Many industries exhibit **increasing returns to adoption**: the more a technology is <u>adopted</u>, the more <u>valuable</u> it becomes When the **rate of return** from a product or process increases with the size of its installed base Cost decreases Number of production increases Performance increases The learning curve Learning Effect The ability of an organization to recognize, assimilate, and **utilize** new knowledge **Absorptive Capacity** Firms develop **new technologies ahead** of others may have an advantage in staying ahead Market force Increasing returns Sources Definition: the value of good to a user increases with the number of other users of the same or similar good Common in industries that are physically networked **Installed base**: the number of users of a particular good Network Externalities Complementary goods: additional goods and services that Occurrence enable or enhance the value of another good Arise when compatibility or **complementary goods** are important **Dominant Design** Self-reinforcing cycle Cycle: a tech with a large installed base attracts developers of complementary goods, a tech with a wide range of complementary goods attract users, increased installed base. Government regulations induce adherence to a dominant Government regulations design, since the <u>compatibility</u> among technologies bring welfare to customers Firms supporting winning tech earn huge reward, others may Natural monopolies be locked out Increasing returns to adoption imply tech trajectories follow Path dependencies path dependencies Far-reaching influence It shapes future technological **inquiry** in the area Functions Network externality returns: the value customers reap as a Aesthetics Technology **stand-alone value** larger portion of the market adopts the same goods The result: Winner-Take-All market (compatibility, complementary goods, further development of chapter 4: Standard Battles and tech) - s-shape Ease of use **Multiple Dimensions of Value Design Dominance** Monopoly costs: the costs users bear as a larger portion of the market adopts the same good (monopolist charge higher The size of the technology's **installed base** price, less product variety) - exponential Network Externality value The availability of complementary goods Whether the "Winner-Take-All market" result good for Relationship: both arise with the cumulative market share. customers? When monopoly costs exceed network externality returns, intervention may be warranted. Optimal market share: crossing point A. Network externalities value B. Stand-alone value + Network externalities value One technology A. When A has more than 50% market share, it is more attractive Cumulative market share determines which tech yields more B. When A has more than 60% market share, it is more Two competing technology attractive (Indifference Point) B dominates A dominates When customer requirements for network externalities value are satiated at lower levels of market share, more than one dominant design thrive Competing for Design Dominance in Markets with Network Externalities Two technology (special case) (Indifference Region) Reduce the **purchase cost** of consumers Reduce user"s learning cost Take the **lead in introducing** products Market share expansion strategy Alliance, develop tech Seek help from venture captivated Strengthen technical training, make it the **mainstream** Make product more **distinctive**, **incompatible** with Lock-in strategy competitors' product Integral discount to consumers