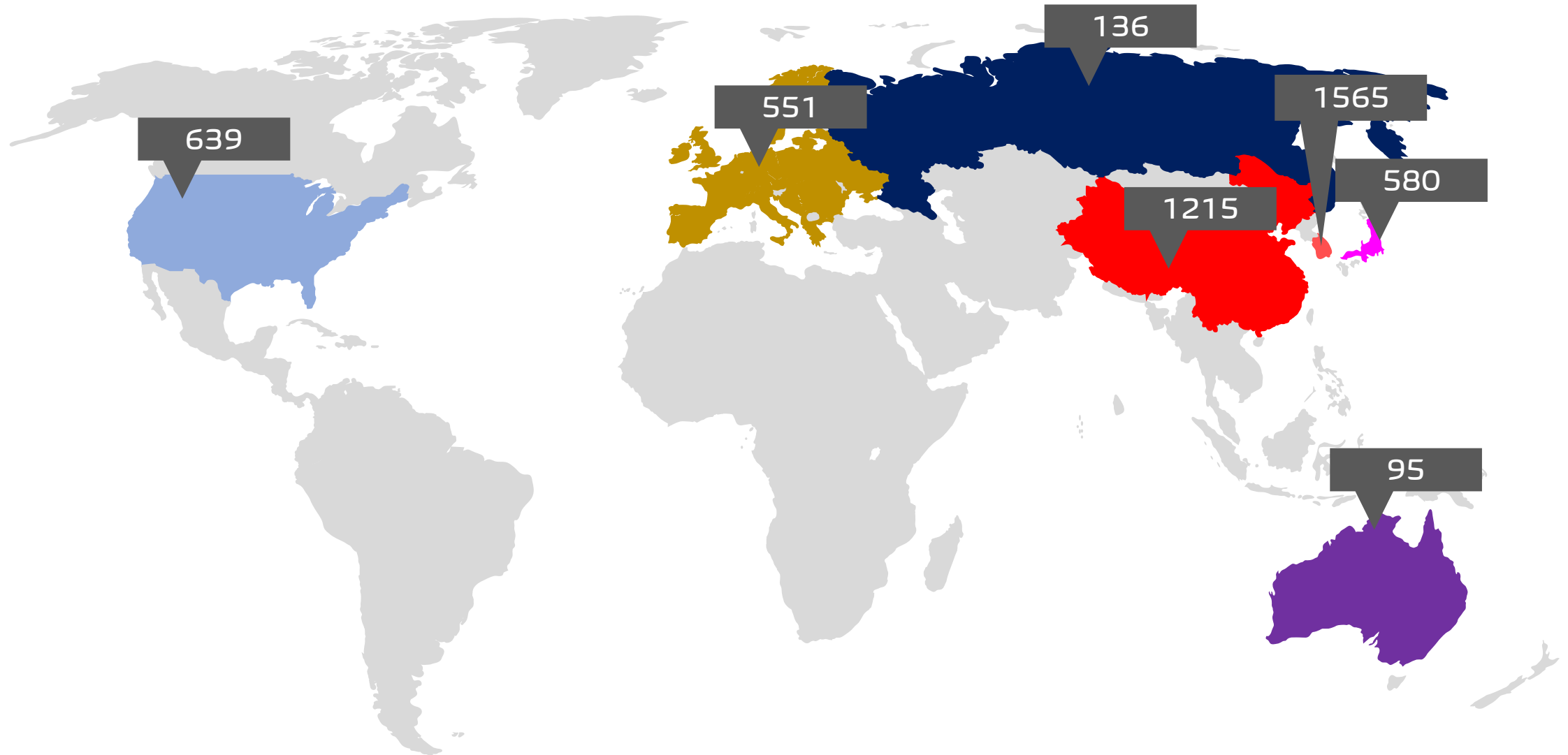
Key Patented Technologies



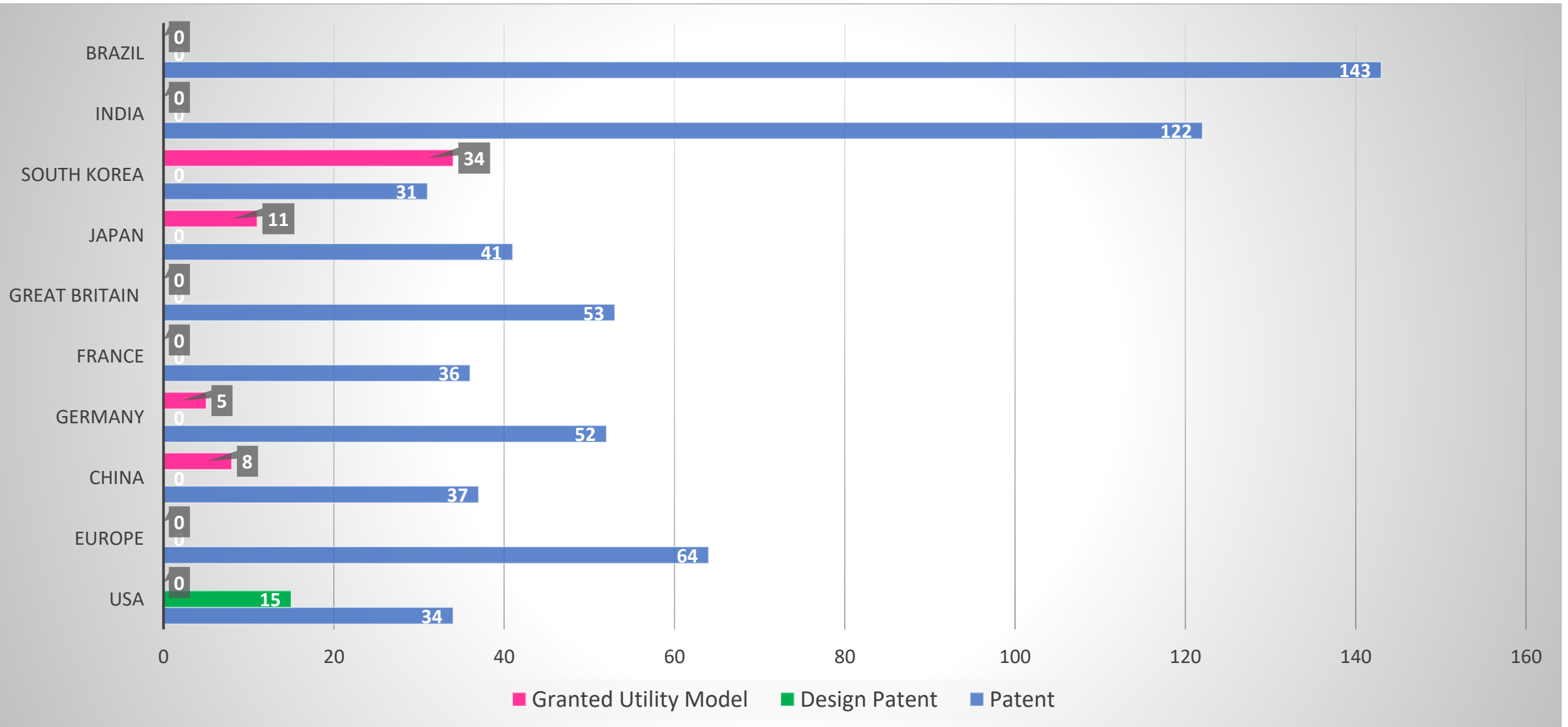
Legal State of Patents












Publication Countries












Time to Grant












Earliest Priority detail of Patent

<div><div> DAEWOO</div><div> SAMSUNG</div><div> HYUNDAI <small>SAMHO HEAVY INDUSTRIES CO.,LTD.</small></div><div> MITSUBISHI HEAVY INDUSTRIES</div><div> Kawasaki</div><div> MITSUI E&S</div><div> HARBIN ENGINEERING UNIVERSITY</div><div> LIQUID ROBOTICS <small>A Boeing Company</small></div><div> SILVERSTREAM TECHNOLOGIES</div></div>										
0	0	13	0	0	0	1	2	0	0	
16	3	9	3	5	0	21	1	0	4	
41	57	17	16	13	1	19	4	0	1	
64	53	79	53	38	3	16	10	2	14	
131	89	131	28	43	33	6	4	2	12	
100	128	65	56	27	30	4	4	4	18	
33	20	24	25	9	7	0	11	1	1	
50	6	3	14	1	2	0	0	2	3	
8	0	7	12	4	5	0	17	0	0	
9	1	4	3	0	0	0	0	38	0	

Jurisdiction Coverage

									
Korea	288	318	306	51	23	12	14	0	0
China	22	12	17	31	30	19	11	66	4
USA	21	10	5	13	0	0	4	1	23
Japan	16	10	10	70	42	41	18	0	0
Europe	39	7	8	24	13	1	19	0	10
WIPO	10	5	5	14	18	6	4	0	0
Russia	24	0	0	0	0	0	0	0	0
Australia	0	0	0	0	0	0	0	0	7
Denmark	12	1	0	2	1	1	0	0	0
Spain	10	0	0	0	0	0	0	0	1

Technology Areas Covered by Top Players

									
Shape of fore part of Hull	10	27	19	8	0	20	0	0	0
Floating Structures. Eg. carrying water-oil separating devices	58	50	63	0	0	14	1	5	0
Hybrid propulsion units	11	0	3	25	30	1	10	0	0
Internal-combustion engines	78	11	14	46	73	16	0	0	0
Apparatus to supply gaseous fuels	141	37	49	5	64	13	0	0	0
Varying Hydrodynamic features of hulls by diminishing wave resistance	22	43	11	12	0	10	13	0	0
Heat-insulated Load-accommodating arrangements	190	40	104	13	65	9	0	0	0
Handling power plant or unit liquids e.g. lubricants, coolants, fuels	196	28	69	11	69	11	3	0	0
Electric motor for Vessels	21	18	45	31	32	1	2	4	0
Varying Hydrodynamic features of hulls using air bubbles	23	75	43	63	4	10	19	0	56

Key Takeaways

- Korea and China are leading the race in mitigating climate change in waterways transport followed by Japan, USA and few European countries like Denmark and Spain.
- Unlike China, innovations in Korea is segregated and most of the innovations are owned by Daewoo, Samsung or Hyundai.
- After a sudden rise post Paris Climate Agreement, a decline in innovation/ patenting trends suggest a substantial cut in R&D activity.
- Majority of research work is being done in power plant and fuel management segment, more specifically related to handling power plant or unit liquids e.g., lubricants, coolants, fuels
- While larger companies are focusing evenly on all technology domains, smaller companies such as Silverstream (Hydrodynamic features of hulls using air bubbles) and Liquid Robotics (Floating structure and Electric motors for vessels) are highly technology focused

About IIPRD

IIPRD is a premier and well-established Intellectual Property (IP) Asset Management Firm focusing on Comprehensive Patent Support Services ranging from Patent Searching, Patent Prosecution/Preparation, to Litigation/Licensing Support Global Corporates and Law Firms.

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