Annex 1.

Here in **Table 1** we present the main results of our SLR concerning RQ1 (“*What are the complexity issues in FIS?*”). **Table 1** consists of six columns, five of which present the complexity issues found in the abstracts of the secondary set of papers. They are the following:

* (1) computational complexity (CC) (i.e., the huge number of calculations in all FIS components; algorithm complexity);
* (2) complexity of fuzzy rules (CFR) (i.e., extraction, modification and optimization of fuzzy rules);
* (3) complexity of MF (CMF) (i.e., MF development, optimization, simplification; partitioning; FOU definition; fuzzy numbers);
* (4) data complexity (DC) (i.e., a large number of input variables, incomplete data); and
* (5) complexity of knowledge representation (CKR) (i.e., development of MF and RB issues).

**Table 1** The initially collected data – Complexity issues in FIS found in the abstracts of the secondary set of papers (1 – mentioned, 0 – not mentioned)

| **References** | **Year** | **(1)** | **(2)** | **(3)** | **(4)** | **(5)** |
| --- | --- | --- | --- | --- | --- | --- |
| [(Ruiz-Garcia, et al., 2019)](#Rui19), [(Lee, 2019)](#Lee), [(Melin, et al., 2019)](#Mel19) | 2019 | 1 | 0 | 0 | 0 | 0 |
| [(Fan, et al., 2019)](#Fan19) | 0 | 0 | 1 | 0 | 0 |
| [(Marimuthu, et al., 2019)](#Mar19) | 1 | 1 | 0 | 0 | 0 |
| [(Rajeswari and Deisy, 2019)](#Raj19) | 0 | 1 | 1 | 0 | 1 |
| [(Elkano, et al., 2018)](#Elk18) | 2018 | 0 | 0 | 1 | 0 | 0 |
| [(Altilio, et al., 2018)](#Alt18), [(Ravi and Khare, 2018)](#Rav18) | 0 | 1 | 1 | 0 | 0 |
| [(Golestaneh, et al., 2018)](#Gol18) | 1 | 1 | 0 | 0 | 0 |
| [(Zhu, et al., 2018)](#Zhu17) | 1 | 0 | 0 | 0 | 0 |
| [(Askari, 2017)](#Ask17) | 2017 | 0 | 1 | 1 | 0 | 0 |
| [(Ge, et al., 2017)](#GeX17) | 0 | 0 | 0 | 1 | 0 |
| [(Dineva, et al., 2017)](#Din) | 0 | 1 | 1 | 1 | 1 |
| [(Ananthi, et al., 2016)](#Ana16), [(Chen, et al., 2016)](#Che16), [(Ren, et al., 2016)](#Ren16) | 2016 | 1 | 0 | 0 | 0 | 0 |
| [(Antonelli, et al., 2016)](#Ant16) | 0 | 0 | 0 | 1 | 0 |
| [(Tan, et al., 2016)](#Tan16), [(Harandi and Derhami, 2016)](#Har16) | 0 | 1 | 0 | 0 | 0 |
| [(Almasi and Rouhani, 2016)](#Alm16) | 0 | 0 | 1 | 0 | 0 |
| [(Ibarra, et al., 2015)](#Iba15), [(Kaur, et al., 2015)](#Kau15) | 2015 | 0 | 0 | 1 | 0 | 0 |
| [(Shill, et al., 2015)](#Shi15) | 0 | 1 | 0 | 0 | 0 |
| [(Kumbasar and Hagras, 2015)](#Kum15) | 1 | 0 | 0 | 0 | 0 |
| [(Deng and Yao, 2014)](#Den14) | 2014 | 0 | 0 | 1 | 0 | 0 |
| [(Bouchachia and Vanaret, 2014)](#Bou14) | 0 | 1 | 0 | 0 | 0 |
| [(Sami, et al., 2014)](#Sam14) | 0 | 1 | 1 | 0 | 1 |
| [(GaneshKumar, et al., 2014)](#Gan14) | 0 | 1 | 0 | 0 | 0 |
| [(Chaudhuri, 2014)](#Cha14) | 0 | 0 | 0 | 1 | 0 |
| [(Ramathilaga, et al., 2014)](#Ram14) | 1 | 0 | 0 | 0 | 0 |
| [(Zhu, et al., 2013)](#Zhu13) | 2013 | 1 | 0 | 0 | 0 | 0 |
| [(Soua, et al., 2013)](#Sou13) | 0 | 1 | 0 | 0 | 0 |
| [(Pratama, et al., 2013)](#Pra13) | 0 | 1 | 1 | 0 | 0 |
| [(Chakraborty, et al., 2013)](#Cha13) | 1 | 1 | 0 | 0 | 0 |
| [(Alaei, et al., 2013)](#Ala13) | 0 | 0 | 1 | 0 | 0 |
| [(Samantaray, 2013)](#Sam13), [(Kumar, et al., 2013)](#Kum13), [(Ansari, et al., 2013)](#Ans13) | 0 | 1 | 0 | 0 | 0 |
| [(Lou and Dong, 2012)](#Lou12) | 2012 | 1 | 0 | 0 | 0 | 1 |
| [(Sanz, et al., 2012)](#San12) | 0 | 0 | 0 | 1 | 0 |
| [(Murshid, et al., 2012)](#Mur12) | 1 | 0 | 0 | 0 | 0 |
| [(Chiu, et al., 2012)](#Chi12) | 0 | 1 | 0 | 0 | 0 |
| [(Antonelli, et al., 2011a)](#Ant11) | 2011 | 0 | 0 | 1 | 0 | 0 |
| [(Antonelli, et al., 2011)](#Ant111) | 0 | 1 | 1 | 0 | 0 |
| [(Tamir and Kandel, 2011)](#Tam11) | 0 | 0 | 1 | 0 | 0 |
| [(Shill, et al., 2011)](#Shi11) | 0 | 0 | 0 | 1 | 0 |
| [(Al-Mamun and Zhu, 2010)](#AlM10) | 2010 | 0 | 0 | 1 | 0 | 1 |
| [(Rania and Deepa, 2010)](#Ran10), [(Antonelli, et al., 2010)](#Ant10), [(Beldjehem, 2010)](#Bel10) | 0 | 1 | 1 | 0 | 0 |
| [(Kim, et al., 2010)](#Kim10) | 0 | 1 | 0 | 0 | 0 |
| [(Fateh, 2010)](#Fat10) | 0 | 0 | 1 | 0 | 0 |
| [(Leng, et al., 2009)](#Len09) | 2009 | 0 | 1 | 0 | 0 | 0 |
| [(Choi and Rhee, 2009)](#Cho09), [(Starczewski, 2009)](#Sta09), [(Lee and Pan, 2009)](#Lee09) | 1 | 0 | 0 | 0 | 0 |
| [(Huang and Shen, 2008)](#Hua08) | 2008 | 0 | 1 | 0 | 0 | 0 |
| [(Nie and Tan, 2008)](#Nie08) | 1 | 0 | 0 | 0 | 0 |
| [(Feng and Wong, 2008)](#Fen08) | 0 | 1 | 0 | 0 | 0 |
| [(Modi, et al., 2007)](#Mod07) | 2007 | 1 | 0 | 0 | 0 | 0 |
| [(Liu, et al., 2007)](#Liu07) | 0 | 1 | 0 | 0 | 0 |
| [(Kenesei, et al., 2007)](#Ken07) | 0 | 1 | 0 | 0 | 0 |
| [(González, et al., 2007)](#Gon07) | 0 | 1 | 0 | 0 | 0 |
| [(Pan, et al., 2007)](#Pan07) | 1 | 0 | 0 | 0 | 0 |
| [(Xiong and Funk, 2006)](#Xio06), [(Kim, et al., 2006)](#Kim06), [(Zanganeh, et al., 2006)](#Zan06) | 2006 | 0 | 1 | 0 | 0 | 0 |
| [(Huang and Shen, 2006)](#Hua06) | 0 | 1 | 0 | 0 | 0 |
| [(Casillas, et al., 2005)](#Cas05), [(Kim and Ryu, 2005)](#Kim05) | 2005 | 0 | 1 | 0 | 0 | 0 |
| [(Kóczy and Botzheim, 2005)](#Kóc05) | 1 | 1 | 0 | 0 | 0 |
| [(Baranyi, et al., 2004)](#Bar04), [(Kim and Ryu, 2004)](#Kim04) | 2004 | 0 | 1 | 0 | 0 | 0 |
| [(Hong, et al., 2003)](#Hon03), [(Hsu and Szu, 2003)](#Hsu03) | 2003 | 1 | 0 | 0 | 0 | 0 |
| [(Makrehchi, et al., 2003)](#Mak03) | 0 | 0 | 0 | 0 | 1 |
| [(Xiong and Litz, 2002)](#Xio02) | 2002 | 0 | 1 | 0 | 0 | 0 |
| [(Xiong, 2001)](#Xio01), [(Di, et al., 2001)](#DiL01) | 2001 | 0 | 1 | 0 | 0 | 1 |
| [(Mitaim and Kosko, 2001)](#Mit01) | 1 | 1 | 0 | 0 | 1 |
| [(Guillaume, 2001)](#Gui01) | 0 | 1 | 0 | 0 | 0 |
| [(Matarazzo and Munda, 2001)](#Mat01) | 0 | 0 | 1 | 0 | 1 |
| [(Alcalá, et al., 2001)](#Alc01) | 0 | 0 | 0 | 0 | 0 |
| [(Yao, et al., 2000)](#Yao00) | 2000 | 1 | 0 | 0 | 0 | 0 |
| [(Hsu and Chen, 2000)](#Hsu00) | 0 | 1 | 0 | 0 | 1 |
| [(Rojas, et al., 2000)](#Roj00) | 0 | 1 | 0 | 0 | 0 |
| [(Gil and Hwang, 2000)](#Gil00) | 1 | 1 | 0 | 0 | 1 |
| [(Hong and Chen, 1999)](#Hon99) | 1999 | 0 | 1 | 0 | 1 | 0 |
| [(Lu, 1998)](#LuP98) | 1998 | 0 | 1 | 0 | 0 | 0 |
| [(Giachetti and Young, 1997)](#Gia97) | 1997 | 1 | 0 | 0 | 0 | 0 |
| [(Marinelli, et al., 1997)](#Mar97) | 1 | 1 | 0 | 0 | 0 |
| [(Kóczy and Sugeno, 1996)](#Kóc96) | 1996 | 1 | 0 | 0 | 0 | 0 |
| [(Wang and Langari, 1996)](#Wan96), [(Castellano and Fanelli, 1996)](#Cas96) | 0 | 1 | 0 | 0 | 0 |
| [(Laukonen and Passino, 1995)](#Lau95), [(Takagi, et al., 1995)](#Tak95) | 1995 | 0 | 0 | 0 | 0 | 1 |
| [(Bridges, et al., 1995)](#Bri95) | 0 | 0 | 1 | 0 | 0 |
| [(Wang and Kim, 1995)](#Wan95) | 0 | 1 | 0 | 0 | 0 |
| [(Rhee and Krishnapuram, 1993)](#Rhe93) | 1993 | 0 | 1 | 0 | 0 | 0 |

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