

# Advances in Technology      military, space and information

## Military

Led advances in military because

1. Involved in wars
2. Powerful economy, able to fund the research
3. Superpower Status - in competition with the USSR

Nuclear weapons Atomic bomb in the Manhattan project later developed the **H bomb**

## Rockets and Bombs

- ✓ Rocket development boosted by former German scientists and captured German V2 rockets
- ✓ Short and medium range missiles were developed. The **Pershing** with a range of 400 miles was based in Western Europe
- ✓ Intercontinental Ballistic missiles (**ICBM**) Atlas titan and Minuteman
- ✓ Multiple warheads and could be launched from underground silos
- ✓ Navy - **Polaris** could fire nuclear missiles from submarines

Early warning systems developed to detect an attack

- ✓ **DEW** - Distance Early Warning series of radar stations in Alaska and northern Canada
- ✓ Regan announced the development of **Strategic Defence Initiative** to destroy Soviet missiles in space. Huge costs and end of cold war meant it wasn't completed

## Aircraft

- ✓ **Jet planes** increased speed and range. Had missiles to attack other aircraft tanks and airfields some were supersonic
- ✓ Bomber aircraft became accurate with computer controls
- ✓ Reconnaissance aircraft **U2** was important in the Cuban Missile crisis
- ✓ Helicopters used for troop carrying and search and rescue

- ✓ Surface to air missiles help to cope with faster aircraft **Hercules**
- ✓ Aircraft carriers meant mobility and rapid responses. Catapults were used for larger faster planes

Tanks had better engines and firepower

Permanent war economy 10% national income on military,

Companies developed close links with government **Boeing** (military industrial complex)

## Space

USSR sent **Sputnik 1** into space and had 1<sup>st</sup> man in space Yuri Gagarin. This was a shock and a blow to US morale. Led to the setting up a NASA.

1st satellite Explorer 1 in 1958

- ✓ Kennedy promised to have the first man on the moon end of 1960's
- ✓ Preparing for the moon **Mercury** project sent Americans into space Alan Shepherd. John Glenn orbited earth 3 times
- ✓ **Gemini Project** 2 man flights to test docking etc. Photographed potential landing sites
- ✓ **Apollo** - Armstrong Aldrin Collins
- ✓ Later advances unmanned space craft to Jupiter Mars and Venus. Space stations and shuttles
- ✓ **Skylab** to carry out experiments in space
- ✓ **Space shuttle** - reusable space vehicle - Columbus. Explosion on Challenger declined public support and led to budget cutbacks

Advances helped in weather forecasting communications satellites

## Information technology

- ✓ Computer could now handle more and more information. The government linked up with companies such as **IBM** and universities. Early computers such as **Mark 1** large needed a team of operators.
- ✓ 1952 **Univac** used to count the census - John Von Neumann mathematician
- ✓ In 1960 there was just 2000 computers
  
- ✓ With Integrated circuits and microchip smaller personalised computers became widely available 1970's. Apple and Microsoft made computers more user friendly.
- ✓ 1991 65 million computers in US alone
- ✓ The industry worth increased from \$1 bill 1958 to \$17 bill 1978
- ✓ Largest computer industry employing 1 mill 1990 and holding half of the worlds computers
  
- ✓ Research carried out in **Silicon Valley**
- ✓ **Internet** developed to combat fear of nuclear war so that military scientist could communicate after a nuclear explosion, later developed so business and individuals could use it.
  
- ✓ Caused a rise in productivity
- ✓ Made some very wealthy Bill Gates
- ✓ Contributed to globalisation of industry finance and culture
- ✓ Danger to invasion of privacy.