**Abstract**

The advent of enterprise systems established a pathway for organizations to consider innovations by providing a holistic view of the organization ([Klaus et al. 2000](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1257_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3AKlaus%2C%20H.%2C%20Rosemann%2C%20M.%2C%20and%20Gable%2C%20G.%202000.%20%5C%E2%80%9CWhat%20Is%20ERP?,\” Information Systems Frontiers (2:2), pp 141–162. UserName - DateTime: sii-4/4/2017 6:12:11 PM)). Prior research on enterprise systems has highlighted the technological, operational and knowledge capabilities provided by enterprise systems in enabling innovation in an organization ([Srivardhana and Pawlowski 2007](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1290_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3ASrivardhana%2C%20T.%2C%20and%20Pawlowski%2C%20S.D.%202007.%20%5C%E2%80%9CERP%20Systems%20as%20an%20Enabler%20of%20Sustained%20Business%20Process%20Innovation%3A%20A%20Knowledge-Based%20View%2C%5C%E2%80%9D%20The%20Journal%20of%20Strategic%20Information%20Systems%20%2816%3A1%29%2C%20pp%2051%E2%80%9369.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A35%20PM)). However, the recent introduction of technologies such as cloud computing, mobile, wearables and social media to the corporate IT portfolio means that organizations are now provided with myriad opportunities to innovate. As such, organizations are seeking novel ways to innovate with these new technologies. Therefore, the role of enterprise systems in enabling innovation in the IT portfolio has changed. This chapter provides a discussion on the changing role of enterprise systems in the modern IT portfolio and directs the reader to several ways of how organizations can attain innovation using the IT portfolio.

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The role of enterprise systems in innovation in the contemporary organization

Darshana Sedera1 and Sachithra Lokuge2

Introduction

Since the 1990s information systems (IS) researchers have investigated the organizations’ use of information technology (IT) for innovation ([Swanson 1994](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1292_FILE150310943P3018%22%20%5Co%20%22%28ManLink%29%3ASwanson%2C%20E.B.%201994.%20%5C%E2%80%9CInformation%20Systems%20Innovation%20among%20Organizations%2C%5C%E2%80%9D%20Management%20Science%20%2840%3A9%29%2C%20pp%201069%E2%80%931092.%20UserName%20-%20DateTime%3A%20vge-4/5/2017%2012%3A07%3A47%20PM); [Swanson and Ramiller 2004](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1294_FILE150310943P3018%22%20%5Co%20%22%28ManLink%29%3ASwanson%2C%20E.B.%2C%20and%20Ramiller%2C%20N.C.%202004.%20%5C%E2%80%9CInnovating%20Mindfully%20with%20Information%20Technology%2C%5C%E2%80%9D%20MIS%20Quarterly%20%2828%3A4%29%2C%20pp%20553%E2%80%93583.%20UserName%20-%20DateTime%3A%20vge-4/5/2017%2012%3A07%3A55%20PM)). Contrary to the orthodox view of IT’s role as an enabler of innovation, a recent study by [Nambisan (2013](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1275_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3ANambisan%2C%20S.%202013.%20%5C%E2%80%9CInformation%20Technology%20and%20Product/Service%20Innovation%3A%20A%20Brief%20Assessment%20and%20Some%20Suggestions%20for%20Future%20Research%2C%5C%E2%80%9D%20Journal%20of%20the%20Association%20for%20Information%20Systems%20%2814%3A4%29%2C%20pp%20215%E2%80%93226.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A22%20PM)) suggests that IT could plays an advanced role by triggering innovation in an organization. As such, it is evident that contemporary organizations utilize their IT in novel ways to introduce innovation. Since the 1990s organizations have been presented with enterprise systems (ES), which were promoted as a solution to the dotcom bubble ([Ives et al. 2002](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1250_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3AIves%2C%20B.%2C%20Valacich%2C%20J.S.%2C%20Watson%2C%20R.T.%2C%20Zmud%2C%20R.W.%2C%20Alavi%2C%20M.%2C%20Baskerville%2C%20R.%2C%20Baroudi%2C%20J.J.%2C%20Beath%2C%20C.%2C%20Clark%2C%20T.%2C%20and%20Clemons%2C%20E.K.%202002.%20%5C%E2%80%9CWhat%20Every%20Business%20Student%20Needs%20to%20Know%20About%20Information%20Systems%2C%5C%E2%80%9D%20Communications%20of%20the%20Association%20for%20Information%20Systems%20%289%3A1%29%2C%20p%2030.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A04%20PM)). Since then, ES has gained a special prominence in organizations in their ability to enable innovations through the introduction of efficient and effective business processes aiding innovation ([Sedera et al. 2016](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1287_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3ASedera%2C%20D.%2C%20Lokuge%2C%20S.%2C%20Grover%2C%20V.%2C%20Sarker%2C%20S.%2C%20and%20Sarker%2C%20S.%202016.%20%5C%E2%80%9CInnovating%20with%20Enterprise%20Systems%20and%20Digital%20Platforms%3A%20A%20Contingent%20Resource-Based%20Theory%20View%2C%5C%E2%80%9D%20Information%20%26%20Management%20%2853%3A3%29%2C%20pp%20366%E2%80%93379.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A32%20PM); [Srivardhana and Pawlowski 2007](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1290_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3ASrivardhana%2C%20T.%2C%20and%20Pawlowski%2C%20S.D.%202007.%20%5C%E2%80%9CERP%20Systems%20as%20an%20Enabler%20of%20Sustained%20Business%20Process%20Innovation%3A%20A%20Knowledge-Based%20View%2C%5C%E2%80%9D%20The%20Journal%20of%20Strategic%20Information%20Systems%20%2816%3A1%29%2C%20pp%2051%E2%80%9369.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A35%20PM)). Enterprise systems are said to have provided the standardized ‘best practices’ to organizations, at a time when most were struggling to cope with isolated and heavily individualized business processes ([Davenport 2013](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1239_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3ADavenport%2C%20T.H.%202013.%20Process%20Innovation%3A%20Reengineering%20Work%20through%20Information%20Technology.%20Harvard%20Business%20Press.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A11%3A56%20PM)).

Prior research on the ES highlights the importance of the features and functions of ES for innovation through the lens of absorptive capacity ([Srivardhana and Pawlowski 2007](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1290_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3ASrivardhana%2C%20T.%2C%20and%20Pawlowski%2C%20S.D.%202007.%20%5C%E2%80%9CERP%20Systems%20as%20an%20Enabler%20of%20Sustained%20Business%20Process%20Innovation%3A%20A%20Knowledge-Based%20View%2C%5C%E2%80%9D%20The%20Journal%20of%20Strategic%20Information%20Systems%20%2816%3A1%29%2C%20pp%2051%E2%80%9369.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A36%20PM)), operational flexibility ([Karimi et al. 2007](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1253_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3AKarimi%2C%20J.%2C%20Somers%2C%20T.M.%2C%20and%20Bhattacherjee%2C%20A.%202007.%20%5C%E2%80%9CThe%20Impact%20of%20ERP%20Implementation%20on%20Business%20Process%20Outcomes%3A%20A%20Factor-Based%20Study%2C%5C%E2%80%9D%20Journal%20of%20Management%20Information%20Systems%20%2824%3A1%29%2C%20pp%20101%E2%80%93134.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A07%20PM)), business process improvements ([Grover and Segars 2005](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1249_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3AGrover%2C%20V.%2C%20and%20Segars%2C%20A.H.%202005.%20%5C%E2%80%9CAn%20Empirical%20Evaluation%20of%20Stages%20of%20Strategic%20Information%20Systems%20Planning%3A%20Patterns%20of%20Process%20Design%20and%20Effectiveness%2C%5C%E2%80%9D%20Information%20%26%20Management%20%2842%3A5%29%2C%20pp%20761%E2%80%93779.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A04%20PM)), productivity ([Shang and Seddon 2007](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1288_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3AShang%2C%20S.%2C%20and%20Seddon%2C%20P.B.%202007.%20%5C%E2%80%9CManaging%20Process%20Deficiencies%20with%20Enterprise%20Systems%2C%5C%E2%80%9D%20Business%20Process%20Management%20Journal%20%2813%3A3%29%2C%20pp%20405%E2%80%93416.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A34%20PM)) and its stability ([Sedera et al. 2016](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1287_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3ASedera%2C%20D.%2C%20Lokuge%2C%20S.%2C%20Grover%2C%20V.%2C%20Sarker%2C%20S.%2C%20and%20Sarker%2C%20S.%202016.%20%5C%E2%80%9CInnovating%20with%20Enterprise%20Systems%20and%20Digital%20Platforms%3A%20A%20Contingent%20Resource-Based%20Theory%20View%2C%5C%E2%80%9D%20Information%20%26%20Management%20%2853%3A3%29%2C%20pp%20366%E2%80%93379.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A32%20PM)). It is also argued that ES provide a standardized technology platform ([Gawer 2009](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1245_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3AGawer%2C%20A.%202009.%20Platforms%2C%20Markets%2C%20and%20Innovation.%20Gloucestershire%2C%20UK%3A%20Edward%20Elgar%20Publishing.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A00%20PM)) that allows collaboration of multiple functional units such as accounting, warehousing and production planning and collaborators ([Kraemmerand et al. 2003](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1258_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3AKraemmerand%2C%20P.%2C%20M%C3%B8ller%2C%20C.%2C%20and%20Boer%2C%20H.%202003.%20%5C%E2%80%9CERP%20Implementation%3A%20An%20Integrated%20Process%20of%20Radical%20Change%20and%20Continuous%20Learning%2C%5C%E2%80%9D%20Production%20Planning%20%26%20Control%20%2814%3A4%29%2C%20pp%20338%E2%80%93348.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A12%20PM)), which facilitate innovation. However, the common view is that the ES is inherently rigid and complex, therefore it hinders the innovation capabilities of an organization ([Kharabe et al. 2013](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1255_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3AKharabe%2C%20A.%2C%20Lyytinen%2C%20K.%2C%20and%20Grover%2C%20V.%202013.%20%5C%E2%80%9CDo%20Organizational%20Competencies%20Influence%20How%20Enterprise%20Systems%20Foster%20Organizational%20Agility?,\” in: International Conference On Information Systems (ICIS 2013). Milan, Italy. UserName - DateTime: sii-4/4/2017 6:12:09 PM); [Kharabe and Lyytinen 2012](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1256_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3AKharabe%2C%20A.%2C%20and%20Lyytinen%2C%20K.J.%202012.%20%5C%E2%80%9CIs%20Implementing%20ERP%20Like%20Pouring%20Concrete%20into%20a%20Company? Impact of Enterprise Systems on Organizational Agility,\” in: Thirty Third International Conference on Information Systems (ICIS 2012). Orlando UserName - DateTime: sii-4/4/2017 6:12:10 PM)). For example, high resource intensiveness ([Murphy and Simon 2002](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1274_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3AMurphy%2C%20K.E.%2C%20and%20Simon%2C%20S.J.%202002.%20%5C%E2%80%9CIntangible%20Benefits%20Valuation%20in%20ERP%20Projects%2C%5C%E2%80%9D%20Information%20Systems%20Journal%20%2812%3A4%29%2C%20October%2001%2C%202002%2C%20pp%20301%E2%80%93320.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A22%20PM)), skill shortage ([Srivardhana and Pawlowski 2007](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1290_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3ASrivardhana%2C%20T.%2C%20and%20Pawlowski%2C%20S.D.%202007.%20%5C%E2%80%9CERP%20Systems%20as%20an%20Enabler%20of%20Sustained%20Business%20Process%20Innovation%3A%20A%20Knowledge-Based%20View%2C%5C%E2%80%9D%20The%20Journal%20of%20Strategic%20Information%20Systems%20%2816%3A1%29%2C%20pp%2051%E2%80%9369.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A36%20PM)), diffusion complexities ([Gable et al. 2008](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1244_FILE150310943P3018%22%20%5Co%20%22%28ManLink%29%3AGable%2C%20G.G.%2C%20Sedera%2C%20D.%2C%20and%20Chan%2C%20T.%202008.%20%5C%E2%80%9CRe-Conceptualizing%20Information%20System%20Success%3A%20The%20IS-Impact%20Measurement%20Model%2C%5C%E2%80%9D%20Journal%20of%20the%20Association%20for%20Information%20Systems%20%289%3A7%29%2C%20pp%20377%E2%80%93408.%20UserName%20-%20DateTime%3A%20vge-4/5/2017%2012%3A08%3A05%20PM); [Gorla et al. 2010](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1248_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3AGorla%2C%20N.%2C%20Somers%2C%20T.M.%2C%20and%20Wong%2C%20B.%202010.%20%5C%E2%80%9COrganizational%20Impact%20of%20System%20Quality%2C%20Information%20Quality%2C%20and%20Service%20Quality%2C%5C%E2%80%9D%20The%20Journal%20of%20Strategic%20Information%20Systems%20%2819%3A3%29%2C%20pp%20207%E2%80%93228.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A03%20PM)) and steep organizational learning requirements ([Gorla et al. 2010](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1248_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3AGorla%2C%20N.%2C%20Somers%2C%20T.M.%2C%20and%20Wong%2C%20B.%202010.%20%5C%E2%80%9COrganizational%20Impact%20of%20System%20Quality%2C%20Information%20Quality%2C%20and%20Service%20Quality%2C%5C%E2%80%9D%20The%20Journal%20of%20Strategic%20Information%20Systems%20%2819%3A3%29%2C%20pp%20207%E2%80%93228.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A03%20PM); [Saraf et al. 2013](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1281_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3ASaraf%2C%20N.%2C%20Liang%2C%20H.%2C%20Xue%2C%20Y.%2C%20and%20Hu%2C%20Q.%202013.%20%5C%E2%80%9CHow%20Does%20Organisational%20Absorptive%20Capacity%20Matter%20in%20the%20Assimilation%20of%20Enterprise%20Information%20Systems?,\” Information Systems Journal (23:3), pp 245–267. UserName - DateTime: sii-4/4/2017 6:12:27 PM)) have been shown to restrict the ability of ES to enable innovation. Furthermore, some researchers criticize ES for lacking flexibility ([Kharabe et al. 2013](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1255_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3AKharabe%2C%20A.%2C%20Lyytinen%2C%20K.%2C%20and%20Grover%2C%20V.%202013.%20%5C%E2%80%9CDo%20Organizational%20Competencies%20Influence%20How%20Enterprise%20Systems%20Foster%20Organizational%20Agility?,\” in: International Conference On Information Systems (ICIS 2013). Milan, Italy. UserName - DateTime: sii-4/4/2017 6:12:09 PM); [Kharabe and Lyytinen 2012](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1256_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3AKharabe%2C%20A.%2C%20and%20Lyytinen%2C%20K.J.%202012.%20%5C%E2%80%9CIs%20Implementing%20ERP%20Like%20Pouring%20Concrete%20into%20a%20Company? Impact of Enterprise Systems on Organizational Agility,\” in: Thirty Third International Conference on Information Systems (ICIS 2012). Orlando UserName - DateTime: sii-4/4/2017 6:12:10 PM)) and lacking long-term value propositions for life cycle–wide innovation ([Kemp and Low 2008](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1254_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3AKemp%2C%20M.%2C%20and%20Low%2C%20G.%202008.%20%5C%E2%80%9CERP%20Innovation%20Implementation%20Model%20Incorporating%20Change%20Management%2C%5C%E2%80%9D%20Business%20Process%20Management%20Journal%20%2814%3A2%29%2C%20pp%20228%E2%80%93242.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A08%20PM); [McAfee and Brynjolfsson 2008](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1272_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3AMcAfee%2C%20A.%2C%20and%20Brynjolfsson%2C%20E.%202008.%20%5C%E2%80%9CInvesting%20in%20the%20IT%20That%20Makes%20a%20Competitive%20Difference%2C%5C%E2%80%9D%20Harvard%20Business%20Review%20%2886%3A7/8%29%2C%20pp%2098%E2%80%93107.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A21%20PM)).

At the same time, anecdotal commentary suggests that organizations are innovating with low-cost, flexible and easy-to-access technologies such as cloud computing, mobile, wearables and social media. In this chapter, we refer to these technologies as digital technologies to distinguish the role of ES in facilitating innovation in the IT portfolio. Organizations that utilize digital technologies for innovation have shown much resilience to the changes in the environment and hyper-competition and have demonstrated better connectedness with their business partners ([Nylén and Holmström 2015](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1276_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3ANyl%C3%A9n%2C%20D.%2C%20and%20Holmstr%C3%B6m%2C%20J.%202015.%20%5C%E2%80%9CDigital%20Innovation%20Strategy%3A%20A%20Framework%20for%20Diagnosing%20and%20Improving%20Digital%20Product%20and%20Service%20Innovation%2C%5C%E2%80%9D%20Business%20Horizons%20%2858%3A1%29%2C%20pp%2057%E2%80%9367.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A24%20PM)). The availability of these digital technologies has raised new innovation possibilities for new and traditional organizations ([Avedillo et al. 2015](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1224_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3AAvedillo%2C%20J.G.%2C%20Begonha%2C%20D.%2C%20and%20Peyracchia%2C%20A.%202015.%20%5C%E2%80%9CTwo%20Ways%20to%20Modernize%20IT%20Systems%20for%20the%20Digital%20Era%2C%5C%E2%80%9D%20in%3A%20Insights%20%26%20Publications.%20www.mckinsey.com/%3A%20McKinsey%20%26%20Company.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A11%3A45%20PM); [Yoo et al. 2012](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1302_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3AYoo%2C%20Y.%2C%20Boland%20Jr%2C%20R.J.%2C%20Lyytinen%2C%20K.%2C%20and%20Majchrzak%2C%20A.%202012.%20%5C%E2%80%9COrganizing%20for%20Innovation%20in%20the%20Digitized%20World%2C%5C%E2%80%9D%20Organization%20Science%20%2823%3A5%29%2C%20pp%201398%E2%80%931408.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A44%20PM)). While the ‘green-field’ organizations can think of technologies ‘from scratch,’ such options are not available for the incumbent traditional organizations ([Avedillo et al. 2015](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1224_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3AAvedillo%2C%20J.G.%2C%20Begonha%2C%20D.%2C%20and%20Peyracchia%2C%20A.%202015.%20%5C%E2%80%9CTwo%20Ways%20to%20Modernize%20IT%20Systems%20for%20the%20Digital%20Era%2C%5C%E2%80%9D%20in%3A%20Insights%20%26%20Publications.%20www.mckinsey.com/%3A%20McKinsey%20%26%20Company.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A11%3A45%20PM)). Further, for many organizations, an ES is critical for existing operations and also represents the largest single IT investment ([Srivardhana and Pawlowski 2007](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1290_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3ASrivardhana%2C%20T.%2C%20and%20Pawlowski%2C%20S.D.%202007.%20%5C%E2%80%9CERP%20Systems%20as%20an%20Enabler%20of%20Sustained%20Business%20Process%20Innovation%3A%20A%20Knowledge-Based%20View%2C%5C%E2%80%9D%20The%20Journal%20of%20Strategic%20Information%20Systems%20%2816%3A1%29%2C%20pp%2051%E2%80%9369.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A36%20PM)). As such, the traditional organizations must see new ways of combining the digital technologies with their ES. The dipolar nature of digital technologies and the existing ES present a challenge to create a consistent and productive IT portfolio that facilitates innovation. Management consultants call this phenomenon of managing new and old technologies in a single IT portfolio a ‘two-speed IT system,’ highlighting the distinct nature of the two types of systems.[[1]](#endnote-1) [Figure 18.1](#_S26_FgC_figure___1) depicts the characteristics of the legacy ES and digital technologies. [Figure 18.1](#_S26_FgC_figure___1) also highlights that astute organizations can employ the IT portfolio in which the capabilities of each type of system are matched with weaknesses of other types of systems to create portfolio strategies that provide value to the organization.

The objective of this chapter is to raise a discussion about the changing role of ES in innovation in these dynamic and hyper-competitive times. There is growing consensus among the academics (e.g., [Carlo et al. 2014](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1230_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3ACarlo%2C%20J.L.%2C%20Gaskin%2C%20J.%2C%20Lyytinen%2C%20K.%2C%20and%20Rose%2C%20G.M.%202014.%20%5C%E2%80%9CEarly%20Vs.%20Late%20Adoption%20of%20Radical%20Information%20Technology%20Innovations%20across%20Software%20Development%20Organizations%3A%20An%20Extension%20of%20the%20Disruptive%20Information%20Technology%20Innovation%20Model%2C%5C%E2%80%9D%20Information%20Systems%20Journal%20%2824%3A3%29.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A11%3A50%20PM)) and practitioners (e.g., [PwC 2012](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1277_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3APwC.%202012.%20%5C%E2%80%9CHow%20to%20Drive%20Innovation%20and%20Business%20Growth%3A%20Leveraging%20Emerging%20Technology%20for%20Sustainable%20Growth%2C%5C%E2%80%9D%20www.pwc.com/en_US/us/supply-chain-management/assets/pwc-oracle-innovation-white-paper.pdf.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A24%20PM)) that radical innovations facilitated by enterprise systems are too costly to the organization ([Benner and Tushman 2003](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1226_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3ABenner%2C%20M.J.%2C%20and%20Tushman%2C%20M.L.%202003.%20%5C%E2%80%9CExploitation%2C%20Exploration%2C%20and%20Process%20Management%3A%20The%20Productivity%20Dilemma%20Revisited%2C%5C%E2%80%9D%20Academy%20of%20Management%20Review%20%2828%3A2%29%2C%20pp%20238%E2%80%93256.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A11%3A47%20PM)). Similarly, there are equally compelling arguments that incremental innovations of ES may not suit the current dynamic environment ([Chang et al. 2014](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1234_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3AChang%2C%20W.%2C%20Franke%2C%20G.R.%2C%20Butler%2C%20T.D.%2C%20Musgrove%2C%20C.F.%2C%20and%20Ellinger%2C%20A.E.%202014.%20%5C%E2%80%9CDifferential%20Mediating%20Effects%20of%20Radical%20and%20Incremental%20Innovation%20on%20Market%20Orientation-Performance%20Relationship%3A%20A%20Meta-Analysis%2C%5C%E2%80%9D%20Journal%20of%20Marketing%20Theory%20and%20Practice%20%2822%3A3%29%2C%20pp%20235%E2%80%93250.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A11%3A54%20PM)). Moreover, there is potential for the organizations to amalgamate digital technologies with the enterprise system to create better innovation potentials.

<Insert [Figure 18.1](#_S22_FgC_figure___18__1) Here>

Figure 18.1 Comparison of enterprise systems and digital technologies

A quick word on innovation

The “importance of innovation to organizational competitiveness” has been acknowledged for decades by many scholars ([Wolfe 1994](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1301_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3AWolfe%2C%20R.A.%201994.%20%5C%E2%80%9COrganizational%20Innovation%3A%20Review%2C%20Critique%20and%20Suggested%20Research%20Directions%2C%5C%E2%80%9D%20The%20Journal%20of%20Management%20Studies%20%2831%3A3%29%2C%20pp%20405%E2%80%93431.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A42%20PM), p. 405). According to Schumpeterian creative destruction, organizations that are less adaptive to changes in the dynamic environment are less likely to survive ([Abrell et al. 2016](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1223_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3AAbrell%2C%20T.%2C%20Pihlajamaa%2C%20M.%2C%20Kanto%2C%20L.%2C%20vom%20Brocke%2C%20J.%2C%20and%20Uebernickel%2C%20F.%202016.%20%5C%E2%80%9CThe%20Role%20of%20Users%20and%20Customers%20in%20Digital%20Innovation%3A%20Insights%20from%20B2b%20Manufacturing%20Firms%2C%5C%E2%80%9D%20Information%20%26%20Management%20%2853%3A3%29%2C%20pp%20324%E2%80%93335.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A11%3A43%20PM); [Tushman and Anderson 1986](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1297_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3ATushman%2C%20M.L.%2C%20and%20Anderson%2C%20P.%C2%A01986.%20%5C%E2%80%9CTechnological%20Discontinuities%20and%20Organizational%20Environments%2C%5C%E2%80%9D%20Administrative%20Science%20Quarterly%20%2831%3A3%29%2C%20pp%20439%E2%80%93465.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A40%20PM)). As such, for the survival in the contemporary competitive world, innovation has become a necessity ([Leifer et al. 2000](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1261_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3ALeifer%2C%20R.%2C%20McDermott%2C%20C.M.%2C%20G.%2C%20C.-O.C.%2C%20Peters%2C%20L.S.%2C%20Rice%2C%20M.P.%2C%20and%20Veryzer%2C%20R.W.%202000.%20Radical%20Innovation%3A%20How%20Mature%20Companies%20Can%20Outsmart%20Upstairs.%20Boston%2C%20MA%3A%20Harvard%20Business%20School%20Press.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A15%20PM); [Lewis et al. 2002](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1262_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3ALewis%2C%20M.W.%2C%20Welsh%2C%20M.A.%2C%20Dehler%2C%20G.E.%2C%20and%20Green%2C%20S.G.%202002.%20%5C%E2%80%9CProduct%20Development%20Tensions%3A%20Exploring%20Contrasting%20Styles%20of%20Project%20Management%2C%5C%E2%80%9D%20Academy%20of%20Management%20Journal%20%2845%3A3%29%2C%20pp%20546%E2%80%93564.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A16%20PM); [Utterback 1994](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1298_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3AUtterback%2C%20J.M.%201994.%20Mastering%20the%20Dynamics%20of%20Innovation.%20Boston%2C%20MA%3A%20Harvard%20Business%20School%20Press.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A40%20PM)). Innovation in this book chapter is defined as any idea, practice or material artefact perceived to be new by the relevant unit of adoption ([Zaltman et al. 1977](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1304_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3AZaltman%2C%20G.%2C%20Duncan%2C%20R.%2C%20and%20Holbek%2C%20J.%201977.%20Innovations%20and%20Organizations.%20New%20York%3A%20John%20Wiley%20%26%20Sons.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A46%20PM)). This definition takes into account any idea, artifact or any practice that is not new to the world, but new to the organization that adopts it. As [Nambisan (2013](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1275_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3ANambisan%2C%20S.%202013.%20%5C%E2%80%9CInformation%20Technology%20and%20Product/Service%20Innovation%3A%20A%20Brief%20Assessment%20and%20Some%20Suggestions%20for%20Future%20Research%2C%5C%E2%80%9D%20Journal%20of%20the%20Association%20for%20Information%20Systems%20%2814%3A4%29%2C%20pp%20215%E2%80%93226.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A22%20PM), p. 216) says,

in the last one decade or so, the nature of innovation has undergone considerable change in most industries. Innovation has become much more open, global, and collaborative in nature to involve a diverse network of partners and emphasizing distributed innovation processes.

Further, [Yoo et al. (2012](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1302_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3AYoo%2C%20Y.%2C%20Boland%20Jr%2C%20R.J.%2C%20Lyytinen%2C%20K.%2C%20and%20Majchrzak%2C%20A.%202012.%20%5C%E2%80%9COrganizing%20for%20Innovation%20in%20the%20Digitized%20World%2C%5C%E2%80%9D%20Organization%20Science%20%2823%3A5%29%2C%20pp%201398%E2%80%931408.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A44%20PM), p. 1400) argue that the process of innovation itself has shifted dramatically in recent times owing to the “open, flexible affordances of . . . digital technology,” thereby requiring separate investigation.

The role of ES in innovation

Information systems scholars have recognized ES as a strong enabler of innovation ([Seddon et al. 2010](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1284_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3ASeddon%2C%20P.B.%2C%20Calvert%2C%20C.%2C%20and%20Yang%2C%20S.%202010.%20%5C%E2%80%9CA%20Multi-Project%20Model%20of%20Key%20Factors%20Affecting%20Organizational%20Benefits%20from%20Enterprise%20Systems%2C%5C%E2%80%9D%20MIS%20Quarterly%20%2834%3A2%29%2C%20pp%20305%E2%80%93328.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A30%20PM); [Srivardhana and Pawlowski 2007](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1290_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3ASrivardhana%2C%20T.%2C%20and%20Pawlowski%2C%20S.D.%202007.%20%5C%E2%80%9CERP%20Systems%20as%20an%20Enabler%20of%20Sustained%20Business%20Process%20Innovation%3A%20A%20Knowledge-Based%20View%2C%5C%E2%80%9D%20The%20Journal%20of%20Strategic%20Information%20Systems%20%2816%3A1%29%2C%20pp%2051%E2%80%9369.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A36%20PM); [Van den Bergh and Viaene 2013](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1299_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3AVan%20den%20Bergh%2C%20J.%2C%20and%20Viaene%2C%20S.%202013.%20%5C%E2%80%9CProcess%20Innovation%3A%20Redesigning%20an%20Enterprise%20Backbone%20System%2C%5C%E2%80%9D%20in%3A%20Enterprise%20Information%20Systems%20of%20the%20Future.%20Springer%2C%20pp.%C2%A01%E2%80%9317.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A41%20PM)). According to Allied Market Research, the ES market size is predicted to reach $41.69 billion by 2020, with key players like SAP AG, Oracle Corp. and Microsoft noted as the leading vendors. An enterprise system provides a modular suite of software that allows an organization to run its core business processes. Enterprise systems epitomize features such as process integration, process orientation, process standardization and real-time information ([Seddon et al. 2010](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1284_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3ASeddon%2C%20P.B.%2C%20Calvert%2C%20C.%2C%20and%20Yang%2C%20S.%202010.%20%5C%E2%80%9CA%20Multi-Project%20Model%20of%20Key%20Factors%20Affecting%20Organizational%20Benefits%20from%20Enterprise%20Systems%2C%5C%E2%80%9D%20MIS%20Quarterly%20%2834%3A2%29%2C%20pp%20305%E2%80%93328.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A30%20PM)). According to Panorama Consulting Solutions, a typical average enterprise systems implementation time for mid-sized organization is 14 months and implementation costs could start at several million dollars. Organizations have justified the lengthy implementation times and costs, considering the innate characteristics of integration, real-time information flows and standardization. There is also evidence that ES has enabled organizations to innovate by offering increased knowledge capabilities ([Srivardhana and Pawlowski 2007](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1290_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3ASrivardhana%2C%20T.%2C%20and%20Pawlowski%2C%20S.D.%202007.%20%5C%E2%80%9CERP%20Systems%20as%20an%20Enabler%20of%20Sustained%20Business%20Process%20Innovation%3A%20A%20Knowledge-Based%20View%2C%5C%E2%80%9D%20The%20Journal%20of%20Strategic%20Information%20Systems%20%2816%3A1%29%2C%20pp%2051%E2%80%9369.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A36%20PM)). These packaged ES applications provide benefits such as better corporate governance, consistent and real-time information, and stable and flexible platforms ([Davenport 2000b](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1238_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3ADavenport%2C%20T.H.%202000b.%20Mission%20Critical%3A%20Realizing%20the%20Promise%20of%20Enterprise%20Systems.%20Harvard%20Business%20Press.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A11%3A56%20PM); [Gable et al. 2008](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1244_FILE150310943P3018%22%20%5Co%20%22%28ManLink%29%3AGable%2C%20G.G.%2C%20Sedera%2C%20D.%2C%20and%20Chan%2C%20T.%202008.%20%5C%E2%80%9CRe-Conceptualizing%20Information%20System%20Success%3A%20The%20IS-Impact%20Measurement%20Model%2C%5C%E2%80%9D%20Journal%20of%20the%20Association%20for%20Information%20Systems%20%289%3A7%29%2C%20pp%20377%E2%80%93408.%20UserName%20-%20DateTime%3A%20vge-4/5/2017%2012%3A08%3A13%20PM); [Seddon et al. 2010](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1284_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3ASeddon%2C%20P.B.%2C%20Calvert%2C%20C.%2C%20and%20Yang%2C%20S.%202010.%20%5C%E2%80%9CA%20Multi-Project%20Model%20of%20Key%20Factors%20Affecting%20Organizational%20Benefits%20from%20Enterprise%20Systems%2C%5C%E2%80%9D%20MIS%20Quarterly%20%2834%3A2%29%2C%20pp%20305%E2%80%93328.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A30%20PM); [Sedera and Gable 2010](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1286_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3ASedera%2C%20D.%2C%20and%20Gable%2C%20G.G.%202010.%20%5C%E2%80%9CKnowledge%20Management%20Competence%20for%20Enterprise%20System%20Success%2C%5C%E2%80%9D%20The%20Journal%20of%20Strategic%20Information%20Systems%20%2819%3A4%29%2C%20pp%20296%E2%80%93306.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A31%20PM)). Furthermore, the implementation of the ES to an organization is often characterized as a radical change to business processes ([Bingi et al. 1999](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1227_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3ABingi%2C%20P.%2C%20Sharma%2C%20M.K.%2C%20and%20Godla%2C%20J.K.%201999.%20%5C%E2%80%9CCritical%20Issues%20Affecting%20an%20ERP%20Implementation%2C%5C%E2%80%9D%20Information%20Systems%20Management%20%2816%3A3%29%2C%20pp%207%E2%80%9314.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A11%3A48%20PM); [Kraemmerand et al. 2003](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1258_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3AKraemmerand%2C%20P.%2C%20M%C3%B8ller%2C%20C.%2C%20and%20Boer%2C%20H.%202003.%20%5C%E2%80%9CERP%20Implementation%3A%20An%20Integrated%20Process%20of%20Radical%20Change%20and%20Continuous%20Learning%2C%5C%E2%80%9D%20Production%20Planning%20%26%20Control%20%2814%3A4%29%2C%20pp%20338%E2%80%93348.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A12%20PM)) and management structures ([Sasidharan et al. 2012](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1282_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3ASasidharan%2C%20S.%2C%20Santhanam%2C%20R.%2C%20Brass%2C%20D.J.%2C%20and%20Sambamurthy%2C%20V.%202012.%20%5C%E2%80%9CThe%20Effects%20of%20Social%20Network%20Structure%20on%20Enterprise%20Systems%20Success%3A%20A%20Longitudinal%20Multilevel%20Analysis%2C%5C%E2%80%9D%20Information%20Systems%20Research%20%2823%3A3/1/2%29%2C%20pp%20658%E2%80%93678.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A28%20PM)). However, due to its high resource intensiveness, there is a continuous debate on the long-term innovation value propositions of ES ([Davenport 2000a](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1237_FILE150310943P3018%22%20%5Co%20%22%28ManLink%29%3ADavenport%2C%20T.H.%202000a.%20%5C%E2%80%9CThe%20Future%20of%20Enterprise%20System-Enabled%20Organizations%2C%5C%E2%80%9D%20Information%20Systems%20Frontiers%20%282%3A2%29%2C%20pp%20163%E2%80%93180.%20UserName%20-%20DateTime%3A%20vge-4/5/2017%2012%3A08%3A20%20PM); [Davenport et al. 2004](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1240_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3ADavenport%2C%20T.H.%2C%20Harris%2C%20J.G.%2C%20and%20Cantrell%2C%20S.%202004.%20%5C%E2%80%9CEnterprise%20Systems%20and%20Ongoing%20Process%20Change%2C%5C%E2%80%9D%20Business%20Process%20Management%20Journal%20%2810%3A1%29%2C%20pp%2016%E2%80%9326.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A11%3A57%20PM); [Dutta et al. 2014](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1241_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3ADutta%2C%20A.%2C%20Lee%2C%20H.%2C%20and%20Yasai-Ardekani%2C%20M.%202014.%20%5C%E2%80%9CDigital%20Systems%20and%20Competitive%20Responsiveness%3A%20The%20Dynamics%20of%20IT%20Business%20Value%2C%5C%E2%80%9D%20Information%20%26%20Management%20%2851%3A6%29%2C%20pp%20762%E2%80%93773.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A11%3A58%20PM); [Kemp and Low 2008](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1254_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3AKemp%2C%20M.%2C%20and%20Low%2C%20G.%202008.%20%5C%E2%80%9CERP%20Innovation%20Implementation%20Model%20Incorporating%20Change%20Management%2C%5C%E2%80%9D%20Business%20Process%20Management%20Journal%20%2814%3A2%29%2C%20pp%20228%E2%80%93242.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A08%20PM); [McAfee and Brynjolfsson 2008](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1272_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3AMcAfee%2C%20A.%2C%20and%20Brynjolfsson%2C%20E.%202008.%20%5C%E2%80%9CInvesting%20in%20the%20IT%20That%20Makes%20a%20Competitive%20Difference%2C%5C%E2%80%9D%20Harvard%20Business%20Review%20%2886%3A7/8%29%2C%20pp%2098%E2%80%93107.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A21%20PM)).

The ability and the newness of the information systems deteriorate over time, and as a result, for the survival of the organizations these systems must be upgraded or replaced ([Swanson and Dans 2000](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1293_FILE150310943P3018%22%20%5Co%20%22%28ManLink%29%3ASwanson%2C%20E.B.%2C%20and%20Dans%2C%20E.%202000.%20%5C%E2%80%9CSystem%20Life%20Expectancy%20and%20the%20Maintenance%20Effort%3A%20Exploring%20Their%20Equilibration%2C%5C%E2%80%9D%20MIS%20Quarterly%20%2824%3A2%29%2C%20pp%20277%E2%80%93297.%20UserName%20-%20DateTime%3A%20vge-4/5/2017%2012%3A08%3A27%20PM)). Enterprise systems too face the same problem in losing their innovation value propositions over time. However, ES are rarely replaced ([Eden et al. 2014](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1242_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3AEden%2C%20R.%2C%20Sedera%2C%20D.%2C%20and%20Tan%2C%20F.%202014.%20%5C%E2%80%9CSustaining%20the%20Momentum%3A%20Archival%20Analysis%20of%20Enterprise%20Resource%20Planning%20Systems%20%282006%E2%80%932012%29%2C%5C%E2%80%9D%20Communications%20of%20the%20Association%20for%20Information%20Systems%20%2835%3A3%29%2C%20pp%2039%E2%80%9382.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A11%3A59%20PM)), highlighting the need for organizations to innovate using their existing ES. Many organizations using ES rely upon the software vendor for life cycle–wide innovations through upgrades and launch of new products ([Chua and Khoo 2011](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1235_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3AChua%2C%20C.E.H.%2C%20and%20Khoo%2C%20H.M.%202011.%20%5C%E2%80%9CHow%20Organizations%20Motivate%20Users%20to%20Participate%20in%20Support%20Upgrades%20of%20Customized%20Packaged%20Software%2C%5C%E2%80%9D%20Information%20%26%20Management%20%2848%3A8%29%2C%20pp%20328%E2%80%93335.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A11%3A55%20PM)). However, factors like the complexity of upgrades, resource constraints and tiresome continuous change management initiatives have dulled the appetite for organizations to engage in regular software upgrades – therefore compromising the innovation potential. Moreover, the exclusive innovation potential of ES diminishes over time. Research on ES use (e.g., [Burton-Jones and Grange 2012](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1229_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3ABurton-Jones%2C%20A.%2C%20and%20Grange%2C%20C.%202012.%20%5C%E2%80%9CFrom%20Use%20to%20Effective%20Use%3A%20A%20Representation%20Theory%20Perspective%2C%5C%E2%80%9D%20Information%20Systems%20Research%20%2824%3A3%29%2C%20pp%20632%E2%80%93658.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A11%3A49%20PM); [McLean and Sedera 2010](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1273_FILE150310943P3018%22%20%5Co%20%22%28ManLink%29%3AMcLean%2C%20E.%2C%20and%20Sedera%2C%20D.%202010.%20%5C%E2%80%9CThe%20Measurement%20of%20Information%20System%20Use%3A%20Preliminary%20Considerations%2C%5C%E2%80%9D%20Americas%20Conference%20on%20Information%20Systems%20%28AMCIS%29%2C%20Leema%2C%20Peru%3A%20AIS.%20UserName%20-%20DateTime%3A%20vge-4/5/2017%2012%3A08%3A34%20PM)) and ES benefits (e.g., [Seddon et al. 2010](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1284_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3ASeddon%2C%20P.B.%2C%20Calvert%2C%20C.%2C%20and%20Yang%2C%20S.%202010.%20%5C%E2%80%9CA%20Multi-Project%20Model%20of%20Key%20Factors%20Affecting%20Organizational%20Benefits%20from%20Enterprise%20Systems%2C%5C%E2%80%9D%20MIS%20Quarterly%20%2834%3A2%29%2C%20pp%20305%E2%80%93328.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A30%20PM)) allude to the necessity for continuously finding new ways of using the ES to facilitate innovation. The aforementioned facets relating to enterprise systems place a growing pressure on organizations, vendors and implementation partners to deliver better solutions, models and approaches that facilitates life cycle–wide innovation ([Esteves 2009](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1243_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3AEsteves%2C%20J.%202009.%20%5C%E2%80%9CA%20Benefits%20Realisation%20Road-Map%20Framework%20for%20ERP%20Usage%20in%20Small%20and%20Medium-Sized%20Enterprises%2C%5C%E2%80%9D%20Journal%20of%20Enterprise%20Information%20Management%20%2822%3A1/2%29%2C%20pp%2025%E2%80%9335.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A00%20PM); [Lokuge and Sedera 2014b](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1265_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3ALokuge%2C%20S.%2C%20and%20Sedera%2C%20D.%202014b.%20%5C%E2%80%9CEnterprise%20Systems%20Lifecycle-Wide%20Innovation%2C%5C%E2%80%9D%20Americas%20Conference%20on%20Information%20Systems%20%28AMCIS%202014%29%2C%20Savannah%2C%20Georgia%3A%20AIS%20Library.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A18%20PM); [Lokuge and Sedera 2014c](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1266_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3ALokuge%2C%20S.%2C%20and%20Sedera%2C%20D.%202014c.%20%5C%E2%80%9CEnterprise%20Systems%20Lifecycle-Wide%20Innovation%20Readiness%2C%5C%E2%80%9D%20Pacific%20Asia%20Conference%20on%20Information%20Systems%20%28PACIS%202014%29%2C%20Chengdu%2C%20China%3A%20AIS%20Library.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A18%20PM)).

However, ES are inherently considered less flexible systems ([Kharabe and Lyytinen 2012](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1256_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3AKharabe%2C%20A.%2C%20and%20Lyytinen%2C%20K.J.%202012.%20%5C%E2%80%9CIs%20Implementing%20ERP%20Like%20Pouring%20Concrete%20into%20a%20Company? Impact of Enterprise Systems on Organizational Agility,\” in: Thirty Third International Conference on Information Systems (ICIS 2012). Orlando UserName - DateTime: sii-4/4/2017 6:12:10 PM)). For example, ES was considered ‘liquid concrete,’ highlighting its inflexibility ([Lokuge 2015](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1263_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3ALokuge%2C%20K.S.P.%C2%A02015.%20%5C%E2%80%9CAgile%20Innovation%3A%20Innovating%20with%20Enterprise%20Systems.%5C%E2%80%9D%20Queensland%20University%20of%20Technology.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A17%20PM); [Lokuge and Sedera 2014a](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1264_FILE150310943P3018%22%20%5Co%20%22%28ManLink%29%3ALokuge%2C%20S.%2C%20and%20Sedera%2C%20D.%202014a.%20%5C%E2%80%9CDeriving%20Information%20Systems%20Innovation%20Execution%20Mechanisms%2C%5C%E2%80%9D%20Australasian%20Conference%20on%20Information%20Systems%20%28ACIS%202014%29%2C%20Auckland%2C%20New%20Zealand%3A%20AIS%20Library.%20UserName%20-%20DateTime%3A%20vge-4/5/2017%2012%3A08%3A40%20PM); *[Economist](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1295_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3AThe%20Economist.%202007.%20%5C%E2%80%9CLiquid%20Concrete%3A%20As%20Software%20Shifts%20to%20an%20%5C%E2%80%9Con%20Demand%5C%E2%80%9D%20Model%2C%20Can%20SAP%20Move%20with%20the%20Times?,\” in: The Economist. www.economist.com. UserName - DateTime: sii-4/4/2017 6:12:38 PM)* [2007](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1295_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3AThe%20Economist.%202007.%20%5C%E2%80%9CLiquid%20Concrete%3A%20As%20Software%20Shifts%20to%20an%20%5C%E2%80%9Con%20Demand%5C%E2%80%9D%20Model%2C%20Can%20SAP%20Move%20with%20the%20Times?,\” in: The Economist. www.economist.com. UserName - DateTime: sii-4/4/2017 6:12:38 PM)). Anecdotal commentary suggests that company’s reliance on the software vendor for its innovations creates an over-dependency. Such over-dependencies on the software vendor for innovations not only takes away the innovation spirit of the organization, but it also dampens the unique solution for individual strategic advantage ([Kumar and van Hillegersberg 2000](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1259_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3AKumar%2C%20K.%2C%20and%20van%20Hillegersberg%2C%20J.%202000.%20%5C%E2%80%9CERP%20Experiences%20and%20Evolution%2C%5C%E2%80%9D%20Communications%20of%20the%20ACM%20%2843%3A4%29%2C%20Apr%202000%2C%20pp%2022%E2%80%9326.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A13%20PM); [Kumar et al. 2003](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1260_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3AKumar%2C%20V.%2C%20Maheshwari%2C%20B.%2C%20and%20Kumar%2C%20U.%202003.%20%5C%E2%80%9CAn%20Investigation%20of%20Critical%20Management%20Issues%20in%20ERP%20Implementation%3A%20Empirical%20Evidence%20from%20Canadian%20Organizations%2C%5C%E2%80%9D%20Technovation%20%2823%3A10%29%2C%20pp%20793%E2%80%93807.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A14%20PM)). Moreover, obtaining appropriate enterprise systems skills still remains one of the challenging tasks for the organization. The appropriate skills shortage is visible at all levels of the organization; technical, management and operational. Not having the right skills is a major barrier for innovations ([Jansen et al. 2006](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1251_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3AJansen%2C%20J.J.P.%2C%20Van%20Den%20Bosch%2C%20F.A.J.%2C%20and%20Volberda%2C%20H.W.%202006.%20%5C%E2%80%9CExploratory%20Innovation%2C%20Exploitative%20Innovation%2C%20and%20Performance%3A%20Effects%20of%20Organizational%20Antecedents%20and%20Environmental%20Moderators%2C%5C%E2%80%9D%20Management%20Science%20%2852%3A11%29%2C%20pp%201661%E2%80%931674.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A06%20PM)). Considering the challenges that organizations face, enterprise systems vendors now promote open architectures for wider participation of third-party vendors and skills, thus expanding innovation opportunities. Such open technologies have eliminated some of the inflexible architectures and have enhanced openness of enterprise systems ([Ceccagnoli et al. 2012](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1232_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3ACeccagnoli%2C%20M.%2C%20Forman%2C%20C.%2C%20Huang%2C%20P.%2C%20and%20Wu%2C%20D.%202012.%20%5C%E2%80%9CCocreation%20of%20Value%20in%20a%20Platform%20Ecosystem%3A%20The%20Case%20of%20Enterprise%20Software%2C%5C%E2%80%9D%20MIS%20Quarterly%20%2836%3A1%29%2C%20pp%20263%E2%80%93290.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A11%3A52%20PM)). Therefore, ES are now taking a more salient role as a technology platform ([Gawer and Cusumano 2012](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1246_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3AGawer%2C%20A.%2C%20and%20Cusumano%2C%20M.A.%202012.%20%5C%E2%80%9CHow%20Companies%20Become%20Platform%20Leaders%2C%5C%E2%80%9D%20MIT%20Sloan%20Management%20Review%20%2849%3A2%29%2C%20pp%2028%E2%80%9335.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A01%20PM); [Schenk 2015](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1283_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3ASchenk%2C%20B.%202015.%20%5C%E2%80%9CThe%20Role%20of%20Enterprise%20Systems%20in%20Process%20Innovation%2C%5C%E2%80%9D%20in%3A%20Bpm-Driving%20Innovation%20in%20a%20Digital%20World%2C%20J.v.%20Brocke%20and%20T.%20Schmiedel%20%28eds.%29.%20Switzerland%3A%20Springer%2C%20pp.%C2%A075%E2%80%9384.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A28%20PM)). The advanced role of ES as a technology platform is providing an ecosystem of independent software vendors to integrate with the ES, facilitating organizations to innovate ([Ceccagnoli et al. 2012](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1232_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3ACeccagnoli%2C%20M.%2C%20Forman%2C%20C.%2C%20Huang%2C%20P.%2C%20and%20Wu%2C%20D.%202012.%20%5C%E2%80%9CCocreation%20of%20Value%20in%20a%20Platform%20Ecosystem%3A%20The%20Case%20of%20Enterprise%20Software%2C%5C%E2%80%9D%20MIS%20Quarterly%20%2836%3A1%29%2C%20pp%20263%E2%80%93290.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A11%3A52%20PM); [Lokuge and Sedera 2016](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1267_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3ALokuge%2C%20S.%2C%20and%20Sedera%2C%20D.%202016.%20%5C%E2%80%9CIs%20Your%20IT%20Eco-System%20Ready%20to%20Facilitate%20Organizational%20Innovation? Deriving an IT Eco-System Readiness Measurement Model,\” The International Conference on Information Systems (ICIS2016), Dublin, Ireland: AIS. UserName - DateTime: sii-4/4/2017 6:12:19 PM)).

The digital technologies join the IT portfolio

The advent of digital technologies such as cloud computing, wearables, mobile technology, social media and business analytics are said to provide unprecedented opportunities to all organizations in the world. These technologies are easily accessible ([Nylén and Holmström 2015](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1276_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3ANyl%C3%A9n%2C%20D.%2C%20and%20Holmstr%C3%B6m%2C%20J.%202015.%20%5C%E2%80%9CDigital%20Innovation%20Strategy%3A%20A%20Framework%20for%20Diagnosing%20and%20Improving%20Digital%20Product%20and%20Service%20Innovation%2C%5C%E2%80%9D%20Business%20Horizons%20%2858%3A1%29%2C%20pp%2057%E2%80%9367.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A24%20PM)), easily maintainable ([Chakravarty et al. 2013](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1233_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3AChakravarty%2C%20A.%2C%20Grewal%2C%20R.%2C%20and%20Sambamurthy%2C%20V.%202013.%20%5C%E2%80%9CInformation%20Technology%20Competencies%2C%20Organizational%20Agility%2C%20and%20Firm%20Performance%3A%20Enabling%20and%20Facilitating%20Roles%2C%5C%E2%80%9D%20Information%20Systems%20Research%20%2824%3A4%29%2C%20pp%20976%E2%80%93997.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A11%3A53%20PM)), can be easily integrated with other technologies ([Rai and Tang 2010](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1278_FILE150310943P3018%22%20%5Co%20%22%28ManLink%29%3ARai%2C%20A.%2C%20and%20Tang%2C%20X.%202010.%20%5C%E2%80%9CLeveraging%20IT%20Capabilities%20and%20Competitive%20Process%20Capabilities%20for%20the%20Management%20of%20Interorganizational%20Relationship%20Portfolios%2C%5C%E2%80%9D%20Information%20Systems%20Research%20%2821%3A3%29%2C%20pp%20516%E2%80%93570.%20UserName%20-%20DateTime%3A%20vge-4/5/2017%2012%3A08%3A48%20PM)), are flexible ([Nambisan 2013](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1275_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3ANambisan%2C%20S.%202013.%20%5C%E2%80%9CInformation%20Technology%20and%20Product/Service%20Innovation%3A%20A%20Brief%20Assessment%20and%20Some%20Suggestions%20for%20Future%20Research%2C%5C%E2%80%9D%20Journal%20of%20the%20Association%20for%20Information%20Systems%20%2814%3A4%29%2C%20pp%20215%E2%80%93226.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A22%20PM)), have a low information processing capability ([Nylén and Holmström 2015](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1276_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3ANyl%C3%A9n%2C%20D.%2C%20and%20Holmstr%C3%B6m%2C%20J.%202015.%20%5C%E2%80%9CDigital%20Innovation%20Strategy%3A%20A%20Framework%20for%20Diagnosing%20and%20Improving%20Digital%20Product%20and%20Service%20Innovation%2C%5C%E2%80%9D%20Business%20Horizons%20%2858%3A1%29%2C%20pp%2057%E2%80%9367.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A24%20PM)) and enable reusability ([Yoo et al. 2012](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1302_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3AYoo%2C%20Y.%2C%20Boland%20Jr%2C%20R.J.%2C%20Lyytinen%2C%20K.%2C%20and%20Majchrzak%2C%20A.%202012.%20%5C%E2%80%9COrganizing%20for%20Innovation%20in%20the%20Digitized%20World%2C%5C%E2%80%9D%20Organization%20Science%20%2823%3A5%29%2C%20pp%201398%E2%80%931408.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A44%20PM); [Yoo et al. 2010](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1303_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3AYoo%2C%20Y.%2C%20Henfridsson%2C%20O.%2C%20and%20Lyytinen%2C%20K.%202010.%20%5C%E2%80%9CThe%20New%20Organizing%20Logic%20of%20Digital%20Innovation%3A%20An%20Agenda%20for%20Information%20Systems%20Research%2C%5C%E2%80%9D%20Information%20Systems%20Research%20%2821%3A4%29%2C%20pp%20724%E2%80%93735.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A45%20PM)). The ease of use of these technologies has increased the participation of the users in innovation activities ([Nylén and Holmström 2015](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1276_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3ANyl%C3%A9n%2C%20D.%2C%20and%20Holmstr%C3%B6m%2C%20J.%202015.%20%5C%E2%80%9CDigital%20Innovation%20Strategy%3A%20A%20Framework%20for%20Diagnosing%20and%20Improving%20Digital%20Product%20and%20Service%20Innovation%2C%5C%E2%80%9D%20Business%20Horizons%20%2858%3A1%29%2C%20pp%2057%E2%80%9367.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A24%20PM); [Zittrain 2006](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1305_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3AZittrain%2C%20J.L.%202006.%20%5C%E2%80%9CThe%20Generative%20Internet%2C%5C%E2%80%9D%20Harvard%20Law%20Review%20%28119%3A7%29%2C%20pp%201974%E2%80%932040.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A47%20PM)). As such, the innate capabilities of digital technologies provide myriad ways to attain innovation in an organization.

The aforementioned positive affordances of digital technologies provide organizations an opportunity to engage in IT-led innovation with relatively low resource availability (e.g., finance and human capital). These technologies enable organizations with fewer resources to innovate and compete with large organizations in a similar manner ([Sedera et al. 2016](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1287_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3ASedera%2C%20D.%2C%20Lokuge%2C%20S.%2C%20Grover%2C%20V.%2C%20Sarker%2C%20S.%2C%20and%20Sarker%2C%20S.%202016.%20%5C%E2%80%9CInnovating%20with%20Enterprise%20Systems%20and%20Digital%20Platforms%3A%20A%20Contingent%20Resource-Based%20Theory%20View%2C%5C%E2%80%9D%20Information%20%26%20Management%20%2853%3A3%29%2C%20pp%20366%E2%80%93379.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A32%20PM)). Thus, researchers argue that the advent of digital technologies has disrupted the orthodox direct relationship with resource availability and organizational outcomes ([Lokuge and Sedera 2014a](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1264_FILE150310943P3018%22%20%5Co%20%22%28ManLink%29%3ALokuge%2C%20S.%2C%20and%20Sedera%2C%20D.%202014a.%20%5C%E2%80%9CDeriving%20Information%20Systems%20Innovation%20Execution%20Mechanisms%2C%5C%E2%80%9D%20Australasian%20Conference%20on%20Information%20Systems%20%28ACIS%202014%29%2C%20Auckland%2C%20New%20Zealand%3A%20AIS%20Library.%20UserName%20-%20DateTime%3A%20vge-4/5/2017%2012%3A08%3A55%20PM); [Sedera et al. 2016](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1287_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3ASedera%2C%20D.%2C%20Lokuge%2C%20S.%2C%20Grover%2C%20V.%2C%20Sarker%2C%20S.%2C%20and%20Sarker%2C%20S.%202016.%20%5C%E2%80%9CInnovating%20with%20Enterprise%20Systems%20and%20Digital%20Platforms%3A%20A%20Contingent%20Resource-Based%20Theory%20View%2C%5C%E2%80%9D%20Information%20%26%20Management%20%2853%3A3%29%2C%20pp%20366%E2%80%93379.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A32%20PM)). Furthermore, opportunities to apply these technologies have augmented due to the consumerization of IT, through which IT has become an accessible commodity to the general public to take part in innovations ([Carr 2003](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1231_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3ACarr%2C%20N.G.%202003.%20%5C%E2%80%9CIT%20Doesn%E2%80%99t%20Matter%2C%5C%E2%80%9D%20Harvard%20Business%20Review%20%2881%3A5%29%2C%20pp%2041%E2%80%9349.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A11%3A51%20PM)). Researchers and practitioners accredit these factors to the birth and growth of organizations like Uber, Airbnb and Alibaba.com. Although the distinct characteristics of digital technologies, together with the consumerization of IT, have important practical and theoretical implications for organizations, these technologies need to be effectively integrated with existing technologies in the organization. The diverse nature of these technologies – digital technologies and existing technologies – presents a challenge to create a consistent and productive IT portfolio.

McKenzie consulting company calls this phenomenon of managing new and old technologies in a single IT portfolio ‘two-speed IT systems,’ highlighting the dipolar nature of the systems.[[2]](#endnote-2) They also highlight that astute organizations can employ the IT portfolio in which the capabilities of each type of system are matched with weaknesses of other types of systems to create portfolio strategies that provide value to the organization. On one side of the two-speed IT, the existing IT portfolio includes legacy systems, dominated by ES. Many scholars praise the capabilities of ES in providing operational flexibility, real-time information and transparency ([Seddon et al. 2010](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1284_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3ASeddon%2C%20P.B.%2C%20Calvert%2C%20C.%2C%20and%20Yang%2C%20S.%202010.%20%5C%E2%80%9CA%20Multi-Project%20Model%20of%20Key%20Factors%20Affecting%20Organizational%20Benefits%20from%20Enterprise%20Systems%2C%5C%E2%80%9D%20MIS%20Quarterly%20%2834%3A2%29%2C%20pp%20305%E2%80%93328.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A30%20PM)). However, as mentioned earlier, high resource intensiveness, the need for continuous vendor-driven upgrades, skill shortages, diffusion complexities and steep organizational learning requirements have been shown to restrict the ability of ES-led legacy applications to innovate in the modern dynamic economies. In addition, some criticize ES for lacking flexibility and lacking long-term value propositions for life cycle–wide innovation.

On the other hand, since the mid-2000s, the advent of cloud computing, wearables, mobile technology, social media and business analytics has presented corporate IT with ‘fast-paced’ new technologies that have dramatically changed the nature of IT for achieving corporate goals. Fueled by the consumerization of IT, the ability to acquire, learn, deploy, use and manage these systems faster than traditional systems has made these technologies popular with organizations seeking rapid opportunities in the hyper-competitive global markets. In addition, these newer technologies go beyond the conventional boundaries of the traditional corporate IT ([Lokuge 2015](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1263_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3ALokuge%2C%20K.S.P.%C2%A02015.%20%5C%E2%80%9CAgile%20Innovation%3A%20Innovating%20with%20Enterprise%20Systems.%5C%E2%80%9D%20Queensland%20University%20of%20Technology.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A17%20PM)).

The challenge for an organization is not to endorse one type of system, but to strategically use both the existing systems (slow) and fast digital technologies in combination to create value. Furthermore, no organization has the appetite to dispose of the existing systems, especially ES. Therefore, the two types of systems with seemingly dipolar characteristics (as depicted in [Figure 18.1](#_S26_FgC_figure___1)) should be strategically amalgamated to derive true business value. Despite the purported opportunities presented to organizations to develop and employ an IT portfolio that is flexible, dynamic and effective, we see that only very few organizations are successful in changing their IT portfolio to achieve high organizational benefits, with most still struggling to assemble and manage their IT portfolio. Even though management consultants coined the term ‘two-speed IT architecture’ as a survival mantra for established firms, guidelines on how a two-speed IT portfolio is created are scant. Moreover, the era of two-speed IT is a novel experience, especially to the traditional ones. As such the existing management practices may not work effectively. Therefore, the deployment and management of a two-speed IT portfolio requires fundamental re-thinking.

Considerations for organizations

Having considered the historical and current state of ES, digital technologies and the universal need to innovate, this chapter now presents contextual factors for attaining innovation through a mix of IT in contemporary organizations. These considerations can be enacted as strategies. Then such considerations will lead organizations to innovate better.

Stabilize your enterprise system

The stability of the enterprise systems has been discussed in many academic and practitioner outlets ([Avedillo et al. 2015](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1224_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3AAvedillo%2C%20J.G.%2C%20Begonha%2C%20D.%2C%20and%20Peyracchia%2C%20A.%202015.%20%5C%E2%80%9CTwo%20Ways%20to%20Modernize%20IT%20Systems%20for%20the%20Digital%20Era%2C%5C%E2%80%9D%20in%3A%20Insights%20%26%20Publications.%20www.mckinsey.com/%3A%20McKinsey%20%26%20Company.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A11%3A45%20PM); [Sedera et al. 2016](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1287_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3ASedera%2C%20D.%2C%20Lokuge%2C%20S.%2C%20Grover%2C%20V.%2C%20Sarker%2C%20S.%2C%20and%20Sarker%2C%20S.%202016.%20%5C%E2%80%9CInnovating%20with%20Enterprise%20Systems%20and%20Digital%20Platforms%3A%20A%20Contingent%20Resource-Based%20Theory%20View%2C%5C%E2%80%9D%20Information%20%26%20Management%20%2853%3A3%29%2C%20pp%20366%E2%80%93379.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A33%20PM)). It is commonly agreed that an organization with an enterprise system would undergo a performance dip ([Ross and Vitale 2000](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1280_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3ARoss%2C%20J.W.%2C%20and%20Vitale%2C%20M.R.%202000.%20%5C%E2%80%9CThe%20ERP%20Revolution%3A%20Surviving%20Vs.%20Thriving%2C%5C%E2%80%9D%20Information%20Systems%20Frontiers%20%282%3A2%29%2C%20pp%20233%E2%80%93241.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A26%20PM)). Anecdotal commentary suggests that using an enterprise system is a complex phenomenon that impacts the organization in a multitude of ways. Academic studies have characterized the impact of ES in organizations demonstrating that organizations take time to train, learn and adopt the system. This process happens over long periods ([Kamhawi and Gunasekaran 2009](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1252_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3AKamhawi%2C%20E.M.%2C%20and%20Gunasekaran%2C%20A.%202009.%20%5C%E2%80%9CERP%20Systems%20Implementation%20Success%20Factors%3A%20IS%20and%20Non-IS%20Managers%E2%80%99%20Perceptions%2C%5C%E2%80%9D%20International%20Journal%20of%20Business%20Information%20Systems%20%284%3A6%29%2C%20pp%20688%E2%80%93704.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A07%20PM)). The journey with the enterprise systems for the organization with initially steep learning curves ([Botta-Genoulaz and Millet 2005](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1228_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3ABotta-Genoulaz%2C%20V.%2C%20and%20Millet%2C%20P.-A.%202005.%20%5C%E2%80%9CA%20Classification%20for%20Better%20Use%20of%20ERP%20Systems%2C%5C%E2%80%9D%20Computers%20in%20Industry%20%2856%3A6%29%2C%20pp%20573%E2%80%93587.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A11%3A49%20PM); [Mandal and Gunasekaran 2003](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1269_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3AMandal%2C%20P.%2C%20and%20Gunasekaran%2C%20A.%202003.%20%5C%E2%80%9CIssues%20in%20Implementing%20ERP%3A%20A%20Case%20Study%2C%5C%E2%80%9D%20European%20Journal%20of%20Operational%20Research%20%28146%3A2%29%2C%20pp%20274%E2%80%93283.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A20%20PM)) when they first encounter the system and gradually master the use of it ([McAfee 2006](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1271_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3AMcAfee%2C%20A.%202006.%20%5C%E2%80%9CMastering%20the%20Three%20Worlds%20of%20Information%20Technology%2C%5C%E2%80%9D%20Harvard%20Business%20Review%29%2C%20November%2C%20pp%20141%E2%80%93148.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A20%20PM); [Sun 2012](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1291_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3ASun%2C%20H.%202012.%20%5C%E2%80%9CUnderstanding%20User%20Revisions%20When%20Using%20Information%20System%20Features%3A%20Adaptive%20System%20Use%20and%20Triggers%2C%5C%E2%80%9D%20MIS%20Quarterly%20%2836%3A2%29%2C%20pp%20453%E2%80%93478.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A37%20PM)) has been characterized using two life cycle phases. Transiting from the early phase of the ES life cycle to a phase of maturity, namely, from the shakedown to the onward and upward phase ([Markus and Tanis 2000](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1270_FILE150310943P3018%22%20%5Co%20%22%28ManLink%29%3AMarkus%2C%20L.%2C%20and%20Tanis%2C%20C.%202000.%20%5C%E2%80%9CThe%20Enterprise%20Systems%20Experience%20%E2%80%93%20from%20Adoption%20to%20Success%2C%5C%E2%80%9D%20in%3A%20Framing%20the%20Domains%20of%20IT%20Management%3A%20Projecting%20the%20Future%20through%20the%20Past%2C%20R.W.%20Zmud%20%28ed.%29.%20Cincinnati%2C%20OH%3A%20Pinnaflex%20Educational%20Resources%2C%20Inc%2C%20pp.%C2%A0173%E2%80%93207.%20UserName%20-%20DateTime%3A%20vge-4/5/2017%2012%3A09%3A07%20PM)), users seem to follow the general characteristics identified in learning theories ([Cotteleer and Bendoly 2006](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1236_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3ACotteleer%2C%20M.J.%2C%20and%20Bendoly%2C%20E.%202006.%20%5C%E2%80%9COrder%20Lead-Time%20Improvement%20Following%20Enterprise%20Information%20Technology%20Implementation%3A%20An%20Empirical%20Study%2C%5C%E2%80%9D%20MIS%20Quarterly%29%2C%20pp%20643%E2%80%93660.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A11%3A55%20PM); [Ranganathan and Brown 2006](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1279_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3ARanganathan%2C%20C.%2C%20and%20Brown%2C%20C.V.%202006.%20%5C%E2%80%9CERP%20Investments%20and%20the%20Market%20Value%20of%20Firms%3A%20Toward%20an%20Understanding%20of%20Influential%20ERP%20Project%20Variables%2C%5C%E2%80%9D%20Information%20Systems%20Research%20%2817%3A2%29%2C%20pp%20145%E2%80%93161.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A25%20PM)) by gaining competence over time ([Sedera and Dey 2013](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1285_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3ASedera%2C%20D.%2C%20and%20Dey%2C%20S.%202013.%20%5C%E2%80%9CUser%20Expertise%20in%20Contemporary%20Information%20Systems%3A%20Conceptualization%2C%20Measurement%20and%20Application%2C%5C%E2%80%9D%20Information%20%26%20Management%20%2850%3A8%29%2C%20pp%20621%E2%80%93637.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A31%20PM)).

Many argue that the turbulence in the shakedown phase inhibits innovations and that the onward and upward phase is the best time for organizations to seek innovations. As such, the ‘mature’ organization seeks to ignite innovative actions through initiatives like ES business process improvements ([Davenport 2013](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1239_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3ADavenport%2C%20T.H.%202013.%20Process%20Innovation%3A%20Reengineering%20Work%20through%20Information%20Technology.%20Harvard%20Business%20Press.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A11%3A56%20PM); [Srivardhana and Pawlowski 2007](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1290_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3ASrivardhana%2C%20T.%2C%20and%20Pawlowski%2C%20S.D.%202007.%20%5C%E2%80%9CERP%20Systems%20as%20an%20Enabler%20of%20Sustained%20Business%20Process%20Innovation%3A%20A%20Knowledge-Based%20View%2C%5C%E2%80%9D%20The%20Journal%20of%20Strategic%20Information%20Systems%20%2816%3A1%29%2C%20pp%2051%E2%80%9369.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A36%20PM)) and ES upgrades ([Chua and Khoo 2011](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1235_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3AChua%2C%20C.E.H.%2C%20and%20Khoo%2C%20H.M.%202011.%20%5C%E2%80%9CHow%20Organizations%20Motivate%20Users%20to%20Participate%20in%20Support%20Upgrades%20of%20Customized%20Packaged%20Software%2C%5C%E2%80%9D%20Information%20%26%20Management%20%2848%3A8%29%2C%20pp%20328%E2%80%93335.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A11%3A55%20PM)). Maturity is a relative term and should not be used as a yardstick to compare organizations. The interpretations of the maturity or the stability of the enterprise system can range from ‘a time for continuous improvements,’ ‘time waiting for the next upgrade’ and ‘leave it alone forever.’

While there is evidence that such activities like business process improvement initiatives and software upgrades would add value to an organization, many organizations seem to struggle to focus on innovation activities due to continuing disturbances of the software upgrades. For organizations to innovate using enterprise systems and digital technologies, it is best that a state where the inconsistencies are minimum is treated as the state of maturity. Then, instead of perfecting the enterprise system through upgrades and business process initiatives, the organization can start using the digital technologies to innovate. Such an approach will enable an organization to increases its emphasis on innovation through favorable characteristics of digital technologies, rather than perfecting the enterprise system.

Figure 18.2 is derived to create a better understanding of the relationship between the two ES life cycle phases and the levels of innovation. Organizations in the top left quadrant, which are attempting to innovate with enterprise systems at the shakedown phase, will have the highest risks. Researchers alluded to the ‘dip in performance’ as an ES shock ([Ross and Vitale 2000](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1280_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3ARoss%2C%20J.W.%2C%20and%20Vitale%2C%20M.R.%202000.%20%5C%E2%80%9CThe%20ERP%20Revolution%3A%20Surviving%20Vs.%20Thriving%2C%5C%E2%80%9D%20Information%20Systems%20Frontiers%20%282%3A2%29%2C%20pp%20233%E2%80%93241.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A26%20PM)), which indicates characteristics of radical innovations to the organization ([Kraemmerand et al. 2003](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1258_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3AKraemmerand%2C%20P.%2C%20M%C3%B8ller%2C%20C.%2C%20and%20Boer%2C%20H.%202003.%20%5C%E2%80%9CERP%20Implementation%3A%20An%20Integrated%20Process%20of%20Radical%20Change%20and%20Continuous%20Learning%2C%5C%E2%80%9D%20Production%20Planning%20%26%20Control%20%2814%3A4%29%2C%20pp%20338%E2%80%93348.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A12%20PM)). As such it denotes high risk to the organization. The lower left quadrant demonstrates the continuing innovation attempts at the shakedown phase. Such activities at the shakedown phase will be ambitious and are likely to provide less return on investment. The top right quadrant demonstrates the most favorable scenario, where the rate of innovation is high and the organization is at the onward and upward phase of the life cycle. It is again reminded that the ‘maturity’ is a relative notion, and once an organization reaches a balanced state, then one should refrain from meddling with the enterprise system. The likelihood that an organization uses digital technologies for innovation together with the mature enterprise system in this quadrant is high. The lower right quadrant highlights an organization with a stable enterprise system, but with low level of innovations. Such organizations miss out on the potential of their enterprise system’s stability. These organizations miss out on the potential opportunities to innovate. Perhaps, such organizations should restrict their continuing investments to enterprise systems and focus more on digital technologies.

<Insert [Figure 18.2](#_S22_FgC_figure___18__2) Here>

Figure 18.2 Maturity and innovation

Recognize ES as a platform

Enterprise systems provide a substantial amount of software features and functions to the organization. The historic discussion of enterprise systems are providing ‘best practice’ features and functions is a common factor that organizations considered when adopting enterprise systems. There is recent evidence of organizations treating the enterprise system as a platform emerging from the anecdotal commentary. Treating the enterprise system as a technology platform is another way that an organization can facilitate innovations. Such conceptualization will enable organizations to use its base for other applications, processes or technologies to be developed. The enterprise system as a platform has received traction due to its widespread adoption and the emergence of open technology architectures such as the NetWeaver platform interface by SAP ([Gawer and Cusumano 2012](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1246_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3AGawer%2C%20A.%2C%20and%20Cusumano%2C%20M.A.%202012.%20%5C%E2%80%9CHow%20Companies%20Become%20Platform%20Leaders%2C%5C%E2%80%9D%20MIT%20Sloan%20Management%20Review%20%2849%3A2%29%2C%20pp%2028%E2%80%9335.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A01%20PM)). An enterprise system is considered a technology platform that allows technologies to be integrated ([Tilson et al. 2010](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1296_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3ATilson%2C%20D.%2C%20Lyytinen%2C%20K.%2C%20and%20S%C3%B8rensen%2C%20C.%202010.%20%5C%E2%80%9CResearch%20Commentary-Digital%20Infrastructures%3A%20The%20Missing%20IS%20Research%20Agenda%2C%5C%E2%80%9D%20Information%20Systems%20Research%20%2821%3A4%29%2C%20pp%20748%E2%80%93759.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A38%20PM)). Considering the fundamentals of a platform, [Gawer (2009](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1245_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3AGawer%2C%20A.%202009.%20Platforms%2C%20Markets%2C%20and%20Innovation.%20Gloucestershire%2C%20UK%3A%20Edward%20Elgar%20Publishing.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A00%20PM)) recognizes the ability of the ES to acts as a building block, allowing other complementary technologies to be integrated ([Lokuge et al. 2016](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1268_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3ALokuge%2C%20S.%2C%20Sedera%2C%20D.%2C%20and%20Grover%2C%20V.%202016.%20%5C%E2%80%9CThinking%20inside%20the%20Box%3A%20Five%20Organizational%20Strategies%20Enabled%20through%20Information%20Systems%2C%5C%E2%80%9D%20Pacific%20Asia%20Conference%20on%20Information%20Systems%20%28PACIS%202016%29%2C%20Chiyai%2C%20Taiwan%3A%20AIS.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A19%20PM); [Sedera et al. 2016](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1287_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3ASedera%2C%20D.%2C%20Lokuge%2C%20S.%2C%20Grover%2C%20V.%2C%20Sarker%2C%20S.%2C%20and%20Sarker%2C%20S.%202016.%20%5C%E2%80%9CInnovating%20with%20Enterprise%20Systems%20and%20Digital%20Platforms%3A%20A%20Contingent%20Resource-Based%20Theory%20View%2C%5C%E2%80%9D%20Information%20%26%20Management%20%2853%3A3%29%2C%20pp%20366%E2%80%93379.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A33%20PM)).

Figure 18.3 provides four views of how organizations can position their innovations against the focus of the software: functional or platform. Commencing from the left panels, the traditional view of an enterprise system emphasizes innovation by adding new features and functionalities. Such an approach is limited, in that an organization attempting innovations by adding software features and functions will have a strong dependence on the enterprise system vendor. This would typically mean that a high rate of innovation would be a costly exercise for the organization. When considering the enterprise system as a platform, the opportunities presented to integrate digital technologies provide an opportunistic environment. However, anecdotal commentary suggests that, even though organizations have the ability to integrate their ES technology platform with digital technologies, they are reluctant to initiate due to risk aversion.

<Insert [Figure 18.3](#_S22_FgC_figure___18__3) Here>

Figure 18.3 Software focus and innovation

Reduce the vendor-led innovations

When ES were first implemented, there was much focus on maintaining ‘vanilla’ implementations. In a vanilla implementation, the organization adheres to the way espoused by the software vendor and made it easier for an organization to manage the enterprise system implementation and its subsequent upgrades. A vanilla implementation makes the organization forgo any software customizations to facilitate unique requirements of the organization. Following this approach led to high vendor dependence in traditional ES using organizations. As such, the traditional incumbents of enterprise systems developed a strong reliance on their software vendor and the implementation partner for innovations. However, over time, organizations have learnt much about the enterprise systems about its implementation and management. Moreover, the ES vendors also have improved the software architectures by making them more flexible and open.

These flexible and open architectures of enterprise systems now allow digital technologies to be connected with ES easily. Moreover, most of the digital technologies are innately vendor agnostic. The digital technologies use common software and data protocols. That means a service of a particular digital technology vendor can be obtained through most other service providers. Moreover, such characteristics like ease of use, ease of learning and the consumerization of IT have led to the creation of a growing network of contributors associated with digital technologies. As such, there are many third-party digital technology–based software applications that are developed to work with ES. The digital technology vendor agnosticism and dynamic contributor network make the scale and speed of innovation much faster compared to that of the ES.

Figure 18.4 provides a conceptual view of the rate of innovation against the continuum of vendor agnosticism. Historically, most organizations prefer the ‘vendor-led’ innovation approach for their ES initiatives. As such, the enterprise system becomes highly vendor specific. The rate of innovations coming from vendors through software upgrades and optional enhancements is restrained (top left corner). Digital technologies, on the other hand, will enable organizations to become vendor agnostic. This allows the organization to engage with a plethora of vendors beyond the enterprise system vendor for innovations. As such, this will provide opportunities for the organization to develop an aggressive innovation approach.

<Insert [Figure 18.4](#_S22_FgC_figure___18__4) Here>

Figure 18.4 Vendor agnosticism and innovation

Decentralized decision-making process

The traditional management structure of enterprise systems tends to be hierarchically top-down, managed by a central entity. Such a management structure was necessary for the organizations to maintain a ‘single instance’ enterprise system in the organization. However, the centralized decision making in enterprise systems management approach made it nearly impossible to accommodate any changes. Scholars argue that a centralized enterprise systems management approach enabled organizations to increase the emphasis of these mandated systems ([Sheu et al. 2004](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1289_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3ASheu%2C%20C.%2C%20Chae%2C%20B.%2C%20and%20Yang%2C%20C.-L.%202004.%20%5C%E2%80%9CNational%20Differences%20and%20ERP%20Implementation%3A%20Issues%20and%20Challenges%2C%5C%E2%80%9D%20Omega%20%2832%3A5%29%2C%20pp%20361%E2%80%93371.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A34%20PM)). Moreover, the value-proposition with ES at the beginning of its adoption remained high with high risk of failure. As such, the centralized approach was suitable for organizations.

However, the centralized management approach introduces several substantial barriers to innovation. First, the tight control of the centralized approach introduces local inefficiencies. Centralization can lead to significant delays in decisions that impact executions through ES. For local managers with limited authority, the rapid response time to hyper-competitive market challenges can be a problem. Highly centralized ES initiatives may require local managers to contact remote centralized hosting services in certain situations. Second, poor creativity in relation to ES will emerge as a major issue associated with centralization. An overly top-down organizational approach naturally prohibits creative thinking and innovative ideas from line-of-business levels. On the other hand, a decentralized approach often promotes new product and service ideas conceived by regular employees and conveyed through their managers to the top. When there is a major distance in involvement between centralized leaders and line-of-business employees, there is little motivation for employees to ponder innovations, let alone communicate them internally.

Figure 18.5 demonstrates the scope of innovation for centralized and decentralized management structures. In the centralized management approach, which is typical in most organizations with ES, the organization requires a high level of coordination in order to attain a high rate of innovations. On the other hand, if the organization has a centralized management approach and the rate of innovation is low, then it would seem plausible that the organization is only concerned about the predetermined innovations. Such innovations may not withstand the sudden changes in the market, environment and circumstances. A decentralized management approach is best suitable for a portfolio of ES and digital technologies. A decentralized approach will enable the organization to include wider participation from a range of participants, from line-of-business to senior managers. Their participation will be informed by the accessibility of digital technologies, knowledge of digital technology gained through common channels and experience with the ES. If such attempts do not lead to a high rate of innovation, then the organization needs to re-think about its innovation and management approach.

<Insert [Figure 18.5](#_S22_FgC_figure___18__5) Here>

Figure 18.5 Software management approach and innovation

Final remarks

Enterprise systems are among the most prominent technologies in the 21st century. The advent and proliferation of ES since the late 1990s have changed the entire premise of the corporate IT landscape. Enterprise systems purport to have introduced best practices, integration and process standardization. Overall, there is ample evidence to suggest that the advent of ES provided organizations with new innovation possibilities. However, the role of ES is changing, especially in the past several years. The advent of digital technologies provides the organization with a two-speed IT portfolio to innovate. For organizations to continuously innovate using this two-speed IT portfolio, the changing role of the enterprise system must be well understood. This chapter attempts to contribute to the discussion of the changing role of the enterprise system. It provided four scenarios where ES can work effectively with digital technologies to increase the rate of innovation. For information systems research, the two-speed IT portfolio provides challenges and opportunities. It is the first time that corporate IT is presented with diversity of systems with a plethora of capabilities. The traditional organization will find it challenging to manage and excel with a two-speed IT portfolio by adhering to its traditional strategies. Empirical advice on the changes in the two-speed IT portfolio is scant. Scholars may employ theories like resource-based views ([Barney 2001](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1225_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3ABarney%2C%20J.B.%202001.%20%5C%E2%80%9CIs%20the%20Resource-Based%20%5C%E2%80%9CView%5C%E2%80%9D%20a%20Useful%20Perspective%20for%20Strategic%20Management%20Research? Yes,\” Academy of Management Review (26:1), pp 41–56. UserName - DateTime: sii-4/4/2017 6:11:46 PM)), ambidexterity ([Gibson and Birkinshaw 2004](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1247_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3AGibson%2C%20C.B.%2C%20and%20Birkinshaw%2C%20J.%202004.%20%5C%E2%80%9CThe%20Antecedents%2C%20Consequences%2C%20and%20Mediating%20Role%20of%20Organizational%20Ambidexterity%2C%5C%E2%80%9D%20Academy%20of%20Management%20Journal%20%2847%3A2%29%2C%20pp%20209%E2%80%93226.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A02%20PM)) or the theory for organizational readiness for change ([Weiner 2009](15031-0943-FullBook.docx%22%20%5Cl%20%22Ref_1300_FILE150310943P3018%22%20%5Co%20%22%28AutoLink%29%3AWeiner%2C%20B.J.%202009.%20%5C%E2%80%9CA%20Theory%20of%20Organizational%20Readiness%20for%20Change%2C%5C%E2%80%9D%20Implementation%20Science%20%284%3A1%29%2C%20pp%2067%E2%80%9376.%20UserName%20-%20DateTime%3A%20sii-4/4/2017%206%3A12%3A42%20PM)) to explore evidence-based theoretical sound ways to understand how to best employ the two-speed IT portfolio for innovations.

Note

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1. For further details on two-speed IT, refer to Avedillo, J. G., Begonha, D., & Peyracchia, A. (2015). *Two Ways to Modernize IT Systems for the Digital Era*. Insights & Publications. Retrieved from www.mckinsey.com/insights/business\_technology/two\_ways\_to\_modernize\_it\_systems\_for\_the\_digital\_era. [↑](#endnote-ref-1)
2. [↑](#endnote-ref-2)