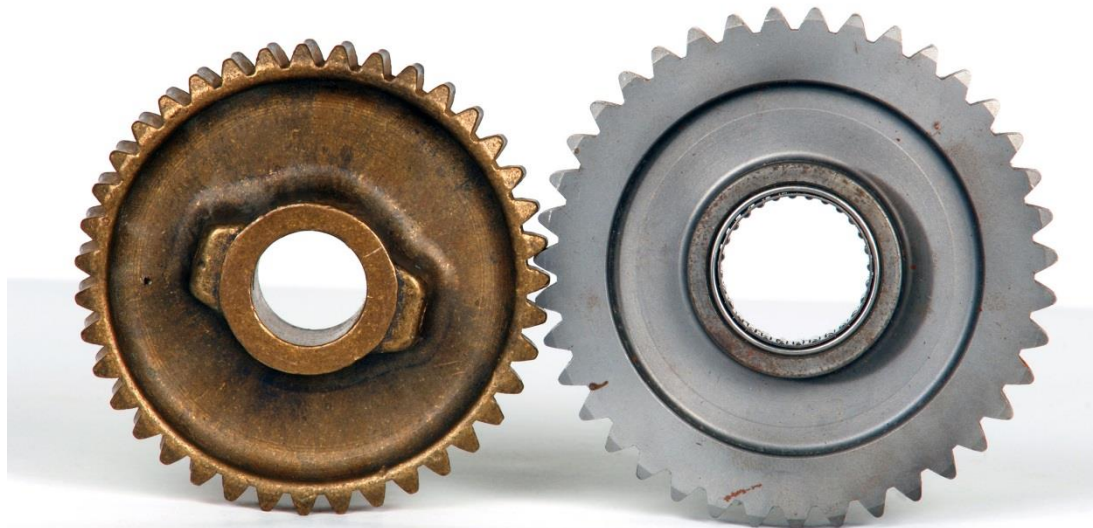
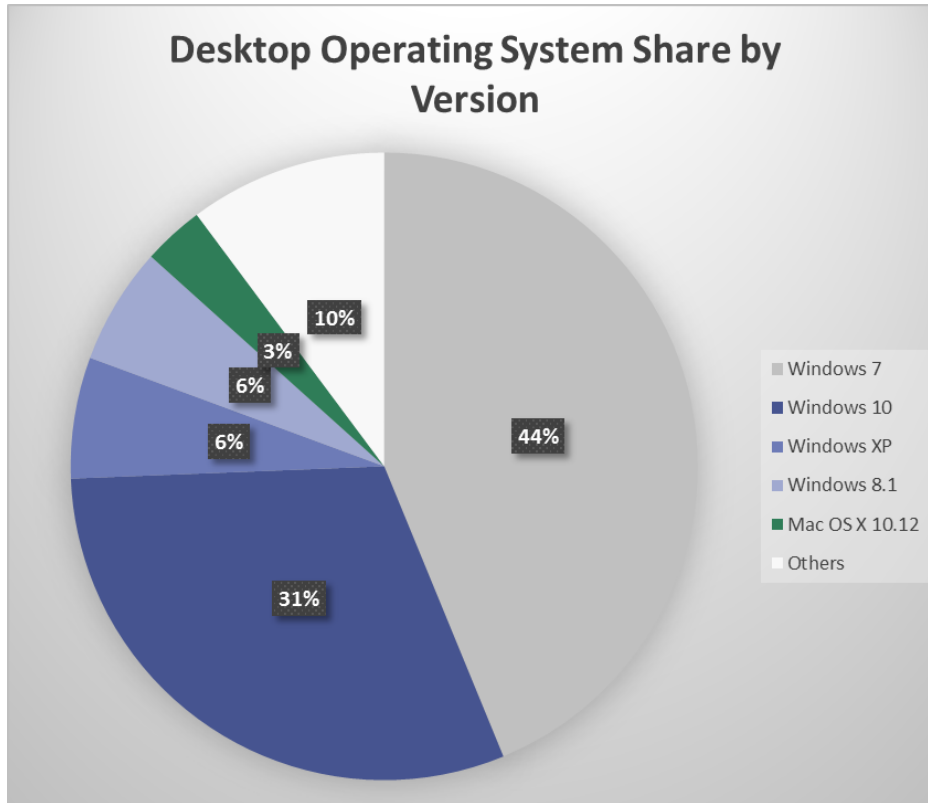


Service Reliability and Upgradeability for Older Testing Machines

Ulm, October 2018



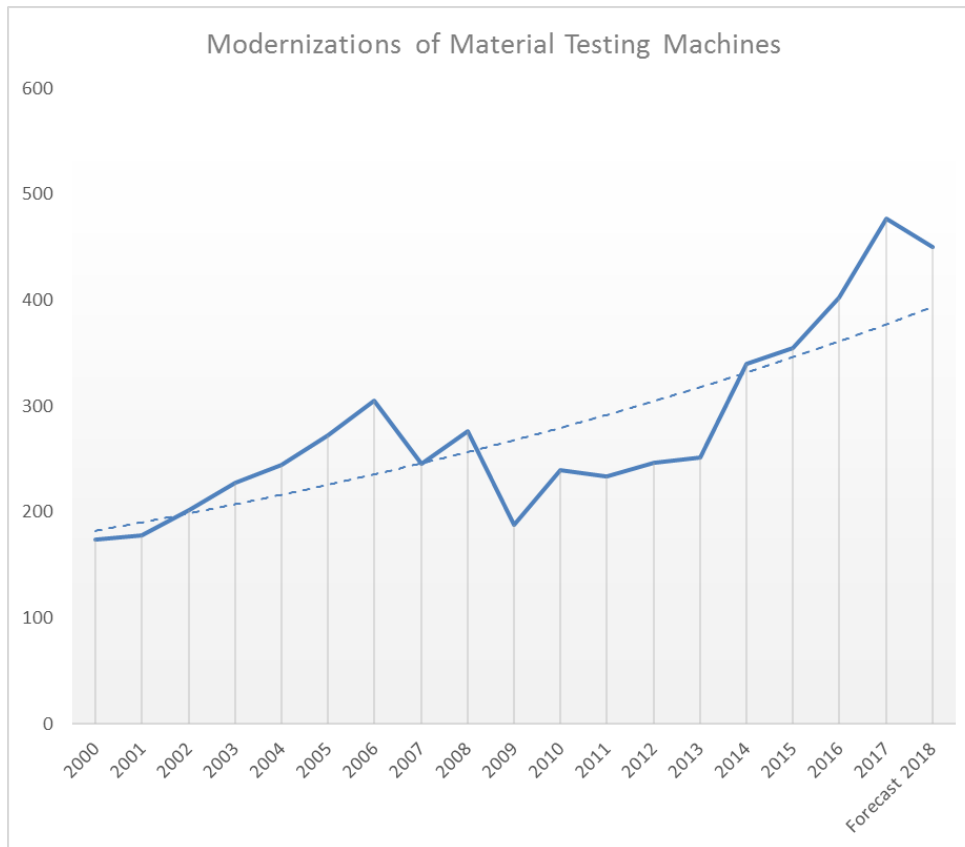
Operating System lifecycles and their end of support influence IT decisions and, consequently, how machines are operated.



Source: Netmarketshare.com, Desktop Operating System Market Share, 4.10.2018

- Most of the world's PCs use Windows 7, for which support will stop in January 2020
- Windows Vista was released about 5 years after Windows XP and Windows 10 was released less than 2 years after Windows 8.1 → faster developments require regular software updates
- 6% of PCs still use Windows XP, which is not supported since 2014

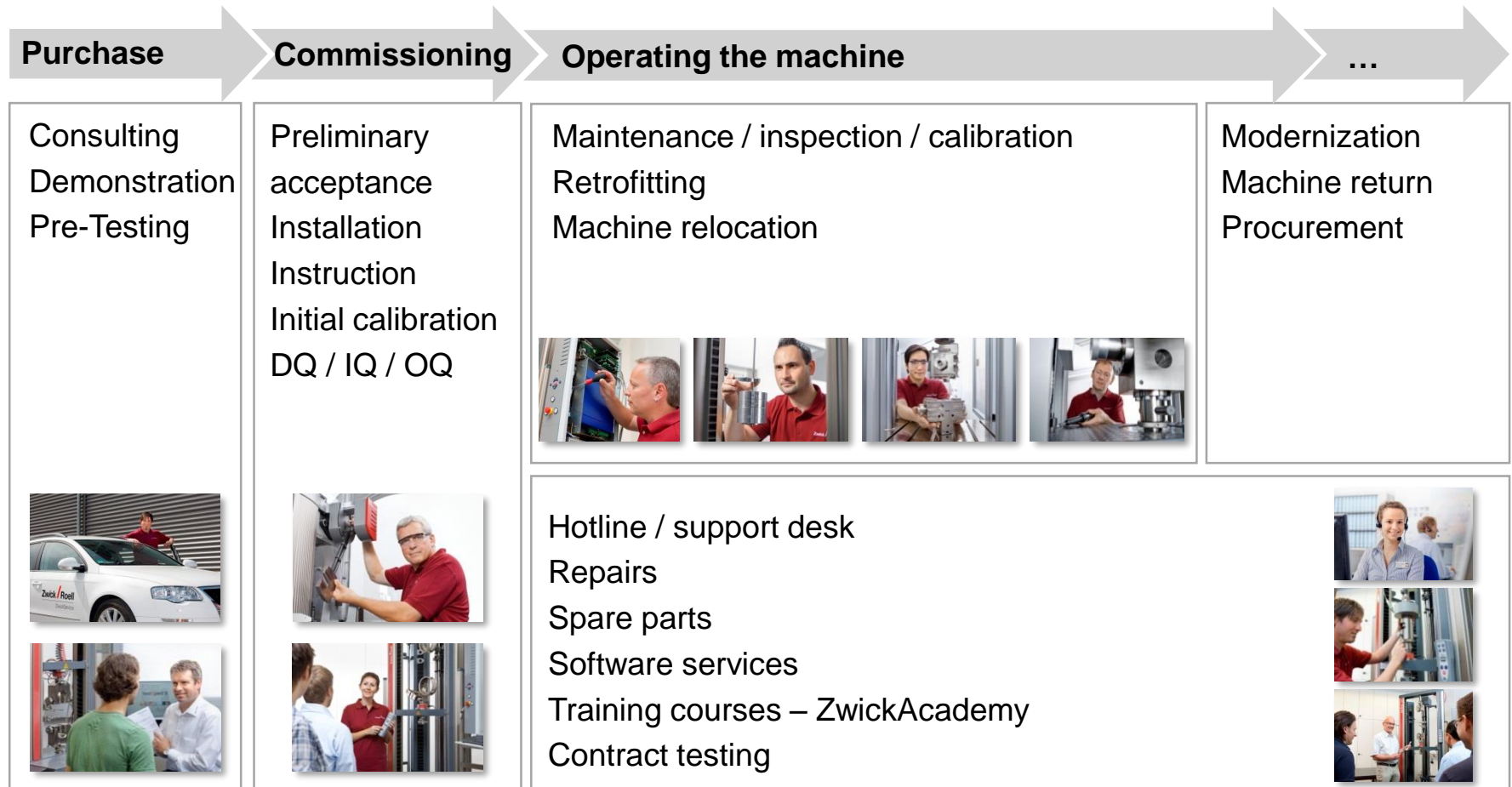
Modernizations of material testing machines have grown steadily at an average annual growth rate of 7% over the past 18 years. Investments in modernizing equipment result in a higher utilization of existing resources.



- Older equipment is usually in good condition but out of sync with advances in IT and electronics
- Investments in older equipment allow users to maximize functionality with new sensors and software features
- Testing laboratories sometimes look to modernizing equipment in combination with new investments

Long-Term Support Concept





We are your partners for long-term support – our products are a secure investment.



Reliable Service and Upgradeability

ZwickRoell guarantees availability of spare parts and service for 10 years from end of production, with an additional grace period, where possible.

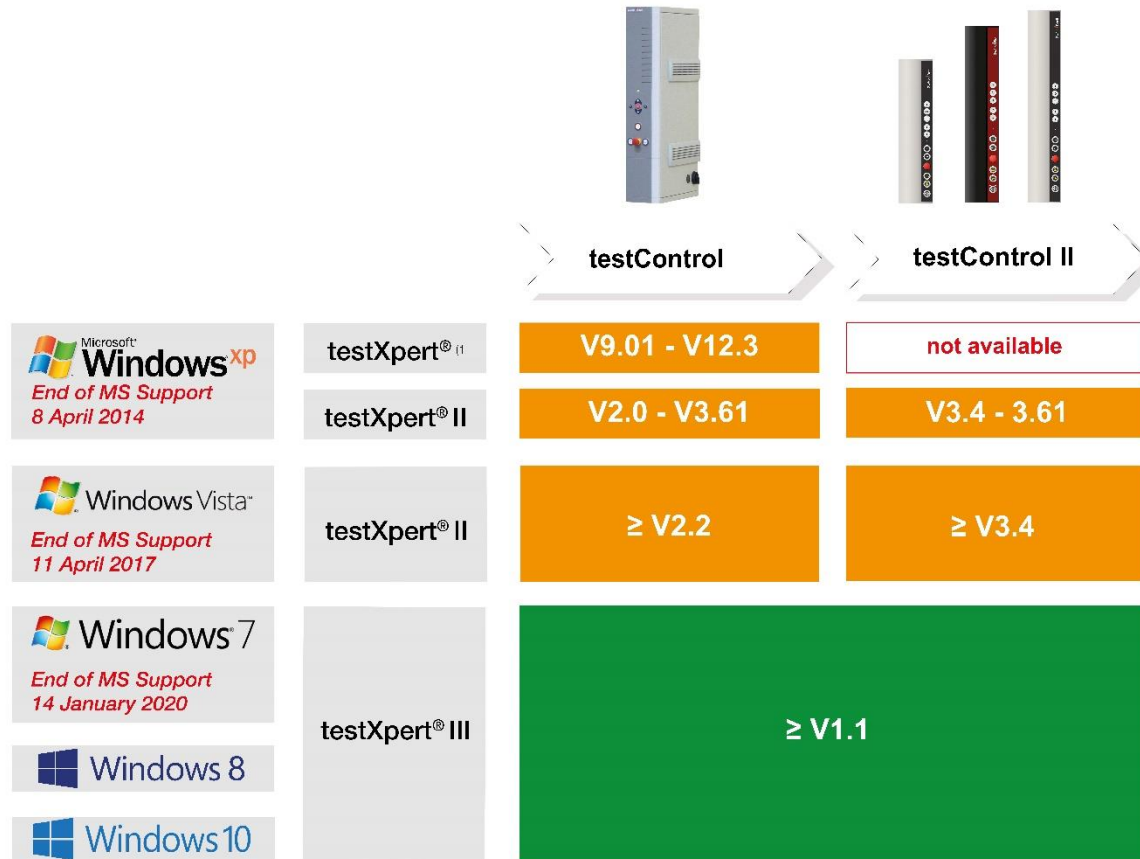


	 1992 ... 2004	 1994 ... 2006	 2002 ... 2016 ⁽¹⁾	 2012 ...
	DUPS electronic	MOPS electronic	testControl electronic	testControl II electronic
reliable service	No	No	Yes	Yes
upgradeability	No	No	Yes	Yes
testXpert® III	No	No	Yes	Yes

⁽¹⁾ Except hardness and special systems

This matrix applies exclusively to electromechanical static standard testing machines

Electronics, test software and operating systems are directly related. Compatibility ensures a reliable level of support.



⁽¹⁾ Except hardness and special systems

This matrix applies exclusively to electromechanical static standard testing machines

RetroLine testControl II products provide the optimal solution for modernizing almost every ZwickRoell load frame.

Static load frames



Dynamic testing systems



The testing machine is brought up to state of the art using high-quality components as installed in new machines.



Modernization Concept - Dynamic Applications **Zwick / Roell**

Modernization technology for dynamic testing systems. Reliable service and future upgradeability thanks to new technology.

testControl II & testXpert R



Control Cube servo controller & Cubus software



- State-of-the-art technology for single-axis testing systems
- Maximum safety for the operator thanks to 2-channel safety circuits and operation mode switch for Setup and Test modes
- Modular design with 5 freely selectable slots for maximum flexibility

- Simple handling of complex testing systems
- Modular software structure for optimum customization to the test requirements
- Highly suitable for multi-axial test benches
- Cascadable servo controller





ZwickRoell's expertise can modernize any machine – made by ZwickRoell or other manufacturers.



• ZwickRoell has performed more than 4.000 modernizations



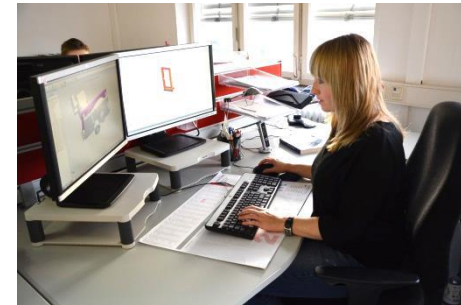
• Almost 40% of all ZwickRoell modernizations are performed on machines produced by other manufacturers (approx. 50 different brands)



ZwickRoell experts modernize machines either on-site or at the ZwickRoell Modernization Center.

Modernizations at ZwickRoell feature:

- Custom –fit design for new components
- Replacement of all wear parts
- Performance of any necessary adjustments



On-site modernizations:

- Quick, professional execution
- Only a few days of machine downtime during modernization
- Warranty on all replaced parts



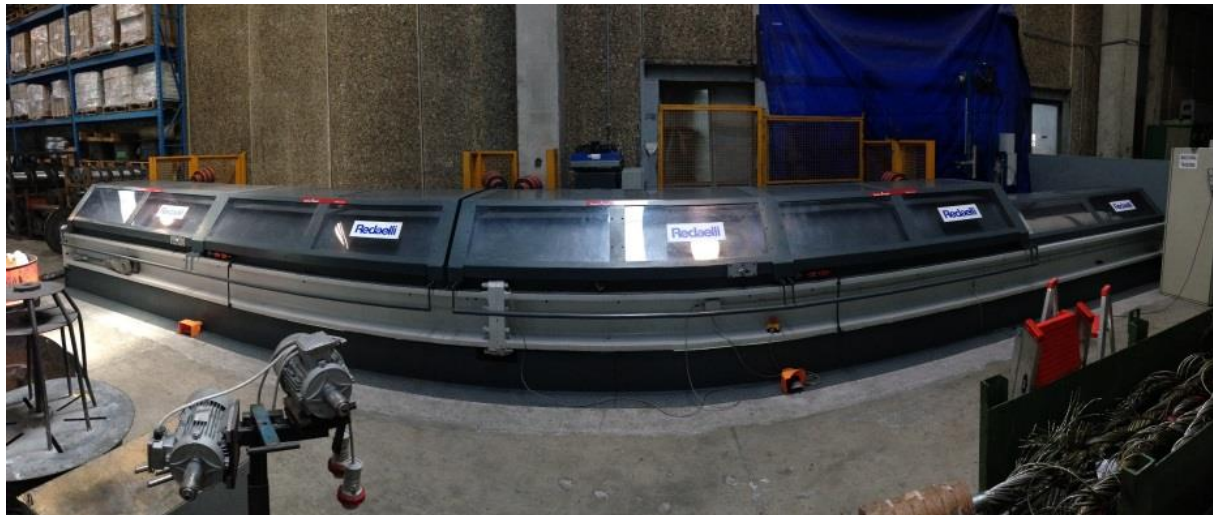
Modernizations at ZwickRoell:

- Load frame painting
- Load frame overhauling
- Warranty on complete machines



Tensile tests at 3,000kN - ZwickRoell modernizes testing machine for steel wire ropes at Redaelli.

- Redaelli's core product is specialty wire ropes, mostly for offshore and mining industries
- The user tested most samples at a nearby University that had a 3MN machine
- After the modernization, the customer could
 - increase their testing capacity up to 3MN (formerly 2.5MN)
 - test according to EN and ISO with the higher testing capacity and specially-designed wedge grips
 - obtain a new CE marking for safety with a specially designed safety shield



Uniform laboratory platform guarantees efficient quality assurance.

- Schoeller Werk is a leading manufacturer of stainless steel welded pipes
- They invested in a modernization and a new machine to handle increased test throughput
- Test results are stored in a central database with the data exchange automatically managed by testXpert II



Modernization of old testing equipment is driven by growing or changing test needs. Reevaluating these needs are critical in determining the best solution for an individual situation.

- Trends in **IT** and changing **industry** needs drive the modernization concept
- Modernizations allow testers to increase **utilization** of existing equipment by adding **software** features and new **sensors**
- Guaranteed **spare part** availability is renewed and reliable due to the use of new electronic and drive system components

Thank You!