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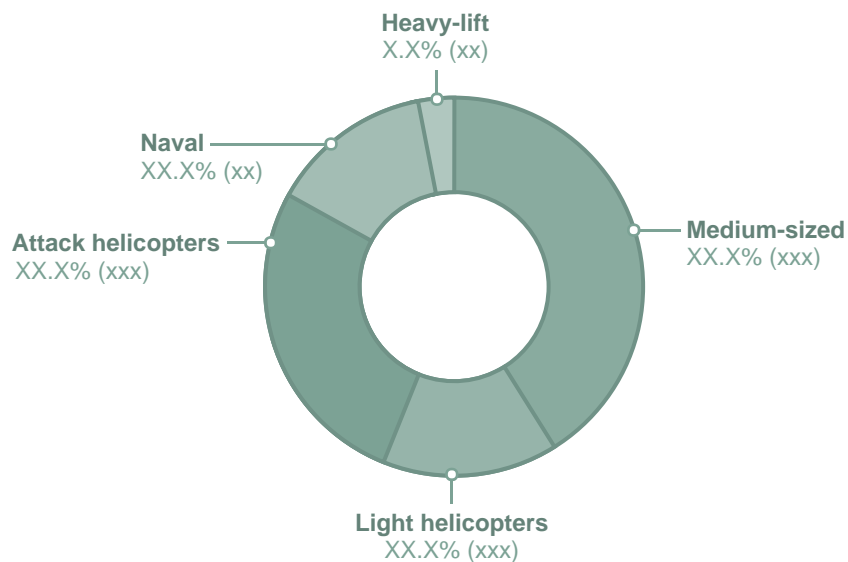
from Western manufacturers like Eurocopter. It has been estimated that Indian demand for helicopters could be worth more than US\$20 billion by 2030.

Russia and the Commonwealth of Independent States (CIS) as well as China could potentially be lucrative markets for government and parapublic helicopters with many obsolete types currently in operation that need replacing. Eurocopter and AgustaWestland have already established joint ventures in these countries to co-develop or enable the licence building of helicopters for these markets.

The US has been forced to cancel several new tenders due to budgetary pressures. The Netherlands announced a decision in May 2011 to retire 14 Eurocopter AS532U2 Cougars immediately, despite that a replacement in the NHIndustries NH-90 is not due to enter service fully for several more years. Entering service in the 1990s, three helicopters will remain in service for SAR tasks. Their premature retirement was out of need to make some US\$1.4 billion in defence savings by 2014. These are likely to be sold.

Figure 5

Helicopters ordered in 2010 by type, number and per cent

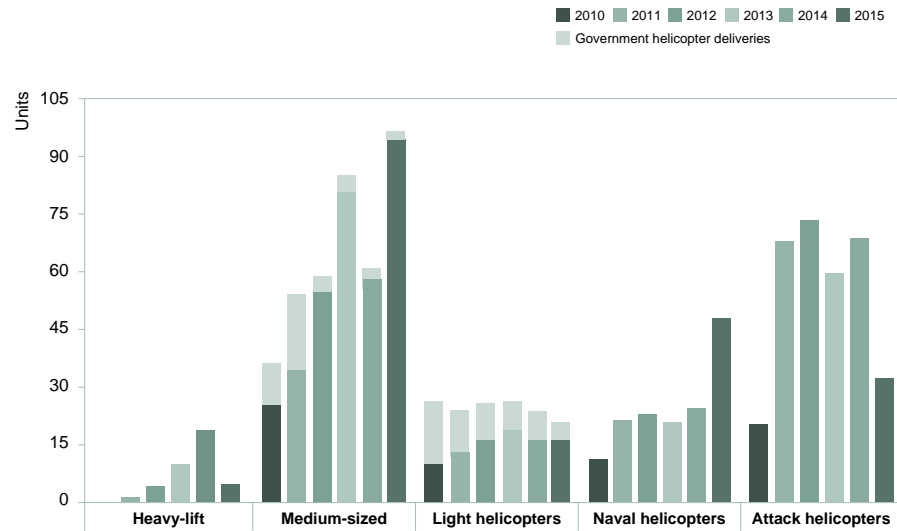


In 2010, the Bulgarian MoD attempted to renege on a 2005 order worth US\$473 million (€358 million) for 12 Eurocopter AS532 Cougar and six AS565 Panther helicopters. While all 12 Cougars were delivered in 2010, only three Panthers had been delivered with some of the funding of the order supplied by the country's fiscal reserves. The Bulgarian MoD, however, asked Eurocopter to renegotiate the contract so that it would not take the remaining three Panthers. The Bulgarian MoD is also looking to sell six Mi-17 and six Mi-24s to fund the refurbishment of the same number of the same types already operated by the Bulgarian Air Force.

The UK has invested in helicopter upgrades largely to enable its fleet to operate more safely in overseas deployments like Afghanistan. However, it has also been forced to abandon a number of new helicopter acquisition programmes as it has been forced to reduce its helicopter budget in effort to curb defence spending. It

Figure 10

European military and government helicopter delivery forecast 2010–2015



Type of helicopter	2010	2011	2012	2013	2014	2015
<i>Military</i>						
Heavy-lift	0	x	3	11	17	4
Medium-sized	xx	xx	xx	xx	xx	xx
Light	7	10	14	15	14	14
Naval	8	xx	xx	18	25	xx
Attack	xx	xx	xx	xx	xx	xx
Total	xx	xxx	xxx	xxx	xxx	xxx
<i>Government</i>						
Medium-sized	x	xx	x	x	x	1
Light	18	xx	12	xx	8	5
Total	xx	xx	xx	xx	x	7

NOTES

1. Table includes delivery of upgraded Lynx AH9A battlefield helicopters to the UK and upgraded CH-53GA to Germany.
2. Data covers includes estimates of delivery of helicopters to Turkey, Russia and the surrounding region.



H-1 Helicopter Upgrade

The USMC's US\$4.5 billion H-1 Helicopter Upgrade programme was launched in 1996 to extend the service life of the 1970s-era Bell UH-1 Twin Huey utility and the AH-1 Cobra attack helicopter beyond 2025.

The programme initially planned the upgrade 100 UH-1Ns to UH-1Y Venom standard and initially 180 AH-1W Super Cobras into the AH-1Z Viper. This number was later expanded in 2010 to 189 AH-1Z (131 remanufactured and 58 new builds) and 160 UH-1Ys (ten remanufactured UH-1Ns and 150 new builds).

Multi-year contracts for Bell Helicopter Textron commenced from 2005 with the first helicopters rolled out at the company's Military Aircraft Assembly Centre at Amarillo in Texas in 2006.

The first two Venom and Vipers were delivered to the USMC in 2008. Deliveries are due to be completed by 2019. The AH-1Z Viper was declared combat ready in September 2010 and gained an IOC in February 2011.

Table 22: US Navy UH-1Y/Z H-1 Helicopter Upgrade funding

	Prior years		FY 2011		FY2012 ¹		Remaining ²	
	Amt US\$M	Qty	Amt US\$M	Qty	Amt US\$M	Qty	Amt US\$M	Qty
UH-1Y	2034.0	71	469.6	18	426.1	15	1,474.9	56
UH-1Z new	104.4	3	188.9	5	241.6	7	1,417.1	43
UH-1Z remanufactured	1163.1	26	266.4	8	133.6	4	3,050.9	93

NOTES

1. Budget request
2. Planned

Source: FY 2012 Budget Estimate, Aircraft Procurement, Department of the Navy

Table 23: US DoD Bell UH-1Y/Z contracts 2003–2010

Date of contract award	Number and model	Estimated delivery	Value
June 2010	18 x UH-1Y new 9 x AH-1Z remanufactured 2 x AH-1Z new	2011–2012	US\$546 million
September 2009	4 x UH-1Y new	2010	US\$76.3 million
March 2009	11 x UH-1Y new 5 x AH-1Z manufactured	2010–2011	US\$288.8 million
September 2008	11 x UH-1Y new 4 x AH-1Z remanufactured	2010–2011	US\$210.1 million
July 2007	9 x AH-1Y new 2 x AH-1Z remanufactured	2009	US\$162.2 million
July 2006	7 x UH-1Y	2007–2009	US\$137 million
April 2005	4 x UH-1Y 3 x AH-1Z remanufactured	2006–2007	US\$104.2 million
December 2003	6 x UH-1Y 3 x AH-1Z remanufactured	2005	US\$183.7 million

Bell UH-1Y Venom specifications

Length:	14.8 m (48.8 ft)
Height:	3.77 m (12.4 ft)
Rotor diameter:	14.63 m (48 ft)
Maximum take-off weight:	8,390 kg (18,000 lb)
Powerplant:	2 x 1,800 shp (1,340 kW) General Electric T-700-GE-401C turboshaft engines
Maximum speed:	164 knots (304 km/h)
Range:	274 nm (507 km)
Maximum service ceiling:	6,100+ m (20,000+ ft)
Crew and passengers:	2 crew plus ten passengers

Some US\$1.5 billion worth of contracts have been awarded by the US DoD since 2003 covering the procurement of 98 airframes. Bell was awarded a US\$48.3 million contract in March 2011 to provide long-lead parts and components for 15 new build UH-1Ys, four remanufactured AH-1Z and seven new AH-1Zs with work to be completed in 2012.

A total of 19 helicopters were delivered in 2010 with 36 UH-1Y and 13 UH-1Zs delivered to the USMC by early 2011.

The upgrades comprise 84 per cent commonality in components for the two variants in an effort to save US\$3.0 billion in operating and support costs during the service life of the helicopters.

It includes the addition of a new four-bladed composite rotor system, tail boom, avionics, transmissions and upgraded landing skids. The aircrew also have use of the Thales Top Owl Helmet Mounted Sight and Display (HMSD) system, while the AH-1Z Viper has redesigned wing stubs to enable it to fire a range of ordnance and the addition of new systems like the Lockheed Martin Missiles and Fire Control AN/AAQ-30 Target Sight System (TSS) nose-mounted EO/IR sensor. The UH-1Y features the FLIR Systems BRITE Star II, as used on the UH-1N.



Bell UH-1Z Viper specifications

Crew:	2
Length:	15.2 m (50 ft)
Height:	4.37 m (14.3 ft)
Width:	2.19 m (7.2 ft)
Rotor diameter:	14.6 m (48 ft)
Maximum take-off weight:	8,409 kg (18,500 lb)
Powerplant:	2 x 1,800 shp (1,340 kW) General Electric T-700-GE-401C turboshaft engines
Maximum speed:	222 knots (411 km/h)
Range:	370 nm (685 km)
Maximum service ceiling:	6,100+ m (20,000+ ft)
Armament:	1 x General Electric A/A49E-7(V4) turret system equipped with a 20 mm M197 gun 16 x AGM-114 Hellfire 2 x 70 mm rocket pods 6 x AIM-9 Sidewinder air-to-air missiles

UH-1Z weapon systems include an undernose General Electric A/A49E-7(V4) turret system equipped with a 20 mm M197 gun plus six wing stations for two 70 mm rockets pods, up to 16 Boeing/Lockheed Martin AGM-114 Hellfires and six AIM-9 Sidewinders for self-defence. The UH-1Y Venom can carry 70 mm rockets in two seven or 19 tube launchers as well as the M240D 7.62 mm general purpose machine gun, GAU-16/A heavy machine gun and a GAU-17/A 7.62 mm mini-gun.

Self-protection on both types comes from the ATK AN/AAR-47(V)2 MAWS, the BAE Systems ALE-47 CMDS and the Northrop Grumman APR-39B(V)2 RWR.

Bell UH-1Y/Z contractors and main subcontractors

BELL HELICOPTER TEXTRON

- Prime contractor and assembly

ATK

- AN/AAR-47(V)2 Missile Approach Warning System (MAWS)

BAE SYSTEMS

- ALE-47 Airborne Countermeasures Dispenser System (CMDS)
- Crew seats

Bell UH-1Y/Z contractors and main subcontractors

CPI AEROSTRUCTURES

- Structural panel assembly

COMPOSITE SOLUTIONS

- Upper cowling components

FLIR SYSTEMS

- BRITE Star II (AH-1Y)

GENERAL ELECTRIC

- T-700-GE-401C turboshaft engines

GOODRICH CORPORATION

- Fuel measurement and management system
- Internal rescue hoist (UH-1Y)

GUARDIAN ENGINEERING AND MANUFACTURING

- Control grips

HAMILTON SUNDSTRAND

- Auxiliary Power Unit
- Inlet barrier filter

KAMAN AEROSPACE

- Composite blade skins
- Cabins (AH-1Z)

MAGELLAN AEROSPACE

- Wire strike protection system (WSPS)

LABARGE

- Electronic assemblies

NORTHROP GRUMMAN

- APR-39B(V)2 radar warning receiver (RWR)
- Avionics and inertial navigation systems
- Integrated cockpit

LOCKHEED MARTIN MISSILES AND FIRE CONTROL

- AN/AAQ-30 TSS (AH-1Z)

THALES

- Top Owl HMSD

Table 28: Eurocopter military and government orders 2005–2011

Year ordered	Number and model	Customer	Estimated delivery	Estimated value
August 2011	1 x EC145	Ministry of Safety & Security, Namibia	2012	US\$xx million
June 2011	3 x EC135	National Gendarmerie	2012	US\$xx million
March 2011	1 x AS350 B2	Ontario Police Department, Canada	2011	US\$xx million
March 2011	4 x UH-72A	US Army	2012	US\$xxx million
December 2010	12 x UH-72A	US Army	2012	US\$xxx million
October 2010	2 x EC145	Turkish Ministry of Transport Turkish State Airport Administration	2011	US\$xx million
August 2010	12 x AS350 B2	Los Angeles County Sheriff's Department, US	2011	US\$xx million
May 2010	1 x AS365 N3+ Dauphin	Western Australian Police	2011	US\$xx million
May 2010	1 x EC135	Thai Ministry of Natural Resources & Environment	2010	US\$xx million
March 2010	1 x EC135	Argentine Federal Police	2010	US\$xx million
March 2010	1 x EC135	Cordoba Provincial Government, Argentina	2010	US\$xx million
March 2010	1 x EC135	Rioja Provincial Government, Argentina	2010	US\$xx million

NHIndustries NH-90 contractors and main subcontractors

AGUSTAWESTLAND

- Rear fuselage
- Tail cone
- Main gearbox
- Hydraulics

FOKKER AEROSTRUCTURES

- Tail boom
- Landing gear
- Intermediate gearbox
- Cabin doors
- Pintle axles
- Sponsons
- Tail structure

ROLLS ROYCE-TURBOMECA

- RTM322-01/9/9A turboshaft engine

AUSTRALIAN AEROSPACE

- Assembly (Australian models only)

AIRCELLE

- Upper-deck cowling
- Exhaust deflectors and firewalls

BARCO

- Rugged flat panel displays

CASSIDIAN ELECTRONICS

- Obstacle warning systems (German NH-90s only)
- Data transfer systems
- European Navy Radar (ENR) for NFH
- EuroGrid tactical mission computer
- EW suite

DIEHL AEROSPACE

- Operator control panel (OCP)
- Cabin lighting system

EADS SOGERMA

- Cockpit seating

EDISOFT

- Flight control software

Table 3 I: Russian military helicopter orders 2010

Year ordered	Number and model	Customer	Estimated delivery	Estimated value
September 2010	5 x Mi-171-IV	Poland	2010–2011	US\$xx million
August 2010	2 x Mi-171E	Argentina	2011	US\$xx million
May 2010	22 x Mi-35M	Russia	2011–2012	US\$xxx million
February 2010	22 x Mi-8AMTSh	Russia	2010–2011	US\$xxx million
2010	30 x Mi-28N	Russia	2011–2015	US\$xxx million
2010	3 x Mi-171	Kenya	2010	US\$xx million
2010	6 x Mi-171Sh 2 x Mi-35P	Peru	2010–2011	US\$xxx million
2010	24 x Mi-35M	Azerbaijan	2011	US\$xxx million

This then became the Multinational Helicopter Initiative (MHI) with nine NATO countries agreeing in 2009 to contribute with the largest funding coming from the UK and France. The European Defence Agency (EDA) also backed the scheme and to increase helicopter availability in EU operations through training, logistical support and upgrades. However, according to the UK, the MHI only delivered three upgraded helicopters due to insufficient funding that totalled just €28 million (US\$39 million) instead of the €60 million (US\$84 million) originally required.

Hungary announced plans in January 2011 to upgrade seven Mi-17s with some €15 million (US\$19.5 million) of funding provided by the MHI. Further funding is being sought from the US.

An initial three Hungarian Mi-17s will be upgraded at a cost of US\$120 million with deployment in Afghanistan planned in 2012/13. These are likely to be upgraded by LOM Praha at Praha in north-western Czech Republic, the only company within NATO authorised by the Mil Design Bureau to undertake maintenance, repair and overhaul (MRO) on the Mi-8. LOM Praha has previously upgraded six ex-Czech Air Force Mi-17s and six Mi-24 Hinds for the Afghan Air Force (AAF) at a cost of US\$80 million with funding provided by NATO. These were delivered from 2007–2008.

Finland additionally announced in May 2011 that it would donate to Hungary two retired Mil Mi-8 Hip transport helicopters as part of its contribution to MHI.

The ATE upgrade completely modernises the helicopter with the introduction of a glass cockpit, a new 20 mm cannon, composite rotor blades and the addition of a nose-mounted EO/IR sensor. ATE previously upgraded about 30 Algerian Mi-24 Hinds to a similar standard in 2002.

Israel's Elbit Systems upgraded two Macedonian Mi-24Vs in 2009. The "Alexander" upgrade included the inclusion of Elbit Systems' ANVIS/HUD-24 Line-of-Sight (LOS) system, NVGs, a glass cockpit and new navigation and communication systems. Macedonia is equipped with eight Mi-24Vs acquired from Ukraine in 2005.

Kamov Ka-32

Kamov is continuing to gain sales of the Ka-32, the commercial variant of the Ka-27 (NATO reporting "Helix"). The twin-engined Ka-32 has been in series production since the mid-1980s.

In November 2009, Russian Ministry for Civil Defence, Emergency Management and Natural Disasters Response (Emercom) placed an order for five Ka-32A1 IBC variants tasked with EMS and firefighting roles. Deliveries commenced in May 2011. Emercom plans to buy about 62 light and 123 medium-sized helicopters over the next five years.

In May 2010, the Kazakhstan Ministry for Emergency Situations of Kazakhstan (MOE) ordered two Ka-32s for firefighting tasks with plans to buy four more in 2011.

The South Korean Forestry Service and the Coast Guard operate more than 60 Ka-32s, while the ROKAF has operated since 2004 seven Ka-32A4s designated the HH-32 in Korean service and used for CSAR tasks.

Kamov Ka-32A1 IBC specifications

Length:	12.24 m (40.15 ft)
Height:	5.4 m (17.7 ft)
Width:	3.8 m (12.46 ft)
Cargo compartment dimensions:	4.52 x 1.45 x 1.32 m (14.82 x 4.75 x 4.33 ft)
Main rotor diameter:	15.9 m (52.16 ft)
Maximum take-off weight:	11,000 kg (24,200 lb)
Powerplant:	2 x 2,200 shp (1,600 kW) Isotov TV3-117VMA turboshaft engines
Maximum speed:	140 knots (260 km/h)
Range:	648 nm (1,200 km) (with four auxiliary tanks)
Maximum ceiling height:	5,000 m (16,400 ft)
Crew and passengers:	2 crew plus 13 passengers or 3,700 kg (8,157 lb) internal or 5,000 kg (11,023 lb) external payload

Cargo compartment dimensions: length x width x height

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